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Tank 241-T-112, Cores 185 and 186 Analytical Results for the Final Report

Franciska H. Steen

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ANALYTICAL SERVICES

**TANK 241-T-112, CORES 185 AND 186
ANALYTICAL RESULTS FOR THE FINAL REPORT**

Project Coordinator: FRANCISKA H. STEEN

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

by

**222-S Laboratory
Rust Federal Services of Hanford Inc.
P.O. Box 700
Richland, Washington**

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NARRATIVE

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222-S ANALYTICAL SERVICES

TANK 241-T-112, CORES 185 AND 186,
ANALYTICAL RESULTS FOR THE FINAL REPORT

This document is the analytical laboratory report for tank 241-T-112 push mode core segments collected between February 26, 1997 and March 19, 1997. The segments were subsampled and analyzed in accordance with the *Tank 241-T-112 Push Mode Core Sampling and Analysis Plan* (TSAP) (Thompson, 1997) and the *Safety Screening Data Quality Objective* (DQO) (Dukelow, et al., 1995). The analytical results are included in the data summary table (Table 1).

None of the samples submitted for Differential Scanning Calorimetry (DSC) and Total Alpha Activity (AT) exceeded notification limits as stated in the TSAP (Thompson, 1997). The statistical results of the 95% confidence interval on the mean calculations are provided by the Tank Waste Remediation Systems Technical Basis Group in accordance with the Memorandum of Understanding (Schreiber, 1997) and are not considered in this report.

Appearance and Sample Handling

Attachment 1 is a cross reference to relate the tank farm identification numbers to the 222-S Laboratory LabCore/LIMS sample numbers. The subsamples generated in the laboratory for analyses are identified in these diagrams with their sources shown.

Core 185

Two push mode core segments were removed from tank 241-T-112 riser 2 on February 26, 1997 and February 27, 1997. Segments were received by the 222-S Laboratory on February 28, 1997. Table 2 summarizes the extrusion information.

Core 186

Two push mode core segments were removed from tank 241-T-112 riser 7 on March 18, 1997 and March 19, 1997. Segments were received by the 222-S Laboratory on March 25, 1997. The TSAP (Thompson, 1997) states the core samples should be transported to the laboratory within three calendar days from the time each segment is removed from the tank, this requirement was not met for the segments from core 186. Table 3 summarizes the extrusion information.

Field Blank

A field blank was provided to the 222-S laboratory with core 185. It underwent the same analysis as the drainable liquid as instructed by the TSAP (Thompson, 1997).

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Table 2. Sample Receipt and Extrusion Information for 241-T-112, Core 185.

Customer Id	Segment	Date Sampled	Date Received	Date Extruded	Inches Extruded*	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
97-46	1	2/26/97	2/28/97	3/11/97	0.0	324.2-Drainable	0.0	The liquid was yellow in color and clear. Collected 320 mL of liquid. No organic layer was observed.
97-47	2	2/27/97	2/28/97	3/11/97	10.0	97.5-Drainable	113.8-Upper half 100.8-Lower half	The solids were dark brown in color and resembled a sludge slurry. The liquid was dark brown and opaque. Collected 90 mL of liquid. No organic layer was observed.
Field Blank	FB	2/27/97	2/28/97	3/11/97	0.0	250.8-Drainable	0.0	The liquid was colorless and clear. Collected 280 mL of liquid. No organic layer was observed.

*Approximate Inches Extruded

Table 3. Sample Receipt and Extrusion Information for 241-T-112, Core 186.

Customer Id	Segment	Date Sampled	Date Received	Date Extruded	Inches Extruded*	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
97-48	1	3/18/97	3/25/97	3/31/97	0.0	0.0	0.0	Sampler empty.
97-49	2	3/19/97	3/25/97	3/31/97	14.0	0.0	144.8-Upper half 154.7-Lower half	The solids were dark brown in color and resembled a sludge slurry.

*Approximate Inches Extruded

Analytical Results Summary

The data summary report (Table 1) compiles the analytical results that satisfy all applicable DQOs.

Inorganic Analyses

Differential Scanning Calorimetry (DSC)

The DSC analyses were performed in duplicate on direct subsamples. The exothermic energy based on dry weight of subsample was calculated for all subsamples. The average of the TGA results for each subsample was used in the dry weight correction for that subsample.

None of the samples submitted for DSC analysis exceeded notification limits as stated in the Safety Screening DQO (Dukelow, et al., 1995). The standard recoveries and Relative Percent Difference (RPDs) for this analysis were within the required limits.

Thermogravimetric Analysis (TGA)

The TGA analyses were performed in duplicate on direct subsamples. The TGA results for tank 241-T-112 were determined by summing the weight loss steps which occurred below 250°C; weight loss steps above this were not used to determine the result.

The results for two of the seven subsamples were the sum of two or more weight loss steps. More information may be obtained by examining the raw data. The standard recoveries and RPDs for this analysis were within the required limits.

Density

Bulk density was performed on the solid subsamples as required by the TSAP (Thompson, 1997). The results of the bulk density test ranged from 1.22 g/mL to 1.39 g/mL. There were no quality control (QC) parameters stated in the TSAP for these samples.

Specific gravity analyses were performed on the liquid subsamples. The results are provided in Table 1. The standard recoveries and RPDs for this analysis were within the required limits.

HNF-SD-WM-DP-243, REV.0

Inductively Coupled Plasma Spectrophotometry (ICP)

The liquid subsamples were prepared for analysis by an acid adjustment of the direct subsample. This is indicated by a "D" in the aliquot class (A#) column in Table 1. Solid subsamples were prepared for analysis by performing fusion digest as indicated by an "F" in the A# column in Table 1.

Only the QC for Li were reviewed for this report. Other "opportunistic" analyte results are included in Table 1. These analytes do not have customer defined QC parameters and are not discussed. The standard recoveries, spike recoveries and RPDs for this analyses were within the required limits.

Ion Chromatography (IC)

The IC analyses were performed on direct subsamples of liquid samples as indicated by a blank in the A# column in Table 1. The solid subsamples were prepared for analysis by performing a water digest. This is indicated with a "W" in the A# column in Table 1.

Only the QC for Br were reviewed for this report. Other "opportunistic" analyte results are included in Table 1. These analytes do not have customer defined QC parameters and are not discussed. Bromide was detected in one of the seven subsamples submitted for analysis and was an indication of hydrostatic head fluid intrusion into the sample. The standard recoveries, spike recoveries and RPDs for this analyses were within the required limits.

Radionuclide Analyses

Total Alpha (AT)

The total alpha (AT) analyses were performed in duplicate on direct subsamples for the liquids as indicated by a blank in the A# column in Table 1. Solid subsamples were prepared for analysis by performing a fusion digest in duplicate. The fusion digest is indicated with an "F" in the aliquot class (A#) column in Table 1.

All liquid AT results were below the total alpha activity action limit of $61.5 \mu\text{Ci/mL}$. All solid AT results were below the total alpha activity limit of $41.0 \mu\text{Ci/g}$ as stated in the TSAP (Thompson, 1997).

High RPDs (>20%) were reported for three of the five subsamples submitted for analyses. The sample results were near the detection limit which decreased the precision of the analyses. The replicate analyses for the sample and duplicate indicated the high RPDs were also due to sample

HNF-SD-WM-DP-243, REV.0

inhomogeneity. No reruns were requested due to the low alpha activity in the samples. Spike recoveries outside of the required range (75% to 125%) were reported for one subsample, core 185 segment 2 lower half solids (S97T000380). The chemist noted the poor spike recovery was due to matrix interference (solids on the sample mount). A reanalysis was performed with no improvement in the spike recovery. The standard recoveries for this analysis were within the required limits.

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Procedures

Table 4 lists the analytical procedures used for performing the sample analyses. Abbreviations for analyses are defined in the table notes.

Table 4. Analytical Procedures			
Analysis	Sample Portion	Preparation Procedure +	Analysis Procedure
DSC	Solid/Liquid	N/A	LA-514-114 Rev. D-1 LA-514-113 Rev. C-1
TGA	Solid/Liquid	N/A	LA-514-114 Rev. D-0 LA-560-112 Rev. C-0
Bulk Density	Solid	N/A	LO-160-103 Rev. B-0
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-505-159 Rev. D-0 LA-549-141 Rev. F-0 N/A	LA-505-151 Rev. D-3 LA-505-161 Rev. B-1
AT	Solid Liquid	LA-549-101 Rev. F-0 N/A	LA-508-101 Rev. E-1

Abbreviations:

N/A = not applicable (these are direct samples)

DSC = differential scanning calorimetry

TGA = thermogravimetric analysis

Sp.G. = specific gravity

% Water = percent water by gravimetric analysis

IC = ion chromatography

ICP = inductively coupled plasma

AT = total alpha

HNF-SD-WM-DP-243, REV.0

References

Thompson, R. R., 1997, *Tank 241-T-112 Push Mode Core Sampling and Analysis Plan*, WHC-SD-WM-TSAP-116, Rev. 0, Westinghouse Hanford Company, Richland, WA 99352.

Dukelow, G. T., J. W. Hunt, H. Babad, and J. E. Meacham, 1995, *Tank Safety Screening Data Quality Objective*, WHC-SD-WM-SP-004, Rev. 2, Westinghouse Hanford Company, Richland, WA 99352

Schreiber, R. D., 1997, *Fiscal Year 1997 Memorandum of Understanding for the TWRS Characterization Project*, HNF-SD-WM-SD-023, Rev. 0, Lockheed Martin Hanford Corporation, Richland, WA 99352

WIC
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ATTACHMENT 1

T-112 SAMPLE BREAKDOWN

HWF 10/10/10
~~WHC~~-SD-WM-DP-243, REV. 0

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T-112
Core:185
Seg: 1
S97T000271

Attachment 1

HNF-SD-WM-DP-243, REV. 0

T-112
Core:185
Seg: 2
S97T000272

Attachment 1

HNF-SD-WM-DP-243, REV. 0

T-112
Core:185
Seg: FB
S97T000367

Attachment 1

HNF-SD-WM-DP-243, REV. 0

Attachment 1

T-112
Core:186
Seg: 1
S97T000401

—

Sampler
Empty

T-112
Core:186
Seg: 2
S97T000402

Attachment 1

Upper
Half

S97T000433

Lower
Half

BULK DENSITY

S97T000434

DSC
TGA

S97T000435

ARCHIVE

S97T000449

DSC
TGA

S97T000436

ARCHIVE

S97T000450

FUSION
ICP

S97T000596

H2O
DIGEST
IC-ANIONS

S97T000594

FUSION
ICP
ALPHA

S97T000438

H2O
DIGEST
IC-ANIONS

S97T000595

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SAMPLE DATA SUMMARY

HNF 10/8/97
~~WHC~~-SD-WM-DP-243, REV. 0

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Table 1. Data Summary Report
T-112CORE NUMBER: 185
SEGMENT #: 1

SEGMENT PORTION: Drainable Liquid

Sample#	R	AF	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T000374			DSC Exotherm using Mettler	Joules/g	85.22	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000374			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	n/a
S97T000374			Specific Gravity	Sp.G.	98.39	n/a	1.109	1.101	1.105	0.72	n/a	1.00e-03	n/a	n/a
S97T000374			% Water by TGA using Mettler	%	99.98	n/a	85.13	85.16	85.14	0.04	n/a	n/a	n/a	n/a
S97T000374	D		Silver-ICP-Acid Dil.	ug/mL	96.60	<1.00e-02	4.430	4.240	4.335	4.38	n/a	2.010	n/a	n/a
S97T000374	D		Aluminium-ICP-Acid Dil.	ug/mL	97.00	<5.00e-02	< 10.10	<2.01e1	n/a	n/a	n/a	10.10	n/a	n/a
S97T000374	D		Arsenic-ICP-Acid Dil.	ug/mL	102.6	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a	n/a
S97T000374	D		Boron-ICP-Acid Dil.	ug/mL	100.0	<5.00e-02	< 10.10	<2.01e1	n/a	n/a	n/a	10.10	n/a	n/a
S97T000374	D		Barium-ICP-Acid Dil.	ug/mL	97.80	<5.00e-02	< 10.10	<2.01e1	n/a	n/a	n/a	10.10	n/a	n/a
S97T000374	D		Beryllium-ICP-Acid Dil.	ug/mL	101.2	<5.00e-03	< 10.10	<2.01e0	n/a	n/a	n/a	1.010	n/a	n/a
S97T000374	D		Bismuth-ICP-Acid Dil.	ug/mL	100.0	<1.00e-01	45.00	41.60	43.35	8.07	n/a	20.10	n/a	n/a
S97T000374	D		Calcium-ICP-Acid Dil.	ug/mL	97.80	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a	n/a
S97T000374	D		Cadmium-ICP-Acid Dil.	ug/mL	98.40	<5.00e-03	2.870	2.880	2.875	0.35	n/a	1.010	n/a	n/a
S97T000374	D		Cerium-ICP-Acid Dil.	ug/mL	97.00	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a	n/a
S97T000374	D		Cobalt-ICP-Acid Dil.	ug/mL	100.4	<5.00e-02	< 4.020	<4.02e0	n/a	n/a	n/a	4.020	n/a	n/a
S97T000374	D		Chromium-ICP-Acid Dil.	ug/mL	98.00	<1.00e-02	6.99e+02	684.0	691.5	2.17	n/a	2.010	n/a	n/a
S97T000374	D		Chromium-ICP-Acid Dil.	ug/mL	98.80	<1.00e-02	< 2.010	<2.01e0	n/a	n/a	n/a	2.010	n/a	n/a
S97T000374	D		Copper-ICP-Acid Dil.	ug/mL	92.40	<5.00e-02	< 10.10	<2.01e1	n/a	n/a	n/a	10.10	n/a	n/a
S97T000374	D		Iron-ICP-Acid Dil.	ug/mL	96.40	<5.00e-01	5.97e+02	599.0	598.0	0.33	n/a	100.0	n/a	n/a
S97T000374	D		Lanthanum-ICP-Acid Dil.	ug/mL	98.60	<5.00e-02	< 10.10	<2.01e1	n/a	n/a	n/a	10.10	n/a	n/a
S97T000374	D		Lithium-ICP-Acid Dil.	ug/mL	97.60	<1.00e-02	< 2.010	<2.01e0	n/a	n/a	n/a	2.010	n/a	n/a
S97T000374	D		Magnesium-ICP-Acid Dil.	ug/mL	99.20	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a	n/a
S97T000374	D		Manganese-ICP-Acid Dil.	ug/mL	96.40	<1.00e-02	< 2.010	<2.01e0	n/a	n/a	n/a	2.010	n/a	n/a
S97T000374	D		Molybdenum-ICP-Acid Dil.	ug/mL	99.80	<5.00e-02	41.70	41.70	41.70	0.00	n/a	10.10	n/a	n/a
S97T000374	D		Sodium-ICP-Acid Dil.	ug/mL	101.6	<1.00e-01	5.84e+04	5.68e+04	5.76e+04	2.78	n/a	20.10	n/a	n/a
S97T000374	D		Neodymium-ICP-Acid Dil.	ug/mL	98.20	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a	n/a
S97T000374	D		Nickel-ICP-Acid Dil.	ug/mL	97.80	<2.00e-02	23.90	22.60	23.25	5.59	n/a	4.020	n/a	n/a
S97T000374	D		Phosphorus-ICP-Acid Dil.	ug/mL	100.2	<2.00e-01	6.70e+02	651.0	660.5	2.88	n/a	40.20	n/a	n/a
S97T000374	D		Lead-ICP-Acid Dil.	ug/mL	95.60	<1.00e-01	45.30	48.40	46.85	6.62	n/a	20.10	n/a	n/a
S97T000374	D		Sulfur-ICP-Acid Dil.	ug/mL	98.60	<1.00e-01	3.10e+03	3.02e+03	3.06e+03	2.61	n/a	20.10	n/a	n/a
S97T000374	D		Antimony-ICP-Acid Dil.	ug/mL	95.80	<6.00e-02	< 12.10	<1.21e1	n/a	n/a	n/a	12.10	n/a	n/a
S97T000374	D		Selenium-ICP-Acid Dil.	ug/mL	94.20	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a	n/a
S97T000374	D		Silicon-ICP-Acid Dil.	ug/mL	96.40	<5.00e-02	< 10.10	<2.01e1	n/a	n/a	n/a	10.10	n/a	n/a
S97T000374	D		Samarium-ICP-Acid Dil.	ug/mL	96.60	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a	n/a
S97T000374	D		Strontium-ICP-Acid Dil.	ug/mL	98.00	<1.00e-02	< 2.010	<2.01e0	n/a	n/a	n/a	2.010	n/a	n/a
S97T000374	D		Titanium-ICP-Acid Dil.	ug/mL	96.80	<1.00e-02	< 2.010	<2.01e0	n/a	n/a	n/a	2.010	n/a	n/a
S97T000374	D		Thallium-ICP-Acid Dil.	ug/mL	94.40	<2.00e-01	< 40.20	<4.02e1	n/a	n/a	n/a	40.20	n/a	n/a
S97T000374	D		Uranium-ICP-Acid Dil.	ug/mL	94.90	<5.00e-01	9.45e+02	926.0	935.5	2.03	n/a	100.0	n/a	n/a
S97T000374	D		Vanadium-ICP-Acid Dil.	ug/mL	100.2	<5.00e-02	< 10.10	<2.01e1	n/a	n/a	n/a	10.10	n/a	n/a
S97T000374	D		Zinc-ICP-Acid Dil.	ug/mL	95.20	<1.00e-02	4.090	3.950	4.020	3.48	n/a	2.010	n/a	n/a
S97T000374	D		Zirconium-ICP-Acid Dil.	ug/mL	97.80	<1.00e-02	7.620	7.510	7.565	1.45	n/a	2.010	n/a	n/a
S97T000374			Fluoride-IC-Dionex 4000/4500	ug/mL	102.0	<1.20e-02	4.24e+02	410.0	416.9	3.36	n/a	25.45	n/a	n/a
S97T000374			Chloride-IC-Dionex 4000/4500	ug/mL	108.6	<1.70e-02	4.89e+02	521.0	505.1	6.34	n/a	36.06	n/a	n/a
S97T000374			Nitrite-IC - Dionex 4000/4500	ug/mL	106.4	<1.08e-01	4.05e+04	4.10e+04	4.07e+04	1.23	n/a	229.1	n/a	n/a

HNF-SD-WM-DP-243, REV. 0

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T000374			Bromide by Ion Chromatograph	ug/mL	104.1	<1.25e-01	<2.65e+02	<2.65e2	n/a	n/a	n/a	265.1	n/a
S97T000374			Nitrate by IC-Dionex 4000/4500	ug/mL	107.1	<1.39e-01	2.38e+04	2.38e+04	2.38e+04	0.00	n/a	294.8	n/a
S97T000374			Phosphate-IC-Dionex 4000/4500	ug/mL	107.5	<1.20e-01	1.96e+03	1.93e+03	1.95e+03	1.54	n/a	254.5	n/a
S97T000374			Sulfate by IC-Dionex 4000/4500	ug/mL	105.4	<1.38e-01	9.50e+03	1.01e+04	9.80e+03	6.12	n/a	292.7	n/a
S97T000374			Oxalate-IC-Dionex 4000/450	ug/mL	110.7	<1.05e-01	1.41e+03	1.47e+03	1.44e+03	4.17	n/a	222.7	n/a
S97T000374			Alpha in Liquid Samples	uCi/mL	86.00	<1.22e-02	3.22e-02	1.96e-02	2.59e-02	48.6	78.77	1.60e-02	6.34E+01

HNF-SD-WM-DP-243, REV. 0

Table 1. Data Summary Report
 T-112

CORE NUMBER: 185
 SEGMENT #: 2

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	AF	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T000370			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	n/a
S97T000370			DSC Exotherm on Perkin Elmer	Joules/g	92.79	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000370			% Water by TGA using Mettler	%	99.68	n/a	78.67	77.81	78.24	1.10	n/a	n/a	n/a	n/a
S97T000591	F		Silver -ICP-Fusion	ug/g	100.2	<1.00e-02	<1.98e+02	<1.96e2	n/a	n/a	n/a	198.0	n/a	n/a
S97T000591	F		Aluminum -ICP-Fusion	ug/g	97.60	<5.00e-02	6.15e+03	6.91e+03	6.53e+03	11.6	n/a	992.0	n/a	n/a
S97T000591	F		Arsenic -ICP-Fusion	ug/g	100.6	<1.00e-01	<1.98e+03	<1.96e3	n/a	n/a	n/a	1.98e+03	n/a	n/a
S97T000591	F		Boron -ICP-Fusion	ug/g	100.4	<5.00e-02	<9.91e+02	<9.78e2	n/a	n/a	n/a	992.0	n/a	n/a
S97T000591	F		Barium -ICP-Fusion	ug/g	99.00	<5.00e-02	<9.91e+02	<9.78e2	n/a	n/a	n/a	992.0	n/a	n/a
S97T000591	F		Beryllium -ICP-Fusion	ug/g	100.8	<5.00e-03	<9.91e2	<9.78e1	n/a	n/a	n/a	99.20	n/a	n/a
S97T000591	F		Bismuth -ICP-Fusion	ug/g	100.2	<1.00e-01	2.76e+04	2.97e+04	2.86e+04	8.06	n/a	1.98e+03	n/a	n/a
S97T000591	F		Calcium -ICP-Fusion	ug/g	96.80	<1.00e-01	<1.98e+03	<1.96e3	n/a	n/a	n/a	1.98e+03	n/a	n/a
S97T000591	F		Cadmium -ICP-Fusion	ug/g	97.40	<5.00e-03	<9.91e2	<9.78e1	n/a	n/a	n/a	99.20	n/a	n/a
S97T000591	F		Cerium -ICP-Fusion	ug/g	96.60	<1.00e-01	<1.98e+03	<1.96e3	n/a	n/a	n/a	1.98e+03	n/a	n/a
S97T000591	F		Cobalt -ICP-Fusion	ug/g	98.20	<2.00e-02	<3.96e+02	<3.91e2	n/a	n/a	n/a	396.0	n/a	n/a
S97T000591	F		Chromium -ICP-Fusion	ug/g	94.80	<1.00e-02	1.93e+03	2.07e+03	2.00e+03	7.00	n/a	198.0	n/a	n/a
S97T000591	F		Copper -ICP-Fusion	ug/g	103.6	<1.00e-02	<1.98e+02	<1.96e2	n/a	n/a	n/a	198.0	n/a	n/a
S97T000591	F		Iron -ICP-Fusion	ug/g	97.40	<5.00e-02	1.32e+04	2.22e+04	1.77e+04	50.8	n/a	992.0	n/a	n/a
S97T000591	F		Lanthanum -ICP-Fusion	ug/g	99.20	<5.00e-02	4.88e+03	4.23e+03	4.56e+03	14.3	n/a	992.0	n/a	n/a
S97T000591	F		Lithium -ICP-Fusion	ug/g	98.80	<1.00e-02	<1.98e+02	<1.96e2	n/a	n/a	n/a	198.0	n/a	n/a
S97T000591	F		Magnesium -ICP-Fusion	ug/g	93.60	<1.00e-01	<1.98e+03	1.21e+04	n/a	n/a	n/a	1.98e+03	n/a	n/a
S97T000591	F		Manganese -ICP-Fusion	ug/g	97.60	<1.00e-02	4.61e+03	5.35e+03	4.98e+03	14.9	n/a	198.0	n/a	n/a
S97T000591	F		Molybdenum -ICP-Fusion	ug/g	97.80	<5.00e-02	<9.91e+02	<9.78e2	n/a	n/a	n/a	992.0	n/a	n/a
S97T000591	F		Sodium -ICP-Fusion	ug/g	102.0	2.05e-01	6.92e+04	6.76e+04	6.84e+04	2.34	n/a	1.98e+03	n/a	n/a
S97T000591	F		Neodymium -ICP-Fusion	ug/g	106.6	<1.00e-01	<1.98e+03	<1.96e3	n/a	n/a	n/a	1.98e+03	n/a	n/a
S97T000591	F		Phosphorus -ICP-Fusion	ug/g	99.00	<2.00e-01	4.13e+03	4.70e+03	4.42e+03	12.9	n/a	3.96e+03	n/a	n/a
S97T000591	F		Lead -ICP-Fusion	ug/g	95.80	<1.00e-01	<1.98e+03	<1.96e3	n/a	n/a	n/a	1.98e+03	n/a	n/a
S97T000591	F		Sulfur -ICP-Fusion	ug/g	95.00	<1.00e-01	3.18e+03	2.45e+03	2.82e+03	25.9	n/a	1.98e+03	n/a	n/a
S97T000591	F		Antimony -ICP-Fusion	ug/g	92.80	<6.00e-02	<1.91e+03	<1.17e3	n/a	n/a	n/a	1.19e+03	n/a	n/a
S97T000591	F		Silicon -ICP-Fusion	ug/g	97.20	<5.00e-02	6.98e+03	1.54e+04	1.12e+04	75.2	n/a	992.0	n/a	n/a
S97T000591	F		Samarium -ICP-Fusion	ug/g	101.4	<1.00e-01	<1.98e+03	<1.96e3	n/a	n/a	n/a	1.98e+03	n/a	n/a
S97T000591	F		Strontium -ICP-Fusion	ug/g	98.60	<1.00e-02	2.89e+02	342.0	315.5	16.8	n/a	198.0	n/a	n/a
S97T000591	F		Titanium -ICP-Fusion	ug/g	96.20	<1.00e-02	<1.98e+02	<1.96e2	n/a	n/a	n/a	198.0	n/a	n/a
S97T000591	F		Thallium -ICP-Fusion	ug/g	99.80	<2.00e-01	<3.96e+03	<3.91e3	n/a	n/a	n/a	3.96e+03	n/a	n/a
S97T000591	F		Uranium -ICP-Fusion	ug/g	97.30	<5.00e-01	<9.91e+03	<9.78e3	n/a	n/a	n/a	9.92e+03	n/a	n/a
S97T000591	F		Vanadium -ICP-Fusion	ug/g	99.60	<5.00e-02	<9.91e+02	<9.78e2	n/a	n/a	n/a	992.0	n/a	n/a
S97T000591	F		Zinc -ICP-Fusion	ug/g	99.80	<1.00e-02	<1.98e+02	402.0	n/a	n/a	n/a	198.0	n/a	n/a
S97T000591	F		Zirconium -ICP-Fusion	ug/g	97.40	<1.00e-02	<1.98e+02	<1.96e2	n/a	n/a	n/a	198.0	n/a	n/a
S97T000592	W		Fluoride-IC-Dionex 4000/4500	ug/g	101.9	<1.20e-02	3.73e+02	375.0	374.2	0.53	83.73	48.85	n/a	n/a
S97T000592	W		Chloride-IC-Dionex 4000/4500	ug/g	98.48	3.50e-02	3.97e+02	396.0	396.6	0.25	95.19	69.19	n/a	n/a
S97T000592	W		Nitrite-IC - Dionex 4000/4500	ug/g	102.4	<1.08e-01	2.41e+04	2.43e+04	2.42e+04	0.83	111.8	439.5	n/a	n/a
S97T000592	W		Bromide by Ion Chromatograph	ug/g	102.0	<1.25e-01	<5.09e+02	<5.06e2	n/a	n/a	n/a	508.6	n/a	n/a
S97T000592	W		Nitrate by IC-Dionex 4000/4500	ug/g	100.3	1.71e-01	1.55e+04	1.50e+04	1.53e+04	3.28	97.31	565.7	n/a	n/a
S97T000592	W		Phosphate-IC-Dionex 4000/4500	ug/g	103.5	<1.20e-01	2.62e+03	2.59e+03	2.60e+03	1.15	99.45	488.5	n/a	n/a
S97T000592	W		Sulfate by IC-Dionex 4000/4500	ug/g	99.68	<1.38e-01	6.30e+03	6.32e+03	6.31e+03	0.32	96.83	561.5	n/a	n/a

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Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	SPK Rec %	Det Limit	Count	Err%
S971000592	W	Oxalate-IC-Dioxex 4000/4500	ug/g	100.4	<1.02e-01	6.26e+02	542.0	584.1	14.4	97.18	427.4	n/a	n/a

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	SPK Rec %	Det Limit	Count	Err%
S971000569		Bulk Density of Sample	g/mL		n/a	0.00e+00	0.00e+00	0.00e+00	n/a	n/a	5.00e-01	n/a	n/a
S971000571		DSC Exotherm Dry Calculated	Joules/g Dry		n/a	0.00e+00	0.00e+00	0.00e+00	n/a	n/a	n/a	n/a	n/a
S971000571		DSC Exotherm on Perkin Elmer	Joules/g		n/a	92.73			n/a	n/a	n/a	n/a	n/a
S971000571		% Water by TGA using Mettler	%		n/a	99.66			n/a	n/a	n/a	n/a	n/a
S971000580	F	Silver - ICP-Fusion	ug/g	100.2	<1.00e-02	1.00e+02	100.2	100.2	n/a	n/a	197.0	n/a	n/a
S971000580	F	Aluminum - ICP-Fusion	ug/g	100.6	<5.00e-02	3.43e+03	3.43e+03	3.44	n/a	n/a	988.0	n/a	n/a
S971000580	F	Arsenic - ICP-Fusion	ug/g	100.4	<1.00e-01	9.85e+02	9.85e+02	n/a	n/a	n/a	988.0	n/a	n/a
S971000580	F	Boron - ICP-Fusion	ug/g	99.00	<9.85e+02	9.85e+02	9.85e+02	n/a	n/a	n/a	988.0	n/a	n/a
S971000580	F	Beryllium - ICP-Fusion	ug/g	100.8	<5.00e-03	3.14e+04	3.22e+04	3.20e+04	4.06	n/a	1.97e+03	n/a	n/a
S971000580	F	Bismuth - ICP-Fusion	ug/g	100.2	<1.00e-01	3.14e+04	3.22e+04	3.20e+04	4.06	n/a	1.97e+03	n/a	n/a
S971000580	F	Calcium - ICP-Fusion	ug/g	97.40	<5.00e-03	98.70	98.70	98.81	n/a	n/a	98.80	n/a	n/a
S971000580	F	Cadmium - ICP-Fusion	ug/g	98.20	<1.97e+03	1.97e+03	1.97e+03	n/a	n/a	n/a	1.97e+03	n/a	n/a
S971000580	F	Cerium - ICP-Fusion	ug/g	98.20	<5.00e-01	3.95e+02	3.94e+02	n/a	n/a	n/a	395.0	n/a	n/a
S971000580	F	Cobalt - ICP-Fusion	ug/g	94.80	<1.00e-02	2.30e+03	2.33e+03	2.35	n/a	n/a	197.0	n/a	n/a
S971000580	F	Chromium - ICP-Fusion	ug/g	105.6	<1.00e-02	1.60e+04	1.60e+04	1.60e+04	0.00	n/a	988.0	n/a	n/a
S971000580	F	Copper - ICP-Fusion	ug/g	97.40	<5.00e-02	5.27e+03	5.47e+03	5.37e+03	3.72	n/a	988.0	n/a	n/a
S971000580	F	Iron - ICP-Fusion	ug/g	99.20	<5.00e-02	1.60e+04	1.60e+04	1.60e+04	0.00	n/a	988.0	n/a	n/a
S971000580	F	Lanthanum - ICP-Fusion	ug/g	98.80	<1.97e+02	1.97e+02	1.97e+02	n/a	n/a	n/a	197.0	n/a	n/a
S971000580	F	Lithium - ICP-Fusion	ug/g	93.60	<1.00e-01	1.97e+03	1.97e+03	n/a	n/a	n/a	1.97e+03	n/a	n/a
S971000580	F	Magnesium - ICP-Fusion	ug/g	97.60	<5.00e-02	4.52e+03	4.63e+03	4.58e+03	2.40	n/a	197.0	n/a	n/a
S971000580	F	Manganese - ICP-Fusion	ug/g	97.80	<5.00e-02	9.87e+02	9.85e+02	n/a	n/a	n/a	988.0	n/a	n/a
S971000580	F	Molybdenum - ICP-Fusion	ug/g	102.0	<2.19e-01	6.61e+04	6.97e+04	6.79e+04	5.30	n/a	1.97e+03	n/a	n/a
S971000580	F	Sodium - ICP-Fusion	ug/g	106.0	<1.00e-01	1.97e+03	1.97e+03	n/a	n/a	n/a	1.97e+03	n/a	n/a
S971000580	F	Nickel - ICP-Fusion	ug/g	99.00	<2.00e-01	4.15e+03	4.07e+03	4.08e+03	3.43	n/a	1.97e+03	n/a	n/a
S971000580	F	Phosphorus - ICP-Fusion	ug/g	95.80	<1.00e-01	1.97e+03	1.97e+03	n/a	n/a	n/a	1.97e+03	n/a	n/a
S971000580	F	Lead - ICP-Fusion	ug/g	95.00	<1.00e-01	3.03e+03	3.15e+03	3.09e+03	3.88	n/a	1.97e+03	n/a	n/a
S971000580	F	Sulfur - ICP-Fusion	ug/g	92.80	<1.00e-02	1.18e+03	1.18e+03	n/a	n/a	n/a	1.18e+03	n/a	n/a
S971000580	F	Antimony - ICP-Fusion	ug/g	97.20	<5.00e-02	6.89e+03	7.90e+03	7.40e+03	13.7	n/a	1.97e+03	n/a	n/a
S971000580	F	Silicon - ICP-Fusion	ug/g	101.4	<1.00e-01	1.97e+03	1.97e+03	n/a	n/a	n/a	1.97e+03	n/a	n/a
S971000580	F	Samarium - ICP-Fusion	ug/g	96.60	<1.00e-02	3.39e+02	3.39e+02	3.45	n/a	n/a	197.0	n/a	n/a
S971000580	F	Strontium - ICP-Fusion	ug/g	96.20	<1.00e-02	1.97e+02	1.97e+02	n/a	n/a	n/a	197.0	n/a	n/a
S971000580	F	Titanium - ICP-Fusion	ug/g	99.80	<2.00e-01	3.95e+03	3.94e+03	n/a	n/a	n/a	3.95e+03	n/a	n/a
S971000580	F	Thallium - ICP-Fusion	ug/g	97.30	<5.00e-01	9.87e+03	9.85e+03	n/a	n/a	n/a	9.88e+03	n/a	n/a
S971000580	F	Vanadium - ICP-Fusion	ug/g	99.60	<9.85e+02	9.87e+02	9.85e+02	n/a	n/a	n/a	988.0	n/a	n/a
S971000580	F	Zinc - ICP-Fusion	ug/g	99.80	<1.00e-02	2.97e+02	2.97e+02	295.0	1.02	n/a	197.0	n/a	n/a
S971000580	F	Aluminum - ICP-Fusion	ug/g	99.80	<1.97e+02	1.97e+02	1.97e+02	295.5	1.02	n/a	988.0	n/a	n/a
S971000580	F	Alpha of Dissolved Solid	ug/g	82.50	<1.12e-03	2.22e-01	2.35e-01	2.28e-01	5.69	58.10	5.00e-03	7.29e+00	n/a
S971000593	W	Sulfate by IC-Dioxex 4000/4500	ug/g	94.58	<1.20e-02	1.43e+02	131.0	136.8	8.76	n/a	27.10	n/a	n/a
S971000593	W	Chloride-IC-Dioxex 4000/4500	ug/g	101.5	<1.90e-02	4.27e+02	414.0	420.4	3.09	n/a	38.40	n/a	n/a
S971000593	W	Chloride-IC-Dioxex 4000/4500	ug/g	103.3	<3.08e-01	3.36e+04	3.36e+04	0.59	n/a	n/a	244.0	n/a	n/a
S971000593	W	Bromide by Ion Chromatograph	ug/g	100.3	<1.25e-01	2.82e+02	2.82e+02	n/a	n/a	n/a	282.4	n/a	n/a
S971000593	W	Phosphate by IC-Dioxex 4000/4500	ug/g	103.2	<1.48e-01	1.95e+04	2.02e+04	1.98e+04	3.53	n/a	271.0	n/a	n/a
S971000593	W	Sulfate by IC-Dioxex 4000/4500	ug/g	102.8	<1.20e-01	2.81e+03	2.76e+03	2.78e+03	1.80	n/a	311.7	n/a	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T000593	W		Oxalate-IC-Dionex 4000/4500	ug/g	104.9	<1.05e-01	1.35e+03	1.26e+03	1.30e+03	6.90	n/a	237.2	n/a

Drainable Liquid: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T000376			BSC Exotherm using Mettler	Joules/g	88.22	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000376			BSC 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
S97T000376			Specific Gravity	Sp.g.	98.39	n/a	1.101	1.105	1.103	0.36	n/a	1.00e-03	n/a
S97T000376			% Water by TGA using Mettler	%	99.98	n/a	84.90	85.01	84.96	0.13	n/a	n/a	n/a
S97T000376	D		Silver-ICP-Acid Dil.	ug/mL	96.60	<1.00e-02	4.380	4.330	4.355	1.15	n/a	2.010	n/a
S97T000376	D		Aluminum-ICP-Acid Dil.	ug/mL	97.00	<5.00e-02	< 10.10	<1.01e1	n/a	n/a	n/a	10.10	n/a
S97T000376	D		Arsenic-ICP-Acid Dil.	ug/mL	102.6	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a
S97T000376	D		Boron-ICP-Acid Dil.	ug/mL	100.0	<5.00e-02	< 10.10	<1.01e1	n/a	n/a	n/a	10.10	n/a
S97T000376	D		Barium-ICP-Acid Dil.	ug/mL	97.80	<5.00e-02	< 10.10	<1.01e1	n/a	n/a	n/a	10.10	n/a
S97T000376	D		Beryllium-ICP-Acid Dil.	ug/mL	101.2	<5.00e-03	< 1.010	<1.01e0	n/a	n/a	n/a	1.010	n/a
S97T000376	D		Bismuth-ICP-Acid Dil.	ug/mL	100.0	<1.00e-01	46.30	43.00	44.65	7.39	n/a	20.10	n/a
S97T000376	D		Calcium-ICP-Acid Dil.	ug/mL	97.80	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a
S97T000376	D		Cadmium-ICP-Acid Dil.	ug/mL	98.40	<5.00e-03	2.760	2.840	2.800	2.86	n/a	1.010	n/a
S97T000376	D		Cerium-ICP-Acid Dil.	ug/mL	97.00	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a
S97T000376	D		Cobalt-ICP-Acid Dil.	ug/mL	100.4	<2.00e-02	< 4.020	<4.02e0	n/a	n/a	n/a	4.020	n/a
S97T000376	D		Chromium-ICP-Acid Dil.	ug/mL	98.00	<1.00e-02	6.90e+02	691.0	690.5	0.14	n/a	2.010	n/a
S97T000376	D		Copper-ICP-Acid Dil.	ug/mL	98.80	<1.00e-02	< 2.010	<2.01e0	n/a	n/a	n/a	2.010	n/a
S97T000376	D		Iron-ICP-Acid Dil.	ug/mL	92.40	<5.00e-02	< 10.10	<1.01e1	n/a	n/a	n/a	10.10	n/a
S97T000376	D		Potassium-ICP-Acid Dil.	ug/mL	96.40	<5.00e-01	6.10e+02	604.0	607.0	0.99	n/a	100.0	n/a
S97T000376	D		Lanthanum-ICP-Acid Dil.	ug/mL	98.60	<5.00e-02	< 10.10	<1.01e1	n/a	n/a	n/a	10.10	n/a
S97T000376	D		Lithium-ICP-Acid Dil.	ug/mL	97.60	<1.00e-02	< 2.010	<2.01e0	n/a	n/a	n/a	2.010	n/a
S97T000376	D		Magnesium-ICP-Acid Dil.	ug/mL	99.20	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a
S97T000376	D		Manganese-ICP-Acid Dil.	ug/mL	96.40	<1.00e-02	< 2.010	<2.01e0	n/a	n/a	n/a	2.010	n/a
S97T000376	D		Molybdenum-ICP-Acid Dil.	ug/mL	99.80	<5.00e-02	41.10	41.30	41.20	0.49	n/a	10.10	n/a
S97T000376	D		Sodium-ICP-Acid Dil.	ug/mL	101.6	<1.00e-01	5.67e+04	5.69e+04	5.68e+04	0.35	n/a	20.10	n/a
S97T000376	D		Neodymium-ICP-Acid Dil.	ug/mL	98.20	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a
S97T000376	D		Nickel-ICP-Acid Dil.	ug/mL	97.80	<2.00e-02	24.20	24.90	24.55	2.85	n/a	4.020	n/a
S97T000376	D		Phosphorus-ICP-Acid Dil.	ug/mL	100.2	<2.00e-01	6.47e+02	647.0	647.0	0.00	n/a	40.20	n/a
S97T000376	D		Lead-ICP-Acid Dil.	ug/mL	95.60	<1.00e-01	44.30	44.90	44.60	1.35	n/a	20.10	n/a
S97T000376	D		Sulfur-ICP-Acid Dil.	ug/mL	98.60	<1.00e-01	3.01e+03	3.01e+03	3.01e+03	0.00	n/a	20.10	n/a
S97T000376	D		Antimony-ICP-Acid Dil.	ug/mL	95.80	<6.00e-02	< 12.10	<1.21e1	n/a	n/a	n/a	12.10	n/a
S97T000376	D		Selenium-ICP-Acid Dil.	ug/mL	94.20	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a
S97T000376	D		Silicon-ICP-Acid Dil.	ug/mL	96.40	<5.00e-02	< 10.10	<1.01e1	n/a	n/a	n/a	10.10	n/a
S97T000376	D		Samarium-ICP-Acid Dil.	ug/mL	96.60	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a
S97T000376	D		Strontium-ICP-Acid Dil.	ug/mL	98.00	<1.00e-02	< 2.010	<2.01e0	n/a	n/a	n/a	2.010	n/a
S97T000376	D		Titanium-ICP-Acid Dil.	ug/mL	96.80	<1.00e-02	< 2.010	<2.01e0	n/a	n/a	n/a	2.010	n/a
S97T000376	D		Thallium-ICP-Acid Dil.	ug/mL	94.40	<2.00e-01	< 40.20	<4.02e1	n/a	n/a	n/a	40.20	n/a
S97T000376	D		Uranium-ICP-Acid Dil.	ug/mL	94.90	<5.00e-01	9.33e+02	942.0	937.5	0.96	n/a	100.0	n/a
S97T000376	D		Vanadium-ICP-Acid Dil.	ug/mL	100.2	<5.00e-02	< 10.10	<1.01e1	n/a	n/a	n/a	10.10	n/a
S97T000376	D		Zinc-ICP-Acid Dil.	ug/mL	95.20	<1.00e-02	4.730	4.470	4.600	5.65	n/a	2.010	n/a
S97T000376	D		Zirconium-ICP-Acid Dil.	ug/mL	97.80	<1.00e-02	7.630	7.720	7.675	1.17	n/a	2.010	n/a
S97T000376			Fluoride-IC-Dionex 4000/4500	ug/mL	97.29	<1.20e-02	4.55e+02	468.0	461.5	2.82	80.17	25.45	n/a
S97T000376			Chloride-IC-Dionex 4000/4500	ug/mL	100.4	<1.70e-02	5.15e+02	519.0	517.0	0.77	88.99	36.06	n/a
S97T000376			Nitrite-IC - Dionex 4000/4500	ug/mL	100.6	<1.08e-01	3.71e+04	3.68e+04	3.70e+04	0.81	93.75	229.1	n/a
S97T000376			Bromide by Ion Chromatograph	ug/mL	99.83	<1.25e-01	<2.65e+02	<2.65e2	n/a	n/a	n/a	89.30	265.1
S97T000376			Nitrate by IC-Dionex 4000/4500	ug/mL	101.9	2.16e-01	2.24e+04	2.32e+04	2.28e+04	3.51	98.65	294.8	n/a

HNF-SD-WM-DP-243, REV. 0

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T000376			Phosphate-IC-Dionex 4000/4500	ug/mL	101.3	<1.20e-01	1.88e+03	1.85e+03	1.86e+03	1.61	89.36	254.5		n/a
S97T000376			Sulfate by IC-Dionex 4000/4500	ug/mL	98.57	<1.38e-01	8.97e+03	9.45e+03	9.21e+03	5.21	97.15	292.7		n/a
S97T000376			Oxalate-IC-Dionex 4000/450	ug/mL	97.93	<1.05e-01	1.17e+03	2.39e+03	1.78e+03	68.5	93.23	222.7		n/a
S97T000376			Alpha in Liquid Samples	uCi/mL	86.00	<1.22e-02	1.96e-02	2.19e-02	2.07e-02	11.1	n/a	1.60e-02	9.03E+01	

Table 1. Data Summary Report
T-112CORE NUMBER: 185
SEGMENT #: FB

SEGMENT PORTION: Field Blank

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S971000377			DSC Exotherm using Mettler	Joules/g	87.87	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S971000377			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
S971000377			Specific Gravity	Sp.g.	98.39	n/a	9.85e-01	9.81e-01	9.83e-01	0.41	n/a	1.00e-03	n/a
S971000377			% Water by TGA using Mettler	%	99.98	n/a	1.00e-02	100.2	100.3	0.23	n/a	n/a	n/a
S971000377	D		Silver-ICP-Acid Dil.	ug/mL	96.60	<1.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	n/a	2.00e-02	n/a
S971000377	D		Aluminium-ICP-Acid Dil.	ug/mL	97.00	<5.00e-02	4.010	4.220	4.115	5.10	n/a	1.00e-01	n/a
S971000377	D		Arsenic-ICP-Acid Dil.	ug/mL	102.6	<1.00e-01	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S971000377	D		Boron-ICP-Acid Dil.	ug/mL	100.0	<5.00e-02	2.470	2.460	2.465	0.41	n/a	1.00e-01	n/a
S971000377	D		Barium-ICP-Acid Dil.	ug/mL	97.80	<5.00e-02	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S971000377	D		Beryllium-ICP-Acid Dil.	ug/mL	101.2	<5.00e-03	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S971000377	D		Bismuth-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
S971000377	D		Calcium-ICP-Acid Dil.	ug/mL	97.80	<1.00e-01	16.00	16.70	16.35	4.28	n/a	2.00e-01	n/a
S971000377	D		Cadmium-ICP-Acid Dil.	ug/mL	98.40	<5.00e-03	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S971000377	D		Cerium-ICP-Acid Dil.	ug/mL	97.00	<1.00e-01	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S971000377	D		Cobalt-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
S971000377	D		Chromium-ICP-Acid Dil.	ug/mL	98.00	<1.00e-02	1.520	1.530	1.525	0.66	n/a	2.00e-02	n/a
S971000377	D		Copper-ICP-Acid Dil.	ug/mL	98.80	<1.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	n/a	2.00e-02	n/a
S971000377	D		Iron-ICP-Acid Dil.	ug/mL	92.40	<5.00e-02	<1.00e-01	4.53e-01	n/a	n/a	n/a	1.00e-01	n/a
S971000377	D		Potassium-ICP-Acid Dil.	ug/mL	96.40	<5.00e-01	<1.00e-1	<1.00e0	n/a	n/a	n/a	1.00e-1	n/a
S971000377	D		Lanthanum-ICP-Acid Dil.	ug/mL	98.60	<5.00e-02	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S971000377	D		Lithium-ICP-Acid Dil.	ug/mL	97.60	<1.00e-02	3.77e-02	3.87e-02	3.82e-02	2.62	n/a	2.00e-02	n/a
S971000377	D		Magnesium-ICP-Acid Dil.	ug/mL	99.20	<1.00e-01	3.400	3.450	3.425	1.46	n/a	2.00e-01	n/a
S971000377	D		Manganese-ICP-Acid Dil.	ug/mL	96.40	<1.00e-02	<2.00e-02	3.57e-02	n/a	n/a	n/a	2.00e-02	n/a
S971000377	D		Molybdenum-ICP-Acid Dil.	ug/mL	99.80	<5.00e-02	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S971000377	D		Sodium-ICP-Acid Dil.	ug/mL	101.6	<1.00e-01	99.30	98.90	99.10	0.40	n/a	2.00e-01	n/a
S971000377	D		Neodymium-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
S971000377	D		Nickel-ICP-Acid Dil.	ug/mL	97.80	<2.00e-02	<4.00e-02	<4.00e-2	n/a	n/a	n/a	4.00e-02	n/a
S971000377	D		Phosphorus-ICP-Acid Dil.	ug/mL	100.2	<2.00e-01	1.090	1.420	1.255	26.3	n/a	4.00e-01	n/a
S971000377	D		Lead-ICP-Acid Dil.	ug/mL	95.60	<1.00e-01	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S971000377	D		Sulfur-ICP-Acid Dil.	ug/mL	98.60	<1.00e-01	7.990	7.980	7.985	0.13	n/a	2.00e-01	n/a
S971000377	D		Antimony-ICP-Acid Dil.	ug/mL	95.80	<6.00e-02	<1.20e-01	<1.20e-1	n/a	n/a	n/a	1.20e-01	n/a
S971000377	D		Selenium-ICP-Acid Dil.	ug/mL	94.20	<1.00e-01	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S971000377	D		Silicon-ICP-Acid Dil.	ug/mL	96.40	<5.00e-02	3.930	4.180	4.055	6.17	n/a	1.00e-01	n/a
S971000377	D		Samarium-ICP-Acid Dil.	ug/mL	96.60	<1.00e-01	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S971000377	D		Strontium-ICP-Acid Dil.	ug/mL	98.00	<1.00e-02	6.81e-02	7.21e-02	7.01e-02	5.71	n/a	2.00e-02	n/a
S971000377	D		Titanium-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
S971000377	D		Thallium-ICP-Acid Dil.	ug/mL	94.40	<2.00e-01	<4.00e-01	<4.00e-1	n/a	n/a	n/a	4.00e-01	n/a
S971000377	D		Uranium-ICP-Acid Dil.	ug/mL	94.90	<5.00e-01	<1.00e-1	<1.00e0	n/a	n/a	n/a	1.00e-1	n/a
S971000377	D		Vanadium-ICP-Acid Dil.	ug/mL	100.2	<5.00e-02	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S971000377	D		Zinc-ICP-Acid Dil.	ug/mL	95.20	<1.00e-02	<2.00e-02	4.98e-02	n/a	n/a	n/a	2.00e-02	n/a
S971000377	D		Zirconium-ICP-Acid Dil.	ug/mL	97.80	<1.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	n/a	2.00e-02	n/a
S971000377			Fluoride-IC-Dionex 4000/4500	ug/mL	97.29	<1.20e-02	7.39e-01	6.64e-01	6.93e-01	13.4	n/a	3.60e-02	n/a
S971000377			Chloride-IC-Dionex 4000/4500	ug/mL	108.1	<1.70e-02	10.69	10.70	10.70	0.00	n/a	5.10e-02	n/a
S971000377			Nitrite-IC - Dionex 4000/4500	ug/mL	105.1	<1.08e-01	14.99	14.90	14.95	0.67	n/a	3.24e-01	n/a

HNF-SD-WM-DP-243, REV. 0

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S971000377			Bromide by Ion Chromatograph	ug/mL	102.7	<1.25e-01	2.185	2.200	2.192	0.46	n/a	3.75e-01	n/a
S971000377			Nitrate by IC-Dionex 4000/4500	ug/mL	105.4	<1.39e-01	1.12e+02	112.0	111.8	0.00	n/a	4.17e-01	n/a
S971000377			Phosphate-IC-Dionex 4000/4500	ug/mL	104.6	<1.20e-01	2.582	3.850	3.216	39.5	n/a	3.60e-01	n/a
S971000377			Sulfate by IC-Dionex 4000/4500	ug/mL	104.6	<1.38e-01	20.21	20.00	20.11	1.00	n/a	4.14e-01	n/a
S971000377			Oxalate-IC-Dionex 4000/450	ug/mL	106.4	<1.05e-01	<3.15e-01	<3.15e-1	n/a	n/a	n/a	3.15e-01	n/a
S971000377			Alpha in Liquid Samples	uCi/mL	86.00	<1.22e-02	3.16e-06	4.05e-06	3.61e-06	24.7	n/a	1.60e-06	6.69E+01

Table 1. Data Summary Report
T-112CORE NUMBER: 186
SEGMENT #: 2

SEGMENT PORTION: U Upper Half of Segment

Sample#	R A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T000433		Bulk Density of Sample	g/mL	n/a	n/a	1.390	n/a	n/a	n/a	n/a	5.00e-01	n/a
S97T000435		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
S97T000435		DSC Exotherm on Perkin Elmer	Joules/g	95.29	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000435		% Water by TGA on Perkin Elmer		98.18	n/a	58.74	72.53	65.64	21.0	n/a	n/a	n/a
S97T000594	W	Fluoride-IC-Dionex 4000/4500	ug/g	96.44	<1.20e-02	4.68e+02	483.0	475.7	3.15	n/a	45.49	n/a
S97T000594	W	Chloride-IC-Dionex 4000/4500	ug/g	96.08	<1.70e-02	4.86e+02	485.0	485.6	0.21	n/a	64.45	n/a
S97T000594	W	Nitrite-IC - Dionex 4000/4500	ug/g	93.47	<1.08e-01	2.89e+04	2.84e+04	2.87e+04	1.75	n/a	409.3	n/a
S97T000594	W	Bromide by Ion Chromatograph	ug/g	95.59	<1.25e-01	<4.74e+02	<4.80e2	n/a	n/a	n/a	473.8	n/a
S97T000594	W	Nitrate by IC-Dionex 4000/4500	ug/g	98.65	<1.39e-01	1.77e+04	1.85e+04	1.81e+04	4.42	n/a	526.9	n/a
S97T000594	W	Phosphate-IC-Dionex 4000/4500	ug/g	100.5	<1.20e-01	2.59e+03	3.04e+03	2.82e+03	16.0	n/a	454.9	n/a
S97T000594	W	Sulfate by IC-Dionex 4000/4500	ug/g	97.15	<1.38e-01	7.40e+03	8.04e+03	7.72e+03	8.29	n/a	523.1	n/a
S97T000594	W	Oxalate-IC-Dionex 4000/4500	ug/g	94.73	<1.05e-01	1.04e+03	592.0	814.0	54.9	n/a	397.9	n/a
S97T000595	F	Silver -ICP-Fusion	ug/g	100.2	<1.00e-02	<1.82e+02	<1.85e2	n/a	n/a	n/a	182.0	n/a
S97T000595	F	Aluminum -ICP-Fusion	ug/g	97.60	<5.00e-02	6.29e+03	5.91e+03	6.10e+03	6.23	n/a	908.0	n/a
S97T000595	F	Arsenic -ICP-Fusion	ug/g	100.6	<1.00e-01	<1.82e+03	<1.85e3	n/a	n/a	n/a	1.82e+03	n/a
S97T000595	F	Boron -ICP-Fusion	ug/g	100.4	<5.00e-02	<9.08e+02	<9.23e2	n/a	n/a	n/a	908.0	n/a
S97T000595	F	Barium -ICP-Fusion	ug/g	99.00	<5.00e-02	<9.08e+02	<9.23e2	n/a	n/a	n/a	908.0	n/a
S97T000595	F	Beryllium -ICP-Fusion	ug/g	100.8	<5.00e-03	<90.80	<9.23e1	n/a	n/a	n/a	90.80	n/a
S97T000595	F	Bismuth -ICP-Fusion	ug/g	100.2	<1.00e-01	3.15e+04	2.67e+04	2.91e+04	16.5	n/a	1.82e+03	n/a
S97T000595	F	Calcium -ICP-Fusion	ug/g	96.80	<1.00e-01	<1.82e+03	<1.85e3	n/a	n/a	n/a	1.82e+03	n/a
S97T000595	F	Cadmium -ICP-Fusion	ug/g	97.40	<5.00e-03	<90.80	<9.23e1	n/a	n/a	n/a	90.80	n/a
S97T000595	F	Cerium -ICP-Fusion	ug/g	96.60	<1.00e-01	<1.82e+03	<1.85e3	n/a	n/a	n/a	1.82e+03	n/a
S97T000595	F	Cobalt -ICP-Fusion	ug/g	98.20	<2.00e-02	<3.63e+02	<3.69e2	n/a	n/a	n/a	363.0	n/a
S97T000595	F	Chromium -ICP-Fusion	ug/g	94.80	<1.00e-02	1.84e+03	1.77e+03	1.80e+03	3.88	n/a	182.0	n/a
S97T000595	F	Copper -ICP-Fusion	ug/g	103.6	<1.00e-02	<1.82e+02	<1.85e2	n/a	n/a	n/a	182.0	n/a
S97T000595	F	Iron -ICP-Fusion	ug/g	97.40	<5.00e-02	2.22e+04	1.27e+04	1.74e+04	54.4	n/a	908.0	n/a
S97T000595	F	Lanthanum -ICP-Fusion	ug/g	99.20	<5.00e-02	5.32e+03	4.67e+03	5.00e+03	13.0	n/a	908.0	n/a
S97T000595	F	Lithium -ICP-Fusion	ug/g	98.80	<1.00e-02	<1.82e+02	<1.85e2	n/a	n/a	n/a	182.0	n/a
S97T000595	F	Magnesium -ICP-Fusion	ug/g	93.60	<1.00e-01	5.45e+03	<1.85e3	n/a	n/a	n/a	1.82e+03	n/a
S97T000595	F	Manganese -ICP-Fusion	ug/g	97.60	<1.00e-02	5.03e+03	4.33e+03	4.68e+03	15.0	n/a	182.0	n/a
S97T000595	F	Molybdenum -ICP-Fusion	ug/g	97.80	<5.00e-02	<9.08e+02	<9.23e2	n/a	n/a	n/a	908.0	n/a
S97T000595	F	Sodium -ICP-Fusion	ug/g	102.0	2.46e-01	6.58e+04	6.55e+04	6.56e+04	0.46	n/a	1.82e+03	n/a
S97T000595	F	Neodymium -ICP-Fusion	ug/g	106.6	<1.00e-01	<1.82e+03	<1.85e3	n/a	n/a	n/a	1.82e+03	n/a
S97T000595	F	Phosphorus -ICP-Fusion	ug/g	99.00	<2.00e-01	4.30e+03	3.96e+03	4.13e+03	8.23	n/a	3.63e+03	n/a
S97T000595	F	Lead -ICP-Fusion	ug/g	95.80	<1.00e-01	<1.82e+03	<1.85e3	n/a	n/a	n/a	1.82e+03	n/a
S97T000595	F	Sulfur -ICP-Fusion	ug/g	95.00	<1.00e-01	2.99e+03	2.93e+03	2.96e+03	2.03	n/a	1.82e+03	n/a
S97T000595	F	Antimony -ICP-Fusion	ug/g	92.80	<6.00e-02	<1.09e+03	<1.11e3	n/a	n/a	n/a	1.09e+03	n/a
S97T000595	F	Silicon -ICP-Fusion	ug/g	97.20	<5.00e-02	1.38e+04	6.65e+03	1.02e+04	69.9	n/a	908.0	n/a
S97T000595	F	Samarium -ICP-Fusion	ug/g	101.4	<1.00e-01	<1.82e+03	<1.85e3	n/a	n/a	n/a	1.82e+03	n/a
S97T000595	F	Strontium -ICP-Fusion	ug/g	98.60	<1.00e-02	3.26e+02	273.0	299.5	17.7	n/a	182.0	n/a
S97T000595	F	Titanium-ICP-Fusion	ug/g	96.20	<1.00e-02	<1.82e+02	<1.85e2	n/a	n/a	n/a	182.0	n/a
S97T000595	F	Thallium -ICP-Fusion	ug/g	99.80	<2.00e-01	<3.63e+03	<3.69e3	n/a	n/a	n/a	3.63e+03	n/a
S97T000595	F	Uranium -ICP-Fusion	ug/g	97.30	<5.00e-01	<9.08e+02	<9.23e3	n/a	n/a	n/a	9.08e+03	n/a
S97T000595	F	Vanadium -ICP-Fusion	ug/g	99.60	<5.00e-02	<9.08e+02	<9.23e2	n/a	n/a	n/a	908.0	n/a

HNF-SD-WM-DP-243, REV. 0

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T000596	F		Zinc - ICP-Fusion	ug/g	99.80	<1.00e-02	<1.82e+02	<1.85e2	n/a	n/a	n/a	182.0	n/a	n/a
S97T000596	F		Zirconium - ICP-Fusion	ug/g	97.40	<1.00e-02	<1.82e+02	<1.85e2	n/a	n/a	n/a	182.0	n/a	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%
S97T000434			Bulk Density of Sample	g/mL	n/a	n/a	1.220	n/a	n/a	n/a	n/a	5.00e-01	n/a	n/a
S97T000436			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	n/a
S97T000436			DSC Exotherm on Perkin Elmer	Joules/g	95.29	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000436			% Water by TGA on Perkin Elmer	%	98.18	n/a	74.22	76.61	75.41	3.17	n/a	n/a	n/a	n/a
S97T000438	F		Silver - ICP-Fusion	ug/g	100.2	<1.00e-02	<1.14e+02	<1.12e2	n/a	n/a	68.30	114.0	n/a	n/a
S97T000438	F		Aluminum - ICP-Fusion	ug/g	97.60	<5.00e-02	4.06e+03	4.61e+03	4.34e+03	12.7	99.80	568.0	n/a	n/a
S97T000438	F		Arsenic - ICP-Fusion	ug/g	100.6	<1.00e-01	<1.14e+03	<1.12e3	n/a	n/a	99.30	1.14e+03	n/a	n/a
S97T000438	F		Boron - ICP-Fusion	ug/g	100.4	<5.00e-02	<5.70e+02	<5.61e2	n/a	n/a	97.60	568.0	n/a	n/a
S97T000438	F		Barium - ICP-Fusion	ug/g	99.00	<5.00e-02	<5.70e+02	<5.61e2	n/a	n/a	99.60	568.0	n/a	n/a
S97T000438	F		Beryllium - ICP-Fusion	ug/g	100.8	<5.00e-03	< 57.00	<5.61e1	n/a	n/a	97.00	56.80	n/a	n/a
S97T000438	F		Bismuth - ICP-Fusion	ug/g	100.2	<1.00e-01	2.12e+04	2.96e+04	2.54e+04	33.1	103.0	1.14e+03	n/a	n/a
S97T000438	F		Calcium - ICP-Fusion	ug/g	96.80	<1.00e-01	2.16e+03	1.40e+03	1.78e+03	42.7	98.00	1.14e+03	n/a	n/a
S97T000438	F		Cadmium - ICP-Fusion	ug/g	97.40	<5.00e-03	< 57.00	<5.61e1	n/a	n/a	98.50	56.80	n/a	n/a
S97T000438	F		Cerium - ICP-Fusion	ug/g	96.60	<1.00e-01	<1.14e+03	<1.12e3	n/a	n/a	101.0	1.14e+03	n/a	n/a
S97T000438	F		Cobalt - ICP-Fusion	ug/g	98.20	<2.00e-02	<2.28e+02	<2.24e2	n/a	n/a	100.0	228.0	n/a	n/a
S97T000438	F		Chromium - ICP-Fusion	ug/g	94.80	<1.00e-02	2.26e+03	2.35e+03	2.30e+03	3.90	98.40	114.0	n/a	n/a
S97T000438	F		Copper - ICP-Fusion	ug/g	103.6	<1.00e-02	<1.14e+02	<1.12e2	n/a	n/a	99.10	114.0	n/a	n/a
S97T000438	F		Iron - ICP-Fusion	ug/g	97.40	<5.00e-02	1.47e+04	1.43e+04	1.45e+04	2.76	97.80	568.0	n/a	n/a
S97T000438	F		Lanthanum - ICP-Fusion	ug/g	99.20	<5.00e-02	4.11e+03	4.48e+03	4.30e+03	8.61	99.90	568.0	n/a	n/a
S97T000438	F		Lithium - ICP-Fusion	ug/g	98.80	<1.00e-02	<1.14e+02	<1.12e2	n/a	n/a	95.10	114.0	n/a	n/a
S97T000438	F		Magnesium - ICP-Fusion	ug/g	93.60	<1.00e-01	<1.14e+03	<1.12e3	n/a	n/a	99.50	1.14e+03	n/a	n/a
S97T000438	F		Manganese - ICP-Fusion	ug/g	97.60	<1.00e-02	9.35e+03	9.94e+03	9.64e+03	6.12	99.00	114.0	n/a	n/a
S97T000438	F		Molybdenum - ICP-Fusion	ug/g	97.80	<5.00e-02	<5.70e+02	<5.61e2	n/a	n/a	100.0	568.0	n/a	n/a
S97T000438	F		Sodium - ICP-Fusion	ug/g	102.0	1.33e-01	6.76e+04	6.65e+04	6.70e+04	1.64	95.40	1.14e+03	n/a	n/a
S97T000438	F		Neodymium - ICP-Fusion	ug/g	106.6	<1.00e-01	<1.14e+03	<1.12e3	n/a	n/a	99.10	1.14e+03	n/a	n/a
S97T000438	F		Phosphorus - ICP-Fusion	ug/g	99.00	<2.00e-01	3.46e+03	3.54e+03	3.50e+03	2.29	101.0	2.28e+03	n/a	n/a
S97T000438	F		Lead - ICP-Fusion	ug/g	95.80	<1.00e-01	<1.14e+03	<1.12e3	n/a	n/a	100.0	1.14e+03	n/a	n/a
S97T000438	F		Sulfur - ICP-Fusion	ug/g	95.00	<1.00e-01	3.20e+03	3.14e+03	3.17e+03	1.89	97.80	1.14e+03	n/a	n/a
S97T000438	F		Antimony - ICP-Fusion	ug/g	92.80	<6.00e-02	<6.84e+02	<6.73e2	n/a	n/a	98.30	684.0	n/a	n/a
S97T000438	F		Silicon - ICP-Fusion	ug/g	97.20	<5.00e-02	6.30e+03	6.52e+03	6.41e+03	3.43	100.0	568.0	n/a	n/a
S97T000438	F		Samarium - ICP-Fusion	ug/g	101.4	<1.00e-01	<1.14e+03	<1.12e3	n/a	n/a	99.00	1.14e+03	n/a	n/a
S97T000438	F		Strontium - ICP-Fusion	ug/g	98.60	<1.00e-02	2.91e+02	292.0	291.5	0.34	100.0	114.0	n/a	n/a
S97T000438	F		Titanium - ICP-Fusion	ug/g	96.20	<1.00e-02	<1.14e+02	<1.12e2	n/a	n/a	99.70	114.0	n/a	n/a
S97T000438	F		Thallium - ICP-Fusion	ug/g	99.80	<2.00e-01	<2.28e+03	<2.24e3	n/a	n/a	101.0	2.28e+03	n/a	n/a
S97T000438	F		Uranium - ICP-Fusion	ug/g	97.30	<5.00e-01	<5.70e+02	<5.61e3	n/a	n/a	2.210e0	5.68e+03	n/a	n/a
S97T000438	F		Vanadium - ICP-Fusion	ug/g	99.60	<5.00e-02	<5.70e+02	<5.61e2	n/a	n/a	99.80	568.0	n/a	n/a
S97T000438	F		Zinc - ICP-Fusion	ug/g	99.80	2.90e-02	6.54e+02	268.0	461.0	83.7	98.60	114.0	n/a	n/a
S97T000438	F		Zirconium - ICP-Fusion	ug/g	97.40	<1.00e-02	<1.14e+02	<1.12e2	n/a	n/a	100.0	114.0	n/a	n/a
S97T000438	F		Alpha of Digested Solid	ug/g	86.50	<1.12e-02	2.53e-01	3.12e-01	2.82e-01	20.9	85.17	8.00e-03	1.06e+01	n/a
S97T000595	W		Fluoride-IC-Dionex 4000/4500	ug/g	96.44	<1.20e-02	3.72e+02	370.0	370.9	0.54	n/a	25.83	n/a	n/a
S97T000595	W		Chloride-IC-Dionex 4000/4500	ug/g	96.08	<1.70e-02	4.05e+02	415.0	410.1	2.44	n/a	36.60	n/a	n/a
S97T000595	W		Nitrite-IC- Dionex 4000/4500	ug/g	93.47	<1.08e-01	2.55e+04	2.60e+04	2.57e+04	1.94	n/a	232.5	n/a	n/a
S97T000595	W		Bromide by Ion Chromatograph	ug/g	95.59	<1.25e-01	<2.69e+02	<2.67e2	n/a	n/a	n/a	269.1	n/a	n/a
S97T000595	W		Nitrate by IC-Dionex 4000/4500	ug/g	98.65	<1.39e-01	1.63e+04	1.60e+04	1.61e+04	1.86	n/a	299.2	n/a	n/a
S97T000595	W		Phosphate-IC-Dionex 4000/4500	ug/g	100.5	<1.20e-01	2.26e+03	2.31e+03	2.28e+03	2.19	n/a	258.3	n/a	n/a

HNF-SD-WM-DP-243, REV. 0

Sample#	R.#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S977000595	W	Sulfate by IC-Dionex 4000/4500	ug/g	97.15	<1.38e-01	6.55e+03	6.92e+03	6.74e+03	5.49	N/A	297.1	N/A
S977000595	W	Oxalate-IC-Dionex 4000/4500	ug/g	94.73	<1.05e-01	9.44e+02	845.0	894.3	11.1	N/A	226.1	N/A

WMC-SD-WM-DP-243
WMC-SD-WM-DP-243, REV. 0

CHAIN OF CUSTODY FORMS

WHP 2/28/97
WMC-SD-WM-DP-243, REV. 0

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CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

Shipment Number <u>200w-08-TF</u>	(2) Sample Number <u>97-46</u>	(3) Supervisor <u>HARTLEY</u>
Tank <u>241-T-112</u>	(5) Riser <u>2</u>	(6) Segment <u>1</u>
	(7) Core <u>1B5</u>	(8) Cask Serial Number <u>1013C</u>

Radiation Survey Data: (9) FIELD Over Top Dose Rate <u>10.5 mR/hr</u> Side Dose Rate <u>3 mR/hr</u> Bottom Dose Rate <u>10.5 mR/hr</u> Smearable Contamination <u>120</u> (Alpha) <u>21K</u> (Beta-Gamma) RCT* <u>[Signature]</u> (HPT) (Signature)	(33) LABORATORY Over Top Dose Rate <u>10.5 mR/hr</u> Side Dose Rate <u>3 mR/hr</u> Bottom Dose Rate <u>1 mR/hr</u> Smearable Contamination <u>120 dpm</u> (Alpha) <u>21000 dpm</u> (Beta-Gamma) RCT* <u>[Signature]</u> (HPT) (Signature)	(10) Shipment Description A. Work Package Number <u>WLS-96-00258/0</u> B. Cask Seal Number <u>13006</u> C. Sampler Serial Number <u>96-258</u> D. Date and Time Sampler Unseated <u>2-26-97, 0946</u> E. Expected Liquid Content <u>90%</u> F. Expected Solid Content <u>10%</u> G. Dose Rate Through Drill String <u>100 mR/hr</u> H. Expected Sample Length <u>1 1/2</u>
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(1) INFORMATION (Include statement of laboratory tests to be performed.)

HNF-SD-WM-DP-243, REV. 0

(1) Field Comments <u>Bottom of Sampler Wet, No X-RAY performed,</u>		(34) Laboratory Comments <u>5971000271</u>	
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(1) Point of Origin <u>241-T-112</u>	(14) Destination <u>222S</u>	(19) Sender Name (Sign and PRINT) <u>James Sickels</u>	(16) Date/Time <u>2-28-97</u>	(17) Sender Comments
(2) Relinquished By (Sign and PRINT) <u>James Sickels</u>	(20) Received By (Sign and PRINT) <u>David J Keane</u>	(21) Date/Time <u>2-28-97</u>	(22) Receiver Comments	
(3) Relinquished By (Sign and PRINT) <u>David J Keane</u>	(24) Received By (Sign and PRINT) <u>Jim Knight Jr</u>	(25) Date/Time <u>2-28-97</u>	(26) Receiver Comments	
(4) 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? ☒ Yes ☐ No	Shipment No. ☒ Yes ☐ No	Cask Seal No. ☒ Yes ☐ No	Sample No. ☒ Yes ☐ No
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CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

Shipment Number <u>2000-08-TF</u>	(2) Sample Number <u>97-47</u>	(3) Supervisor <u>M.C. Jones</u>
Tank <u>T-112</u>	(5) Riser <u>2</u>	(6) Segment <u>2</u>
(7) Core <u>195</u>	(8) Cask Serial Number <u>C-1032</u>	

(9) FIELD Over Top Dose Rate <u><0.5 mS/hr</u> Side Dose Rate <u>2.5 mS/hr</u> Bottom Dose Rate <u>5 mS/hr</u> Smearable Contamination <u>220</u> (Alpha) <u>21K</u> (Beta-Gamma) <u>21K</u> RCT* <u>Deane Gonder</u> (HPT) Signature	(33) LABORATORY <u><0.5 mS/hr</u> <u>5 mS/hr</u> <u>2 mS/hr</u> <u>220 dpm</u> <u><1000 dpm</u> (Alpha) <u>21K</u> (Beta-Gamma) <u>21K</u> RCT* <u>W. H. H. H.</u> (HPT) Signature	(10) Shipment Description A. Work Package Number <u>WS-96-00258</u> B. Cask Seal Number <u>12442</u> C. Sampler Serial Number <u>MCS 2-22-97 12442 96-259</u> D. Date and Time Sampler Unseated <u>2-22-97 1001</u> E. Expected Liquid Content <u>50%</u> F. Expected Solid Content <u>50%</u> G. Dose Rate Through Drill String <u>220 MR/HR</u> H. Expected Sample Length <u>19"</u>
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(11) INFORMATION (Include statement of laboratory tests to be performed.)

HNF-SD-WM-DP-243, REV. 0

(32) Field Comments	(34) Laboratory Comments
	597T000272

(1) Point of Origin <u>T-112</u>	(14) Destination <u>222-S</u>	(15) Sender Name (Sign and PRINT) <u>James Sickels</u>	(16) Date/Time <u>2-28-97</u>	(17) Sender Comments
(18) Relinquished By (Sign and PRINT) <u>James Sickels</u>	(20) Received By (Sign and PRINT) <u>David J Keane</u>	(21) Date/Time <u>2-28-97</u>	(22) Receiver Comments	
(19) Relinquished By (Sign and PRINT) <u>David J Keane</u>	(24) Received By (Sign and PRINT) <u>Sam Knight</u>	(25) Date/Time <u>2-28-97 07:50</u>	(26) Receiver Comments	
(23) 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
---	---	--

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

Shipment Number <u>200W-08-TF</u>	(2) Sample Number <u>FIELD BLANK</u>	(3) Supervisor <u>M. C. Jones</u>
Tank <u>T-112</u>	(5) Riser <u>2</u>	(6) Segment <u>BLANK</u>
	(7) Core <u>185</u>	(8) Cask Serial Number <u>5N-76</u>
Radiation Survey Date: (9) FIELD Over Top Dose Rate <u><0.5 mR/hr</u> Side Dose Rate <u><0.5 mR/hr</u> Bottom Dose Rate <u><0.5 mR/hr</u> Smearable Contamination <u><20</u> (Alpha) <u><1K</u> (Beta-Gamma) <u>[Signature]</u> RCT* (HPT) <u>[Signature]</u>		(33) LABORATORY <u><0.5 mR/hr</u> <u><0.5 mR/hr</u> <u><0.5 mR/hr</u> <u><20 dpm</u> (Alpha) <u><1000 dpm</u> (Beta-Gamma) <u>[Signature]</u> RCT* (HPT) <u>[Signature]</u>
		(10) Shipment Description A. Work Package Number <u>W5-96-00258</u> B. Cask Seal Number <u>12440</u> C. Sampler Serial Number <u>96-227</u> D. Date and Time Sampler Unseated <u>2-27-97 1400</u> E. Expected Liquid Content <u>100%</u> F. Expected Solid Content <u>0%</u> G. Dose Rate Through Drill String <u><0.5 mR/hr</u> H. Expected Sample Length <u>19"</u>

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

HNF-SD-WM-DP-243, REV. 0

(2) Field Comments		(34) Laboratory Comments <u>597000273</u>	
(1) Point of Origin <u>T-112</u>	(14) Destination <u>222-S</u>	(15) Sender Name (Sign and PRINT) <u>James Sickels</u>	(16) Date/Time <u>2-28-97</u>
(3) Relinquished By (Sign and PRINT) <u>James Sickels</u>	(20) Received By (Sign and PRINT) <u>David J Keane</u>	(21) Date/Time <u>2-28-97</u>	(17) Sender Comments
(5) Relinquished By (Sign and PRINT) <u>David J Keane</u>	(24) Received By (Sign and PRINT) <u>[Signature]</u>	(25) Date/Time <u>2-28-97</u>	(22) Receiver Comments
(7) Relinquished By (Sign and PRINT)	(28) Received By (Sign and PRINT)	(29) Date/Time <u>2-28-97</u>	(26) Receiver Comments
(18) Seal Intact Upon Release?	(31) Seal Intact Upon Receipt?	(32) Seal Date Consistent with this Record?	
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 220W-08-TF (2) Sample Number 97-48 (3) Supervisor M.L. Jones
 (4) Tank T-112 (5) Riser 7 (6) Segment 1 (7) Core 186 (8) Cask Serial Number SN 71

Radiation Survey Data:		(9) FIELD	(33) LABORATORY	(10) Shipment Description
Over Top Dose Rate	<u><0.5 mR/hr</u>		<u>20.5 mR/hr</u>	A. Work Package Number <u>W/S-96-260</u>
Side Dose Rate	<u><0.5 mR/hr</u>		<u>20.5 mR/hr</u>	B. Cask Seal Number <u>12444</u>
Bottom Dose Rate	<u><0.5 mR/hr</u>		<u>20.5 mR/hr</u>	C. Sampler Serial Number <u>96-260</u>
Smearable Contamination	<u><20 dpm/100cm²</u>		<u>220 dpm LAR</u>	D. Date and Time Sampler Unseated <u>3-18-97/1018</u>
	(Alpha)		(Alpha)	E. Expected Liquid Content <u>100%</u>
	<u><1 k dpm/100cm²</u>		<u>4K dpm LAR</u>	F. Expected Solid Content <u>0%</u>
	(Beta-Gamma)		(Beta-Gamma)	G. Dose Rate Through Drill String <u>2.5</u>
RCT* <u>[Signature]</u>	(Signature)	RCT* <u>[Signature]</u>	(Signature)	H. Expected Sample Length <u>1 1/2"</u>
(HPT)		(HPT)		

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

HNF-SD-WM-DP-243, REV. 0

(12) Field Comments <u>SAMPLE WAS ONLY PUSHED 1 1/2"</u>	(34) Laboratory Comments <u>597T000401</u>
---	---

(13) Point of Origin <u>T-112</u>	(14) Destination <u>222-5</u>	(15) Sender Name (Sign and PRINT) <u>James Sicks James Sicks</u>	(16) Date/Time <u>1245 3-25-97</u>	(17) Sender Comments
(18) Relinquished By (Sign and PRINT) <u>James Sicks James Sicks</u>	(20) Received By (Sign and PRINT) <u>James L. Knight James L. Knight</u>	(21) Date/Time <u>3-25-97</u>	(22) Receiver Comments	
(23) Relinquished By (Sign and PRINT) <u>James L. Knight James L. Knight</u>	(24) Received By (Sign and PRINT) <u>James L. Knight James L. Knight</u>	(25) Date/Time <u>3-25-97</u>	(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? ☒ Yes ☐ No
---	---	--

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 200-08 TF (2) Sample Number 97-49 (3) Supervisor R. Frank Lust
 (4) Tank T-112 (5) Riser 7 (6) Segment 2 (7) Core 186 (8) Cask Serial Number SN 57

Radiation Survey Data:		(9) FIELD	(33) LABORATORY	(10) Shipment Description
Over Top Dose Rate	<u>60.5</u>		<u>60.5</u>	A. Work Package Number <u>WS-96-00260</u>
Side Dose Rate	<u>4 mR/hr</u>		<u>4.5 mR/hr</u>	B. Cask Seal Number <u>1147</u>
Bottom Dose Rate	<u>1.5 mR/hr</u>		<u>1.5 mR/hr</u>	C. Sampler Serial Number <u>96-215</u>
Smearable Contamination	<u><20 dpm/100cm²</u> (Alpha)		<u><20 dpm/100cm²</u> (Alpha)	D. Date and Time Sampler Unseated <u>3-19-97/0222</u>
	<u><1k dpm/100cm²</u> (Beta-Gamma)		<u><1k dpm/100cm²</u> (Beta-Gamma)	E. Expected Liquid Content <u>50%</u>
RCT* <u>AS Frank</u> (HPT) (Signature)		RCT* <u>AS Frank</u> (HPT) (Signature)		F. Expected Solid Content <u>50%</u>
				G. Dose Rate Through Drill String <u>250 mR</u>
				H. Expected Sample Length <u>19"</u>

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

35

HNF-SD-WM-DP-243, REV. 0

(12) Field Comments <u>① universal sampler</u> <u>② sampler clean, when pulled.</u> <u>③ truck #2</u>	(13) Laboratory Comments <u>597T00C402</u>
--	---

(13) Point of Origin <u>R-7</u>	(14) Destination <u>222'S LAB</u>	(15) Sender Name (Sign and PRINT) <u>James S. Sickle</u>	(16) Date/Time <u>3-25-97</u>	(17) Sender Comments
(18) Relinquished By (Sign and PRINT) <u>James S. Sickle</u>	(19) Received By (Sign and PRINT) <u>James S. Sickle</u>	(20) Date/Time <u>3-25-97</u>	(21) Receiver Comments	
(22) Relinquished By (Sign and PRINT) <u>James S. Sickle</u>	(23) Received By (Sign and PRINT) <u>James S. Sickle</u>	(24) Date/Time <u>3-25-97</u>	(25) Receiver Comments	
(26) Relinquished By (Sign and PRINT) <u>James S. Sickle</u>	(27) Received By (Sign and PRINT) <u>James S. Sickle</u>	(28) Date/Time <u>3-25-97</u>	(29) Receiver Comments	
(30) Seal Intact Upon Release? ☒ Yes ☐ No	(31) Seal Intact Upon Receipt? ☒ Yes ☐ No	(32) Seal Date Consistent with this Record? ☒ Yes ☐ No		

HWF
EWJ
WHC-SD-WM-DP-243, REV. 0

PHOTOGRAPHS

1000
~~WFC~~-SD-WM-DP-243, REV. 0

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T-112 C-18S Field Blank

T-112 E185 Sag 1

T-112 C-185 Seq 2

T-112 C186 Seg 1

T-112 C186 Seg 2

Handwritten: HPLC 2004/9/1
WMC-SD-WM-DP-243, REV. 0

SAMPLE HANDLING

WHP 2008/1/57
~~WHC-SD-WM-DP-243~~, REV. 0

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LABCORE Data Entry Template for Worklist# 16862

Analyst: CE Instrument: BA000 Book # NAMethod: LO-160-103 Rev/Mod B20

Worklist Comment: T-112 C185 SEG#2 RISER2 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20</u>	<u>20.01</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID	<u>500</u>	<u>500.13</u>	<u>N/A</u>	
97000151	T-112	3 SAMPLE	S97T000272	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>90</u>		ml
97000151	T-112	4 SAMPLE	S97T000272	0	DLIQWT01	SOLID	<u>N/A</u>	<u>97.5</u>		g
97000151	T-112	5 SAMPLE	S97T000272	0	EST.G/ML	SOLID	<u>N/A</u>	<u>1.08</u>		g/ml
97000151	T-112	6 SAMPLE	S97T000272	0	EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>		
97000151	T-112	7 SAMPLE	S97T000272	0	LLIQWT01	SOLID	<u>N/A</u>	<u>25</u>		g
97000151	T-112	8 SAMPLE	S97T000272	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>121189</u>		
97000151	T-112	9 SAMPLE	S97T000272	0	SLDVOL01	SOLID	<u>N/A</u>	<u>NA</u>		ml
97000151	T-112	10 SAMPLE	S97T000272	0	SLDWT-01	SOLID	<u>N/A</u>	<u>104.6</u>		g
97000151	T-112	11 SAMPLE	S97T000272	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>		
97000151	T-112	12 SAMPLE	S97T000272	0	ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>		ml

Final page for worklist # 16862

CSL 3-12-97
Analyst Signature Date
N. Lepus 3-13-97

CSL 3-12-97
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# 16864

Analyst: Ce Instrument: BA000 Book # NA

Method: LO-160-103 Rev/Mod B8

Worklist Comment: T-112 C 185 SEG #1 RISER 2 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20</u>	<u>20.01</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID	<u>500</u>	<u>500.13</u>	<u>N/A</u>	
97000151	T-112	3 SAMPLE	S97T000271	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>320</u>		mL
97000151	T-112	4 SAMPLE	S97T000271	0	DLIQWT01	SOLID	<u>N/A</u>	<u>324.2</u>		g
97000151	T-112	5 SAMPLE	S97T000271	0	EST.G/ML	SOLID	<u>N/A</u>	<u>1.01</u>		g/mL
97000151	T-112	6 SAMPLE	S97T000271	0	EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>		
97000151	T-112	7 SAMPLE	S97T000271	0	LLIQWT01	SOLID	<u>N/A</u>	<u><5</u>		g
97000151	T-112	8 SAMPLE	S97T000271	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-1189</u>		
97000151	T-112	9 SAMPLE	S97T000271	0	SLDVOL01	SOLID	<u>N/A</u>	<u>NA</u>		mL
97000151	T-112	10 SAMPLE	S97T000271	0	SLDWT-01	SOLID	<u>N/A</u>	<u>0</u>		g
97000151	T-112	11 SAMPLE	S97T000271	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>		
97000151	T-112	12 SAMPLE	S97T000271	0	ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>		mL

Final page for worklist # 16864

Analyst Signature Ce Date 3-12-97

Analyst Signature Ce Date 3-12-97

N Lapins 3-13-97

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 16865

Analyst: EL Instrument: BA000 Book # NH

Method: LO-160-103 Rev/Mod B0

Worklist Comment: T-112 Core 185 Field Blank Riser 2 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20</u>	<u>20.01</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID	<u>500</u>	<u>500.13</u>	<u>N/A</u>	
97000151	T-112	3 SAMPLE	S97T000273	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>280.250</u>		ml
97000151	T-112	4 SAMPLE	S97T000273	0	DLIQWT01	SOLID	<u>N/A</u>	<u>250.8</u>		g
97000151	T-112	5 SAMPLE	S97T000273	0	EST.G/ML	SOLID	<u>N/A</u>	<u>1.00</u>		g/ml
97000151	T-112	6 SAMPLE	S97T000273	0	EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>		
97000151	T-112	7 SAMPLE	S97T000273	0	LLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
97000151	T-112	8 SAMPLE	S97T000273	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-1189</u>		
97000151	T-112	9 SAMPLE	S97T000273	0	SLDVOL01	SOLID	<u>N/A</u>	<u>NA</u>		ml
97000151	T-112	10 SAMPLE	S97T000273	0	SLDWT-01	SOLID	<u>N/A</u>	<u>0</u>		g
97000151	T-112	11 SAMPLE	S97T000273	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>		
97000151	T-112	12 SAMPLE	S97T000273	0	ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>		ml

Final page for worklist # 16865

CSO 3-12-97
Analyst Signature Date
N Lapins 3-13-97

CSO 3-12-97
Analyst Signature Date

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 17196

Analyst: _____ Instrument: BA000 _____ Book # _____

Method: LO-160-103 Rev/Mod _____

Worklist Comment: T-112 C186 SEG# 1 RISER 7 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	20.00	N/A		
		2 INSTCHK02			EXTRUD01	SOLID	500.15	N/A		
97000152	T-112	3 SAMPLE	S97T000401	0	DLIQVOL1	SOLID	N/A	Q		ml
97000152	T-112	4 SAMPLE	S97T000401	0	DLIQWT01	SOLID	N/A	Q		g
97000152	T-112	5 SAMPLE	S97T000401	0	EST.G/ML	SOLID	N/A	Q		g/mL
97000152	T-112	6 SAMPLE	S97T000401	0	EXTRUD01	SOLID	N/A	complete		
97000152	T-112	7 SAMPLE	S97T000401	0	LLIQWT01	SOLID	N/A	Q		g
97000152	T-112	8 SAMPLE	S97T000401	0	NOTEBOOK	SOLID	N/A	WFG-V-1189		
97000152	T-112	9 SAMPLE	S97T000401	0	SLDVOL01	SOLID	N/A	Q		ml
97000152	T-112	10 SAMPLE	S97T000401	0	SLDWT-01	SOLID	N/A	Q		g
97000152	T-112	11 SAMPLE	S97T000401	0	APPEAR01	SOLID	N/A	complete		
97000152	T-112	12 SAMPLE	S97T000401	0	ORGVOL01	SOLID	N/A	Q		ml

Final page for worklist # 17196

Jessie L. Irby 4/3/97
Analyst Signature Date

Jessie L. Irby 4/3/97
Analyst Signature Date

Natalie Lapins 4-1-97

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.

LABCORE Data Entry Template for Worklist# 17197

Analyst: _____ Instrument: BA000 _____ Book # _____

Method: LO-160-103 Rev/Mod _____

Worklist Comment: T-112 C186 SEG# 2 RISER 7 EXTRUSION

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	20.00		N/A	
		2	INSTCHK02				EXTRUD01	SOLID	500.15		N/A	
97000152	T-112	3	SAMPLE	S97T000402	0		DLIQVOL1	SOLID	N/A	0		ml
97000152	T-112	4	SAMPLE	S97T000402	0		DLIQWT01	SOLID	N/A	0		g
97000152	T-112	5	SAMPLE	S97T000402	0		EST.G/ML	SOLID	N/A	0		g/mL
97000152	T-112	6	SAMPLE	S97T000402	0		EXTRUD01	SOLID	N/A	Complete		
97000152	T-112	7	SAMPLE	S97T000402	0		LLIQWT01	SOLID	N/A	<5		g
97000152	T-112	8	SAMPLE	S97T000402	0		NOTEBOOK	SOLID	N/A	W4C-N-1189		
97000152	T-112	9	SAMPLE	S97T000402	0		SLDVOL01	SOLID	N/A	N/A		ml
97000152	T-112	10	SAMPLE	S97T000402	0		SLDWT-01	SOLID	N/A	299.5		g
97000152	T-112	11	SAMPLE	S97T000402	0		APPEAR01	SOLID	N/A	Complete		
97000152	T-112	12	SAMPLE	S97T000402	0		ORGVOL01	SOLID	N/A	0		ml

Final page for worklist # 17197

Natalie Lapins
Analyst Signature _____ Date 3/31/97
Natalie Lapins 4-1-97

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.

HAIF 0208 6442
WHC-SD-WM-DP-243, REV. 0

SAMPLE PREPARATIONS

HNF Rev 6/4/97
WHC-SD-WM-DP-243, REV. 0

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LABCORE Data Entry Template for Worklist# 17051

Analyst: KRM Instrument: FUS01 Book # _____

Method: LA-549-141 Rev/Mod _____

Worklist Comment: FUSION01 FOR TANK 112, CORE 185(SEG 2 LH) RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1. BLNK-PREP			FUSION01	SOLID	<u>1</u>	<u>.25</u>	<u>N/A</u>	g/L
97000151	T-112	2 SAMPLE	S97T000380	0 F	FUSION01	SOLID	<u>N/A</u>	<u>2.0272</u>		g/L
		<u>.5068 g</u> → <u>.25 L</u>								
97000151	T-112	3 SAMPLE	S97T000380	0	DOSE-02	SOLID	<u>N/A</u>	<u>7.5</u>		mrad/hour
97000151	T-112	4 DUP	S97T000380	0 F	FUSION01	SOLID	<u>2.6272</u>	<u>2.6308</u>	<u>N/A</u>	g/L
		<u>in 500 .5077 g</u> → <u>.25 L</u>								
97000151	T-112	5 DUP	S97T000380	0	DOSE-02	SOLID	<u>7.5</u>	<u>7.5</u>	<u>N/A</u>	mrad/hour

Final page for worklist # 17051

Analyst Signature Date 3-18-97

Analyst Signature Date 3-18-97

RTJ 3-18-97
370 OR 371

S97T000371 → S97T000380

Validated
3-19-97
AK Fuller

Data Entry Comments: BLK 20ml HCl + 20ml CON HNO3

SAMPLE # Nap 20ml HCl + 40ml CON HNO3 - YELLOW, CLEAR, NO SOLIDS

LABCORE Data Entry Template for Worklist# 17471

Analyst: ADP Instrument: FUS01 Book # _____Method: LA-549-141 Rev/Mod F-0

Worklist Comment: T-112 Fusion Digest C186S2 LH lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	SOLID	<u>1</u>	<u>.250</u>	<u>N/A</u>	g/L
97000152	T-112	2 SAMPLE	S97T000438	0	F	FUSION01	SOLID	<u>N/A</u>	<u>3.5108</u>	g/L
		<u>0.8777</u> → <u>.250</u>								
97000152	T-112	3 SAMPLE	S97T000438	0	F	DOSE-02	SOLID	<u>N/A</u>	<u>3.5672</u>	mrad/hour
								<u>4.00</u>		
97000152	T-112	4 DUP	S97T000438	0	F	FUSION01	SOLID	<u>3.5108</u>	<u>3.5672</u>	g/L
		<u>0.8918</u> → <u>.250</u>								
97000152	T-112	5 DUP	S97T000438	0	F	DOSE-02	SOLID	<u>7</u>	<u>7</u>	mrad/hour

Final page for worklist # 17471

Anthony Perun 4-7-97
Analyst Signature Date

Jerry Goneski 4-8-97
Analyst Signature Date

S97T000436 → S97T000438, reviewed
J. Goneski 4-8-97

Data Entry Comments:

438 SAM Dirty Brown

30 mL HNO₃

438 Dup Rusty Brown

20 mL HNO₃

Jerry Goneski: HPT

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
04/22/97 23:57

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LABCORE Data Entry Template for Worklist# 17678

Analyst: NRK Instrument: FUS01 Book # _____Method: LA-549-141 Rev/Mod F-0

Worklist Comment: T-112 FUSION DIGEST C18SS2 UH, LH lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	SOLID	<u>1</u>	<u>.250L</u>	<u>N/A</u>	g/L
97000151	T-112	2 SAMPLE .5045	S97T000591 0 F → .250L		FUSION01	SOLID	<u>N/A</u>	<u>2.018</u>		g/L
97000151	T-112	3 SAMPLE	S97T000591 0		DOSE-02	SOLID	<u>N/A</u>	<u>40</u>		mrad/hour
97000151	T-112	4 DUP .5109	S97T000591 0 F → .250L		FUSION01	SOLID	<u>2.018</u>	<u>2.044</u>	<u>N/A</u>	g/L
97000151	T-112	5 DUP	S97T000591 0		DOSE-02	SOLID	<u>40</u>	<u>50</u>	<u>N/A</u>	mrad/hour

Final page for worklist # 17678

NRK 4/23/97
Analyst Signature Date

James B. 4/23/97
Analyst Signature Date

Validated by N. Lapsins 4-23-97

Data Entry Comments:

Submitted by NRK of anal 4/23/97
Used 4001 con nitric for all samples

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
04/23/97 00:00

HNF-SD-WM-DP-243, REV. 0

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LABCORE Data Entry Template for Worklist# 17679

Analyst: MR Instrument: FUS01 Book # _____Method: LA-549-141 Rev/Mod F-0

Worklist Comment: T-112 FUSION DIGEST C186S2 UH, LH lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	SOLID	<u>1</u>	<u>.250L</u>	N/A	g/L
97000152	T-112	2 SAMPLE	S97T000596	0 F	FUSION01	SOLID	<u>N/A</u>	<u>2.202</u>		g/L
		<u>.5504</u> → <u>.250L</u>								
97000152	T-112	3 SAMPLE	S97T000596	0 F	DOSE-02	SOLID	<u>N/A</u>	<u>50</u>		mrad/hour
97000152	T-112	4 DUP	S97T000596	0 F	FUSION01	SOLID	<u>2.202</u>	<u>2.168</u>	N/A	g/L
		<u>.5420</u> → <u>.250L</u>								
97000152	T-112	5 DUP	S97T000596	0 F	DOSE-02	SOLID	<u>50</u>	<u>50</u>	N/A	mrad/hour

Final page for worklist # 17679

Not King 4/23/97
Analyst Signature Date

Justin Lee 4/25/97
Analyst Signature Date

Validated by J. Lapins 4-23-97

Data Entry Comments:

Submitted by M. King Ford 4/23/97
Used 40 ml con H₂O₂ for all samples

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.

worklist rpt Version 2.1 05/15/95
04/22/97 23:58

HNF-SD-WM-DP-243, REV: 0

Page: 1

LABCORE Data Entry Template for Worklist# 17680

Analyst: KK Instrument: H2001 Book # _____Method: LA-504-101 Rev/Mod F-0

Worklist Comment: T-112 H2O DIGEST C185S2 UH, LH lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			H2001G01	SOLID	<u>1</u>	<u>.100L</u>	N/A	g/L
97000151	T-112	2 SAMPLE	S97T000592 0 W		H2001G01	SOLID	N/A	<u>5.160</u>		g/L
		<u>.5160</u> → <u>.100L</u>								
97000151	T-112	3 SAMPLE	S97T000592 0		DOSE-02	SOLID	N/A	<u>4</u>		mrad/hour
97000151	T-112	4 DUP	S97T000592 0 W		H2001G01	SOLID	<u>5.160</u>	<u>5.185</u>	N/A	g/L
		<u>.5185</u> → <u>.100L</u>								
97000151	T-112	5 DUP	S97T000592 0		DOSE-02	SOLID	<u>4</u>	<u>4</u>	N/A	mrad/hour
97000151	T-112	6 SAMPLE	S97T000593 0 W		H2001G01	SOLID	N/A	<u>4.870</u>		g/L
		<u>.4870</u> → <u>.100L</u>								
97000151	T-112	7 SAMPLE	S97T000593 0		DOSE-02	SOLID	N/A	<u>3.5</u>		mrad/hour
97000151	T-112	8 DUP	S97T000593 0 W		H2001G01	SOLID	<u>4.870</u>	<u>4.874</u>	N/A	g/L
		<u>.4874</u> → <u>.100L</u>								
97000151	T-112	9 DUP	S97T000593 0		DOSE-02	SOLID	<u>3.5</u>	<u>3.5</u>	N/A	mrad/hour

Final page for worklist # 17680

Walt Kern 4/23/97
Analyst Signature Date

Susan Bee 4/23/97
Analyst Signature Date

[Signature] 4-23-97
REVIEWER SIGNATURE DATE

Data Entry Comments:
HPT = Chuck Felder

Units shown for QC (SPK & SID) 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
04/22/97 23:58

HNF-SD-WM-DP-243, REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 17681

Analyst: MM Instrument: H2O01 Book # _____Method: LA-504-101 Rev/Mod F-0

Worklist Comment: T-112 H2O DIGEST C186S2 UH, LH lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			H2O01G01	SOLID	<u>1</u>	<u>1000</u>	N/A	g/L
97000152	T-112	2 SAMPLE	S971000594 0 W		H2O01G01	SOLID	N/A	<u>5.540</u>		g/L
		<u>5.540</u> → <u>1000</u>								
97000152	T-112	3 SAMPLE	S971000594 0		DOSE-02	SOLID	N/A	<u>3.5</u>		mrads/hour
97000152	T-112	4 DUP	S971000594 0 W		H2O01G01	SOLID	<u>5.540</u>	<u>5.470</u>	N/A	g/L
		<u>5.470</u> → <u>1000</u>								
97000152	T-112	5 DUP	S971000594 0		DOSE-02	SOLID	<u>3.5</u>	<u>3.5</u>	N/A	mrads/hour
97000152	T-112	6 SAMPLE	S971000595 0 W		H2O01G01	SOLID	N/A	<u>5.110</u>		g/L
		<u>5.110</u> → <u>1000</u>								
97000152	T-112	7 SAMPLE	S971000595 0		DOSE-02	SOLID	N/A	<u>3.5</u>		mrads/hour
97000152	T-112	8 DUP	S971000595 0 W		H2O01G01	SOLID	<u>5.110</u>	<u>5.147</u>	N/A	g/L
		<u>5.147</u> → <u>1000</u>								
97000152	T-112	9 DUP	S971000595 0		DOSE-02	SOLID	<u>3.5</u>	<u>3.5</u>	N/A	mrads/hour

Final page for worklist # 17681

Analyst Signature MM Date 4/23/97Analyst Signature Susan Du Date 4/23/97

MM 4-23-97
 REVIEWER SIGNATURE DATE

Data Entry Comments:

HPT = Chuck Jordan 4/23/97

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.

HWP 10/18/97
WMC-SD-WM-DP-243, REV. 0

T-112 BULK DENSITY WORKSHEETS

~~HMF-SD-WM-DP-243~~, REV. 0

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Bulk Density Worksheet

Requestor: R. F. Sten

Date: 4/4/87

Tank: T-112
Core: 186
Seg: 2 UH
Auger: 2 UH

Sample ID: 5977000433

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

Jar#: 12182
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

Cone#: 12182
Final Vol: 7.5 mL
Initial Weight: 7.54 g
Final Weight: 17.98 g
Net Weight: 10.44 g

Sample ID: _____

Appearance/Narrative: _____

B/K Den = 10.44 g / 7.5 mL
" = 1.39 g/mL

Tank: T-112
Core: 186
Seg: 2 UH
Auger: 2 UH

Sample ID: 5977000434

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

Jar#: 12183
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

Cone#: 12183
Final Vol: 10.3 mL
Initial Weight: 7.50 g
Final Weight: 20.08 g
Net Weight: 12.58 g

Sample ID: _____

Appearance/Narrative: _____

B/K Den = 12.58 / 10.3
" = 1.22 g/mL

Bulk Density Worksheet

Requestor: Stein

Date: 3/12/67

Tank: 7-112
Core: 185
Seg: 2 LH
Auger: _____

Sample ID: SA71000X09

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

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

Cone#: _____
Final Vol: 8.25 mL
Initial Weight: 17.4 g
Final Weight: 17.54 g
Net Weight: 10.14 g

Sample ID: _____

Appearance/Narrative: _____

10.14 = 1.23 g/L
8.25

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

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

Jar#: CL
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: 12.97 g
Net Weight: _____ g

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

Sample ID: _____

Appearance/Narrative: _____

HNE Kna 4/4/01
WHC-SD-WM-DP-243, REV. 0

INORGANIC ANALYSES

HNF 2nd 4/6/97
WHC-SD-WM-DP-243, REV. 0

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worklistrpt Version 2.1 05/15/95
03/13/97 14:27

HNF-SD-WM-DP-243, REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 16992

Analyst: DPB Instrument: DSC0 1 Book # 12 N14BMethod: LA-514-113 Rev/Mod C-1

Worklist Comment: T-112, DSC-01, Run under nitrogen. skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	LIQUID	<u>28.45</u>	<u>25.1X</u>	<u>N/A</u>	Joules/g
97000151	T-112	2 SAMPLE	S97T000374	0	DSC-01	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g
97000151	T-112	3 DUP	S97T000374	0	DSC-01	LIQUID	<u>6</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000151	T-112	4 SAMPLE	S97T000376	0	DSC-01	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g
97000151	T-112	5 DUP	S97T000376	0	DSC-01	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16992

Analyst Signature

Date

Analyst Signature

Date

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 166 TO 170

DSC STD 12N14B N2

13.910 mg

Rate: 10.0 °C/min

File: 00108.001

DSC METTLER 13-Mar-97

Ident: 0.0

222-S Laboratory

HNF-SD-WM-DP-243, REV. 0

Daniel P. Bromley 3/13/97

S97T000374 SAM N2

File: 00110.001 DSC METTLER 13-Mar-97

11.270 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

exo

20. mW

69

Integration

Delta H13353 mJ

1184.8 J/g

Peak 111.5°C

-61.9 mW

100.

200.

300.

400.

°C

HNF-SD-WM-DP-243, REV. 0

LABCORE Data Entry Template for Worklist# 16993

Analyst: DPB Instrument: DSC0 1 Book # 12N14B

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

Worklist Comment: T-112, DSC-01, Run under nitrogen. skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	LIQUID	<u>28.45</u> <u>24.85</u> <u>25.0</u>	<u>25.0</u>	<u>N/A</u>	Joules/g
97000151	T-112	2 SAMPLE	S97T000377 0		DSC-01	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g
97000151	T-112	3 DUP	S97T000377 0		DSC-01	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16993

Tamir P. Brynley 3/14/97 0505 R. Jones 3-18-97
Analyst Signature Date Analyst Signature Date
Validated 3/18/97 Bachelor

Laped 3B
3-17-97

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.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 72 TO 74

DSC STD 12N14B N2

13.910 mg

Rate: 10.0 °C/min

File: 00108.001

DSC METTLER

13-Mar-97

Ident: 0.0

222-S Laboratory

exo

10. mW

Integration

Delta H 348 mJ

25.0 J/g

Peak 156.1°C

-23.2 mW

120.

130.

140.

150.

160.

170.

°C

HNF-SD-WM-DP-243, REV. 0

72
Daniel P. Browley 3/13/97

S97T000377 SAM N2
9.428 mg
Rate: 10.0 °C/min
File: 00007.001
Ident: 0.0
DSC METTLER 14-Mar-97
222-S Laboratory

S97T000377 DUP N2
10.181 mg
Rate: 10.0 °C/min
File: 00009.001
Ident: 0.0
DSC METTLER
222-S Laboratory
14-Mar-97

LABCORE Data Entry Template for Worklist# 17027

Analyst: DMJM Instrument: DSC0 3 Book # 12N14B

Method: LA-514-114 Rev/Mod DO

Worklist Comment: T-112, DSC-01 skm

COUNT	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>24.85</u>	<u>26.40</u>	<u>N/A</u>	Joules/g
97000151	T-112	2 SAMPLE	S97T000370	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000151	T-112	3 DUP	S97T000370	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000151	T-112	4 SAMPLE	S97T000371	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000151	T-112	5 DUP	S97T000371	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17027

See Attached for Signature
Analyst Signature Date

3-18-97
Analyst Signature Date

Validated 3/20/97 Drachlor

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 17027

Analyst: RLM Instrument: DSC0 03 Book # 12N14B

Method: LA-514-¹¹⁴~~113~~ Rev/Mod DD

Worklist Comment: T-112, DSC-01 skm
also 3/16/97

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>24.85</u>	<u>26.40</u>	<u>N/A</u>	Joules/g
97000151	T-112	2 SAMPLE	S97T000370	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000151	T-112	3 DUP	S97T000370	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000151	T-112	4 SAMPLE	S97T000371	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000151	T-112	5 DUP	S97T000371	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17027

RL McCann 3/16/97
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

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

Curve 1: DSC

File info: IND031502 Sat Mar 15 17:03:13 1997

Sample Weight: 27.650 mg

STD 12N14-B

N2, EXOTHERM DOWN

TEMP: 140.0 °C TIMES: 0.0 min RATE: 10.0 °C/min

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 15 17:10:13 1997

HNF-SD-WM-DP-243, REV. 0

Curve 1: DSC

File info: SAM031513 Sat Mar 15 18:37:22 1997

Sample Weight: 15.180 mg

S97T000370 SAM

78

N2 10C/min
TEMP: 35.0 °C
TIME: 0.0 min RATE: 10.0 °C/min

Temperature (°C)

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 15 19:21:57 1997

HNF-SD-WM-DP-243, REV.0

Curve 1: DSC

File info: SAM031514 Sat Mar 15 20:26:04 1997

Sample Weight: 18.540 mg

S97T000370 DUP

N2 10C/min

TEMP1: 35.0 °C
TEMP2: 500.0 °C

TIME1: 0.0 min RATE1: 10.0 °C/min

Temperature (°C)

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 15 20:29:45 1997

HNF-SD-WM-DP-243, REV. 0

Curve 1: DSC

File info: SAM031515 Sat Mar 15 21:30:54 1997

Sample Weight: 15.340 mg

S97T000371 SAM

N2 10C/min

TEMP: 35.0 °C
TEMP: 500.0 °C

TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 15 21:31:21 1997

HNF-SD-WM-DP-243, REV.0

Curve 1: DSC

File info: SAM031516 Sat Mar 15 22: 23: 50 1997

Sample Weight: 19.580 mg

S97T000371 DUP

N2 10C/min

TEMP1: 35.0 °C
TEMP2: 500.0 °C

TIME1: 0.0 min RATE1: 10.0 °C/min

Temperature (°C)

PJ MCCOWN

PERKIN-ELMER

7 Series Thermal Analysis System

Sun Mar 16 01:10:11 1997

HNF-SD-WM-DP-243, REV. 0

worklistrpt Version 2.1 05/15/95
03/20/97 10:53

Page: 1

LABCORE Data Entry Template for Worklist# 17124

Analyst: ppb Instrument: DSC01 Book # N/AMethod: LA-514-113 Rev/Mod Q2 3/21/97Worklist Comment: DSC-02 T-112 2 Q2 3/20/97 -PPB

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
97000151	T-112	1 SAMPLE	S97T000374	0	DSC-02	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000151	T-112	2 DUP	S97T000374	0	DSC-02	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000151	T-112	3 SAMPLE	S97T000376	0	DSC-02	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000151	T-112	4 DUP	S97T000376	0	DSC-02	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000151	T-112	5 SAMPLE	S97T000377	0	DSC-02	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000151	T-112	6 DUP	S97T000377	0	DSC-02	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry

Final page for worklist # 17124

SS Rachelor 3/21/97
Analyst Signature Date_____
Analyst Signature Date

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 17180Analyst: ppb Instrument: DSC01 _____ Book # NAMethod: LA-514-113 Rev/Mod 3/25/97

Worklist Comment: DSC-02 T-112 solid. -PPB

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
97000151	T-112	1 SAMPLE	S97T000370	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000151	T-112	2 DUP	S97T000370	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000151	T-112	3 SAMPLE	S97T000371	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000151	T-112	4 DUP	S97T000371	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry

Final page for worklist # 17180

ppb 3/25/97
 Analyst Signature Date

 Analyst Signature Date

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 17496

Analyst: EAL Instrument: DSC0 3 Book # 12N148

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: T-112 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>27.11</u>	<u>N/A</u>	Joules/g
97000152	T-112	2 SAMPLE	S97T000435	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000152	T-112	3 DUP	S97T000435	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000152	T-112	4 SAMPLE	S97T000436	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000152	T-112	5 DUP	S97T000436	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17496

John Jure for Ann Terebel 4/23/97
Analyst Signature Date
See original for signature
Validated 4/30/97 Drachlor

John Jure 4-25-97
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.

worklistrpt Version 2.1 05/15/95
04/08/97 23:57

Page: 1

LABCORE Data Entry Template for Worklist# 17496

Analyst: EDL Instrument: DSC0 3 Book # 97003-A ^{at 04.11.97} 12N14BMethod: LA-514-113 Rev/Mod D.O

Worklist Comment: T-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	27.11	N/A	Joules/g
97000152	T-112	2 SAMPLE	S97T000435	0	DSC-01	SOLID	N/A	0		Joules/g
97000152	T-112	3 DUP	S97T000435	0	DSC-01	SOLID	0	0	N/A	Joules/g
97000152	T-112	4 SAMPLE	S97T000436	0	DSC-01	SOLID	N/A	0		Joules/g
97000152	T-112	5 DUP	S97T000436	0	DSC-01	SOLID	0	0	N/A	Joules/g

Final page for worklist # 17496

A. Lambel

Date

04.11.97

Analyst Signature

Date

Data Entry Comments:

Ban on P.E. as Mettler is currently down. @

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: IDN041101 Fri Apr 11 07:31:41 1997

Sample Weight: 13.910 mg

STD 12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 86 TO 91

A. Lambel 04.11.97

HNF-SD-WM-DP-243, REV. 0

98

Heat Flow (mW)

N2, EXOTHERM DOWN

TEMP: 140.0 °C TIME: 0.0 min RATE: 10.0 °C/min

Temperature (°C)

EA LAMBEL
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Apr 11 07:38:20 1997

Curve 1: DSC

File info: SAM041102 Fri Apr 11 08:29:05 1997

Sample Weight: 18.870 mg

S97T000435

N2 10C/min

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

04-11-97

SM FULTON-EA LAMBEL

PERKIN-ELMER

7 Series Thermal Analysis System

Fri Apr 11 09:37:47 1997

HNF-SD-WM-DP-243, REV. 0

Curve 1: DSC

File info: SAM041103 Fri Apr 11 10:33:43 1997

Sample Weight: 17.910 mg

S97T000435 DUP.

88

N2 10C/min

TEMP: 25.0 °C
TEMP: 500.0 °C

TIMER: 0.0 min RATE: 10.0 C/min

Temperature (°C)

SM-FULTON E.A. LAMBEL
PERKIN-ELMER

7 Series Thermal Analysis System
Fri Apr 11 10:36:09 1997

HNF-SD-WM-DP-243, REV. 0

Curve 1: DSC

File info: SAM041104 Fri Apr 11 11:39:05 1997

Sample Weight: 26.170 mg

S97T000436

TEMP: 55.0 °C

TEMP: 55.0 °C

TIME: 0.0 min RATE: 10.0 C/min

EA LAMBEL

PERKIN-ELMER

7 Series Thermal Analysis System

Fri Apr 11 13:03:41 1997

HNF-SD-WM-DP-243, REV. 0

Curve 1: DSC
 File info: SAK041105 Fri Apr 11 13:55:09 1997
 Sample Weight: 29.250 mg
 S97T000436 DUP

EA LABEL
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fri Apr 11 14:06:31 1997

N2 100C/min
 TIME: 0.0 min RATE: 10.0 C/min
 TIME: 0.0 min

LABCORE Data Entry Template for Worklist# 17855

Analyst: ppb Instrument: DSC01 Book # NA

Method: LA-514-113 Rev/Mod 280 4/30/97

Worklist Comment: DSC-02 solid T-112. -PPB

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
97000152	T-112	1 SAMPLE	S97T000435	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000152	T-112	2 DUP	S97T000435	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000152	T-112	3 SAMPLE	S97T000436	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000152	T-112	4 DUP	S97T000436	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry

Final page for worklist # 17855

RX Michelon 4/30/97
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 17001

Analyst: DPB Instrument: TGA0 1 Book # 97 N8-A

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

Worklist Comment: T-112 TGA01 RUN UNDER NITROGEN LMH

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	LIQUID	<u>59.4</u>	<u>59.39</u>	<u>N/A</u>	%
97000151	T-112	2	SAMPLE	S97T000374	0		TGA-01	LIQUID	<u>N/A</u>	<u>85.13</u>		%
97000151	T-112	3	DUP	S97T000374	0		TGA-01	LIQUID	<u>85.13</u>	<u>85.16</u>	<u>N/A</u>	%
97000151	T-112	4	SAMPLE	S97T000376	0		TGA-01	LIQUID	<u>N/A</u>	<u>84.90</u>		%
97000151	T-112	5	DUP	S97T000376	0		TGA-01	LIQUID	<u>84.90</u>	<u>85.01</u>	<u>N/A</u>	%

Final page for worklist # 17001

Daniel P. Brandy 3/14/97 0500 DPB
Analyst Signature Date Analyst Signature Date
Validated 3/18/97 DPB

Daniel B B
3-17-97

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.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES: 93 TO 97.

TGA STD 97N8-A N2

23.419 mg

Rate: 10.0 °C/min

File: 00109.001

TG

METTLER

13-Mar-97

Ident: 0.0

222-S Laboratory

Step Analysis

Height-13.91 mg

-59.39 %

ResidC. 9.51 mg

40.61 %

Dpeak 102.5°C

Dannd P. Browley 3/13/97

S97T000374 SAM N2

11.031 mg

Rate: 10.0 °C/min

File: 00111.001

TG

METTLER

13-Mar-97

Ident: 0.0

222-S Laboratory

Step Analysis

Height -9.39 mg

-85.13 %

Resid. 1.64 mg

14.87 %

Dpeak 95.0 °C

36

S97T000374 DUP N2
10.685 mg

Rate: 10.0 °C/min

File: 00002.001

TG METTLER 13-Mar-97
Ident: 0.0 222-S Laboratory

Step Analysis
Height -9.10 mg
-85.16 %
Resid. 1.59 mg
14.84 %
Dpeak 95.0 °C

S97T000376 SAM N2
16.602 mg
Rate: 10.0 °C/min
File: 00004.001 TG METTLER 13-Mar-97
Ident: 0.0 222-S Laboratory

S97T000376 DUP N2

11.681 mg

Rate: 10.0 °C/min

File: 00006.001

Ident: 0.0

TG METTLER

14-Mar-97

222-S Laboratory

Step Analysis

Height -9.93 mg

-85.01 %

Resid. 1.75 mg

14.99 %

Dpeak 97.0 °C

LABCORE Data Entry Template for Worklist# 17002

Analyst: DPB Instrument: TGA0 1 Book # 97N8-A

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

Worklist Comment: T-112 TGA01 RUN UNDER NITROGEN LMH

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	LIQUID	<u>59.4</u>	<u>59.39*</u>	<u>N/A</u>	%
97000151	T-112	2 SAMPLE	S97T000377	0	TGA-01	LIQUID	<u>N/A</u>	<u>100.45</u>		%
97000151	T-112	3 DUP	S97T000377	0	TGA-01	LIQUID	<u>100.45</u>	<u>100.22</u>	<u>N/A</u>	%

Final page for worklist # 17002

Amel P. Brandy 3/4/97 0508 3-18-97
Analyst Signature Date Analyst Signature Date

Validated 3/18/97 Brachlor

for 3B
3-17-97

Data Entry Comments: SAMPLE OUT OF RANGE. RS 3-18-97

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 99 TO 100.

TGA STD 97N8-A N2

23.419 mg

Rate: 10.0 °C/min

File: 00109.001 TG METTLER 13-Mar-97

Ident: 0.0

222-S Laboratory

Step Analysis

Height-13.91 mg

-59.39 %

ResiC. 9.51 mg

40.61 %

Dpeak 102.5 °C

HNF-SD-MM-DP-243, REV. 0

David P. Browley 3/13/97

S97T000377 SAM N2
10.107 mg

Rate: 10.0 °C/min

File: 00008.001 TG METTLER 14-Mar-97
Ident: 0.0 222-S Laboratory

Step Analysis
Height-10.15 mg
-100.45 %
Resid. -0.05 mg
-0.45 %

5. mg

°C

400.

300.

200.

100.

worklistrpt Version 2.1 05/15/95
03/14/97 15:24

HNF-SD-WM-DP-243, REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 17037

Analyst: ADP Instrument: TGA0 1 Book # 2908-A ^{RS} 3-18-97
 Method: LA-560-112 Rev/Mod C-0 97N 8A
 Worklist Comment: T-112, TGA-01 skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<u>59.4</u>	<u>59.21</u>	<u>N/A</u>	%
97000151	T-112	2 SAMPLE	S97T000370 0		TGA-01	SOLID	<u>N/A</u>	<u>78.67</u> <u>5.05</u>	<u>78.67</u>	%
97000151	T-112	3 DUP	S97T000370 0		TGA-01	SOLID	<u>78.67</u>	<u>77.81</u>	<u>N/A</u>	%
97000151	T-112	4 SAMPLE	S97T000371 0		TGA-01	SOLID	<u>N/A</u>	<u>77.54</u>		%
97000151	T-112	5 DUP	S97T000371 0		TGA-01	SOLID	<u>77.54</u>	<u>75.15</u>	<u>N/A</u>	%

Final page for worklist # 17037

Analyst Signature

Date

Validated 3/20/97 Wacheb

Analyst Signature

Date

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 102 TO 106

TER 97N8-A N2

22.019 mg

Rate: 10.0 °C/min

File: 00086.001

TG

METTLER

18-Mar-97

Ident: 0.0

222-S Laboratory

5. mg

102

Step Analysis

Height-13.04 mg

-59.21 %

ResidC. 8.98 mg

40.79 %

Dpeak 110.0 °C

HNF-SD-WM-DP-243, REV. 0

S97T000370 SAM N2

31.587 mg

Rate: 10.0 °C/min

File: 00087.001 TG METTLER 18-Mar-97

Ident: 0.0

222-S Laboratory

Step Analysis

Height-23.25 mg

-73.62 %

ResiC. 8.30 mg

26.28 %

Step Analysis

Height -1.60 mg

-5.05 %

ResiC. 6.71 mg

21.23 %

HNF-SD-WM-DP-243, REV. 0

S97T000370 DUP N2

15.591 mg

Rate: 10.0 °C/min

File: 00088.001

TG METTLER 18-Mar-97

Ident: 0.0

222-S Laboratory

Step Analysis

Height-11.38 mg

-73.01 %

Resid. 4.21 mg

26.99 %

Step Analysis

Height -0.75 mg

-4.80 %

Resid. 3.46 mg

22.19 %

S97T000371 SAM N2

20.324 mg

Rate: 10.0 °C/min

File: 00001.001

TG METTLER 18-Mar-97

Ident: 0.0

222-S Laboratory

Step Analysis

Height-15.14 mg

-74.50 %

ResiC. 5.18 mg

25.50 %

Step Analysis

Height -0.62 mg

-3.04 %

ResiC. 4.57 mg

22.47 %

S97T000371 TRP N2
13.654 mg
Rate: 10.0 °C/min
File: 00003.001 TG METTLER 19-Mar-97
Ident: 0.0 222-S Laboratory

Step Analysis
Height-10.26 mg
-75.15 %
Resid. 3.39 mg
24.85 %
Dpeak 99.0 °C

LABCORE Data Entry Template for Worklist# 17497

Analyst: EAL Instrument: TGA0 3 Book # 97W8A

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: T-112 TGA, RUN UNDER N2. RCI

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	SOLID	<u>59.4</u>	<u>58.32</u>	<u>N/A</u>	%
97000152	T-112	2 SAMPLE	S97T000435	0	TGA-03	SOLID	<u>N/A</u>	<u>58.74</u>		%
97000152	T-112	3 DUP	S97T000435	0	TGA-03	SOLID	<u>58.74</u>	<u>72.53</u>	<u>N/A</u>	%
97000152	T-112	4 SAMPLE	S97T000436	0	TGA-03	SOLID	<u>N/A</u>	<u>74.22</u>		%
97000152	T-112	5 DUP	S97T000436	0	TGA-03	SOLID	<u>74.22</u>	<u>76.61</u>	<u>N/A</u>	%

Final page for worklist # 17497

James Fure for Ann Label 4/24/97
Analyst Signature Date

James Fure 4-25-97
Analyst Signature Date

See original for signature
Validated 4/30/97 SShachelor

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# 17497

Analyst: SAL Instrument: TGA0 3 Book # 97N8A

Method: LA-560-112 Rev/Mod D.O

Worklist Comment: T-112 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<u>59.4</u>	<u>58.32</u>	N/A	%
97000152	T-112	2 SAMPLE	S97T000435	0	TGA-01	SOLID	N/A	<u>58.78</u>		%
97000152	T-112	3 DUP	S97T000435	0	TGA-01	SOLID	<u>58.78</u>	<u>72.53</u>	N/A	%
97000152	T-112	4 SAMPLE	S97T000436	0	TGA-01	SOLID	N/A	<u>74.221</u>		%
97000152	T-112	5 DUP	S97T000436	0	TGA-01	SOLID	<u>74.221</u>	<u>76.64</u>	N/A	%

Final page for worklist # 17497

A. Lambel
Analyst/Signature

04.11.97
Date

Analyst Signature

Date

Data Entry Comments:

Ran on P.E. as Mettler is currently down.

Curve 1: TGA

File info: TER041101 Fri Apr 11 07: 47: 22 1997

Sample Weight: 20.121 mg

TGA STD 97N8-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 109 TO 113.

A. Lambel 04.11.97

N2 10C/MIN
TEMP: 35.0 °C

TIME: 0.0 min RATE: 10.0 °C/min

EA LAMBEL
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Apr 11 07: 48: 27 1997

HN-SD-WM-DP-243, REV. 0

Curve 1: TGA

File info: SAM041102 Fri Apr 11 08:41:10 1997

Sample Weight: 29.042 mg

S97T000435

110

10C/MIN N2

TEMP: 35.0 °C
TEMP: 500.0 °C

TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

EA LABEL
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Apr 11 09:26:52 1997

HNF-SD-WM-DP-243, REV. 0

Curve 1: TGA

File info: SAM041103 Fri Apr 11 10:21:58 1997

Sample Weight: 23.501 mg

S97T000435 DUP

10C/MIN N2
TEMP: 25.0 °C TIME: 0.0 min RATE: 10.0 C/min

EA LAMBEL
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Apr 24 11:07:58 1997

HNF-SD-WM-DP-243, REV.0

Curve 1: TGA
File info: SAM041104 Fri Apr 11 11:45:18 1997
Sample Weight: 13.029 mg
S97T000436

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

EA LAMBEL
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Apr 11 12:41:26 1997

HNF-SD-WM-DP-243, REV. 0

Curve 1: TGA

File info: SAM041105 Fri Apr 11 13: 49: 08 1997

Sample Weight: 29.960 mg

S97T000436 DUP

10C/MIN N2

TEMP: 25.0 °C
TIME: 000.0 s

TIMER: 0.0 min RATE: 10.0 C/min

Temperature (°C)

EA LAMBEL
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Apr 11 14: 14: 13 1997

HNF-SD-WM-DF-243, REV.0

LABCORE Data Entry Template for Worklist# 17011

Analyst: JSB Instrument: BA001 Book # 133N16-A

Method: LA-510-112 Rev/Mod _____

Worklist Comment: T-112, SPG-01 Use a cal. pipette. skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			SPG-01	LIQUID	<u>1.391</u>	<u>1.375</u>	<u>N/A</u>	Sp.G.
97000151	T-112	2 SAMPLE	S97T000374	0	SPG-01	LIQUID	<u>N/A</u>	<u>1.109</u>	<u>0.01</u>	Sp.G.
97000151	T-112	3 DUP	S97T000374	0	SPG-01	LIQUID	<u>1.109</u>	<u>1.101</u>	<u>N/A</u>	Sp.G.
97000151	T-112	4 SAMPLE	S97T000376	0	SPG-01	LIQUID	<u>N/A</u>	<u>1.101</u>	<u>0.01</u>	Sp.G.
97000151	T-112	5 DUP	S97T000376	0	SPG-01	LIQUID	<u>1.101</u>	<u>1.105</u>	<u>N/A</u>	Sp.G.
97000151	T-112	6 SAMPLE	S97T000377	0	SPG-01	LIQUID	<u>N/A</u>	<u>.985</u>	<u>0.01</u>	Sp.G.
97000151	T-112	7 DUP	S97T000377	0	SPG-01	LIQUID	<u>.985</u>	<u>.981</u>	<u>N/A</u>	Sp.G.

Final page for worklist # 17011

JSB 3-15-97
Analyst Signature Date

Susan Del 3/16/97
Analyst Signature Date

Rolf W. Schuch 3/18/97

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.

std = 2nch

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

WORKLIST

ANALYST

ANALYSIS
DATEANALYSIS
TIMEINSTRUMENT
CODE

WORKLIST

ANALYST

ANALYSIS
DATEANALYSIS
TIMEINSTRUMENT
CODE

17011

D.B.B.

3-15-97

☒ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # = 133216-A

TARE WEIGHT (g) 1.3560
GROSS WEIGHT (g) 1.4591
VOL. of SOLUTION (mL) 0.07514

REPLICATE
1.4176
1.5211
0.07514

☐ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # =

TARE WEIGHT (g)
GROSS WEIGHT (g)
VOL. of SOLUTION (mL)

REPLICATE

☒ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # = 5977000374

STD # =

TARE WEIGHT (g) 1.3755
GROSS WEIGHT (g) 1.4588
VOL. of SOLUTION (mL) 0.07514

REPLICATE
1.3784
1.4611
0.07514

☐ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # =

TARE WEIGHT (g)
GROSS WEIGHT (g)
VOL. of SOLUTION (mL)

REPLICATE

☒ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # = 5977000376

STD # =

TARE WEIGHT (g) 1.3750
GROSS WEIGHT (g) 1.4577
VOL. of SOLUTION (mL) 0.07514

REPLICATE
1.3341
1.4171
0.07514

☐ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # =

TARE WEIGHT (g)
GROSS WEIGHT (g)
VOL. of SOLUTION (mL)

REPLICATE

☒ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # = 5977000377

STD # =

TARE WEIGHT (g) 1.3878
GROSS WEIGHT (g) 1.4618
VOL. of SOLUTION (mL) 0.07514

REPLICATE
1.4054
1.4791
0.07514

☐ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # =

TARE WEIGHT (g)
GROSS WEIGHT (g)
VOL. of SOLUTION (mL)

REPLICATE

HNF-SD-WM-DP-243, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		STD	REPLICATE
STD	Gross Weight (W2)	1.4591	1.5211
Work List	Tare Weight (W1)	1.3560	1.4176
17011	Weight of Solution (W2-W1)	0.1031	0.1035
Test Code	Volume of Solution μ L	75.1400	75.1400
SPG-01	Specific Gravity	1.3721	1.3774
Matrix	Specific Gravity (Average)	1.3748	
LIQUID			
Sample #			
STD			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DGG	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L}/\text{mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
03/16/97	$\checkmark$ RESULT $\checkmark$		
Time	Specific Gravity Average =	1.375	
07:00 PM			

Data Entry by:	Sue Bee	Date:	03/16/97
Approved by:	RW Scholten	Date:	3/18/97

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.4588	
WorkList	Tare Weight (W1)	1.3755	
17011	Weight of Solution (W2-W1)	0.0833	0
TestCode	Volume of Solution μ L	75.1400	
SPG-01	Specific Gravity	1.1086	NA
Matrix			
LIQUID			
Sample #			
S97T000374			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DGG	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
03/16/97	v RESULT v		
Time	Specific Gravity =	1.109	
07:00 PM			

Data Entry by: *SOE Bee* Date: 03/16/97Approved by: *RW Schroeder* Date: 3/18/97

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		DUP	REPLICATE
DUP	Gross Weight (W2)	1.4611	
Work List	Tare Weight (W1)	1.3784	
17011	Weight of Solution (W2-W1)	0.0827	0
Test Code	Volume of Solution μ L	75.1400	
SPG-01	Specific Gravity	1.1006	NA
Matrix			
LIQUID			
Sample #			
S97T000374			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DGG	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
03/16/97	$\checkmark$ RESULT $\checkmark$		
Time	Specific Gravity =	1.101	
07:00 PM			

Data Entry by:	<i>Sue Bee</i>	Date:	03/16/97
Approved by:	<i>RW Schroeder</i>	Date:	3/18/97
Form 510112L1 Rev. 1.1		Page 1 of 1	

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.4577	
WorkList	Tare Weight (W1)	1.3750	
17011	Weight of Solution (W2-W1)	0.0827	0
Test Code	Volume of Solution μ L	75.1400	
SPG-01	Specific Gravity	1.1006	NA
Matrix			
LIQUID			
Sample #			
S97T000376			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DGG	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
03/16/97	v RESULT v		
Time	Specific Gravity =	1.101	
07:00 PM			

Data Entry by:

Sue Bee

Date:

03/16/97

Approved by:

RW Schneider

Date:

3/18/97

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		DUP	REPLICATE
DUP	Gross Weight (W2)	1.4171	
Work List	Tare Weight (W1)	1.3341	
17011	Weight of Solution (W2-W1)	0.083	0
Test Code	Volume of Solution μ L	75.1400	
SPG-01	Specific Gravity	1.1046	NA
Matrix			
LIQUID			
Sample #			
S97T000376			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DGG	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
03/16/97	v RESULT v		
Time	Specific Gravity =	1.105	
07:00 PM			

Data Entry by:	<i>Sue Bee</i>	Date:	03/16/97
Approved by:	<i>RW Schroeder</i>	Date:	3/18/97

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.4618	
Work List	Tare Weight (W1)	1.3878	
17011	Weight of Solution (W2-W1)	0.074	0
Test Code	Volume of Solution μ L	75.1400	
SPG-01	Specific Gravity	0.9848	NA
Matrix			
LIQUID			
Sample #			
S97T000377			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DGG	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
03/16/97	$\checkmark$ RESULT $\checkmark$		
Time	Specific Gravity =	0.985	
07:00 PM			

Data Entry by:	<i>Sue Bee</i>	Date:	03/16/97
Approved by:	<i>RW Scholden</i>	Date:	3/18/97
Form 510112L1 Rev. 1.1		Page 1 of 1	

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		DUP	REPLICATE
DUP	Gross Weight (W2)	1.4791	
Work List	Tare Weight (W1)	1.4054	
17011	Weight of Solution (W2-W1)	0.0737	0
Test Code	Volume of Solution μ L	75.1400	
SPG-01	Specific Gravity	0.9808	NA
Matrix			
LIQUID			
Sample #			
S97T000377			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DGG	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
03/16/97	v RESULT v		
Time	Specific Gravity =	0.981	
07:00 PM			

Data Entry by:	Sue Bee	Date:	03/16/97
Approved by:	PW Schroeder	Date:	3/18/97

LABCORE Completed Worklist Report for Worklist# 17691

Analyst: rag

Instrument: IC01

Book# 50220C

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

Worklist Comment: T112, @IC-01 skm

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	6.02e+01	102.034 % Recovery	
2	CCV	0	@IC-QC CL	QC	7.90e01	8.58e+01	108.608 % Recovery	
2	CCV	0	@IC-QC NO2	QC	5.51e02	5.86e+02	106.352 % Recovery	
2	CCV	0	@IC-QC BR	QC	5.89e02	6.13e+02	104.075 % Recovery	
2	CCV	0	@IC-QC NO3	QC	5.94e02	6.36e+02	107.071 % Recovery	
2	CCV	0	@IC-QC PO4	QC	5.45e02	5.86e+02	107.523 % Recovery	
2	CCV	0	@IC-QC SO4	QC	5.31e02	6.65e+02	105.388 % Recovery	
2	CCV	0	@IC-QC OXALATE2	QC	5.50e02	6.09e+02	110.727 % Recovery	
3	SAMPLE	S97T000374	0	@IC-01 F-02	LIQUID	N/A	4.238e+02	25.450 ug/mL
3	SAMPLE	S97T000374	0	@IC-01 CL-02	LIQUID	N/A	4.892e+02	36.060 ug/mL
3	SAMPLE	S97T000374	0	@IC-01 NO2-02	LIQUID	N/A	4.047e+04	229.100 ug/mL
3	SAMPLE	S97T000374	0	@IC-01 BR-02	LIQUID	N/A	< 2.651e+02	265.100 ug/mL
3	SAMPLE	S97T000374	0	@IC-01 NO3-02	LIQUID	N/A	2.382e+04	294.800 ug/mL
3	SAMPLE	S97T000374	0	@IC-01 PO4-02	LIQUID	N/A	1.963e+03	254.500 ug/mL
3	SAMPLE	S97T000374	0	@IC-01 SO4-02	LIQUID	N/A	9.498e+02	292.700 ug/mL
3	SAMPLE	S97T000374	0	@IC-01 OXALATE2	LIQUID	N/A	1.414e+03	222.700 ug/mL
4	DUP	S97T000374	0	@IC-01 F-02	LIQUID	4.24e+02	4.10e+02	3.357 RPD
4	DUP	S97T000374	0	@IC-01 CL-02	LIQUID	4.89e+02	5.21e+02	6.337 RPD
4	DUP	S97T000374	0	@IC-01 NO2-02	LIQUID	4.05e+04	4.10e+04	1.227 RPD
4	DUP	S97T000374	0	@IC-01 BR-02	LIQUID	<2.65e2	<2.65e2	RPD
4	DUP	S97T000374	0	@IC-01 NO3-02	LIQUID	2.38e+04	2.38e+04	0.000 RPD
4	DUP	S97T000374	0	@IC-01 PO4-02	LIQUID	1.96e+03	1.93e+03	1.542 RPD
4	DUP	S97T000374	0	@IC-01 SO4-02	LIQUID	9.50e+03	1.01e+04	6.122 RPD
4	DUP	S97T000374	0	@IC-01 OXALATE2	LIQUID	1.41e+03	1.47e+03	4.167 RPD
5	SAMPLE	S97T000376	0	@IC-01 F-02	LIQUID	N/A	4.055e+02	25.450 ug/mL
5	SAMPLE	S97T000376	0	@IC-01 CL-02	LIQUID	N/A	5.400e+02	36.060 ug/mL
5	SAMPLE	S97T000376	0	@IC-01 NO2-02	LIQUID	N/A	3.832e+04	229.100 ug/mL
5	SAMPLE	S97T000376	0	@IC-01 BR-02	LIQUID	N/A	< 2.651e+02	265.100 ug/mL
5	SAMPLE	S97T000376	0	@IC-01 NO3-02	LIQUID	N/A	2.287e+04	294.800 ug/mL
5	SAMPLE	S97T000376	0	@IC-01 PO4-02	LIQUID	N/A	1.767e+03	254.500 ug/mL
5	SAMPLE	S97T000376	0	@IC-01 SO4-02	LIQUID	N/A	9.049e+03	292.700 ug/mL
5	SAMPLE	S97T000376	0	@IC-01 OXALATE2	LIQUID	N/A	1.339e+03	222.700 ug/mL
6	DUP	S97T000376	0	@IC-01 F-02	LIQUID	4.06e+02	4.33e+02	6.435 RPD

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

LABCORE Completed Worklist Report for Worklist# 17691

Seq Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
6 DUP	S97T000376	0	@IC-01	CL-02	LIQUID	5.40e+02	5.39e+02	0.185	RPD
6 DUP	S97T000376	0	@IC-01	NO2-02	LIQUID	3.83e+04	3.84e+04	0.261	RPD
6 DUP	S97T000376	0	@IC-01	BR-02	LIQUID	<2.65e2	<2.65e2		RPD
6 DUP	S97T000376	0	@IC-01	NO3-02	LIQUID	2.29e+04	2.31e+04	0.870	RPD
6 DUP	S97T000376	0	@IC-01	PO4-02	LIQUID	1.77e+03	1.67e+03	5.814	RPD
6 DUP	S97T000376	0	@IC-01	SO4-02	LIQUID	9.05e+03	9.11e+03	0.661	RPD
6 DUP	S97T000376	0	@IC-01	OXALATE2	LIQUID	1.34e+03	1.24e+03	7.752	RPD

Final page for worklist# 17691

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Reviewer Signature _____ Date 4/30/97

Sample S97T000376 rerun
worklist # 18145 PS 5/23/97

04/23/97 06:59

A-0004-1

Page: 1

LABCORE Data Entry Template for Worklist# 17691

Analyst: RS Instrument: IC0 1 Book# 50N20-CMethod: LA-533-105 Rev/Mod D-0

Worklist Comment: T112, @IC-01 skm

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 CCB			@IC-QC	QC		
2 CCV			@IC-QC	QC		
3 SAMPLE	S97T000374 0		@IC-01	LIQUID	97000151	T-112
Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
4 DUP	S97T000374 0		@IC-01	LIQUID		
5 SAMPLE	S97T000376 0		@IC-01	LIQUID	97000151	T-112
Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
6 DUP	S97T000376 0		@IC-01	LIQUID		

Final page for worklist # 17691

Rae Ann Green 4-23-97
Analyst Signature Date

Analyst Signature Date

W. Backed 4-25-97

John W. Warrall

17691 APR. 25 V

Validated 4/25/97 JmJays

Data Entry Comments:

A-0010-IC				DATA FILE/WORKLIST RESOLUTION				25-Apr-97	
Worklist#: 17691				Data File: 17691APR.CSV					
	Seq	Type	Sample #	Seq#	Data File	Sample Name	Dilution		
-	=>	1 CCB		-	1 97041231.d03	CCB	1.00		
	=>	2 CCV			2 97041231.d02	CCV 50N20-C	101.00		
	=>	3 SAMPLE	S97T000374		3 97041231.d05	S97T000374	2121.00		
	=>	4 DUP	S97T000374		4 97041231.d06	S97T000374 DUP	2121.00		
	=>	5 SAMPLE	S97T000376		5 97041231.d07	S97T000376	2121.00		
	=>	6 DUP	S97T000376		6 97041231.d08	S97T000376 DUP	2121.00		
+				+					

Save (F4) Abort (Shift-F3) ListFiles (Shift-F1) UploadFile (F8)

Sample Name: CCB Date: 04/23/1997 09:28:07
 Data File : C:\DX\DATA\97041231.D03
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 3 Detector: CDM-1
 Analyst : *Rae Ann Green* Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	1	3000	5Hz	0.00	10.00		30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.42		0.000	9	51		1
Totals			0.000	9	51

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 127 TO 130

Sample Name: CCV 50N20-C Date: 04/23/1997 09:10:02
 Data File : C:\DX\DATA\97041231.D02
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 2 Detector: CDM-1
 Analyst : *Rae Ann Green* Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	3000	5Hz	0.00	10.00		30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.11	fluoride	60.232	1553	10899	1	-1.19
2	1.64	chloride	85.838	2152	11219	1	2.93
3	1.94	nitrite	586.326	6341	46454	1	0.69
4	2.88	bromide	612.886	5635	38362	1	1.05
5	3.27	nitrate	636.440	6346	53107	1	0.51
6	4.75	phosphate	586.296	2091	26054	1	2.89
7	6.19	sulfate	664.731	4811	81634	1	2.65
8	8.16	oxalate	609.218	2703	53953	1	4.08
Totals			3841.968	31632	321682		

File: 97041231.D02 Sample: CCV 50N20-C

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Sample Name: S97T000374                      Date: 04/23/1997 09:56:56
Data File  : C:\DX\DATA\97041231.D05
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 5           Detector: CDM-1
Analyst    : Rae Ann Jones Column: AG4A/AS4A anion column
=====

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Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 2121 3000 5Hz 0.00 10.00 30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	26	89	2	
2	1.13	fluoride	423.844	642	3225	2	0.60
3	1.23		0.000	807	6175	2	
4	1.66	chloride	489.234	601	3054	1	4.18
5	1.93	nitrite	40473.991	22054	160049	1	0.35
6	3.23	nitrate	23833.258	11080	96461	1	-0.51
7	4.77	phosphate	1962.990	297	3857	1	3.47
8	6.19	sulfate	9497.592	3322	55480	1	2.65
9	8.21	oxalate	1414.012	280	5708	1	4.76
Totals			78094.921	39109	334098		

File: 97041231.D05 Sample: S97T000374

=====

Sample Name: S97T000374 DUP	Date: 04/23/1997 10:08:36
Data File : C:\DX\DATA\97041231.D06	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 6	Detector: CDM-1
Analyst : <i>Rae Ann Green</i>	Column: AG4A/AS4A anion column

=====

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	2121	3000	5Hz	0.00	10.00		30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.94		0.000	24	78	2	
2	1.13	fluoride	410.073	627	3101	2	0.60
3	1.23		0.000	799	6145	2	
4	1.66	chloride	521.336	626	3251	1	4.18
5	1.93	nitrite	41003.029	22072	162265	1	0.35
6	3.23	nitrate	23835.211	11110	96469	1	-0.51
7	4.77	phosphate	1928.653	291	3784	1	3.47
8	6.19	sulfate	10112.751	3452	59068	1	2.65
9	8.21	oxalate	1465.413	294	5925	1	4.76
Totals			79276.467	39294	340087		

File: 97041231.D06 Sample: S97T000374 DUP

LABCORE Completed Worklist Report for Worklist# 17692

Analyst: rag

Instrument: IC01

Book# 50A20C

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

Worklist Comment: T112, @IC-01 skm

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 CCB	0		QIC-QC	F	QC	1	<1.20e-2	ug/mL
1 CCB	0		QIC-QC	CL	QC	1	<1.70e-2	ug/mL
1 CCB	0		QIC-QC	NO2	QC	1	<1.08e-1	ug/mL
1 CCB	0		QIC-QC	BR	QC	1	<1.25e-1	ug/mL
1 CCB	0		QIC-QC	NO3	QC	1	<1.39e-1	ug/mL
1 CCB	0		QIC-QC	P04	QC	1	<1.20e-1	ug/mL
1 CCB	0		QIC-QC	S04	QC	1	<1.38e-1	ug/mL
1 CCB	0		QIC-QC	OXALATE2	QC	1	<1.05e-1	ug/mL
2 CCV	0		QIC-QC	F	QC	5.90e01	5.74e+01	97.288 % Recovery
2 CCV	0		QIC-QC	CL	QC	7.90e01	8.54e+01	108.101 % Recovery
2 CCV	0		QIC-QC	NO2	QC	5.51e02	5.79e+02	105.082 % Recovery
2 CCV	0		QIC-QC	BR	QC	5.89e02	6.05e+02	102.716 % Recovery
2 CCV	0		QIC-QC	NO3	QC	5.94e02	6.26e+02	105.387 % Recovery
2 CCV	0		QIC-QC	P04	QC	5.45e02	5.70e+02	104.587 % Recovery
2 CCV	0		QIC-QC	S04	QC	6.31e02	6.60e+02	104.596 % Recovery
2 CCV	0		QIC-QC	OXALATE2	QC	5.50e02	5.85e+02	106.364 % Recovery
3 SAMPLE	S97T000377	0	QIC-01	F-02	LIQUID	N/A	7.390e-01	3.60e-002 ug/mL
3 SAMPLE	S97T000377	0	QIC-01	CL-02	LIQUID	N/A	1.069e-01	5.10e-002 ug/mL
3 SAMPLE	S97T000377	0	QIC-01	NO2-02	LIQUID	N/A	1.499e+01	0.324 ug/mL
3 SAMPLE	S97T000377	0	QIC-01	BR-02	LIQUID	N/A	2.185e+00	0.375 ug/mL
3 SAMPLE	S97T000377	0	QIC-01	NO3-02	LIQUID	N/A	1.116e+02	0.417 ug/mL
3 SAMPLE	S97T000377	0	QIC-01	P04-02	LIQUID	N/A	2.582e+00	0.360 ug/mL
3 SAMPLE	S97T000377	0	QIC-01	S04-02	LIQUID	N/A	2.021e+01	0.414 ug/mL
3 SAMPLE	S97T000377	0	QIC-01	OXALATE2	LIQUID	N/A	< 3.150e-01	0.315 ug/mL
4 DUP	S97T000377	0	QIC-01	F-02	LIQUID	7.39e-01	6.46e-01	13.430 RPD
4 DUP	S97T000377	0	QIC-01	CL-02	LIQUID	1.07e+01	1.07e+01	0.000 RPD
4 DUP	S97T000377	0	QIC-01	NO2-02	LIQUID	1.50e+01	1.49e+01	0.669 RPD
4 DUP	S97T000377	0	QIC-01	BR-02	LIQUID	2.19e+00	2.20e+00	0.456 RPD
4 DUP	S97T000377	0	QIC-01	NO3-02	LIQUID	1.12e+02	1.12e+02	0.000 RPD
4 DUP	S97T000377	0	QIC-01	P04-02	LIQUID	2.58e+00	3.85e+00	39.502 RPD
4 DUP	S97T000377	0	QIC-01	S04-02	LIQUID	2.02e+01	2.00e+01	0.995 RPD
4 DUP	S97T000377	0	QIC-01	OXALATE2	LIQUID	<3.15e-1	<3.15e-1	RPD

Final page for worklist# 17692

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Jean M. Faye 4/30/97

04/23/97 07:03
A-0004-1

Page: 1

LABCORE Data Entry Template for Worklist# 17692

Analyst: RJ Instrument: IC0 1 Book# 50N20-CMethod: LA-533-105 Rev/Mod D-1

Worklist Comment: T112, @IC-01 skm

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 CCB			@IC-QC	QC		
2 CCV			@IC-QC	QC		
3 SAMPLE	S97T000377 0	@IC-01	LIQUID		97000151	T-112
	Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02					
4 DUP	S97T000377 0	@IC-01	LIQUID			

Final page for worklist # 17692

Rae Ann Green 4-23-97
Analyst Signature Date

Analyst Signature Date

uploaded 4-24-97

John Wane

17692 APR. CSV

Validated 4/25/97 GML

Data Entry Comments:

A-0010-IC				DATA FILE/WORKLIST RESOLUTION				24-Apr-97	
Worklist#: 17692				Data File: 17692APR.CSV					
	Seq	Type	Sample #	Seq#	Data File	Sample Name	Dilution		
-	=>	1	CCB	-	1	97041231.d10	CCB	1.00	
-	=>	2	CCV	-	2	97041231.d11	CCV 50N20-C	101.00	
-	=>	3	SAMPLE	-	3	97041231.d13	S97T000377	3.00	
-	=>	4	DUP	-	4	97041231.d15	S97T000377	3.00	
+				+					

Save (F4) Abort (Shift-F3) ListFiles (Shift-F1) UploadFile (F8)

=====

Sample Name: CCB	Date: 04/23/1997 13:21:58
Data File : C:\DX\DATA\97041231.D10	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 10	Detector: CDM-1
Analyst : <i>Rae Ann Green</i>	Column: AG4A/AS4A anion column

=====

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	1	3000	5Hz	0.00	10.00		30

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

Pk. Num	Ret Time Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.45	0.000	64	716	1	
Totals		0.000	64	716		

File: 97041231.D10 Sample: CCB

```

=====
Sample Name: CCV 50N20-C                      Date: 04/23/1997 13:32:46
Data File  : C:\DX\DATA\97041231.D11
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 11           Detector: CDM-1
Analyst    : RaeAnn Green Column: AG4A/AS4A anion column
=====

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=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
External          1          101 3000 5Hz 0.00 10.00          30
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
2	1.10	fluoride	57.394	1493	10350	2	-1.79
3	1.63	chloride	85.400	2144	11161	1	2.09
4	1.93	nitrite	579.112	6405	45864	1	0.00
5	2.85	bromide	604.765	5657	37839	1	0.12
6	3.23	nitrate	625.513	6373	52170	1	-0.51
7	4.75	phosphate	569.679	2081	25295	1	2.89
8	6.19	sulfate	660.099	5180	81061	1	2.65
9	8.16	oxalate	585.310	2708	51810	1	4.08
Totals			3767.273	32041	315550		

File: 97041231.D11 Sample: CCV 50N20-C

Data Reprocessed On 04/23/1997 14:06:14

Sample Name: S97T000377	Date: 04/23/1997 13:52:45
Data File : C:\DX\DATA\97041231.D13	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 13	Detector: CDM-1
Analyst : <i>Rae Ann Green</i>	Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	3	3000	5Hz	0.00	10.00		30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.12	fluoride	0.739	616	4120	1	0.00
2	1.60	chloride	10.690	10576	50096	1	0.42
3	1.92	nitrite	14.987	5766	39787	1	-0.35
4	2.89	bromide	2.185	758	4201	1	1.29
5	3.12	nitrate	111.619	35997	347480	1	-4.00
6	4.77	phosphate	2.582	307	3567	1	3.47
7	6.19	sulfate	20.214	5494	83594	1	2.65
Totals			163.018	59514	532844		

File: 97041231.D13 Sample: S97T000377

R2 4-23-97

Sample Name: S97T000377 Dup Date: 04/23/1997 14:18:11
 Data File : C:\DX\DATA\97041231.D15
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 15 Detector: CDM-1
 Analyst : Rae Ann Green Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	3	3000	5Hz	0.00	10.00		30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.12	fluoride	0.646	590	3525	1	0.00
2	1.60	chloride	10.661	10468	49947	1	0.42
3	1.92	nitrite	14.908	5717	39569	1	-0.35
4	2.88	bromide	2.196	751	4224	1	1.05
5	3.11	nitrate	111.808	36064	348148	1	-4.21
6	4.77	phosphate	3.849	336	5462	1	3.47
7	6.19	sulfate	19.977	5656	82605	1	2.65
Totals			164.047	59581	533480		

R2 4-23-97

File: 97041231.D15 Sample: S97T000377 Dup

LABCORE Completed Worklist Report for Worklist# 17721

Analyst: cal

Instrument: IC01

Book# 50N20C

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

Worklist Comment: T-112

IC-01

SKB

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 CCB	0	QIC-QC F	QC	1	<1.20e-2		ug/mL
1 CCB	0	QIC-QC CL	QC	1	<1.70e-2		ug/mL
1 CCB	0	QIC-QC NO2	QC	1	<1.08e-1		ug/mL
1 CCB	0	QIC-QC BR	QC	1	<1.25e-1		ug/mL
1 CCB	0	QIC-QC NO3	QC	1	<1.39e-1		ug/mL
1 CCB	0	QIC-QC P04	QC	1	<1.20e-1		ug/mL
1 CCB	0	QIC-QC S04	QC	1	<1.38e-1		ug/mL
1 CCB	0	QIC-QC OXALATE2	QC	1	<1.05e-1		ug/mL
2 CCV	0	QIC-QC F	QC	5.90e01	5.58e+01	94.576 % Recovery	
2 CCV	0	QIC-QC CL	QC	7.90e01	8.02e+01	101.519 % Recovery	
2 CCV	0	QIC-QC NO2	QC	5.51e02	5.58e+02	101.270 % Recovery	
2 CCV	0	QIC-QC BR	QC	5.89e02	5.91e+02	100.340 % Recovery	
2 CCV	0	QIC-QC NO3	QC	5.94e02	6.13e+02	103.139 % Recovery	
2 CCV	0	QIC-QC P04	QC	5.45e02	5.60e+02	102.752 % Recovery	
2 CCV	0	QIC-QC S04	QC	6.31e02	6.43e+02	101.902 % Recovery	
2 CCV	0	QIC-QC OXALATE2	QC	5.50e02	5.77e+02	104.909 % Recovery	
3 BLNK-PREP	0	QIC-01 F-02	SOLID	1	<1.20e-2		ug/g
3 BLNK-PREP	0	QIC-01 CL-02	SOLID	1	1.90e-02	0.019	ug/g
3 BLNK-PREP	0	QIC-01 NO2-02	SOLID	1	<1.08e-1		ug/g
3 BLNK-PREP	0	QIC-01 BR-02	SOLID	1	<1.25e-1		ug/g
3 BLNK-PREP	0	QIC-01 NO3-02	SOLID	1	1.46e-01	0.146	ug/g
3 BLNK-PREP	0	QIC-01 P04-02	SOLID	1	<1.20e-1		ug/g
3 BLNK-PREP	0	QIC-01 S04-02	SOLID	1	<1.38e-1		ug/g
3 BLNK-PREP	0	QIC-01 OXALATE2	SOLID	1	<1.05e-1		ug/g
4 SAMPLE	S97T000592	0 W QIC-01 F-02	SOLID	N/A	1.924e+02	48.850	ug/g
4 SAMPLE	S97T000592	0 W QIC-01 CL-02	SOLID	N/A	5.475e+02	69.190	ug/g
4 SAMPLE	S97T000592	0 W QIC-01 NO2-02	SOLID	N/A	2.890e+04	439.500	ug/g
4 SAMPLE	S97T000592	0 W QIC-01 BR-02	SOLID	N/A	5.087e+02	508.600	ug/g
4 SAMPLE	S97T000592	0 W QIC-01 NO3-02	SOLID	N/A	1.780e+04	565.700	ug/g
4 SAMPLE	S97T000592	0 W QIC-01 P04-02	SOLID	N/A	3.607e+03	488.500	ug/g
4 SAMPLE	S97T000592	0 W QIC-01 S04-02	SOLID	N/A	6.924e+03	561.500	ug/g
4 SAMPLE	S97T000592	0 W QIC-01 OXALATE2	SOLID	N/A	1.165e+03	427.400	ug/g
5 DUP	S97T000592	0 W QIC-01 F-02	SOLID	1.92e+02	1.85e+02	3.714	RPD
5 DUP	S97T000592	0 W QIC-01 CL-02	SOLID	5.48e+02	5.54e+02	1.089	RPD
5 DUP	S97T000592	0 W QIC-01 NO2-02	SOLID	2.89e+04	2.89e+04	0.000	RPD
5 DUP	S97T000592	0 W QIC-01 BR-02	SOLID	<5.09e2	<5.06e2		RPD
5 DUP	S97T000592	0 W QIC-01 NO3-02	SOLID	1.78e+04	1.82e+04	2.222	RPD
5 DUP	S97T000592	0 W QIC-01 P04-02	SOLID	3.61e+03	3.38e+03	6.581	RPD
5 DUP	S97T000592	0 W QIC-01 S04-02	SOLID	6.92e+03	6.84e+03	1.163	RPD
5 DUP	S97T000592	0 W QIC-01 OXALATE2	SOLID	1.16e+03	1.13e+03	2.620	RPD
6 SAMPLE	S97T000593	0 W QIC-01 F-02	SOLID	N/A	1.427e+02	27.100	ug/g

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

LABCORE Completed Worklist Report for Worklist# 17721

Seq Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
6 SAMPLE	S97T000593	0	W	QIC-01	CL-02	SOLID	N/A	4.269e+02	38.400 ug/g
6 SAMPLE	S97T000593	0	W	QIC-01	NO2-02	SOLID	N/A	3.384e+04	244.000 ug/g
6 SAMPLE	S97T000593	0	W	QIC-01	BR-02	SOLID	N/A	1.923e+02	282.400 ug/g
6 SAMPLE	S97T000593	0	W	QIC-01	NO3-02	SOLID	N/A	1.947e+04	313.900 ug/g
6 SAMPLE	S97T000593	0	W	QIC-01	PO4-02	SOLID	N/A	2.809e+03	271.000 ug/g
6 SAMPLE	S97T000593	0	W	QIC-01	SO4-02	SOLID	N/A	8.191e+03	311.700 ug/g
6 SAMPLE	S97T000593	0	W	QIC-01	OXALATE2	SOLID	N/A	1.346e+03	237.200 ug/g
7 DUP	S97T000593	0	W	QIC-01	F-02	SOLID	1.43e+02	1.31e+02	8.759 RPD
7 DUP	S97T000593	0	W	QIC-01	CL-02	SOLID	4.27e+02	4.14e+02	3.092 RPD
7 DUP	S97T000593	0	W	QIC-01	NO2-02	SOLID	3.38e+04	3.36e+04	0.593 RPD
7 DUP	S97T000593	0	W	QIC-01	BR-02	SOLID	<2.82e2	<2.82e2	RPD
7 DUP	S97T000593	0	W	QIC-01	NO3-02	SOLID	1.95e+04	2.02e+04	3.526 RPD
7 DUP	S97T000593	0	W	QIC-01	PO4-02	SOLID	2.81e+03	2.76e+03	1.795 RPD
7 DUP	S97T000593	0	W	QIC-01	SO4-02	SOLID	8.19e+03	8.72e+03	6.268 RPD
7 DUP	S97T000593	0	W	QIC-01	OXALATE2	SOLID	1.35e+03	1.26e+03	6.897 RPD

Final page for worklist# 17721

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Jamie Jey 4/30/97
Reviewer Signature Date

Sample S97T000592 rerun on
worklist # 18146 4/8 5/23/97

04/23/97 22:35

HNF-SD-WM-DP-243, REV. 0

Page: 1

A-0004-1

LABCORE Data Entry Template for Worklist# 17721Analyst: EAL Instrument: IC0 1 Book# 50N120CMethod: LA-533-105 Rev/Mod D-1

Worklist Comment: T-112 IC-01 SKB

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	S97T000592 0 W		@IC-01	SOLID	97000151	T-112
	Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02					
5 DUP	S97T000592 0 W		@IC-01	SOLID		
6 SAMPLE	S97T000593 0 W		@IC-01	SOLID	97000151	T-112
	Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02					
7 DUP	S97T000593 0 W		@IC-01	SOLID		

Final page for worklist # 17721

Analyst Signature

Date

Analyst Signature

Date

uploaded 4-24-97

John W. Wall

17721 APR. CSV

Validated 4/25/97 Jm Fyfe

Data Entry Comments:

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

A-0010-IC				DATA FILE/WORKLIST RESOLUTION				24-Apr-97			
Worklist#: 17721				Data File: 17721APR.CSV							
		Seq	Type	Sample #			Seq#	Data File	Sample Name	Dilution	
-	=>	1	CCB	S97T000592 S97T000592 S97T000593 S97T000593	-	1	97042401.d01	INST. BLANK	1.00		
	=>	2	CCV			2	97042401.d02	50N20-C STD	101.00		
	=>	3	BLNK-PREP			3	97042401.d03	PREP. BLANK	1.00		
	=>	4	SAMPLE			4	97042401.d05	S97T000592	21.00		
	=>	5	DUP			5	97042401.d06	S97T000592 DUP	21.00		
	=>	6	SAMPLE			6	97042401.d07	S97T000593	11.00		
	=>	7	DUP			7	97042401.d08	S97T000593 DUP	11.00		
+					+						

Save (F4) Abort (Shift-F3) ListFiles (Shift-F1) UploadFile (F8)

Sample Name: INST. BLANK Date: 04/24/1997 07:20:48
 Data File : C:\DX\DATA\97042401.D01
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 1 Detector: CDM-1
 Analyst : *[Signature]* Column: AG4A/AS4A anion column

Calibration Volume Dilution Points Rate Start Stop Area Reject
 External 1 1 3000 5Hz 0.00 10.00 30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.42		0.000	22	136	1	
2	1.68	chloride	0.013	51	241	1	5.44
3	3.39	nitrate	0.125	63	417	1	4.41
4	6.45	sulfate	-0.021	34	527	1	7.08
Totals			0.117	171	1321

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 142 TO 146.

Sample Name: 50N20-C STD Date: 04/24/1997 08:11:18
 Data File : C:\DX\DATA\97042401.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		30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.10	fluoride	55.769	1377	10037	1	-1.79
2	1.63	chloride	80.166	2050	10469	1	2.51
3	1.93	nitrite	558.296	6074	44165	1	0.35
4	2.87	bromide	590.525	5397	36923	1	0.82
5	3.27	nitrate	612.536	6135	51057	1	0.51
6	4.75	phosphate	559.631	1892	24837	1	2.89
7	6.24	sulfate	642.855	5222	78928	1	3.54
8	8.21	oxalate	576.920	2658	51058	1	4.76
Totals			3676.698	30805	307473		

File: 97042401.D02 Sample: 50N20-C STD

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=====
Sample Name: PREP. BLANK                      Date: 04/24/1997 08:29:16
Data File  : C:\DX\DATA\97042401.D03
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 3           Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

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=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          1 3000 5Hz 0.00 10.00          30
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.33		0.000	12	53	1	
2	1.70	chloride	0.019	25	311	1	6.69
3	3.39	nitrate	0.148	89	617	1	4.21
Totals			0.167	126	981		

File: 97042401.D03 Sample: PREP. BLANK

HNF-SD-WM-DP-243 REV.0

Sample Name: S97T000593 Date: 04/24/1997 09:26:20
 Data File : C:\DX\DATA\97042401.D07
 Method : C:\DX\METHOD\KIT.MET
 ACT 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	11	3000	5Hz	0.00	10.00		30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.13	fluoride	0.695	171	614	2	0.60
2	1.23		0.000	346	1880	2	
3	1.66	chloride	2.079	484	2513	1	4.18
4	1.93	nitrite	164.811	17212	124075	1	0.00
5	3.25	nitrate	94.830	8629	73338	1	-0.10
6	4.80	phosphate	13.681	406	5285	1	4.05
7	6.24	sulfate	39.888	2929	44976	1	3.54
8	8.27	oxalate	6.554	244	5075	1	5.44
Totals			322.538	30420	257756		

File: 97042401.D07 Sample: S97T000593

Sample Name: S97T000593 DUP Date: 04/24/1997 09:38:43
 Data File : C:\DX\DATA\97042401.D08
 Method : C:\DX\METHOD\KIT.MET
 ACT 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	11	3000	5Hz	0.00	10.00		30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.13	fluoride	0.640	159	520	2	0.60
2	1.23		0.000	337	1925	2	
3	1.66	chloride	2.019	494	2442	1	4.18
4	1.93	nitrite	163.707	17417	123205	1	0.35
5	3.24	nitrate	98.380	8792	76173	1	-0.31
6	4.80	phosphate	13.431	410	5183	1	4.05
7	6.24	sulfate	42.509	3026	47910	1	3.54
8	8.27	oxalate	6.154	241	4751	1	5.44
Totals			326.840	30877	262107		

File: 97042401.D08 Sample: S97T000593 DUP

LABCORE Completed Worklist Report for Worklist# 17722

Analyst: eal

Instrument: IC02

Book# 50120C

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

Worklist Comment: T-112

IC-01

SKB

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit	
1 CCB	0	01C-QC	F	QC	1	<1.20e-2	ug/mL	
1 CCB	0	01C-QC	CL	QC	1	2.20e-02	0.022 ug/mL	
1 CCB	0	01C-QC	NO2	QC	1	<1.08e-1	ug/mL	
1 CCB	0	01C-QC	BR	QC	1	<1.25e-1	ug/mL	
1 CCB	0	01C-QC	NO3	QC	1	2.33e-01	0.233 ug/mL	
1 CCB	0	01C-QC	PO4	QC	1	<1.20e-1	ug/mL	
1 CCB	0	01C-QC	SO4	QC	1	<1.38e-1	ug/mL	
1 CCB	0	01C-QC	OXALATE2	QC	1	<1.05e-1	ug/mL	
2 CCV	0	01C-QC	F	QC	5.90e01	5.69e+01	96.441 % Recovery	
2 CCV	0	01C-QC	CL	QC	7.90e01	7.59e+01	96.076 % Recovery	
2 CCV	0	01C-QC	NO2	QC	5.51e02	5.15e+02	93.466 % Recovery	
2 CCV	0	01C-QC	BR	QC	5.89e02	5.63e+02	95.586 % Recovery	
2 CCV	0	01C-QC	NO3	QC	5.94e02	5.86e+02	98.653 % Recovery	
2 CCV	0	01C-QC	PO4	QC	5.45e02	5.48e+02	100.550 % Recovery	
2 CCV	0	01C-QC	SO4	QC	6.31e02	6.13e+02	97.147 % Recovery	
2 CCV	0	01C-QC	OXALATE2	QC	5.50e02	5.21e+02	94.727 % Recovery	
3 BLNK-PREP	0	01C-01	F-02	SOLID	1	<1.20e-2	ug/g	
3 BLNK-PREP	0	01C-01	CL-02	SOLID	1	<1.70e-2	ug/g	
3 BLNK-PREP	0	01C-01	NO2-02	SOLID	1	<1.08e-1	ug/g	
3 BLNK-PREP	0	01C-01	BR-02	SOLID	1	<1.25e-1	ug/g	
3 BLNK-PREP	0	01C-01	NO3-02	SOLID	1	<1.39e-1	ug/g	
3 BLNK-PREP	0	01C-01	PO4-02	SOLID	1	<1.20e-1	ug/g	
3 BLNK-PREP	0	01C-01	SO4-02	SOLID	1	<1.38e-1	ug/g	
3 BLNK-PREP	0	01C-01	OXALATE2	SOLID	1	<1.05e-1	ug/g	
4 SAMPLE	S97T000594	0 W	01C-01	F-02	SOLID	N/A	4.684e+02	45.490 ug/g
4 SAMPLE	S97T000594	0 W	01C-01	CL-02	SOLID	N/A	4.861e+02	64.450 ug/g
4 SAMPLE	S97T000594	0 W	01C-01	NO2-02	SOLID	N/A	2.892e+04	403.300 ug/g
4 SAMPLE	S97T000594	0 W	01C-01	BR-02	SOLID	N/A	4.738e+02	473.800 ug/g
4 SAMPLE	S97T000594	0 W	01C-01	NO3-02	SOLID	N/A	1.773e+04	526.900 ug/g
4 SAMPLE	S97T000594	0 W	01C-01	PO4-02	SOLID	N/A	2.594e+03	454.900 ug/g
4 SAMPLE	S97T000594	0 W	01C-01	SO4-02	SOLID	N/A	7.399e+03	523.100 ug/g
4 SAMPLE	S97T000594	0 W	01C-01	OXALATE2	SOLID	N/A	1.036e+03	397.900 ug/g
5 DUP	S97T000594	0 W	01C-01	F-02	SOLID	4.68e+02	4.83e+02	3.155 RPD
5 DUP	S97T000594	0 W	01C-01	CL-02	SOLID	4.86e+02	4.85e+02	0.206 RPD
5 DUP	S97T000594	0 W	01C-01	NO2-02	SOLID	2.89e+04	2.84e+04	1.745 RPD
5 DUP	S97T000594	0 W	01C-01	BR-02	SOLID	<4.74e2	<4.80e2	RPD
5 DUP	S97T000594	0 W	01C-01	NO3-02	SOLID	1.77e+04	1.85e+04	4.420 RPD
5 DUP	S97T000594	0 W	01C-01	PO4-02	SOLID	2.59e+03	3.04e+03	15.986 RPD
5 DUP	S97T000594	0 W	01C-01	SO4-02	SOLID	7.40e+03	8.04e+03	8.290 RPD
5 DUP	S97T000594	0 W	01C-01	OXALATE2	SOLID	1.04e+03	5.92e+02	54.902 RPD
6 SAMPLE	S97T000595	0 W	01C-01	F-02	SOLID	N/A	3.718e+02	25.830 ug/g

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

LABCORE Completed Worklist Report for Worklist# 17722

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
6 SAMPLE	S97T000595	0 W	@IC-01	CL-02	SOLID	N/A	4.051e+02	36.600 ug/g
6 SAMPLE	S97T000595	0 W	@IC-01	NO2-02	SOLID	N/A	2.548e+04	232.500 ug/g
6 SAMPLE	S97T000595	0 W	@IC-01	BR-02	SOLID	N/A	2.691e+02	289.100 ug/g
6 SAMPLE	S97T000595	0 W	@IC-01	NO3-02	SOLID	N/A	1.626e+04	299.200 ug/g
6 SAMPLE	S97T000595	0 W	@IC-01	PO4-02	SOLID	N/A	2.260e+03	258.300 ug/g
6 SAMPLE	S97T000595	0 W	@IC-01	SO4-02	SOLID	N/A	6.551e+03	297.100 ug/g
6 SAMPLE	S97T000595	0 W	@IC-01	OXALATE2	SOLID	N/A	9.436e+02	226.100 ug/g
7 DUP	S97T000595	0 W	@IC-01	F-02	SOLID	3.72e+02	3.70e+02	0.539 RPD
7 DUP	S97T000595	0 W	@IC-01	CL-02	SOLID	4.05e+02	4.15e+02	2.439 RPD
7 DUP	S97T000595	0 W	@IC-01	NO2-02	SOLID	2.55e+04	2.60e+04	1.942 RPD
7 DUP	S97T000595	0 W	@IC-01	BR-02	SOLID	2.69e+02	2.67e+02	RPD
7 DUP	S97T000595	0 W	@IC-01	NO3-02	SOLID	1.63e+04	1.60e+04	1.858 RPD
7 DUP	S97T000595	0 W	@IC-01	PO4-02	SOLID	2.26e+03	2.31e+03	2.188 RPD
7 DUP	S97T000595	0 W	@IC-01	SO4-02	SOLID	6.55e+03	6.92e+03	5.494 RPD
7 DUP	S97T000595	0 W	@IC-01	OXALATE2	SOLID	9.44e+02	8.45e+02	11.068 RPD

Final page for worklist# 17722

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

4/30/97
Reviewer Signature Date

04/23/97 22:47

HNF-SD-WM-DP-243, REV. 0

Page: 1

A-0004-1

LABCORE Data Entry Template for Worklist# 17722

Analyst:

EAL

Instrument: IC0

2

Book#

50N20C

Method: LA-533-105

Rev/Mod

D-1

Worklist Comment: T-112

IC-01

SKB

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	S97T000594 0 W		@IC-01	SOLID	97000152 T-112	
	Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02					
5 DUP	S97T000594 0 W		@IC-01	SOLID		
6 SAMPLE	S97T000595 0 W		@IC-01	SOLID	97000152 T-112	
	Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02					
7 DUP	S97T000595 0 W		@IC-01	SOLID		

Final page for worklist # 17722

Analyst Signature

Date

Analyst Signature

Date

uploaded 4-25-97John W. Wall17722APR.CSVReuploaded 4/30/97 from JWC to fix peak label problem.17722APR2.CSVValidated 4/30/97

Data Entry Comments:

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

A-0010-IC				DATA FILE/WORKLIST RESOLUTION				30-Apr-97			
Worklist#: 17722				Data File: 17722AP2.CSV							
		Seq	Type	Sample #			Seq#	Data File	Sample Name	Dilution	
-	=>	1	CCB		-	1	97042401.d01	INST. BLANK		1.00	
	=>	2	CCV			2	97042401.d02	50N20-C STD		101.00	
	=>	3	BLNK-PREP			3	97042401.d03	PREP. BLANK		1.00	
	=>	4	SAMPLE	S97T000594			97042401.d04	S97T000594		41.00	
	=>	5	DUP	S97T000594		4	97042401.d05	S97T000594		21.00	
	=>	6	SAMPLE	S97T000595		5	97042401.d06	S97T000594 DUP		21.00	
	=>	7	DUP	S97T000595		6	97042401.d07	S97T000595		11.00	
						7	97042401.d08	S97T000595 DUP		11.00	
+					+						

Save (F4) Abort (Shift-F3) ListFiles (Shift-F1) UploadFile (F8)

Sample Name: INST. BLANK Date: 04/24/1997 07:21:15
 Data File : C:\DX\DATA\97042401.D01
 Method : C:\DX\METHOD\ANIONS.MET
 ACI Address: 1 System: 1 Inject#: 1 Detector: CDM-1
 Analyst : *Janet* 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	0.25		0.000	27	127	1	
2	0.86		0.000	22	111	1	
3	1.15		0.000	24	104	1	
4	1.39		0.000	51	294	1	
5	1.55	chloride	0.022	41	163	1	0.87
6	3.21	nitrate	0.233	148	1060	1	1.37
7	6.08	sulfate	0.066	40	551	1	6.48
Totals			0.321	353	2410		

File: 97042401.D01 Sample: INST. BLANK

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 157 TO 157

Data Reprocessed On 04/28/1997 08:38:41

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=====
Sample Name: 50N20-C STD                      Date: 04/24/1997 08:11:25
Data File  : E:\DATA\97042401.D02
Method     : C:\DX\METHOD\ANIONS.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	0.87		0.000	87	360	2	
2	1.03	fluoride	56.851	1956	10345	2	1.65
3	1.39		0.000	24	105	1	
4	1.55	chloride	75.940	2379	10765	1	0.87
5	1.86	nitrite	514.940	9402	49911	1	-0.36
6	2.79	bromide	563.155	5584	35230	1	-0.12
7	3.16	nitrate	585.820	6247	47829	1	-0.32
8	4.67	phosphate	547.958	1674	21458	1	4.79
9	6.03	sulfate	613.293	4130	67422	1	5.55
10	7.95	oxalate	520.581	2260	43683	1	-0.04
Totals			3478.538	33744	287109		

File: 97042401.D02 Sample: 50N20-C STD

```

=====
Sample Name: PREP. BLANK                      Date: 04/24/1997 08:30:27
Data File  : C:\DX\DATA\97042401.D03
Method     : C:\DX\METHOD\ANIONS.MET
ACI Address: 1 System: 1 Inject#: 3           Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

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=====
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	58	489	1	
2	3.22	nitrate	0.136	41	261	1	1.58
Totals			0.136	99	751

Data Reprocessed On 04/28/1997 09:27:31

```

=====
Sample Name: S97T000594                      Date: 04/24/1997 08:56:55
Data File  : E:\DATA\97042401.D05
Method     : C:\DX\METHOD\ANIONS.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          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	0.28		0.000	43	195	1	
2	0.87		0.000	56	242	2	
3	1.03	fluoride	2.595	461	2063	2	1.65
4	1.14		0.000	673	3376	2	
5	1.39		0.000	24	110	1	
6	1.55	chloride	2.693	361	1689	1	0.43
7	1.86	nitrite	160.195	13847	75458	1	-0.36
8	3.17	nitrate	98.222	5049	38266	1	-0.11
9	4.67	phosphate	14.370	218	2418	1	4.79
10	6.08	sulfate	40.992	1493	21290	1	6.48
11	7.95	oxalate	5.739	126	3151	1	-0.04
Totals			324.806	22351	148258

Data Reprocessed On 04/28/1997 09:36:29

```

=====
Sample Name: S97T000594 DUP                      Date: 04/24/1997 09:08:46
Data File  : E:\DATA\97042401.D06
Method     : C:\DX\METHOD\ANIONS.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 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	0.87		0.000	60	254	1	
2	1.03	fluoride	2.644	461	2108	2	1.65
3	1.14		0.000	668	3367	2	
4	1.39		0.000	46	228	1	
5	1.55	chloride	2.652	374	1661	1	0.43
6	1.86	nitrite	155.441	13943	73169	1	-0.36
7	3.17	nitrate	101.267	5096	39497	1	-0.11
8	4.67	phosphate	16.642	233	2845	1	4.79
9	6.08	sulfate	43.991	1541	22869	1	6.48
10	7.95	oxalate	3.238	113	2170	1	-0.04
Totals			325.875	22535	148168		

File: 97042401.D06 Sample: S97T000594 DUP

Data Reprocessed On 04/28/1997 09:38:43

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=====
Sample Name: S97T000595                      Date: 04/24/1997 09:27:05
Data File  : E:\DATA\97042401.D07
Method     : C:\DX\METHOD\ANIONS.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          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	0.25		0.000	23	124	1	
2	0.87		0.000	69	310	2	
3	1.03	fluoride	1.900	663	2981	2	1.65
4	1.14		0.000	1016	5189	2	
5	1.39		0.000	27	123	1	
6	1.55	chloride	2.070	563	2555	1	0.43
7	1.86	nitrite	130.218	22015	118144	1	-0.36
8	3.15	nitrate	83.114	8139	62920	1	-0.74
9	4.67	phosphate	11.550	310	3863	1	4.79
10	6.03	sulfate	33.477	1975	33395	1	5.55
11	7.95	oxalate	4.822	193	4511	1	-0.04
Totals			267.151	34991	234115		

File: 97042401.D07 Sample: S97T000595

Data Reprocessed On 04/28/1997 09:40:57

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=====
Sample Name: S97T000595 DUP                      Date: 04/24/1997 09:38:41
Data File  : E:\DATA\97042401.D08
Method     : C:\DX\METHOD\ANIONS.MET
ACI Address: 1 System: 1 Inject#: 8                Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

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=====
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	0.23		0.000	45	262	1	
2	0.87		0.000	78	343	2	
3	1.03	fluoride	1.904	660	2986	2	1.65
4	1.14		0.000	1013	5127	2	
5	1.39		0.000	32	149	1	
6	1.55	chloride	2.135	573	2640	1	0.43
7	1.86	nitrite	133.929	22160	121575	1	-0.36
8	3.15	nitrate	82.451	8126	62398	1	-0.74
9	4.67	phosphate	11.873	312	3979	1	4.79
10	6.03	sulfate	35.614	2028	35558	1	5.55
11	7.95	oxalate	4.350	191	4157	1	-0.04
Totals			272.255	35218	239176		

File: 97042401.D08 Sample: S97T000595 DUP

LABCORE Completed Worklist Report for Worklist# 18145

Analyst: rag

Instrument: IC02

Book# 6/1/2014

Method: 1A-523-105 Rev/Mod D-1

Worklist Comment: Rerun for IC. Use a 2121 DF. QC for Br only. T 112

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	2.16e-01	0.216	ug/mL
1 CCB	0	⊖IC-QC P04	QC	1	<1.20e-1		ug/mL
1 CCB	0	⊖IC-QC S04	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	5.30e01	5.74e+01	97.288 % Recovery	
2 CCV	0	⊖IC-QC CL	QC	7.90e01	7.93e+01	100.380 % Recovery	
2 CCV	0	⊖IC-QC NO2	QC	5.44e02	5.47e+02	100.551 % Recovery	
2 CCV	0	⊖IC-QC BR	QC	5.89e02	5.98e+02	99.830 % Recovery	
2 CCV	0	⊖IC-QC NO3	QC	5.94e02	6.05e+02	101.852 % Recovery	
2 CCV	0	⊖IC-QC P04	QC	5.45e02	5.52e+02	101.284 % Recovery	
2 CCV	0	⊖IC-QC S04	QC	6.31e02	6.22e+02	98.574 % Recovery	
2 CCV	0	⊖IC-QC OXALATE2	QC	5.32e02	5.21e+02	97.932 % Recovery	
3 SAMPLE	S97T000376 0	⊖IC-01 F-02	LIQUID	N/A	4.550e+02	25.450	ug/mL
3 SAMPLE	S97T000376 0	⊖IC-01 CL-02	LIQUID	N/A	5.149e+02	36.060	ug/mL
3 SAMPLE	S97T000376 0	⊖IC-01 NO2-02	LIQUID	N/A	3.719e+04	229.100	ug/mL
3 SAMPLE	S97T000376 0	⊖IC-01 BR-02	LIQUID	N/A	2.651e+02	265.100	ug/mL
3 SAMPLE	S97T000376 0	⊖IC-01 NO3-02	LIQUID	N/A	2.240e+04	224.800	ug/mL
3 SAMPLE	S97T000376 0	⊖IC-01 P04-02	LIQUID	N/A	1.877e+03	254.500	ug/mL
3 SAMPLE	S97T000376 0	⊖IC-01 S04-02	LIQUID	N/A	8.971e+03	292.700	ug/mL
3 SAMPLE	S97T000376 0	⊖IC-01 OXALATE2	LIQUID	N/A	1.166e+03	222.700	ug/mL
4 DUP	S97T000376 0	⊖IC-01 F-02	LIQUID	4.55e+02	4.68e+02	2.817	RPD
4 DUP	S97T000376 0	⊖IC-01 CL-02	LIQUID	5.15e+02	5.19e+02	0.774	RPD
4 DUP	S97T000376 0	⊖IC-01 NO2-02	LIQUID	3.71e+04	3.68e+04	0.812	RPD
4 DUP	S97T000376 0	⊖IC-01 BR-02	LIQUID	<2.65e2	<2.65e2		RPD
4 DUP	S97T000376 0	⊖IC-01 NO3-02	LIQUID	2.24e+04	2.32e+04	3.503	RPD
4 DUP	S97T000376 0	⊖IC-01 P04-02	LIQUID	1.88e+03	1.85e+03	1.609	RPD
4 DUP	S97T000376 0	⊖IC-01 S04-02	LIQUID	8.37e+03	3.45e+03	5.212	RPD
4 DUP	S97T000376 0	⊖IC-01 OXALATE2	LIQUID	1.17e+03	2.39e+03	68.539	RPD
5 SPK	S97T000376 0	⊖IC-01 F-02	LIQUID	5.90e01	4.73e+01	80.169 % Recovery	
5 SPK	S97T000376 0	⊖IC-01 CL-02	LIQUID	7.90e01	7.03e+01	88.987 % Recovery	
5 SPK	S97T000376 0	⊖IC-01 NO2-02	LIQUID	5.44e02	5.10e+02	93.750 % Recovery	
5 SPK	S97T000376 0	⊖IC-01 BR-02	LIQUID	5.89e02	5.26e+02	89.304 % Recovery	
5 SPK	S97T000376 0	⊖IC-01 NO3-02	LIQUID	5.94e02	5.86e+02	98.653 % Recovery	
5 SPK	S97T000376 0	⊖IC-01 P04-02	LIQUID	5.45e02	4.87e+02	89.358 % Recovery	
5 SPK	S97T000376 0	⊖IC-01 S04-02	LIQUID	6.31e02	6.13e+02	97.147 % Recovery	
5 SPK	S97T000376 0	⊖IC-01 OXALATE2	LIQUID	5.32e02	4.96e+02	93.233 % Recovery	

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

LABCORE Completed Worklist Report for Worklist# 18145

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

Final page for worklist# 18145

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Reviewer Signature John Faye Date 5/22/97

LABCORE Data Entry Template for Worklist# 18145

Analyst: RD Instrument: IC0 2 Book# 61N20-A

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

Worklist Comment: Rerun for IC. Use a 2121 DF. QC for Br only. T712

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
✓ 1	CCB				@IC-QC	QC		
✓ 2	CCV				@IC-QC	QC		
✓ 3	SAMPLE	S97T000376 0			@IC-01	LIQUID	97000151	T-112
		Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
/ 4	DUP	S97T000376 0			@IC-01	LIQUID		
/ 5	SPK	S97T000376 0			@IC-01	LIQUID		

Final page for worklist # 18145

RaeAnn Green 5-19-97
Analyst Signature Date

Analyst Signature Date

uploaded 5-20-97

John Worell

18145 MAY.CSV

Validated 5/20/97 JM Luge

Data Entry Comments:

A-0010-IC				DATA FILE/WORKLIST RESOLUTION				20-May-97			
Worklist#: 18145				Data File: 18145MAY.CSV							
		Seq	Type	Sample #		Seq#	Data File	Sample Name	Dilution		
-	=>	1	CCB		-	1	97051341.d02	CCB	1.00		
	=>	2	CCV			2	97051341.d10	STD 61N20-A	101.00		
	=>	3	SAMPLE	S97T000376		3	97051341.d12	S97T000376	2121.00		
	=>	4	DUP	S97T000376		4	97051341.d13	S97T000376 DUP	2121.00		
	=>	5	SPK	S97T000376		5	97051341.d14	S97T000376 SPIKE	2121.00		
+					+						

Save (F4) Abort (Shift-F3) ListFiles (Shift-F1) UploadFile (F8)

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Sample Name: CCB	Date: 05/19/1997 09:11:52
Data File : C:\DX\DATA\97051341.D02	
Method : C:\DX\METHOD\ANIONS.MET	
ACI Address: 1 System: 1 Inject#: 2	Detector: CDM-1
Analyst : <i>Rae Ann Green</i>	Column: AG4A/AS4A anion column

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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	0.19		0.000	34	201	1	
2	0.87		0.000	54	295	1	
3	1.39		0.000	167	1046	1	
4	3.15	nitrate	0.216	137	923	1	-0.74
5	7.47	oxalate	-0.046	34	521	1	-6.08

Totals 0.170 426 2986

File: 97051341.D02 Sample: CCB

Sample Name: STD 61N20-A Date: 05/19/1997 11:00:33
 Data File : C:\DX\DATA\97051341.D10
 Method : C:\DX\METHOD\ANIONS.MET
 ACI Address: 1 System: 1 Inject#: 10 Detector: CDM-1
 Analyst : *Rae Ann Green* 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	0.87		0.000	96	415	2	
2	1.03	fluoride	57.387	1967	10447	2	1.65
3	1.39		0.000	42	187	1	
4	1.54	chloride	79.315	2455	11255	1	0.00
5	1.84	nitrite	547.065	9871	53119	1	-1.43
6	2.75	bromide	588.105	5818	36860	1	-1.55
7	3.11	nitrate	604.999	6632	49453	1	-2.00
8	4.59	phosphate	552.243	1704	21631	1	2.99
9	5.92	sulfate	622.092	4719	68411	1	3.68
10	7.73	oxalate	521.459	2151	43756	1	-2.73
Totals			3572.667	35455	295533		

File: 97051341.D10 Sample: STD 61N20-A

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Sample Name: S97T000376      Date: 05/19/1997 11:41:46
Data File  : C:\DX\DATA\97051341.D12
Method     : C:\DX\METHOD\ANIONS.MET
ACI Address: 1 System: 1 Inject#: 12      Detector: CDM-1
Analyst    : Rae Ann Green      Column: AG4A/AS4A anion column
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Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 2121 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	0.21		0.000	16	142	1	
2	0.87		0.000	176	775	2	
3	1.03	fluoride	455.003	823	3761	2	1.65
4	1.13		0.000	1373	7164	2	
5	1.54	chloride	514.896	699	3345	1	0.00
6	1.85	nitrite	37099.734	30927	175825	1	-0.71
7	3.09	nitrate	22396.815	11446	89145	1	-2.42
8	4.59	phosphate	1876.558	250	3210	1	2.99
9	5.92	sulfate	8970.730	3109	46644	1	3.68
10	7.79	oxalate	1166.086	282	5429	1	-2.05
Totals			72479.821	49101	335439		

File: 97051341.D12 Sample: S97T000376

Sample Name: S97T000376 DUP Date: 05/19/1997 11:53:30
 Data File : C:\DX\DATA\97051341.D13
 Method : C:\DX\METHOD\ANIONS.MET
 ACI Address: 1 System: 1 Inject#: 13 Detector: CDM-1
 Analyst : *Rae Ann Green* Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	2121	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	0.87		0.000	179	799	2	
2	1.02	fluoride	467.679	823	3873	2	0.99
3	1.13		0.000	1378	7226	2	
4	1.54	chloride	518.851	722	3372	1	0.00
5	1.85	nitrite	36847.913	31145	174609	1	-0.71
6	3.10	nitrate	23216.406	11705	92558	1	-2.21
7	4.59	phosphate	1848.432	259	3157	1	2.99
8	5.92	sulfate	9445.685	3209	49156	1	3.68
9	7.73	oxalate	2393.749	752	10204	1	-2.73
Totals			74738.716	50172	344954		

File: 97051341.D13 Sample: S97T000376 DUP

Sample Name: S97T000376 SPIKE Date: 05/19/1997 12:05:18
 Data File : C:\DX\DATA\97051341.D14
 Method : C:\DX\METHOD\ANIONS.MET
 ACI Address: 1 System: 1 Inject#: 14 Detector: CDM-1
 Analyst : *Rae Ann Green* Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	2121	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	0.87		0.000	235	1056	2	
2	1.02	fluoride	1410.095	2623	12298	2	0.99
3	1.13		0.000	1549	8584	2	
4	1.54	chloride	1934.445	2674	13119	1	0.00
5	1.86	nitrite	47402.823	39724	225713	1	-0.36
6	2.75	bromide	10626.287	5172	31509	1	-1.31
7	3.07	nitrate	34232.406	17540	139329	1	-3.05
8	4.56	phosphate	11723.677	1723	21875	1	2.40
9	5.92	sulfate	21358.606	8188	113355	1	3.68
10	7.73	oxalate	11188.236	2265	44695	1	-2.73
Totals			139876.574	81692	611533		

File: 97051341.D14 Sample: S97T000376 SPIKE

HNF-SD-WM-DP-243, REV. 0 LABCORE Completed Worklist Report for Worklist# 18146

Analyst: rag

Instrument: IC02

Book# 61N204

Method: LA-S33-05 Rev/Mod D-1

Worklist Comment: Rerun for IC. Use a 21 DF. QC for Br only. T112

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 CCB	0	QIC-QC F	QC	1	<1.20e-2		ug/mL
1 CCB	0	QIC-QC CL	QC	1	3.00e-02	0.030	ug/mL
1 CCB	0	QIC-QC NO2	QC	1	<1.08e-1		ug/mL
1 CCB	0	QIC-QC BR	QC	1	<1.25e-1		ug/mL
1 CCB	0	QIC-QC NO3	QC	1	2.20e-01	0.220	ug/mL
1 CCB	0	QIC-QC PO4	QC	1	<1.20e-1		ug/mL
1 CCB	0	QIC-QC SO4	QC	1	<1.38e-1		ug/mL
1 CCB	0	QIC-QC OXALATE2	QC	1	<1.05e-1		ug/mL
2 CCV	0	QIC-QC F	QC	5.90e01	6.01e+01	101.864 % Recovery	
2 CCV	0	QIC-QC CL	QC	7.90e01	7.78e+01	98.481 % Recovery	
2 CCV	0	QIC-QC NO2	QC	5.44e02	5.57e+02	102.390 % Recovery	
2 CCV	0	QIC-QC BR	QC	5.89e02	6.01e+02	102.037 % Recovery	
2 CCV	0	QIC-QC NO3	QC	5.94e02	5.95e+02	100.337 % Recovery	
2 CCV	0	QIC-QC PO4	QC	5.45e02	5.64e+02	103.486 % Recovery	
2 CCV	0	QIC-QC SO4	QC	6.31e02	6.29e+02	99.683 % Recovery	
2 CCV	0	QIC-QC OXALATE2	QC	5.32e02	5.34e+02	100.376 % Recovery	
3 BLNK-PREP	0	QIC-01 F-02	SOLID	1	<1.20e-2		ug/g
3 BLNK-PREP	0	QIC-01 CL-02	SOLID	1	3.50e-02	0.035	ug/g
3 BLNK-PREP	0	QIC-01 NO2-02	SOLID	1	<1.08e-1		ug/g
3 BLNK-PREP	0	QIC-01 BR-02	SOLID	1	<1.25e-1		ug/g
3 BLNK-PREP	0	QIC-01 NO3-02	SOLID	1	1.71e-01	0.171	ug/g
3 BLNK-PREP	0	QIC-01 PO4-02	SOLID	1	<1.20e-1		ug/g
3 BLNK-PREP	0	QIC-01 SO4-02	SOLID	1	<1.38e-1		ug/g
3 BLNK-PREP	0	QIC-01 OXALATE2	SOLID	1	<1.05e-1		ug/g
4 SAMPLE	S97T000592	Q W QIC-01 F-02	SOLID	N/A	3.734e+02	48.850	ug/g
4 SAMPLE	S97T000592	Q W QIC-01 CL-02	SOLID	N/A	3.971e+02	69.190	ug/g
4 SAMPLE	S97T000592	Q W QIC-01 NO2-02	SOLID	N/A	2.406e+04	439.500	ug/g
4 SAMPLE	S97T000592	Q W QIC-01 BR-02	SOLID	N/A	5.087e+02	508.600	ug/g
4 SAMPLE	S97T000592	Q W QIC-01 NO3-02	SOLID	N/A	1.554e+04	565.700	ug/g
4 SAMPLE	S97T000592	Q W QIC-01 PO4-02	SOLID	N/A	2.618e+03	488.500	ug/g
4 SAMPLE	S97T000592	Q W QIC-01 SO4-02	SOLID	N/A	6.295e+03	561.500	ug/g
4 SAMPLE	S97T000592	Q W QIC-01 OXALATE2	SOLID	N/A	6.262e+02	427.400	ug/g
5 DUP	S97T000592	Q W QIC-01 F-02	SOLID	3.73e+02	3.75e+02	0.535	RPD
5 DUP	S97T000592	Q W QIC-01 CL-02	SOLID	3.97e+02	3.96e+02	0.252	RPD
5 DUP	S97T000592	Q W QIC-01 NO2-02	SOLID	2.41e+04	2.43e+04	0.826	RPD
5 DUP	S97T000592	Q W QIC-01 BR-02	SOLID	<5.09e2	<5.06e2		RPD
5 DUP	S97T000592	Q W QIC-01 NO3-02	SOLID	1.55e+04	1.50e+04	2.279	RPD
5 DUP	S97T000592	Q W QIC-01 PO4-02	SOLID	2.62e+03	2.59e+03	1.152	RPD
5 DUP	S97T000592	Q W QIC-01 SO4-02	SOLID	6.30e+03	6.32e+03	0.317	RPD
5 DUP	S97T000592	Q W QIC-01 OXALATE2	SOLID	6.26e+02	5.42e+02	14.384	RPD
6 SPK	S97T000592	Q W QIC-01 F-02	SOLID	5.90e01	4.94e+01	83.729 % Recovery	

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

LABCORE Completed Worklist Report for Worklist# 18146

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
6 SPK	S97T000592	0 W	QIC-01	CL-02	SOLID	7.90e01	7.52e+01	95.190 % Recovery
6 SPK	S97T000592	0 W	QIC-01	NO2-02	SOLID	5.44e02	6.08e+02	111.765 % Recovery
6 SPK	S97T000592	0 W	QIC-01	BR-02	SOLID	5.89e02	5.68e+02	96.435 % Recovery
6 SPK	S97T000592	0 W	QIC-01	NO3-02	SOLID	5.94e02	5.78e+02	97.306 % Recovery
6 SPK	S97T000592	0 W	QIC-01	PO4-02	SOLID	5.45e02	5.42e+02	99.450 % Recovery
6 SPK	S97T000592	0 W	QIC-01	SO4-02	SOLID	6.31e02	6.11e+02	96.830 % Recovery
6 SPK	S97T000592	0 W	QIC-01	OXALATE2	SOLID	5.32e02	5.17e+02	97.180 % Recovery

Final page for worklist# 18146

Analyst Signature

Date

Analyst Signature

Date

Reviewer Signature Date 5/22/97

LABCORE Data Entry Template for Worklist# 18146

Analyst: RAB Instrument: IC0 2 Book# 61N20-A

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

Worklist Comment: Rerun for IC. Use a 21 DF. QC for Br only. T112

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	S97T000592 0 W		@IC-01	SOLID	97000151	T-112
Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
/ 5 DUP	S97T000592 0 W		@IC-01	SOLID		
/ 6 SPK	S97T000592 0 W		@IC-01	SOLID		

Final page for worklist # 18146

Rae Ann Green 5-19-97
Analyst Signature Date

Analyst Signature Date

uploaded 5-20-97

John W. Wells

18146MAY.CSV

Validated 5/20/97 JMW

Data Entry Comments:

A-0010-IC				DATA FILE/WORKLIST RESOLUTION				20-May-97	
Worklist#: 18146				Data File: 18146MAY.CSV					
	Seq	Type	Sample #	Seq#	Data File	Sample Name	Dilution		
-	=>	1	CCB	-	1	97051341.d11	CCB	1.00	
	=>	2	CCV		2	97051341.d20	STD 61N20-A	101.00	
	=>	3	BLNK-PREP		3	97051341.d22	PREP-BLANK	1.00	
	=>	4	SAMPLE		4	97051341.d23	S97T000592	21.00	
	=>	5	DUP		5	97051341.d24	S97T000592 DUP	21.00	
	=>	6	SPK		6	97051341.d25	S97T000592 SPK	21.00	
			S97T000592						
			S97T000592						
			S97T000592						
+				+					

Save (F4) Abort (Shift-F3) ListFiles (Shift-F1) UploadFile (F8)

Sample Name: CCB Date: 05/19/1997 11:11:13
 Data File : C:\DX\DATA\97051341.D11
 Method : C:\DX\METHOD\ANIONS.MET
 ACI Address: 1 System: 1 Inject#: 11 Detector: CDM-1
 Analyst : *Rae Ann Green* 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	0.87		0.000	20	97	1	
2	1.39		0.000	65	372	1	
3	1.54	chloride	0.030	67	267	1	0.00
4	3.15	nitrate	0.220	135	953	1	-0.53
Totals			0.249	286	1688

Sample Name: STD 61N20-A Date: 05/19/1997 13:33:48
 Data File : C:\DX\DATA\97051341.D20
 Method : C:\DX\METHOD\ANIONS.MET
 ACI Address: 1 System: 1 Inject#: 20 Detector: CDM-1
 Analyst : *Rae Ann Green* 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	0.87		0.000	89	375	2	
2	1.03	fluoride	60.103	1981	10961	2	1.65
3	1.39		0.000	13	54	1	
4	1.55	chloride	77.835	2388	11040	1	0.43
5	1.85	nitrite	556.628	9864	54074	1	-1.07
6	2.77	bromide	600.728	5855	37686	1	-0.84
7	3.14	nitrate	596.123	6474	48702	1	-0.95
8	4.56	phosphate	563.954	1681	22106	1	2.40
9	5.92	sulfate	629.008	4988	69188	1	3.68
10	7.73	oxalate	534.238	2283	44816	1	-2.73
Totals			3618.617	35618	299000		

File: 97051341.D20 Sample: STD 61N20-A

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Sample Name: PREP-BLANK	Date: 05/19/1997 13:53:12
Data File : C:\DX\DATA\97051341.D22	
Method : C:\DX\METHOD\ANIONS.MET	
ACI Address: 1 System: 1 Inject#: 22	Detector: CDM-1
Analyst : <i>Rae Ann Green</i>	Column: AG4A/AS4A anion column

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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	55	466	1	
2	1.57	chloride	0.035	37	340	1	2.16
3	3.20	nitrate	0.171	87	550	1	0.95
Totals			0.205	179	1355		

File: 97051341.D22 Sample: PREP-BLANK

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Sample Name: S97T000592                      Date: 05/19/1997 14:05:36
Data File  : C:\DX\DATA\97051341.D23
Method     : C:\DX\METHOD\ANIONS.MET
ACI Address: 1 System: 1 Inject#: 23          Detector: CDM-1
Analyst    : Rae Ann Green Column: AG4A/AS4A anion column
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Calibration Volume Dilution Points Rate Start Stop Area Reject
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External          1           21 3000 5Hz 0.00 10.00          50
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***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.87		0.000	42	179	2	
2	1.03	fluoride	1.927	333	1472	2	1.65
3	1.14		0.000	525	2732	2	
4	1.39		0.000	29	146	1	
5	1.55	chloride	2.049	283	1247	1	0.43
6	1.85	nitrite	124.129	10943	58107	1	-0.71
7	3.15	nitrate	80.207	4013	31005	1	-0.53
8	4.59	phosphate	13.511	187	2257	1	2.99
9	5.92	sulfate	32.483	1098	16815	1	3.68
10	7.79	oxalate	3.231	111	2168	1	-2.05
Totals			257.539	17564	116129		

File: 97051341.D23 Sample: S97T000592

HNF-SD-WM-DP-243, REV. 0

Sample Name: S97T000592 DUP	Date: 05/19/1997 14:16:12
Data File : C:\DX\DATA\97051341.D24	
Method : C:\DX\METHOD\ANIONS.MET	
ACI Address: 1 System: 1 Inject#: 24	Detector: CDM-1
Analyst : <i>Rae Ann Green</i>	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	0.88		0.000	43	188	2	
2	1.03	fluoride	1.943	337	1486	2	1.65
3	1.14		0.000	525	2725	2	
4	1.38		0.000	42	204	1	
5	1.55	chloride	2.055	280	1251	1	0.43
6	1.85	nitrite	126.212	11023	59108	1	-0.71
7	3.15	nitrate	77.545	3944	29936	1	-0.53
8	4.59	phosphate	13.423	189	2240	1	2.99
9	5.92	sulfate	32.746	1119	16953	1	3.68
10	6.83		0.000	19	526	1	
11	7.79	oxalate	2.812	104	2003	1	-2.05
Totals			256.735	17624	116621		

File: 97051341.D24 Sample: S97T000592 DUP

Sample Name: S97T000592 SPK Date: 05/19/1997 14:30:04
 Data File : C:\DX\DATA\97051341.D25
 Method : C:\DX\METHOD\ANIONS.MET
 ACI Address: 1 System: 1 Inject#: 25 Detector: CDM-1
 Analyst : *R. Green* 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	0.87		0.000	106	451	2	
2	1.03	fluoride	11.814	2160	10340	2	1.65
3	1.13		0.000	723	3590	2	
4	1.55	chloride	17.079	2445	11666	1	0.43
5	1.85	nitrite	245.728	20863	116755	1	-0.71
6	2.77	bromide	113.683	5374	34161	1	-0.60
7	3.12	nitrate	195.853	10189	78314	1	-1.58
8	4.56	phosphate	121.856	1777	23003	1	2.40
9	5.92	sulfate	154.648	5994	82136	1	3.68
10	7.73	oxalate	106.699	2224	43069	1	-2.73
Totals			967.359	51855	403484		

File: 97051341.D25 Sample: S97T000592 SPK

NAF 200 4/1/07
WHC-SD-WM-DP-243, REV. 0

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HNF 02/4/97
~~WMC~~-SD-WM-DP-243, REV. 0

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LABCORE Data Entry Template for Worklist# 17749

Analyst: JS Instrument: ICP01-1 4-25-97 Book# 668480

Method: LA-505-151/161 Rev/Mod C-1

Worklist Comment: 4-25-97 ICP T-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	SAMPLE	S97T000374 0 D	@ICP-D01 LIQUID	97000151 T-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					
7	DUP	S97T000374 0 D	@ICP-D01 LIQUID			
8	SAMPLE	S97T000376 0 D	@ICP-D01 LIQUID	97000151 T-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					
9	DUP	S97T000376 0 D	@ICP-D01 LIQUID			
10	SAMPLE	S97T000377 0 D	@ICP-D01 LIQUID	97000151 T-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 ,					

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 17749

S Type	Sample#	R A	Test	Matrix	Group#	Project
			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			
11 DUP	S97T000377	0 D	@ICP-D01	LIQUID		
12 ICSA			@ICP-QC	QC		
13 ICSAB			@ICP-QC	QC		
14 CCV			@ICP-QC	QC		
15 CCB			@ICP-QC	QC		

Final page for worklist # 17749

JK
Analyst Signature 04-25-97
Date

S97T000374 , 05-10 ml , 201
S97T000374 , 05-10 , 201
S97T000376 , 05-10 , 201
S97T000376 , 05-10 , 201
S97T000377 , 4-4 , 2
S97T000377 , 4-4 , 2

Revised by:
Sal R. Pary
Analyst Signature 4/25/97
Date

Data Entry Comments:

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

HNF-SD-WM-DP-243, REV. 0

Analysis Report

Summary

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#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	970425A	ICP2	04/25/97	12:14	DKS	Q	CONC
2	ICB	970425A	ICP2	04/25/97	12:17	DKS	Q	CONC
3	ILS	970425A	ICP2	04/25/97	12:20	DKS	Q	CONC
4	IGSA	970425A	ICP2	04/25/97	12:23	DKS	Q	CONC
5	IGSAB	970425A	ICP2	04/25/97	12:28	DKS	Q	CONC
6	S97T000374	970425A	ICP2	04/25/97	12:32	DKS	S	CONC
7	S97T000374_D	970425A	ICP2	04/25/97	12:35	DKS	S	CONC
8	S97T000376	970425A	ICP2	04/25/97	12:38	DKS	S	CONC
9	S97T000376_D	970425A	ICP2	04/25/97	12:42	DKS	S	CONC
10	S97T000377	970425A	ICP2	04/25/97	12:48	DKS	S	CONC
11	S97T000377_D	970425A	ICP2	04/25/97	12:52	DKS	S	CONC
12	CCV	970425A	ICP2	04/25/97	12:57	DKS	Q	CONC
13	CCB	970425A	ICP2	04/25/97	13:01	DKS	Q	CONC
14	S97T000445	970425A	ICP2	04/25/97	13:04	DKS	S	CONC
15	S97T000445_D	970425A	ICP2	04/25/97	13:07	DKS	S	CONC
16	IGSA	970425A	ICP2	04/25/97	13:12	DKS	Q	CONC
17	IGSAB	970425A	ICP2	04/25/97	13:15	DKS	Q	CONC
18	CCV_1	970425A	ICP2	04/25/97	13:19	DKS	Q	CONC
19	CCB_1	970425A	ICP2	04/25/97	13:22	DKS	Q	CONC

DK *[Signature]*

04-25-97

T-112 S97T000374

S97T000376

S97T000377

S-106 S97T000445

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES ~~181~~ TO ~~184~~ ^{182 mte} 5-27-97

HNF-SD-WM-DP-243, REV. 0

Analysis Report

Averages

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#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	4.832	4.849	5.130	4.999	4.891	5.059
2	ICB	-.0001	.0133	.0012	.0019	-.0000	.0004
3	LLS	.0222	.1202	.2175	.0998	.1009	.0113
4	ICSA	.0021	242.0	.0321	-.0011	.0002	.0003
5	ICSAB	.9601	242.8	-.0102	-.0044	.4758	.4816
6	S97T000374	4.430	7.464	-29.60	9.940	.0862	.0710
7	S97T000374	4.243	7.794	-27.06	8.960	.0837	.0895
8	S97T000376	4.382	7.185	-29.46	8.178	.0956	.0633
9	S97T000376 D	4.330	8.939	-28.06	8.474	.1038	.0711
10	S97T000377	.0064	4.011	-.0347	2.466	.0062	.0010
11	S97T000377_D	.0061	4.215	.0089	2.461	.0125	.0006
12	CCV	4.866	4.887	5.194	5.008	4.942	5.099
13	CCB	.0005	.0186	-.0019	.0049	.0001	.0005
14	S97T000445	17.28	32980.	-56.78	116.3	-.0079	.2923
15	S97T000445_D	16.37	31460.	-59.22	107.3	-.0504	.2652
16	ICSA	.0011	243.0	-.0184	.0049	.0002	.0003
17	ICSAB	.9536	240.9	-.0165	-.0011	.4736	.4799
18	CCV_1	4.869	4.851	5.177	4.992	4.937	5.077
19	CCB_1	-.0001	.0081	-.0074	.0049	.0000	.0004

#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	4.995	4.894	4.921	4.846	5.018	4.897
2	ICB	.0043	-.0019	-.0019	.0003	.0010	.0015
3	LLS	-.1696	.2246	.0081	.1988	.0433	.0212
4	ICSA	-.0016	250.2	.0000	.0047	-.0008	-.0026
5	ICSAB	.0205	251.1	.9303	.0086	.4663	.4693
6	S97T000374	45.07	9.233	2.868	.0079	.8082	699.0
7	S97T000374	41.60	7.879	2.879	-.1577	.5961	683.9
8	S97T000376	46.32	8.081	2.765	-1.154	.8592	690.3
9	S97T000376 D	43.03	8.669	2.841	.4761	.3646	691.5
10	S97T000377	.0605	15.95	-.0026	.0049	-.0013	1.517
11	S97T000377_D	.0469	16.69	-.0019	-.0089	-.0015	1.535
12	CCV	4.986	4.965	4.946	4.892	5.066	4.932
13	CCB	.0014	-.0036	-.0014	-.0028	.0015	.0022
14	S97T000445	8.433	10.40	-1.047	-3.706	2.254	7500.
15	S97T000445_D	17.48	15.01	-.8520	-.4391	2.814	7197.
16	ICSA	.0103	252.6	-.0003	.0103	.0008	-.0025
17	ICSAB	-.0055	250.4	.9273	.0051	.4663	.4662
18	CCV_1	4.965	5.019	4.952	4.873	5.074	4.951
19	CCB_1	-.0113	-.0033	-.0011	-.0062	.0004	.0002

#	Sample Name	Cu	Eu	Fe	K	La	Li
1	ICV	4.935	-.0022	4.620	4.823	4.928	4.884
2	ICB	.0009	-.0009	.0008	-.2156	-.0002	.0000
3	LLS	.0187	-.0004	.1000	0.3203	.1028	.0205
4	ICSA	-.0095	-.0373	93.96	-.0751	-.0040	.0021
5	ICSAB	.4477	-.0367	94.11	-.0948	-.0047	1.045
6	S97T000374	1.165	-.6155	-20.22	596.9	.7834	-.1727
7	S97T000374	1.171	-.6253	-19.83	599.1	.6976	-.2446

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Analysis Report

Averages

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#	Sample Name	Cu	Eu	Fe	K	La	Li
8	S97T000376	.9995	-.5600	-20.01	610.2	.4633	-.0991
9	S97T000376 D	1.117	-.6046	-20.28	603.9	.8752	-.1482
10	S97T000377	-.0008	.0112	.0035	.8993	.0011	.0378
11	S97T000377_D	.0010	.0116	.4531	.7581	.0010	.0387
12	CCV	4.979	-.0027	4.661	4.797	4.974	4.930
13	CCB	.0011	-.0009	.0011	-.1343	.0000	-.0008
14	S97T000445	-7.984	-.4201	3.125	1754.	-.0164	2.109
15	S97T000445_D	-7.846	.0356	2.489	1636.	.5143	1.890
16	ICSA	-.0089	-.0407	94.52	-.0626	-.0041	.0021
17	ICSA B	.4449	-.065	93.68	-.0072	-.0035	1.037
18	CCV 1	4.929	-.0014	4.660	4.825	4.949	4.849
19	CCB 1	-.0000	-.0002	.0003	-.1947	-.0005	-.0004

#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	4.961	4.821	4.988	5.081	4.909	4.886
2	ICB	.0078	.0001	.0035	-.0017	.0009	-.0072
3	LLS	.2227	.0201	.0996	.2166	.1994	.0365
4	ICSA	254.9	-.0061	-.0071	195.4	.0008	-.0081
5	ICSA B	255.5	.4437	-.0060	196.3	.0001	.9158
6	S97T000374	4.191	.2355	41.75	58360.	-.6810	23.89
7	S97T000374_D	2.506	.2505	41.70	56800.	-.4692	22.64
8	S97T000376	2.543	.0003	41.14	56740.	-.5787	24.21
9	S97T000376 D	4.696	-.0239	41.25	56880.	-.2943	24.85
10	S97T000377	3.397	.0007	.0198	99.31	-.0067	-.0048
11	S97T000377_D	3.450	.0357	.0180	98.87	-.0028	-.0095
12	CCV	5.007	4.856	5.027	5.107	4.954	4.933
13	CCB	.0079	.0000	.0061	-.0055	-.0015	.0025
14	S97T000445	-5.061	.2741	74.36	242100.	.4607	1.767
15	S97T000445_D	-3.944	.3416	69.66	230400.	.2176	-6.109
16	ICSA	256.1	-.0061	-.0073	195.6	.0022	-.0126
17	ICSA B	253.9	.4410	-.0075	194.2	.0005	.8962
18	CCV 1	4.981	4.868	5.027	5.062	4.927	4.935
19	CCB 1	.0017	.0003	.0050	.0017	-.0044	-.0067

#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	5.007	4.775	4.928	4.790	4.712	4.822
2	ICB	-.0007	.0046	.0173	.0005	.0276	.0004
3	LLS	.4208	.2125	.2089	.1017	.2300	.1326
4	ICSA	.0206	.0252	-.0325	-.0069	-.0068	.0125
5	ICSA B	.0298	.9863	-.0291	-.0063	-.0254	-.0048
6	S97T000374	669.7	45.26	3098.	1.154	16.64	4.676
7	S97T000374_D	651.1	48.43	3017.	-.1072	18.23	4.271
8	S97T000376	646.8	44.30	3008.	-2.540	18.29	4.254
9	S97T000376 D	647.4	44.91	3010.	-.2165	19.87	4.408
10	S97T000377	1.087	-.0252	7.986	-.0073	.1018	3.933
11	S97T000377_D	1.418	.0137	7.978	-.0131	.0832	4.181
12	CCV	5.050	4.843	4.967	4.804	4.765	4.913
13	CCB	.0009	.0045	.0096	-.0060	.0324	.0170
14	S97T000445	629.4	6.145	1276.	-1.195	32.28	469.8
15	S97T000445_D	608.2	16.20	1218.	-2.501	25.74	440.5

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Analysis Report

Averages

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#	Sample Name	P	Pb	S	Sb	Se	Si
16	ICSA	.0151	.0440	-.0209	-.0001	-.0056	.0281
17	ICSA	.0122	.9900	-.0223	-.0070	.0042	.0033
18	CCV 1	5.003	4.840	4.958	4.796	4.712	4.881
19	CCB 1	.0118	.0054	.0113	-.0076	.0483	.0173

#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	4.829	4.898	.0126	4.843	4.720	9.494
2	ICB	-.0080	-.0000	.0063	-.0002	.0123	-.0383
3	LLS	.1988	.0206	.0003	.0194	.4118	.4892
4	ICSA	-.0011	.0020	.0060	.0013	-.0083	-.0314
5	ICSA	-.0024	.0020	-.0020	.0010	.0280	-.0304
6	S97T000374	-3.539	.0119	.6667	-.1377	-1.736	945.5
7	S97T000374_D	-4.006	.0136	-.6853	-.0838	-1.207	926.4
8	S97T000376	-2.031	.0448	.5325	.0697	2.527	933.4
9	S97T000376_D	-2.530	.0440	-.7064	.0597	-2.924	942.3
10	S97T000377	-.0087	.0681	.0008	-.0020	-.0196	.0881
11	S97T000377_D	-.0027	.0721	.0038	-.0020	.0199	.1176
12	CCV	4.869	4.940	.0102	4.888	4.770	9.563
13	CCB	-.0107	-.0001	.0081	-.0005	.0000	-.0397
14	S97T000445	-5.366	-.0641	2.471	1.640	-5.619	3.925
15	S97T000445_D	2.187	.0287	3.310	1.493	6.291	27.84
16	ICSA	-.0037	.0019	-.0029	.0015	.0132	-.0292
17	ICSA	-.0025	.0019	.0033	.0008	-.0137	.0464
18	CCV 1	4.845	4.917	.0142	4.864	4.765	9.529
19	CCB 1	.0001	.0001	.0013	-.0010	-.0194	.0009

#	Sample Name	V	Y	Zn	Zr
1	ICV	5.010	.0047	4.762	4.888
2	ICB	-.0013	-.0004	-.0005	-.0023
3	LLS	.1030	.0004	.0207	.0198
4	ICSA	-.0019	.0065	.0063	-.0042
5	ICSA	.4676	.0064	.9236	-.0034
6	S97T000374	-.5926	-.1025	4.088	7.616
7	S97T000374_D	-.4777	-.0787	3.952	7.509
8	S97T000376	-.2613	-.0344	4.729	7.635
9	S97T000376_D	-.3518	-.0382	4.471	7.719
10	S97T000377	-.0007	-.0000	.0033	-.0035
11	S97T000377_D	-.0001	.0004	.0498	-.0023
12	CCV	5.048	.0049	4.788	4.924
13	CCB	-.0023	-.0005	.0003	-.0028
14	S97T000445	.6945	-.1430	8.834	-.6742
15	S97T000445_D	1.923	.0353	8.499	.3496
16	ICSA	-.0020	.0065	.0064	-.0036
17	ICSA	.4644	.0064	.9188	-.0048
18	CCV 1	5.047	.0052	4.809	4.917
19	CCB 1	-.0002	.0000	.0012	-.0005

IK
04-25-97

LABCORE Data Entry Template for Worklist# 17774

Analyst: B. GOSCHKE Instrument: ICP01

Book# 66B446

Method: LA-505-151 Rev/Mod 1-1

Worklist Comment: ICP T-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	S97T000380 0 F	@ICP-F01	SOLID	97000151	T-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 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-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	S97T000380 0 F	@ICP-F01	SOLID		
9	CCV		@ICP-QC	QC		
10	CCB		@ICP-QC	QC		
11	PREPBLKARL		@ICP-F01	SOLID		
12	SERDIL	S97T000438 0 F	@ICP-F01	SOLID		
13	SAMPLE	S97T000438 0 F	@ICP-F01	SOLID	97000152	T-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 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-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:

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

LABCORE Data Entry Template for Worklist# 17774

S Type	Sample#	R A	Test	Matrix	Group#	Project
14 DUP	S97T000438	0 F	@ICP-F01	SOLID		
15 SPK	S97T000438	0 F	@ICP-F01	SOLID		
16 PREPBLKARL			@ICP-F01	SOLID		
17 SAMPLE	S97T000591	0 F	@ICP-F01	SOLID	97000151	T-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 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-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						
18 DUP	S97T000591	0 F	@ICP-F01	SOLID		
19 CCV			@ICP-QC	QC		
20 CCB			@ICP-QC	QC		
21 PREPBLKARL			@ICP-F01	SOLID		
22 SAMPLE	S97T000596	0 F	@ICP-F01	SOLID	97000152	T-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 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-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						
23 DUP	S97T000596	0 F	@ICP-F01	SOLID		
24 ICSA			@ICP-QC	QC		
25 ICSAB			@ICP-QC	QC		
26 CCV			@ICP-QC	QC		
27 CCB			@ICP-QC	QC		

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 17774

S Type	Sample#	R A Test	Matrix	Group#	Project
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Final page for worklist # 17774

Analyst Signature	Date	Revised by:	Date
<i>[Signature]</i>	4-28-97	<i>Sal R. Pang</i>	4/29/97
PREPBLK AAL	.250 - 8.75-1		05
5977000380	.250 - 8.75-1		1
380-D	.250 - 8.75-1		40
PREPBLK AAL	.250 - 1 - 8.75-1		40
5977000 438-L	.250 - 1 - 8.75-1 - 2 - 1 - 8-1		1
438	.250 - 1 - 8.75-1		200
438-D	.250 - 1 - 8.75-1		40
438-A	.250 - 1 - (1-1-1-1) - 8.75-1		40
PREPBLK AAL	.250 - 1 - 8.75-1		40
5977000 591	.250 - 1 - 8.75-1		1
591-D	.250 - 1 - 8.75-1		40
PREPBLK AAL	.250 - 1 - 8.75-1		40
5977000 596	.250 - 1 - 8.75-1		1
596-D	.250 - 1 - 8.75-1		40

Data Entry Comments:

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

T-112 FUSION

B/Bach 4-24-87

5575 66644B

HNF-SD-WM-DP-243, REV. 0

FILE # 970428A.DAT

.250-1-8.75-1

1. ILCV		
2. ILCB		
3. LLS		
4. ILSA		
5. ILSAB		
6. PREPBLKHL	.250-1-8.75-1	25.
7. 597T000380	.250-1-8.75-1	40
8. 597T000380-D	.250-1-8.75-1	40
9. CCV		
10. CCB		
11. PREPBLKHL	.250-1-8.75-1	1
12. 597T000438-L	.250-1-8.75-1-2-1-8-1	250
13. 597T000438	.250-1-8.75-1	40
14. 597T000438-D	.250-1-8.75-1	40
15. 597T000438-A	.250-1-(1-1-1-1)-8.75-1	40
16. PREPBLKHL	.250-1-8.75-1	1
17. 597T000581	.250-1-8.75-1	40
18. 597T000581-D	.250-1-8.75-1	40
19. CCV		
20. CCB		
21. PREPBLKHL	.250-1-8.75-1	1
22. 597T000586	.250-1-8.75-1	40
23. 597T000586-D	.250-1-8.75-1	40
24. ILSA		
25. ILSAB		
26. CCV		
27. CCB		

HNF-SD-WM-DP-243, REV. 0

Identity 1: ICV Identity 2: Quality Control 1:07 PM April 28, 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	4.873	4.934	5.006	4.856	4.882	4.910	5.182	4.937
S.D.	0.012	0.015	0.024	0.013	0.020	0.016	0.018	0.034
% R.S.D.	0.241	0.298	0.487	0.270	0.406	0.316	0.348	0.684

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	4.987	4.837	4.963	4.875	4.835	4.738	5.332	9.727
S.D.	0.016	0.016	0.016	0.009	0.013	0.013	0.027	0.068
% R.S.D.	0.321	0.321	0.325	0.191	0.279	0.265	0.498	0.697

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	4.825	5.074	4.949	4.952	4.754	4.681	5.032	5.103
S.D.	0.017	0.013	0.017	0.038	0.029	0.015	0.025	0.027
% R.S.D.	0.360	0.247	0.333	0.761	0.619	0.328	0.489	0.531

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	4.893	5.011	4.789	4.805	4.867	5.021	5.059	4.877
S.D.	0.021	0.018	0.046	0.010	0.016	0.011	0.016	0.017
% R.S.D.	0.419	0.357	0.953	0.204	0.335	0.216	0.317	0.350

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	4.642	4.983	5.044	4.993
S.D.	0.052	0.013	0.010	0.057
% R.S.D.	1.121	0.258	0.190	1.133

[Signature]

4-28-97

T-112 FUSION, 280-1-875-1

SS7T000380 43A, 551, 586

FILE # 970428A.DAT

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 189 TO 212

189

212

HNF-SD-WM-DP-243, REV. 0

Identity 1: ICB

Identity 2: Quality Control

1:13 PM April 28, 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	0.010	0.001	0.007	0.020	0.013	-0.004	-0.001	0.001
S.D.	0.001	0.000	0.004	0.001	0.003	0.002	0.000	0.000
% R.S.D.	7.889	16.973	63.158	5.352	21.842	43.979	10.214	29.739
	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.002	0.006	0.007	-0.001	0.003	-0.003	-0.007	0.359
S.D.	0.000	0.000	0.002	0.000	0.000	0.002	0.007	0.031
% R.S.D.	15.390	3.040	27.752	12.636	9.857	59.895	88.259	8.748
	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.030	0.054	0.001	0.011	0.004	0.001	0.001	-0.010
S.D.	0.012	0.008	0.000	0.008	0.001	0.000	0.001	0.004
% R.S.D.	39.969	15.131	14.062	69.205	13.987	6.923	125.992	44.606
	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.005	-0.002	-0.012	0.004	0.002	0.006	0.131	0.001
S.D.	0.001	0.001	0.018	0.000	0.000	0.001	0.012	0.000
% R.S.D.	20.471	29.788	144.297	2.916	22.440	10.506	9.266	33.957
	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)				
Mean	-0.036	-0.001	0.001	-0.073				
S.D.	0.032	0.000	0.000	0.018				
% R.S.D.	89.374	22.778	22.038	24.888				

HNF-SD-WM-DP-243, REV. 0

Identity 1: LLS

Identity 2: Quality Control

1:16 PM April 28, 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	0.028	0.021	0.200	0.201	0.117	0.038	0.019	0.020
S.D.	0.001	0.000	0.008	0.002	0.005	0.002	0.000	0.000
% R.S.D.	2.667	0.339	4.224	1.075	4.250	4.546	2.144	0.898

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.021	0.042	0.107	0.093	0.212	0.016	0.178	0.727
S.D.	0.000	0.001	0.003	0.003	0.000	0.001	0.013	0.004
% R.S.D.	0.817	2.371	2.381	2.841	0.231	8.811	7.366	0.597

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	0.166	0.264	0.105	0.424	0.224	0.211	0.209	0.196
S.D.	0.003	0.001	0.000	0.012	0.009	0.000	0.008	0.002
% R.S.D.	1.808	0.568	0.190	2.914	3.940	0.161	3.734	1.087

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.100	0.023	0.186	0.022	0.008	0.102	0.533	0.020
S.D.	0.001	0.000	0.006	0.000	0.000	0.001	0.017	0.000
% R.S.D.	0.801	1.516	3.165	0.560	4.771	0.975	3.217	2.349

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.206	0.100	0.011	0.328
S.D.	0.029	0.001	0.000	0.020
% R.S.D.	13.963	0.645	2.307	6.153

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HNF-SD-WM-DP-243, REV. 0

Identity 1: ICSA

Identity 2: Quality Control

1:21 PM April 28, 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	0.005	0.002	-0.028	0.014	203.125	-0.002	-0.001	-0.000
S.D.	0.001	0.000	0.007	0.002	0.090	0.002	0.001	0.000
% R.S.D.	13.217	4.128	25.767	16.316	0.044	78.200	37.951	23.362

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.004	0.005	-0.001	93.001	97.122	-0.000	0.069	0.162
S.D.	0.000	0.001	0.001	0.167	0.061	0.003	0.005	0.019
% R.S.D.	3.389	18.111	95.225	0.179	0.062	523.048	6.807	12.030

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	0.002	0.027	0.001	0.011	-0.063	100.319	-0.068	193.228
S.D.	0.005	0.002	0.000	0.002	0.009	0.177	0.005	0.308
% R.S.D.	222.414	8.712	5.154	14.198	13.632	0.177	8.069	0.160

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	-0.000	0.000	-0.011	0.002	-0.001	0.014	0.095	0.006
S.D.	0.001	0.001	0.011	0.000	0.001	0.002	0.006	0.001
% R.S.D.	346.401	1397.326	101.322	13.947	77.924	10.940	6.239	9.664

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.020	-0.001	0.003	-0.007
S.D.	0.029	0.000	0.000	0.010
% R.S.D.	144.149	11.939	4.913	151.188

HNF-SD-WM-DP-243, REV. 0

Identity 1: ICSAB Identity 2: Quality Control 1:25 PM April 28, 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	-0.014	0.015	203.560	0.505	0.492	0.979
S.D.	0.001	0.000	0.010	0.003	0.146	0.002	0.001	0.004
% R.S.D.	25.756	5.528	73.302	18.025	0.071	0.336	0.194	0.451

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	1.007	0.985	0.000	94.684	97.810	0.499	0.057	0.224
S.D.	0.002	0.004	0.001	0.137	0.010	0.006	0.013	0.044
% R.S.D.	0.174	0.448	512.678	0.145	0.010	1.110	23.062	19.583

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Hg (ppm)	As (ppm)	Na (ppm)
Mean	-0.023	0.051	0.508	-0.000	-0.069	101.150	-0.067	189.459
S.D.	0.009	0.006	0.001	0.005	0.004	0.277	0.003	0.643
% R.S.D.	38.827	11.912	0.161	1190.020	5.842	0.273	5.099	0.339

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	-0.003	1.045	0.964	0.002	0.991	0.016	0.151	0.501
S.D.	0.001	0.001	0.005	0.000	0.004	0.001	0.012	0.002
% R.S.D.	23.117	0.113	0.486	18.379	0.448	4.546	7.789	0.313

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.063	0.493	0.495	-0.037
S.D.	0.015	0.002	0.002	0.013
% R.S.D.	23.333	0.325	0.343	34.954

HNF-SD-WM-DP-243, REV. 0

Identity 1: prepblkarl Identity 2: .250ml-9.75ml

1:32 PM April 28, 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	-0.000	0.004	0.019	0.032	-0.005	-0.002	-0.001
S.D.	0.002	0.000	0.011	0.005	0.012	0.002	0.001	0.000
% R.S.D.	39.788	600.000	253.138	25.458	38.474	35.355	37.312	47.582

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.001	0.137	0.001	0.009	0.020	-0.002	-0.009	0.215
S.D.	0.000	0.002	0.002	0.005	0.003	0.001	0.002	0.080
% R.S.D.	8.314	1.337	287.128	58.299	14.435	35.637	18.848	37.146

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.039	0.038	-0.001	-0.014	0.013	0.017	0.002	0.219
S.D.	0.022	0.017	0.000	0.009	0.005	0.003	0.001	0.007
% R.S.D.	56.787	46.063	77.816	69.665	35.269	16.721	84.801	3.363

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	-0.002	-0.002	-0.006	0.002	-0.002	-0.000	361.765	0.002
S.D.	0.001	0.002	0.004	0.001	0.001	0.001	2.839	0.000
% R.S.D.	71.862	76.726	69.021	41.277	41.913	301.514	0.785	8.336

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.026	-0.003	-0.001	-0.064
S.D.	0.029	0.002	0.000	0.046
% R.S.D.	111.663	54.028	44.899	72.191

HNF-SD-WM-DP-243, REV. 0

Identity 1: S971000380 Identity 2: .250ml-9.75ml

1:36 PM April 28, 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	-0.134	0.688	63.598	13.965	7.202	-0.034	-0.035	-0.037
S.D.	0.022	0.001	0.397	0.078	0.017	0.070	0.017	0.004
% R.S.D.	16.776	0.210	0.624	0.558	0.238	209.256	49.440	12.055

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.603	86.208	10.687	32.375	2.322	4.665	-0.545	6.160
S.D.	0.021	0.094	0.088	0.443	0.011	0.063	0.344	0.512
% R.S.D.	3.413	0.109	0.824	1.367	0.486	1.358	63.033	8.311

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-1.292	0.968	0.241	8.409	6.151	0.499	0.433	133.918
S.D.	0.296	0.090	0.002	0.305	0.125	0.010	0.035	0.147
% R.S.D.	22.900	9.262	0.725	3.623	2.028	2.081	8.148	0.110

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.072	-0.117	1.363	0.083	0.045	0.127	13223.469	9.159
S.D.	0.009	0.017	0.671	0.015	0.022	0.011	16.906	0.031
% R.S.D.	12.353	14.811	49.209	18.296	49.336	8.768	0.128	0.342

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	1.072	-0.054	-0.009	-0.811
S.D.	0.535	0.025	0.006	0.377
% R.S.D.	49.862	46.413	65.172	46.498

HNF-SD-WM-DP-243, REV. 0

Identity 1: S97T000380_D Identity 2: .250ml-9.75ml

1:39 PM April 28, 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	0.183	0.713	66.465	16.041	6.969	-0.191	-0.040	-0.049
S.D.	0.050	0.001	0.241	0.115	0.120	0.070	0.009	0.004
% R.S.D.	27.048	0.203	0.363	0.715	1.720	36.646	21.239	8.984

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.597	68.729	11.099	32.404	2.438	4.782	-0.553	17.556
S.D.	0.014	0.302	0.051	0.084	0.007	0.067	0.095	0.612
% R.S.D.	2.345	0.440	0.461	0.259	0.303	1.406	17.134	3.486

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Hg (ppm)	As (ppm)	Na (ppm)
Mean	-1.292	2.080	0.250	8.137	6.401	0.524	0.387	141.599
S.D.	0.188	0.185	0.005	0.355	0.166	0.004	0.139	0.566
% R.S.D.	14.555	8.904	1.901	4.358	2.590	0.750	35.950	0.400

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.020	-0.083	1.807	0.169	-0.008	0.115	14637.363	9.403
S.D.	0.007	0.038	0.619	0.014	0.016	0.027	75.106	0.019
% R.S.D.	34.317	45.858	34.275	8.146	208.744	23.556	0.513	0.202

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.227	-0.129	-0.007	-1.954
S.D.	0.513	0.031	0.005	0.513
% R.S.D.	225.764	24.310	83.875	26.259

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HNF-SD-WM-DP-243, REV. 0

Identity 1: CCV Identity 2: Quality Control

1:46 PM April 28, 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	4.905	5.031	5.039	4.904	4.997	4.997	5.247	5.096
S.D.	0.005	0.012	0.033	0.008	0.012	0.014	0.017	0.029
% R.S.D.	0.103	0.242	0.656	0.173	0.244	0.273	0.316	0.575

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	5.007	4.840	4.918	4.769	4.839	4.736	5.107	9.724
S.D.	0.012	0.024	0.007	0.009	0.009	0.012	0.004	0.021
% R.S.D.	0.246	0.505	0.144	0.180	0.195	0.262	0.086	0.213

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Hg (ppm)	As (ppm)	Na (ppm)
Mean	4.975	5.127	5.036	5.130	4.946	4.723	5.120	5.303
S.D.	0.009	0.011	0.016	0.017	0.033	0.007	0.014	0.031
% R.S.D.	0.183	0.216	0.310	0.339	0.667	0.142	0.283	0.580

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	5.026	4.977	4.752	4.867	4.880	4.950	5.128	4.838
S.D.	0.007	0.005	0.014	0.007	0.012	0.004	0.013	0.008
% R.S.D.	0.146	0.110	0.290	0.135	0.241	0.076	0.252	0.162

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	4.697	4.980	5.021	4.995
S.D.	0.016	0.006	0.010	0.025
% R.S.D.	0.330	0.127	0.193	0.507

HNF-SD-WM-DP-243, REV. 0

Identity 1: CCB

Identity 2: Quality Control

1:48 PM April 28, 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	0.009	0.005	0.007	0.013	0.044	0.005	0.003	0.004
S.D.	0.001	0.001	0.004	0.003	0.016	0.002	0.001	0.001
% R.S.D.	12.407	12.317	66.796	25.296	37.176	34.283	18.358	13.207
	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.005	0.007	0.003	0.002	0.006	0.001	-0.007	0.175
S.D.	0.000	0.001	0.001	0.001	0.000	0.001	0.002	0.047
% R.S.D.	8.971	19.899	36.324	65.622	6.036	81.157	34.611	26.811
	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.011	0.009	0.004	0.003	0.011	0.005	0.007	0.006
S.D.	0.012	0.010	0.001	0.007	0.003	0.000	0.003	0.002
% R.S.D.	108.156	115.769	14.023	206.736	26.405	9.437	34.465	33.335
	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.024	0.026	-0.025	0.006	0.004	0.014	0.165	0.004
S.D.	0.003	0.003	0.007	0.001	0.001	0.000	0.018	0.001
% R.S.D.	10.465	10.180	28.272	10.898	17.565	2.044	10.636	12.043
	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)				
Mean	0.043	0.003	0.004	-0.029				
S.D.	0.009	0.001	0.000	0.023				
% R.S.D.	20.409	36.976	8.400	78.565				

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HNF-SD-WM-DP-243, REV. 0

Identity 1: prepblkarl Identity 2: .250ml-9.75ml

1:53 PM April 28, 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	0.009	0.000	0.008	0.023	0.001	-0.003	-0.001	-0.001
S.D.	0.001	0.000	0.009	0.002	0.021	0.000	0.001	0.000
% R.S.D.	12.323	27.273	108.893	7.479	1841.997	0.258	46.206	81.232

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Hd (ppm)	U (ppm)
Mean	0.029	0.103	0.001	-0.001	0.004	-0.002	0.005	0.334
S.D.	0.006	0.002	0.002	0.001	0.000	0.001	-0.006	0.035
% R.S.D.	19.739	2.008	219.936	110.064	2.179	33.374	129.623	10.448

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.017	0.040	0.000	-0.001	0.026	0.001	0.000	0.133
S.D.	0.010	0.007	0.000	0.008	0.001	0.000	0.003	0.005
% R.S.D.	59.073	18.652	96.225	1123.034	5.724	12.374	896.439	3.705

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.004	-0.001	0.012	0.003	-0.000	0.005	339.646	0.002
S.D.	0.001	0.001	0.002	0.001	0.001	0.002	1.214	0.000
% R.S.D.	13.354	76.397	18.935	19.179	1215.549	36.440	0.357	16.675

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.020	-0.001	-0.001	-0.024
S.D.	0.016	0.001	0.000	0.019
% R.S.D.	80.061	223.891	1.311	82.194

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HNF-SD-WM-DP-243, REV. 0

Identity 1: S97T000438_L Identity 2: .250-9.75-2-8

1:57 PM April 28, 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	0.340	0.943	79.680	23.095	13.901	-1.384	-0.431	-0.259
S.D.	0.048	0.013	1.856	0.404	0.651	0.350	0.039	0.022
% R.S.D.	14.171	1.327	2.330	1.749	4.684	25.262	9.023	8.485

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	1.498	117.135	14.118	50.280	5.130	7.025	-1.212	42.208
S.D.	0.052	0.400	0.530	0.212	0.024	0.226	1.325	3.631
% R.S.D.	3.468	0.342	3.757	0.421	0.471	3.218	109.240	8.603

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-10.144	7.791	0.251	13.097	13.444	1.296	1.336	240.627
S.D.	0.722	1.066	0.013	0.405	0.291	0.020	0.346	1.125
% R.S.D.	7.120	13.678	5.249	3.091	2.162	1.514	25.903	0.467

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	-0.155	-0.520	0.461	0.445	-0.117	0.178	14431.395	33.068
S.D.	0.184	0.053	1.599	0.054	0.133	0.060	199.318	0.191
% R.S.D.	119.299	10.291	346.502	12.107	113.515	33.516	1.381	0.577

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	4.792	-0.731	-0.106	-13.109
S.D.	4.422	0.084	0.001	3.155
% R.S.D.	92.276	11.466	0.656	24.064

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HNF-SD-WM-DP-243, REV. 0

Identity 1: S97T000438 Identity 2: .250ml-9.75ml

2:01 PM April 28, 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	-0.299	1.023	74.360	22.107	14.254	0.016	0.111	-0.008
S.D.	0.024	0.003	0.439	0.060	0.221	0.121	0.012	0.009
% R.S.D.	8.136	0.283	0.590	0.272	1.552	764.065	11.209	114.188

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Hd (ppm)	U (ppm)
Mean	2.298	114.274	14.441	51.486	7.592	7.951	-0.036	5.717
S.D.	0.022	0.129	0.029	0.679	0.059	0.063	0.089	0.851
% R.S.D.	0.975	0.113	0.201	1.318	0.777	0.795	247.560	14.884

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.749	-0.226	0.408	12.140	11.234	1.287	0.328	237.452
S.D.	0.048	0.024	0.003	0.431	0.324	0.010	0.205	2.383
% R.S.D.	6.425	10.641	0.740	3.551	2.884	0.807	62.417	1.003

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.142	0.018	1.993	0.112	0.096	0.058	13795.787	32.816
S.D.	0.022	0.011	0.278	0.006	0.027	0.008	50.496	0.038
% R.S.D.	15.526	60.095	13.965	5.604	27.608	13.903	0.366	0.116

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	1.462	-0.053	-0.002	0.582
S.D.	0.488	0.024	0.000	0.411
% R.S.D.	33.389	46.044	6.712	70.635

HNF-SD-WM-DP-243, REV. 0

Identity 1: S97T000438_D Identity 2: .250ml-9.75ml 2:04 PM April 28, 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	0.172	1.042	105.533	23.251	16.444	0.018	0.092	-0.011
S.D.	0.032	0.003	0.615	0.175	0.784	0.001	0.012	0.008
% R.S.D.	18.506	0.240	0.582	0.752	4.767	4.211	12.612	78.502

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.954	27.928	15.972	51.124	4.986	8.395	0.067	12.965
S.D.	0.005	0.129	0.105	0.630	0.025	0.037	0.334	1.433
% R.S.D.	0.497	0.463	0.660	1.233	0.505	0.444	498.834	11.082

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	0.113	0.577	0.430	12.642	11.188	1.502	0.289	237.367
S.D.	0.265	0.268	0.008	0.167	0.050	0.007	0.131	1.940
% R.S.D.	234.338	46.352	1.884	1.318	0.448	0.452	45.383	0.817

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.039	0.036	0.677	0.205	0.104	0.214	13601.654	35.453
S.D.	0.049	0.038	0.321	0.010	0.032	0.026	115.528	0.102
% R.S.D.	126.482	106.158	47.434	5.031	31.278	12.321	0.849	0.287

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.179	-0.039	-0.017	0.096
S.D.	0.670	0.046	0.006	1.559
% R.S.D.	374.938	117.452	33.728	1620.061

HNF-SD-WM-DP-243, REV. 0

Identity 1: S97T000438_A Identity 2: .250ml-1ml-1ml-7.75

2:08 PM April 28, 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	400.096	401.315	484.705	422.453	413.649	400.670	396.564	380.530
S.D.	1.048	1.559	1.821	1.375	0.713	1.407	0.942	2.356
% R.S.D.	0.262	0.388	0.376	0.326	0.172	0.351	0.237	0.619

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	396.875	511.667	414.049	442.681	399.583	401.443	396.549	17.631
S.D.	0.666	1.435	0.689	2.549	0.978	1.499	2.355	3.169
% R.S.D.	0.168	0.280	0.166	0.576	0.245	0.373	0.594	17.976

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	403.993	396.022	398.314	416.161	402.443	398.128	397.282	618.970
S.D.	2.846	1.125	2.014	6.041	4.587	1.396	1.225	4.056
% R.S.D.	0.704	0.284	0.506	1.452	1.140	0.351	0.308	0.655

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	400.756	273.324	400.996	398.887	393.830	390.379	13939.183	428.850
S.D.	2.346	5.660	3.170	1.440	1.581	0.532	88.076	1.300
% R.S.D.	0.585	2.071	0.791	0.361	0.402	0.136	0.632	0.303

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	393.340	399.353	388.125	403.681
S.D.	2.337	1.118	0.832	1.098
% R.S.D.	0.594	0.280	0.214	0.272

HNF-SD-WM-DP-243, REV. 0

Identity 1: prepblkarl Identity 2: 250ml-9.75ml

2:13 PM April 28, 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	0.001	0.019	0.018	0.010	-0.001	-0.001	0.001
S.D.	0.002	0.000	0.010	0.007	0.012	0.002	0.001	0.001
% R.S.D.	29.620	31.343	52.646	38.978	116.033	194.397	128.445	102.556

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.003	0.088	0.002	-0.001	0.012	-0.002	-0.000	0.254
S.D.	0.000	0.002	0.001	0.001	0.000	0.001	0.011	0.056
% R.S.D.	3.011	2.489	57.928	76.871	2.344	29.370	2185.249	22.037

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.024	0.040	0.001	-0.012	0.009	0.001	0.002	-0.205
S.D.	0.017	0.012	0.001	0.006	0.002	0.000	0.001	0.003
% R.S.D.	70.043	29.999	58.904	49.480	22.158	29.047	34.724	1.586

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.003	0.007	-0.011	0.003	0.001	0.000	335.032	0.003
S.D.	0.000	0.001	0.005	0.001	0.001	0.001	1.782	0.000
% R.S.D.	9.092	18.048	47.181	25.877	64.016	353.231	0.532	10.848

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.010	-0.000	0.001	-0.051
S.D.	0.018	0.001	0.000	0.037
% R.S.D.	181.196	351.721	19.408	73.563

HNF-SD-WM-DP-243, REV. 0

Identity 1: S97T000591 Identity 2: .250ml-9.75ml 2:16 PM April 28, 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	0.031	0.582	55.338	14.082	12.403	0.054	-0.006	-0.008
S.D.	0.026	0.003	0.815	0.129	0.351	0.070	0.012	0.012
% R.S.D.	82.892	0.496	1.473	0.919	2.833	130.180	201.453	155.676

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.241	34.256	9.854	26.706	1.931	3.886	-0.432	5.432
S.D.	0.018	0.237	0.107	0.154	0.006	0.039	0.242	1.857
% R.S.D.	7.549	0.691	1.084	0.576	0.301	0.992	55.891	34.178

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.263	-0.124	0.265	8.339	6.416	0.463	0.410	139.671
S.D.	0.271	0.297	0.010	0.368	0.064	0.004	0.096	0.402
% R.S.D.	103.286	238.520	3.594	4.408	0.991	0.848	23.409	0.288

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.076	0.096	-0.299	0.064	0.000	0.089	13488.134	9.301
S.D.	0.027	0.036	0.184	0.017	0.021	0.012	109.984	0.012
% R.S.D.	35.180	37.479	61.707	26.021	5011.951	13.781	0.815	0.132

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	2.047	-0.021	-0.002	0.195
S.D.	0.324	0.017	0.000	0.908
% R.S.D.	15.853	79.593	14.998	464.728

HNF-SD-WM-DP-243, REV. 0

Identity 1: S97R000591_D Identity 2: .250ml-9.75ml 2:22 PM April 28, 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	-3.884	0.698	60.762	31.517	14.124	-0.278	0.118	0.017
S.D.	0.327	0.020	0.194	0.656	0.961	0.122	0.104	0.068
% R.S.D.	8.426	2.875	0.319	2.081	6.802	43.878	87.692	391.538

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.821	20.835	8.639	45.376	3.278	4.231	0.943	-164.025
S.D.	0.027	0.286	0.240	0.235	0.056	0.220	1.405	13.404
% R.S.D.	3.332	1.373	2.777	0.517	1.722	5.201	148.989	8.172

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	1.197	-37.106	0.345	9.609	5.007	24.810	0.777	138.254
S.D.	3.449	2.814	0.057	0.360	0.051	0.185	0.148	5.681
% R.S.D.	288.141	7.583	16.627	3.744	1.024	0.744	19.084	4.109

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.126	0.220	0.983	-0.957	0.016	0.212	12281.273	10.928
S.D.	0.067	0.212	0.520	0.101	0.043	0.068	561.122	0.098
% R.S.D.	53.429	96.360	52.901	10.506	276.130	32.177	4.569	0.894

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.276	0.809	-0.028	-0.686
S.D.	0.465	0.196	0.023	7.335
% R.S.D.	168.342	24.180	81.099	1069.616

HNF-SD-WM-DP-243, REV. 0

Identity 1: CCV

Identity 2: Quality Control

2:27 PM April 28, 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	4.915	5.024	5.091	4.898	4.946	4.967	5.257	5.096
S.D.	0.004	0.011	0.020	0.004	0.009	0.010	0.013	0.026
% R.S.D.	0.084	0.222	0.401	0.075	0.190	0.196	0.243	0.516

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	4.985	4.837	4.955	4.803	4.861	4.735	5.208	9.802
S.D.	0.006	0.009	0.006	0.013	0.004	0.012	0.018	0.021
% R.S.D.	0.125	0.187	0.112	0.280	0.086	0.246	0.352	0.210

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Hg (ppm)	As (ppm)	Na (ppm)
Mean	4.909	5.168	5.036	5.061	4.899	4.701	5.105	5.297
S.D.	0.012	0.002	0.011	0.035	0.025	0.005	0.004	0.020
% R.S.D.	0.249	0.031	0.212	0.695	0.516	0.113	0.075	0.386

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	4.984	5.002	4.770	4.857	4.871	4.994	5.283	4.848
S.D.	0.006	0.002	0.008	0.005	0.006	0.010	0.039	0.012
% R.S.D.	0.113	0.038	0.161	0.111	0.130	0.197	0.735	0.242

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	4.673	4.982	5.040	4.975
S.D.	0.008	0.006	0.003	0.010
% R.S.D.	0.168	0.120	0.065	0.201

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HNF-SD-WM-DP-243, REV. 0

Identity 1: CCB Identity 2: Quality Control

2:30 PM April 28, 1997

Task name : OPTINA

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	0.005	0.020	0.014	0.051	0.006	0.004	0.005
S.D.	0.000	0.000	0.006	0.003	0.030	0.000	0.000	0.000
% R.S.D.	3.807	5.240	29.376	23.056	59.137	0.142	9.713	8.344
	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.006	0.007	0.004	0.002	0.006	0.001	0.013	0.157
S.D.	0.000	0.002	0.003	0.001	0.000	0.001	0.009	0.039
% R.S.D.	6.305	35.844	68.564	24.146	5.639	91.773	73.730	25.071
	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	0.012	0.006	0.005	-0.006	0.006	0.005	0.004	0.013
S.D.	0.007	0.006	0.000	0.012	0.002	0.000	0.002	0.002
% R.S.D.	61.716	104.917	3.162	198.164	33.417	4.225	55.301	16.667
	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.016	0.171	-0.006	0.006	0.004	0.011	0.250	0.005
S.D.	0.002	0.002	0.009	0.000	0.001	0.001	0.013	0.001
% R.S.D.	13.146	1.095	147.177	4.692	34.035	12.188	5.086	14.038
	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)				
Mean	0.037	0.003	0.005	-0.040				
S.D.	0.030	0.001	0.000	0.021				
% R.S.D.	81.021	17.103	7.715	52.269				

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HNF-SD-WM-DP-243, REV.0

Identity 1: prepblkr1 Identity 2: .250ml-9.75ml

2:34 PM April 28, 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	0.001	0.001	0.015	0.011	-0.002	0.000	0.000
S.D.	0.001	0.000	0.005	0.002	0.005	0.002	0.001	0.000
% R.S.D.	8.283	19.094	635.476	14.088	39.832	91.519	747.704	91.163

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Rd (ppm)	U (ppm)
Mean	0.002	0.072	0.004	-0.003	0.002	0.002	0.005	0.230
S.D.	0.000	0.004	0.004	0.001	0.000	0.002	0.003	0.040
% R.S.D.	20.779	4.849	109.334	39.986	10.289	112.160	56.209	17.191

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	0.008	0.022	0.001	-0.014	0.007	0.001	0.000	0.246
S.D.	0.011	0.007	0.000	0.006	0.002	0.000	0.003	0.002
% R.S.D.	147.482	30.836	34.854	40.966	26.749	28.644	1538.453	0.998

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.004	0.004	-0.012	0.003	0.001	0.005	331.746	0.002
S.D.	0.001	0.002	0.003	0.000	0.000	0.001	2.072	0.000
% R.S.D.	19.993	46.893	26.760	12.937	17.093	16.481	0.625	23.164

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.004	0.002	-0.000	-0.026
S.D.	0.022	0.001	0.000	0.029
% R.S.D.	600.309	59.800	1127.369	111.332

HNF-SD-WM-DP-243, REV. 0

Identity 1: S97T000596 Identity 2: .250ml-9.75ml

2:38 PM April 28, 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	0.133	0.718	69.468	30.318	13.856	-0.284	-0.033	-0.041
S.D.	0.062	0.004	0.300	0.037	0.252	0.070	0.015	0.012
% R.S.D.	46.752	0.533	0.432	0.121	1.815	24.575	46.298	27.889

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.360	45.118	11.710	48.967	2.986	4.047	-0.314	11.324
S.D.	0.010	0.066	0.001	0.293	0.007	0.065	0.228	2.121
% R.S.D.	2.821	0.146	0.009	0.598	0.235	1.608	72.545	18.731

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-1.152	1.959	0.323	9.470	6.573	12.003	0.229	144.858
S.D.	0.547	0.443	0.010	0.364	0.042	0.034	0.162	1.375
% R.S.D.	47.468	22.595	3.009	3.844	0.639	0.285	70.613	0.949

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.095	0.003	-0.446	0.265	-0.040	0.096	10073.486	11.069
S.D.	0.020	0.045	0.191	0.026	0.037	0.015	106.004	0.066
% R.S.D.	21.467	1556.183	42.678	9.884	92.086	15.758	1.052	0.595

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	1.673	-0.057	-0.024	-3.786
S.D.	0.169	0.043	0.006	1.030
% R.S.D.	10.090	74.318	24.613	27.202

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HNF-SD-WM-DP-243, REV. 0

Identity 1: S97T000596_D Identity 2: .250ml-9.75ml

2:42 PM April '28, 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	-0.090	0.592	57.780	14.421	12.822	-0.108	-0.024	-0.039
S.D.	0.017	0.003	0.788	0.122	0.028	0.000	0.013	0.007
% R.S.D.	18.487	0.423	1.364	0.844	0.221	0.212	53.591	18.404

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.314	55.822	10.124	27.492	2.139	3.830	-0.198	3.712
S.D.	0.002	0.038	0.088	0.226	0.004	0.047	0.248	1.197
% R.S.D.	0.743	0.068	0.866	0.821	0.199	1.230	125.219	32.232

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-1.208	-0.529	0.250	8.594	6.345	0.474	-0.105	141.911
S.D.	0.188	0.172	0.007	0.316	0.198	0.000	0.140	0.981
% R.S.D.	15.568	32.546	2.786	3.675	3.119	0.001	133.563	0.691

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.078	0.023	-0.055	0.033	-0.039	0.026	13149.643	9.389
S.D.	0.019	0.005	0.251	0.017	0.027	0.051	48.269	0.025
% R.S.D.	24.060	23.634	456.462	51.034	68.977	193.817	0.367	0.267

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-1.056	-0.028	-0.022	-2.108
S.D.	0.381	0.038	0.010	0.894
% R.S.D.	36.047	135.261	43.570	42.435

1

HNF-SD-WM-DP-243, REV. 0

Identity 1: ICSC Identity 2: Quality Control 2:48 PM April 28, 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	0.010	0.002	-0.004	0.028	202.294	0.002	-0.003	-0.001
S.D.	0.001	0.000	0.007	0.001	0.565	0.000	0.000	0.000
% R.S.D.	7.827	1.823	184.982	2.304	0.279	9.812	7.102	16.740

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.004	0.011	0.002	95.462	98.418	-0.005	0.047	0.326
S.D.	0.000	0.002	0.003	0.293	0.062	0.002	0.002	0.008
% R.S.D.	3.979	17.131	130.890	0.307	0.063	37.152	4.358	2.395

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.014	0.078	0.001	0.038	-0.054	101.429	-0.064	191.326
S.D.	0.003	0.002	0.000	0.011	0.003	0.409	0.002	0.819
% R.S.D.	22.563	2.601	9.962	29.323	5.076	0.403	3.881	0.428

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Hf (ppm)
Mean	-0.001	0.044	-0.023	0.003	-0.002	0.015	0.406	0.004
S.D.	0.000	0.001	0.010	0.000	0.001	0.001	0.005	0.001
% R.S.D.	29.028	1.991	42.065	10.958	38.196	4.414	1.269	15.054

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.009	-0.003	0.003	-0.045
S.D.	0.033	0.000	0.000	0.022
% R.S.D.	369.023	14.409	5.397	48.644

~~WNC~~ ^{HNP 4/2/47} SD-WM-DP-243, REV. 0

RADIOCHEMICAL ANALYSES

HNF 2018 9/6/97
WHC-SD-WM-DP-243, REV. 0

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LABCORE Completed RadChem Report for Worklist#: 16981

Analyst: smf Instrument: AB16 Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: T-112, Deter s.s. by Ludlum. Std = 1.0mL, Spk = 0.1mL. skm

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	0	@ALPHA01 ALPHA01 LIQUID		2.00E-04	1.72E-4	86.000	% Recovery
1 STD	0	0	@ALPHA01 ALPHA01E LIQUID		1.00	3.54E+00	3.540	% Ct. Error
2 BLNK	0	0	@ALPHA01 ALPHA01 LIQUID		1	<1.22E-2		uCi/mL
2 BLNK	0	0	@ALPHA01 ALPHA01E LIQUID		1.00	1.84E+02	184.000	uCi/mL
3 BLNK/BKG	0	0	@ALPHA01 ALPHA01 LIQUID		1.00E+00	5.00E+00	5.000	BLNK/BKG
4 SAMPLE	S97T000374	0	@ALPHA01 ALPHA01 LIQUID		N/A	3.22E-02	163.0a-004	uCi/mL
4 SAMPLE	S97T000374	0	@ALPHA01 ALPHA01E LIQUID		N/A	6.34E+01	0.0a+000	% Ct. Error
5 DUP	S97T000374	0	@ALPHA01 ALPHA01 LIQUID		3.22E-2	1.96E-2	48.649	RPD
5 DUP	S97T000374	0	@ALPHA01 ALPHA01E LIQUID		1.00	7.61E+01	76.100	% Ct. Error
6 SPK	S97T000374	0	@ALPHA01 ALPHA01 LIQUID		3.58E-02	2.82E-02	78.771	% Recovery
7 SAMPLE	S97T000376	0	@ALPHA01 ALPHA01 LIQUID		N/A	1.96E-02	163.0a-004	uCi/mL
7 SAMPLE	S97T000376	0	@ALPHA01 ALPHA01E LIQUID		N/A	9.03E+01	0.0a+000	% Ct. Error
8 DUP	S97T000376	0	@ALPHA01 ALPHA01 LIQUID		1.96E-2	2.19E-2	11.084	RPD
8 DUP	S97T000376	0	@ALPHA01 ALPHA01E LIQUID		1.00	8.24E+01	82.400	% Ct. Error
9 SAMPLE	S97T000377	0	@ALPHA01 ALPHA01 LIQUID		N/A	3.16E-06	160.0a-008	uCi/mL
9 SAMPLE	S97T000377	0	@ALPHA01 ALPHA01E LIQUID		N/A	6.69E+01	0.0a+000	% Ct. Error
10 DUP	S97T000377	0	@ALPHA01 ALPHA01 LIQUID		3.16E-6	4.05E-6	24.688	RPD
10 DUP	S97T000377	0	@ALPHA01 ALPHA01E LIQUID		1.00	5.78E+01	57.800	% Ct. Error

Final page for worklist# 16981

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Reviewer Signature _____ Date 3/18/97

The RPDs are acceptable due to low sample alpha activity. No rerun requested.

3/18/97

LABCORE Data Entry Template for Worklist# 16981

Analyst: SMF Instrument: AB00 16 Book# 79B56

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

Worklist Comment: T-112, Deter s.s. by Ludlum. Std= 1.0mL, Spk= 0.1mL. skm

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@ALPHA01	LIQUID		
2 BLNK			@ALPHA01	LIQUID		
3 BLNK/BKG			@ALPHA01	LIQUID		
4 SAMPLE	S97T000374 0		@ALPHA01	LIQUID	97000151	T-112
	Analytes Requested: ALPHA01 , ALPHA01E					
5 DUP	S97T000374 0		@ALPHA01	LIQUID		
6 SPK	S97T000374 0		@ALPHA01	LIQUID		
7 SAMPLE	S97T000376 0		@ALPHA01	LIQUID	97000151	T-112
	Analytes Requested: ALPHA01 , ALPHA01E					
8 DUP	S97T000376 0		@ALPHA01	LIQUID		
9 SAMPLE	S97T000377 0		@ALPHA01	LIQUID	97000151	T-112
	Analytes Requested: ALPHA01 , ALPHA01E					
10 DUP	S97T000377 0		@ALPHA01	LIQUID		

Final page for worklist # 16981

Lucie M. Dalton 3-14-97
Analyst Signature Date

Lucie Hogan 3-17-97
Analyst Signature Date
C.J. O'Brien 3/17/97

Data Entry Comments:

WORKBOOK PAGE: STD1

AT : LA-508-101 (E-1) LA-508-113 (B-0) STANDARD

	STANDARD	REPLICATE
Type	DETECTOR NUMBER	16
STD	DISH SIZE (1, 2, or 5) (MS)	2
Worklist	GROSS COUNTS (GC)	3069
16981	COUNT TIME In MINUTES (CT)	30
At or By	BACKGROUND In cpm (BKG)	0.03
AT	SAMPLE SIZE In mL (SS)	1.000
Test Code	DILUTION FACTOR (DF)	1
@ALPHA01	STANDARD BOOK NUMBER (Std BN)	79B56
Matrix	EFFICIENCY FACTOR (EFF)	0.2683
LIQUID	Lc, Rmax, or Rs (SAMPLE RATE) as APPROPRIATE	102.270
Batch Number	Standard Value In $\mu\text{Ci/mL}$	2.00E-04
97000905	Concentration In $\mu\text{Ci/L}$ =	1.72E-01
Rerun	Replicate Concentration In $\mu\text{Ci/L}$ =	1.72E-01
0	AVERAGE CONCENTRATION In $\mu\text{Ci/L}$ =	1.7187E-01
Sample Prep		
N/A	Rs (Sample Count Rate) = $(TC / CT) - BKG$	
Sample	ALPHA TOTAL $\mu\text{Ci/L}$ = $Rs * 1000\text{mL/L} * DF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$	
WL16981	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L}$ / 1000mL/L	
Instrument Code	Relative Counting Error = $[(The\ Square\ Root\ of\ TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$	
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.	
Prepared by		
SEH		
Chemist		
SLF	ALPHA TOTAL CONCENTRATION In $\mu\text{Ci/mL}$ =	1.72E-04
Analyst		
SMF		
Date Complete		
03/17/97	RELATIVE COUNTING ERROR =	3.5%
Analysis Date		
03/14/97		
Analysis time		
05:00 AM		
Sample Point		
T-112		

Analyst:	SEH	Date: 17-Mar-97
Signature of Chemist:	SLF	Date: 3/18/97

STANDARD.WB1 Rev. 1.0

508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (E-1)

LIQUIDS

		BLNK	REPLICATE
Type	DETECTOR NUMBER	16	16
BLNK	DISH SIZE (1, 2, or 5)	(MS)	2
Worklist	GROSS COUNTS	(GC)	6
16981	COUNT TIME in MINUTES	(CT)	30
AtorLBK	BACKGROUND in cpm	(BKG)	0.03
AT	SAMPLE SIZE in mL	(SS)	0.250
TestCode	DILUTION FACTOR	(DF)	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2683
LIQUID	Lc, Rmax, or Rs.(SAMPLE RATE) as APPROPRIATE	0.170	0.179
BatchNumber			
97000905	Blank Concentration in $\mu\text{Ci/L}$	1.16E+01	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	< 1.22E+01	
0	Maximum Concentration in $\mu\text{Ci/L}$	< 1.2236E+01	
Sample Prep			
N/A	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
WL16981	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$		
Instrument Code	Relative Counting Error = $\{ [(The\ Square\ Root\ of\ TC + BKG * CT) / (TC - BKG * CT)] \} * 1.96 * 100$		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
SEH			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$ (Maximum) =	< 1.22E-02	DETECTION LEVEL
Analyst	LESS THAN Value was Determined from R_s .		
SMF			1.63E-02
Date Complete	RELATIVE COUNTING ERROR	184.3%	$\mu\text{Ci/mL}$
03/17/97			
Analysis Date			
03/14/97			
Analysis Time			
05:00 AM			
Sample Point			
T-112			

Analyst:	SMF	Date: 17-Mar-97
Signature of Chemist:	SLF	Date: 3/18/97
BLANK.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: SAM4

AT : LA-508-101 (E-1)

LIQUIDS

			SAMPLE	REPLICATE
Detector Number	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1, 2, or 5)	(MS)	2	2
Worklist	GROSS COUNTS	(GC)	12	18
16981	COUNT TIME in MINUTES	(CT)	30	30
Alpha Bkg	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE		0.370	0.570

Batch Number	Blank Concentration in $\mu\text{Ci/L}$	2.53E+01
97000905	Replicate Concentration in $\mu\text{Ci/L}$	3.90E+01
Rerun	Average Concentration in $\mu\text{Ci/L}$	3.2198E+01
0		

Sample Prep	N/A	$R_s \text{ (Sample Count Rate)} = (TC / CT) - BKG$
Sample #	S97T000374	$\text{ALPHA TOTAL } \mu\text{Ci/L} = R_s * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$
Instrument Code	WB27806	$\text{ALPHA TOTAL } \mu\text{Ci/mL} = \text{ALPHA TOTAL } \mu\text{Ci/L} / 1000\text{mL/L}$
Prepared By	SEH	$\text{Relative Counting Error} = [(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$
Chemist	SLF	Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$ (Average)	=	3.22E-02	DETECTION LEVEL
Analyst				
SMF				1.63E-02
Date Complete				$\mu\text{Ci/mL}$
03/17/97	RELATIVE COUNTING ERROR		63.4%	
Analysis Date				
03/14/97				
Analysis Time				
05:00 AM				
Sample Point				
T-112				

(/ system;exit)yes-

Analyst:	SMF	Date: 17-Mar-97
Signature of Chemist:	SLF	Date: 3/18/97
SAMPLE.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: DUP5

AT : LA-508-101 (E-1)

LIQUIDS

		DUP	REPLICATE
Type	DETECTOR NUMBER	16	16
DUP	DISH SIZE (1, 2, or 5) (MS)	2	2
Work List	GROSS COUNTS (GC)	10	9
16981	COUNT TIME in MINUTES (CT)	30	30
From Bk	BACKGROUND in cpm (BKG)	0.03	0.03
AT	SAMPLE SIZE in mL (SS)	0.250	0.250
Test Code	DILUTION FACTOR (DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR (DDF)	1	1
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.303	0.270
Batch Number			
97000905	Blank Concentration in $\mu\text{Ci/L}$	2.08E+01	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	1.85E+01	
0	Average Concentration in $\mu\text{Ci/L}$	1.9638E+01	
Sample Prep			
N/A	Rs (Sample Count Rate) = $(\text{TC} / \text{CT}) - \text{BKG}$		
Sample	ALPHA TOTAL $\mu\text{Ci/L}$ = $\text{Rs} * 1000\text{mL/L} * \text{DF} * \text{DDF} / (\text{EFF} * \text{SS} * 2220000\text{dpm}/\mu\text{Ci})$		
S97T000374	ALPHA TOTAL $\mu\text{Ci/mL}$ = $\text{ALPHA TOTAL } \mu\text{Ci/L} / 1000\text{mL/L}$		
Instrument Code	Relative Counting Error = $[(\text{The Square Root of TC} + \text{BKG} * \text{CT}) / (\text{TC} - \text{BKG} * \text{CT})] * 1.96 * 100$		
WB27805	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
SEN			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$ (Average) =	1.96E-02	DETECTION LEVEL
Analyst			
SMF			1.63E-02
Date Complete	RELATIVE COUNTING ERROR	76.1%	$\mu\text{Ci/mL}$
03/17/97			
Analysis Date			
03/14/97			
Analysis Time			
05:00 AM			
Sample Point			
T-112			

(f system,excl)yes-

Analyst:	SMF	Date: 17-Mar-97
Signature of Chemist:	SLF	Date: 3/18/97
SAMPLE.WB1 Rev. 1.0	508101ML	

HNF-SD-WM-DP-243, REV. 0

WORKBOOK PAGE: SPK6

AT : LA-508-101 (E-1) LA-508-113 (B-0) SPIKED SAMPLE

		SPIKE	REPLICATE
Type	DETECTOR NUMBER	16	16
SPK	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	49475	51210
16981	COUNT TIME in MINUTES (CT)	30	30
Attor/B?	BACKGROUND in cpm (BKG)	0.03	0.03
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
97000905	SPIKE VALUE in $\mu\text{Ci/mL}$ (SVal)	3.5843E-02	3.5843E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2683	0.2683
0	SAMPLE + SPIKE $\mu\text{Ci/mL}$ (S+S)	1.13E+02	1.17E+02
Sample Prep	AVERAGE or MAXIMUM $\mu\text{Ci/mL}$ in SAMPLE	3.2198E-02	
N/A			
Sample #			
S97T000374	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Instrument Code	SAMPLE + SPIKE $\mu\text{Ci/mL}$ = $R_s * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
WB27806	QC ACTUAL = SVal		
Prepared By	QC FOUND = $((S+S \mu\text{Ci/mL} - \text{SAMPLE } \mu\text{Ci/mL}) * ((SDF/SVol)/(DF*DDF/SS)))$		
SEH	PERCENT SPIKE RECOVERY = $(QC \text{ FOUND} / QC \text{ ACTUAL}) * 100$		
Chemist			
SLF			
Analyst			
SMF			
Date Complete			
03/17/97			
Analysis Date			
03/14/97	QC ACTUAL =	3.58E-02	
Analysis Time	QC FOUND =	2.82E-02	
05:00 AM	AVG. PERCENT SPIKE RECOVERY =	78.6%	
Sample Point			
T-112			

Analyst:	SEH	Date: 17-Mar-97
Signature of Chemist:	SLF	Date: 3/18/97
SPIKE.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: SAM7

AT: LA-508-101 (E-1)

LIQUIDS

		SAMPLE	REPLICATE
TYPE	DETECTOR NUMBER	16	16
SAMPLE	DISH SIZE (1, 2, or 5)	2	2
Worksheet	GROSS COUNTS	7	12
16981	COUNT TIME in MINUTES	30	30
Alpha By	BACKGROUND in cpm	0.03	0.03
AT	SAMPLE SIZE in mL	0.250	0.250
Test Code	DILUTION FACTOR	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	1	1
Matrix	EFFICIENCY FACTOR	0.2683	0.2683
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.203	0.370

Batch Number	
97000905	Blank Concentration in $\mu\text{Ci/L}$ 1.39E+01
Rerun	Replicate Concentration in $\mu\text{Ci/L}$ 2.53E+01
0	Average Concentration in $\mu\text{Ci/L}$ 1.9638E+01

Sample Prep	N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	S97T000376	ALPHA TOTAL $\mu\text{Ci/L}$ = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/ μCi)
Instrument Code	WB27806	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L}$ / 1000mL/L
Prepared By	SEH	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100
Chemist	SLF	Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$ (Average) =	1.96E-02	DETECTION LEVEL
Analyst			
SMF			
Date Completed			1.63E-02
03/17/97	RELATIVE COUNTING ERROR	90.3%	$\mu\text{Ci/mL}$
Analysis Date			
03/14/97			
Analysis Time			
05:00 AM			
Sample Point			
T-112			

{/ system;exit}yes~

Analyst:	SMF	Date: 17-Mar-97
Signature of Chemist:	SLF	Date: 3/18/97
SAMPLE.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: DUP8

AT : LA-508-101 (E-1)

LIQUIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1, 2, or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	8	13
16981	COUNT TIME in MINUTES	(CT)	30	30
Aurora Bx	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
LIQUID	Lc, Rmax, or Rs (SAMPLE RATE) as APPROPRIATE		0.237	0.403

Batch Number	Blank Concentration in $\mu\text{Ci/L}$	1.62E+01
97000905	Replicate Concentration in $\mu\text{Ci/L}$	2.76E+01
Re-run	Average Concentration in $\mu\text{Ci/L}$	2.1922E+01
0		

Sample Prep	N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample	S97T000376	ALPHA TOTAL $\mu\text{Ci/L}$ = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/ μCi)
Instrument Code	WB27806	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L}$ / 1000mL/L
Prepared By		Relative Counting Error = { [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] } * 1.96 * 100
SEH		Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Chemist		

SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$ (Average)	=	2.19E-02	DETECTION LEVEL
Analyst				
SMF				1.63E-02
Date Complete				$\mu\text{Ci/mL}$
03/17/97	RELATIVE COUNTING ERROR		82.4%	
Analysis Date				
03/14/97				
Analysis Time				
05:00 AM				
Sample Point				
T-112				

(/ system exit) yes~

Analyst:	SMF	Date: 17-Mar-97
Signature of Chemist:	SLF	Date: 3/18/97
SAMPLEWB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: SAM9

AT : LA-508-101 (E-1) LIQUIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1, 2, or 5)	(MS)	2	2
WorkList	GROSS COUNTS	(GC)	19	11
16981	COUNT TIME in MINUTES	(CT)	30	30
Alcor/B7	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE		0.603	0.337

Batch Number	
97000905	Blank Concentration in $\mu\text{Ci/L}$
Rerun	Replicate Concentration in $\mu\text{Ci/L}$
0	Average Concentration in $\mu\text{Ci/L}$
Sample Prep	

N/A	R_s (Sample Count Rate) = $(TC / CT) - BKG$
Sample #	$\text{ALPHA TOTAL } \mu\text{Ci/L} = R_s * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm/pCi})$
S97T000377	$\text{ALPHA TOTAL } \mu\text{Ci/mL} = \text{ALPHA TOTAL } \mu\text{Ci/L} / 1000\text{mL/L}$
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By	
SEH	
Chemist	
SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$ (Average) = 3.16E-06
Analyst	
SMF	
Date Complete	
03/17/97	RELATIVE COUNTING ERROR 66.9%
Analysis Date	
03/14/97	
Analysis Time	
05:00 AM	
Sample Point	
T-112	

(/ system;exit)yes-

Analyst:	SMF	Date: 17-Mar-97
Signature of Chemist:	SLF	Date: 3/18/97
SAMPLE.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: DUP10

AT : LA-508-101 (E-1) LIQUIDS

	DUP	REPLICATE
Detector Number	16	16
DUP	DISH SIZE (1, 2, or 5)	(MS)
Worklist	GROSS COUNTS	(GC)
16981	COUNT TIME in MINUTES	(CT)
AT or Key	BACKGROUND in cpm	(BKG)
AT	SAMPLE SIZE in mL	(SS)
Test Code	DILUTION FACTOR	(DF)
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)
Matrix	EFFICIENCY FACTOR	(EFF)
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	

Batch Number	
97000905	Blank Concentration in $\mu\text{Ci/L}$
Rep Run	Replicate Concentration in $\mu\text{Ci/L}$
0	Average Concentration in $\mu\text{Ci/L}$

Sample Prep	N/A
Sample	$R_s \text{ (Sample Count Rate)} = (TC / CT) - BKG$
S97T000377	$\text{ALPHA TOTAL } \mu\text{Ci/L} = R_s * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$
Instrument Code	$\text{ALPHA TOTAL } \mu\text{Ci/mL} = \text{ALPHA TOTAL } \mu\text{Ci/L} / 1000\text{mL/L}$
WB27806	$\text{Relative Counting Error} = [(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$

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

Prepared By	SEH
Chemist	SLF
Analyst	SMF
Date Complete	03/17/97
Analysis Date	03/14/97
Analysis Time	05:00 AM
Sample Point	T-112

ALPHA TOTAL in $\mu\text{Ci/mL}$ (Average)	=	4.05E-06	DETECTION LEVEL
			1.60E-06 $\mu\text{Ci/mL}$
RELATIVE COUNTING ERROR		57.8%	

(/ system exit) yes-

Analyst:	SMF	Date: 17-Mar-97
Signature of Chemist:	SLF	Date: 3/18/97

SAMPLE.VB1 Rev. 1.0

508101ML

LABCORE Completed RadChem Report for Worklist#: 17099

Analyst: dpb

Instrument: AB16

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: T-112, Deter s.s. by Ludlum. Std: 1.0mL, Spk: 0.1mL skm

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	@ALPHA01 ALPHA01 SOLID		2.00E-04	1.65E-4	82.500	% Recovery
1 STD	0	@ALPHA01 ALPHA01E SOLID		1.00	3.63E+00	3.630	% Ct. Error
2 BLNK-PREP	0	@ALPHA01 ALPHA01 SOLID		1	-1.12E-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	6.67E-01	0.667	BLNK/BKG
4 SAMPLE	S97T000380	0 F @ALPHA01 ALPHA01 SOLID		N/A	2.22E-01	298.0e-005	uCi/g
4 SAMPLE	S97T000380	0 F @ALPHA01 ALPHA01E SOLID		N/A	7.23E+00	0.0e+000	% Ct. Error
5 DUP	S97T000380	0 F @ALPHA01 ALPHA01 SOLID		2.22E-1	2.35E-1	5.689	RED
5 DUP	S97T000380	0 F @ALPHA01 ALPHA01E SOLID		1.00	6.82E+00	6.820	% Ct. Error
6 SPK	S97T000380	0 F @ALPHA01 ALPHA01 SOLID		3.58E-02	2.08E-02	58.101	% Recovery

Final page for worklist# 17099

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Reviewer Signature _____ Date 3/24/97

The spk recovery is below acceptable limits.
Batch will be rerun.

3/24/97

Rerun data gave lower spk recovery than this batch. This indicates SPK recovery is low due to matrix interference (ie. solids on mount). Data for this worklist will be SLF 3/26/97 from 1st run will be reported.

3/26/97

LABCORE Data Entry Template for Worklist# 17099

Analyst: DPB Instrument: AB00 16 Book# 79B56

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

Worklist Comment: T-112, Deter s.s. by Ludlum. Std: 1.0mL, Spk: 0.1mL skm

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	S97T000380 0 F		@ALPHA01	SOLID	97000151	T-112
	Analytes Requested: ALPHA01 , ALPHA01E					
5 DUP	S97T000380 0 F		@ALPHA01	SOLID		
6 SPK	S97T000380 0 F		@ALPHA01	SOLID		

Final page for worklist # 17099

Daniel P. Brown 3/20/97 1610
Analyst Signature Date

C. J. Panen 3/21/97
Analyst Signature Date

Data Entry Comments:

HNF-SD-WM-DP-243, REV. 0

WORKBOOK PAGE: STD1

AT : LA-508-101 (E-1)

LA-508-113 (B-0) STANDARD

	STANDARD	REPLICATE
Type	DETECTOR NUMBER	16
STD	DISH SIZE (1, 2, or 5) (MS)	2
Work List	GROSS COUNTS (GC)	2996
17099	COUNT TIME in MINUTES (CT)	30
Alt Count Bkg	BACKGROUND in cpm (BKG)	0.1
AT	SAMPLE SIZE in mL (SS)	1.000
Test Code	DILUTION FACTOR (DF)	1
@ALPHA01	STANDARD BOOK NUMBER (Std BN)	79B56
Matrix	EFFICIENCY FACTOR (EFF)	0.2683
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	99.767
Batch Number	Standard Value in $\mu\text{Ci/mL}$	2.00E-04
97001023	Concentration in $\mu\text{Ci/L}$ =	1.67E-01
Rep Run	Replicate Concentration in $\mu\text{Ci/L}$ =	1.63E-01
0	AVERAGE CONCENTRATION in $\mu\text{Ci/L}$ =	1.6529E-01
Sample Prep	Rs (Sample Count Rate) = $(TC / CT) - BKG$	
N/A	ALPHA TOTAL $\mu\text{Ci/L}$ = $Rs * 1000\text{mL/L} * DF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$	
Sample #	ALPHA TOTAL $\mu\text{Ci/mL}$ = $ALPHA\ TOTAL\ \mu\text{Ci/L} / 1000\text{mL/L}$	
WL17099-STD	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$	
Instrument Code	Detection Levels and Less Than Values are determined from Procedure LA-508-002.	
WB27806		
Prepared By		
MCB		
Chemist		
SLF	ALPHA TOTAL CONCENTRATION in $\mu\text{Ci/mL}$ =	1.65E-04
Analyst		
DPB		
Date Complete		
03/21/97	RELATIVE COUNTING ERROR =	3.6%
Analysis Date		
03/20/97		
Analysis Time		
04:10 PM		
Sample Point		
T-112		

Analyst:	MCB	Date: 21-Mar-97
Signature of Chemist:	SLF	Date: 3/24/97

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
Work List	GROSS COUNTS (GC)	1	3
17099	COUNT TIME in MINUTES (CT)	30	30
AT or IB?	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.0272	2.0272
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.135	0.135
Batch Number			
97001023	Blank Concentration in $\mu\text{Ci/g}$	< 1.12E-03	
Re-run	Replicate Concentration in $\mu\text{Ci/g}$	< 1.12E-03	
0	Maximum Concentration in $\mu\text{Ci/g}$	< 1.1158E-03	
Sample Prep			
N/A	Rs (Sample Count Rate) = $(\text{TC} / \text{CT}) - \text{BKG}$		
Sample #	ALPHA TOTAL $\mu\text{Ci/g}$ = $\text{Rs} * 1000\text{mL/L} * \text{DF} / (\text{EFF} * \text{SS} * \text{Dg/L} * 2220000\text{dpm}/\mu\text{Ci})$		
WL17099-BLNK			
Instrument Code	Relative Counting Error = $[(\text{The Square Root of TC} + \text{BKG} * \text{CT}) / (\text{TC} - \text{BKG} * \text{CT})] * 1.96 * 100$		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
MCB			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Maximum) =	< 1.12E-03	DETECTION LEVEL
Analyst			
DPB	LESS Than Value was Determined from Lc.		
Date Complete			2.98E-03
03/21/97	RELATIVE COUNTING ERROR	500.0%	$\mu\text{Ci/g}$
Analysis Date			
03/20/97			
Analysis Time			
04:10 PM			
Sample Point			
T-112			

Analyst:	DPB	Date: 21-Mar-97
Signature of Chemist:	SLF	Date: 3/24/97

BLANK.WB1 Rev. 1.0

508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (E-1)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16	16
SAMPLE	DISH SIZE (1, 2, or 5) (MS)	2	2
Work List	GROSS COUNTS (GC)	881	732
17099	COUNT TIME in MINUTES (CT)	30	30
A1 or TB ?	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.0272	2.0272
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	29.267	24.300
Batch Number			
97001023	Blank Concentration in $\mu\text{Ci/g}$	2.42E-01	
Rerun	Replicate Concentration in $\mu\text{Ci/g}$	2.01E-01	
0	Average Concentration in $\mu\text{Ci/g}$	2.2182E-01	
Sample Prep			
FUSION01	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	$\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
S97T000380	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
MCB			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average) =	2.22E-01	DETECTION LEVEL
Analyst			
DPB			
Date Complete			2.98E-03 $\mu\text{Ci/g}$
03/21/97	RELATIVE COUNTING ERROR	7.3%	
Analysis Date			
03/20/97			
Analysis Time			
04:10 PM			
Sample Point			
T-112			

Analyst:	DPB	Date: 21-Mar-97
Signature of Chemist:	SLF	Date: 3/24/97
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)	836	875
17099	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.0308	2.0308
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	27.767	29.067
Batch Number			
97001023	Blank Concentration in $\mu\text{Ci/g}$	2.30E-01	
Rerun	Replicate Concentration in $\mu\text{Ci/g}$	2.40E-01	
0	Average Concentration in $\mu\text{Ci/g}$	2.3493E-01	
Sample Prep			
FUSION01	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	$ALPHA\ TOTAL\ \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
S97T000380			
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 $\mu\text{Ci/g}$ (Average) =	2.35E-01	DETECTION LEVEL
Analyst			
DPB			
Date Complete			2.98E-03 $\mu\text{Ci/g}$
03/24/97	RELATIVE COUNTING ERROR	6.8%	
Analysis Date			
03/20/97			
Analysis Time			
04:10 PM			
Sample Point			
T-112			

Analyst:	DPB	Date: 21-Mar-97
Signature of Chemist:	SLF	Date: 3/24/97

SAMPLE.WB1 Rev. 1.0

508101ML

HNF-SD-WM-DP-243, REV. 0

WORKBOOK PAGE: SPK6

AT : LA-508-101 (E-1) LA-508-113 (B-0) SPIKED SAMPLE

		SPIKE	REPLICATE
Type	DETECTOR NUMBER	16	16
SPK	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	38878	36909
17099	COUNT TIME in MINUTES (CT)	30	30
At or B?	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE VOLUME in mL (Spiked Vial) (SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.0272	2.0272
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
97001023	SPIKE VALUE in µCi/mL (SVal)	3.5842E-02	3.5842E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2683	0.2683
0	SAMPLE + SPIKE µCi/g (S+S)	1.07E+01	1.02E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE	2.2182E-01	
FUSION01			
Sample #			
S97T000380	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))))		
MCB	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100		
Chemist			
SLF			
Analyst			
DPB			
Date Complete			
03/21/97			
Analysis Date			
03/20/97	QC ACTUAL =	3.58E-02	
Analysis Time	QC FOUND =	2.08E-02	
04:10 PM	AVG. PERCENT SPIKE RECOVERY =	57.9%	
Sample Point			
T-112			

Analyst:	MCB	Date: 21-Mar-97
Signature of Chemist:	SLF	Date: 3/24/97
SPIKE.WB1 Rev. 1.0	508101ML	

LABCORE Completed Worklist Report for Worklist# 17492

Analyst: dpb

Instrument: AB14

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: T-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	SOLID	2.00E-04	1.73E-4	86.500 % Recovery	
1 STD	0		@ALPHA01 ALPHA01E	SOLID	1.00	3.58E+00	3.580 % Ct. Error	
2 BLNK-PREP	0		@ALPHA01 ALPHA01	SOLID	1	<1.12E-2	uci/g	
2 BLNK-PREP	0		@ALPHA01 ALPHA01E	SOLID	1.00	1.55E+02	155.000 uci/g	
3 BLNK/BKG	0		@ALPHA01 ALPHA01	SOLID	1.00E+00	4.33E+00	4.330 BLNK/BKG	
4 SAMPLE	S97T000438	0 F	@ALPHA01 ALPHA01	SOLID	N/A	2.53E-01	7.55E-003 uci/g	
4 SAMPLE	S97T000438	0 F	@ALPHA01 ALPHA01E	SOLID	N/A	1.06E+01	% Ct. Error	
5 DUP	S97T000438	0 F	@ALPHA01 ALPHA01	SOLID	2.53E-1	3.12E-1	20.895 RPD	
5 DUP	S97T000438	0 F	@ALPHA01 ALPHA01E	SOLID	1.00	9.30E+00	9.300 % Ct. Error	
6 SPK	S97T000438	0 F	@ALPHA01 ALPHA01	SOLID	2.63E-02	2.24E-02	85.171 % Recovery	

Final page for worklist# 17492

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Reviewer Signature _____ Date 4/14/97

Replicate data for the sample + Dup indicate that the elevated RPD is due to inhomogeneity. No reruns requested.

4/14/97

04/08/97 23:36
A-0004-1

Page: 1

LABCORE Data Entry Template for Worklist# 17492Analyst: DPB Instrument: AB00 AB14 Book# 79B56Method: LA-508-101 Rev/Mod G-0

Worklist Comment: T-112 AT, DETERMINE SS USING LUDLUM. RCJ

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	S97T000438	0 F	@ALPHA01	SOLID	97000152	T-112
Analytes Requested: ALPHA01 , ALPHA01E						
5 DUP	S97T000438	0 F	@ALPHA01	SOLID		
6 SPK	S97T000438	0 F	@ALPHA01	SOLID		

Final page for worklist # 17492

Donald P. Bramley 4/10/97 2355
 Analyst Signature Date

Sue Hogan 4-11-97
 Analyst Signature Date
C. J. Quinn 4-11-97

Data Entry Comments:

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

HNF-SD-WM-DP-243, REV. 0

WORKBOOK PAGE: STD1

AT : LA-508-101 (E-1) LA-508-113 (B-0) STANDARD

	STANDARD	REPLICATE
Type	DETECTOR NUMBER	14
STD	DISH SIZE (1, 2, or 5) (MS)	2
WorkList	GROSS COUNTS (GC)	3011
17492	COUNT TIME in MINUTES (CT)	30
Atomic B?	BACKGROUND in cpm (BKG)	0.1
AT	SAMPLE SIZE in mL (SS)	1.000
Test Code	DILUTION FACTOR (DF)	1
@ALPHA01	STANDARD BOOK NUMBER (Std BN)	79B56
Matrix	EFFICIENCY FACTOR (EFF)	0.2692
LIQUID	Lc, Rmax, or Rs.(SAMPLE RATE) as APPROPRIATE	100.267
Batch Number	Standard Value in $\mu\text{Ci/mL}$	2.00E-04
97001445	Concentration in $\mu\text{Ci/L}$ =	1.68E-01
ReRun	Replicate Concentration in $\mu\text{Ci/L}$ =	1.79E-01
0	AVERAGE CONCENTRATION in $\mu\text{Ci/L}$ =	1.7324E-01
Sample Prep	Rs (Sample Count Rate) = (TC / CT) - BKG	
N/A	ALPHA TOTAL $\mu\text{Ci/L}$ = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/ μCi)	
Sample	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L}$ / 1000mL/L	
WL17492	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100	
Instrument Code	Detection Levels and Less Than Values are determined from Procedure LA-508-002.	
WB27807		
Prepared By		
SEH		
Chemist		
SLF	ALPHA TOTAL CONCENTRATION in $\mu\text{Ci/mL}$ =	1.73E-04
Analyst		
DPB		
Date Complete		
04/11/97	RELATIVE COUNTING ERROR =	3.6%
Analysis Date		
04/10/97		
Analysis Time		
11:55 PM		
Sample Point		
T-112		

Analyst:	SEH	Date: 11-Apr-97
Signature of Chemist:	SLF	Date: 4/14/97
STANDARD.WB1 Rev. 1.0	508101ML	

HNF-SD-WM-DP-243, REV. 0

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (E-1)

SOLIDS

		BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER	14	14
BLNK-PREP	DISH SIZE (1, 2, or 5)	(MS)	2
Worklist	GROSS COUNTS	(GC)	19
17492	COUNT TIME in MINUTES	(CT)	30
Attn: Dr.	BACKGROUND in cpm	(BKG)	0.1
AT	SAMPLE SIZE in mL	(SS)	0.250
Test Code	DILUTION FACTOR	(DF)	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	3.5108
Matrix	EFFICIENCY FACTOR	(EFF)	0.2692
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	0.533	0.307
Batch Number			
97001445	Blank Concentration in $\mu\text{Ci/g}$	1.12E-02	
Rerun	Replicate Concentration in $\mu\text{Ci/g}$	<	6.44E-03
0	Maximum Concentration in $\mu\text{Ci/g}$	<	1.1185E-02

Sample Prep	N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample	WL17492	ALPHA TOTAL $\mu\text{Ci/g}$ = 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
Prepared By	SEH	Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Chemist	SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Maximum) =	< 1.12E-02	DETECTION LEVEL
Analyst	DPB	LESS THAN Value was Determined from Rs.		
Date Complete	04/11/97	RELATIVE COUNTING ERROR	155.0%	7.55E-03 $\mu\text{Ci/g}$
Analysis Date	04/10/97			
Analysis Time	11:55 PM			
Sample Point	T-112			

Analyst:	DPB	Date: 11-Apr-97
Signature of Chemist:	SLF	Date: 4/14/97
BLANK.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: SAM4

AT : LA-508-101 (E-1)

SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1, 2, or 5)	(MS)	2	2
Worklist	GROSS COUNTS	(GC)	352	379
17492	COUNT TIME In MINUTES	(CT)	30	30
Atkora B	BACKGROUND In cpm	(BKG)	0.1	0.1
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)	3.5108	3.5108
Matrix	EFFICIENCY FACTOR	(EFF)	0.2692	0.2692
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE		11.633	12.533

Batch Number	
97001445	Blank Concentration In $\mu\text{Ci/g}$ 2.44E-01
Refund	Replicate Concentration In $\mu\text{Ci/g}$ 2.63E-01
0	Average Concentration In $\mu\text{Ci/g}$ 2.5340E-01

Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL $\mu\text{Ci/g}$ = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/ μCi)
S97T000438	

Instrument Code	Relative Counting Error = $\left[\frac{\text{The Square Root of TC} + \text{BKG} * \text{CT}}{\text{TC} - \text{BKG} * \text{CT}} \right] * 1.96 * 100$
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By	
SEH	
Chemist	
SLF	ALPHA TOTAL In $\mu\text{Ci/g}$ (Average) = 2.53E-01
Analysis	
DPB	
Date Complete	
04/11/97	RELATIVE COUNTING ERROR 10.6%
Analysis Date	
04/10/97	
Analysis Time	
11:55 PM	
Sample Point	
T-112	

/system.exit)yes~

Analyst:	DPB	Date: 11-Apr-97
Signature of Chemist:	SLF	Date: 4/14/97
SAMPLE.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: DUP5

AT : LA-508-101 (E-1)

SOLIDS

	DUP	REPLICATE
DETECTOR NUMBER	14	14
DUP		
DISH SIZE (1, 2, or 5)	(MS)	2
GROSS COUNTS	(GC)	461
17492	COUNT TIME in MINUTES	(CT)
30		30
BACKGROUND in cpm	(BKG)	0.1
AT	SAMPLE SIZE in mL	(SS)
0.250		0.250
DILUTION FACTOR	(DF)	11
11		11
DIGEST GRAMS of SOLIDS / L	(Dg/L)	3.5672
3.5672		3.5672
EFFICIENCY FACTOR	(EFF)	0.2692
0.2692		0.2692
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		15.267
15.267		15.000

Blank Concentration in $\mu\text{Ci/g}$	3.15E-01
Replicate Concentration in $\mu\text{Ci/g}$	3.10E-01
Average Concentration in $\mu\text{Ci/g}$	3.1234E-01

Rs (Sample Count Rate) = (TC / CT) - BKG	
ALPHA TOTAL $\mu\text{Ci/g}$ = 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 $\mu\text{Ci/g}$ (Average)	=	3.12E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		9.3%	7.43E-03 $\mu\text{Ci/g}$

(/ system exit) yes~

Analyst:	DPB	Date: 11-Apr-97
Signature of Chemist:	SLF	Date: 4/14/97
SAMPLE.WB1 Rev. 1.0	508101ML	

HNF-SD-WM-DP-243, REV. 0

WORKBOOK PAGE: SPK8

AT : LA-508-101 (E-1) LA-508-113 (B-0) SPIKED SAMPLE

		SPIKE	REPLICATE
Detector Number	DETECTOR NUMBER	14	14
SPK	DISH SIZE 1, 2, or 5 (MS)	2	2
Worklist	TOTAL COUNTS (TC)	38009	43077
17492	COUNT TIME IN MINUTES (CT)	30	30
Atom B	BACKGROUND In cpm (BKG)	0.1	0.1
AT	SAMPLE VOLUME In mL (Spiked Vial) (SS)	0.250	0.250
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	3.5108	3.5108
Matrix	SPIKE VOLUME In mL (SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR (SDF)	1	1
Batch Number	SPIKE BOOK NUMBER (Spk BN)	131B43	131B43
97001445	SPIKE VALUE In $\mu\text{Ci/mL}$ (SVal)	2.6298E-02	2.6298E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2692	0.2692
0	SAMPLE + SPIKE $\mu\text{Ci/g}$ (S+S)	2.66E+01	3.01E+01
Sample Prep	AVERAGE or MAXIMUM $\mu\text{Ci/g}$ In SAMPLE	2.5340E-01	
FUSION01			
Sample #			
S97T000438			
Instrument Code	Rs (Sample Count Rate) = $(TC / CT) - BKG$		
WB27807	SAMPLE + SPIKE $\mu\text{Ci/g}$ = $Rs * 1000\text{mL/L} * DF / ((EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci}))$		
Prepared By	QC ACTUAL = SVal		
SEH	QC FOUND = $((S+S \mu\text{Ci/g} - \text{SAMPLE } \mu\text{Ci/g}) * ((SDF/(SVol*1000)) / (DF/SS/Dg/L)))$		
Chemist	PERCENT SPIKE RECOVERY = $(QC \text{ FOUND} / QC \text{ ACTUAL}) * 100$		
SLF			
Analyst			
DPB			
Date Complete			
04/11/97			
Analysis Date			
04/10/97	QC ACTUAL =	2.63E-02	
Analysis Time	QC FOUND =	2.24E-02	
11:55 PM	AVG. PERCENT SPIKE RECOVERY =	85.2%	
Sample Point			
T-112			

Analyst:	SEH	Date: 11-Apr-97
Signature of Chemist:	SLF	Date: 4/14/97
SPIKE.WB1 Rev. 1.0	508101ML	

The RPD for the SPK + SPK/REP is slightly elevated. This is due to inconsistent drying patterns which cause variation in the mount Geometry. No rerun is necessary.

SLF
4/14/97

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		Date:06/02/97		
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