This document was too large to scan as a single document; therefore, it has been divided into smaller sections.

Section 1 of 2

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Tank 241-AX-103, Cores 212 and 214 Analytical Results for the Final Report

Franciska H. Steen

Waste Management of Hanford, Inc., Richland, WA 99352
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ANALYTICAL SERVICES

**TANK 241-AX-103, CORES 212 AND 214
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
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P.O. Box 700
Richland, Washington

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NARRATIVE

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222-S ANALYTICAL SERVICES

**TANK 241-AX-103, CORES 212 AND 214,
ANALYTICAL RESULTS FOR THE FINAL REPORT**

This document is the analytical laboratory report for tank 241-AX-103 push mode core segments collected between July 30, 1997 and August 11, 1997. The segments were subsampled and analyzed in accordance with the *Tank 241-AX-103 Push Mode Core Sampling and Analysis Plan* (TSAP) (Conner, 1997), the *Safety Screening Data Quality Objective* (DQO) (Dukelow, et al., 1995) and the *Data Quality Objective to Support Resolution of the Organic Complexant Safety Issue* (Organic DQO) (Turner, 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), Total Alpha Activity (AT), Plutonium 239 (Pu239), and Total Organic Carbon (TOC) exceeded notification limits as stated in the TSAP (Conner, 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 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 212

Two push mode core segments were removed from tank 241-AX-103 riser 9A on July 30, 1997. Segments were received by the 222-S Laboratory on August 1, 1997. Table 2 summarizes the extrusion information.

Core 214

Two push mode core segments were removed from tank 241-AX-103 riser 9F on August 8, 1997 and August 11, 1997. Segments were received by the 222-S Laboratory on August 12, 1997. Table 3 summarizes the extrusion information.

Field Blank

A field blank was provided to the 222-S laboratory with core 212. It underwent the same analysis as the drainable liquid as instructed by the TSAP (Conner, 1997).

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Table 2. Sample Receipt and Extrusion Information for 241-AX-103, Core 212.

Customer Id	Segment	Date Sampled	Date Received	Date Extruded	Inches Extruded*	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
212-1	1	7/30/97	8/01/976	8/05/976	0.0	0.0	0.0	Sampler Empty.
212-2	2	7/30/97	8/01/97	8/05/97	9.0	0.0	190.4-Lower Half	The solids were light blue-gray in color and resembled a salt slurry.

*Approximate Inches Extruded

Table 3. Sample Receipt and Extrusion Information for 241-AX-103, Core 214.

Customer Id	Segment	Date Sampled	Date Received	Date Extruded	Inches Extruded*	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
214-1	1	8/08/97	8/12/97	8/13/97	14.0	0.0	167.2-Upper Half 157.9-Lower Half	The solids were blue-gray in color and resembled a wet salt.
214-2	2	8/11/97	8/12/97	8/13/97	16.0	0.0	167.1-Upper Half 207.9-Lower Half	The solids were blue-gray in color and resembled a wet salt.

*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.

No exotherms were observed during the analysis of the samples from this tank. More information may be obtained by examining the raw data. The standard recoveries and relative percent differences (RPDs) for this analysis were within the required limits.

Thermogravimetric Analysis (TGA)

The TGA analyses were performed in duplicate on direct subsamples. Typically TGA results are determined by summing the weight loss steps which occur below 250°C; weight loss steps above this are not used to determine the result. However for tank 241-AX-103 approximately 33% of the thermograms showed weight loss beyond 250°C. The results for six of the twelve 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/Specific Gravity

Bulk density was performed on the solid subsamples as required by the TSAP (Conner, 1997). The results of the bulk density test ranged from 1.57 g/mL to 1.65 g/mL. The bulk density results were greater than the 1.5 g/mL used to determine the solid total alpha activity notification limit stated in the TSAP (Conner, 1997). Therefore the highest bulk density result of 1.65 g/mL was used to recalculate the solid total alpha notification limit for the tank. Total alpha results for liquids do not require correction for density.

Specific gravity analyses were performed on the field blank. The results for both analyses are provided in Table 1. There were no quality control (QC) parameters stated in the TSAP (Conner, 1997) for these samples.

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NH₃ - Ammonia

The NH₃ analysis was performed on a direct aliquot of the field blank as indicated by a blank in the A# column in Table 1. The standard recovery and RPD criteria were met for both analyses. No spike was performed since the only liquid sample received was the field blank.

A small amount of ammonia was detected in the method blank. However, the level of contamination was insignificant with respect to the sample results and does not affect the useability of these results.

Ion Chromatography (IC)

The IC analyses were performed on direct subsamples of liquid samples as indicated by a blank in the aliquot class (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.

The results for the IC analytes are included in Table 1. The QC review discussed in this report is limited to bromide (Br). All other analyte results are presented in Appendix A. These results are considered "opportunistic" and do not have customer defined QC parameters. Therefore, any anomalies in those results are not discussed in this report.

The standard recoveries, RPDs and spike recoveries for the Br analysis were within the required limits.

Ion Chromatography (IC) Organic Acids

The organic acid analytes [acetate, formate, citrate, glycolate, oxalate, iminodiacetate (IDA) and nitrilotriacetate (NTA)] were requested as secondary analyses on the sample with the highest total organic carbon result, core 212 segment 2 lower half solids. A fifteen gram sample portion was centrifuged and the solids and liquids were submitted for analysis. The analyses were performed on direct subsamples of liquid samples as indicated by a blank in the aliquot class (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.

A spike recovery outside of the required range (75%-125%) was reported for NTA. The spike failure was due to matrix interference and no rerun was requested. The standard recoveries and RPDs this analysis were within the required limits.

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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 A# column in Table 1. Solid subsamples were prepared for analysis by performing both an acid digest as indicated by an "A" and a fusion as indicated by an "F" in the A# column in table 1.

The results for the ICP analytes are included in Table 1. However, the QC review discussed in this report is limited to lithium (Li). All other analyte results are presented in Appendix A. These results are considered "opportunistic" and do not have customer defined QC parameters. Therefore, any anomalies in those results are not discussed in this report.

The standard recoveries, RPDs and spike recoveries for the Li analysis were within the required limits.

Inductively Coupled Plasma/Mass Spectroscopy (ICP/MS)

Solid subsamples were prepared for analysis by performing an acid digest as indicated by an "A" in the A# column in Table 1. The results for the ICP/MS analytes are included in Table 1. The results for Thorium (Th) are considered "opportunistic" and do not have customer defined QC parameters. Therefore, any anomalies in those results are not discussed in this report. The Th results are presented in Appendix A.

The standard recoveries for Uranium 238, Neptunium 237, Neptunium 239 and Plutonium/Americium 241 were within the required limits. RPDs and spike recoveries for this analysis were within the required limits.

TOC - Organic Carbon Persulfate

TOC analyses by persulfate oxidation/coulometry were performed in duplicate on direct subsamples. None of the results exceeded the TOC notification limit of 30,000 $\mu\text{gC/g}$.

The results for the TOC analytes are included in Table 1. The QC review discussed in this report is limited TOC. The TIC results are presented in Appendix A. These results are considered "opportunistic" and do not have customer defined QC parameters. Therefore, any anomalies in those results are not discussed in this report.

For all TIC and TOC analyses, an Analysis Report worksheet is included for each sample as raw data. Due to programming limitations with the instrument software, the sample size listed on the worksheet is incorrect. This value is not used in the final calculations and has no bearing on the results in Table 1.

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The blank is considered a reagent blank. The value was within the acceptance limits and all results were corrected for the concentration found in the blank. The standard recoveries, spike recoveries and RPDS for this analysis 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 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 37.27 $\mu\text{Ci/g}$ (based on a bulk density of 1.65 g/mL).

Spike recoveries outside of the required range (75% to 125%) were reported for one subsample. The spike recovery was within the laboratory statistical control limits for the QC standard and no rerun was requested. The standard recoveries and RPDs for this analysis were within the required limits.

²⁴¹Am - Americium 241

Solid subsamples were prepared for analysis by performing a fusion digest in duplicate. The fusion digest is indicated with an "F" in the A# column in Table 1. The standard recoveries and RPDs for this analysis were within the required limits.

^{239/240}Pu - Plutonium 239/240

Solid subsamples were prepared for analysis by performing a fusion digest in duplicate. The fusion digest is indicated with an "F" in the A# column in Table 1. The standard recoveries and RPDs for this analysis were within the required limits.

HNF-SD-WM-DP-266, REV. 0

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
TGA	Solid/Liquid	N/A	LA-514-114 Rev. D-1
Bulk Density	Solid	N/A	LO-160-103 Rev. B-0
Sp.G.	Liquid	N/A	LA-510-112 Rev. D-1
IC	Solid Liquid	LA-504-101 Rev. E-0 N/A	LA-533-105 Rev. D-1 LA-505-161 Rev. C-2
ICP	Solid Liquid	LA-505-159 Rev. D-0 LA-549-141 Rev. F-0 N/A	LA-505-151 Rev. E-1 LA-505-161 Rev. C-2
ICP/MS	Solid	LA-505-159 Rev. D-0	LT-506-101 Rev. A-1
TOC	Solid	N/A	LA-342-100 Rev. F-0
Pu239	Solid	LA-549-141 Rev. F-0	LA-953-104 Rev. B-0

HNF-SD-WM-DP-266, REV. 0

Table 4. Analytical Procedures

Analysis	Sample Portion	Preparation Procedure +	Analysis Procedure
Am241	Solid	LA-549-141 Rev. F-0	LA-953-104 Rev. B-0
AT	Solid Liquid	LA-549-141 Rev. F-0 N/A	LA-508-101 Rev. F-0 LA-508-101 Rev. G-0

Abbreviations:

N/A = not applicable (these are direct samples)
 DSC = differential scanning calorimetry
 TGA = thermogravimetric analysis
 Sp.G. = specific gravity
 IC = ion chromatography
 ICP = inductively coupled plasma
 TOC = total organic carbon
 NH3 = ammonia
 ICP/MS = inductively coupled plasma/mass spectroscopy
 Pu239 = plutonium 239
 Am241 = americium 241
 AT = total alpha

HNF-SD-WM-DP-266, REV. 0

References

- Conner, J. M., 1997, *Tank 241-AX-103 Push Mode Core Sampling and Analysis Plan*, HNF-SD-WM-TSAP-142, Rev. 0-A, Lockheed Martin Hanford Corporation, 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
- Meznarich, H. K., 1995, *222-S Laboratory Quality Assurance Plan*, WHC-SD-CP-QAPP-016, Rev. 1-A, Westinghouse Hanford Company, Richland, WA 99352
- Turner, D. A., H. Babad, L. L. Buckley, and J. E. Meacham, 1995, *Data Quality Objective to Support Resolution of the Organic Complexant Safety Issue*, WHC-SD-WM-DQO-006, Rev. 2, Westinghouse Hanford Company, Richland, WA 99352.

HNH-SD-WM-DP-266, REV. 0

ATTACHMENT 1

AX-103 SAMPLE BREAKDOWN

HNF-SD-WM-DP-266, REV. 0

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AX-103
Core:212
Seg: 1
S97T001874

Attachment 1

|
Sampler
Empty

HNF-SD-WM-DP-266, REV. 0

AX-103
Core:212
Seg: 2
S97T001875

Attachment 1

HNF-SD-WM-DP-266, REV. 0

AX-103
Core:212
Seg: FB
S97T001828

Attachment 1

HNF-SD-WM-DP-266, REV. 0

AX-103
Core:214
Seg: 1
S97T001939

Attachment 1

AX-103
Core:214
Seg: 2
S97T001940

Attachment 1

HNF-SD-WM-DP-266, REV. 0

SAMPLE DATA SUMMARY

HNH-SD-WM-DP-266, REV. 0

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Table 1. Data Summary Report
AX-103CORE NUMBER: 212
SEGMENT #: 2

SEGMENT PORTION: Centrifuged Solids

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S98T000043	W		Iminodiacetate-IC-Dionex 500	ug/g	109.5	<7.44e-01	<6.01e+03	<6.05e3	n/a	n/a	99.15	6.01e+03	n/a
S98T000043	W		Nitritoltriacetate-IC-Dionex500	ug/g	107.1	<1.26e-01	<1.02e+03	<1.02e3	n/a	n/a	127.7	1.02e+03	n/a
S98T000043	W		Citrate-IC-Dionex 500	ug/g	107.3	<1.39e-01	<1.12e+03	<1.13e3	n/a	n/a	123.8	1.12e+03	n/a
S98T000043	W		Acetate by IC-DIONEX 4000/4500	ug/g	96.58	<2.00e-02	1.10e+03	982.0	1.04e+03	11.3	109.4	200.9	n/a
S98T000043	W		Formate by IC-Dionex 4000/4500	ug/g	94.36	<6.20e-02	1.98e+03	2.13e+03	2.05e+03	7.30	105.6	622.7	n/a
S98T000043	W		Glycolate IC-Dionex 4000/4500	ug/g	98.23	<5.60e-02	1.64e+03	1.74e+03	1.69e+03	5.92	103.5	562.5	n/a

Supernate: Supernate

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S98T000042			Iminodiacetate-IC-Dionex 500	ug/mL	108.8	9.30e-01	<7.63e+03	<7.63e3	n/a	n/a	95.76	7.63e+03	n/a
S98T000042			Nitritoltriacetate-IC-Dionex500	ug/mL	116.3	<1.26e-01	<1.29e+03	<1.29e3	n/a	n/a	119.1	1.29e+03	n/a
S98T000042			Citrate-IC-Dionex 500	ug/mL	117.4	<1.39e-01	3.20e+03	3.13e+03	3.16e+03	2.21	116.0	1.42e+03	n/a
S98T000042			Acetate by IC-Dionex 4000/4500	ug/mL	94.22	<2.00e-02	2.19e+03	2.55e+03	2.37e+03	15.2	108.3	591.7	n/a
S98T000042			Formate by Ion Chromatograph	ug/mL	93.65	<2.10e-02	4.45e+03	4.69e+03	4.57e+03	5.25	100.0	632.5	n/a
S98T000042			Glycolate-IC-Dionex 4500 ORGAC	ug/mL	97.48	<2.00e-02	3.41e+03	3.63e+03	3.52e+03	6.25	100.8	571.3	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%
S97T001886			Bulk Density of Sample	g/mL	n/a	n/a	1.650	n/a	n/a	n/a	n/a	5.00e-01	n/a
S97T001887			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
S97T001887			DSC Exotherm on Perkin Elmer	Joules/g	101.8	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T001887			% Water by TGA on Perkin Elmer	%	100.3	n/a	47.42	42.37	44.89	11.2	n/a	n/a	n/a
S97T001887			TOC by Persulfate/Coulometry	ug/g	94.00	3.300	5.38e+03	5.46e+03	5.42e+03	1.48	95.90	40.00	n/a
S97T001888	F		Pu-239/240 by TRU-SPEC Resin	uc/g	92.66	<1.52e-03	1.11e-02	1.06e-02	1.09e-02	4.61	n/a	3.00e-03	3.39e+00
S97T001888	F		Lithium -ICP-Fusion	ug/g	97.60	<1.00e-02	<2.04e+02	<2.00e2	n/a	n/a	96.40	204.0	n/a
S97T001888	F		Am-241 by Extraction	uc/g	103.9	<3.13e-03	3.54e-02	3.30e-02	3.42e-02	7.02	n/a	6.00e-03	2.32e+00
S97T001888	F		Alpha of Digested Solid	uc/g	82.97	<3.74e-03	2.95e-02	2.67e-02	2.81e-02	9.96	64.53	4.00e-03	2.28e+01
S97T001889	W		Bromide by Ion Chromatograph	ug/g	99.66	<1.25e-01	<1.03e+03	<1.04e3	n/a	n/a	99.32	1.03e+03	n/a
S97T001889	W		Oxalate-IC-Dionex 4000/4500	ug/g	98.50	<1.05e-01	7.82e+03	8.16e+03	7.99e+03	4.26	101.1	861.8	n/a
S97T001891	A		Uranium-233 by ICP/MS	ug/g	n/a	<9.89e-05	<1.97e-02	<1.97e-2	n/a	n/a	n/a	2.00e-02	n/a
S97T001891	A		Uranium-234 by ICP/MS	ug/g	n/a	<1.03e-04	<2.04e-02	<2.06e-2	n/a	n/a	n/a	2.00e-02	n/a
S97T001891	A		Uranium-235 by ICP/MS	ug/g	n/a	<4.78e-05	9.02e-01	1.080	9.91e-01	18.0	n/a	9.00e-03	n/a
S97T001891	A		Uranium-236 by ICP/MS	ug/g	n/a	<1.46e-04	7.61e-02	8.68e-02	8.14e-02	13.1	n/a	2.90e-02	n/a
S97T001891	A		Uranium-238 by ICP/MS	ug/g	108.5	<1.01e-04	1.40e+02	164.0	151.8	15.8	97.90	2.00e-02	n/a
S97T001891	A		Neptunium-237 by ICP/MS	ug/g	105.5	<6.32e-06	9.18e-02	1.26e-01	1.09e-01	31.4	108.4	6.00e-03	n/a
S97T001891	A		Plutonium-239 by ICP/MS	ug/g	86.55	<8.82e-06	1.11e-01	1.34e-01	1.22e-01	18.8	91.64	9.00e-03	n/a
S97T001891	A		Plutonium-240 by ICP/MS	ug/g	n/a	<6.51e-06	1.14e-02	1.37e-02	1.26e-02	18.3	n/a	6.00e-03	n/a
S97T001891	A		Plutonium-242 by ICP/MS	ug/g	n/a	<5.72e-06	<5.68e-03	<5.71e-3	n/a	n/a	n/a	6.00e-03	n/a
S97T001891	A		Pu/Am-241 by ICP/MS	ug/g	98.82	<2.46e-06	8.61e-03	1.04e-02	9.51e-03	18.8	101.5	2.00e-03	n/a
S97T001891	A		Am 243/Cm 243 by ICP/MS	ug/g	n/a	<4.25e-06	<4.21e-03	<4.24e-3	n/a	n/a	n/a	4.00e-03	n/a
S97T001891	A		Pu 244/Cm 244 by ICP/MS	ug/g	n/a	<6.65e-06	<6.60e-03	<6.64e-3	n/a	n/a	n/a	7.00e-03	n/a
S97T001891	A		Lithium -ICP-Acid Digest	ug/g	95.40	<1.00e-02	< 4.960	<4.99e0	n/a	n/a	95.80	4.950	n/a

HMF-SD-WM-DP-266, REV. 0

Table 1. Data Summary Report
AX-103CORE NUMBER: 212
SEGMENT #: Field Blank

SEGMENT PORTION: Field Blank

Sample#	R A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T001828		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
S97T001828		DSC Exotherm on Perkin Elmer	Joules/g	101.4	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T001828		Ammonia by ISE-Std Additions	ug/mL	97.54	1.16e-01	< 5.000	<5.0	n/a	n/a	n/a	5.000	n/a
S97T001828		Specific Gravity	Sp.G.	99.75	n/a	9.99e-01	9.99e-01	9.99e-01	0.00	n/a	1.00e-03	n/a
S97T001828		% Water by TGA on Perkin Elmer	%	98.78	n/a	99.68	98.95	99.31	0.74	n/a	n/a	n/a
S97T001828	D	Lithium-ICP-Acid Dil.	ug/mL	108.2	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S97T001828		Bromide by Ion Chromatograph	ug/mL	96.94	<1.25e-01	<1.25e-01	<1.25e-1	n/a	n/a	n/a	1.25e-01	n/a
S97T001828		Alpha in Liquid Samples	uCi/mL	87.50	<4.14e-08	<2.69e-08	<2.69E-8	n/a	n/a	n/a	6.78e-08	5.00E+02

HNF-SD-MM-DP-266, REV.0

Table 1. Data Summary Report
AX-103CORE NUMBER: 214
SEGMENT #: 1

SEGMENT PORTION: U Upper Half of Segment

Sample#	R A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T001945		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
S97T001945		DSC Exotherm on Perkin Elmer	Joules/g	101.8	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T001945		% Water by TGA on Perkin Elmer	%	100.3	n/a	47.08	39.61	43.34	17.2	n/a	n/a	n/a
S97T001945		TOC by Persulfate/Coulometry	ug/g	89.67	12.20	5.50e+03	5.32e+03	5.41e+03	3.33	n/a	80.00	n/a
S97T001953	F	Lithium -ICP-Fusion	ug/g	97.60	<1.00e-02	<2.16e+02	<2.19e2	n/a	n/a	n/a	216.0	n/a
S97T001957	A	Uranium-233 by ICP/MS	ug/g	n/a	<9.89e-05	<1.97e-02	<1.97e-2	n/a	n/a	n/a	2.00e-02	n/a
S97T001957	A	Uranium-234 by ICP/MS	ug/g	n/a	<1.03e-04	<2.05e-02	2.22e-02	n/a	n/a	n/a	2.10e-02	n/a
S97T001957	A	Uranium-235 by ICP/MS	ug/g	n/a	<4.78e-05	9.56e-01	1.110	1.033	14.9	n/a	1.00e-02	n/a
S97T001957	A	Uranium-236 by ICP/MS	ug/g	n/a	<1.46e-04	8.76e-02	1.01e-01	9.43e-02	14.2	n/a	2.90e-02	n/a
S97T001957	A	Uranium-238 by ICP/MS	ug/g	108.5	<1.01e-04	1.42e+02	159.0	150.8	11.3	n/a	2.00e-02	n/a
S97T001957	A	Neptunium-237 by ICP/MS	ug/g	114.7	<9.84e-05	8.53e-02	1.14e-01	9.96e-02	28.8	n/a	2.00e-02	n/a
S97T001957	A	Plutonium-239 by ICP/MS	ug/g	94.55	<8.25e-05	1.12e-01	1.34e-01	1.23e-01	17.9	n/a	1.60e-02	n/a
S97T001957	A	Plutonium-240 by ICP/MS	ug/g	n/a	<7.53e-05	1.56e-02	1.61e-02	1.59e-02	3.15	n/a	1.50e-02	n/a
S97T001957	A	Plutonium-242 by ICP/MS	ug/g	n/a	<1.75e-05	<3.48e-03	4.25e-03	n/a	n/a	n/a	3.00e-03	n/a
S97T001957	A	Pu/Am-241 by ICP/MS	ug/g	106.9	<4.17e-05	9.44e-03	1.34e-02	1.14e-02	34.7	n/a	8.00e-03	n/a
S97T001957	A	Am 243/Cm 243 by ICP/MS	ug/g	n/a	<8.86e-05	<1.76e-02	<1.77e-2	n/a	n/a	n/a	1.80e-02	n/a
S97T001957	A	Pu 244/Cm 244 by ICP/MS	ug/g	n/a	<2.14e-05	<4.26e-03	<4.26e-3	n/a	n/a	n/a	4.00e-03	n/a
S97T001957	A	Lithium -ICP-Acid Digest	ug/g	95.20	<1.00e-02	< 4.980	<4.98e0	n/a	n/a	n/a	4.970	n/a
S97T001961	W	Bromide by Ion Chromatograph	ug/g	100.8	<1.25e-01	<9.97e+02	<1.01e3	n/a	n/a	n/a	996.7	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%
S97T001942		Bulk Density of Sample	g/mL	n/a	n/a	1.570	n/a	n/a	n/a	n/a	5.00e-01	n/a
S97T001946		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
S97T001946		DSC Exotherm on Perkin Elmer	Joules/g	101.8	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T001946		% Water by TGA on Perkin Elmer	%	100.3	n/a	41.01	40.16	40.58	2.09	n/a	n/a	n/a
S97T001946		TOC by Persulfate/Coulometry	ug/g	89.67	12.20	4.92e+03	5.80e+03	5.36e+03	16.4	95.30	80.00	n/a
S97T001954	F	Pu-239/240 by TRU-SPEC Resin	uCi/g	110.4	<1.49e-03	9.89e-03	9.29e-03	9.59e-03	6.26	n/a	2.00e-03	2.8E+00
S97T001954	F	Lithium -ICP-Fusion	ug/g	97.60	<1.00e-02	<2.10e+02	<2.09e2	n/a	n/a	94.90	210.0	n/a
S97T001954	F	Am-241 by Extraction	uCi/g	104.9	<2.92e-03	3.21e-02	3.12e-02	3.16e-02	2.84	n/a	5.00e-03	2.13E+00
S97T001954	F	Alpha of Digested Solid	uCi/g	90.50	<7.52e-03	4.52e-02	3.74e-02	4.13e-02	18.9	76.00	1.20e-02	3.51E+01
S97T001958	A	Uranium-233 by ICP/MS	ug/g	n/a	<9.89e-05	<1.96e-02	<1.96e-2	n/a	n/a	n/a	2.00e-02	n/a
S97T001958	A	Uranium-234 by ICP/MS	ug/g	n/a	<1.03e-04	<2.04e-02	2.16e-02	n/a	n/a	n/a	2.00e-02	n/a
S97T001958	A	Uranium-235 by ICP/MS	ug/g	n/a	<4.78e-05	9.68e-01	1.120	1.044	14.6	n/a	9.00e-03	n/a
S97T001958	A	Uranium-236 by ICP/MS	ug/g	n/a	<1.46e-04	9.01e-02	1.00e-01	9.51e-02	10.4	n/a	2.90e-02	n/a
S97T001958	A	Uranium-238 by ICP/MS	ug/g	108.5	<1.01e-04	1.46e+02	171.0	158.6	15.8	96.00	2.00e-02	n/a
S97T001958	A	Neptunium-237 by ICP/MS	ug/g	114.7	<9.84e-05	8.70e-02	1.22e-01	1.04e-01	33.5	110.1	2.00e-02	n/a
S97T001958	A	Plutonium-239 by ICP/MS	ug/g	94.55	<8.25e-05	1.10e-01	1.19e-01	1.15e-01	7.86	90.00	1.60e-02	n/a
S97T001958	A	Plutonium-240 by ICP/MS	ug/g	n/a	<7.53e-05	<1.49e-02	<1.50e-2	n/a	n/a	n/a	1.50e-02	n/a
S97T001958	A	Plutonium-242 by ICP/MS	ug/g	n/a	<1.75e-05	<3.47e-03	<3.47e-3	n/a	n/a	n/a	3.00e-03	n/a
S97T001958	A	Pu/Am-241 by ICP/MS	ug/g	106.9	<4.17e-05	9.76e-03	1.26e-02	1.12e-02	25.4	98.82	8.00e-03	n/a
S97T001958	A	Am 243/Cm 243 by ICP/MS	ug/g	n/a	<8.86e-05	<1.76e-02	<1.76e-2	n/a	n/a	n/a	1.80e-02	n/a
S97T001958	A	Pu 244/Cm 244 by ICP/MS	ug/g	n/a	<2.14e-05	<4.24e-03	<4.25e-3	n/a	n/a	n/a	4.00e-03	n/a

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Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S971001958	1A	Lithium - ICP-Acid Digest	ug/g	95.20	<1.00e-02	< 4.960	<4.9760	n/a	n/a	n/a	93.60	4.950	n/a
S971001962	1W	Bromide by Ion Chromatograph	ug/g	100.8	<1.25e-01	<1.02e+03	<1.02e3	n/a	n/a	n/a	102.4	1.02e+03	n/a

Table 1. Data Summary Report
AX-103CORE NUMBER: 214
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%
S97T001947			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
S97T001947			DSC Exotherm on Perkin Elmer	Joules/g	102.2	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T001947			% Water by TGA on Perkin Elmer	%	101.5	n/a	47.05	45.74	46.39	2.82	n/a	n/a	n/a
S97T001947			TOC by Persulfate/Coulometry	ug/g	92.00	1.500	3.27e+03	3.79e+03	3.53e+03	14.7	120.0	40.00	n/a
S97T001955	F		Lithium -ICP-Fusion	ug/g	97.60	<1.00e-02	<2.11e+02	<2.07e2	n/a	n/a	n/a	211.0	n/a
S97T001959	A		Uranium-233 by ICP/MS	ug/g	n/a	<9.89e-05	<1.96e-02	<1.96e-2	n/a	n/a	n/a	2.00e-02	n/a
S97T001959	A		Uranium-234 by ICP/MS	ug/g	n/a	<1.03e-04	<2.04e-02	<2.04e-2	n/a	n/a	n/a	2.00e-02	n/a
S97T001959	A		Uranium-235 by ICP/MS	ug/g	n/a	<4.78e-05	8.15e-01	8.59e-01	8.37e-01	5.26	n/a	9.00e-03	n/a
S97T001959	A		Uranium-236 by ICP/MS	ug/g	n/a	<1.46e-04	7.21e-02	7.74e-02	7.47e-02	7.09	n/a	2.90e-02	n/a
S97T001959	A		Uranium-238 by ICP/MS	ug/g	108.5	<1.01e-04	1.22e+02	134.0	127.8	9.38	n/a	2.00e-02	n/a
S97T001959	A		Neptunium-237 by ICP/MS	ug/g	111.0	<4.00e-05	6.91e-02	1.08e-01	8.85e-02	43.9	n/a	8.00e-03	n/a
S97T001959	A		Plutonium-239 by ICP/MS	ug/g	92.73	1.71e-04	8.89e-02	9.63e-02	9.26e-02	7.99	n/a	3.40e-02	n/a
S97T001959	A		Plutonium-240 by ICP/MS	ug/g	n/a	<4.80e-05	1.05e-02	1.16e-02	1.11e-02	9.95	n/a	1.00e-02	n/a
S97T001959	A		Plutonium-242 by ICP/MS	ug/g	n/a	<1.06e-05	<2.11e-03	<2.10e-3	n/a	n/a	n/a	2.00e-03	n/a
S97T001959	A		Pu/Am-241 by ICP/MS	ug/g	106.9	<6.40e-05	<1.27e-02	<1.27e-2	n/a	n/a	n/a	1.30e-02	n/a
S97T001959	A		Am 243/Cm 243 by ICP/MS	ug/g	n/a	<5.32e-05	<1.06e-02	<1.05e-2	n/a	n/a	n/a	1.10e-02	n/a
S97T001959	A		Pu 244/Cm 244 by ICP/MS	ug/g	n/a	<3.55e-05	<7.05e-03	<7.03e-3	n/a	n/a	n/a	7.00e-03	n/a
S97T001959	A		Lithium -ICP-Acid Digest	ug/g	94.00	<1.00e-02	< 4.960	<4.95e0	n/a	n/a	n/a	4.950	n/a
S97T001963	W		Bromide by Ion Chromatograph	ug/g	101.5	<1.25e-01	<1.02e+03	<1.02e3	n/a	n/a	n/a	1.02e+03	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%
S97T001944			Bulk Density of Sample	g/mL	n/a	n/a	1.600	n/a	n/a	n/a	n/a	5.00e-01	n/a
S97T001948			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
S97T001948			DSC Exotherm on Perkin Elmer	Joules/g	102.2	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T001948			% Water by TGA on Perkin Elmer	%	101.5	n/a	40.14	41.54	40.84	3.43	n/a	n/a	n/a
S97T001948			TOC by Persulfate/Coulometry	ug/g	96.33	9.00e-01	3.53e+03	3.57e+03	3.55e+03	1.13	93.40	40.00	n/a
S97T001956	F		Pu-239/240 by TRU-SPEC Resin	uCi/g	94.50	<1.06e-03	1.28e-02	1.06e-02	1.17e-02	18.8	n/a	2.00e-03	2.92e+00
S97T001956	F		Lithium -ICP-Fusion	ug/g	97.60	<1.00e-02	<2.13e+02	<2.12e2	n/a	n/a	94.30	213.0	n/a
S97T001956	F		Am-241 by Extraction	uCi/g	108.7	<3.55e-03	6.19e-02	5.82e-02	6.00e-02	6.16	n/a	7.00e-03	1.83e+00
S97T001956	F		Alpha of Digested Solid	uCi/g	99.50	<8.48e-03	6.67e-02	6.33e-02	6.50e-02	5.23	84.27	1.40e-02	2.93e+01
S97T001960	A		Uranium-233 by ICP/MS	ug/g	n/a	<9.89e-05	<1.96e-02	<1.96e-2	n/a	n/a	n/a	2.00e-02	n/a
S97T001960	A		Uranium-234 by ICP/MS	ug/g	n/a	<1.03e-04	<2.04e-02	<2.05e-2	n/a	n/a	n/a	2.00e-02	n/a
S97T001960	A		Uranium-235 by ICP/MS	ug/g	n/a	<4.78e-05	8.78e-01	8.54e-01	8.66e-01	2.77	n/a	9.00e-03	n/a
S97T001960	A		Uranium-236 by ICP/MS	ug/g	n/a	<1.46e-04	7.04e-02	7.31e-02	7.17e-02	3.76	n/a	2.90e-02	n/a
S97T001960	A		Uranium-238 by ICP/MS	ug/g	108.5	<1.01e-04	1.34e+02	134.0	134.2	0.00	101.0	2.00e-02	n/a
S97T001960	A		Neptunium-237 by ICP/MS	ug/g	111.0	<4.00e-05	1.08e-01	1.15e-01	1.11e-01	6.28	111.0	8.00e-03	n/a
S97T001960	A		Plutonium-239 by ICP/MS	ug/g	92.73	1.71e-04	1.64e-01	1.40e-01	1.52e-01	15.8	93.64	3.40e-02	n/a
S97T001960	A		Plutonium-240 by ICP/MS	ug/g	n/a	<4.80e-05	1.62e-02	1.39e-02	1.50e-02	15.3	n/a	1.00e-02	n/a
S97T001960	A		Plutonium-242 by ICP/MS	ug/g	n/a	<1.06e-05	<2.11e-03	<2.11e-3	n/a	n/a	n/a	2.00e-03	n/a
S97T001960	A		Pu/Am-241 by ICP/MS	ug/g	106.9	<6.40e-05	1.47e-02	1.56e-02	1.51e-02	5.94	105.9	1.30e-02	n/a
S97T001960	A		Am 243/Cm 243 by ICP/MS	ug/g	n/a	<5.32e-05	<1.05e-02	<1.06e-2	n/a	n/a	n/a	1.10e-02	n/a
S97T001960	A		Pu 244/Cm 244 by ICP/MS	ug/g	n/a	<3.55e-05	<7.03e-03	<7.06e-3	n/a	n/a	n/a	7.00e-03	n/a

JANF-SD-WM-DP-266, REV. 0

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T001960	A	Lithium - ICP-Acid Digest	ug/g	94.00	<1.00e-02	< 4.950	<4.97e0	D/A	n/a	94.20	4.950	n/a
S97T001964	W	Bromide by Ion Chromatograph	ug/g	101.2	<1.25e-01	<1.03e+03	<1.03e3	n/a	n/a	102.0	1.03e+03	n/a

HNF-SD-WM-DP-266, REV. 0

CHAIN OF CUSTODY

HNH-SD-WM-DP-266, REV. 0

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CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

1) Shipment Number: 200W-08-TF (2) Sample Number: 212-1 (3) Supervisor: D. Hartley, O. Hartley
 4) Tank: AX103 (5) Riser: 9A (6) Segment: 1 (7) Core: 212 (8) Cask Serial Number: 18-G

9) Radiation Survey Date:

(9) FIELD

(33) LABORATORY

(10) Shipment Description

Over Top Dose Rate

0.005 mSv

0.005 mSv/hr

A. Work Package Number

ES-97-004010

Side Dose Rate

0.005 mSv

0.005 mSv/hr

B. Cask Seal Number

13081

Bottom Dose Rate

0.005 mSv

0.005 mSv/hr

C. Sampler Serial Number

97-231

Smearable Contamination

0.334 Bq

0.334 Bq/LAW

D. Date and Time Sampler Unseated

7-30-97 0424

(Alpha)

(Alpha)

E. Expected Liquid Content

2000

0.116.7 Bq

0.116.7 Bq/LAW

F. Expected Solid Content

8000

(Beta-Gamma)

(Beta-Gamma)

G. Dose Rate Through Drill String

2 mSv/hr

RCT*
(HPT)

RCT*
(HPT)

(Signature)

H. Expected Sample Length

10hr

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

HNF-SD-WM-DP-266, REV. 0

2) Field Comments

(34) Laboratory Comments

29

597T001874

1) Point of Origin <u>AX103</u>	14) Destination <u>2225</u>	15) Sender Name (Sign and PRINT) <u>James Siekel</u>	16) Date/Time <u>8-1-97</u>	17) Sender Comments
1) Relinquished By (Sign and PRINT) <u>James Siekel</u>	23) Received By (Sign and PRINT) <u>James Siekel</u>	20) Received By (Sign and PRINT) <u>James Siekel</u>	21) Date/Time <u>8-1-97</u>	22) Receiver Comments
2) Relinquished By (Sign and PRINT) <u>James Siekel</u>	24) Received By (Sign and PRINT) <u>James Siekel</u>	24) Received By (Sign and PRINT) <u>James Siekel</u>	25) Date/Time <u>8-1-97</u>	26) Receiver Comments
3) Relinquished By (Sign and PRINT) <u>James Siekel</u>	28) Received By (Sign and PRINT) <u>James Siekel</u>	28) Received By (Sign and PRINT) <u>James Siekel</u>	29) Date/Time <u>8-1-97</u>	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

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-85 Goldsrod - Tank Farm Operations, S4-83 BC-6000-309 (02/94)

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 200W-08-TF (2) Sample Number 212-2 (3) Supervisor R. FRANK FROST R. Leland Lunt
 (4) Tank AX-103 (5) Riser 9A (6) Segment 2 (7) Core 212 (8) Cask Serial Number C-2004

Irradiation Survey Data:		(9) FIELD	(33) LABORATORY	(10) Shipment Description
Over Top Dose Rate	<u>.07 mSv</u>	<u>L.005 mSv/hr</u>	A. Work Package Number	<u>ES-97-00401/0</u>
Side Dose Rate	<u>.27 mSv</u>	<u>.025 mSv/hr</u>	B. Cask Seal Number	<u>1137</u>
Bottom Dose Rate	<u>L.005 mSv</u>	<u>.014 mSv/hr</u>	C. Sampler Serial Number	<u>97-225</u>
Smearable Contamination	<u>L.334 Bq</u>	<u>L.334 Bq/LAW</u>	D. Date and Time Sampler Unseated	<u>7-30-97 / 1152</u>
	(Alpha)	(Alpha)	E. Expected Liquid Content	<u>20%</u>
	<u>L16.7 Bq</u>	<u>L16.7 Bq/LAW</u>	F. Expected Solid Content	<u>80%</u>
	(Beta-Gamma)	(Beta-Gamma)	G. Dose Rate Through Drill String	<u>1.4 MR</u>
RCT* <u>W. Weiss</u>	(HPT)	RCT* <u>PHS</u>	(HPT)	H. Expected Sample Length
	(Signature)		(Signature)	<u>19"</u>

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

HNF-SD-WM-DP-266, REV. 0

2) Field Comments	(34) Laboratory Comments
<u>universal sampler</u> <u>sampler clean on bottom</u>	<u>597T001875</u>

3) Point of Origin <u>R-9A</u>	(14) Destination <u>222'S LAB</u>	(15) Sender Name (Sign and PRINT) <u>James Sickels</u>	(16) Date/Time <u>8-1-97</u>	(17) Sender Comments
4) Relinquished By (Sign and PRINT) <u>James Sickels</u>	(20) Received By (Sign and PRINT) <u>James Sickels</u>	(21) Date/Time <u>8-1-97</u>	(22) Receiver Comments	
5) Relinquished By (Sign and PRINT) <u>James Sickels</u>	(24) Received By (Sign and PRINT) <u>James Sickels</u>	(25) Date/Time <u>8-1-97</u>	(26) Receiver Comments	
7) Relinquished By (Sign and PRINT) <u>James Sickels</u>	(28) Received By (Sign and PRINT) <u>James Sickels</u>	(29) Date/Time <u>8-1-97</u>	(30) Receiver Comments	

(18) Seal Intact Upon Release? ☒ Yes ☐ No	(31) Seal Intact Upon Receipt? ☒ Yes ☐ No	(32) Seal Date 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 N/A 87-30-97 (2) Sample Number Field Blank (3) Supervisor M.C. Jones M.C. Jones

(4) Tank AX-103 (5) Riser 9A (6) Segment N/A (7) Core 212 (8) Cask Serial Number N/A

Exposition Survey Data:

(9) FIELD (33) LABORATORY (10) Shipment Description

Over Top Dose Rate N/A L.5 A. Work Package Number ES-97-00401

Side Dose Rate N/A L.5 B. Bottle Seal Number Bottle 7-30-97

Bottom Dose Rate N/A L.5 C. Sampler Serial Number N/A

Smearable Contamination N/A L.80 D. Date and Time Sampler Unseated 7-29-97 1800

(Alpha) L.K E. Expected Liquid Content 100%

(Beta-Gamma) L.K F. Expected Solid Content 0%

RCT* (HPT) (Signature) RCT* (HPT) (Signature) G. Dose Rate Through Drill String L.5 mR/hr

H. Expected Sample Length 100 mL

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

HNFDSD-WM-DP-266, REV. 0

(3) Field Comments (34) Laboratory Comments

WATER FOR FIELD BLANK. 597T001828

(13) Point of Origin <u>AX-103</u>	(14) Destination <u>222-S</u>	(15) Sender Name (Sign and PRINT) <u>James Sickle</u> <u>JAMES SICKELS</u>	(16) Date/Time <u>0745</u> <u>7-30-97</u>	(17) Sender Comments
(18) Relinquished By (Sign and PRINT) <u>James Sickle</u> <u>JAMES SICKELS</u>	(19) Received By (Sign and PRINT) <u>Charles E. Knight</u> <u>CE Knight</u>	(20) Date/Time <u>7-30-97</u>	(21) Receiver Comments	
(22) Relinquished By (Sign and PRINT) <u>Charles E. Knight</u> <u>CE Knight</u>	(23) Received By (Sign and PRINT) <u>Blair Knight</u> <u>Blair Knight</u>	(24) Date/Time <u>7-30-97</u>	(25) Receiver Comments	
(26) Relinquished By (Sign and PRINT)	(27) Received By (Sign and PRINT)	(28) Date/Time	(29) Receiver Comments	

(18) Seal Intact Upon Release? (19) Seal Intact Upon Receipt? (32) Seal Date Consistent with this Record?

☒ Yes ☐ No ☒ Yes ☐ No ☒ Yes ☐ No

Shipment No. 71 87-30-97 Bottle Seal No. 7-30-97 Sample No. 7-30-97

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

1) Shipment Number <u>200W-08-TP</u>		(2) Sample Number <u>214-1</u>		(3) Supervisor <u>R. Frank Lust R.E. Frost</u>	
1) Tank <u>AX-103</u>		(5) Riser <u>9F</u>		(6) Segment <u>1</u>	
(7) Core <u>214</u>		(8) Cask Serial Number <u>64</u>			
Irradiation Survey Data:		(9) FIELD		(33) LABORATORY	
Over Top Dose Rate <u>5</u>		<u>3</u>			
Side Dose Rate <u>35</u>		<u>30</u>			
Bottom Dose Rate <u>16</u>		<u>12</u>			
Smearable Contamination <u>< 20</u>		<u>< 20</u>			
(Alpha)		(Alpha)			
<u>< 1K</u>		<u>< 1K</u>			
(Beta-Gamma)		(Beta-Gamma)			
RCT* <u>J. Morales</u>		RCT* <u>J. Morales</u>			
(HPT) (Signature)		(HPT) (Signature)			
(10) Shipment Description					
A. Work Package Number <u>ES-97-00402</u>					
B. Cask Seal Number <u>#1138</u>					
C. Sampler Serial Number <u>96-370</u>					
D. Date and Time Sampler Unseated <u>8-8-97/2024</u>					
E. Expected Liquid Content <u>0%</u>					
F. Expected Solid Content <u>100% DRY SALT</u>					
G. Dose Rate Through Drill String <u>1.2R</u>					
H. Expected Sample Length <u>6"</u>					

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

HNF-SD-WM-DP-266, REV. 0

2) Field Comments		(34) Laboratory Comments	
<p>① universal sampler</p> <p>② sampler has small amount of waste on bottom</p>		<p>S97T001939</p>	

3) Point of Origin <u>AX-103</u>		(14) Destination <u>222's LAB</u>		(15) Sender Name (Sign and PRINT) <u>Robert J. Puznik</u>		(16) Date/Time <u>8/12/97</u>		(17) Sender Comments	
5) Relinquished By (Sign and PRINT) <u>Robert J. Puznik</u>		(20) Received By (Sign and PRINT) <u>David Keane</u>		(21) Date/Time <u>8/12/97</u>		(22) Receiver Comments			
3) Relinquished By (Sign and PRINT) <u>David Keane</u>		(24) Received By (Sign and PRINT) <u>Jim Knight</u>		(25) Date/Time <u>8/12/97</u>		(26) Receiver Comments			
7) Relinquished By (Sign and PRINT)		(28) Received By (Sign and PRINT)		(29) Date/Time		(30) Receiver Comments			

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

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

1) Shipment Number <u>200W-08-TF</u>		2) Sample Number <u>214-2</u>		3) Supervisor <u>R. Frank Frost R. FRANK FROST</u>	
4) Tank <u>AX-103</u>		5) Riser <u>9F</u>		6) Segment <u>2</u>	
7) Core <u>214</u>		8) Cask Serial Number <u>58</u>			
Radiation Survey Date:		(9) FIELD		(33) LABORATORY	
Over Top Dose Rate <u>5</u>		<u>3</u>			
Side Dose Rate <u>30</u>		<u>30</u>			
Bottom Dose Rate <u>15</u>		<u>12</u>			
Smearable Contamination <u>220</u>		<u>220</u>			
(Alpha) <u><1R</u>		(Alpha) <u>21K</u>			
(Beta-Gamma) <u>g 4 Michel</u>		(Beta-Gamma) <u>JR Morales</u>			
RCT* (HPT) (Signature)		RCT* (HPT) (Signature)			
				(10) Shipment Description	
				A. Work Package Number <u>ES-97-00402</u>	
				B. Cask Seal Number <u>1139</u>	
				C. Sampler Serial Number <u>96-373</u>	
				D. Date and Time Sampler Unseated <u>8-11-97/0445</u>	
				E. Expected Liquid Content <u>damp sludge per</u>	
				F. Expected Solid Content <u>exp information sheet</u>	
				G. Dose Rate Through Drill String <u>1.2 R</u>	
				H. Expected Sample Length <u>19"</u>	

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

HNF-SD-WM-DP-266, REV. 0

2) Field Comments <u>(a) universal sampler</u> <u>(b) liquid drops on bottom of sampler</u>		34) Laboratory Comments <u>597T001940</u>	
3) Point of Origin <u>R-9F</u>	14) Destination <u>222S LWB</u>	15) Sender Name (Sign and PRINT) <u>David Keane David Keane</u>	16) Date/Time <u>8/12/97</u> <u>0850</u>
9) Relinquished By (Sign and PRINT) <u>Robert A. Keane</u>	20) Received By (Sign and PRINT) <u>David Keane David Keane</u>	21) Date/Time <u>8/12/97</u> <u>0850</u>	22) Receiver Comments
3) Relinquished By (Sign and PRINT) <u>David Keane David Keane</u>	24) Received By (Sign and PRINT) <u>David Keane David Keane</u>	25) Date/Time <u>8/12/97</u> <u>0850</u>	28) Receiver Comments
7) Relinquished By (Sign and PRINT)	28) Received By (Sign and PRINT)	29) Date/Time	30) Receiver Comments
31) Seal Intact Upon Receipt?		32) Seal Data Consistent with this Record?	
☒ Yes ☐ No		☒ Yes ☐ No	

HNF-SD-WM-DP-266, REV. 0

PHOTOGRAPHS

HNF-SD-WM-DP-266, REV. 0

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AX-103 Core 212 Seg 1 Riser 9A

8/5/77

AX-103 Core 212 Seg 2

AX-103 Core 214

Segment # 1

8/13/97

HNF-SD-WM-DP-266, REV. 0

SAMPLE HANDLING

HNF-SD-WM-DP-266, REV. 0

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LABCORE Data Entry Template for Worklist# 19636

Analyst: DLD Instrument: BA000 Book # N/AMethod: LO-160-103 Rev/Mod G-O

Worklist Comment: AX-103 CORE #212 SEGMENT #1 RISER #9A EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20.00</u>	<u>20.00</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID	<u>500</u>	<u>500.27</u>	<u>N/A</u>	
97000494	AX-103	3 SAMPLE	S97T001874	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>Ø</u>		ml
97000494	AX-103	4 SAMPLE	S97T001874	0	DLIQWT01	SOLID	<u>N/A</u>	<u>Ø</u>		g
97000494	AX-103	5 SAMPLE	S97T001874	0	EST.G/ML	SOLID	<u>N/A</u>	<u>Ø</u>		g/ml
97000494	AX-103	6 SAMPLE	S97T001874	0	EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>		
97000494	AX-103	7 SAMPLE	S97T001874	0	LLIQWT01	SOLID	<u>N/A</u>	<u>Ø</u>		g
97000494	AX-103	8 SAMPLE	S97T001874	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-35</u>		
97000494	AX-103	9 SAMPLE	S97T001874	0	SLDVOL01	SOLID	<u>N/A</u>	<u>N/A</u>		ml
97000494	AX-103	10 SAMPLE	S97T001874	0	SLDWT-01	SOLID	<u>N/A</u>	<u>Ø</u>		g
97000494	AX-103	11 SAMPLE	S97T001874	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>		
97000494	AX-103	12 SAMPLE	S97T001874	0	ORGVOL01	SOLID	<u>N/A</u>	<u>Ø</u>		ml

Final page for worklist # 19636

Analyst Signature Daid R. Loh Date 8-5-97Analyst Signature Daid R. Loh Date 8-5-97Validated 8-6-97 ay

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 19641

Analyst: DW Instrument: BA000 Book # N/A

Method: LO-160-103 Rev/Mod C - 0

Worklist Comment: AX-103 CORE #212 SEGMENT #2 RISER #9A EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20</u>	<u>20.00</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID	<u>500</u>	<u>500.27</u>	<u>N/A</u>	
97000494	AX-103	3 SAMPLE	S97T001875	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>Ø</u>		ml
97000494	AX-103	4 SAMPLE	S97T001875	0	DLIQWT01	SOLID	<u>N/A</u>	<u>Ø</u>		g
97000494	AX-103	5 SAMPLE	S97T001875	0	EST.G/ML	SOLID	<u>N/A</u>	<u>Ø</u>		g/ml
97000494	AX-103	6 SAMPLE	S97T001875	0	EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>		
97000494	AX-103	7 SAMPLE	S97T001875	0	LLIQWT01	SOLID	<u>N/A</u>	<u>Ø</u>		g
97000494	AX-103	8 SAMPLE	S97T001875	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-35</u>		
97000494	AX-103	9 SAMPLE	S97T001875	0	SLDVOL01	SOLID	<u>N/A</u>	<u>N/A</u>		ml
97000494	AX-103	10 SAMPLE	S97T001875	0	SLDWT-01	SOLID	<u>N/A</u>	<u>190.4</u>		g
97000494	AX-103	11 SAMPLE	S97T001875	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>		
97000494	AX-103	12 SAMPLE	S97T001875	0	ORGVOL01	SOLID	<u>N/A</u>	<u>Ø</u>		ml

Final page for worklist # 19641

D. R. R. R. 8-6-97
Analyst Signature Date

D. R. R. R. 8-6-97
Analyst Signature Date

Validated 8-6-97 DW

Data Entry Comments:

HNF-SD-WM-DP-266, REV. 0

worklistrpt Version 2.1 05/15/95

Page: 1

08/13/97 09:38

LABCORE Data Entry Template for Worklist# 19764

Analyst: P. H. J. Instrument: BA000Book # 11-35 RA
8/14/97Method: LO-160-103 Rev/Mod C-D

Worklist Comment: AX-103 Core 214 Segment #1 Extrusion. rh

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20.04</u>	<u>N/A</u>		
		2 INSTCHK02			EXTRUD01	SOLID	<u>500.19</u>	<u>N/A</u>		
97000495	AX-103	3 SAMPLE	S97T001939	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>0</u>		mL
97000495	AX-103	4 SAMPLE	S97T001939	0	DLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
97000495	AX-103	5 SAMPLE	S97T001939	0	EST.G/ML	SOLID	<u>N/A</u>	<u>0</u>		g/mL
97000495	AX-103	6 SAMPLE	S97T001939	0	EXTRUD01	SOLID	<u>N/A</u>	<u>Completed</u>		
97000495	AX-103	7 SAMPLE	S97T001939	0	LLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
97000495	AX-103	8 SAMPLE	S97T001939	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>11-35</u>		
97000495	AX-103	9 SAMPLE	S97T001939	0	SLDVOL01	SOLID	<u>N/A</u>	<u>N/A</u>		mL
97000495	AX-103	10 SAMPLE	S97T001939	0	SLDWT-01	SOLID	<u>N/A</u>	<u>325.1</u>		g
97000495	AX-103	11 SAMPLE	S97T001939	0	APPEAR01	SOLID	<u>N/A</u>	<u>Complete</u>		
97000495	AX-103	12 SAMPLE	S97T001939	0	ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>		mL

Final page for worklist # 19764

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.

HNF-SD-WM-DP-266, REV. 0

worklistrpt Version 2.1 05/15/95

08/13/97 09:54

Page: 1

LABCORE Data Entry Template for Worklist# 19765

Analyst: RLA Instrument: BA000 Book # HNF-N-35 ^{NA} _{RA 8/14/97}
 Method: LO-160-103 Rev/Mod C-0

Worklist Comment: AX-103 CORE 214 SEGMENT # 2 EXTRUSION RH

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	<u>2000</u>	<u>2003</u>	<u>N/A</u>	
		2	INSTCHK02				EXTRUD01	SOLID	<u>5000</u>	<u>500.19</u>	<u>N/A</u>	
97000495	AX-103	3	SAMPLE	S97T001940	0		DLIQVOL1	SOLID	<u>N/A</u>	<u>0</u>		ml
97000495	AX-103	4	SAMPLE	S97T001940	0		DLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
97000495	AX-103	5	SAMPLE	S97T001940	0		EST.G/ML	SOLID	<u>N/A</u>	<u>0</u>		g/ml
97000495	AX-103	6	SAMPLE	S97T001940	0		EXTRUD01	SOLID	<u>N/A</u>	<u>Complete</u>		
97000495	AX-103	7	SAMPLE	S97T001940	0		LLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
97000495	AX-103	8	SAMPLE	S97T001940	0		NOTEBOOK	SOLID	<u>N/A</u>	<u>11-35</u>		
97000495	AX-103	9	SAMPLE	S97T001940	0		SLDVOL01	SOLID	<u>N/A</u>	<u>NA</u>		ml
97000495	AX-103	10	SAMPLE	S97T001940	0		SLDWT-01	SOLID	<u>N/A</u>	<u>375.0</u>		g
97000495	AX-103	11	SAMPLE	S97T001940	0		APPEAR01	SOLID	<u>N/A</u>	<u>Complete</u>		
97000495	AX-103	12	SAMPLE	S97T001940	0		ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>		ml

Final page for worklist # 19765

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.

HNF-SD-WM-DP-266, REV. 0

SAMPLE PREPARATION

HNH-SD-WM-DP-266, REV. 0

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LABCORE Data Entry Template for Worklist# 19663

Analyst: EAL Instrument: FUS01 Book # N/A

Method: LA-549-141 Rev/Mod 7.0

Worklist Comment: AX-103 FUSION DIGEST C212S2 LH lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	SOLID	<u>1.</u>	<u>0.250</u>	<u>N/A</u>	g/L
97000494	AX-103	2 SAMPLE .5035g → .250g	S97T001888	0 F	FUSION01	SOLID	<u>N/A</u>	<u>2.014</u>		g/L
97000494	AX-103	3 SAMPLE	S97T001888	0	DOSE-02	SOLID	<u>N/A</u>	<u>50</u>		mrad/hour
97000494	AX-103	4 DUP .5123g → .250g	S97T001888	0 F	FUSION01	SOLID	<u>2.014</u>	<u>2.0492</u>	<u>N/A</u>	g/L
97000494	AX-103	5 DUP	S97T001888	0	DOSE-02	SOLID	<u>50</u>	<u>50</u>	<u>N/A</u>	mrad/hour

Final page for worklist # 19663

A. Lambel 08-30-97
Analyst Signature Date

Suzanne Bee 8/30/97
Analyst Signature Date

A. Lambel 8-30-97
REVIEWER SIGNATURE DATE

Data Entry Comments: Added 5ml. 4ml HCl ± 10 ml. Con. HNO₃. Color: Yellow
0% solids. HPT: Bill Bishop
Storage location: 2B-Shelf/3

LABCORE Data Entry Template for Worklist# 19814

Analyst: KNT Instrument: FUS01 _____ Book # _____

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

Worklist Comment: AX-103 FUSION DIGEST C214S1,2 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>.250</u>	<u>N/A</u>	g/L
97000495	AX-103	2 SAMPLE	S97T001953 0 F			FUSION01	SOLID	<u>N/A</u> <u>1.8980</u>		g/L
		<u>.4745</u> → <u>.250 L</u>								
97000495	AX-103	3 SAMPLE	S97T001953 0			DOSE-02	SOLID	<u>N/A</u> <u>50</u>		mrad/hour
97000495	AX-103	4 DUP	S97T001953 0 F			FUSION01	SOLID	<u>1.8980</u> <u>1.8684</u>	<u>N/A</u>	g/L
		<u>.4671</u> → <u>.250 L</u>								
97000495	AX-103	5 DUP	S97T001953 0			DOSE-02	SOLID	<u>50</u> <u>50</u>	<u>N/A</u>	mrad/hour
97000495	AX-103	6 SAMPLE	S97T001954 0 F			FUSION01	SOLID	<u>N/A</u> <u>1.9508</u>		g/L
		<u>.4877</u> → <u>.250 L</u>								
97000495	AX-103	7 SAMPLE	S97T001954 0			DOSE-02	SOLID	<u>N/A</u> <u>60</u>		mrad/hour
97000495	AX-103	8 DUP	S97T001954 0 F			FUSION01	SOLID	<u>1.9508</u> <u>1.9640</u>	<u>N/A</u>	g/L
		<u>.4910</u> → <u>.250 L</u>								
97000495	AX-103	9 DUP	S97T001954 0			DOSE-02	SOLID	<u>60</u> <u>60</u>	<u>N/A</u>	mrad/hour
97000495	AX-103	10 SAMPLE	S97T001955 0 F			FUSION01	SOLID	<u>N/A</u> <u>1.9404</u>		g/L
		<u>.4851</u> → <u>.250 L</u>								
97000495	AX-103	11 SAMPLE	S97T001955 0			DOSE-02	SOLID	<u>N/A</u> <u>50</u>		mrad/hour
97000495	AX-103	12 DUP	S97T001955 0 F			FUSION01	SOLID	<u>1.9404</u> <u>1.9852</u>	<u>N/A</u>	g/L
		<u>.4963</u> → <u>.250 L</u>								
97000495	AX-103	13 DUP	S97T001955 0			DOSE-02	SOLID	<u>50</u> <u>50</u>	<u>N/A</u>	mrad/hour

Final page for worklist # 19814

Kim Thomas 8-25-97
Analyst Signature Date

[Signature] 8-25-97
Analyst Signature Date

S97T00 1945 → S97T00 1953
" "1946 → " "1954
" "1947 → " "1955

Data Entry Comments:

30ml. Con Nitric

HPT was Pam Higbee

[Signature]

8/26/97

LABCORE Data Entry Template for Worklist# 19815

Analyst: KNT Instrument: FUS01 Book # _____

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

Worklist Comment: AX-103 FUSION DIGEST C214S2 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>	<u>g/L</u>
97000495	AX-103	2 SAMPLE	S97T001956 0 F		FUSION01	SOLID	<u>N/A</u>	<u>1.9240</u>		<u>g/L</u>
		<u>.4810</u> → <u>.250 L</u>								
97000495	AX-103	3 SAMPLE	S97T001956 0		DOSE-02	SOLID	<u>N/A</u>	<u>50</u>		<u>mrads/hour</u>
97000495	AX-103	4 DUP	S97T001956 0 F		FUSION01	SOLID	<u>1.9240</u>	<u>1.9328</u>	<u>N/A</u>	<u>g/L</u>
		<u>.4832</u> → <u>.250 L</u>								
97000495	AX-103	5 DUP	S97T001956 0		DOSE-02	SOLID	<u>50</u>	<u>50</u>	<u>N/A</u>	<u>mrads/hour</u>

Final page for worklist # 19815

Kim Thomas 8-25-97
Analyst Signature Date

[Signature] 8/25/97
Analyst Signature Date

~~S97T001945~~ → ~~S97T00~~ KT 8-25-97

~~1946~~ → KT 8-25-97

~~1947~~ → KT 8-25-97

S97T001948 → S97T001956

M.C.O.
8/26/97

Data Entry Comments: 30ml. Con Mixture

HPT was Scott Corbaley

LABCORE Data Entry Template for Worklist# 19665

Analyst: _____ Instrument: H2O01 _____ Book # N/A

Method: LA-504-101 Rev/Mod 70

Worklist Comment: AX-103 H2O DIGEST C212S2 LH lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			H2ODIG01	SOLID	<u>1.</u>	<u>0.100</u>	<u>N/A</u>	g/L
97000494	AX-103	2 SAMPLE	S97T001889 0 W		H2ODIG01	SOLID	<u>N/A</u>	<u>4.996</u>		g/L
97000494	AX-103	3 SAMPLE	S97T001889 0		DOSE-02	SOLID	<u>N/A</u>	<u>40</u>		mrad/hour
97000494	AX-103	4 DUP	S97T001889 0 W		H2ODIG01	SOLID	<u>4.996</u>	<u>4.948</u>	<u>N/A</u>	g/L
97000494	AX-103	5 DUP	S97T001889 0		DOSE-02	SOLID	<u>40</u>	<u>40</u>	<u>N/A</u>	mrad/hour

Final page for worklist # 19665

A. Lambel
Analyst Signature
08-30-97
Date

Susan Bee
Analyst Signature
8/30/97
Date

A. Lambel
REVIEWER SIGNATURE
8-30-97
DATE

Data Entry Comments: APT: Bill Bishop

Shelly 3/23

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
08/15/97 13:05

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LABCORE Data Entry Template for Worklist# 19818

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

Worklist Comment: AX-103 H2O DIGEST C214S1 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>.100</u>	N/A	g/L
97000495	AX-103	2 SAMPLE	S97T001961 0 W	H2001G01	SOLID	N/A	<u>5.141</u>		g/L
		<u>.5141</u> → <u>.100 L</u>							
97000495	AX-103	3 SAMPLE	S97T001961 0	DOSE-02	SOLID	N/A	<u>50</u>		mrad/hour
97000495	AX-103	4 DUP	S97T001961 0 W	H2001G01	SOLID	<u>5.141</u>	<u>5.099</u>	N/A	g/L
		<u>.5099</u> → <u>.100 L</u>							
97000495	AX-103	5 DUP	S97T001961 0	DOSE-02	SOLID	<u>50</u>	<u>50</u>	N/A	mrad/hour
97000495	AX-103	6 SAMPLE	S97T001962 0 W	H2001G01	SOLID	N/A	<u>5.024</u>		g/L
		<u>.5024</u> → <u>.100 L</u>							
97000495	AX-103	7 SAMPLE	S97T001962 0	DOSE-02	SOLID	N/A	<u>50</u>		mrad/hour
97000495	AX-103	8 DUP	S97T001962 0 W	H2001G01	SOLID	<u>5.024</u>	<u>5.027</u>	N/A	g/L
		<u>.5027</u> → <u>.100 L</u>							
97000495	AX-103	9 DUP	S97T001962 0	DOSE-02	SOLID	<u>50</u>	<u>50</u>	N/A	mrad/hour

Final page for worklist # 19818

Kim Thomas 8-28-97
Analyst Signature Date

Kim Thomas 8-28-97
Analyst Signature Date

Data Entry Comments:

HPT was Pam Higbee.

Indexed by Kim Thomas 8-28-97

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.

worklistrpt Version 2.1 05/15/95
08/15/97 13:05

Page: 1

LABCORE Data Entry Template for Worklist# 19819

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

Worklist Comment: AX-103 H2O DIGEST C214S2 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>.100</u>	N/A	g/L
97000495	AX-103	2 SAMPLE	S97T001963	0 W	H2001G01	SOLID	N/A	<u>5.005</u>		g/L
		<u>.5005</u> → <u>.100 L</u>								
97000495	AX-103	3 SAMPLE	S97T001963	0	DOSE-02	SOLID	N/A	<u>50</u>		mrad/hour
97000495	AX-103	4 DUP	S97T001963	0 W	H2001G01	SOLID	<u>5.005</u>	<u>5.009</u>	N/A	g/L
		<u>.5009</u> → <u>.100 L</u>								
97000495	AX-103	5 DUP	S97T001963	0	DOSE-02	SOLID	<u>50</u>	<u>50</u>	N/A	mrad/hour
97000495	AX-103	6 SAMPLE	S97T001964	0 W	H2001G01	SOLID	N/A	<u>4.967</u>		g/L
		<u>.4967</u> → <u>.100 L</u>								
97000495	AX-103	7 SAMPLE	S97T001964	0	DOSE-02	SOLID	N/A	<u>50</u>		mrad/hour
97000495	AX-103	8 DUP	S97T001964	0 W	H2001G01	SOLID	<u>4.967</u>	<u>4.999</u>	N/A	g/L
		<u>.4999</u> → <u>.100 L</u>								
97000495	AX-103	9 DUP	S97T001964	0	DOSE-02	SOLID	<u>50</u>	<u>50</u>	N/A	mrad/hour

Final page for worklist # 19819

Kim Thomas 8-28-97
Analyst Signature Date

[Signature] 8-28-97
Analyst Signature Date

Data Entry Comments:

HPT was Pam Higbee
Taxed by Kim Thomas 8-28-97

Validated
8/29/97
PK Fuller

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
01/09/98 11:32

HNF-SD-WM-DP-266, REV. 0

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LABCORE Data Entry Template for Worklist# 21774

Analyst: ADP Instrument: H2O01 Book # —Method: LA-504-101 Rev/Mod F-O

Worklist Comment: AX-103 H2O DIGEST C212S2LH lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A -----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP	100 mL	H2O01G01	SOLID	1	0.100	N/A	g/L
97000494	AX-103	2 SAMPLE	S98T000043 0 W	H2O01G01	SOLID	N/A	5.077		g/L
97000494	AX-103	3 SAMPLE	S98T000043 0	DOSE-02	SOLID	N/A	13.5		mrad/hour
97000494	AX-103	4 DUP	S98T000043 0 W	H2O01G01	SOLID	5.077	5.042	N/A	g/L
97000494	AX-103	5 DUP	S98T000043 0	DOSE-02	SOLID	13.5	13.5	N/A	mrad/hour

Final page for worklist # 21774

Anthony Puro 1-10-98
Analyst Signature Date

Heidi Fuller & Sam Parong
for Dennis Sato 1/14/97
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
08/26/97 13:04

HNF-SD-WM-DP-266, REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 19664

Analyst: DK Seto Instrument: ACD01Book # ^{WHC 14}_{WHC 3} > 9.5 nls each to 58 nlsMethod: LA-505-163 Rev/Mod A-0

Mixed Actinide Spike (138B43)

Std 0.1 nls

Spike 1.0 nls

Worklist Comment: AX-103 ACID DIGEST C212S2 LH lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP				ACIDIG01	<u>26</u>	<u>30</u>	<u>5.27</u>	<u>97</u>
						SOLID		<u>N/A</u>		g/L
		2 STD-PREP				ACIDIG01	<u>20</u>	<u>20</u>	<u>3.04</u>	<u>97</u>
						SOLID		<u>N/A</u>		g/L
97000494	AX-103	3 SAMPLE	S97T001891	0 A		ACIDIG01	<u>N/A</u>	<u>5.04</u>		g/L
		<u>0.150 g</u> → <u>0.050 L</u>						<u>5</u>		
97000494	AX-103	4 SAMPLE	S97T001891	0	DOSE-02	SOLID	<u>N/A</u>			mrad/hour
97000494	AX-103	5 DUP	S97T001891	0 A		ACIDIG01	<u>5.04</u>	<u>5.01</u>	<u>N/A</u>	g/L
		<u>0.1505 g</u> → <u>0.050 L</u>					<u>5</u>	<u>15</u>	<u>N/A</u>	mrad/hour
97000494	AX-103	6 DUP	S97T001891	0	DOSE-02	SOLID	<u>N/A</u>			g/L
97000494	AX-103	7 SPK	S97T001891	0 A		ACIDIG01	<u>11/9</u>	<u>5.014</u>	<u>N/A</u>	g/L
		<u>0.1507 g</u> → <u>0.050 L</u>					<u>11/9</u>	<u>15</u>	<u>N/A</u>	mrad/hour
97000494	AX-103	8 SPK	S97T001891	0	DOSE-02	SOLID	<u>N/A</u>			g/L

Final page for worklist # 19664

DK Seto 08-27-97
 Analyst Signature Date

Dan K. McQuinn 8-27-97
 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.

worklist Version 2.1 05/15/95
08/07/97 10:35

HNF-SD-WM-DP-266, REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 19690

Analyst: _____ Instrument: ACD01 _____ Book # N/AMethod: LA-505-158 Rev/Mod 5-0

Worklist Comment: AX103, ACIDIL01 skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			ACIDIL01	LIQUID			N/A	DF
9700510	AX-101 GRAB	2 SAMPLE	S97T001902	0 D	ACIDIL01	LIQUID	N/A	4.65		DF
9700510	AX-101 GRAB	3 SAMPLE	S97T001902	0	DOSE-01	LIQUID	N/A			mrad/hour
9700510	AX-101 GRAB	4 SAMPLE	S97T001903	0 D	ACIDIL01	LIQUID	N/A	4.57		DF
9700510	AX-101 GRAB	5 SAMPLE	S97T001903	0	DOSE-01	LIQUID	N/A			mrad/hour
9700510	AX-101 GRAB	6 SAMPLE	S97T001904	0 D	ACIDIL01	LIQUID	N/A	4.77		DF
9700510	AX-101 GRAB	7 SAMPLE	S97T001904	0	DOSE-01	LIQUID	N/A			mrad/hour

Final page for worklist # 19690

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Parent
 S97T001824 →
 S97T001825 →
 S97T001826 →

Daughter
 S97T001902 V# 13308
 S97T001903 V# 13320
 S97T001904 V# 13344
 Prep BLNK V# 13345

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
08/15/97 13:03

HNF-SD-WM-DP-266, REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 19816

Analyst: JK Seto Instrument: ACD01 Book # WHC 1A 2.5 nls each to 50 nls
 Method: LA-505-163 Rev/Mod A-0 Mixed Actinide Spike (138843)
 Worklist Comment: AX-103 ACID DIGEST C214S1 LH,UH lad Std. 0.1 nls
Spike 1.0 nls

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			ACIDIG01	SOLID	<u>20</u>	<u>50</u>	<u>5.27-97</u>	
								<u>N/A</u>		g/L
		2 STD-PREP			ACIDIG01	SOLID	<u>20</u>	<u>50</u>	<u>5.27-97</u>	
								<u>N/A</u>		g/L
97000495	AX-103	3 SAMPLE	S97T001957	0 A	ACIDIG01	SOLID	<u>N/A</u>	<u>5.022</u>		g/L
		<u>0.3511 g → 0.050 g</u>								
97000495	AX-103	4 SAMPLE	S97T001957	0	DOSE-02	SOLID	<u>N/A</u>	<u>50</u>		mrad/hour
97000495	AX-103	5 DUP	S97T001957	0 A	ACIDIG01	SOLID	<u>5.022</u>	<u>5.016</u>	<u>N/A</u>	g/L
		<u>0.3508 g → 0.050 g</u>								
97000495	AX-103	6 DUP	S97T001957	0	DOSE-02	SOLID	<u>50</u>	<u>50</u>	<u>N/A</u>	mrad/hour
97000495	AX-103	7 SAMPLE	S97T001958	0 A	ACIDIG01	SOLID	<u>N/A</u>	<u>5.038</u>		g/L
		<u>0.3519 g → 0.050 g</u>								
97000495	AX-103	8 SAMPLE	S97T001958	0	DOSE-02	SOLID	<u>N/A</u>	<u>50</u>		mrad/hour
97000495	AX-103	9 DUP	S97T001958	0 A	ACIDIG01	SOLID	<u>5.038</u>	<u>5.032</u>	<u>N/A</u>	g/L
		<u>0.3516 g → 0.050 g</u>								
97000495	AX-103	10 DUP	S97T001958	0	DOSE-02	SOLID	<u>50</u>	<u>50</u>	<u>N/A</u>	mrad/hour
97000495	AX-103	11 SPK	S97T001958	0 A	ACIDIG01	SOLID	<u>4/4</u>	<u>5.042</u>	<u>N/A</u>	g/L
		<u>0.3524 g → 0.050 g</u>								
97000495	AX-103	12 SPK	S97T001958	0	DOSE-02	SOLID	<u>4/4</u>	<u>50</u>	<u>N/A</u>	mrad/hour

Final page for worklist # 19816

JK Seto
 Analyst Signature Date 08-27-97

Shirley K McFarlane
 Analyst Signature Date 8-27-97

Data Entry Comments:

Validated
8/28/97
BK Fuller

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.

worklistpt Version 2.1 05/15/95
08/15/97 13:04

HNF-SD-WM-DP-266, REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 19817

Analyst: BK Sato Instrument: ACD01 Book # WHC 1A > 1.5 nls each to 50 nls
WHC 2
 Method: LA-505-163 Rev/Mod A-0 Mixed Oxide Spike (138B43)
Std. 0.1 nls
Spike 1.0 nls

Worklist Comment: AX-103 ACID DIGEST C214S2 UH,LH lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			ACIDIG01	SOLID	<u>20</u>	<u>50</u>	<u>sum 9.9</u>	<u>N/A</u> g/L
		2 STD-PREP			ACIDIG01	SOLID	<u>20</u>	<u>50</u>	<u>sum 9.9</u>	<u>N/A</u> g/L
97000495	AX-103	3 SAMPLE	S97T001959	0 A	ACIDIG01	SOLID	<u>N/A</u>	<u>5.04</u>		<u>g/L</u>
		<u>0.1520 g → .050 L</u>								
97000495	AX-103	4 SAMPLE	S97T001959	0	DOSE-02	SOLID	<u>N/A</u>	<u>50</u>		<u>mrad/hour</u>
97000495	AX-103	5 DUP	S97T001959	0 A	ACIDIG01	SOLID	<u>5.04</u>	<u>5.054</u>	<u>N/A</u>	<u>g/L</u>
		<u>0.1527 g → .050 L</u>								
97000495	AX-103	6 DUP	S97T001959	0	DOSE-02	SOLID	<u>50</u>	<u>50</u>	<u>N/A</u>	<u>mrad/hour</u>
97000495	AX-103	7 SAMPLE	S97T001960	0 A	ACIDIG01	SOLID	<u>N/A</u>	<u>5.054</u>		<u>g/L</u>
		<u>0.1527 g → .050 L</u>								
97000495	AX-103	8 SAMPLE	S97T001960	0	DOSE-02	SOLID	<u>N/A</u>	<u>50</u>		<u>mrad/hour</u>
97000495	AX-103	9 DUP	S97T001960	0 A	ACIDIG01	SOLID	<u>5.054</u>	<u>5.032</u>	<u>N/A</u>	<u>g/L</u>
		<u>0.1516 g → .050 L</u>								
97000495	AX-103	10 DUP	S97T001960	0	DOSE-02	SOLID	<u>50</u>	<u>50</u>	<u>N/A</u>	<u>mrad/hour</u>
97000495	AX-103	11 SPK	S97T001960	0 A	ACIDIG01	SOLID	<u>N/A</u>	<u>5.03</u>	<u>N/A</u>	<u>g/L</u>
		<u>0.1515 g → .050 L</u>								
97000495	AX-103	12 SPK	S97T001960	0	DOSE-02	SOLID	<u>N/A</u>	<u>50</u>	<u>N/A</u>	<u>mrad/hour</u>

Final page for worklist # 19817

BK Sato 08-27-97
 Analyst Signature Date

M. K. M. Chaud 8-27-97
 Analyst Signature Date

Data Entry Comments:

Validated
8/28/97
AK Fuller

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.

HNF-SD-WM-DP-266, REV. 0

AX-103 BULK DENSITY WORKSHEETS

HNF-SD-WM-DP-266, REV. 0

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Requestor: staen

Bulk Density Worksheet

Date: 8-13-97

Tank: AX-103
Core: 212
Seg: 2 LH
Auger: —
Sample ID: 897T001886

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

Jar#: 12817
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: 20.28 g
Net Weight: 8.13 g-97

61

Cone#: 12817
Final Vol: 10.75 mL
Initial Weight: 2.68 g
Final Weight: 25.46 g
Net Weight: 17.78 g
Sample ID: _____

Appearance/Narrative:

$$\frac{17.78}{10.75} = 1.65 \text{ g/mL}$$

Validated
8/13/97
EL

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

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

Jar#: _____
Jar/Vial Size: DK2 mL
Initial Weight: 8-13-97 g
Final Weight: _____ g
Net Weight: _____ g

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

Appearance/Narrative:

HNFS-SD-WM-DP-266, REV. 0

08/13/97

09:41

0509 373 5047

2225 HAZMAT UNIT *** LAB DATA MGMT

0002

Bulk Density Worksheet

Requestor: _____

Date: 8/12/97

Tank: AX-103
 Core: 214
 Seg: 1
 Auger: 8/19/97
 Sample ID: 977001942

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

Jar#: 11917
 Jar/Vial Size: 125 mL
 Initial Weight: _____ g
 Final Weight: 8.197 g
 Net Weight: 8.197 g

Cone#: 11917
 Final Vol: 12.0 mL
 Initial Weight: 7.10 g
 Final Weight: 26.44 g
 Net Weight: 18.79 g
 Sample ID: _____

Appearance/Narrative: _____

$$\frac{18.79}{12} = 1.57 \text{ g/mL}$$

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

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

Jar#: 13197
 Jar/Vial Size: _____ mL
 Initial Weight: _____ g
 Final Weight: _____ g
 Net Weight: _____ g

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

Appearance/Narrative: _____

Bulk Density Worksheet

Requestor: J. Stan

Date: 8/13/17

Tank: AX-103

Core: 294

Seg: 2

Auger: _____

Sample ID: 597T001944

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

Jar#: 12818

Jar/Vial Size: _____ mL

Initial Weight: 1.97 g

Final Weight: _____ g

Net Weight: _____ g

63

Cone#: 12818

Final Vol: 13.0 mL

Initial Weight: 1.68 g

Final Weight: 20.47 g

Net Weight: 20.79 g

Sample ID: _____

Appearance/Narrative: _____

$\frac{20.79}{13} = 1.60 = \text{gm/ml}$

Tank: _____

Core: _____

Seg: _____

Auger: _____

Sample ID: _____

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

Jar#: _____

Jar/Vial Size: _____ mL

Initial Weight: _____ g

Final Weight: _____ g

Net Weight: _____ g

Cone#: _____

Final Vol: _____ mL

Initial Weight: _____ g

Final Weight: _____ g

Net Weight: _____ g

Sample ID: _____

Appearance/Narrative: _____

HNF-SD-WM-DP-266, REV. 0

INORGANIC ANALYSIS

HNF-SD-WM-DP-266, REV. 0

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LABCORE Data Entry Template for Worklist# 19854

Analyst: ADP Instrument: DSC0 3 Book # 12N14B

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

Worklist Comment: AX-103 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>28.95</u>	<u>N/A</u>	Joules/g
97000494	AX-103	2 SAMPLE	S97T001887	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000494	AX-103	3 DUP	S97T001887	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 19854

Anthony Purinton 8-24-97
Analyst Signature Date

R. Jones 8-26-97
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.

Curve 1: DSC

File info: IND082401 Sun Aug 24 06:42:56 1997

Sample Weight: 21.070 mg

12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 67 TO 69

N2, EXOTHERM DOWN

TEMP: 148.8 °C TIME: 0.0 min RATE: 10.0 °C/min

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Aug 24 09:36:07 1997

Curve 1: DSC

File info: SAM082413 Sun Aug 24 23:50:57 1997

Sample Weight: 32.660 mg

S97T001887 SAM

N2 10C/min

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

TEMP: 500.0 °C

Temperature (°C)

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Aug 25 00:18:28 1997

HNFS-D-WM-DP-266, REV. 0

Curve 1: DSC

File info: SAM082414 Mon Aug 25 01:09:24 1997

Sample Weight: 29.600 mg

S97T001887 DUP

N2 10C/min

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

TEMP: 505.0 °C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Aug 25 01:11:33 1997

4NF-SD-MM-DP-266, REV. 0

LABCORE Data Entry Template for Worklist# 19857

Analyst: ADD Instrument: DSC0 3 Book # 12N14B

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

Worklist Comment: AX-103 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>28.95*</u>	<u>N/A</u>	Joules/g
97000495	AX-103	2 SAMPLE	S97T001945	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000495	AX-103	3 DUP	S97T001945	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000495	AX-103	4 SAMPLE	S97T001946	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000495	AX-103	5 DUP	S97T001946	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 19857

Anthony Purinton 8-24-97/82597
Analyst Signature Date

RJ Jones 8-26-97
Analyst Signature Date

Data Entry Comments:

Second STD run due to delay in completion of worklist with a value of 28.83 J/g
and a Recovery of 101.34 % 8/26/97

Curve 1: DSC

File info: IND082401 Sun Aug 24 06:42:56 1997

Sample Weight: 21.070 mg

12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 71 TO 76.

N2, EXOTHERM DOWN

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

Temperature (°C)

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Aug 24 09:36:07 1997

4NF-SD-WM-DP-266, REV. 0

Curve 1: DSC

File info: SA082417 Mon Aug 25 05:34:13 1997

Sample Weight: 37.200 mg

S97T001945 SAM

 AD PURINTON
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Mon Aug 25 14:46:22 1997

Curve 1: DSC

File info: IND082501 Mon Aug 25 20: 55: 57 1997

Sample Weight: 21.070 mg

12N14-B

N2, EXOTHERM DOWN

Temperature (°C)

AD PURINTON

PERKIN-ELMER

7 Series Thermal Analysis System

Mon Aug 25 21: 10: 12 1997

TEMP1: 140.0 °C TIME1: 0.0 min RATE1: 10.0 °C/min

TEMP2: 180.0 °C

HNF-SD-WM-DP-266, REV. 0

Curve 1: DSC

File info: SA0082503 Tue Aug 26 00:15:22 1997

Sample Weight: 30.730 mg

S977001945 DUP

Curve 1: DSC

File info: SAM082504 Tue Aug 26 01:13:15 1997

Sample Weight: 27.000 mg

S97T001946 SAM

N2 10C/min

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

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Aug 26 01:17:34 1997

Curve 1: DSC

File Info: SAM082505 Tue Aug 26 02:10:40 1997

Sample Weight: 33.720 mg

S97T001946 DUP

LABCORE Data Entry Template for Worklist# 19858

Analyst: Jds Instrument: DSC0 3 Book # 12N14B

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

Worklist Comment: AX-103 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>29.09</u>	<u>N/A</u>	Joules/g
97000495	AX-103	2 SAMPLE	S97T001947	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000495	AX-103	3 DUP	S97T001947	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000495	AX-103	4 SAMPLE	S97T001948	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000495	AX-103	5 DUP	S97T001948	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 19858

Jds 8/26/97
Analyst Signature Date

Daniel M. Lavelle 9-3-97
Analyst Signature Date

Daniel C. Dunbar 8/28/97
Validated
Rachelor 9/3/97

Data Entry Comments:

Second STD run due to delay in completion of worklist with a value
of 28.99 J/g and Recovery of 101.90 %. 9/2/97

Curve 1: DSC

File info: IND082601 Tue Aug 26 07:01:55 1997

Sample Weight: 21.070 mg

12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 78 TO 82.

N2, EXOTHERM DOWN

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

Temperature (°C)

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Aug 26 07:18:30 1997

Curve 1: DSC

File info: SAM082601 Tue Aug 26 08:26:33 1997

Sample Weight: 26.180 mg

S97T001947

HNF-SD-WM-DP-266, REV.0

Curve 1: DSC

File info: SAM082603 Tue Aug 26 17:00:57 1997

Sample Weight: 21.050 mg

S97T001947DUP

N2 10C/min

TEMP1: 35.0 °C
TEMP2: 500.0 °C

TIME1: 0.0 min RATE1: 10.0 °C/min

Temperature (°C)

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Aug 26 18:53:13 1997

HNF-SD-WM-DP-266, REV. 0

Curve 1: DSC

File info: IND082801 Thu Aug 28 22:57:41 1997

Sample Weight: 21.070 mg

12N14-B

N2, EXOTHERM DOWN

TEMP: 140.8 °C TIME: 0.0 min RATE: 10.0 °C/min

Temperature (°C)

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Aug 28 23:05:38 1997

HN-SD-WM-DP-266, REV.0

Curve 1: DSC

File info: SAM082803 Fri Aug 29 06:30:12 1997

Sample Weight: 8.590 mg

S97T001948

N2 10C/min

TEMP: 35.0 °C
TEMP: 500.0 °C

TIME: 0.0 min RATE: 10.0 °C/min

Temperature (°C)

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Aug 29 06:52:18 1997

HNF-SD-WM-DP-266, REV. 0

Curve 1: DSC

File info: SAM082804 Fri Aug 29 07:44:52 1997

Sample Weight: 13.080 mg

S97T001948 DUP

N2 10C/min

TEMP: 35.0 °C
TEMP: 500.0 °C

TIME: 0.0 min RATE: 10.0 °C/min

Temperature (°C)

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Aug 29 07:46:50 1997

LABCORE Data Entry Template for Worklist# 20084Analyst: ppb Instrument: DSC0 2 Book # NAMethod: LA-514-113 Rev/Mod 9/4/97

Worklist Comment:

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
97000494	AX-103	1 SAMPLE	S97T001828	0	DSC-02	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000494	AX-103	2 DUP	S97T001828	0	DSC-02	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry

Final page for worklist # 20084Analyst Signature ppb Date 9/4/97

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# 20088

Analyst: ppb Instrument: DSC0 2 Book # N/A

Method: LA-514-113 Rev/Mod 93 9/24/97

Worklist Comment:

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
97000494	AX-103	1 SAMPLE	S97T001887	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000494	AX-103	2 DUP	S97T001887	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000495	AX-103	3 SAMPLE	S97T001945	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000495	AX-103	4 DUP	S97T001945	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000495	AX-103	5 SAMPLE	S97T001946	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000495	AX-103	6 DUP	S97T001946	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000495	AX-103	7 SAMPLE	S97T001947	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000495	AX-103	8 DUP	S97T001947	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000495	AX-103	9 SAMPLE	S97T001948	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000495	AX-103	10 DUP	S97T001948	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry

Final page for worklist # 20088

PP Machelsky 9/4/97
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.

09/03/97 09:23

LABCORE Data Entry Template for Worklist# 20144Analyst: ADP Instrument: DSC0 3 Book # 12-N14-BMethod: LA-514-114 Rev/Mod D-1

Worklist Comment: AX-103 rerun due to RPD. Run under N2. -ppb

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	LIQUID	<u>28.45</u>	<u>28.85</u>	<u>N/A</u>	Joules/g
97000494	AX-103	2 SAMPLE	S97T001828	0	DSC-03	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g
97000494	AX-103	3 DUP	S97T001828	0	DSC-03	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 20144

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: IND090403 Thu Sep 4 21:42:28 1997

Sample Weight: 21.070 mg

12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 87 TO 90.

N2, EXOTHERM DOWN

TEMP: 128.8 °C TIME: 0.0 min RATE: 10.0 °C/min

HNF-SD-WM-DP-266, REV. 0

Curve 1: DSC
File Info: SAM090405 Thu Sep 4 22: 46: 10 1997
Sample Weight: 19.590 mg
S97T001828 SAM

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Sep 4 22: 54: 55 1997

N2 10C/min
TEMP: 35.0 °C
TMR: 565.8 g
TIME: 0.0 min RATE: 10.0 C/min

HNF-SD-WM-DP-266, REV. 0

Curve 1: DSC
File info: SAM090406 Thu Sep 4 23:44:59 1997
Sample Weight: 20.200 mg
S97T001828 QUP

Curve 1: DSC

File info: SAM090406 Thu Sep 4 23:44:59 1997

Sample Weight: 20.200 mg

S97T001828 DUP

N2 10C/min

Temperature (°C)

TEMP1: 35.0 °C
TEMP2: 500.0 °C

TIME1:

0.0 min

RATE1:

10.0 C/min

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Sep 5 00:45:42 1997

LABCORE Data Entry Template for Worklist# 19848

Analyst: ADP Instrument: TGA0 3 Book # 103N8A

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

Worklist Comment: AX-103 TGA, RUN UNDER N2. RCI

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	SOLID	<u>59.0</u>	<u>59.18%</u>	<u>N/A</u>	%
97000494	AX-103	2 SAMPLE	S97T001887	0	TGA-03	SOLID	<u>N/A</u>	<u>47.42</u>		%
97000494	AX-103	3 DUP	S97T001887	0	TGA-03	SOLID	<u>47.42</u>	<u>42.37</u>	<u>N/A</u>	%

Final page for worklist # 19848

Analyst Signature 8-24-97
Date

Analyst Signature 8-26-97
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: TGA

File info: TER082401 Sun Aug 24 07:01:42 1997

Sample Weight: 15.453 mg

STD 103NB-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 92 TO 94.

10C/MIN N2

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

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Aug 24 09:41:16 1997

HNF-SD-WM-DP-266, REV. 0

Curve 1: TGA

File info: SAM082413 Mon Aug 25 00:06:02 1997

Sample Weight: 22.994 mg

S97T001887 SAM

10C/MIN N2

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

Temperature (°C)

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Aug 25 00:14:54 1997

HNF-SD-WM-DP-266, REV.0

Curve 1: TGA

File info: SAM082414 Mon Aug 25 01:07:15 1997

Sample Weight: 22.926 mg

S97T001887 DUP

10C/MIN N2

Temperature (°C)

TEMP: 35.0 °C

TIME: 0.0 min RATE: 10.0 C/min

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Aug 25 01:08:13 1997

HN-SD-MM-DP-266, REV. 0

LABCORE Data Entry Template for Worklist# 19851

Analyst: AOP Instrument: TGA0 3 Book # 103N8A

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

Worklist Comment: AX-103 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	SOLID	<u>59.0</u>	<u>59.18</u>	<u>N/A</u>	%
97000495	AX-103	2 SAMPLE	S97T001945	0	TGA-03	SOLID	<u>N/A</u>	<u>47.08</u>		%
97000495	AX-103	3 DUP	S97T001945	0	TGA-03	SOLID	<u>47.08</u>	<u>39.61</u>	<u>N/A</u>	%
97000495	AX-103	4 SAMPLE	S97T001946	0	TGA-03	SOLID	<u>N/A</u>	<u>41.01</u>		%
97000495	AX-103	5 DUP	S97T001946	0	TGA-03	SOLID	<u>41.01</u>	<u>40.16</u>	<u>N/A</u>	%

Final page for worklist # 19851

[Signature] 8-24-97/82597
Analyst Signature Date

[Signature] 8-26-97
Analyst Signature Date

Data Entry Comments:

Second STD run due to delay in completion of worklist with a value of 58.76% and a Recovery of 99.59%. 8/26/97

Curve 1: TGA

File info: TER082401 Sun Aug 24 07:01:42 1997

Sample Weight: 15.453 mg

STD 103NB-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 96 TO 101.

10C/MIN N2

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

Temperature (°C)

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Aug 24 09:41:16 1997

Curve 1: TGA

File info: SAM082417 Mon Aug 25 05:33:10 1997

Sample Weight: 21.290 mg

S97T001945 SAM

10C/MIN N2

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

TEMP2: 500.0 °C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Aug 25 14:50:53 1997

Curve 1: TGA

File info: SAM082501 Mon Aug 25 23: 01: 40 1997

Sample Weight: 25.588 mg

S97T001945 DUP

10C/MIN N2
TEMP: 35.0 C
TIME: 500.0 C
TIMES: 0.0 min RATES: 10.0 C/min

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Aug 25 23: 16: 05 1997

Curve 1: TGA

File info: TER082501 Mon Aug 25 21:56:10 1997

Sample Weight: 14.949 mg

STD 103N8-A

10C/MIN N2

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

Temperature (°C)

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Aug 25 21:56:38 1997

Curve 1: TGA

File info: SAM082503 Tue Aug 26 00:04:35 1997

Sample Weight: 25.162 mg

S97T001946 SAM

10C/MIN N2

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

Temperature (°C)

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Aug 26 00:05:17 1997

Curve 1: TGA

File info: SAM082504 Tue Aug 26 01:09:34 1997

Sample Weight: 28.213 mg

S97T001946 DUP

10C/MIN N2

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

Temperature (°C)

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Aug 26 01:24:50 1997

HNF-SD-WM-DP-266, REV.0

HNF-SD-WM-DP-266, REV.0

LABCORE Data Entry Template for Worklist# 19852

Analyst: JLS Instrument: TGA0 3 Book # 103 N84

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

Worklist Comment: AX-103 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	SOLID	<u>59.0</u>	<u>59.88</u>	<u>N/A</u>	%
97000495	AX-103	2 SAMPLE	S97T001947	0	TGA-03	SOLID	<u>N/A</u>	<u>47.05</u>		%
97000495	AX-103	3 DUP	S97T001947	0	TGA-03	SOLID	<u>47.05</u>	<u>45.74</u>	<u>N/A</u>	%
97000495	AX-103	4 SAMPLE	S97T001948	0	TGA-03	SOLID	<u>N/A</u>	<u>40.14</u>	<u>5.20</u>	<u>91.97</u> %
97000495	AX-103	5 DUP	S97T001948	0	TGA-03	SOLID	<u>40.14</u>	<u>41.54</u>	<u>N/A</u>	%

Final page for worklist # 19852

Analyst Signature

Date

8/26/97

Analyst Signature

Date

9/3/97

Validated 9/3/97

Data Entry Comments:

Second STD run due to delay in completion of worklist with a value
of 58.28 % and a Recovery of 98.78 %.

Curve 1: TGA

File info: TER082601 Tue Aug 26 07:19:22 1997

Sample Weight: 15.655 mg

STD 103NB-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 102 TO 108

10C/MIN N2

TEMP1: 35.0 °C
TEMP2: 300.0 °C

TIME1: 0.0 min RATE1: 10.0 °C/min

Temperature (°C)

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Aug 26 07:22:14 1997

HNF-SD-WM-DP-266, REV. 0

Curve 1: TGA
 File Info: SAM082601 Tue Aug 26 08:22:43 1997
 Sample Weight: 35.360 mg
 S97T001947

10C/MIN N2
 THERM 25.0 °C TIME: 0.0 min RATE: 10.0 C/min
 JD SPELLMAN
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Tue Aug 26 09:20:37 1997

Curve 1: TGA

File info: SAM082603 Tue Aug 26 16:56:34 1997

Sample Weight: 12.807 mg

s97t001947dup

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

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Aug 26 19:12:32 1997

HNF-SD-WM-DP-266, REV. 0

Curve 1: TGA

File info: SAM082801 Fri Aug 29 03:07:35 1997

Sample Weight: 20.644 mg

S97T001948

10C/MIN N2

TEMP: 35.0 C
TEMP: 500.0 C

TIMES: 0.0 min RATE: 10.0 C/min

Temperature (°C)

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Aug 29 04:27:52 1997

HNF-SD-WM-DP-266, REV. 0

Curve 1: TGA

File info: TER082801 Thu Aug 28 23:18:51 1997

Sample Weight: 20.273 mg

STD 103NB-A

10C/MIN N2

TEMP1: 35.0 °C
TEMP2: 300.0 °C

TIME1: 0.0 min RATE1: 10.0 °C/min

Temperature (°C)

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Aug 29 04:45:51 1997

Curve 1: TGA
File Info: SAM082802 Fri Aug 29 05:21:27 1997
Sample Weight: 16.196 mg
S97T001948 DUP

10C/MIN N2
TEMP 500.0 g
TIME: 0.0 min RATE: 10.0 C/min
DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Aug 29 05:33:03 1997

LABCORE Data Entry Template for Worklist# 20036

Analyst: DCD Instrument: TGA0 3 Book # 103 N8A

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

Worklist Comment: AX-103 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	LIQUID	<u>59.0</u>	<u>58.28</u>	<u>N/A</u>	%
97000494	AX-103	2 SAMPLE	S97T001828	0	TGA-03	LIQUID	<u>N/A</u>	<u>99.68</u>		%
97000494	AX-103	3 DUP	S97T001828	0	TGA-03	LIQUID	<u>99.68</u>	<u>98.95</u>	<u>N/A</u>	%

Final page for worklist # 20036

Analyst Signature

Date

8-28-97

Analyst Signature

Date

9-2-97

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.

Curve 1: TGA

File info: TER082801 Thu Aug 28 23:18:51 1997

Sample Weight: 20.273 mg

STD 103NB-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 110 TO 112

110
Weight (Wt. %)

David C. Dunham 8-28-97

10C/MIN N2

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

Temperature (°C)

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Aug 28 23:46:43 1997

HNF-SD-WM-DP-266, REV.0

Curve 1: T6A

File info: SAM082803 Fri Aug 29 06:38:08 1997

Sample Weight: 11.543 mg

S97T001828

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

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Aug 29 06:50:41 1997

HNF-SD-WM-DP-266, REV. 0

Curve 1: T6A
 File Info: SAM082804 Fri Aug 29 07:49:10 1997
 Sample Weight: 10.997 mg
 S97T001828 DUP

LABCORE Data Entry Template for Worklist# 20038

Analyst: ADP Instrument: BA001 Book # 133N16A

Method: LA-510-112 Rev/Mod D-1

Worklist Comment: AX-103 SPG. USE ZNCL2 STD. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			SPG-01	LIQUID	<u>1.39255</u>	<u>1.394</u>	<u>N/A</u>	Sp.G.
97000494	AX-103	2 SAMPLE	S97T001828	0	SPG-01	LIQUID	<u>N/A</u>	<u>0.999</u>	<u>0.010</u>	Sp.G.
97000494	AX-103	3 DUP	S97T001828	0	SPG-01	LIQUID	<u>0.999</u>	<u>0.999</u>	<u>N/A</u>	Sp.G.

Final page for worklist # 20038

Anthony Pimental 9-4-97
Analyst Signature Date

LSJ 9-5-97
Analyst Signature Date

Approved RW Schwaech 9/9/97

Data Entry Comments:

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

SPECIFIC GRAVITY : LA-510-112 (D-1)

Type		STANDARD	STANDARD
STANDARD	Gross Weight (W2)	1.9345	1.9394
Work List	Tare Weight (W1)	1.8294	1.8343
20038	Weight of Solution (W2-W1)	0.1051	0.1051
Test Code	Volume of Solution μ L	75.3800	75.3800
SPG-01	Specific Gravity	1.3943	1.3943
Matrix	Specific Gravity (Average)	1.3943	
LIQUID			
Sample #			
133N16A			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
ADP	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
09/04/97	v RESULT v		
Time	Specific Gravity Average =	1.394	
10:30 PM			

Data Entry by:		Date:	09/05/97
Approved by:		Date:	9/9/97

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

SPECIFIC GRAVITY : LA-510-112 (D-1)

Type		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.8582	
Work List	Tare Weight (W1)	1.7829	
20038	Weight of Solution (W2-W1)	0.0753	0
Test Code	Volume of Solution μ L	75.3800	
SPG-01	Specific Gravity	0.9989	NA
Matrix			
LIQUID			
Sample #			
S97T001828			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
ADP	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
09/04/97	v RESULT v		
Time	Specific Gravity =	0.999	
10:30 PM			

Data Entry by:		Date:	09/05/97
Approved by:		Date:	9/9/97

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

SPECIFIC GRAVITY : LA-510-112 (D-1)

Type		DUPLICATE	REPLICATE
DUPLICATE	Gross Weight (W2)	1.9484	
Work List	Tare Weight (W1)	1.8731	
20038	Weight of Solution (W2-W1)	0.0753	0
Test Code	Volume of Solution μ L	75.3800	
SPG-01	Specific Gravity	0.9989	NA
Matrix			
LIQUID			
Sample #			
S97T001828			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
ADP	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L}/\text{mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
09/04/97	$\vee$ RESULT $\vee$		
Time	Specific Gravity =	0.999	
10:30 PM			

Data Entry by:		Date:	09/05/97
Approved by:		Date:	9/9/97

LABCORE Data Entry Template for Worklist# 20031

Analyst: FWK Instrument: NH301 Book # 31N19E

Method: LA-631-001 Rev/Mod C-D

Worklist Comment: AX-103 AMMONIA, STD SS=1.0ML. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			NH3-01	LIQUID	<u>1</u>	<u>.116</u>	<u>N/A</u>	ug/mL
		2 BLNK			NH3-01	LIQUID	<u>402</u>	<u>417.1</u>	<u>N/A</u>	ug/mL
97000494	AX-103	3 SAMPLE	S97T001828	0	NH3-01	LIQUID	<u>N/A</u>	<u><5.00</u>	<u><5.0</u>	ug/mL
97000494	AX-103	4 DUP	S97T001828	0	NH3-01	LIQUID	<u><5.0</u>	<u><5.0</u>	<u>N/A</u>	ug/mL
		5 STD			NH3-01	LIQUID	<u>402</u>	<u>392.1</u>	<u>N/A</u>	ug/mL

Final page for worklist # 20031

Analyst Signature _____ Date _____

RT Stah 9-3-97
Analyst Signature Date

approved RW Schmed 9/4/97

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# 20031

Analyst: RK Instrument: NH301 Book# 317/9E

Method: LA-631-001 Rev/Mod C-0

Worklist Comment: AX-103 AMMONIA, STD SS=1.0ML. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				NH3-01	LIQUID		
2	BLNK				NH3-01	LIQUID		
3	SAMPLE	S97T001828 0			NH3-01	LIQUID	97000494	AX-103
		Analytes Requested: NH3-01						
4	DUP	S97T001828 0			NH3-01	LIQUID		
5	STD				NH3-01	LIQUID		

Final page for worklist # 20031

Not Done 9/2/97
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

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

DOUBLE KNOWN ADDITION SELECTED
AT 14:26, 01-13-00

SAMPLE VOL= 25.000 AT 14:27, 01-13-00
ENTERED

EMF= 165.3 mV AT 14:32, 01-13-00

EMF= 163.7 mV AT 14:33, 01-13-00

EMF= 162.8 mV AT 14:34, 01-13-00

EMF= 162.4 mV AT 14:35, 01-13-00

EMF= 161.9 mV AT 14:35, 01-13-00

EMF= 161.7 mV AT 14:35, 01-13-00

EMF= 161.7 mV AT 14:36, 01-13-00

EMF= 161.5 mV AT 14:36, 01-13-00
ENTERED

STD CONC= 1000 AT 14:37, 01-13-00
ENTERED

STD VOL= .25000 AT 14:37, 01-13-00
ENTERED

EMF= 49.3 mV AT 14:40, 01-13-00

EMF= 48.9 mV AT 14:40, 01-13-00

EMF= 48.7 mV AT 14:41, 01-13-00

EMF= 48.5 mV AT 14:41, 01-13-00

EMF= 48.4 mV AT 14:42, 01-13-00

EMF= 48.3 mV AT 14:42, 01-13-00

EMF= 48.3 mV AT 14:43, 01-13-00
ENTERED

STD VOL= 2.5000 AT 14:43, 01-13-00
ENTERED

EMF=-9.6 mV AT 14:46, 01-13-00

EMF=-9.8 mV AT 14:46, 01-13-00

EMF=-9.9 mV AT 14:47, 01-13-00

EMF=-10.0 mV AT 14:47, 01-13-00

EMF=-9.9 mV AT 14:49, 01-13-00
ENTERED

1:NH3 SLOPE=-58.4 mV/DEC
AT 14:49, 01-13-00

1:NH3 CONC= .116

BLK

DOUBLE KNOWN ADDITION SELECTED
AT 15:49, 01-13-00

HNFS-D-WM-DP-266, REV. 0

SAMPLE VOL= 25.000 AT 15:55, 01-13-00
ENTERED

EMF= 41.9 mV AT 15:58, 01-13-00

EMF= 41.5 mV AT 15:58, 01-13-00

EMF= 41.4 mV AT 15:58, 01-13-00
ENTERED

STD CONC= 1000 AT 15:59, 01-13-00
ENTERED

STD VOL= .25000 AT 15:59, 01-13-00
ENTERED

EMF= 30.0 mV AT 16:01, 01-13-00

EMF= 29.7 mV AT 16:01, 01-13-00

EMF= 29.6 mV AT 16:02, 01-13-00

EMF= 29.6 mV AT 16:02, 01-13-00
ENTERED

STD VOL= 2.5000 AT 16:02, 01-13-00
ENTERED

EMF=-7.7 mV AT 16:05, 01-13-00

EMF=-7.9 mV AT 16:05, 01-13-00

EMF=-8.1 mV AT 16:06, 01-13-00
ENTERED

1:NH3 SLOPE=-59.5 mV/DEC
AT 16:06, 01-13-00

1:NH3 CONC= 16.8

1st std

$417.1 / 402 \times 100 = 103.8\%$ recovery
RUS 9/3/97

DOUBLE KNOWN ADDITION SELECTED
AT 16:37, 01-13-00

SAMPLE VOL= 25.000 AT 16:43, 01-13-00
ENTERED

HNF-SD-WM-DP-266, REV. 0

EMF= 161.9 mV AT 16:49, 01-13-00

EMF= 162.7 mV AT 16:50, 01-13-00

EMF= 162.8 mV AT 16:50, 01-13-00
ENTERED

STD CONC= 1000 AT 16:50, 01-13-00
ENTERED

STD VOL= .25000 AT 16:51, 01-13-00
ENTERED

EMF= 56.5 mV AT 16:54, 01-13-00

EMF= 56.1 mV AT 16:54, 01-13-00

EMF= 55.9 mV AT 16:54, 01-13-00

EMF= 55.7 mV AT 16:55, 01-13-00
ENTERED

STD VOL= 2.5000 AT 16:55, 01-13-00
ENTERED

EMF=-2.4 mV AT 16:58, 01-13-00

EMF=-2.7 mV AT 16:59, 01-13-00
ENTERED

1: NH3 SLOPE=-58.7 mV/DEC
AT 16:59, 01-13-00

1: NH3 CONC= .151

D.L. = 5.00 mg/mL

116 x 25 = < 5.00 mg/mL

DOUBLE KNOWN ADDITION SELECTED
AT 17:04, 01-13-00

HNF-SD-WM-DP-266, REV. 0

SAMPLE VOL= 25.000 AT 17:04, 01-13-00
ENTERED

EMF= 164.7 mV AT 17:15, 01-13-00

EMF= 165.5 mV AT 17:16, 01-13-00

EMF= 166.9 mV AT 17:17, 01-13-00

EMF= 167.1 mV AT 17:17, 01-13-00
ENTERED

STD CONC= 1000 AT 17:18, 01-13-00
ENTERED

STD VOL= .25000 AT 17:18, 01-13-00
ENTERED

EMF= 56.5 mV AT 17:22, 01-13-00

EMF= 56.2 mV AT 17:22, 01-13-00

EMF= 56.2 mV AT 17:22, 01-13-00
ENTERED

STD VOL= 2.5000 AT 17:23, 01-13-00
ENTERED

EMF=-1.9 mV AT 17:26, 01-13-00

EMF=-2.2 mV AT 17:27, 01-13-00

EMF=-2.3 mV AT 17:27, 01-13-00
ENTERED

1:NH3 SLOPE=-58.8 mV/DEC
AT 17:27, 01-13-00

1:NH3 CONC= .130

$.116 \times 25 = < 5.00 \text{ ug/mL}$

597T001828 DUP
1ML

DOUBLE KNOWN ADDITION SELECTED

AT 17:29, 01-13-00

HNF-SD-WM-DP-266, REV. 0

SAMPLE VOL= 25.000 AT 18:19, 01-13-00
ENTERED

EMF= 45.1 mV AT 18:22, 01-13-00

EMF= 44.8 mV AT 18:23, 01-13-00

EMF= 44.7 mV AT 18:23, 01-13-00

EMF= 44.7 mV AT 18:23, 01-13-00
ENTERED

STD CONC= 1000 AT 18:24, 01-13-00
ENTERED

STD VOL= .25000 AT 18:24, 01-13-00
ENTERED

EMF= 33.1 mV AT 18:26, 01-13-00

EMF= 32.6 mV AT 18:26, 01-13-00

EMF= 32.4 mV AT 18:26, 01-13-00

EMF= 32.4 mV AT 18:27, 01-13-00
ENTERED

Ending std

STD VOL= 2.5000 AT 18:27, 01-13-00
ENTERED

EMF=-5.4 mV AT 18:30, 01-13-00

EMF=-5.7 mV AT 18:30, 01-13-00

EMF=-5.7 mV AT 18:30, 01-13-00
ENTERED

1:NH3 SLOPE=-58.8 mV/DEC
AT 18:30, 01-13-00

1:NH3 CONC= 15.8

$-.116 \times 25 = 392.1 / 402 \times 100 = 97.5\% \text{ recovery}$

LABCORE Completed Worklist Report for Worklist# 20035

Analyst: dgg

Instrument: IC02

Book# 95N204

Method: 1A-533-705 Rev/Mod D-1

Worklist Comment: AX-103 IC. RCJ

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 CCB	0	0	QIC-QC	F	QC	1	<1.20e-2	ug/mL
1 CCB	0	0	QIC-QC	CL	QC	1	<1.70e-2	ug/mL
1 CCB	0	0	QIC-QC	NO2	QC	1	<1.08e-1	ug/mL
1 CCB	0	0	QIC-QC	BR	QC	1	<1.25e-1	ug/mL
1 CCB	0	0	QIC-QC	NO3	QC	1	<1.39e-1	ug/mL
1 CCB	0	0	QIC-QC	P04	QC	1	<1.20e-1	ug/mL
1 CCB	0	0	QIC-QC	SO4	QC	1	<1.38e-1	ug/mL
1 CCB	0	0	QIC-QC	OXALATE2	QC	1	<1.05e-1	ug/mL
2 CCV	0	0	QIC-QC	F	QC	5.90e01	5.72e+01	96.949 % Recovery
2 CCV	0	0	QIC-QC	CL	QC	8.06e01	7.37e+01	92.125 % Recovery
2 CCV	0	0	QIC-QC	NO2	QC	5.43e02	5.38e+02	99.079 % Recovery
2 CCV	0	0	QIC-QC	BR	QC	5.89e02	5.71e+02	96.944 % Recovery
2 CCV	0	0	QIC-QC	NO3	QC	5.94e02	5.59e+02	94.108 % Recovery
2 CCV	0	0	QIC-QC	P04	QC	5.45e02	5.40e+02	99.083 % Recovery
2 CCV	0	0	QIC-QC	SO4	QC	6.32e02	6.24e+02	98.734 % Recovery
2 CCV	0	0	QIC-QC	OXALATE2	QC	5.33e02	5.28e+02	99.156 % Recovery
3 SAMPLE	S97T001828	0	QIC-01	F-02	LIQUID	N/A	< 1.200e-02	1.20e-002 ug/mL
3 SAMPLE	S97T001828	0	QIC-01	CL-02	LIQUID	N/A	< 4.100e-02	1.70e-002 ug/mL
3 SAMPLE	S97T001828	0	QIC-01	NO2-02	LIQUID	N/A	< 1.080e-01	0.108 ug/mL
3 SAMPLE	S97T001828	0	QIC-01	BR-02	LIQUID	N/A	< 1.250e-01	0.125 ug/mL
3 SAMPLE	S97T001828	0	QIC-01	NO3-02	LIQUID	N/A	< 1.390e-01	0.139 ug/mL
3 SAMPLE	S97T001828	0	QIC-01	P04-02	LIQUID	N/A	< 1.200e-01	0.120 ug/mL
3 SAMPLE	S97T001828	0	QIC-01	SO4-02	LIQUID	N/A	< 1.380e-01	0.138 ug/mL
3 SAMPLE	S97T001828	0	QIC-01	OXALATE2	LIQUID	N/A	< 1.050e-01	0.105 ug/mL
4 DUP	S97T001828	0	QIC-01	F-02	LIQUID	<1.20e-2	<1.20e-2	RPD
4 DUP	S97T001828	0	QIC-01	CL-02	LIQUID	<4.10e-02	<4.20e-02	2.410 RPD
4 DUP	S97T001828	0	QIC-01	NO2-02	LIQUID	<1.08e-1	<1.08e-1	RPD
4 DUP	S97T001828	0	QIC-01	BR-02	LIQUID	<1.25e-1	<1.25e-1	RPD
4 DUP	S97T001828	0	QIC-01	NO3-02	LIQUID	<1.39e-1	<1.39e-1	RPD
4 DUP	S97T001828	0	QIC-01	P04-02	LIQUID	<1.20e-1	<1.20e-1	RPD
4 DUP	S97T001828	0	QIC-01	SO4-02	LIQUID	<1.38e-1	<1.38e-1	RPD
4 DUP	S97T001828	0	QIC-01	OXALATE2	LIQUID	<1.05e-1	<1.05e-1	RPD

Final page for worklist# 20035

Analyst Signature

Date

Analyst Signature

Date

9/9/97

LABCORE Completed Worklist Report for Worklist# 20035

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

LABCORE Data Entry Template for Worklist# 20035

Analyst: AKS Instrument: IC0 2 Book# 95N20-A

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

Worklist Comment: AX-103 IC. RCJ

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 CCB			@IC-QC	QC		
2 CCV			@IC-QC	QC		
3 SAMPLE	S97T001828 0		@IC-01	LIQUID	97000494	AX-103
	Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02					
4 DUP	S97T001828 0		@IC-01	LIQUID		

Final page for worklist # 20035

AKS Griffin 8-31-97
Analyst Signature Date

Analyst Signature Date

uploaded 9-4-97
John Worell
20035 AUG. CSV

Validated 9/8/97 M. Luge

Data Entry Comments:

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

=====

Sample Name: CCB	Date: 08/31/1997 21:43:28
Data File : C:\DX\DATA\97083101.D03	
Method : C:\DX\METHOD\ANIONS.MET	
ACI Address: 1 System: 1 Inject#: 3	Detector: CDM-1
Analyst : <i>Janis Lynn</i>	Column: AG4A/AS4A anion column

=====

=====

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	1	3300	5Hz	0.00	11.00		50

=====

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.89		0.000	47	269	1	
2	6.08	sulfate	0.029	42	647	1	-6.56
Totals			0.029	89	916		

=====

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

Sample Name: STD 95N20-A	Date: 08/31/1997 19:40:31
Data File : C:\DX\DATA\97083101.D02	
Method : C:\DX\METHOD\ANIONS.MET	HNF-SD-WM-DP-266, REV. 0
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	3300	5Hz	0.00	11.00		50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.88		0.000	220	934	2	
2	1.03	fluoride	57.177	2222	10999	2	-0.65
3	1.57	chloride	73.658	2310	10922	1	-2.88
4	1.90	nitrite	538.077	9341	51660	1	-4.68
5	2.91	bromide	570.928	5625	37912	1	-1.13
6	3.31	nitrate	558.525	5978	47870	1	1.22
7	4.67	phosphate	540.421	1854	22959	1	-3.85
8	6.03	sulfate	624.673	4593	70237	1	-0.06
9	7.95	oxalate	528.513	2136	44324	1	-0.04
Totals			3491.972	34278	297817		

File: 97083101.D02 Sample: STD 95N20-A

Sample Name: S97T001828 Date: 08/31/1997 21:57:39
 Data File : C:\DX\DATA\97083101.D04
 Method : C:\DX\METHOD\ANIONS.MET
 ACI Address: 1 System: 1 Inject#: 4 Detector: CDM-1
 Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	1	3300	5Hz	0.00	11.00		50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.18		0.000	47	407	1	
2	1.59	chloride	0.041	214	1099	1	-1.65
3	3.37	nitrate	0.059	90	595	1	3.27
4	6.13	sulfate	0.001	22	339	1	-5.74
Totals			0.101	372	2440		

File: 97083101.D04 Sample: S97T001828

=====

Sample Name: S97T001828-DUP	Date: 08/31/1997 22:14:34
Data File : C:\DX\DATA\97083101.D05	
Method : C:\DX\METHOD\ANIONS.MET	
ACI Address: 1 System: 1 Inject#: 5	Detector: CDM-1
Analyst :	Column: AG4A/AS4A anion column

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Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
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External	1	1	3300	5Hz	0.00	11.00		50
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***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.17		0.000	45	376	1	
2	1.59	chloride	0.042	213	1121	1	-1.65
3	3.37	nitrate	0.066	94	655	1	3.06
Totals			0.109	351	2151		

File: 97083101.D05 Sample: S97T001828-DUP

LABCORE Completed Worklist Report for Worklist# 20089

Analyst: dgg

Instrument: IC01

Book# 95N20A

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

Worklist Comment: AX103, @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 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	5.90e01	5.68e+01	96.271 % Recovery	
2 CCV	0		@IC-QC CL	QC	8.60e01	7.59e+01	94.875 % Recovery	
2 CCV	0		@IC-QC NO2	QC	5.43e02	5.48e+02	100.921 % Recovery	
2 CCV	0		@IC-QC BR	QC	5.89e02	5.94e+02	100.849 % Recovery	
2 CCV	0		@IC-QC NO3	QC	5.94e02	5.72e+02	96.296 % Recovery	
2 CCV	0		@IC-QC P04	QC	5.45e02	5.741e+02	105.339 % Recovery	
2 CCV	0		@IC-QC S04	QC	6.32e02	6.429e+02	101.725 % Recovery	
2 CCV	0		@IC-QC OXALATE2	QC	5.33e02	5.325e+02	99.906 % Recovery	
3 BLNK-PREP	0		@IC-01 F-02	SOLID	1	<1.20e-2		ug/g
3 BLNK-PREP	0		@IC-01 CL-02	SOLID	1	4.10e-02	0.041	ug/g
3 BLNK-PREP	0		@IC-01 NO2-02	SOLID	1	<1.08e-1		ug/g
3 BLNK-PREP	0		@IC-01 BR-02	SOLID	1	<1.25e-1		ug/g
3 BLNK-PREP	0		@IC-01 NO3-02	SOLID	1	<1.39e-1		ug/g
3 BLNK-PREP	0		@IC-01 P04-02	SOLID	1	<1.20e-1		ug/g
3 BLNK-PREP	0		@IC-01 S04-02	SOLID	1	<1.38e-1		ug/g
3 BLNK-PREP	0		@IC-01 OXALATE2	SOLID	1	<1.05e-1		ug/g
4 SAMPLE	S97T001961	0 W	@IC-01 F-02	SOLID	N/A	1.591e+03	95.690	ug/g
4 SAMPLE	S97T001961	0 W	@IC-01 CL-02	SOLID	N/A	5.010e+03	135.600	ug/g
4 SAMPLE	S97T001961	0 W	@IC-01 NO2-02	SOLID	N/A	8.824e+04	861.400	ug/g
4 SAMPLE	S97T001961	0 W	@IC-01 BR-02	SOLID	N/A	9.969e+02	996.700	ug/g
4 SAMPLE	S97T001961	0 W	@IC-01 NO3-02	SOLID	N/A	1.143e+05	1109.000	ug/g
4 SAMPLE	S97T001961	0 W	@IC-01 P04-02	SOLID	N/A	1.118e+04	956.900	ug/g
4 SAMPLE	S97T001961	0 W	@IC-01 S04-02	SOLID	N/A	1.308e+04	1100.000	ug/g
4 SAMPLE	S97T001961	0 W	@IC-01 OXALATE2	SOLID	N/A	7.670e+03	837.200	ug/g
5 DUP	S97T001961	0 W	@IC-01 F-02	SOLID	1.59e+03	1.13e+03	33.824	RPD
5 DUP	S97T001961	0 W	@IC-01 CL-02	SOLID	5.01e+03	5.10e+03	1.780	RPD
5 DUP	S97T001961	0 W	@IC-01 NO2-02	SOLID	8.82e+04	9.01e+04	2.121	RPD
5 DUP	S97T001961	0 W	@IC-01 BR-02	SOLID	<9.97e2	<1.01e3		RPD
5 DUP	S97T001961	0 W	@IC-01 NO3-02	SOLID	1.14e+05	1.05e+05	8.219	RPD
5 DUP	S97T001961	0 W	@IC-01 P04-02	SOLID	1.12e+04	6.70e+03	50.279	RPD
5 DUP	S97T001961	0 W	@IC-01 S04-02	SOLID	1.31e+04	1.25e+04	4.688	RPD
5 DUP	S97T001961	0 W	@IC-01 OXALATE2	SOLID	7.67e+03	8.78e+03	13.495	RPD
6 SAMPLE	S97T001962	0 W	@IC-01 F-02	SOLID	N/A	1.089e+03	97.950	ug/g

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

LABCORE Completed Worklist Report for Worklist# 20089

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
6 SAMPLE	S97T001962	0 W	@IC-01	CL-02	SOLID	N/A	5.262e+03	138.700 ug/g
6 SAMPLE	S97T001962	0 W	@IC-01	NO2-02	SOLID	N/A	9.319e+04	881.500 ug/g
6 SAMPLE	S97T001962	0 W	@IC-01	BR-02	SOLID	N/A	1.020e+03	1020.000 ug/g
6 SAMPLE	S97T001962	0 W	@IC-01	NO3-02	SOLID	N/A	1.090e+05	1134.000 ug/g
6 SAMPLE	S97T001962	0 W	@IC-01	PO4-02	SOLID	N/A	5.423e+03	979.500 ug/g
6 SAMPLE	S97T001962	0 W	@IC-01	SO4-02	SOLID	N/A	1.280e+04	1126.000 ug/g
6 SAMPLE	S97T001962	0 W	@IC-01	OXALATE2	SOLID	N/A	7.581e+03	856.900 ug/g
7 DUP	S97T001962	0 W	@IC-01	F-02	SOLID	1.09e+03	1.15e+03	5.357 RPD
7 DUP	S97T001962	0 W	@IC-01	CL-02	SOLID	5.26e+03	5.25e+03	0.190 RPD
7 DUP	S97T001962	0 W	@IC-01	NO2-02	SOLID	9.32e+04	9.32e+04	0.000 RPD
7 DUP	S97T001962	0 W	@IC-01	BR-02	SOLID	<1.02e3	<1.02e3	RPD
7 DUP	S97T001962	0 W	@IC-01	NO3-02	SOLID	1.09e+05	1.08e+05	0.922 RPD
7 DUP	S97T001962	0 W	@IC-01	PO4-02	SOLID	5.42e+03	5.30e+03	2.239 RPD
7 DUP	S97T001962	0 W	@IC-01	SO4-02	SOLID	1.28e+04	1.36e+04	6.061 RPD
7 DUP	S97T001962	0 W	@IC-01	OXALATE2	SOLID	7.58e+03	7.28e+03	4.039 RPD
8 SPK	S97T001962	0 W	@IC-01	F-02	SOLID	5.90e01	5.55e+01	94.068 % Recovery
8 SPK	S97T001962	0 W	@IC-01	CL-02	SOLID	8.00e01	8.00e+01	100.000 % Recovery
8 SPK	S97T001962	0 W	@IC-01	NO2-02	SOLID	5.43e02	6.25e+02	115.101 % Recovery
8 SPK	S97T001962	0 W	@IC-01	BR-02	SOLID	5.89e02	6.03e+02	102.377 % Recovery
8 SPK	S97T001962	0 W	@IC-01	NO3-02	SOLID	5.94e02	5.89e+02	99.158 % Recovery
8 SPK	S97T001962	0 W	@IC-01	PO4-02	SOLID	5.45e02	5.71e+02	104.771 % Recovery
8 SPK	S97T001962	0 W	@IC-01	SO4-02	SOLID	6.32e02	6.55e+02	103.639 % Recovery
8 SPK	S97T001962	0 W	@IC-01	OXALATE2	SOLID	5.33e02	5.28e+02	99.062 % Recovery

Final page for worklist# 20089

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Reviewer Signature _____ Date 9/29/97

LABCORE Data Entry Template for Worklist# 20089

Analyst: SSB Instrument: IC0 1 Book# 95N20-A

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

Worklist Comment: AX103, @IC-01 skm

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	S97T001961 0 W	@IC-01	SOLID		97000495	AX-103
Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
5 DUP	S97T001961 0 W	@IC-01	SOLID			
6 SAMPLE	S97T001962 0 W	@IC-01	SOLID		97000495	AX-103
Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
7 DUP	S97T001962 0 W	@IC-01	SOLID			
8 SPK	S97T001962 0 W	@IC-01	SOLID			

Final page for worklist # 20089

SSB 8-31-97
Analyst Signature Date

Analyst Signature Date

Reuploaded 9-9-97
John Worell
20089AUG.CSV

Reuploaded 9-15-97
John Worell

Validated 9/23/97 JM Fay

Data Entry Comments:

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

=====

Sample Name: CCB	Date: 08/31/1997 21:40:31
Data File : C:\DX\DATA\97083111.D03	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 3	Detector: CDM-1
Analyst : <i>James J. Jure</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	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	25	91	1	
2	1.51	chloride	-0.021	34	120	1	-6.58
3	3.19	nitrate	-0.051	19	100	1	-1.95
4	5.65		0.000	160	2242	1	
Totals			-0.073	238	2552		

File: 97083111.D03 Sample: CCB

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 134 TO 141.

Data Reprocessed On 08/31/1997 21:57:45

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=====
Sample Name: STD 95N20-A                      Date: 08/31/1997 21:52:50
Data File  : C:\DX\DATA\97083111.D04
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 4           Detector: CDM-1
Analyst    :                               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
1	0.85		0.000	118	486	2	
2	0.99	fluoride	56.803	2706	11430	2	-5.40
3	1.51	chloride	75.925	2300	10531	1	-6.58
4	1.82	nitrite	548.055	9779	50028	1	0.00
5	2.75	bromide	594.352	5805	35426	1	-3.39
6	3.13	nitrate	571.533	6217	45556	1	-3.79
7	4.40	phosphate	574.128	1866	21404	1	0.00
8	5.65	sulfate	642.916	5308	67282	1	0.06
9	7.41	oxalate	532.575	2440	41830	1	0.04
Totals			3596.288	36539	283974		

File: 97083111.D04 Sample: STD 95N20-A

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=====
Sample Name: PREP-BLANK                      Date: 08/31/1997 22:12:33
Data File  : C:\DX\DATA\97083111.D05
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 5          Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          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	1.23		0.000	157	1576	2	
2	1.53	chloride	0.041	69	957	2	-5.76
3	1.83	nitrite	0.092	103	434	1	-6.80
4	3.17	nitrate	-0.023	51	324	1	-2.36
Totals			0.110	379	3290		

File: 97083111.D05 Sample: PREP-BLANK

Data Reprocessed On 09/04/1997 10:24:09

```

=====
Sample Name: S97T001961                      Date: 08/31/1997 22:28:06
Data File  : F:\DATA\97083111.D06
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 6           Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 41 3000 5Hz 0.00 10.00 30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	219	1070	2	
2	1.00	fluoride	8.181	798	3866	2	-4.76
3	1.11		0.000	602	3428	2	
4	1.51	chloride	25.758	1951	8849	1	-7.00
5	1.81	nitrite	453.638	20148	102124	1	0.18
6	3.07	nitrate	587.575	14804	116788	1	-0.11
7	4.43	phosphate	57.484	467	5127	1	-0.08
8	5.65	sulfate	67.231	1448	19166	1	0.06
9	7.47	oxalate	39.431	461	7681	1	-0.04
Totals			1239.299	40899	268099		

File: 97083111.D06 Sample: S97T001961

Data Reprocessed On 09/04/1997 10:26:32

```

=====
Sample Name: S97T001961-DUP                      Date: 08/31/1997 22:47:55
Data File  : F:\DATA\97083111.D07
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 7                Detector: CDM-1
Analyst    :                      Column: AG4A/AS4A anion column
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          41    3000  5Hz   0.00 10.00          30
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	201	1010	2	
2	1.01	fluoride	5.783	540	2647	2	-4.13
3	1.11		0.000	582	3422	2	
4	1.51	chloride	26.025	1970	8938	1	-6.58
5	1.81	nitrite	459.527	20211	103447	1	0.18
6	3.08	nitrate	533.570	13759	105788	1	0.00
7	4.43	phosphate	34.138	270	3007	1	-0.08
8	5.65	sulfate	63.618	1325	18288	1	0.06
9	7.47	oxalate	44.781	514	8698	1	-0.04
Totals			1167.441	39372	255246		

File: 97083111.D07 Sample: S97T001961-DUP

Data Reprocessed On 09/04/1997 10:33:08

Sample Name: S97T001962 *spike at 1.15* Date: 08/31/1997 23:02:42
 Data File : F:\DATA\97083111.D08
 Method : C:\DX\METHOD\KIT.MBT
 ACI Address: 1 System: 1 Inject#: 8 Detector: CDM-1
 Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	41	3000	5Hz	0.00	10.00		30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	214	1057	2	
2	1.01	fluoride	5.469	499	2488	2	-4.13
3	1.11		0.000	537	3083	2	
4	1.51	chloride	26.437	2006	9075	1	-7.00
5	1.81	nitrite	468.191	20534	105393	1	-0.18
6	3.07	nitrate	547.498	14024	108619	1	-0.11
7	4.43	phosphate	27.247	219	2383	1	-0.08
8	5.65	sulfate	64.294	1405	18452	1	0.06
9	7.41	oxalate	38.086	397	7426	1	0.04
Totals			1177.224	39834	257975		

File: 97083111.D08 Sample: S97T001962

Data Reprocessed On 09/04/1997 10:37:19

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=====
Sample Name: S97T001962-DUP                      Date: 08/31/1997 23:16:50
Data File  : F:\DATA\97083111.D09
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 9                Detector: CDM-1
Analyst    :                      Column: AG4A/AS4A anion column
=====

```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
-------------	--------	----------	--------	------	-------	------	------	--------

External	1	41	3000	5Hz	0.00	10.00		30
----------	---	----	------	-----	------	-------	--	----

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	231	1160	2	
2	1.01	fluoride	5.759	516	2635	2	-4.13
3	1.11		0.000	537	3055	2	
4	1.51	chloride	26.410	2001	9066	1	-7.00
5	1.81	nitrite	468.672	20493	105501	1	-0.18
6	2.23		0.000	87	157	1	
7	3.07	nitrate	540.531	13743	107202	1	-0.11
8	4.43	phosphate	26.640	222	2328	1	-0.08
9	5.65	sulfate	68.199	1491	19401	1	0.06
10	7.41	oxalate	36.586	388	7141	1	0.04

Totals			1172.797	39709	257647		
--------	--	--	----------	-------	--------	--	--

File: 97083111.D09 Sample: S97T001962-DUP

Data Reprocessed On 09/11/1997 10:20:04

```

=====
Sample Name: S97T001962-SPK                      Date: 08/31/1997 23:29:19
Data File  : F:\DATA\97083111.D10
Method     : C:\DX\METHOD\KIT.MBT
ACI Address: 1 System: 1 Inject#: 10              Detector: CDM-1
Analyst    :                      Column: AG4A/AS4A anion column
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          41    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	0.85		0.000	278	1130	1	
2	0.99	fluoride	27.677	3139	13778	3	0.34
3	1.10		0.000	272	1343	4	
4	1.51	chloride	58.446	4442	19840	1	-7.00
5	1.81	nitrite	718.368	30466	161390	1	0.18
6	2.72	bromide	241.264	5892	35425	1	-4.56
7	3.04	nitrate	783.170	19485	157200	1	0.00
8	4.40	phosphate	255.782	2132	23556	1	0.00
9	5.60	sulfate	326.289	5625	83977	1	0.00
10	7.36	oxalate	249.438	2548	48385	1	0.00
Totals			2660.435	74279	546024		

File: 97083111.D10 Sample: S97T001962-SPK

LABCORE Completed Worklist Report for Worklist# 20090

Analyst: smf Instrument: IC01 Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: AX-103 IC. RCJ

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 CCB	0	①IC-QC F	QC	1	<1.20e-2		ug/mL
1 CCB	0	①IC-QC CL	QC	1	<1.70e-2		ug/mL
1 CCB	0	①IC-QC NO2	QC	1	<1.08e-1		ug/mL
1 CCB	0	①IC-QC BR	QC	1	<1.25e-1		ug/mL
1 CCB	0	①IC-QC NO3	QC	1	<1.39e-1		ug/mL
1 CCB	0	①IC-QC P04	QC	1	<1.20e-1		ug/mL
1 CCB	0	①IC-QC SO4	QC	1	<1.38e-1		ug/mL
1 CCB	0	①IC-QC OXALATE2	QC	1	<1.05e-1		ug/mL
2 CCV	0	①IC-QC F	QC	5.90e01	5.71e+01	96.780 % Recovery	
2 CCV	0	①IC-QC CL	QC	8.00e01	7.51e+01	93.875 % Recovery	
2 CCV	0	①IC-QC NO2	QC	5.43e02	5.42e+02	99.816 % Recovery	
2 CCV	0	①IC-QC BR	QC	5.89e02	5.98e+02	101.528 % Recovery	
2 CCV	0	①IC-QC NO3	QC	5.94e02	6.13e+02	103.199 % Recovery	
2 CCV	0	①IC-QC P04	QC	5.45e02	5.68e+02	104.220 % Recovery	
2 CCV	0	①IC-QC SO4	QC	6.32e02	6.38e+02	100.949 % Recovery	
2 CCV	0	①IC-QC OXALATE2	QC	5.33e02	5.36e+02	100.563 % Recovery	
3 BLNK-PREP	0	①IC-01 F-02	SOLID	1	<1.20e-2		ug/g
3 BLNK-PREP	0	①IC-01 CL-02	SOLID	1	<1.70e-2		ug/g
3 BLNK-PREP	0	①IC-01 NO2-02	SOLID	1	1.23e-01	0.123	ug/g
3 BLNK-PREP	0	①IC-01 BR-02	SOLID	1	<1.25e-1		ug/g
3 BLNK-PREP	0	①IC-01 NO3-02	SOLID	1	<1.39e-1		ug/g
3 BLNK-PREP	0	①IC-01 P04-02	SOLID	1	<1.20e-1		ug/g
3 BLNK-PREP	0	①IC-01 SO4-02	SOLID	1	<1.38e-1		ug/g
3 BLNK-PREP	0	①IC-01 OXALATE2	SOLID	1	<1.05e-1		ug/g
4 SAMPLE	S97T001963	0 W ①IC-01 F-02	SOLID	N/A	8.398e+02	98.320	ug/g
4 SAMPLE	S97T001963	0 W ①IC-01 CL-02	SOLID	N/A	5.230e+03	139.300	ug/g
4 SAMPLE	S97T001963	0 W ①IC-01 NO2-02	SOLID	N/A	9.376e+04	884.800	ug/g
4 SAMPLE	S97T001963	0 W ①IC-01 BR-02	SOLID	N/A	1.024e+03	1024.000	ug/g
4 SAMPLE	S97T001963	0 W ①IC-01 NO3-02	SOLID	N/A	1.083e+05	1139.000	ug/g
4 SAMPLE	S97T001963	0 W ①IC-01 P04-02	SOLID	N/A	4.273e+03	983.200	ug/g
4 SAMPLE	S97T001963	0 W ①IC-01 SO4-02	SOLID	N/A	1.250e+04	1130.000	ug/g
4 SAMPLE	S97T001963	0 W ①IC-01 OXALATE2	SOLID	N/A	6.757e+03	860.200	ug/g
5 DUP	S97T001963	0 W ①IC-01 F-02	SOLID	8.40e+02	8.09e+02	3.760 RPD	
5 DUP	S97T001963	0 W ①IC-01 CL-02	SOLID	5.23e+03	5.18e+03	0.961 RPD	
5 DUP	S97T001963	0 W ①IC-01 NO2-02	SOLID	9.38e+04	9.34e+04	0.427 RPD	
5 DUP	S97T001963	0 W ①IC-01 BR-02	SOLID	<1.02e3	<1.02e3	RPD	
5 DUP	S97T001963	0 W ①IC-01 NO3-02	SOLID	1.08e+05	1.08e+05	0.000 RPD	
5 DUP	S97T001963	0 W ①IC-01 P04-02	SOLID	4.27e+03	3.35e+03	24.147 RPD	
5 DUP	S97T001963	0 W ①IC-01 SO4-02	SOLID	1.25e+04	1.11e+04	11.864 RPD	
5 DUP	S97T001963	0 W ①IC-01 OXALATE2	SOLID	6.76e+03	6.29e+03	7.203 RPD	
6 SAMPLE	S97T001964	0 W ①IC-01 F-02	SOLID	N/A	8.875e+02	99.060	ug/g

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

LABCORE Completed Worklist Report for Worklist# 20090

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
6 SAMPLE	S97T001964	0 W	@IC-01	CL-02	SOLID	N/A	5.407e+03	140.300 ug/g
6 SAMPLE	S97T001964	0 W	@IC-01	NO2-02	SOLID	N/A	9.587e+04	891.300 ug/g
6 SAMPLE	S97T001964	0 W	@IC-01	BR-02	SOLID	N/A	1.032e+03	1032.000 ug/g
6 SAMPLE	S97T001964	0 W	@IC-01	NO3-02	SOLID	N/A	1.009e+05	1147.000 ug/g
6 SAMPLE	S97T001964	0 W	@IC-01	PO4-02	SOLID	N/A	3.225e+03	990.600 ug/g
6 SAMPLE	S97T001964	0 W	@IC-01	SO4-02	SOLID	N/A	1.239e+04	1139.000 ug/g
6 SAMPLE	S97T001964	0 W	@IC-01	OXALATE2	SOLID	N/A	7.524e+03	866.700 ug/g
7 DUP	S97T001964	0 W	@IC-01	F-02	SOLID	8.68e+02	7.93e+02	9.031 RPD
7 DUP	S97T001964	0 W	@IC-01	CL-02	SOLID	5.41e+03	5.44e+03	0.553 RPD
7 DUP	S97T001964	0 W	@IC-01	NO2-02	SOLID	9.59e+04	9.74e+04	1.552 RPD
7 DUP	S97T001964	0 W	@IC-01	BR-02	SOLID	<1.03e3	<1.03e3	RPD
7 DUP	S97T001964	0 W	@IC-01	NO3-02	SOLID	1.01e+05	1.02e+05	0.985 RPD
7 DUP	S97T001964	0 W	@IC-01	PO4-02	SOLID	3.22e+03	3.09e+03	4.120 RPD
7 DUP	S97T001964	0 W	@IC-01	SO4-02	SOLID	1.24e+04	1.11e+04	11.064 RPD
7 DUP	S97T001964	0 W	@IC-01	OXALATE2	SOLID	7.52e+03	6.75e+03	10.792 RPD
8 SPK	S97T001964	0 W	@IC-01	F-02	SOLID	5.90e01	3.69e+01	62.542 % Recovery
8 SPK	S97T001964	0 W	@IC-01	CL-02	SOLID	8.00e01	7.86e+01	98.250 % Recovery
8 SPK	S97T001964	0 W	@IC-01	NO2-02	SOLID	5.43e02	5.79e+02	106.630 % Recovery
8 SPK	S97T001964	0 W	@IC-01	BR-02	SOLID	5.89e02	6.01e+02	102.037 % Recovery
8 SPK	S97T001964	0 W	@IC-01	NO3-02	SOLID	5.94e02	6.71e+02	112.963 % Recovery
8 SPK	S97T001964	0 W	@IC-01	PO4-02	SOLID	5.45e02	5.73e+02	105.138 % Recovery
8 SPK	S97T001964	0 W	@IC-01	SO4-02	SOLID	6.32e02	6.51e+02	103.006 % Recovery
8 SPK	S97T001964	0 W	@IC-01	OXALATE2	SOLID	5.33e02	5.38e+02	100.938 % Recovery

Final page for worklist# 20090

Analyst Signature

Date

Analyst Signature

Date

Reviewer Signature

9/11/97
Date

LABCORE Data Entry Template for Worklist# 20090

Analyst: SMF Instrument: IC0 1 Book# 95N20-A

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

Worklist Comment: AX-103 IC. RCJ

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 CCB			@IC-QC	QC		
2 CCV			@IC-QC	QC		
3 BLNK-PREP			@IC-01	SOLID		
4 SAMPLE	S97T001963 0 W		@IC-01	SOLID	97000495	AX-103
Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
5 DUP	S97T001963 0 W		@IC-01	SOLID		
6 SAMPLE	S97T001964 0 W		@IC-01	SOLID	97000495	AX-103
Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
7 DUP	S97T001964 0 W		@IC-01	SOLID		
8 SPK	S97T001964 0 W		@IC-01	SOLID		

Final page for worklist # 20090

Susie M. Dutton 9-2-97
Analyst Signature Date
uploaded 9-3-97 9-10-97
John Worell
200903EP.C5V

Analyst Signature Date

Data Entry Comments:

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

Sample Name: ELUENT BLANK Date: 09/02/1997 14:28:30
 Data File : C:\DX\DATA\97090201.D11
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 11 Detector: CDM-1
 Analyst: *Paul J. JF* Column: AG4A/AS4A anion column
5/3/98

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	1.31		0.000	41	236	2	
2	1.52	chloride	-0.021	34	129	2	-6.17
3	3.20	nitrate	-0.000	80	501	1	-1.54
4	5.76	sulfate	-0.038	186	2561	1	-10.00
Totals			-0.059	341	3427		

File: 97090201.D11 Sample: ELUENT BLANK

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 145 TO 152

Data Reprocessed On 09/08/1997 14:03:54

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=====
Sample Name: CCV STD 95N20-A                      Date: 09/02/1997 14:39:31
Data File  : F:\DATA\97090201.D12
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 12              Detector: CDM-1
Analyst    :                      Column: AG4A/AS4A anion column
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          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	0.85		0.000	99	391	2	
2	0.99	fluoride	57.146	2707	11500	2	-5.40
3	1.29		0.000	47	272	1	
4	1.52	chloride	75.102	2449	10420	1	-6.17
5	1.83	nitrite	541.937	9961	49467	1	-6.80
6	2.76	bromide	597.837	5833	35639	1	-3.16
7	3.13	nitrate	613.377	6487	48897	1	-3.59
8	4.45	phosphate	568.119	1879	21174	1	-9.73
9	5.76	sulfate	638.039	5269	66780	1	-10.00
10	7.52	oxalate	535.792	2210	42087	1	0.00
Totals			3627.349	36941	286627		

File: 97090201.D12 Sample: CCV STD 95N20-A

=====

Sample Name: PREP BLANK	Date: 09/02/1997 14:51:40
Data File : C:\DX\DATA\97090201.D13	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 13	Detector: CDM-1
Analyst :	Column: AG4A/AS4A anion column

=====

Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 1 3000 5Hz 0.00 10.00 30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
2	1.83	nitrite	0.123	166	728	1	-6.46
3	3.21	nitrate	-0.043	28	162	1	-1.33
Totals			0.080	195	889		

File: 97090201.D13 Sample: PREP BLANK

Data Reprocessed On 09/08/1997 14:09:55

```

=====
Sample Name: S97T001963                      Date: 09/02/1997 16:08:19
Data File  : F:\DATA\97090201.D15
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 15          Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          41    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	0.85		0.000	197	990	2	
2	1.01	fluoride	4.203	386	1845	2	-3.49
3	1.11		0.000	504	2904	2	
4	1.51	chloride	26.177	2006	8988	1	-6.58
5	1.83	nitrite	469.256	20771	105632	1	-6.80
6	3.11	nitrate	542.007	13729	107502	1	-0.11
7	4.48	phosphate	21.388	162	1853	1	-9.19
8	5.76	sulfate	62.562	1386	18031	1	-10.00
9	7.57	oxalate	33.821	383	6616	1	0.04
Totals			1159.415	39522	254362		

File: 97090201.D15 Sample: S97T001963

Data Reprocessed On 09/08/1997 14:11:54

```

=====
Sample Name: S97T001963 DUP                      Date: 09/02/1997 16:19:22
Data File  : F:\DATA\97090201.D16
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 16              Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 41 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	0.85		0.000	201	1031	2	
2	1.02	fluoride	4.053	353	1768	2	-2.86
3	1.11		0.000	499	2741	2	
4	1.51	chloride	25.927	2001	8906	1	-6.58
5	1.83	nitrite	467.689	20767	105280	1	-6.80
6	3.11	nitrate	538.997	13482	106891	1	-0.11
7	4.48	phosphate	16.801	131	1439	1	-9.19
8	5.76	sulfate	55.756	1250	16379	1	-10.00
9	7.57	oxalate	31.499	356	6175	1	0.04
Totals			1140.721	39040	250609		

File: 97090201.D16 Sample: S97T001963 DUP

Data Reprocessed On 09/08/1997 14:14:17

```

=====
Sample Name: S97T001964                      Date: 09/02/1997 16:30:45
Data File  : F:\DATA\97090201.D17
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 17          Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          41  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	0.84		0.000	193	1020	2	
2	1.01	fluoride	4.309	388	1898	2	-3.49
3	1.11		0.000	463	2623	2	
4	1.52	chloride	26.856	2007	9214	1	-6.17
5	1.83	nitrite	476.194	20827	107190	1	-6.80
6	3.11	nitrate	501.052	12858	99197	1	0.11
7	4.48	phosphate	16.017	128	1368	1	-9.19
8	5.76	sulfate	61.522	1352	17779	1	-10.00
9	7.57	oxalate	37.370	408	7290	1	0.04
Totals			1123.322	38624	247579		

File: 97090201.D17 Sample: S97T001964

Data Reprocessed On 09/08/1997 14:16:00

```

=====
Sample Name: S97T001964 DUP                      Date: 09/02/1997 16:41:27
Data File   : F:\DATA\97090201.D18
Method      : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 18              Detector: CDM-1
Analyst     :                               Column: AG4A/AS4A anion column
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          41    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	0.85		0.000	198	1024	2	
2	1.02	fluoride	3.962	355	1722	2	-2.86
3	1.11		0.000	463	2618	2	
4	1.52	chloride	27.200	2065	9328	1	-6.17
5	1.83	nitrite	486.704	21249	109549	1	-6.80
6	3.11	nitrate	508.614	12958	100728	1	-0.11
7	4.48	phosphate	15.444	119	1317	1	-9.19
8	5.76	sulfate	55.370	1250	16285	1	-10.00
9	7.57	oxalate	33.724	376	6597	1	0.04
Totals			1131.019	39033	249169		

File: 97090201.D18 Sample: S97T001964 DUP

Data Reprocessed On 09/08/1997 14:18:08

```

=====
Sample Name: S97T001964 SPK                      Date: 09/02/1997 16:52:32
Data File  : F:\DATA\97090201.D19
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 19              Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
=====
External          1          41  3000  5Hz  0.00 10.00          30
=====

```

```

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

```

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	254	1042	1	
2	0.99	fluoride	19.063	2587	9398	1	-5.40
3	1.52	chloride	58.278	4459	19782	1	-6.17
4	1.83	nitrite	707.719	30567	159014	1	-6.80
5	2.76	bromide	240.441	5915	35301	1	-3.16
6	3.09	nitrate	769.450	18710	154335	1	-0.11
7	4.45	phosphate	245.050	2057	22538	1	-9.73
8	5.71	sulfate	321.996	5786	82872	1	-0.06
9	7.52	oxalate	252.759	2756	49042	1	0.00
Totals			2614.758	73091	533325		

File: 97090201.D19 Sample: S97T001964 SPK

LABCORE Completed Worklist Report for Worklist# 20127

Analyst: eal

Instrument: IC01

Book# Q5A20AMethod: 14-533-105 Rev/Mod D-1

Worklist Comment: AX103, @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 P04	QC	1	<1.20e-1		ug/mL
1 CCB	0	@IC-QC SO4	QC	1	<1.38e-1		ug/mL
1 CCB	0	@IC-QC OXALATE2	QC	1	<1.05e-1		ug/mL
2 CCV	0	@IC-QC F	QC	5.90e01	5.68e+01	96.271 % Recovery	
2 CCV	0	@IC-QC CL	QC	8.00e01	7.29e+01	91.125 % Recovery	
2 CCV	0	@IC-QC NO2	QC	5.43e02	5.21e+02	97.790 % Recovery	
2 CCV	0	@IC-QC BR	QC	5.89e02	5.87e+02	99.660 % Recovery	
2 CCV	0	@IC-QC NO3	QC	5.94e02	5.75e+02	96.801 % Recovery	
2 CCV	0	@IC-QC P04	QC	5.45e02	5.62e+02	103.119 % Recovery	
2 CCV	0	@IC-QC SO4	QC	6.32e02	6.20e+02	98.101 % Recovery	
2 CCV	0	@IC-QC OXALATE2	QC	5.33e02	5.25e+02	98.499 % Recovery	
3 BLNK-PREP	0	@IC-01 F-02	SOLID	1	<1.20e-2		ug/g
3 BLNK-PREP	0	@IC-01 CL-02	SOLID	1	3.00e-02	0.030	ug/g
3 BLNK-PREP	0	@IC-01 NO2-02	SOLID	1	4.63e-01	0.463	ug/g
3 BLNK-PREP	0	@IC-01 BR-02	SOLID	1	<1.25e-1		ug/g
3 BLNK-PREP	0	@IC-01 NO3-02	SOLID	1	<1.39e-1		ug/g
3 BLNK-PREP	0	@IC-01 P04-02	SOLID	1	<1.20e-1		ug/g
3 BLNK-PREP	0	@IC-01 SO4-02	SOLID	1	<1.38e-1		ug/g
3 BLNK-PREP	0	@IC-01 OXALATE2	SOLID	1	<1.05e-1		ug/g
4 SAMPLE	S97T001889	0 W @IC-01 F-02	SOLID	N/A	1.172e+03	98.480	ug/g
4 SAMPLE	S97T001889	0 W @IC-01 CL-02	SOLID	N/A	5.027e+03	139.500	ug/g
4 SAMPLE	S97T001889	0 W @IC-01 NO2-02	SOLID	N/A	9.250e+04	886.400	ug/g
4 SAMPLE	S97T001889	0 W @IC-01 BR-02	SOLID	N/A	1.026e+03	1026.000	ug/g
4 SAMPLE	S97T001889	0 W @IC-01 NO3-02	SOLID	N/A	1.112e+05	1141.000	ug/g
4 SAMPLE	S97T001889	0 W @IC-01 P04-02	SOLID	N/A	4.545e+03	984.800	ug/g
4 SAMPLE	S97T001889	0 W @IC-01 SO4-02	SOLID	N/A	1.644e+04	1132.000	ug/g
4 SAMPLE	S97T001889	0 W @IC-01 OXALATE2	SOLID	N/A	7.825e+03	861.800	ug/g
5 DUF	S97T001889	0 W @IC-01 F-02	SOLID	1.17e+03	1.18e+03	0.851	RPD
5 DUF	S97T001889	0 W @IC-01 CL-02	SOLID	5.03e+03	5.10e+03	1.382	RPD
5 DUF	S97T001889	0 W @IC-01 NO2-02	SOLID	9.25e+04	9.40e+04	1.609	RPD
5 DUF	S97T001889	0 W @IC-01 BR-02	SOLID	<1.03e3	<1.04e3		RPD
5 DUF	S97T001889	0 W @IC-01 NO3-02	SOLID	1.11e+05	1.13e+05	1.786	RPD
5 DUF	S97T001889	0 W @IC-01 P04-02	SOLID	4.54e+03	4.79e+03	5.359	RPD
5 DUF	S97T001889	0 W @IC-01 SO4-02	SOLID	1.64e+04	1.66e+04	1.212	RPD
5 DUF	S97T001889	0 W @IC-01 OXALATE2	SOLID	7.82e+03	8.16e+03	4.255	RPD
6 SPK	S97T001889	0 W @IC-01 F-02	SOLID	5.90e01	3.46e+01	58.644 % Recovery	

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

LABCORE Completed Worklist Report for Worklist# 20127

Seq Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
6 SPK	S97T001889	0	W	@IC-01	CL-02	SOLID	8.00e01	7.98e+01	99.750 % Recovery
6 SPK	S97T001889	0	W	@IC-01	NO2-02	SOLID	5.43e02	5.95e+02	109.576 % Recovery
6 SPK	S97T001889	0	W	@IC-01	BR-02	SOLID	5.89e02	5.85e+02	99.321 % Recovery
6 SPK	S97T001889	0	W	@IC-01	NO3-02	SOLID	5.94e02	6.55e+02	110.269 % Recovery
6 SPK	S97T001889	0	W	@IC-01	PO4-02	SOLID	5.45e02	5.66e+02	103.853 % Recovery
6 SPK	S97T001889	0	W	@IC-01	SO4-02	SOLID	6.32e02	6.42e+02	101.582 % Recovery
6 SPK	S97T001889	0	W	@IC-01	OXALATE2	SOLID	5.33e02	5.39e+02	101.126 % Recovery

Final page for worklist# 20127

Analyst Signature

Date

Analyst Signature

Date

Reviewer Signature Date 9/9/97

09/02/97 08:45
A-0004-1

Page 1

LABCORE Data Entry Template for Worklist# 20127

Analyst: EAL Instrument: IC0 1 Book# 95N20 AMethod: LA-533-105 Rev/Mod D-1

Worklist Comment: AX103, @IC-01 skm

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	S97T001889 0 W		@IC-01	SOLID	97000494	AX-103
	Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02					
5 DUP	S97T001889 0 W		@IC-01	SOLID		
6 SPK	S97T001889 0 W		@IC-01	SOLID		

Final page for worklist # 20127

Analyst Signature

Date

Analyst Signature

Date

A. Lambel *09.03.97*
uploaded 9-3-97
John Warell

20127SEP.CSV

Validated 9/8/97 *gm*

Data Entry Comments:

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

Sample Name: INST. BLANK Date: 09/03/1997 02:02:43
 Data File : C:\DX\DATA\97090301.D09
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 9 Detector: CDM-1
 Analyst : *Joe Lyle* Column: AG4A/AS4A anion column
for EAL 9/3/97

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	1.30		0.000	45	254	1	
2	1.52	chloride	-0.026	17	58	1	-6.17
3	3.19	nitrate	-0.022	55	333	1	-1.95
4	5.76	sulfate	-0.199	68	981	1	-10.00
Totals			-0.246	185	1627		

File: 97090301.D09 Sample: INST. BLANK

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES *156 to 161*.

Data Reprocessed On 09/03/1997 14:08:33

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=====
Sample Name: 95N20-A STD                      Date: 09/03/1997 02:13:53
Data File  : F:\DATA\97090301.D10
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 10           Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 101 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	0.85		0.000	87	345	2	
2	0.99	fluoride	56.826	2698	11434	2	-5.40
3	1.52	chloride	72.879	2319	10120	1	-6.17
4	1.83	nitrite	530.666	9641	48432	1	-6.80
5	2.77	bromide	587.039	5698	34979	1	-2.92
6	3.15	nitrate	574.570	6100	45798	1	-3.18
7	4.45	phosphate	561.792	1846	20931	1	-9.73
8	5.76	sulfate	620.150	5075	64940	1	-10.00
9	7.52	oxalate	525.467	2135	41263	1	0.00
Totals			3529.390	35600	278243		

File: 97090301.D10 Sample: 95N20-A STD

Sample Name: PREP. BLANK Date: 09/03/1997 02:26:06
 Data File: C:\DX\DATA\97090301.D11
 Method: C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 11 Detector: CDM-1
 Analyst: Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	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	1.23		0.000	52	443	1	
2	1.53	chloride	0.030	95	803	1	-5.76
3	1.83	nitrite	0.463	754	3895	1	-6.46
4	3.20	nitrate	0.029	112	728	1	-1.54
Totals			0.521	1014	5870		

File: 97090301.D11 Sample: PREP. BLANK

Data Reprocessed On 09/03/1997 14:10:23

```

=====
Sample Name: S97T001889 SAMPLE                      Date: 09/03/1997 03:10:39
Data File  : F:\DATA\97090301.D13
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 13                 Detector: CDM-1
Analyst    :                                         Column: AG4A/AS4A anion column
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          41    3000  5Hz   0.00 10.00          30
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	204	1009	2	
2	1.00	fluoride	5.856	556	2685	2	-4.76
3	1.11		0.000	472	2548	2	
4	1.51	chloride	25.113	1923	8636	1	-6.58
5	1.83	nitrite	462.152	20409	104037	1	-6.80
6	3.11	nitrate	555.517	13984	110250	1	-0.11
7	4.45	phosphate	22.709	173	1973	1	-9.73
8	5.76	sulfate	82.156	1755	22801	1	-10.00
9	7.57	oxalate	39.094	446	7617	1	0.04
Totals			1192.598	39922	261555		

File: 97090301.D13 Sample: S97T001889 SAMPLE

Data Reprocessed On 09/03/1997 14:12:17

```

=====
Sample Name: S97T001889 DUPLICATE          Date: 09/03/1997 03:31:58
Data File  : F:\DATA\97090301.D14
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 14        Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          41    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	0.84		0.000	203	1033	2	
2	1.00	fluoride	5.848	559	2680	2	-4.76
3	1.11		0.000	478	2565	2	
4	1.51	chloride	25.213	1955	8669	1	-6.58
5	1.83	nitrite	465.289	20624	104741	1	-6.80
6	3.10	nitrate	559.122	14111	110984	1	0.00
7	4.45	phosphate	23.685	182	2061	1	-9.73
8	5.71	sulfate	82.210	1462	22814	1	-0.06
9	7.57	oxalate	40.355	460	7857	1	0.04
Totals			1201.722	40034	263404		

File: 97090301.D14 Sample: S97T001889 DUPLICATE

Data Reprocessed On 09/03/1997 14:14:51

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=====
Sample Name: S97T001889 SPIKE Date: 09/03/1997 02:58:08
Data File : F:\DATA\97090301.D12
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 12 Detector: CDM-1
Analyst : Column: AG4A/AS4A anion column
=====

```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
-------------	--------	----------	--------	------	-------	------	------	--------

External	1	41	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	0.85		0.000	273	1114	1	
2	0.99	fluoride	19.715	2702	9729	1	-5.40
3	1.52	chloride	57.043	4373	19361	1	-6.17
4	1.83	nitrite	700.074	30441	157307	1	-6.80
5	2.76	bromide	234.031	5813	34337	1	-3.16
6	3.09	nitrate	817.386	19890	164366	1	-0.11
7	4.45	phosphate	249.166	2097	22928	1	-9.73
8	5.71	sulfate	338.819	6161	87209	1	-0.06
9	7.52	oxalate	254.871	2750	49461	1	0.00
Totals			2671.103	74500	545812		

File: 97090301.D12 Sample: S97T001889

LABCORE Completed Worklist Report for Worklist# 21808

Analyst: rdm

Instrument: IC03

Book# 40N208

Method: LA-533-105 Rev/Mod E-0

Worklist Comment: AX-103 IC4G. RCJ

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 CCB	0		@IC4G-QC F*4	QC	1	<2.10e-2		ug/mL
1 CCB	0		@IC4G-QC ACETATE2	QC	1	<2.00e-2		ug/mL
1 CCB	0		@IC4G-QC FORMATE2	QC	1	<2.10e-2		ug/mL
1 CCB	0		@IC4G-QC GLYCOLT1	QC	1	<2.00e-2		ug/mL
2 CCV	0		@IC4G-QC F*4	QC	6.10e1	6.00e+01	98.361 %	Recovery
2 CCV	0		@IC4G-QC ACETATE2	QC	1.17e2	1.12e+02	95.726 %	Recovery
2 CCV	0		@IC4G-QC FORMATE2	QC	1.24e2	1.15e+02	92.742 %	Recovery
2 CCV	0		@IC4G-QC GLYCOLT1	QC	1.13e2	1.05e+02	92.920 %	Recovery
4 DUP	S98T000042	0	@IC4G-01 ACETATE2	LIQUID	1.82e+04	1.58e+04	14.118 RPD	
4 DUP	S98T000042	0	@IC4G-01 FORMATE2	LIQUID	3.73e+04	3.25e+04	13.754 RPD	
4 DUP	S98T000042	0	@IC4G-01 GLYCOLT1	LIQUID	2.81e+04	2.43e+04	14.504 RPD	
5 SPK	S98T000042	0	@IC4G-01 ACETATE2	LIQUID	1.17e2	-5.77e0	-4.932 %	Recovery
5 SPK	S98T000042	0	@IC4G-01 FORMATE2	LIQUID	1.24e2	-1.12e2	-90.323 %	Recovery
5 SPK	S98T000042	0	@IC4G-01 GLYCOLT1	LIQUID	1.13e2	-6.48e1	-57.345 %	Recovery

Final page for worklist# 21808

Analyst Signature

Date

Analyst Signature

Date

Reviewer Signature Date

LABCORE Data Entry Template for Worklist# 21808

Analyst: RM Instrument: IC0 3 Book# 40N20B

Method: LA-533-1/05 Rev/Mod E-0

Worklist Comment: AX-103 IC4G. RCJ

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 CCB			@IC4G-QC	QC		
2 CCV			@IC4G-QC	QC		
3 SAMPLE	S98T000042 0		@IC4G-01 LIQUID		97000494	AX-103
Analytes Requested: ACETATE2, FORMATE2, GLYCOLT1						
4 DUP	S98T000042 0		@IC4G-01 LIQUID			
5 SPK	S98T000042 0		@IC4G-01 LIQUID			

Final page for worklist # 21808

Analyst Signature RM Date 1/12/98

Analyst Signature _____ Date _____

uploaded 1-16-98

John Worell

21808JAN.CSV

Rejected due to spike dilution error. JM Lye
1/14/98

Data Entry Comments:

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

Sample Name: BLK Date: 01/12/1998 13:28:15
 Data File : C:\DX\DATA\97121141.D02
 Method : C:\DX\METHOD\GLYCOLIC.MET
 ACI Address: 1 System: 2 Inject#: 2 Detector: CDM-1
 Analyst : Ed Colvin Column: AG4A-SC, AS4A-SC, SRS

Calibration Volume Dilution Points Rate Start Stop Area Reject
 External 1 1 4500 5Hz 0.00 15.00 0

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.21		0.000	71	781	1	
2	1.05		0.000	64	375	1	
3	1.40		0.000	13	179	1	
4	6.28		0.000	1081	33902	1	
5	7.46		0.000	177	5666	1	
6	8.23		0.000	464	3403	2	
7	8.41		0.000	662	36216	2	
Totals			0.000	2532	80522

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 164 TO 168

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=====
Sample Name: 40N20-B                      Date: 01/12/1998 13:46:03
Data File  : C:\DX\DATA\97121141.D03
Method     : C:\DX\METHOD\GLYCOLIC.MET
ACI Address: 1 System: 2 Inject#: 3
Analyst    : Ed Colvin                     Column: AG4A-SC,AS4A-SC, SRS
Detector: CDM-1
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          101    4500  5Hz   0.00 15.00          0
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.23		0.000	83	1197	1	
2	1.05		0.000	48	303	1	
3	2.29	fluoride	60.049	2262	12948	2	0.00
4	2.57	acetate	111.742	661	4631	2	0.00
5	2.75	glycolate	105.149	695	4992	2	0.00
6	3.34	formate	114.774	1319	10097	1	0.00
7	6.29		0.000	2936	225639	2	
8	7.65		0.000	1492	48626	3	
10	8.42		0.000	14	28	4	
Totals			391.714	9510	308462		

File: 97121141.D03 Sample: 40N20-B

```

=====
Sample Name: S98T000042          Date: 01/12/1998 14:03:51
Data File  : C:\DX\DATA\97121141.D04
Method     : C:\DX\METHOD\GLYCOLIC.MBT
ACI Address: 1 System: 2 Inject#: 4
Analyst    : Ed Colvin          Column: AG4A-SC,AS4A-SC, SRS
Detector: CDM-1
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
External          1      10201   4500  5Hz   0.00  15.00      0
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.68		0.000	62	2348	1	
2	2.31	fluoride	231.952	21	77	2	0.00
3	2.55	acetate	18151.760	1038	7306	2	0.00
4	2.72	glycolate	28114.687	1949	13823	2	0.00
5	3.31	formate	37311.868	4401	33604	1	0.00
6	4.15		0.000	528	4756	1	
7	5.56		0.000	35194	190470	2	
8	5.87		0.000	96539	1539129	2	
9	7.47		0.000	59325	1762972	2	
Totals			83810.268	199058	3554485		

File: 97121141.D04 Sample: S98T000042

Sample Name: S98T000042DUP Date: 01/12/1998 14:22:47
 Data File : C:\DX\DATA\97121141.D05
 Method : C:\DX\METHOD\GLYCOLIC.MET
 ACI Address: 1 System: 2 Inject#: 5 Detector: CDM-1
 Analyst : Ed Colvin Column: AG4A-SC, AS4A-SC, SRS

Calibration Volume Dilution Points Rate Start Stop Area Reject
 External 1 10201 4500 5Hz 0.00 15.00 0

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.19		0.000	53	499	1	
2	1.75		0.000	56	2131	1	
3	2.31	fluoride	210.986	9	31	1	0.00
4	2.55	acetate	15755.559	921	6385	2	0.00
5	2.72	glycolate	24273.778	1710	11861	2	0.00
6	3.31	formate	32539.540	3911	29203	1	0.00
7	4.15		0.000	459	4104	1	
8	5.57		0.000	32266	171870	2	
9	5.88		0.000	96795	1390124	3	
10	7.33		0.000	5415	94610	4	
11	7.51		0.000	54836	1536459	2	
Totals			72779.863	196429	3247275		

File: 97121141.D05 Sample: S98T000042DUP

```

=====
Sample Name: S98T000042SPK          Date: 01/12/1998 14:40:05
Data File : C:\DX\DATA\97121141.D06
Method    : C:\DX\METHOD\GLYCOLIC.MET
ACI Address: 1 System: 2 Inject#: 6
Analyst   : Ed Colvin      Column: AG4A-SC,AS4A-SC, SRS
Detector: CDM-1
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1      10201    4500  5Hz   0.00 15.00      0
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.07		0.000	32	190	1	
2	1.70		0.000	42	1642	1	
3	2.28	fluoride	6017.967	2326	12844	2	0.00
4	2.56	acetate	17569.012	1041	7083	2	0.00
5	2.73	glycolate	21571.546	1447	10488	2	0.00
6	3.33	formate	25955.928	3014	23161	1	0.00
7	4.17		0.000	167	1478	1	
8	5.63		0.000	13815	93038	2	
9	5.99		0.000	60605	743974	3	
10	7.35		0.000	5040	145247	4	
11	7.77		0.000	28997	737906	2	
Totals			71114.453	116525	1777050		

File: 97121141.D06 Sample: S98T000042SPK

LABCORE Completed Worklist Report for Worklist# 21831

Analyst: rdm

Instrument: IC03

Book# 40N20B

Method: 1A-533-105 Rev/Mod E-0

Worklist Comment: AX-103 ICG4. RCJ

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 CCB	0	@IC4G-QC F*4	QC	1	2.70e-02	0.027	ug/mL
1 CCB	0	@IC4G-QC ACETATE2	QC	1	<2.00e-2		ug/mL
1 CCB	0	@IC4G-QC FORMATE2	QC	1	<2.10e-2		ug/mL
1 CCB	0	@IC4G-QC GLYCOLT1	QC	1	<2.00e-2		ug/mL
2 CCV	0	@IC4G-QC F*4	QC	6.10e1	6.02e+01	98.68%	Recovery
2 CCV	0	@IC4G-QC ACETATE2	QC	1.17e2	1.13e+02	96.58%	Recovery
2 CCV	0	@IC4G-QC FORMATE2	QC	1.24e2	1.17e+02	94.35%	Recovery
2 CCV	0	@IC4G-QC GLYCOLT1	QC	1.13e2	1.11e+02	98.23%	Recovery
3 BLNK-PREP	0	@IC4G-01 F*4-01	SOLID	1	<3.10e-2		ug/g
3 BLNK-PREP	0	@IC4G-01 ACETATE2	SOLID	1	<2.00e-2		ug/mL
3 BLNK-PREP	0	@IC4G-01 FORMATE2	SOLID	1	<6.20e-2		ug/mL
3 BLNK-PREP	0	@IC4G-01 GLYCOLT1	SOLID	1	<5.60e-2		ug/mL
4 SAMPLE	S98T000043	0 W @IC4G-01 ACETATE2	SOLID	N/A	1.095e+03	200.900	ug/g
4 SAMPLE	S98T000043	0 W @IC4G-01 FORMATE2	SOLID	N/A	1.979e+03	622.700	ug/g
4 SAMPLE	S98T000043	0 W @IC4G-01 GLYCOLT1	SOLID	N/A	1.638e+03	562.500	ug/g
5 DUP	S98T000043	0 W @IC4G-01 ACETATE2	SOLID	1.10e+03	9.82e+02	11.335	RPD
5 DUP	S98T000043	0 W @IC4G-01 FORMATE2	SOLID	1.98e+03	2.13e+03	7.299	RPD
5 DUP	S98T000043	0 W @IC4G-01 GLYCOLT1	SOLID	1.64e+03	1.74e+03	5.917	RPD
6 SPK	S98T000043	0 W @IC4G-01 ACETATE2	SOLID	1.17e2	1.28e+02	109.402%	Recovery
6 SPK	S98T000043	0 W @IC4G-01 FORMATE2	SOLID	1.24e2	1.31e+02	105.645%	Recovery
6 SPK	S98T000043	0 W @IC4G-01 GLYCOLT1	SOLID	1.13e2	1.17e+02	103.540%	Recovery

Final page for worklist# 21831

Analyst Signature

Date

Analyst Signature

Date

Reviewer Signature

Date

LABCORE Data Entry Template for Worklist# 21831

Analyst: RM Instrument: IC0 3 Book# 40N20B
QRM=1/14/98

Method: LA-533-1105 Rev/Mod E-0

Worklist Comment: AX-103 ICG4. RCJ

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 CCB			@IC4G-QC	QC		
2 CCV			@IC4G-QC	QC		
3 BLNK-PREP			@IC4G-01	SOLID		
4 SAMPLE	S98T000043 0		@IC4G-01	SOLID	97000494	AX-103
	Analytes Requested: ACETATE2, FORMATE2, GLYCOLT1					
5 DUP	S98T000043 0		@IC4G-01	SOLID		
6 SPK	S98T000043 0		@IC4G-01	SOLID		

Final page for worklist # 21831

Analyst Signature: RM Date: 1/14/98

Analyst Signature: _____ Date: _____

uploaded 1-16-98

John Waneall

21831JAN.CSV

Validated 1/19/98 RM Lye

Data Entry Comments:

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

=====

Sample Name: BLK	Date: 01/14/1998 09:36:58
Data File : C:\DX\DATA\97121141.D01	
Method : C:\DX\METHOD\GLYCOLIC.MET	
ACI Address: 1 System: 2 Inject#: 1	Detector: CDM-1
Analyst : Ed Colvin	Column: AG4A-SC, AS4A-SC, SRS

=====

Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 1 4500 5Hz 0.00 15.00 0

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.05		0.000	62	339	1	
2	1.52		0.000	27	345	1	
3	2.32	fluoride	0.027	29	165	1	0.00
4	3.04		0.000	16	67	1	
5	8.22		0.000	149	810	1	
6	8.66		0.000	36	1252	1	
7	11.39		0.000	14	101	1	
Totals			0.027	333	3079		

File: 97121141.D01 Sample: BLK

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 171 TO 176

Sample Name: 40N20-B Date: 01/14/1998 09:53:26
 Data File : C:\DX\DATA\97121151.D02
 Method : C:\DX\METHOD\GLYCOLIC.MET
 ACI Address: 1 System: 2 Inject#: 2 Detector: CDM-1
 Analyst : Ed Colyin Column: AG4A-SC, AS4A-SC, SRS

Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 101 4500 5Hz 0.00 15.00 0

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.05		0.000	47	277	1	
2	2.30	fluoride	60.164	2325	12974	2	0.00
3	2.59	acetate	113.120	681	4687	2	0.00
4	2.75	glycolate	110.599	726	5266	2	0.00
5	3.34	formate	117.416	1343	10338	1	0.00
6	6.33		0.000	2939	208740	2	
7	7.60		0.000	1887	82559	3	
9	8.46		0.000	2	9	4	
Totals			401.299	9950	324851		

File: 97121151.D02 Sample: 40N20-B

```

=====
Sample Name: PREP BLK                      Date: 01/14/1998 10:09:48
Data File  : C:\DX\DATA\97121151.D03
Method     : C:\DX\METHOD\GLYCOLIC.MET
ACI Address: 1 System: 2 Inject#: 3
Analyst    : Ed Colvin                     Column: AG4A-SC,AS4A-SC, SRS
Detector: CDM-1
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
=====
External          1          1    4500  5Hz   0.00 15.00          0
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.05		0.000	47	264	1	
2	6.33		0.000	1167	46332	2	
3	7.70		0.000	1011	29155	2	
4	8.23		0.000	125	674	1	
5	8.49		0.000	62	757	1	
6	11.27		0.000	61	258	1	
Totals			0.000	2473	77440		

File: 97121151.D03 Sample: PREP BLK

```

=====
Sample Name: S98T000043                      Date: 01/14/1998 10:45:10
Data File  : C:\DX\DATA\97121151.D05
Method     : C:\DX\METHOD\GLYCOLIC.MET
ACI Address: 1 System: 2 Inject#: 5           Detector: CDM-1
Analyst    : Ed Colvin      Column: AG4A-SC,AS4A-SC, SRS
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          51    4500  5Hz   0.00 15.00      0
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.05		0.000	49	290	1	
2	2.29	fluoride	4.688	280	1620	2	0.00
3	2.59	acetate	5.560	69	455	2	0.00
4	2.75	glycolate	8.322	85	576	2	0.00
5	3.33	formate	10.045	198	1468	1	0.00
6	4.15		0.000	20	143	1	
7	5.61		0.000	2883	35107	2	
8	6.03		0.000	17082	291336	3	
9	7.67		0.000	1815	40591	4	
10	7.94		0.000	7719	87703	2	
Totals			28.616	30201	459291		

File: 97121151.D05 Sample: S98T000043

Sample Name: S98T000043DUP Date: 01/14/1998 11:03:41
 Data File : C:\DX\DATA\97121151.D06
 Method : C:\DX\METHOD\GLYCOLIC.MET
 ACI Address: 1 System: 2 Inject#: 6 Detector: CDM-1
 Analyst : Ed Colvin Column: AG4A-SC, AS4A-SC, SRS

Calibration Volume Dilution Points Rate Start Stop Area Reject
 External 1 51 4500 5Hz 0.00 15.00 0

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.05		0.000	48	276	1	
2	2.29	fluoride	4.722	287	1635	1	0.00
3	2.59	acetate	4.949	65	403	2	0.00
4	2.75	glycolate	8.765	90	620	2	0.00
5	3.33	formate	10.757	214	1596	1	0.00
6	4.15		0.000	23	171	1	
7	5.62		0.000	3014	35313	2	
8	6.04		0.000	18169	299179	3	
9	7.69		0.000	2372	50411	4	
10	7.95		0.000	7853	90532	2	

Totals 29.194 32137 480136

File: 97121151.D06 Sample: S98T000043DUP

```

=====
Sample Name: S98T000043SPK                      Date: 01/14/1998 11:22:39
Data File  : C:\DX\DATA\97121151.D07
Method     : C:\DX\METHOD\GLYCOLIC.MBT
ACI Address: 1 System: 2 Inject#: 7
Analyst    : Ed Colvin                          Column: AG4A-SC,AS4A-SC, SRS
Detector: CDM-1
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
=====
External          1          51  4500  5Hz  0.00 15.00          0
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.05		0.000	49	290	1	
2	2.29	fluoride	38.977	3028	16820	2	0.00
3	2.59	acetate	69.747	825	5682	2	0.00
4	2.75	glycolate	67.063	927	6384	2	0.00
5	3.33	formate	75.469	1798	13268	1	0.00
6	4.13		0.000	26	193	1	
7	5.60		0.000	3098	35679	2	
8	6.02		0.000	18945	313219	3	
9	7.70		0.000	2578	48585	4	
10	7.92		0.000	9150	110835	3	
11	8.41		0.000	13	6	4	
Totals			251.255	40437	550961		

File: 97121151.D07 Sample: S98T000043SPK

LABCORE Completed Worklist Report for Worklist# 21844

Analyst: ehc

Instrument: IC05

Book# 114N204 / 99N201

Method: 14-533-115 Rev/Mod A-0

Worklist Comment: @IC5-01 FOR AX-103

RTS

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 CCB	0		@IC5-QC IDA-05 QC		1	9.30e-01	0.930	ug/mL
1 CCB	0		@IC5-QC OXALATES QC		1	<1.07e-1		ug/mL
1 CCB	0		@IC5-QC NTA-05 QC		1	<1.26e-1		ug/mL
1 CCB	0		@IC5-QC PO4-05 QC		1	<1.26e-1		ug/mL
1 CCB	0		@IC5-QC CITRATES QC		1	<1.39e-1		ug/mL
2 CCV	0		@IC5-QC IDA-05 QC		707	7.69e+02	108.769	% Recovery
2 CCV	0		@IC5-QC OXALATES QC		531	5.97e+02	112.429	% Recovery
2 CCV	0		@IC5-QC NTA-05 QC		618	7.19e+02	116.343	% Recovery
2 CCV	0		@IC5-QC PO4-05 QC		549	6.15e+02	112.022	% Recovery
2 CCV	0		@IC5-QC CITRATES QC		655	7.69e+02	117.405	% Recovery
3 SAMPLE	S98T000042	0	@IC5-01 IDA-05 LIQUID		N/A	< 7.627e+03	7627.000	ug/mL
3 SAMPLE	S98T000042	0	@IC5-01 NTA-05 LIQUID		N/A	< 1.292e+03	1292.000	ug/mL
3 SAMPLE	S98T000042	0	@IC5-01 CITRATES LIQUID		N/A	3.200e+03	1425.000	ug/mL
4 DUP	S98T000042	0	@IC5-01 IDA-05 LIQUID		<7.63e3	<7.63e3		RPD
4 DUP	S98T000042	0	@IC5-01 NTA-05 LIQUID		<1.29e3	<1.29e3		RPD
4 DUP	S98T000042	0	@IC5-01 CITRATES LIQUID		3.20e+03	3.13e+03	2.212	RPD
5 SPK	S98T000042	0	@IC5-01 IDA-05 LIQUID		707	6.77e+02	95.757	% Recovery
5 SPK	S98T000042	0	@IC5-01 NTA-05 LIQUID		618	7.36e+02	119.094	% Recovery
5 SPK	S98T000042	0	@IC5-01 CITRATES LIQUID		655	7.60e+02	116.031	% Recovery

Final page for worklist# 21844

Analyst Signature

Date

Analyst Signature

Date

Frank M. Lyle 1/26/98
Reviewer Signature Date

LABCORE Data Entry Template for Worklist# 21844

Analyst: ELC Instrument: IC05 _____ Book# 114N20-A
99N20-I
Method: LA-533-115 Rev/Mod A.O
Worklist Comment: @IC5-01 FOR AX-103 RTS

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 CCB			@IC5-QC	QC		
2 CCV			@IC5-QC	QC		
3 SAMPLE	S98T000042 0		@IC5-01	LIQUID	97000494	AX-103
	Analytes Requested: CITRATE5, IDA-05 , NTA-05					
4 DUP	S98T000042 0		@IC5-01	LIQUID		
5 SPK	S98T000042 0		@IC5-01	LIQUID		

Final page for worklist # 21844

ELC 1-21-98
Analyst Signature Date

Analyst Signature Date

21844 jan.csv

uploaded 1/26/98 JML

Validated 1/26/98 JML

114N20A
504 612
OX 531
NTA 618
PO4 549

99N20I

IDA 207

Citrate 655
Data Entry Comments:

Sample size used 50-10-200-10, 10251 DF

This sample was very thick ^(yellow) and had difficulty pipetting it. We could only get 50ul to pipet, not 100ul due to old surface tension or viscosity.

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

HNF-SD-WM-DP-266, REV. 0

PeakNet AS3500DX - AX-103.AS3

#	Vial Pos	Inj. Vol.	Inj/ Vial	Sample	Method (.MET)	Data	Dil.	Int. Std.	Template (.PRP)
1	A01	50	1	WATER BLANK	AS11AN1	JAN2800	1	1	
2	A01	50	1	WATER BLANK	AS11AN1	JAN2800	1	1	
3	A02	50	1	114N20-A STD	AS11AN1	JAN2800	101	1	
4	A03	50	1	99N20-I IDA STD	AS11AN1	JAN2800	101	1	
5	A04	50	1	S98T000042	AS11AN1	JAN2800	1.025e+004		1
6	A05	50	1	S98T000042 DUP	AS11AN1	JAN2800	1.025e+004		1
7	A06	50	1	S98T000042 SPK	AS11AN1	JAN2800	1.025e+004		1
8	A07	50	1	S98T000042 IDA SPK	AS11AN1	JAN2800	1.025e+004		1
9	A01	50	1	STOP	STOPSYS1	JAN2800	1	1	

More Run Parameters

#	Vial Pos	Oven Ctl	Oven Set	Cool Ctl	Cool Set	Cycle Time	Flush Vol	Visc Factor	Prep Visc	Inj Type	Needle Height
1	A01	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
2	A01	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
3	A02	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
4	A03	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
5	A04	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
6	A05	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
7	A06	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
8	A07	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0
9	A01	Off	18	Off	0	0.00	400	Normal	Normal	Push	2.0

Comment:

CALIBRATION STANDARD 13N20-C

=====
 Data File : C:\PeakNet\DATA\JAN29001.DXD Report Date: 1/21/98 9:55:08 AM
 Sample Name: WATER BLANK - A01 Collected : 1/21/98 9:30:07 AM
 Inject # : 1 Vial # : A01
 Method File: c:\peaknet\method\asllan1.met Calibrated : 12/15/97 3:24:38 PM
 System Name: ANIONS SYSTEM1 Detector : CD20
 Column Type: Operator : EH COLVIN
 Data Points: 7500 Rate : 5.00 Hz
 Module Name: *Helix Log for JF* ID:24 10 88 Moduleware : 2.10
2/3/98
 =====

 Calibration Volume Dilution Start Stop Area Reject Pk. Width Threshold

 External 50 1 0.00 25.00 100 5.00 0.52

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	0.27		0.000	629	1555	1	
2	2.73		0.000	256	1268	1	
3	4.49		0.000	129	901	1	
4	5.44		0.000	527	1981	1	
5	7.62		0.000	1140	6495	1	
6	7.85		0.000	247	1185	1	
7	8.74		0.000	475	1347	1	
8	8.96		0.000	11205	149128	1	
9	9.42	SULFATE	0.554	11715	54075	1	0.00
10	10.58	NTA	0.006	49	193	1	0.00
11	11.22	PHOSPHATE	0.018	186	632	1	0.00
12	11.56		0.000	139	461	1	
14	11.98	CITRATE	0.025	209	920	1	0.00
15	12.29		0.000	83	450	1	
16	12.49		0.000	45	293	1	
17	12.63		0.000	93	302	1	
18	12.76		0.000	129	510	1	
19	12.98		0.000	109	646	1	
20	13.35		0.000	103	496	1	
22	13.56		0.000	140	387	1	
23	13.70		0.000	125	296	1	
24	13.77		0.000	51	122	1	
25	14.06		0.000	63	707	1	
26	14.21		0.000	40	190	1	
27	14.47		0.000	67	419	1	
28	14.77		0.000	46	211	1	
29	14.83		0.000	91	167	1	
30	15.16		0.000	52	261	1	
31	15.29		0.000	72	252	1	
32	15.43		0.000	55	199	1	
33	15.77		0.000	89	509	1	
34	15.97		0.000	42	189	1	
35	16.07		0.000	125	266	1	
36	16.16		0.000	110	283	1	
37	16.39		0.000	80	520	1	
38	16.49		0.000	70	308	1	
39	16.58		0.000	60	203	1	

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 180 TO 192

Schedule: c:\peaknet\schedule\ax-105.sch

Release 4.30

180

Page 1 of 2

1/21/98 9:55:08 AM

40	16.71	0.000	64	171	1
41	16.77	0.000	119	306	1
42	16.91	0.000	121	933	1
43	17.16	0.000	218	414	1
44	17.33	0.000	93	178	1
45	17.41	0.000	293	26058	1

Totals -----
0.603 .29752 256386

File: JAN29001.DXD Sample WATER BLANK - A01

```

=====
Data File   : C:\PeakNet\DATA\JAN29002.DXD   Report Date: 1/21/98 10:21:52 AM
Sample Name: WATER BLANK - A01               Collected : 1/21/98 9:56:49 AM
Inject #    : 2                             Vial #    : A01
Method File : c:\peaknet\method\as11an1.met  Calibrated : 12/15/97 3:24:38 PM
System Name : ANIONS SYSTEM1                 Detector   : CD20
Column Type :                               Operator    : EH COLVIN
Data Points : 7500                           Rate        : 5.00 Hz
Module Name :                               ID:24 10 88 Moduleware : 2.10
=====

```

```

=====
Calibration Volume Dilution Start Stop Area Reject Pk. Width Threshold
External          50          1  0.00 25.00          100          5.00          0.52
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	1.90		0.000	170	316	1	
2	5.43		0.000	404	2163	1	
3	7.62		0.000	765	4256	1	
4	8.42	IDA	0.930	10015	22565	1	0.00
5	8.70		0.000	148	502	1	
6	8.91		0.000	8688	79447	1	
7	9.39	SULFATE	0.302	9008	29546	1	0.00
9	11.97	CITRATE	0.010	78	375	1	0.00
10	12.09		0.000	58	156	1	
11	12.29		0.000	99	377	1	
12	12.44		0.000	70	257	1	
13	12.69		0.000	99	456	1	
14	12.84		0.000	52	189	1	
15	12.98		0.000	62	167	1	
16	13.08		0.000	58	128	1	
18	13.25		0.000	80	153	1	
19	13.51		0.000	92	259	1	
20	13.70		0.000	36	351	1	
21	14.32		0.000	64	2416	1	
22	14.42		0.000	69	167	1	
23	14.80		0.000	49	390	1	
24	15.21		0.000	75	255	1	
25	15.46		0.000	116	890	1	
26	16.24		0.000	89	2254	1	
27	16.52		0.000	68	413	1	
28	16.77		0.000	72	672	1	
29	16.92		0.000	99	232	1	
30	17.06		0.000	91	213	1	
31	17.16		0.000	42	128	1	
32	17.34		0.000	55	117	1	
33	17.41		0.000	201	29539	1	
Totals			1.242	31070	179349		

File: JAN29002.DXD Sample WATER BLANK - A01

```

=====
Data File   : C:\PeakNet\DATA\JAN29003.DXD   Report Date: 1/21/98 10:48:36 AM
Sample Name: 114N20-A STD - A02             Collected  : 1/21/98 10:23:32 AM
Inject #    : 3                             Vial #     : A02
Method File: c:\peaknet\method\asllan1.met   Calibrated  : 12/15/97 3:24:38 PM
System Name: ANIONS SYSTEM1                 Detector   : CD20
Column Type:                               Operator    : EH COLVIN
Data Points: 7500                           Rate        : 5.00 Hz
Module Name:                               ID:24 10 88 Moduleware : 2.10
=====

```

```

=====
Calibration Volume Dilution Start Stop Area Reject Pk. Width Threshold
-----
External          50          101 0.00 25.00          100          5.00          0.52
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	1.89		0.000	193	814	1	
2	2.05		0.000	561	2665	1	
3	2.66		0.000	344	1908	1	
4	3.14		0.000	390	3106	1	
5	5.42		0.000	19938	75715	1	
6	5.91		0.000	174	437	1	
7	7.62		0.000	742	4238	1	
8	8.72		0.000	69	207	1	
9	8.91		0.000	3299	20183	1	
10	9.35	SULFATE	675.376	186163	636129	1	0.00
11	9.61	OXALATE	597.179	121103	468541	1	2.78
12	10.35	NTA	719.197	37411	221640	1	0.00
13	11.13	PHOSPHATE	615.131	48993	216143	1	0.00
14	11.93	CITRATE	769.005	53405	256521	1	0.00
15	12.60		0.000	163	1553	1	
16	13.04		0.000	91	537	1	
17	13.18		0.000	50	241	1	
18	13.27		0.000	108	397	1	
19	13.34		0.000	75	142	1	
20	13.50		0.000	103	356	1	
21	13.99		0.000	56	273	1	
22	14.06		0.000	65	166	1	
24	14.22		0.000	31	202	1	
25	14.37		0.000	61	252	1	
26	14.46		0.000	66	288	1	
28	15.10		0.000	95	281	1	
29	15.20		0.000	70	207	1	
30	15.39		0.000	63	372	1	
31	15.45		0.000	75	134	1	
32	15.53		0.000	66	171	1	
33	15.63		0.000	63	136	1	
34	15.69		0.000	95	129	1	
35	15.75		0.000	80	217	1	
36	15.83		0.000	78	102	1	
37	16.12		0.000	70	538	1	
38	16.28		0.000	49	160	1	
39	16.40		0.000	59	165	1	

40	16.46	0.000	66	112	1
41	16.60	0.000	102	275	1
42	16.66	0.000	61	104	1
43	16.85	0.000	75	691	1
44	17.01	0.000	83	154	1
45	17.07	0.000	70	148	1
46	17.21	0.000	56	190	1
47	17.27	0.000	162	48229	1

Totals 3375.889 475191 1965172

File: JAN29003.DXD Sample 114N20-A STD - A02

```

=====
Data File   : C:\PeakNet\DATA\JAN29004.DXD   Report Date: 1/21/98 11:15:26 AM
Sample Name: 99N20-I IDA STD - A03          Collected  : 1/21/98 10:50:18 AM
Inject #    : 4                            Vial #      : A03
Method File: c:\peaknet\method\asilan1.met   Calibrated  : 12/15/97 3:24:38 PM
System Name: ANIONS SYSTEM1                 Detector    : CD20
Column Type:                               Operator    : EH COLVIN
Data Points: 7500                           Rate        : 5.00 Hz
Module Name:                               ID:24 10 88 Moduleware : 2.10
=====

```

```

=====
Calibration Volume Dilution Start Stop Area Reject Pk. Width Threshold
External          50          101 0.00 25.00          100          5.00          0.52
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	1.89		0.000	322	1517	1	
2	2.06		0.000	525	2479	1	
3	2.69		0.000	399	1801	1	
4	5.42		0.000	14686	57395	1	
5	7.62		0.000	849	4282	1	
7	8.38	IDA	768.832	29991	187149	1	0.00
8	8.92		0.000	3602	24968	1	
9	9.38	SULFATE	14.747	4379	14280	1	0.00
10	9.71	OXALATE	70.644	7130	61370	1	0.00
11	10.45	NTA	9.810	852	2927	1	0.00
14	12.16	CITRATE	0.272	58	101	1	0.00
15	12.23		0.000	84	290	1	
16	12.34		0.000	112	358	1	
17	12.78		0.000	99	761	1	
19	13.71		0.000	36	187	1	
20	13.99		0.000	83	652	1	
21	14.19		0.000	67	371	1	
22	14.42		0.000	83	629	1	
23	14.68		0.000	49	447	1	
24	15.13		0.000	99	1208	1	
25	15.24		0.000	58	165	1	
26	15.37		0.000	74	212	1	
28	15.49		0.000	85	175	1	
29	15.55		0.000	56	148	1	
30	15.61		0.000	70	146	1	
31	15.68		0.000	79	163	1	
32	15.75		0.000	63	124	1	
33	15.84		0.000	102	287	1	
34	15.91		0.000	61	111	1	
35	16.13		0.000	64	241	1	
36	16.19		0.000	108	187	1	
37	16.26		0.000	63	158	1	
38	16.48		0.000	72	408	1	
39	16.64		0.000	11	121	1	
41	16.88		0.000	13	106	1	
42	17.00		0.000	42	125	1	
43	17.12		0.000	142	740	1	

44 17.33

0.000

184

35648

1

Totals

864.306

64855

402439

File: JAN29004.DXD Sample 99N20-I IDA STD - A03

```

=====
Data File   : C:\PeakNet\DATA\JAN29005.DXD   Report Date: 1/21/98 11:42:12 AM
Sample Name : S98T000042 - A04               Collected  : 1/21/98 11:17:06 AM
Inject #    : 5                             Vial #     : A04
Method File : c:\peaknet\method\as11an1.met   Calibrated  : 12/15/97 3:24:38 PM
System Name : ANIONS SYSTEM1                 Detector    : CD20
Column Type :                               Operator    : EH COLVIN
Data Points : 7500                           Rate        : 5.00 Hz
Module Name :                               ID:24 10 88 Moduleware : 2.10
=====

```

```

=====
Calibration Volume Dilution Start Stop Area Reject Pk. Width Threshold
-----
External          50      10251  0.00 25.00      100      5.00      0.52
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	0.90		0.000	125	469	1	
2	2.02		0.000	8761	120519	1	
3	2.66		0.000	12817	120413	1	
4	3.33		0.000	1876	20113	1	
5	5.42		0.000	112284	513322	1	
6	5.96		0.000	609755	4344558	1	
7	7.39		0.000	417951	3929134	1	
8	8.39	IDA	884.926	592	2092	1	0.00
9	8.67		0.000	1652	9306	1	
10	8.91		0.000	7376	64120	1	
11	9.37	SULFATE	14477.074	40319	137357	1	0.00
12	9.63	OXALATE	1693.961	4064	14680	1	2.77
13	10.39	NTA	319.720	435	940	1	0.00
14	10.79		0.000	731	3416	1	
15	11.17	PHOSPHATE	10886.298	9514	37430	1	0.00
16	11.76		0.000	791	3156	1	
17	11.96	CITRATE	3199.774	2678	11661	1	0.00
19	12.49		0.000	136	845	1	
20	12.97		0.000	65	175	1	
21	13.15		0.000	59	171	1	
22	13.53		0.000	385	3089	1	
23	13.90		0.000	65	700	1	
24	14.05		0.000	66	118	1	
25	14.15		0.000	74	236	1	
26	14.21		0.000	38	157	1	
27	14.32		0.000	62	170	1	
28	14.43		0.000	92	261	1	
29	14.64		0.000	149	506	1	
30	14.74		0.000	90	209	1	
31	14.90		0.000	48	249	1	
32	14.99		0.000	82	317	1	
33	15.12		0.000	67	114	1	
34	15.23		0.000	36	134	1	
36	15.39		0.000	88	154	1	
37	15.51		0.000	83	379	1	
38	15.66		0.000	58	110	1	
39	15.72		0.000	99	164	1	

40	15.82	0.000	115	588	1
41	15.98	0.000	55	138	1
42	16.10	0.000	74	206	1
43	16.22	0.000	62	273	1
44	16.40	0.000	67	484	1
45	16.53	0.000	56	271	1
46	16.80	0.000	124	1113	1
47	17.02	0.000	63	243	1
48	17.09	0.000	108	535	1
49	17.31	0.000	41	111	1
50	17.38	0.000	179	29768	1

Totals		31461.752	1234511	9374675	

File: JAN29005.DXD Sample S98T000042 - A04

```

=====
Data File   : C:\PeakNet\DATA\JAN29006.DXD   Report Date: 1/21/98 12:08:58 PM
Sample Name: S98T000042 DUP - A05           Collected  : 1/21/98 11:43:52 AM
Inject #    : 6                             Vial #      : A05
Method File: c:\peaknet\method\as11an1.met   Calibrated  : 12/15/97 3:24:38 PM
System Name: ANIONS SYSTEM1                 Detector    : CD20
Column Type:                               Operator    : EH COLVIN
Data Points: 7500                           Rate        : 5.00 Hz
Module Name:                               ID:24 10 88 Moduleware : 2.10
=====

```

```

=====
Calibration Volume Dilution Start Stop Area Reject Pk. Width Threshold
-----
External          50      10251  0.00 25.00          100      5.00      0.52
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	0.91		0.000	96	459	1	
2	2.03		0.000	8552	110245	1	
3	2.68		0.000	12550	106080	1	
4	3.35		0.000	1778	17697	1	
5	4.09		0.000	314	418	1	
6	5.43		0.000	101752	438722	1	
7	5.96		0.000	562140	3723603	1	
8	7.41		0.000	374975	3360215	1	
9	8.36	IDA	746.213	485	1764	1	0.00
10	8.65		0.000	1509	8864	1	
11	8.90		0.000	7019	60883	1	
12	9.36	SULFATE	12513.610	34419	118826	1	0.00
13	9.62	OXALATE	1090.381	2546	9462	1	2.78
14	10.39	NTA	552.411	569	1624	1	0.00
15	10.49		0.000	349	895	1	
16	10.79		0.000	701	3621	1	
17	11.17	PHOSPHATE	10472.854	9143	36007	1	0.00
18	11.76		0.000	778	3224	1	
19	11.97	CITRATE	3127.160	2592	11398	1	0.00
21	12.50		0.000	91	679	1	
22	12.75		0.000	89	104	1	
23	13.05		0.000	118	656	1	
24	13.22		0.000	72	283	1	
25	13.29		0.000	62	194	1	
26	13.54		0.000	409	3088	1	
28	14.49		0.000	79	3213	1	
30	14.82		0.000	173	979	1	
31	14.89		0.000	82	144	1	
32	15.14		0.000	45	417	1	
33	15.52		0.000	103	1496	1	
34	15.69		0.000	54	221	1	
35	15.96		0.000	114	714	1	
36	16.09		0.000	88	502	1	
37	16.46		0.000	65	894	1	
39	16.66		0.000	48	174	1	
40	16.73		0.000	76	199	1	
41	16.83		0.000	66	109	1	

42	16.95	0.000	45	130	1
43	17.15	0.000	34	158	1
44	17.25	0.000	55	115	1
45	17.37	0.000	181	30170	1

Totals 28502.629 1124417 8058647

File: JAN29006.DXD Sample S98T000042 DUP - A05

HNF-SD-WM-DP-266, REV. 0

```

=====
Data File   : C:\PeakNet\DATA\JAN29007.DXD   Report Date: 1/21/98 12:35:40 PM
Sample Name : S98T000042 SPK - A06           Collected  : 1/21/98 12:10:38 PM
Inject #    : 7                             Vial #      : A06
Method File : c:\peaknet\method\as1lan1.met   Calibrated   : 12/15/97 3:24:38 PM
System Name : ANIONS SYSTEM1                 Detector    : CD20
Column Type :                               Operator    : EH COLVIN
Data Points : 7500                           Rate        : 5.00 Hz
Module Name :                               ID:24 10 88 Moduleware : 2.10
=====

```

```

=====
Calibration Volume Dilution Start Stop Area Reject Pk. Width Threshold
External          50      10251  0.00 25.00          100      5.00      0.52
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	1.85		0.000	144	461	1	
2	2.04		0.000	3793	26331	1	
3	2.66		0.000	6106	40313	1	
4	3.35		0.000	715	5859	1	
5	5.42		0.000	56651	223844	1	
6	5.92		0.000	307749	1565149	1	
7	7.49		0.000	187434	1302334	1	
8	8.11		0.000	90	554	1	
9	8.38	IDA	256.346	197	606	1	0.00
10	8.68		0.000	352	2067	1	
11	8.92		0.000	4984	37352	1	
12	9.36	SULFATE	71515.256	189432	662893	1	0.00
13	9.62	OXALATE	60587.297	120012	468378	1	2.78
14	10.43	NTA	74003.211	37115	224809	1	0.00
15	10.82		0.000	175	804	1	
16	11.15	PHOSPHATE	68394.224	53798	236972	1	0.00
17	11.76		0.000	146	445	1	
18	11.95	CITRATE	79628.155	53719	261216	1	0.00
19	12.24		0.000	41	182	1	
20	12.37		0.000	49	132	1	
21	12.54		0.000	102	582	1	
22	12.71		0.000	75	292	1	
23	13.16		0.000	92	1326	1	
24	13.31		0.000	89	372	1	
25	13.55		0.000	124	659	1	
26	13.73		0.000	53	152	1	
27	14.14		0.000	43	540	1	
28	14.40		0.000	61	512	1	
29	14.58		0.000	48	260	1	
30	14.70		0.000	75	183	1	
32	14.92		0.000	64	175	1	
33	15.01		0.000	76	195	1	
34	15.09		0.000	58	181	1	
35	15.43		0.000	81	745	1	
36	15.52		0.000	68	229	1	
37	15.61		0.000	56	136	1	
38	15.73		0.000	67	136	1	

192

Schedule: c:\peaknet\schedule\ax-103.sch

Release 4.30

Page 1 of 2

1/21/98 12:35:40 PM

01/21 '98 12:35:40 PM

01/21/98 12:35:40 PM

01/21/98 12:35:40 PM

39	15.79	0.000	88	226	1
40	15.96	0.000	33	104	1
41	16.04	0.000	25	128	1
42	16.18	0.000	68	138	1
43	16.36	0.000	93	343	1
44	16.49	0.000	58	270	1
45	16.78	0.000	48	362	1
47	16.95	0.000	85	167	1
48	17.03	0.000	60	207	1
49	17.15	0.000	40	112	1
50	17.27	0.000	74	281	1

Totals	354384.489	1024605	5069713
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File: JAN29007.DXD Sample S98T000042 SPK - A06

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=====
Data File   : C:\PeakNet\DATA\JAN29008.DXD   Report Date: 1/21/98 1:02:21 PM
Sample Name: S98T000042 IDA SPK - A07       Collected  : 1/21/98 12:37:19 PM
Inject #    : 8                             Vial #      : A07
Method File: c:\peaknet\method\asllan1.met   Calibrated   : 12/15/97 3:24:38 PM
System Name: ANIONS SYSTEM1                 Detector     : CD20
Column Type:                               Operator      : EH COLVIN
Data Points: 7500                           Rate         : 5.00 Hz
Module Name:                               ID:24 10 88 Moduleware : 2.10
=====

```

Calibration	Volume	Dilution	Start	Stop	Area Reject	Pk. Width	Threshold
External	50	10251	0.00	25.00	100	5.00	0.52

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	2.04		0.000	7684	73574	1	
2	2.69		0.000	11864	90729	1	
3	3.36		0.000	1602	14370	1	
4	4.66		0.000	327	1703	1	
5	5.43		0.000	94617	399093	1	
6	5.95		0.000	516018	3294726	1	
7	7.42		0.000	339489	2951427	1	
8	8.37	IDA	68010.017	28863	162803	1	0.00
9	8.66		0.000	962	4148	1	
10	8.91		0.000	6418	52964	1	
11	9.37	SULFATE	11784.175	33652	111935	1	0.00
12	9.63	OXALATE	1356.946	3314	11768	1	2.77
13	10.40		0.000	538	1563	1	
14	10.51	NTA	1603.230	1302	4714	1	0.00
15	10.80		0.000	549	2229	1	
16	11.17	PHOSPHATE	8948.313	7512	30759	1	0.00
17	11.77		0.000	644	2549	1	
18	11.98	CITRATE	2618.347	2270	9551	1	0.00
20	12.69		0.000	73	132	1	
21	13.15		0.000	44	1218	1	
22	13.53		0.000	315	1515	1	
23	13.70		0.000	72	225	1	
24	13.84		0.000	43	124	1	
25	14.76		0.000	71	1618	1	
26	14.97		0.000	56	456	1	
27	15.37		0.000	91	1127	1	
28	15.47		0.000	61	227	1	
29	15.85		0.000	58	764	1	
30	15.95		0.000	69	180	1	
31	16.23		0.000	54	781	1	
32	16.46		0.000	52	305	1	
33	16.56		0.000	67	210	1	
34	16.70		0.000	44	231	1	
35	16.90		0.000	45	104	1	
36	16.99		0.000	39	103	1	
37	17.15		0.000	554	71459	1	

Totals

94321.029

1059432

7301385

File: JAN29008.DXD Sample S98T000042 IDA SPK - A07

LABCORE Completed Worklist Report for Worklist# 21845

Analyst: ehc

Instrument: IC05

Book# 114N20A

Method: 1A-533-115 Rev/Mod A-0

99N20I

Worklist Comment: @IC5-01 FOR AX-103

RTS

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 CCB	0	@IC5-QC IDA-05 QC		1	<7.44e-1		ug/mL
1 CCB	0	@IC5-QC OXALATES QC		1	<1.07e-1		ug/mL
1 CCB	0	@IC5-QC NTA-05 QC		1	<1.26e-1		ug/mL
1 CCB	0	@IC5-QC P04-05 QC		1	<1.26e-1		ug/mL
1 CCB	0	@IC5-QC CITRATES QC		1	<1.39e-1		ug/mL
2 CCV	0	@IC5-QC IDA-05 QC		707	7.74e+02	109.477 % Recovery	
2 CCV	0	@IC5-QC OXALATES QC		531	5.59e+02	105.273 % Recovery	
2 CCV	0	@IC5-QC NTA-05 QC		618	6.62e+02	107.120 % Recovery	
2 CCV	0	@IC5-QC P04-05 QC		549	5.72e+02	104.199 % Recovery	
2 CCV	0	@IC5-QC CITRATES QC		655	7.03e+02	107.328 % Recovery	
3 BLNK-PREP	0	@IC5-01 IDA-05 SOLID		1	<7.44e-1		ug/g
3 BLNK-PREP	0	@IC5-01 OXALATES SOLID		1	<1.07e-1		ug/g
3 BLNK-PREP	0	@IC5-01 NTA-05 SOLID		1	<1.26e-1		ug/g
3 BLNK-PREP	0	@IC5-01 P04-05 SOLID		1	<1.26e-1		ug/g
3 BLNK-PREP	0	@IC5-01 CITRATES SOLID		1	<1.39e-1		ug/g
4 SAMPLE	S98T000043	0 W @IC5-01 IDA-05 SOLID	N/A	<	6.008e+03	6006.000	ug/g
4 SAMPLE	S98T000043	0 W @IC5-01 NTA-05 SOLID	N/A	<	1.018e+03	1018.000	ug/g
4 SAMPLE	S98T000043	0 W @IC5-01 CITRATES SOLID	N/A	<	1.123e+03	1123.000	ug/g
5 DUP	S98T000043	0 W @IC5-01 IDA-05 SOLID		<6.01e3	<6.05e3		RPD
5 DUP	S98T000043	0 W @IC5-01 NTA-05 SOLID		<1.02e3	<1.02e3		RPD
5 DUP	S98T000043	0 W @IC5-01 CITRATES SOLID		<1.12e3	<1.13e3		RPD
6 SPK	S98T000043	0 W @IC5-01 IDA-05 SOLID		707	7.01e+02	99.151 % Recovery	
6 SPK	S98T000043	0 W @IC5-01 NTA-05 SOLID		618	7.89e+02	127.676 % Recovery	
6 SPK	S98T000043	0 W @IC5-01 CITRATES SOLID		655	8.11e+02	123.817 % Recovery	

Final page for worklist# 21845

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

James M. Lyle
Reviewer Signature _____ Date 1/20/98

01/15/98 13:18

A-0004-1

HNF-SD-WM-DP-266, REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 21845

Analyst: FHC Instrument: IC05 _____ Book# 114N20A
Method: LA-533-115 Rev/Mod A-0 .99N20I
Worklist Comment: @IC5-01 FOR AX-103 RTS

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 CCB			@IC5-QC	QC		
2 CCV			@IC5-QC	QC		
3 BLNK-PREP			@IC5-01	SOLID		
4 SAMPLE	S98T000043 0		@IC5-01	SOLID	97000494	AX-103
	Analytes Requested: CITRATES, IDA-05 , NTA-05					
5 DUP	S98T000043 0		@IC5-01	SOLID		
6 SPK	S98T000043 0		@IC5-01	SOLID		

Final page for worklist # 21845

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

uploaded 1-20-98
JH Wall
21845JAN.CSV

Validated 1/20/98 GMJ

DioneX6 114N20A

IDA 99N20I

504 612 NTA 618

707ppm

P04 549 Citate 655

b7 531

Data Entry Comments: _____

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

Faxed 1/19

Data File : J:\DATA\JAN28001.DXD	Report Date: 1/20/98 10:09:09 AM
Sample Name: WATER BLANK - A01	Collected : 1/19/98 9:16:51 AM
Inject # : 1	Vial # : A01
Method File: c:\peaknet\method\as11an1.met	Calibrated : 12/15/97 3:24:38 PM
System Name: ANIONS SYSTEM1	Detector : CD20
Column Type:	Operator : EH COLVIN
Data Points: 7500	Rate : 5.00 Hz
Module Name: <i>James</i>	ID:24 10 88 Moduleware : 2.10

Calibration Volume Dilution Start Stop Area Reject Pk. Width Threshold

External 50 1 0.00 25.00 100 5.00 1.70

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	5.43		0.000	402	1469	1	
2	7.61		0.000	579	3118	1	
3	8.68		0.000	875	3030	1	
4	8.84		0.000	4754	24612	1	
5	8.96		0.000	3240	16584	1	
6	9.36	SULFATE	0.114	5033	11125	1	0.00
7	9.43	OXALATE	0.053	2894	4756	1	0.75
8	11.20	PHOSPHATE	0.050	452	1755	1	0.00
10	12.01	CITRATE	0.027	294	1000	1	0.00
11	12.26		0.000	118	390	1	
12	12.54		0.000	91	800	1	
13	12.97		0.000	98	1081	1	
14	13.19		0.000	103	308	1	
15	13.38		0.000	131	703	1	
16	13.72		0.000	157	886	1	
17	13.93		0.000	132	418	1	
18	14.78		0.000	206	3205	1	
19	14.98		0.000	111	348	1	
20	15.12		0.000	114	305	1	
21	16.20		0.000	124	613	1	
22	16.50		0.000	80	214	1	
23	16.88		0.000	185	3786	1	
Totals			0.244	20175	80506		

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 198 TO 212

File: JAN28001.DXD Sample WATER BLANK - A01

Data File : J:\DATA\JAN28002.DXD	Report Date: 1/20/98 10:08:14 AM
Sample Name: WATER BLANK - A01	Collected : 1/19/98 9:43:32 AM
Inject # : 2	Vial # : A01
Method File: c:\peaknet\method\as11an1.met	Calibrated : 12/15/97 3:24:38 PM
System Name: ANIONS SYSTEM1	Detector : CD20
Column Type:	Operator : EH COLVIN
Data Points: 7500	Rate : 5.00 Hz
Module Name:	ID:24 10 88 Moduleware : 2.10

Calibration	Volume	Dilution	Start	Stop	Area	Reject	Pk. Width	Threshold
External	50	1	0.00	25.00	100	5.00	1.70	

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	5.42		0.000	319	1323	1	
2	7.61		0.000	605	2879	1	
3	8.91		0.000	7303	57944	1	
4	9.38	SULFATE	0.306	8940	29952	1	0.00
6	12.75		0.000	86	266	1	
7	13.61		0.000	80	405	1	
8	14.39		0.000	94	1082	1	
9	14.63		0.000	107	537	1	
10	15.13		0.000	104	627	1	
11	15.40		0.000	124	495	1	
12	16.13		0.000	161	2743	1	
13	16.35		0.000	82	250	1	
14	16.72		0.000	57	1086	1	
15	16.93		0.000	120	376	1	
16	17.14		0.000	106	1095	1	
Totals			0.306	18288	101061

```

=====
Data File   : J:\DATA\JAN28003.DXD      Report Date: 1/20/98 10:02:14 AM
Sample Name: 114N20-A STD - A02         Collected  : 1/19/98 10:10:13 AM
Inject #    : 3                         Vial #       : A02
Method File: c:\peaknet\method\as11an1.met Calibrated  : 12/15/97 3:24:38 PM
System Name: ANIONS SYSTEM1             Detector    : CD20
Column Type:                             Operator     : EH COLVIN
Data Points: 7500                        Rate         : 5.00 Hz
Module Name:                             ID:24 10 88 Moduleware : 2.10
=====

```

```

=====
Calibration Volume Dilution Start Stop Area Reject Pk. Width Threshold
-----
External          50          101    0.00 25.00          100          5.00          1.70
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	2.04		0.000	411	1791	1	
2	2.66		0.000	451	2591	1	
3	5.41		0.000	18751	73281	1	
4	7.61		0.000	1025	5131	1	
5	8.93		0.000	2505	12501	1	
6	9.37	SULFATE	632.396	175687	596680	1	0.00
7	9.63	OXALATE	558.586	115466	441136	1	2.77
8	10.20	NTA	661.909	35480	203428	1	0.00
9	11.15	PHOSPHATE	571.849	46026	200816	1	0.00
10	11.94	CITRATE	703.238	49650	236483	1	0.00
11	14.06		0.000	159	28990	1	
12	14.31		0.000	256	1910	1	
13	15.39		0.000	176	3181	1	
14	16.27		0.000	88	1450	1	
15	16.51		0.000	88	340	1	
16	16.79		0.000	105	490	1	
17	16.99		0.000	78	208	1	
18	17.15		0.000	85	233	1	
Totals			3127.978	446487	1810641

Data File : J:\DATA\JAN28004.DXD	Report Date: 1/20/98 10:02:53 AM
Sample Name: 99N20-I IDA STD - A03	Collected : 1/19/98 10:37:03 AM
Inject # : 4	Vial # : A03
Method File: c:\peaknet\method\as11an1.met	Calibrated : 12/15/97 3:24:38 PM
System Name: ANIONS SYSTEM1	Detector : CD20
Column Type:	Operator : EH COLVIN
Data Points: 7500	Rate : 5.00 Hz
Module Name:	ID:24 10 88 Moduleware : 2.10

Calibration	Volume	Dilution	Start	Stop	Area	Reject	Pk. Width	Threshold
External	50	101	0.00	25.00	100	5.00	1.70	

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	2.05		0.000	504	1966	1	
2	2.67		0.000	438	2107	1	
3	5.41		0.000	17755	71555	1	
4	7.62		0.000	1029	6931	1	
5	8.39	IDA	774.377	30432	188519	1	0.00
6	8.94		0.000	3220	19452	1	
7	9.39	SULFATE	14.539	4044	14079	1	0.00
8	10.34	NTA	9.212	789	2748	1	0.00
10	15.61		0.000	96	623	1	
11	15.81		0.000	92	473	1	
12	16.18		0.000	126	3096	1	
13	16.69		0.000	142	2703	1	
14	17.09		0.000	68	1017	1	
Totals			798.128	58735	315270		

File: JAN28004.DXD Sample 99N20-I IDA STD - A03

```

=====
Data File   : J:\DATA\JAN28005.DXD          Report Date: 1/20/98 10:03:20 AM
Sample Name: PREP BLANK - A04                Collected  : 1/19/98 11:03:49 AM
Inject #    : 5                             Vial #     : A04
Method File : c:\peaknet\method\as11an1.met  Calibrated  : 12/15/97 3:24:38 PM
System Name : ANIONS SYSTEM1                 Detector   : CD20
Column Type :                               Operator    : EH COLVIN
Data Points : 7500                           Rate       : 5.00 Hz
Module Name :                               ID:24 10 88 Moduleware : 2.10
=====

```

```

=====
Calibration Volume Dilution Start Stop Area Reject Pk. Width Threshold
-----
External          50          1   0.00 25.00          100          5.00          1.70
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	5.41		0.000	894	3537	1	
2	7.62		0.000	690	3131	1	
3	8.93		0.000	2941	15314	1	
4	9.39	SULFATE	0.073	2269	7146	1	0.00
5	16.18		0.000	75	123	1	
6	16.48		0.000	438	1085	1	
7	16.90		0.000	117	1182	1	
Totals			0.073	7424	31518		

File: JAN28005.DXD Sample PREP BLANK - A04

```

=====
Data File   : J:\DATA\JAN28006.DXD      Report Date: 1/20/98 10:03:58 AM
Sample Name: S98T000043 - A05          Collected  : 1/19/98 11:30:31 AM
Inject #    : 6                        Vial #       : A05
Method File : c:\peaknet\method\as11an1.met  Calibrated  : 12/15/97 3:24:38 PM
System Name : ANIONS SYSTEM1            Detector    : CD20
Column Type :                          Operator     : EH COLVIN
Data Points : 7500                      Rate        : 5.00 Hz
Module Name :                          ID:24 10 88 Moduleware : 2.10
=====

```

```

-----
Calibration Volume Dilution Start Stop Area Reject Pk. Width Threshold
-----
External          50          41    0.00 25.00          100          5.00          1.70
-----

```

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	1.87		0.000	4681	22284	1	
2	2.06		0.000	3065	17599	1	
3	2.68		0.000	5041	29191	1	
4	3.36		0.000	450	2997	1	
5	5.42		0.000	48989	191640	1	
6	5.91		0.000	212774	1034616	1	
7	7.51		0.000	166416	1100870	1	
8	8.70		0.000	379	1897	1	
9	8.93		0.000	10452	98926	1	
10	9.40	SULFATE	111.771	79511	263650	1	0.00
11	9.66	OXALATE	54.879	32579	115785	1	2.77
12	10.44	NTA	0.546	125	401	1	0.00
13	11.20	PHOSPHATE	20.169	4584	17325	1	0.00
14	11.79		0.000	114	323	1	
15	11.99	CITRATE	2.900	635	2653	1	0.00
16	12.51		0.000	110	692	1	
17	16.81		0.000	153	9953	1	
18	17.00		0.000	154	641	1	
19	17.24		0.000	111	812	1	
Totals			190.265	570324	2912255

```

=====
Data File   : J:\DATA\JAN28007.DXD      Report Date: 1/20/98 10:05:22 AM
Sample Name: S98T000043 DUP - A06      Collected  : 1/19/98 11:57:14 AM
Inject #    : 7                        Vial #       : A06
Method File: c:\peaknet\method\as11an1.met Calibrated  : 12/15/97 3:24:38 PM
System Name: ANIONS SYSTEM1            Detector    : CD20
Column Type:                            Operator     : BH COLVIN
Data Points: 7500                       Rate        : 5.00 Hz
Module Name:                            ID:24 10 88 Moduleware : 2.10
=====

```

```

=====
Calibration Volume Dilution Start Stop Area Reject Pk. Width Threshold
-----
External          50          41    0.00 25.00          100          5.00          1.70
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	0.66		0.000	762	20370	1	
2	1.87		0.000	4567	29523	1	
3	2.05		0.000	2819	16998	1	
4	2.70		0.000	5418	31174	1	
5	3.38		0.000	546	3936	1	
6	5.42		0.000	46496	188592	1	
7	5.92		0.000	228049	1086817	1	
8	7.51		0.000	161977	1077019	1	
9	8.71		0.000	249	1367	1	
10	8.93		0.000	10990	108051	1	
11	9.41	SULFATE	115.700	80769	272805	1	0.00
12	9.67	OXALATE	57.246	32598	120627	1	2.76
13	11.23	PHOSPHATE	22.317	4992	19172	1	0.00
14	11.82		0.000	163	581	1	
15	12.03	CITRATE	3.065	682	2803	1	0.00
16	12.32		0.000	91	254	1	
17	12.52		0.000	103	309	1	
18	13.23		0.000	138	162	1	
19	13.62		0.000	126	1065	1	
20	15.96		0.000	106	1778	1	
21	17.07		0.000	111	10162	1	
22	17.25		0.000	236	39175	1	
Totals			198.328	581988	3032740		

HNF-SD-WM-DP-266, REV. 0

```

=====
Data File   : J:\DATA\JAN28008.DXD      Report Date: 1/20/98 10:05:58 AM
Sample Name: S98T000043 SPK - A07      Collected  : 1/19/98 12:23:58 PM
Inject #    : 8                        Vial #       : A07
Method File: c:\peaknet\method\as11an1.met  Calibrated  : 12/15/97 3:24:38 PM
System Name: ANIONS SYSTEM1            Detector    : CD20
Column Type:                            Operator     : EH COLVIN
Data Points: 7500                       Rate        : 5.00 Hz
Module Name:                            ID:24 10 88 Moduleware : 2.10
=====

```

```

-----
Calibration Volume Dilution Start Stop Area Reject Pk. Width Threshold
-----
External          50          41    0.00 25.00          100          5.00          1.70
-----

```

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	1.86		0.000	3472	18845	1	
2	2.05		0.000	2255	11663	1	
3	2.68		0.000	4468	29403	1	
4	3.37		0.000	490	3082	1	
5	5.43		0.000	53459	205547	1	
6	5.92		0.000	222154	1054945	1	
7	7.51		0.000	170247	1118976	1	
8	8.91		0.000	9553	83589	1	
9	9.37	SULFATE	398.754	258185	914062	1	0.00
10	9.63	OXALATE	304.737	143692	574505	1	2.77
11	10.40	NTA	315.787	38331	240415	1	0.00
12	11.16	PHOSPHATE	295.819	57516	256457	1	0.00
13	11.97	CITRATE	324.303	55172	265532	1	0.00
14	13.35		0.000	175	1575	1	
15	15.63		0.000	123	2055	1	
16	16.03		0.000	91	101	1	
17	16.90		0.000	91	3922	1	
18	17.18		0.000	65	189	1	
Totals			1639.400	1019538	4784863

```

=====
Data File   : J:\DATA\JAN28009.DXD      Report Date: 1/20/98 10:06:32 AM
Sample Name: S98T000043 IDA SPK - A08    Collected  : 1/19/98 12:50:42 PM
Inject #    : 9                          Vial #      : A08
Method File: c:\peaknet\method\as11an1.met Calibrated : 12/15/97 3:24:38 PM
System Name: ANIONS SYSTEM1              Detector    : CD20
Column Type:                             Operator     : EH COLVIN
Data Points: 7500                        Rate        : 5.00 Hz
Module Name:                             ID:24 10 88 Moduleware : 2.10
=====

```

```

-----
Calibration Volume Dilution Start Stop Area Reject Pk. Width Threshold
-----
External          50          41    0.00 25.00          100          5.00          1.70
-----

```

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

Pk. Num	Ret Time	Component Name	Concentration UG/ML	Height	Area	Bl. Code	%Delta
1	1.49		0.000	1112	1813	1	
2	1.87		0.000	5269	26152	1	
3	2.05		0.000	2947	16913	1	
4	2.68		0.000	9960	61325	1	
5	3.37		0.000	572	3537	1	
6	5.41		0.000	48801	201924	1	
7	5.91		0.000	218304	1053858	1	
8	7.51		0.000	170818	1124833	1	
9	8.40	IDA	280.375	30305	167873	1	0.00
10	8.92		0.000	10466	99785	1	
11	9.39	SULFATE	116.177	82416	273916	1	0.00
12	9.65	OXALATE	56.598	33209	119301	1	2.77
13	10.50	NTA	4.442	978	3265	1	0.00
14	11.19	PHOSPHATE	21.709	4613	18649	1	0.00
15	11.81		0.000	114	333	1	
16	11.99	CITRATE	3.271	705	2992	1	0.00
17	12.17		0.000	76	240	1	
18	12.33		0.000	184	266	1	
19	13.55		0.000	108	813	1	
20	17.07		0.000	122	37452	1	
21	17.28		0.000	301	41117	1	
Totals			482.571	621379	3256357		

HNF-SD-WM-DP-266, REV. 0

LABCORE Completed Worklist Report for Worklist# 21887

Analyst: pjm

Instrument: IC03

Book# 3N20B^{10m} 39N20B
1-20-98

Method: LA-533-A05 Rev/Mod E-0

Worklist Comment: TK AX 103 (DF 10201) RUSH \$SLP\$

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 CCB	0	@IC4G-QC F*4	QC	1	<1.10e-2		ug/mL
1 CCB	0	@IC4G-QC ACETATE2	QC	1	<2.00e-2		ug/mL
1 CCB	0	@IC4G-QC FORMATE2	QC	1	<2.10e-2		ug/mL
1 CCB	0	@IC4G-QC GLYCOLTI	QC	1	<2.00e-2		ug/mL
2 CCV	0	@IC4G-QC F*4	QC	5.70e01	5.57e01	97.719 % Recovery	
2 CCV	0	@IC4G-QC ACETATE2	QC	1.21e02	1.14e02	94.215 % Recovery	
2 CCV	0	@IC4G-QC FORMATE2	QC	1.26e02	1.18e02	93.651 % Recovery	
2 CCV	0	@IC4G-QC GLYCOLTI	QC	1.19e02	1.16e02	97.479 % Recovery	
3 SAMPLE	S98T000042 0	@IC4G-01 ACETATE2	LIQUID	N/A	2.188e+03	591.700	ug/mL
3 SAMPLE	S98T000042 0	@IC4G-01 FORMATE2	LIQUID	N/A	4.451e+03	632.500	ug/mL
3 SAMPLE	S98T000042 0	@IC4G-01 GLYCOLTI	LIQUID	N/A	3.410e+03	571.300	ug/mL
4 DUP	S98T000042 0	@IC4G-01 ACETATE2	LIQUID	2.19e+03	2.55e+03	15.190 RPD	
4 DUP	S98T000042 0	@IC4G-01 FORMATE2	LIQUID	4.45e+03	4.69e+03	5.252 RPD	
4 DUP	S98T000042 0	@IC4G-01 GLYCOLTI	LIQUID	3.41e+03	3.63e+03	6.250 RPD	
5 SPK	S98T000042 0	@IC4G-01 ACETATE2	LIQUID	1.21e02	1.31e02	108.264 % Recovery	
5 SPK	S98T000042 0	@IC4G-01 FORMATE2	LIQUID	1.26e02	1.26e02	100.000 % Recovery	
5 SPK	S98T000042 0	@IC4G-01 GLYCOLTI	LIQUID	1.19e02	1.20e02	100.840 % Recovery	

Final page for worklist# 21887

Analyst Signature

Date

Analyst Signature

Date

Reviewer Signature

Date

Jan M. Lyle 1/20/98

01/16/98 15:41

A-0004-1

Page: 1

LABCORE Data Entry Template for Worklist# 21887

Analyst: RMC Instrument: IC0Book# 39020BMethod: LA-533-H05 Rev/Mod C-0

Worklist Comment: TK AX 103 (DF 10201) RUSH \$SLPS

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 CCB			@IC4G-QC	QC		
2 CCV			@IC4G-QC	QC		
3 SAMPLE	S98T000042 0		@IC4G-01 LIQUID		97000494	AX-103
	Analytes Requested: ACETATE2, FORMATE2, GLYCOLT1					
4 DUP	S98T000042 0		@IC4G-01 LIQUID			
5 SPK	S98T000042 0		@IC4G-01 LIQUID			

Final page for worklist # 21887

RMC 1/18/98
 Analyst Signature Date

John D. Doral 1-20-98
 Analyst Signature Date

Data Entry Comments:

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

Sample Name: CCB Date: 01/18/1998 22:17:53
 Data File : C:\DX\DATA\98011801.D02
 Method : C:\DX\METHOD\GLYCOLIC.MET
 ACI Address: 1 System: 2 Inject#: 2 Detector: CDM-1
 Analyst : Ed Colvin Column: AG4A-SC, AS4A-SC, SRS

Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 1 4500 5Hz 0.00 15.00 0

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.23		0.000	40	359	1	
2	1.07		0.000	76	440	1	
3	1.52		0.000	7	201	1	
4	6.28		0.000	67	691	1	
5	6.96		0.000	1777	47054	1	
6	8.26		0.000	376	2919	2	
7	8.55		0.000	989	75911	2	

Totals 0.000 3332 127575

DIRECT By McCorn 1/18/98
 File: 98011801.D02 Sample: CCB

Sample Name: CCV 39N20B Date: 01/18/1998 22:40:54
 Data File : C:\DX\DATA\98011801.D03
 Method : C:\DX\METHOD\GLYCOLIC.MET
 ACI Address: 1 System: 2 Inject#: 3 Detector: CDM-1
 Analyst : Ed Colvin Column: AG4A-SC, AS4A-SC, SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	4500	5Hz	0.00	15.00		0

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.07		0.000	54	290	1	
2	2.33	fluoride	55.716	2170	11973	2	0.00
3	2.62	acetate	113.811	688	4714	2	0.00
4	2.79	glycolate	116.301	760	5553	2	0.00
5	3.37	formate	117.957	1321	10388	1	0.00
6	6.07		0.000	336	32224	1	
7	6.71		0.000	615	9724	1	
8	8.25		0.000	271	2127	2	
9	8.47		0.000	519	40318	2	
Totals			403.784	6733	117311		

100 mL - 10 mL B. McCown 1/18/98
 File: 98011801.D03 Sample: CCV 39N20B

=====

Sample Name: S98T000042 SMPL	Date: 01/18/1998 23:00:10
Data File : C:\DX\DATA\98011801.D04	
Method : C:\DX\METHOD\GLYCOLIC.MET	
ACI Address: 1 System: 2 Inject#: 4	Detector: CDM-1
Analyst : Ed Colvin	Column: AG4A-SC, AS4A-SC, SRS

=====

Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 10201 4500 5Hz 0.00 15.00 0

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.23		0.000	38	335	1	
2	1.07		0.000	50	317	1	
3	1.73		0.000	34	1260	1	
4	2.35	fluoride	231.586	14	76	1	0.00
5	2.62	acetate	2188.022	134	910	2	0.00
6	2.79	glycolate	3409.882	203	1432	2	0.00
7	3.39	formate	4450.546	480	3660	1	0.00
8	4.20		0.000	53	398	1	
9	5.64		0.000	7490	73541	2	
10	6.06		0.000	33712	434876	3	
11	7.49		0.000	3527	126226	4	
12	7.95		0.000	14694	397525	2	

Totals 10280.036 60430 1040557

100ML-10ML - 100ML-10ML *Bill*
 File: 98011801.D04 Sample: S98T000042 SMPL

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=====
Sample Name: S98T000042 DUP                      Date: 01/18/1998 23:21:31
Data File  : C:\DX\DATA\98011801.D05
Method     : C:\DX\METHOD\GLYCOLIC.MET
ACI Address: 1 System: 2 Inject#: 5                Detector: CDM-1
Analyst    : Ed Colvin                            Column: AG4A-SC, AS4A-SC, SRS
=====

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=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          10201  4500  5Hz   0.00 15.00          0
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.07		0.000	41	274	1	
2	1.45		0.000	32	1228	1	
3	2.38	fluoride	215.014	8	40	1	0.00
4	2.61	acetate	2546.241	148	1061	2	0.00
5	2.78	glycolate	3628.279	214	1539	2	0.00
6	3.37	formate	4692.435	483	3877	1	0.00
7	4.20		0.000	52	389	1	
8	5.63		0.000	8502	72803	2	
9	6.04		0.000	32481	470701	3	
10	7.57		0.000	3594	113524	4	
11	7.94		0.000	14582	402697	2	
12	11.87		0.000	51	133	1	

Totals 11081.970 60187 1068267

**100ML-10ML--100ML-10ML PHM*
File: 98011801.D05 Sample: S98T000042 DUP

Sample Name: S98T000042 SPK Date: 01/18/1998 23:44:25
 Data File : C:\DX\DATA\98011801.D06
 Method : C:\DX\METHOD\GLYCOLIC.MET
 ACI Address: 1 System: 2 Inject#: 6 Detector: CDM-1
 Analyst : Ed Colvin Column: AG4A-SC, AS4A-SC, SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	10201	4500	5Hz	0.00	15.00		0

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.07		0.000	45	279	1	
2	1.82		0.000	31	1169	1	
3	2.31	fluoride	5908.250	2240	12599	2	0.00
4	2.60	acetate	15375.458	876	6237	2	0.00
5	2.77	glycolate	15491.290	1058	7424	2	0.00
6	3.36	formate	17220.380	1998	15197	1	0.00
7	4.19		0.000	53	421	1	
8	5.63		0.000	8286	71508	2	
9	6.04		0.000	32010	456398	3	
10	7.47		0.000	3601	130073	4	
11	7.94		0.000	14399	399517	2	

Totals 53995.379 64596 1100822

100mL - 10mL - 100mL - 100mL 39N20B
 9.9mL ELUENT

File: 98011801.D06 Sample: S98T000042 SPK

08/14/97 14:20
A-0004-1

LABCORE Data Entry Template for Worklist# 19803

Analyst: J. Worrell Instrument: ICP01 _____ Book# 58A486Method: LA-505-151/461 Rev/Mod E-1

Worklist Comment: ICP AX-103 (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	S97T001828 0 D		@ICP-D01	LIQUID	97000494	AX-103
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	S97T001828 0 D		@ICP-D01	LIQUID		
8 ICSA			@ICP-QC	QC		
9 ICSAB			@ICP-QC	QC		
10 CCV			@ICP-QC	QC		
11 CCB			@ICP-QC	QC		

Final page for worklist # 19803

J. H. Worrell 8-14-97
Analyst Signature Date

Reviewed & Validated by:
Saul H. Pang 8/14/97
Analyst Signature Date

Data Entry Comments:

AX-103 PB DIRECT
 970814A.DAT
 S977001828

ACV

ACB

LLS

ICSA

ICSAB

S977001828

SAM-DIRECT

DUP-DIRECT

ICSA

ICSAB

CCB

CCV

Identity 1: ICV Identity 2: Quality Control 12:53 PM August 14, 1997
 Task name : OPTIMA
 Sample Weight : 1.0000 Solution Volume : 1.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	4.955	5.134	5.176	4.871	5.091	5.063	5.449	5.368
S.D.	0.014	0.015	0.037	0.010	0.019	0.029	0.001	0.028
% R.S.D.	0.287	0.286	0.706	0.211	0.377	0.581	0.016	0.518

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	5.114	4.928	5.000	4.847	4.800	4.789	5.166	10.601
S.D.	0.017	0.022	0.015	0.015	0.007	0.017	0.019	0.024
% R.S.D.	0.337	0.437	0.293	0.312	0.143	0.347	0.367	0.226

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	4.979	5.306	5.158	5.224	4.985	4.776	5.206	5.604
S.D.	0.035	0.007	0.011	0.069	0.022	0.025	0.014	0.032
% R.S.D.	0.703	0.136	0.206	1.311	0.434	0.516	0.266	0.573

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	5.041	5.046	4.810	4.912	4.958	5.011	5.218	4.877
S.D.	0.029	0.015	0.038	0.017	0.024	0.009	0.033	0.013
% R.S.D.	0.566	0.293	0.780	0.339	0.483	0.186	0.630	0.270

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	4.849	5.045	5.125	5.096
S.D.	0.044	0.017	0.011	0.029
% R.S.D.	0.903	0.331	0.219	0.565

970814A.DAT

Joh Wauell

8-14-97

AX-103 DIRECT

5977001828

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 222 TO 224

Identity 1: IGV Identity 2: Quality Control 12:57 PM August 14, 1997

Task name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	4.907	5.106	5.130	4.823	5.028	4.958	5.451	5.413
S.D.	0.004	0.001	0.033	0.009	0.012	0.012	0.009	0.015
% R.S.D.	0.084	0.025	0.638	0.184	0.231	0.246	0.172	0.276

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	5.019	4.852	4.961	4.760	4.764	4.680	5.141	10.623
S.D.	0.012	0.002	0.023	0.014	0.014	0.006	0.047	0.012
% R.S.D.	0.245	0.042	0.467	0.290	0.293	0.120	0.921	0.115

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	4.968	5.296	5.144	5.188	4.960	4.681	5.167	5.635
S.D.	0.019	0.009	0.006	0.031	0.036	0.010	0.016	0.024
% R.S.D.	0.374	0.171	0.126	0.593	0.726	0.223	0.309	0.418

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	4.961	4.958	4.771	4.855	4.881	4.956	5.195	4.786
S.D.	0.014	0.002	0.027	0.003	0.004	0.012	0.013	0.005
% R.S.D.	0.277	0.040	0.556	0.056	0.083	0.233	0.251	0.111

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	4.831	4.967	5.071	5.091
S.D.	0.053	0.001	0.009	0.035
% R.S.D.	1.106	0.019	0.175	0.679

Identity 1: ICB Identity 2: Quality Control 1:01 PM August 14, 1997

Task name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.004	0.001	0.000	0.005	-0.016	0.001	0.002	0.001
S.D.	0.003	0.002	0.005	0.004	0.013	0.004	0.002	0.002
% R.S.D.	61.350	142.761	1576.786	79.424	80.910	346.802	117.695	186.339

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Kd (ppm)	U (ppm)
Mean	0.002	-0.001	0.009	0.003	0.004	-0.001	0.018	0.042
S.D.	0.002	0.004	0.001	0.005	0.002	0.003	0.007	0.053
% R.S.D.	111.348	316.885	9.118	182.787	37.855	229.375	36.986	124.313

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.012	-0.026	0.001	-0.004	-0.001	0.001	-0.005	-0.001
S.D.	0.012	0.009	0.002	0.013	0.002	0.002	0.004	0.006
% R.S.D.	97.413	35.340	148.752	344.432	118.643	139.772	95.250	433.078

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.002	-0.000	-0.028	0.001	-0.000	0.005	0.088	0.001
S.D.	0.002	0.002	0.007	0.002	0.002	0.003	0.012	0.002
% R.S.D.	95.927	572.216	24.926	127.830	1678.888	48.162	13.080	158.295

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.073	0.001	0.001	0.017
S.D.	0.026	0.003	0.002	0.025
% R.S.D.	35.998	330.851	245.730	147.249

Identity 1: LLS Identity 2: Quality Control 1:05 PM August 14, 1997
 Task name : OPTIMA
 Sample Weight : 1.0000 Solution Volume : 1.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.019	0.021	0.189	0.113	0.112	0.047	0.021	0.021
S.D.	0.000	0.000	0.011	0.001	0.002	0.002	0.001	0.000
% R.S.D.	1.868	0.193	5.667	0.867	1.801	4.673	2.630	0.537

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.022	0.035	0.103	0.097	0.187	0.018	0.196	0.305
S.D.	0.000	0.001	0.001	0.002	0.000	0.001	0.013	0.029
% R.S.D.	1.092	2.735	0.800	2.431	0.141	4.850	6.788	9.415

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	0.186	0.198	0.103	0.427	0.208	0.211	0.200	0.207
S.D.	0.005	0.006	0.000	0.010	0.006	0.000	0.006	0.001
% R.S.D.	2.818	3.146	0.063	2.443	2.815	0.148	2.826	0.614

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.104	0.022	0.181	0.019	0.009	0.110	0.705	0.021
S.D.	0.001	0.001	0.016	0.000	0.001	0.001	0.003	0.000
% R.S.D.	0.704	3.388	8.638	1.332	8.690	0.547	0.375	2.085

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.203	0.107	0.011	0.394
S.D.	0.018	0.000	0.000	0.014
% R.S.D.	8.687	0.379	1.504	3.673

Identity 1: ICSA Identity 2: Quality Control 1:08 PM August 14, 1997
 Task name : OPTIMA
 Sample Weight : 1.0000 Solution Volume : 1.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.007	0.002	-0.029	0.016	205.832	0.007	-0.001	-0.000
S.D.	0.000	0.000	0.007	0.003	0.142	0.003	0.000	0.000
% R.S.D.	5.060	3.571	22.672	17.004	0.069	35.620	47.624	91.297
	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.007	0.001	0.002	96.521	107.120	0.001	0.018	0.109
S.D.	0.000	0.001	0.003	0.230	0.191	0.004	0.003	0.010
% R.S.D.	1.978	41.401	142.042	0.238	0.178	557.450	15.295	9.574
	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	0.004	0.032	0.002	0.027	-0.077	97.459	-0.035	195.386
S.D.	0.006	0.002	0.000	0.003	0.002	0.166	0.004	0.914
% R.S.D.	139.507	6.003	4.110	12.001	1.980	0.170	12.684	0.468
	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.001	0.001	-0.009	0.001	-0.001	0.017	0.170	0.008
S.D.	0.001	0.000	0.022	0.000	0.000	0.000	0.003	0.000
% R.S.D.	79.694	6.214	249.697	15.218	64.575	2.590	1.556	2.948
	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)				
Mean	0.119	0.001	0.003	0.032				
S.D.	0.001	0.001	0.000	0.007				
% R.S.D.	1.163	105.715	5.044	22.357				

Identity 1: ICSAB Identity 2: Quality Control

1:11 PM August 14, 1997

Task name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-0.000	0.002	-0.035	0.007	208.054	0.511	0.511	1.008
S.D.	0.002	0.000	0.004	0.004	0.297	0.000	0.002	0.010
% R.S.D.	447.468	6.522	10.420	48.677	0.143	0.085	0.328	0.993

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.998	0.995	0.007	95.812	106.062	0.500	0.000	0.058
S.D.	0.004	0.007	0.001	0.105	0.031	0.004	0.007	0.074
% R.S.D.	0.372	0.745	13.182	0.109	0.029	0.817	4795.166	126.901

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Hg (ppm)	As (ppm)	Na (ppm)
Mean	-0.014	0.013	0.524	0.009	-0.093	95.332	-0.049	200.657
S.D.	0.017	0.014	0.001	0.014	0.002	0.475	0.008	1.700
% R.S.D.	123.390	109.051	0.270	150.910	2.172	0.498	15.277	0.847

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	-0.002	1.060	0.995	0.000	1.005	0.014	0.050	0.506
S.D.	0.002	0.003	0.024	0.001	0.005	0.001	0.021	0.003
% R.S.D.	97.174	0.302	2.399	138.461	0.451	3.606	41.249	0.528

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.044	0.495	0.502	0.017
S.D.	0.034	0.002	0.000	0.040
% R.S.D.	78.462	0.353	0.093	236.130

1

Identity 1: s97t001828 Identity 2: direct 1:14 PM August 14, 1997

Task name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-0.009	0.000	-0.017	0.583	-0.018	-0.002	0.000	-0.000
S.D.	0.001	0.000	0.010	0.004	0.003	0.004	0.001	0.000
% R.S.D.	13.490	152.753	58.490	0.708	16.309	176.099	198.525	110.233

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.000	-0.013	-0.002	-0.006	0.092	-0.006	-0.005	-0.477
S.D.	0.000	0.001	0.002	0.000	0.004	0.002	0.015	0.071
% R.S.D.	160.847	7.405	132.805	7.122	4.485	26.728	318.118	14.815

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.012	-0.116	-0.000	-0.014	0.026	0.034	-0.007	0.539
S.D.	0.016	0.014	0.000	0.011	0.001	0.001	0.005	0.010
% R.S.D.	140.454	12.110	165.227	75.822	5.188	4.117	79.032	1.782

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	-0.001	-0.002	-0.021	-0.004	-0.001	0.070	0.119	0.002
S.D.	0.001	0.001	0.007	0.001	0.001	0.001	0.010	0.000
% R.S.D.	128.252	33.207	31.526	14.557	169.555	1.630	8.414	0.263

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.060	0.001	-0.000	0.046
S.D.	0.028	0.001	0.000	0.033
% R.S.D.	46.403	88.146	311.849	72.877

1

Identity 1: s97t001828_d Identity 2: direct

1:18 PM August 14, 1997

Task name: OPTIMA

Sample Weight: 1.0000 Solution Volume: 1.00

On-Peak Integrations: 3 Off-Peak Integrations: 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-0.006	0.002	-0.028	0.566	0.023	0.013	0.006	0.002
S.D.	0.003	0.000	0.012	0.004	0.013	0.002	0.001	0.001
% R.S.D.	58.578	20.217	43.168	0.632	57.250	17.297	22.527	21.070

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.005	-0.006	-0.002	-0.002	0.081	0.002	0.059	-0.319
S.D.	0.000	0.002	0.003	0.003	0.003	0.002	0.022	0.139
% R.S.D.	4.134	36.743	191.910	146.066	3.926	105.089	36.862	43.713

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	0.130	-0.067	0.003	0.003	0.016	0.030	0.006	0.539
S.D.	0.035	0.027	0.001	0.008	0.004	0.001	0.003	0.006
% R.S.D.	26.910	41.162	23.637	273.402	25.818	3.168	58.391	1.081

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.005	0.008	0.027	-0.002	0.003	0.071	0.262	0.002
S.D.	0.001	0.002	0.013	0.001	0.000	0.001	0.034	0.001
% R.S.D.	25.459	28.984	47.278	58.612	10.401	0.854	13.145	30.925

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.097	0.011	0.000	0.243
S.D.	0.020	0.003	0.000	0.076
% R.S.D.	21.044	25.514	130.839	31.453

†

Identity 1: ICSA Identity 2: Quality Control 1:20 PM August 14, 1997
 Task name : OPTIMA
 Sample Weight : 1.0000 Solution Volume : 1.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.003	0.002	-0.033	0.014	202.375	0.005	0.001	0.001
S.D.	0.001	0.000	0.009	0.003	0.600	0.002	0.000	0.000
% R.S.D.	22.462	2.804	27.422	20.014	0.296	40.228	24.289	22.117
	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.007	-0.001	0.000	97.754	107.213	0.005	0.033	-0.054
S.D.	0.000	0.003	0.001	0.161	0.231	0.001	0.016	0.010
% R.S.D.	3.393	350.258	207.540	0.164	0.215	29.787	46.543	17.630
	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Hg (ppm)	As (ppm)	Na (ppm)
Mean	0.041	0.015	0.002	-0.010	-0.092	95.350	-0.035	189.480
S.D.	0.001	0.002	0.000	0.008	0.007	0.309	0.006	0.580
% R.S.D.	3.117	10.493	3.641	82.222	7.286	0.324	17.108	0.306
	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.002	0.001	-0.002	0.000	0.001	0.016	0.182	0.007
S.D.	0.002	0.000	0.016	0.000	0.001	0.000	0.014	0.000
% R.S.D.	74.684	19.637	874.674	1349.899	69.605	2.847	7.472	3.907
	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)				
Mean	0.055	0.004	0.002	0.103				
S.D.	0.044	0.000	0.000	0.018				
% R.S.D.	79.575	0.895	6.652	17.800				

Identity 1: ICSAB Identity 2: Quality Control

1:23 PM August 14, 1997

Task name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-0.003	0.002	-0.023	0.004	204.413	0.513	0.495	0.956
S.D.	0.001	0.000	0.010	0.003	0.426	0.006	0.002	0.005
% R.S.D.	17.400	1.732	44.172	80.387	0.208	1.132	0.380	0.540

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	1.014	1.017	-0.004	98.645	106.931	0.511	0.004	-0.069
S.D.	0.003	0.003	0.001	0.149	0.213	0.002	0.001	0.022
% R.S.D.	0.281	0.305	32.982	0.151	0.199	0.308	27.960	32.009

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	0.011	-0.017	0.510	0.002	-0.084	97.143	-0.048	190.919
S.D.	0.004	0.006	0.001	0.002	0.006	0.207	0.004	0.754
% R.S.D.	36.966	35.869	0.240	146.716	7.311	0.213	8.093	0.395

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	-0.002	1.075	1.008	-0.001	1.011	0.018	0.218	0.516
S.D.	0.002	0.001	0.016	0.000	0.007	0.002	0.007	0.001
% R.S.D.	112.772	0.138	1.589	20.097	0.711	10.703	3.206	0.141

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.081	0.501	0.506	0.018
S.D.	0.033	0.000	0.002	0.021
% R.S.D.	41.204	0.044	0.300	118.505

1

Identity 1: CCV

Identity 2: Quality Control

1:30 PM August 14, 1997

Task name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	4.968	5.099	5.148	4.877	5.046	5.112	5.363	5.113
S.D.	0.010	0.009	0.016	0.013	0.011	0.021	0.016	0.032
% R.S.D.	0.195	0.172	0.316	0.258	0.213	0.409	0.298	0.631
	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	5.164	4.991	5.050	4.917	4.799	4.882	5.236	10.563
S.D.	0.015	0.017	0.020	0.023	0.008	0.026	0.022	0.036
% R.S.D.	0.296	0.349	0.395	0.467	0.176	0.525	0.422	0.341
	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	4.934	5.237	5.104	5.199	4.964	4.839	5.219	5.364
S.D.	0.028	0.009	0.011	0.035	0.041	0.021	0.013	0.029
% R.S.D.	0.569	0.171	0.220	0.674	0.827	0.429	0.245	0.536
	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	5.062	5.099	4.890	4.909	5.013	5.036	5.130	4.960
S.D.	0.015	0.017	0.024	0.009	0.007	0.003	0.027	0.019
% R.S.D.	0.303	0.326	0.498	0.177	0.137	0.058	0.536	0.393
	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)				
Mean	4.849	5.096	5.146	5.146				
S.D.	0.035	0.021	0.005	0.027				
% R.S.D.	0.720	0.413	0.100	0.520				

†

Identity 1: CCB

Identity 2: Quality Control

1:27 PM August 14, 1997

Task name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.004	-0.000	-0.003	0.008	-0.025	0.005	-0.001	-0.001
S.D.	0.001	0.000	0.014	0.003	0.004	0.002	0.001	0.000
% R.S.D.	31.344	44.607	411.656	41.934	13.857	42.942	45.304	27.726
	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.000	-0.003	0.004	0.008	0.006	-0.002	-0.021	0.119
S.D.	0.000	0.001	0.001	0.001	0.000	0.002	0.010	0.055
% R.S.D.	63.983	20.638	37.375	11.373	2.794	94.449	46.966	46.110
	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.036	0.038	-0.001	-0.012	-0.005	0.003	-0.004	0.003
S.D.	0.015	0.015	0.000	0.006	0.005	0.000	0.005	0.006
% R.S.D.	40.856	38.045	30.567	47.491	91.344	3.534	125.831	188.690
	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.001	-0.004	-0.036	0.001	-0.002	0.005	0.220	-0.000
S.D.	0.000	0.001	0.005	0.001	0.000	0.001	0.030	0.000
% R.S.D.	15.737	26.462	13.603	55.247	25.548	16.334	13.630	144.325
	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)				
Mean	0.085	-0.002	-0.000	-0.026				
S.D.	0.017	0.001	0.000	0.048				
% R.S.D.	20.255	43.071	232.561	188.281				

LABCORE Data Entry Template for Worklist# 20158

Analyst: B. Gredler Instrument: ICP01⁰² Book# 68848A

Method: LA-505-151/161 Rev/Mod C-2 ⁹⁻³⁻⁹⁷

Worklist Comment: ICP AX-103 (SOLID ACID DIGEST)

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	PREPSTDITJA		@ICP-A01	SOLID		
7	PREPELKTJA		@ICP-A01	SOLID		
8	SAMPLE	S97T001957 0 A	@ICP-A01	SOLID	97000495	AX-103
Analytes Requested: AG-A-01 , AL-A-01 , AS-A-01 , B-A-01 , BA-A-01 , BE-A-01 , BI-A-01 , CA-A-01 , CD-A-01 , CE-A-01 , CO-A-01 , CR-A-01 , CU-A-01 , FE-A-01 , K-A-01 , LA-A-01 , LI-A-01 , MG-A-01 , MN-A-01 , MO-A-01 , NA-A-01 , ND-A-01 , NI-A-01 , P-A-01 , PB-A-01 , S-A-01 , SB-A-01 , SE-A-01 , SI-A-01 , SM-A-01 , SR-A-01 , TI-A-01 , TL-A-01 , U-A-01 , V-A-01 , ZN-A-01 , ZR-A-01						
9	DUP	S97T001957 0 A	@ICP-A01	SOLID		
10	CCV		@ICP-QC	QC		
11	CCB		@ICP-QC	QC		
12	SERDIL	S97T001958 0 A	@ICP-A01	SOLID		
13	SAMPLE	S97T001958 0 A	@ICP-A01	SOLID	97000495	AX-103
Analytes Requested: AG-A-01 , AL-A-01 , AS-A-01 , B-A-01 , BA-A-01 , BE-A-01 , BI-A-01 , CA-A-01 , CD-A-01 , CE-A-01 , CO-A-01 , CR-A-01 , CU-A-01 , FE-A-01 , K-A-01 , LA-A-01 , LI-A-01 , MG-A-01 , MN-A-01 , MO-A-01 , NA-A-01 , ND-A-01 , NI-A-01 , P-A-01 , PB-A-01 , S-A-01 , SB-A-01 , SE-A-01 , SI-A-01 ,						

Data Entry Comments:

09/03/97 15:25
A-0004-1

Page: 2

LABCORE Data Entry Template for Worklist# 20158

S Type	Sample#	R A	Test	Matrix	Group#	Project
			SM-A-01 , ZN-A-01	SR-A-01 , ZR-A-01	TI-A-01 ,	TL-A-01 , U-A-01 , V-A-01 ,
14 DUP	S97T001958	0 A	@ICP-A01	SOLID		
15 SPK-PREDIG	S97T001958	0 A	@ICP-A01	SOLID		
16 SAMPLE	S97T001959	0 A	@ICP-A01	SOLID	97000495	AX-103
	Analytes Requested: AG-A-01 , AL-A-01 , AS-A-01 , B-A-01 , BA-A-01 , BE-A-01 , BI-A-01 , CA-A-01 , CD-A-01 , CE-A-01 , CO-A-01 , CR-A-01 , CU-A-01 , FE-A-01 , K-A-01 , LA-A-01 , LI-A-01 , MG-A-01 , MN-A-01 , MO-A-01 , NA-A-01 , ND-A-01 , NI-A-01 , P-A-01 , PB-A-01 , S-A-01 , SB-A-01 , SE-A-01 , SI-A-01 , SM-A-01 , SR-A-01 , TI-A-01 , TL-A-01 , U-A-01 , V-A-01 , ZN-A-01 , ZR-A-01					
17 DUP	S97T001959	0 A	@ICP-A01	SOLID		
18 CCV			@ICP-QC	QC		
19 CCB			@ICP-QC	QC		
20 PREPSTDJJA			@ICP-A01	SOLID		
21 PREPELKTJA			@ICP-A01	SOLID		
22 SERDIL	S97T001960	0 A	@ICP-A01	SOLID		
23 SAMPLE	S97T001960	0 A	@ICP-A01	SOLID	97000495	AX-103
	Analytes Requested: AG-A-01 , AL-A-01 , AS-A-01 , B-A-01 , BA-A-01 , BE-A-01 , BI-A-01 , CA-A-01 , CD-A-01 , CE-A-01 , CO-A-01 , CR-A-01 , CU-A-01 , FE-A-01 , K-A-01 , LA-A-01 , LI-A-01 , MG-A-01 , MN-A-01 , MO-A-01 , NA-A-01 , ND-A-01 , NI-A-01 , P-A-01 , PB-A-01 , S-A-01 , SB-A-01 , SE-A-01 , SI-A-01 , SM-A-01 , SR-A-01 , TI-A-01 , TL-A-01 , U-A-01 , V-A-01 , ZN-A-01 , ZR-A-01					
24 DUP	S97T001960	0 A	@ICP-A01	SOLID		
25 SPK-PREDIG	S97T001960	0 A	@ICP-A01	SOLID		
26 ICSA			@ICP-QC	QC		
27 ICSAB			@ICP-QC	QC		

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 20158

S Type	Sample#	R A	Test	Matrix	Group#	Project
28	CCV		@ICP-QC	QC		
29	CCB		@ICP-QC	QC		

Final page for worklist # 20158

Reviewed + Validated by:

8-3-97
Analyst Signature Date

9/4/97
Analyst Signature Date

S97T001960

Sample result:

$$Al = 123.8 \frac{\mu g}{mL} \times \frac{1}{5.0540 \frac{g}{L} \times \frac{1000-L}{1000-mL}} = 2.45e+4 \frac{\mu g}{g}$$

Pre-dig
Post-dig:

$$Al = \frac{5.180 - 0.6584}{5} \times 100 = 90.4 \%$$

Post-dig:

$$Al = \frac{\left(\frac{368.5}{25}\right) - \left(\frac{128.9}{25}\right)}{10} \times 100 = 95.8 \%$$

$$Na = \frac{\left(\frac{1181}{25}\right) - \left(\frac{942.7}{25}\right)}{10} \times 100 = 95.3 \%$$

S97T001958

Post-dig:

$$Na = \frac{\left(\frac{1201}{25}\right) - \left(\frac{970.1}{25}\right)}{10} \times 100 = 92.4 \%$$

Data Entry Comments:

238

HNF-SD-WM-DP-266, REV. 0

Analysis Report

Summary

Wed 09-03-97 03:11:26 PM

page 1

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	970903B	ICP2	09/03/97	13:15	BJG	Q	CONC
2	ICB	970903B	ICP2	09/03/97	13:18	BJG	Q	CONC
3	LLS	970903B	ICP2	09/03/97	13:21	BJG	Q	CONC
4	ICSA	970903B	ICP2	09/03/97	13:25	BJG	Q	CONC
5	ICSAB	970903B	ICP2	09/03/97	13:27	BJG	Q	CONC
6	PREPSTD TJJA	970903B	ICP2	09/03/97	13:31	BJG	Q	CONC
7	PREPBLKTJA	970903B	ICP2	09/03/97	13:35	BJG	Q	CONC
8	S97T001957	970903B	ICP2	09/03/97	13:38	BJG	S	CONC
9	S97T001957_D	970903B	ICP2	09/03/97	13:42	BJG	S	CONC
10	CCV	970903B	ICP2	09/03/97	13:45	BJG	Q	CONC
11	CCB	970903B	ICP2	09/03/97	13:49	BJG	Q	CONC
12	S97T001958_L	970903B	ICP2	09/03/97	13:52	BJG	S	CONC
13	S97T001958	970903B	ICP2	09/03/97	13:55	BJG	S	CONC
14	S97T001958_D	970903B	ICP2	09/03/97	13:59	BJG	S	CONC
15	S97T001958_S	970903B	ICP2	09/03/97	14:02	BJG	S	CONC
16	S97T001958_X	970903B	ICP2	09/03/97	14:06	BJG	S	CONC
17	S97T001958_AX	970903B	ICP2	09/03/97	14:09	BJG	S	CONC
18	S97T001959	970903B	ICP2	09/03/97	14:13	BJG	S	CONC
19	S97T001959_D	970903B	ICP2	09/03/97	14:16	BJG	S	CONC
20	CCV	970903B	ICP2	09/03/97	14:20	BJG	Q	CONC
21	CCB	970903B	ICP2	09/03/97	14:23	BJG	Q	CONC
22	PREPSTD TJJA	970903B	ICP2	09/03/97	14:26	BJG	Q	CONC
23	PREPBLKTJA	970903B	ICP2	09/03/97	14:29	BJG	Q	CONC
24	S97T001960_L	970903B	ICP2	09/03/97	14:32	BJG	S	CONC
25	S97T001960	970903B	ICP2	09/03/97	14:36	BJG	S	CONC
26	S97T001960_D	970903B	ICP2	09/03/97	14:42	BJG	S	CONC
27	S97T001960_S	970903B	ICP2	09/03/97	14:46	BJG	S	CONC
28	S97T001960_X	970903B	ICP2	09/03/97	14:49	BJG	S	CONC
29	S97T001960_AX	970903B	ICP2	09/03/97	14:52	BJG	S	CONC
30	ICSA	970903B	ICP2	09/03/97	14:55	BJG	Q	CONC
31	ICSAB	970903B	ICP2	09/03/97	14:58	BJG	Q	CONC
32	CCV	970903B	ICP2	09/03/97	15:01	BJG	Q	CONC
33	CCB	970903B	ICP2	09/03/97	15:04	BJG	Q	CONC

9-3-97

AX-103 Acid Digest

S97T001957-60

File # 0970903B.TXT

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 266 TO 244

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#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	4.894	4.822	5.150	5.021	4.878	5.036
2	ICB	.0011	.0190	.0169	.0092	.0001	.0002
3	LLS	.0230	.1233	.2033	.1063	.0992	.0107
4	ICSA	.0028	237.6	-.0083	-.0017	.0005	.0002
5	ICSAB	.9590	237.8	-.0439	.0056	.4614	.4753
6	PREPSTD TJJA	.9513	4.858	4.861	5.380	4.819	5.007
7	PREPBLKTJJA	.0030	Q.2339	.0079	Q.6988	.0021	.0003
8	S97T001957	.0801	115.6	-.2450	.9177	.0182	.0014
9	S97T001957_D	.0804	115.2	-.2408	.8985	.0313	.0013
10	CCV	4.897	4.842	5.195	5.050	4.935	5.058
11	CCB	.0021	.0267	.0211	.0034	.0002	.0002
12	S97T001958 L	.0883	114.5	-.0743	1.074	.0168	.0064
13	S97T001958	.0787	109.7	-.2186	.9842	.0160	.0021
14	S97T001958 D	.0801	109.9	-.2315	.8945	.0191	.0014
15	S97T001958 S	.4707	113.7	4.835	5.623	4.738	4.869
16	S97T001958 X	.1170	115.5	.2752	.9711	.0247	.0117
17	S97T001958 AX	234.5	351.7	249.1	244.9	250.1	245.4
18	S97T001959	.1344	112.5	-.2885	.9005	.0146	.0014
19	S97T001959_D	.0990	110.0	-.2207	.9223	.0152	.0003
20	CCV	4.904	4.844	5.149	5.029	4.996	5.041
21	CCB	.0037	.0267	.0363	.0058	.0001	.0004
22	PREPSTD TJJA	.9184	4.882	4.927	5.474	4.921	5.047
23	PREPBLKTJJA	.0008	Q.1623	.0126	Q.6974	.0015	-.0002
24	S97T001960 L	.0867	128.3	-.0617	1.062	.0214	.0016
25	S97T001960	.0817	123.8	-.2292	.9515	.0198	.0023
26	S97T001960 D	.0768	122.1	-.2417	.9442	.0179	.0016
27	S97T001960 S	1.036	125.3	4.757	5.383	4.773	4.846
28	S97T001960 X	.1012	128.9	.2117	1.104	.0210	.0074
29	S97T001960 AX	238.4	368.5	249.6	246.6	255.8	248.5
30	ICSA	.0275	240.4	-.0274	.0014	.0005	.0003
31	ICSAB	.9652	240.9	-.0366	.0026	.4796	.4797
32	CCV	4.946	4.873	5.158	5.022	5.078	5.069
33	CCB	.0014	.0169	.0127	.0029	.0002	.0003
#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	5.088	5.032	4.983	4.857	5.114	4.977
2	ICB	.0186	.0024	.0004	.0051	-.0008	-.0011
3	LLS	Q.1431	.1947	.0114	.2041	.0451	.0230
4	ICSA	-.0076	252.8	.0030	.0097	.0012	-.0029
5	ICSAB	.0204	253.9	.9319	.0123	.4637	.4675
6	PREPSTD TJJA	4.749	5.115	4.679	4.797	4.671	4.766
7	PREPBLKTJJA	-.0222	Q.3923	.0007	.0032	.0024	.0023
8	S97T001957	-.0124	1.204	.0356	.0255	.0139	13.83
9	S97T001957_D	-.0529	1.294	.0343	.0159	.0070	15.09
10	CCV	5.129	5.044	4.982	4.880	5.116	4.977
11	CCB	.0093	.0043	.0010	.0071	.0029	.0018
12	S97T001958 L	.1214	1.026	.0358	.0081	.0083	12.29
13	S97T001958	-.0423	1.160	.0311	.0190	.0113	11.93
14	S97T001958 D	-.0417	1.516	.0365	.0120	.0097	15.28
15	S97T001958 S	4.851	6.437	4.883	4.734	4.779	18.98
16	S97T001958 X	-.2187	1.295	.0489	.1862	.0370	16.06

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#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
17	S97T001958 AX	255.2	260.1	247.9	247.9	246.7	265.1
18	S97T001959	.0386	1.387	.0256	.0127	.0077	10.62
19	S97T001959 D	.0005	1.521	.0254	.0175	.0040	11.28
20	CCV	5.176	5.070	4.997	4.904	5.124	4.991
21	CCB	-.0074	.0035	.0015	.0074	.0008	.0010
22	PREPSTD TJJA	4.811	5.164	4.741	4.838	4.730	4.826
23	PREPBLKTJA	-.0195	Q.4435	.0007	.0062	-.0004	Q.0140
24	S97T001960 L	-.2534	1.411	.0333	.0409	.0034	19.90
25	S97T001960	.0399	1.364	.0463	.0263	.0089	19.07
26	S97T001960 D	-.0194	1.271	.0422	.0167	.0066	17.85
27	S97T001960 S	4.787	6.384	4.784	4.701	4.679	23.13
28	S97T001960 X	-.6795	1.029	.0726	.1215	.0036	18.74
29	S97T001960 AX	258.4	257.6	247.8	252.7	247.3	267.9
30	ICSA	-.0348	253.5	.0025	.0091	.0016	-.0014
31	ICSAB	.0134	256.9	.9375	.0115	.5149	.4711
32	CCV	5.200	5.113	5.010	4.957	5.149	5.027
33	CCB	-.0112	.0059	.0018	.0029	.0017	.0004

#	Sample Name	Cu	Eu	Fe	K	La	Li
1	ICV	4.987	.0060	4.657	4.637	4.947	4.772
2	ICB	.0000	.0003	.0007	.0268	.0009	.0005
3	LLS	.0188	.0012	.0931	.5467	.1026	.0210
4	ICSA	-.0086	-.0052	91.99	.1475	-.0029	.0033
5	ICSAB	.4413	-.0048	91.84	.1377	-.0026	.9960
6	PREPSTD TJJA	4.453	.0053	4.513	4.591	4.870	4.761
7	PREPBLKTJA	.0044	-.0005	Q.0626	.0591	.0008	-.0004
8	S97T001957	-.0101	.0033	.9761	16.38	.0088	.0021
9	S97T001957 D	-.0164	.0026	1.620	15.51	.0071	.0021
10	CCV	5.032	.0056	4.671	4.690	4.968	4.838
11	CCB	.0004	.0004	.0013	.1369	.0018	.0004
12	S97T001958 L	.0100	-.0032	.5271	15.55	.0093	-.0040
13	S97T001958	.0007	.0031	.5096	16.03	.0062	.0023
14	S97T001958 D	-.0146	.0045	.5620	14.68	.0067	.0031
15	S97T001958 S	4.378	.0093	5.193	19.86	4.828	4.683
16	S97T001958 X	-.0001	.0268	.5713	19.97	.0323	.0317
17	S97T001958 AX	225.9	.2734	233.5	244.1	247.5	238.1
18	S97T001959	.0028	.0058	.4271	16.07	.0094	.0034
19	S97T001959 D	-.0046	.0046	.4459	15.80	.0088	.0037
20	CCV	5.021	.0056	4.688	4.769	4.993	4.782
21	CCB	.0007	.0004	.0007	.0669	.0009	.0004
22	PREPSTD TJJA	4.475	.0050	4.585	4.622	4.924	4.702
23	PREPBLKTJA	.0047	.0011	.0334	.1569	.0005	.0010
24	S97T001960 L	-.0214	.0125	.6618	15.40	.0193	.0079
25	S97T001960	-.0165	.0030	.6584	15.52	.0126	.0016
26	S97T001960 D	-.0118	.0042	.5743	15.65	.0111	.0023
27	S97T001960 S	4.389	.0086	5.180	20.24	4.837	4.711
28	S97T001960 X	.0207	.0169	.5848	15.83	.0393	.0132
29	S97T001960 AX	231.9	.2448	234.7	254.6	252.5	246.4
30	ICSA	-.0088	-.0020	92.58	.1315	-.0023	.0030
31	ICSAB	.4512	-.0054	92.94	.0981	-.0030	1.016
32	CCV	5.082	.0058	4.711	4.841	5.064	4.844
33	CCB	.0003	.0005	.0007	-.0483	.0008	.0005

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#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	4.953	4.874	5.063	5.045	4.922	4.969
2	ICB	.0035	.0001	.0034	.0011	-.0029	-.0041
3	LLS	.2081	.0200	.1015	.1868	.1961	.0450
4	ICSA	247.0	-.0054	-.0071	190.0	-.0015	-.0138
5	ICSAB	247.1	.4422	-.0115	189.8	-.0031	.9094
6	PREPSTD TJJA	4.939	4.671	4.747	5.791	4.759	4.757
7	PREPBLKTJA	Q.3196	.0017	.0033	Q.9338	-.0005	-.0041
8	S97T001957	.2014	.0547	.3867	904.8	.0299	.2366
9	S97T001957_D	.2244	.0652	.3863	929.7	.0162	.2298
10	CCV	4.971	4.890	5.070	5.028	4.945	4.970
11	CCB	.0076	.0002	.0026	.0106	.0006	-.0043
12	S97T001958_L	.1766	.0424	.4240	959.9	-.0177	.1311
13	S97T001958	.1904	.0404	.3803	909.4	.0173	.1752
14	S97T001958_D	.3204	.0483	.3701	929.8	.0155	.2264
15	S97T001958_S	5.163	4.723	5.175	933.4	4.689	5.023
16	S97T001958_X	.4923	.0664	.4386	970.1	.0128	-.0373
17	S97T001958_AX	253.6	248.5	247.2	1201.	239.7	246.8
18	S97T001959	.2113	.0372	.4049	883.1	.0169	.1539
19	S97T001959_D	.1750	.0386	.3854	892.7	.0155	.1816
20	CCV	4.963	4.898	5.077	5.029	4.962	4.956
21	CCB	.0054	.0004	.0056	.0125	-.0013	-.0056
22	PREPSTD TJJA	4.867	4.724	4.805	5.962	4.792	4.821
23	PREPBLKTJA	Q.1267	.0021	.0127	Q.9259	-.0005	Q.0218
24	S97T001960_L	.2009	.0620	.4265	956.4	-.0138	.3224
25	S97T001960	.2260	.0557	.3913	927.8	.0337	.2882
26	S97T001960_D	.1820	.0512	.4016	892.2	.0333	.2835
27	S97T001960_S	4.853	4.664	5.114	914.5	4.729	5.053
28	S97T001960_X	.2235	.0664	.4291	942.7	-.0188	.1852
29	S97T001960_AX	257.9	247.9	248.4	1181.	245.5	248.0
30	ICSA	249.2	-.0054	-.0052	192.8	-.0018	-.0137
31	ICSAB	249.2	.4471	-.0078	192.8	-.0006	.9129
32	CCV	4.979	4.932	5.114	5.223	5.042	4.998
33	CCB	.0017	.0003	.0065	.0088	-.0016	-.0030

#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	5.024	4.958	4.949	4.791	4.686	5.038
2	ICB	-.0029	-.0166	.0012	.0051	.0271	.0024
3	LLS	.3875	.2269	.2159	.1141	.2292	Q.1297
4	ICSA	.0009	.0257	-.0142	.0124	.0625	.0132
5	ICSAB	-.0101	1.001	-.0250	.0196	.0277	.0103
6	PREPSTD TJJA	4.660	4.633	4.698	4.667	4.457	8.670
7	PREPBLKTJA	.0222	.0270	Q.1286	.0143	.0487	Q1.681
8	S97T001957	9.725	.3476	21.57	.0372	.1423	1.374
9	S97T001957_D	9.497	.3622	23.34	.0239	.1701	2.310
10	CCV	4.983	4.949	4.920	4.792	4.677	5.068
11	CCB	-.0109	.0127	.0036	.0108	.0432	.0036
12	S97T001958_L	4.731	.6052	22.05	.1279	.4583	3.531
13	S97T001958	4.560	.3513	21.40	.0100	.1612	3.447
14	S97T001958_D	5.430	.3889	24.56	.0389	.1743	2.730
15	S97T001958_S	11.67	5.226	28.24	4.857	4.753	7.385
16	S97T001958_X	5.356	.3816	25.58	.0818	1.521	3.153

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#	Sample Name	P	Pb	S	Sb	Se	Si
17	S97T001958 AX	242.4	252.4	260.8	247.7	240.2	259.0
18	S97T001959-	5.123	.3716	19.04	.0331	.2186	2.680
19	S97T001959_D	5.034	.3353	20.43	-.0031	.1536	2.400
20	CCV	4.889	5.000	4.890	4.827	4.653	5.064
21	CCB	-.0026	.0085	.0124	.0133	.0461	.0071
22	PREPSTDTJA	4.580	4.690	4.705	4.721	4.509	8.980
23	PREPBLKTJA	-.0117	.0170	Q.1381	.0130	.0483	Q1.738
24	S97T001960 L	10.94	.4280	21.86	.0505	.4533	2.130
25	S97T001960-	10.46	.4156	20.75	-.0112	.1368	1.934
26	S97T001960 D	6.802	.4204	20.44	.0095	.1799	2.935
27	S97T001960-S	11.13	5.148	25.90	4.733	4.657	6.556
28	S97T001960-X	6.726	.4945	21.00	.2404	1.587	3.365
29	S97T001960-AX	244.5	251.5	258.7	250.0	241.4	260.6
30	ICSA	.0004	.0407	-.0367	.0051	.0498	.0247
31	ICSAB	.0123	1.015	-.0316	.0120	.0572	.0162
32	CCV	4.943	5.027	4.922	4.834	4.696	5.091
33	CCB	-.0140	.0216	-.0000	.0092	.0473	.0073

#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	4.841	4.894	.1456	4.905	4.807	9.526
2	ICB	.0025	.0001	.0036	.0002	-.0198	.0130
3	LLS	.2091	.0203	.0084	.0219	.4116	.5320
4	ICSA	-.0030	.0017	-.0066	.0020	-.0133	.0079
5	ICSAB	.0008	.0017	-.0005	.0021	.0173	.0025
6	PREPSTDTJA	4.704	4.871	.1507	4.417	4.530	9.288
7	PREPBLKTJA	-.0123	.0010	.0073	.0026	-.0115	-.0380
8	S97T001957	.0161	.0082	.0431	.0108	-.0841	.6195
9	S97T001957_D	.0083	.0093	.0342	.0078	-.0587	.6957
10	CCV	4.870	4.910	.1474	4.910	4.749	9.588
11	CCB	.0046	.0001	.0068	.0007	-.0319	.0137
12	S97T001958 L	-.0381	.0075	.0697	.0028	-.0073	.5089
13	S97T001958-	.0174	.0076	.0386	.0061	-.0187	.6531
14	S97T001958 D	.0303	.0088	.0269	.0066	-.0410	.8027
15	S97T001958-S	4.653	4.814	.2730	4.392	4.554	9.796
16	S97T001958-X	.2897	.0149	.2452	.0234	-.2449	1.837
17	S97T001958-AX	239.3	245.6	7.737	245.2	243.9	465.5
18	S97T001959-	.0370	.0077	.0134	.0061	-.0552	.6145
19	S97T001959_D	.0289	.0076	.0187	.0055	-.0028	.6198
20	CCV	4.887	4.931	.1530	4.918	4.826	9.599
21	CCB	.0028	.0001	.0070	.0003	-.0059	.0105
22	PREPSTDTJA	4.751	4.922	.1526	4.447	4.571	9.374
23	PREPBLKTJA	.0066	.0011	-.0028	.0014	-.0064	.0243
24	S97T001960 L	.0917	.0129	.0132	.0084	-.1440	.8251
25	S97T001960-	.0103	.0105	.0510	.0079	-.0516	.5832
26	S97T001960 D	.0216	.0098	.0333	.0079	-.0303	.6153
27	S97T001960-S	4.662	4.828	.2585	4.363	4.491	9.677
28	S97T001960-X	.1813	.0128	.0038	.0226	-.4953	1.231
29	S97T001960-AX	244.2	251.3	7.453	249.0	243.0	477.5
30	ICSA	-.0078	.0019	.0009	.0018	.0054	-.0021
31	ICSAB	-.0066	.0018	.0041	.0018	.0315	-.0037
32	CCV	4.963	5.003	.1424	4.961	4.823	9.723
33	CCB	.0043	.0001	.0030	.0007	-.0126	.0160

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#	Sample Name	V	Y	Zn	Zr
1	ICV	5.058	.0078	4.949	4.921
2	ICB	.0010	.0004	-.0001	.0000
3	LLS	.1055	.0012	.0202	.0219
4	ICSA	.0023	.0078	.0059	-.0011
5	ICSAB	.4631	.0081	.9366	-.0014
6	PREFSTDTJA	4.776	.0062	4.898	4.866
7	PREFBLKTJA	-.0020	-.0004	Q.8275	.0010
8	S97T001957	.0101	.0050	.2695	.0520
9	S97T001957_D	.0089	.0052	.2679	.0575
10	CCV	5.077	.0074	4.942	4.936
11	CCB	.0010	.0005	-.0001	-.0005
12	S97T001958_L	.0004	.0027	.2521	.0348
13	S97T001958	.0079	.0046	.2472	.0451
14	S97T001958_D	.0107	.0061	.7171	.0555
15	S97T001958_S	4.817	.0121	5.936	4.914
16	S97T001958_X	.0800	.0227	.7470	.0772
17	S97T001958_AX	245.3	.3584	234.4	244.8
18	S97T001959	.0116	.0052	.2527	.0502
19	S97T001959_D	.0093	.0056	.2475	.0498
20	CCV	5.075	.0075	4.941	4.956
21	CCB	.0008	.0002	.0007	-.0002
22	PREFSTDTJA	4.825	.0066	4.618	4.926
23	PREFBLKTJA	.0017	.0005	Q.2606	.0047
24	S97T001960_L	.0312	.0143	.4307	.0833
25	S97T001960	.0097	.0078	.4243	.0686
26	S97T001960_D	.0106	.0082	.3397	.0617
27	S97T001960_S	4.760	.0147	4.856	4.922
28	S97T001960_X	.0505	.0191	.3866	.0877
29	S97T001960_AX	247.2	.3513	233.6	248.0
30	ICSA	.0001	.0075	.0067	-.0023
31	ICSAB	.4672	.0077	.9389	-.0021
32	CCV	5.124	.0076	4.963	5.008
33	CCB	.0014	.0005	.0005	.0004

LABCORE Data Entry Template for Worklist# 20180

Analyst: B. Glick Instrument: ICP⁰²01 Book# 68648

Method: LA-505-⁸⁸151/161 Rev/Mod C-2
⁸⁸⁹⁷

Worklist Comment: ICP AX-103 (SOLID ACID DIGEST)

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 PREPSTD TJA			@ICP-A01	SOLID		
7 PREPBLK TJA			@ICP-A01	SOLID		
8 SERDIL	S97T001891	0 A	@ICP-A01	SOLID		
9 SAMPLE	S97T001891	0 A	@ICP-A01	SOLID	97000494	AX-103
Analytes Requested: AG-A-01 , AL-A-01 , AS-A-01 , B-A-01 , BA-A-01 , BE-A-01 , BI-A-01 , CA-A-01 , CD-A-01 , CE-A-01 , CO-A-01 , CR-A-01 , CU-A-01 , FE-A-01 , K-A-01 , LA-A-01 , LI-A-01 , MG-A-01 , MN-A-01 , MO-A-01 , NA-A-01 , ND-A-01 , NI-A-01 , P-A-01 , PB-A-01 , S-A-01 , SB-A-01 , SE-A-01 , SI-A-01 , SM-A-01 , SR-A-01 , TI-A-01 , TL-A-01 , U-A-01 , V-A-01 , ZN-A-01 , ZR-A-01						
10 DUP	S97T001891	0 A	@ICP-A01	SOLID		
11 SPK-PREDIG	S97T001891	0 A	@ICP-A01	SOLID		
12 ICSA			@ICP-QC	QC		
13 ICSAB			@ICP-QC	QC		
14 CCV			@ICP-QC	QC		
15 CCB			@ICP-QC	QC		

Data Entry Comments:

09/04/97 16:03

A-0004-1

Page: 2

LABCORE Data Entry Template for Worklist# 20180

S Type	Sample#	R A Test	Matrix	Group#	Project
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Final page for worklist # 20180

[Signature] 9-4-97
 Analyst Signature Date

Revised & Validated by:
[Signature] 9/8/97
 Analyst Signature Date

5977001891

$$F_x = 0.5832 \frac{\mu\text{g}}{\text{mL}} \times \frac{1}{5.0400 \frac{\text{g}}{\text{L}} \times \frac{1\text{L}}{100\text{mL}}} = 1.162 + 2 \frac{\mu\text{g}}{\text{g}}$$

Pre-dig. spike:

$$F_x = \frac{5.071 - 0.5832}{5} \times 100 = 89.8\%$$

Post spike:

$$Al = \frac{\left(\frac{395.5}{25}\right) - \left(\frac{107.0}{25}\right)}{10} \times 100 = 98.4\%$$

$$Na = \frac{\left(\frac{1245}{25}\right) - \left(\frac{1015}{25}\right)}{10} \times 100 = 92.0\%$$

Data Entry Comments:

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

HNF-SD-WM-DP-266, REV. 0

ICV

ICB

LLS

ICSA

IC SAB

DREPSTD TTA

DIRELT

DF

AR-103 ACID DIGEST

DREP BKT TTA

DIRELT

1

FILE# 0970904A.TXT

E97T00 1891-L

4-6-1-21-21

12.5

E97T00 1891

4-6

2.5

E97T00 1891-D

4-6

2.5

ICV

ICB

E97T00 1891-S

4-6

2.5

E97T00 1891-X

4-6-1-9

2.5

E97T00 1891-AX

4-6-1-(1ml. ea. XWITH 2FT35)-7. 2.5

ICSA

IC SAB

ICV

ICB

Analysis Report

Summary

Thu 09-04-97 03:27:06 PM

page 1

HNF-SD-WM-DP-266, REV. 0

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	970904A	ICP2	09/04/97	14:23	BJG	Q	CONC
2	ICB	970904A	ICP2	09/04/97	14:26	BJG	Q	CONC
3	LLS	970904A	ICP2	09/04/97	14:29	BJG	Q	CONC
4	ICSA	970904A	ICP2	09/04/97	14:32	BJG	Q	CONC
5	ICSAB	970904A	ICP2	09/04/97	14:35	BJG	Q	CONC
6	PREPSTD TJ A	970904A	ICP2	09/04/97	14:38	BJG	Q	CONC
7	PREPBLKT J A	970904A	ICP2	09/04/97	14:42	BJG	Q	CONC
8	S97T001891_L	970904A	ICP2	09/04/97	14:45	BJG	S	CONC
9	S97T001891	970904A	ICP2	09/04/97	14:48	BJG	S	CONC
10	S97T001891_D	970904A	ICP2	09/04/97	14:52	BJG	S	CONC
11	CCV	970904A	ICP2	09/04/97	14:57	BJG	Q	CONC
12	CCB	970904A	ICP2	09/04/97	15:00	BJG	Q	CONC
13	S97T001891_S	970904A	ICP2	09/04/97	15:03	BJG	S	CONC
14	S97T001891_X	970904A	ICP2	09/04/97	15:06	BJG	S	CONC
15	S97T001891_AX	970904A	ICP2	09/04/97	15:10	BJG	S	CONC
16	ICSA	970904A	ICP2	09/04/97	15:14	BJG	Q	CONC
17	ICSAB	970904A	ICP2	09/04/97	15:17	BJG	Q	CONC
18	CCV	970904A	ICP2	09/04/97	15:20	BJG	Q	CONC
19	CCB	970904A	ICP2	09/04/97	15:23	BJG	Q	CONC

*B. J. G.**9-4-97**AK-103 AND DIGEST**S97T001891**FILED 0970904A.TXT*

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 248 TO 251.

HNF-SD-WM-DP-266, REV. 0

Analysis Report

Averages

Thu 09-04-97 03:27:06 PM

page 2

#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	4.807	4.828	5.091	5.082	4.914	5.014
2	ICB	.0003	.0005	.0058	.0020	.0000	.0000
3	LLS	.0225	.0867	.2063	.1059	.0998	.0102
4	ICSA	.0018	240.5	-.0377	-.0070	.0002	.0002
5	ICSAB	.9488	239.6	-.0420	-.0022	.4669	.4760
6	PREPSTD TJJA	.3262	4.872	4.979	5.307	4.855	4.993
7	PREPBLKTJA	-.0005	Q.1469	.0050	Q.7066	.0013	-.0000
8	S97T001891_L	.0847	107.3	-.4956	.7689	.0152	.0000
9	S97T001891	.0784	103.4	-.2497	.7274	.0140	.0008
10	S97T001891_D	.0835	101.4	-.2099	.6811	.0166	.0017
11	CCV	4.897	4.825	5.152	5.039	4.914	5.058
12	CCB	-.0004	-.0108	.0016	.0000	.0000	-.0000
13	S97T001891_S	.9811	110.7	4.749	5.700	4.714	4.857
14	S97T001891_X	.0921	107.0	-.4289	.7325	.0145	.0074
15	S97T001891_AX	237.4	345.5	251.0	248.3	249.3	247.6
16	ICSA	.0084	238.8	-.0197	-.0085	.0003	.0003
17	ICSAB	.9509	238.3	-.0239	-.0063	.4650	.4775
18	CCV	4.866	4.819	5.164	5.047	4.914	5.046
19	CCB	.0000	-.0019	-.0021	.0010	-.0000	.0002

#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	5.125	4.777	4.899	4.853	5.031	4.857
2	ICB	.0394	.0007	.0001	.0013	.0005	-.0010
3	LLS	.1791	.1805	.0100	.2042	.0412	.0198
4	ICSA	-.0054	247.6	.0025	.0056	-.0005	-.0042
5	ICSAB	.0163	247.3	.9267	.0116	.4569	.4599
6	PREPSTD TJJA	4.872	5.119	4.786	4.802	4.747	4.806
7	PREPBLKTJA	.0093	Q.2976	-.0005	.0004	-.0020	.0006
8	S97T001891_L	.6148	1.257	.0279	.0448	.0035	14.09
9	S97T001891	.0791	1.366	.0266	.0149	.0037	13.39
10	S97T001891_D	1.600	1.498	.0349	.0134	.0083	16.14
11	CCV	5.234	5.011	5.029	4.848	5.146	4.982
12	CCB	.0328	.0035	-.0002	.0019	-.0030	-.0015
13	S97T001891_S	5.012	6.073	4.786	4.650	4.692	19.15
14	S97T001891_X	.9823	1.009	.0391	.0476	-.0363	16.87
15	S97T001891_AX	257.5	250.5	245.9	247.5	245.3	261.5
16	ICSA	.0237	247.9	.0011	.0044	-.0008	-.0037
17	ICSAB	.0511	251.2	.9334	.0061	.4618	.4630
18	CCV	5.244	4.976	4.978	4.813	5.105	4.937
19	CCB	.0404	.0059	.0008	-.0022	-.0008	-.0010

#	Sample Name	Cu	Eu	Fe	K	La	Li
1	ICV	5.070	.0055	4.572	5.067	4.946	4.937
2	ICB	.0003	.0003	.0006	.0458	.0001	.0003
3	LLS	.0171	.0015	.0907	.5282	.1024	.0217
4	ICSA	-.0095	.0118	91.51	.0722	-.0046	.0024
5	ICSAB	.4496	.0143	91.02	.1290	-.0028	1.022
6	PREPSTD TJJA	4.525	.0062	4.560	4.839	4.888	4.771
7	PREPBLKTJA	.0029	.0005	.0322	.1197	.0003	.0001

HNF-SD-WM-DP-266, REV. 0

Analysis Report

Averages

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#	Sample Name	Cu	Eu	Fe	K	La	Li
8	S97T001891_L	-.0244	.0150	.6093	17.21	.0120	.0119
9	S97T001891_	-.0182	.0034	.5832	15.93	.0069	.0016
10	S97T001891_D	-.0196	.0031	.6922	14.97	.0076	.0018
11	CCV	5.025	.0065	4.669	4.978	4.936	4.785
12	CCB	-.0014	.0007	-.0010	.1416	.0000	.0012
13	S97T001891_S	4.427	.0077	5.071	20.46	4.788	4.788
14	S97T001891_X	-.0162	.0011	.9564	16.59	.0063	-.0054
15	S97T001891_AX	231.8	.2859	231.2	266.5	246.8	247.5
16	ICSA	-.0090	.0088	91.39	.2116	-.0033	.0026
17	ICSAB	.4463	.0050	91.63	.1828	-.0036	1.004
18	CCV	5.041	.0068	4.634	5.050	4.907	4.834
19	CCB	-.0001	.0003	.0004	-.0575	-.0004	.0003

#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	4.959	4.794	4.985	5.137	4.950	4.884
2	ICB	.0031	.0005	.0039	-.0100	-.0002	.0054
3	LLS	.2102	.0199	.1023	.1620	.1988	.0407
4	ICSA	248.2	-.0054	-.0037	193.4	-.0009	-.0020
5	ICSAB	246.9	.4373	-.0078	193.0	.0002	.8959
6	PREPSTDJTJA	4.863	4.716	4.806	5.728	4.782	4.863
7	PREPLKTJA	Q.1123	.0016	.0033	Q.8603	.0028	-.0015
8	S97T001891_L	.1953	.0513	.4034	951.7	.0181	.2254
9	S97T001891_	.1990	.0440	.3640	920.0	.0224	.2129
10	S97T001891_D	.1877	.0541	.3441	955.4	.0308	.2648
11	CCV	4.943	4.899	5.087	4.995	4.907	4.977
12	CCB	-.0076	.0003	.0064	-.0148	-.0020	-.0063
13	S97T001891_S	4.814	4.641	5.116	943.5	4.675	5.020
14	S97T001891_X	.1344	.0593	.4056	.1015	-.0273	.2098
15	S97T001891_AX	256.1	244.2	245.8	1245	240.5	244.4
16	ICSA	247.6	-.0057	-.0091	191.2	-.0004	-.0031
17	ICSAB	246.8	.4413	-.0112	189.9	.0013	.9120
18	CCV	4.923	4.858	5.044	5.035	4.885	4.950
19	CCB	-.0036	.0001	.0048	-.0011	-.0005	-.0001

#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	5.048	4.824	4.896	4.762	4.673	5.021
2	ICB	-.0079	.0013	.0228	.0077	.0265	.0077
3	LLS	.4182	.2012	.2141	.1055	.2154	Q.1331
4	ICSA	.0343	.0134	-.0295	-.0006	.0083	.0139
5	ICSAB	.0107	.9755	-.0210	.0027	.0145	.0104
6	PREPSTDJTJA	4.768	4.705	4.841	4.762	4.563	7.814
7	PREPLKTJA	-.0051	.0265	Q.1275	-.0016	.0420	Q.2.043
8	S97T001891_L	6.836	.3831	25.96	-.1105	.4864	2.181
9	S97T001891_	6.663	.3192	24.95	-.0182	.0928	1.976
10	S97T001891_D	6.197	.3750	28.73	-.0193	.1219	2.189
11	CCV	5.051	4.968	4.979	4.825	4.704	5.108
12	CCB	-.0003	-.0065	.0233	-.0023	.0277	.0096
13	S97T001891_S	10.79	5.055	30.33	4.819	4.644	8.074
14	S97T001891_X	6.547	.0674	30.42	-.0692	.9362	2.473
15	S97T001891_AX	253.4	247.5	270.4	249.1	242.3	258.4

HNF-SD-WM-DP-266, REV. 0

Analysis Report

Averages

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#	Sample Name	P	Pb	S	Sb	Se	Si
16	ICSA	.0181	-.0009	-.0253	-.0185	.0250	.0180
17	ICSAB	.0246	.9767	-.0223	.0040	.0579	.0161
18	CCV	5.100	4.929	4.978	4.799	4.711	5.079
19	CCB	.0061	-.0106	.0121	-.0019	.0286	.0060

#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	4.863	4.884	.1580	4.874	4.701	9.585
2	ICB	.0049	.0000	.0044	.0002	.0146	.0171
3	LLS	.2116	.0204	.0052	.0204	.4331	.5314
4	ICSA	-.0053	.0018	-.0043	.0011	.0422	.0150
5	ICSAB	-.0068	.0017	-.0075	.0011	.0354	.0088
6	PREPSTDTJA	4.725	4.892	.1678	4.465	4.627	9.328
7	PREPBLKTJA	.0031	.0010	-.0006	.0014	.0092	.0024
8	S97T001891_L	.1446	.0111	.0443	-.0001	.0912	1.019
9	S97T001891_	.0163	.0090	.0346	.0033	.0650	.5926
10	S97T001891_D	.0110	.0114	.0523	.0067	.0541	.7162
11	CCV	4.837	4.879	.1614	4.917	4.815	9.497
12	CCB	.0105	.0001	-.0010	-.0007	.0083	.0375
13	S97T001891_S	4.620	4.777	.272	4.371	4.629	9.606
14	S97T001891_X	-.0214	.0117	.0995	-.0114	.3948	.6456
15	S97T001891_AX	239.8	246.0	8.285	247.0	241.9	470.4
16	ICSA	-.0052	.0017	-.0052	.0009	.0355	-.0351
17	ICSAB	-.0050	.0016	.0076	.0016	.0671	-.0354
18	CCV	4.815	4.868	.1614	4.903	4.759	9.491
19	CCB	.0053	.0000	-.0003	.0000	-.0076	.0057

#	Sample Name	V	Y	Zn	Zr
1	ICV	4.988	.0069	4.824	4.880
2	ICB	.0010	.0004	.0005	-.0000
3	LLS	.1045	.0013	.0193	.0215
4	ICSA	-.0001	.0074	.0069	-.0016
5	ICSAB	.4582	.0073	.9215	-.0021
6	PREPSTDTJA	4.817	.0064	4.609	4.906
7	PREPBLKTJA	.0005	.0001	Q.2094	.0039
8	S97T001891_L	.0395	.0143	.2431	.0759
9	S97T001891_	.0066	.0050	.2349	.0570
10	S97T001891_D	.0055	.0054	.2333	.0644
11	CCV	5.070	.0077	4.957	4.924
12	CCB	.0021	.0007	-.0005	.0010
13	S97T001891_S	4.741	.0108	4.757	4.879
14	S97T001891_X	.0023	.0076	.2266	.0643
15	S97T001891_AX	243.8	.3426	231.0	243.7
16	ICSA	-.0001	.0074	.0062	-.0024
17	ICSAB	.4611	.0075	.9293	-.0026
18	CCV	5.043	.0072	4.922	4.886
19	CCB	.0005	.0004	.0001	.0003

LABCORE Data Entry Template for Worklist# 20197

Analyst: MSL Instrument: ICP01 Book# 688480Method: LA-505-151/461 Rev/Mod E-1Worklist Comment: # 9-5-97 ICP AX-103 (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	SERDIL	S97T001888	0 F	@ICP-F01	SOLID	
8	SAMPLE	S97T001888	0 F	@ICP-F01	SOLID	97000494 AX-103
			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		
9	DUP	S97T001888	0 F	@ICP-F01	SOLID	
10	SPK	S97T001888	0 F	@ICP-F01	SOLID	
11	CCV	<i>sample x spike 48 (10 ppm) # 9-5-97</i>		@ICP-QC	QC	
12	CCB			@ICP-QC	QC	
13	PREPBLKARL			@ICP-F01	SOLID	
14	SERDIL	S97T001956	0 F	@ICP-F01	SOLID	
15	SAMPLE	S97T001956	0 F	@ICP-F01	SOLID	97000495 AX-103
			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 ,		

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 20197

S Type	Sample#	R A	Test	Matrix	Group#	Project			
			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	
16 DUP	S97T001956	0 F	@ICP-F01	SOLID					
17 SPK Sample X Spinc of (10 pph) 9-5-97	S97T001956	0 F	@ICP-F01	SOLID					
18 ICSEA			@ICP-QC	QC					
19 ICSAB			@ICP-QC	QC					
20 CCV			@ICP-QC	QC					
21 CCB			@ICP-QC	QC					

Final page for worklist # 20197

JK *9/8/97*
Analyst Signature **Date**
Pr. cpbl/Karl , 25-10 , 10/1
 S97T001888-L , 25-10-28 205
 S97T001888 , 25-10 41
 S97T001888-D , 25-10 41
 S97T001888-Q , 25-10 41 , 25 ml sample + 2.05 ml STS + 7.95 ml H₂O₃
 S97T001888-X , 25-10-19 410
 S97T001888-QX , 25-10-19 410 , 1 ml sample + 1 ml each XWKC 28+35+7 ml H₂O₃

Pr. cpbl/Karl , 25-10 , 10/1
 S97T001856-L , 25-10-28 205
 S97T001856 , 25-10 41
 S97T001856-D , 25-10 41
 S97T001856-Q , 25-10 41 , 25 ml sample + 2.05 ml STS + 7.95 ml H₂O₃
 S97T001856-X , 25-10-19 410
 S97T001856-QX , 25-10-19 410 , 1 ml sample + 1 ml each XWKC 28+35+7 ml H₂O₃

Revised & Validated by:
Saul R. Parry 9/8/97
Analyst Signature **Date**

Data Entry Comments:

S977001888

$$\text{Sample result: } Al = 45.884 \frac{\mu\text{g}}{\text{ml}} \times \frac{1}{2.014 \frac{\text{g}}{\text{L}} \times \frac{1\text{L}}{1000\text{ml}}} = 2.28 \times 10^{-4} \frac{\mu\text{g}}{\text{g}}$$

$$\text{Spike: } Al = \frac{\left(\frac{86.572}{41}\right) - \left(\frac{45.884}{41}\right)}{1} \times 100 = 99.2\%$$

S977001956

$$\text{Sample result: } Al = 51.518 \frac{\mu\text{g}}{\text{ml}} \times \frac{1}{2.049 \frac{\text{g}}{\text{L}} \times \frac{1\text{L}}{1000\text{ml}}} =$$

$$= 2.68 \times 10^{-4} \frac{\mu\text{g}}{\text{g}}$$

$$\text{Spike: } Al = \frac{\left(\frac{92.369}{41}\right) - \left(\frac{51.518}{41}\right)}{1} \times 100 = 99.6\%$$

Post spike:

$$Na = \frac{\left(\frac{4322.630}{410}\right) - \left(\frac{377.758}{410}\right)}{10} \times 100 = 96.2\%$$

File #: 970905A.JET

HNF-SD-WM-DP-266, REV. 0

Identity 1: ICV Identity 2: Quality Control 12:08 PM September 5, 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	4.860	4.962	4.992	4.685	4.836	4.877	5.206	4.877
S.D.	0.015	0.017	0.041	0.010	0.012	0.000	0.023	0.034
% R.S.D.	0.310	0.342	0.820	0.205	0.245	0.001	0.448	0.690
	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	4.990	4.823	4.931	4.838	4.717	4.825	5.262	10.264
S.D.	0.017	0.032	0.022	0.027	0.016	0.002	0.022	0.029
% R.S.D.	0.342	0.666	0.443	0.551	0.332	0.050	0.411	0.278
	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	4.797	5.065	4.962	4.942	4.718	4.696	4.992	5.060
S.D.	0.016	0.018	0.018	0.013	0.030	0.009	0.018	0.032
% R.S.D.	0.337	0.348	0.368	0.272	0.642	0.187	0.357	0.635
	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	4.829	4.983	4.730	4.722	4.853	4.987	4.965	4.851
S.D.	0.002	0.013	0.028	0.010	0.010	0.023	0.042	0.013
% R.S.D.	0.044	0.271	0.599	0.216	0.215	0.465	0.837	0.266
	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)				
Mean	4.682	4.946	5.031	4.939				
S.D.	0.034	0.010	0.018	0.008				
% R.S.D.	0.726	0.210	0.355	0.161				

K 488
09-05-97

QK 103
5977001888
5977001956

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 255 TO 279.

HNF-SD-WM-DP-266, REV. 0

Identity 1: ICB Identity 2: Quality Control 12:12 PM September 5, 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	0.011	0.010	-0.009	0.003	-0.001	0.000
S.D.	0.001	0.000	0.007	0.003	0.007	0.002	0.000	0.000
% R.S.D.	23.014	25.000	65.219	26.563	74.789	85.838	53.744	199.946

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.001	0.001	0.003	-0.001	0.000	0.001	-0.007	0.125
S.D.	0.000	0.001	0.001	0.002	0.000	0.001	0.010	0.032
% R.S.D.	25.598	115.253	28.768	266.179	0.000	259.055	133.676	25.767

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.015	0.040	0.000	0.004	-0.005	0.000	0.008	-0.002
S.D.	0.008	0.007	0.000	0.007	0.004	0.000	0.001	0.002
% R.S.D.	52.139	17.595	173.205	193.737	91.858	0.028	8.814	99.978

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.004	-0.003	0.003	0.002	0.001	0.007	0.232	-0.000
S.D.	0.001	0.000	0.009	0.000	0.000	0.000	0.012	0.000
% R.S.D.	20.476	7.035	274.382	31.357	28.571	5.346	5.203	2449.981

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.030	-0.000	0.000	-0.016
S.D.	0.028	0.000	0.000	0.026
% R.S.D.	92.500	3966.594	77.075	158.276

HNF-SD-WM-DP-266, REV. 0

Identity 1: LLS Identity 2: Quality Control 12:15 PM September 5, 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	0.020	0.183	0.139	0.081	0.041	0.017	0.018
S.D.	0.001	0.000	0.007	0.002	0.003	0.004	0.001	0.000
% R.S.D.	4.344	0.555	3.573	1.735	3.794	9.674	3.146	1.513

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.021	0.040	0.106	0.104	0.186	0.016	0.191	0.691
S.D.	0.000	0.001	0.001	0.002	0.000	0.001	0.007	0.056
% R.S.D.	0.991	2.503	0.739	1.660	0.237	4.535	3.902	8.088

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	0.120	0.251	0.100	0.410	0.206	0.210	0.208	0.178
S.D.	0.016	0.011	0.000	0.012	0.004	0.001	0.003	0.005
% R.S.D.	13.151	4.442	0.344	3.003	1.743	0.598	1.222	2.703

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.098	0.015	0.207	0.022	0.009	0.107	0.747	0.021
S.D.	0.001	0.001	0.010	0.001	0.001	0.000	0.011	0.000
% R.S.D.	0.678	4.757	4.798	3.904	9.042	0.185	1.492	1.718

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.141	0.099	0.011	0.376
S.D.	0.018	0.001	0.000	0.019
% R.S.D.	13.087	0.982	1.551	5.149

HNF-SD-WM-DP-266, REV. 0

Identity 1: ICSA Identity 2: Quality Control 12:18 PM September 5, 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	0.002	-0.030	0.045	198.846	-0.005	-0.003	-0.001
S.D.	0.001	0.000	0.008	0.001	0.314	0.003	0.000	0.000
% R.S.D.	6.874	2.192	25.669	2.345	0.158	56.643	7.301	51.622

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.006	0.005	0.008	94.586	101.937	-0.002	-0.031	0.228
S.D.	0.000	0.001	0.001	0.226	0.249	0.001	0.008	0.033
% R.S.D.	5.296	14.867	17.344	0.238	0.244	52.915	24.819	14.396

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.027	0.087	0.001	0.019	0.009	92.367	0.026	188.788
S.D.	0.012	0.005	0.000	0.010	0.008	0.145	0.004	0.700
% R.S.D.	45.846	5.562	10.434	52.035	92.234	0.157	14.295	0.371

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	-0.002	-0.001	0.003	0.002	0.001	0.016	0.118	0.006
S.D.	0.001	0.001	0.015	0.000	0.000	0.000	0.012	0.001
% R.S.D.	61.761	124.566	495.362	18.710	37.257	2.474	10.248	21.214

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.033	-0.002	0.003	-0.059
S.D.	0.016	0.001	0.000	0.010
% R.S.D.	48.676	35.081	0.187	17.176

HNF-SD-WM-DP-266, REV. 0

Identity 1: ICSAB Identity 2: Quality Control

12:20 PM September 5, 1997

Task name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.002	0.002	0.004	0.034	200.739	0.489	0.488	0.947
S.D.	0.002	0.000	0.003	0.004	0.921	0.004	0.002	0.004
% R.S.D.	90.175	7.692	82.454	11.094	0.459	0.758	0.430	0.461

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.973	0.977	0.007	94.169	100.911	0.494	-0.011	0.161
S.D.	0.001	0.004	0.003	0.110	0.230	0.003	0.012	0.055
% R.S.D.	0.114	0.372	45.475	0.117	0.228	0.529	107.430	34.309

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.040	0.090	0.511	0.032	-0.003	92.557	0.018	190.083
S.D.	0.017	0.011	0.001	0.001	0.007	0.228	0.017	0.966
% R.S.D.	41.781	12.742	0.228	3.851	214.075	0.246	91.218	0.508

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	-0.002	1.031	1.001	0.002	0.978	0.015	0.066	0.497
S.D.	0.000	0.001	0.006	0.001	0.004	0.001	0.009	0.001
% R.S.D.	19.412	0.110	0.573	34.462	0.412	8.075	12.945	0.204

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.014	0.484	0.491	-0.016
S.D.	0.019	0.002	0.001	0.038
% R.S.D.	132.791	0.446	0.174	231.709

HNF-SD-WM-DP-266, REV. 0

Identity 1: PREPBLK Identity 2: Quality Control

12:24 PM September 5, 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	0.000	-0.000	-0.004	0.015	0.024	-0.001	-0.001	-0.001
S.D.	0.001	0.000	0.017	0.001	0.002	0.002	0.000	0.000
% R.S.D.	583.971	17.321	414.135	3.953	10.098	173.341	27.076	15.744

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.001	0.023	-0.000	0.020	0.013	-0.003	-0.006	-0.029
S.D.	0.000	0.006	0.001	0.000	0.001	0.002	0.010	0.016
% R.S.D.	12.299	28.160	6802.140	0.805	6.337	58.107	168.238	53.964

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.033	0.014	-0.000	0.029	0.010	0.008	0.002	0.082
S.D.	0.001	0.001	0.000	0.007	0.001	0.001	0.001	0.007
% R.S.D.	2.278	4.638	9.375	24.918	11.580	12.547	52.209	8.823

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.001	-0.002	-0.009	-0.000	-0.001	0.002	247.127	0.001
S.D.	0.001	0.001	0.011	0.000	0.001	0.000	1.234	0.000
% R.S.D.	86.615	32.179	114.113	979.182	149.401	18.000	0.499	25.142

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.038	0.001	0.001	-0.013
S.D.	0.011	0.001	0.000	0.012
% R.S.D.	29.707	159.382	0.470	92.685

HNF-SD-WM-DP-266, REV. 0

Identity 1: S97I001888_L Identity 2: Fusion, .25-10-2-8ml

12:28 PM September 5, 1997

Task name: OPTIMA

Sample Weight : 1.0000 Solution Volume : 205.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.131	-0.055	0.470	2.745	46.445	-0.167	-0.367	-0.134
S.D.	0.382	0.038	0.677	1.117	2.413	0.476	0.100	0.074
% R.S.D.	292.310	68.635	144.127	40.676	5.195	284.812	27.293	55.389

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.286	-0.327	0.765	0.511	2.356	7.207	-1.481	4.046
S.D.	0.072	0.469	0.603	0.287	0.026	0.253	2.094	16.514
% R.S.D.	25.018	143.346	78.820	56.165	1.103	3.507	141.460	408.195

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Hg (ppm)	As (ppm)	Na (ppm)
Mean	-8.760	5.955	-0.153	7.427	13.353	0.864	-1.152	413.195
S.D.	4.748	3.067	0.053	0.381	1.489	0.067	0.393	1.029
% R.S.D.	54.193	51.495	34.641	5.131	11.154	7.769	34.140	0.249

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.142	-0.694	-5.536	-0.011	-0.066	0.724	11191.458	0.172
S.D.	0.242	0.268	3.174	0.053	0.101	0.191	54.747	0.113
% R.S.D.	169.982	38.659	57.338	489.238	153.031	26.361	0.489	65.832

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	8.420	-0.177	0.092	-5.351
S.D.	3.464	0.363	0.035	6.424
% R.S.D.	41.139	204.646	37.591	120.056

HNF-SD-WM-DP-266, REV. 0

Identity 1: S97T001888 Identity 2: Fusion, .25-10 ml 12:31 PM September 5, 1997

Task name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 41.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr	Sr	Bi	Si	Al	Co	Cu	Li
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	0.196	-0.014	0.596	1.788	45.884	-0.114	-0.063	-0.062
S.D.	0.056	0.003	0.447	0.127	0.228	0.094	0.011	0.005
% R.S.D.	28.512	24.744	74.963	7.075	0.496	82.904	16.746	7.891

	Zn	Ni	La	Fe	Ca	Cr	Nd	U
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	0.417	1.003	-0.016	0.187	1.286	7.725	-1.104	6.884
S.D.	0.027	0.209	0.088	0.138	0.006	0.032	0.149	1.250
% R.S.D.	6.577	20.821	549.895	73.595	0.486	0.419	13.516	18.157

	Ce	Sm	Ba	P	S	Mg	As	Na
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	-2.589	2.705	-0.031	3.410	12.420	0.135	-0.061	406.833
S.D.	0.365	0.159	0.008	0.340	0.220	0.009	0.178	1.123
% R.S.D.	14.112	5.881	25.833	9.977	1.773	6.522	293.096	0.276

	Mo	Ag	Pb	Ti	Cd	B	K	Mn
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	0.129	-0.202	-0.455	0.061	-0.004	0.232	10781.312	0.058
S.D.	0.054	0.030	0.346	0.015	0.008	0.025	37.771	0.000
% R.S.D.	41.470	14.795	75.995	24.705	178.968	10.569	0.350	0.251

	Sb	V	Be	Tl
	(ppm)	(ppm)	(ppm)	(ppm)
Mean	-1.007	-0.075	0.008	-1.744
S.D.	0.274	0.039	0.017	1.232
% R.S.D.	27.264	52.156	203.423	70.616

HNF-SD-WM-DP-266, REV. 0

Identity 1: S97T001888_D Identity 2: Fusion, .25-10 ml
 Task name : OPTIMA
 Sample Weight : 1.0000 Solution Volume : 41.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

12:34 PM September 5, 1997

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.140	-0.010	0.328	1.652	46.881	-0.058	-0.064	-0.057
S.D.	0.006	0.002	0.240	0.095	0.107	0.095	0.008	0.012
% R.S.D.	4.168	17.321	73.021	5.767	0.228	163.704	12.026	21.399

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.036	1.008	0.041	-0.013	0.626	7.138	-0.626	6.325
S.D.	0.010	0.094	0.066	0.064	0.003	0.071	0.370	0.621
% R.S.D.	28.205	9.278	161.439	494.036	0.553	0.990	59.129	9.824

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-2.642	2.169	-0.028	3.753	12.083	0.105	0.495	412.503
S.D.	0.203	0.079	0.004	0.238	0.209	0.005	0.113	2.376
% R.S.D.	7.689	3.665	13.532	6.350	1.731	4.813	22.773	0.576

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.129	-0.112	-0.958	0.037	-0.048	0.165	13227.146	0.054
S.D.	0.043	0.011	0.181	0.008	0.013	0.038	74.680	0.009
% R.S.D.	33.331	9.598	18.867	21.749	27.433	22.902	0.565	16.115

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	2.381	-0.070	-0.010	-2.041
S.D.	0.926	0.017	0.006	0.569
% R.S.D.	38.897	24.410	63.882	27.892

HNF-SD-WM-DP-266, REV. 0

Identity 1: S97T001888_A Identity 2: Fusion, .25-10 ml

12:37 PM September 5, 1997

Task name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 41.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr	Sr	Bi	Si	Al	Co	Cu	Li
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	41.032	42.336	41.751	41.136	86.572	41.360	43.964	39.535
S.D.	0.079	0.061	0.533	0.065	0.270	0.095	0.045	0.150
% R.S.D.	0.193	0.145	1.276	0.158	0.312	0.229	0.102	0.379

	Zn	Ni	La	Fe	Ca	Cr	Nd	U
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	41.403	41.148	41.546	40.030	39.717	46.803	42.127	88.172
S.D.	0.139	0.422	0.033	0.300	0.045	0.029	0.663	0.384
% R.S.D.	0.337	1.026	0.079	0.749	0.114	0.061	1.575	0.436

	Ce	Sm	Ba	P	S	Mg	As	Na
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	39.079	44.227	42.018	44.957	52.460	39.465	42.330	453.004
S.D.	0.188	0.132	0.062	0.739	0.255	0.067	0.729	1.978
% R.S.D.	0.482	0.299	0.147	1.644	0.486	0.169	1.723	0.437

	Mo	Ag	Pb	Ti	Cd	B	K	Mn
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	41.299	33.961	38.990	40.068	40.212	40.090	10978.751	40.340
S.D.	0.159	0.051	0.183	0.070	0.054	0.129	31.997	0.104
% R.S.D.	0.385	0.151	0.469	0.175	0.133	0.323	0.291	0.258

	Sb	V	Be	Tl
	(ppm)	(ppm)	(ppm)	(ppm)
Mean	38.133	41.403	40.629	38.978
S.D.	1.078	0.072	0.077	0.129
% R.S.D.	2.826	0.173	0.189	0.332

HNF-SD-WM-DP-266, REV. 0

Identity 1: S97T001888_X Identity 2: Fusion, .25-10-1-9ml

12:42 PM September 5, 1997

Task name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 410.00

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	1.242	0.010	1.615	8.527	48.901	-2.070	0.787	-0.172
S.D.	0.597	0.046	1.003	1.367	3.054	0.941	0.192	0.152
% R.S.D.	48.108	458.258	62.097	16.028	6.244	45.467	24.428	88.562
	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.408	-0.717	0.974	0.319	2.861	6.782	-2.735	44.232
S.D.	0.159	1.569	0.328	1.598	0.017	0.617	1.443	17.183
% R.S.D.	38.949	218.802	33.680	500.843	0.606	9.103	52.758	38.846
	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-3.572	12.314	-0.061	6.683	12.536	0.674	2.765	413.690
S.D.	5.805	3.817	0.086	3.248	1.447	0.051	2.082	0.571
% R.S.D.	162.506	31.000	140.517	48.598	11.546	7.534	75.322	0.138
	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	-0.155	-0.819	0.671	0.448	-0.307	1.722	11313.531	0.092
S.D.	0.313	0.173	2.884	0.227	0.334	0.522	34.330	0.172
% R.S.D.	202.440	21.124	429.952	50.804	108.541	30.303	0.303	186.983
	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)				
Mean	7.162	0.444	0.081	1.195				
S.D.	4.188	0.301	0.171	7.386				
% R.S.D.	58.468	67.892	210.090	618.212				

HNF-SD-WM-DP-266, REV. 0

Identity 1: S97T001888_AX Identity 2: Fusion, .25-10-1-9ml

12:45 PM September 5, 1997

Task name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 410.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr	Sr	Bi	Si	Al	Co	Cu	Li
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	4032.254	4131.325	4216.127	4084.073	4136.678	4114.227	3844.877	3893.466
St.D.	5.976	6.324	11.913	11.871	13.336	3.284	8.731	2.224
R.S.D.	0.148	0.153	0.283	0.291	0.322	0.080	0.227	0.057

	Zn	Ni	La	Fe	Ca	Cr	Nd	U
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	4082.232	4104.618	4054.785	4020.622	4005.980	4090.179	3975.451	8023.933
St.D.	2.283	1.641	13.505	10.896	8.784	5.010	10.951	22.344
R.S.D.	0.056	0.040	0.333	0.271	0.219	0.122	0.275	0.278

	Ce	Sm	Ba	P	S	Mg	As	Na
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	4203.500	4072.120	4066.269	4185.400	4044.573	4187.762	4122.037	4372.058
St.D.	6.902	10.169	12.692	7.137	19.448	1.853	16.225	5.711
R.S.D.	0.164	0.250	0.312	0.171	0.481	0.044	0.394	0.131

	Mo	Ag	Pb	Ti	Cd	B	K	Mn
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	4111.547	2707.096	4130.138	4013.698	4100.746	3947.001	14921.832	4105.871
St.D.	8.902	8.845	12.128	4.569	4.134	7.334	24.279	7.534
R.S.D.	0.217	0.327	0.294	0.114	0.101	0.186	0.163	0.184

	Sb	V	Be	Tl
	(ppm)	(ppm)	(ppm)	(ppm)
Mean	4043.671	4058.996	4002.467	4246.229
St.D.	12.603	5.576	8.686	2.112
R.S.D.	0.312	0.137	0.217	0.050

HNF-SD-WM-DP-266, REV. 0

Identity 1: CCV Identity 2: Quality Control 12:57 PM September 5, 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	4.916	5.054	5.097	4.804	4.933	5.097	5.183	4.863
S.D.	0.010	0.010	0.040	0.005	0.012	0.011	0.009	0.006
R.S.D.	0.206	0.189	0.792	0.100	0.241	0.207	0.169	0.118

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	5.182	4.938	4.922	4.851	4.713	4.855	5.035	10.031
S.D.	0.009	0.005	0.003	0.007	0.009	0.012	0.008	0.024
R.S.D.	0.178	0.108	0.059	0.148	0.193	0.257	0.155	0.235

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	5.009	5.080	5.008	5.213	5.015	4.890	5.139	5.118
S.D.	0.025	0.013	0.010	0.046	0.025	0.010	0.015	0.007
R.S.D.	0.505	0.266	0.194	0.890	0.494	0.200	0.284	0.144

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	5.073	5.090	4.872	4.835	4.969	4.970	4.985	4.936
S.D.	0.007	0.007	0.028	0.008	0.017	0.012	0.003	0.007
R.S.D.	0.144	0.130	0.571	0.160	0.334	0.243	0.062	0.148

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	4.676	5.044	5.015	4.991
S.D.	0.044	0.009	0.012	0.010
R.S.D.	0.931	0.176	0.242	0.205

HNF-SD-WM-DP-266, REV. 0

Identity 1: CCB Identity 2: Quality Control 1:02 PM September 5, 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	0.000	-0.007	0.012	-0.006	-0.004	-0.002	-0.001
S.D.	0.003	0.000	0.018	0.008	0.011	0.002	0.001	0.001
R.S.D.	49.392	606.218	261.674	68.469	194.807	58.529	29.978	86.809

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.000	0.001	0.003	0.004	0.001	-0.000	-0.009	0.219
S.D.	0.000	0.004	0.002	0.002	0.000	0.002	0.009	0.104
R.S.D.	319.911	395.184	75.130	62.460	12.500	546.512	101.152	47.224

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.050	0.054	-0.001	0.017	0.003	0.000	-0.007	-0.014
S.D.	0.027	0.019	0.001	0.008	0.001	0.000	0.006	0.010
R.S.D.	53.739	36.299	89.683	47.769	37.452	299.980	85.919	73.472

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	-0.001	0.009	-0.001	0.002	-0.001	0.007	0.271	0.000
S.D.	0.000	0.002	0.007	0.001	0.000	0.000	0.036	0.000
R.S.D.	30.005	22.007	1102.153	39.136	27.564	1.531	13.349	434.780

	Sb (ppm)	V (ppm)	Se (ppm)	Tl (ppm)
Mean	-0.027	-0.002	0.001	-0.069
S.D.	0.054	0.001	0.000	0.048
R.S.D.	200.092	60.701	29.203	69.450

HNF-SD-WM-DP-266, REV. 0

Identity 1: PREPBLK Identity 2: Quality Control

1:06 PM September 5, 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	-0.000	0.016	0.030	-0.001	0.000	-0.002	-0.001
St.D.	0.001	0.000	0.002	0.003	0.010	0.002	0.001	0.000
% R.S.D.	26.888	45.826	15.398	10.459	691.830	3576.829	23.431	16.412

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.001	0.168	0.006	0.005	0.006	-0.001	-0.024	0.224
St.D.	0.001	0.037	0.001	0.000	0.000	0.003	0.004	0.048
% R.S.D.	61.065	22.068	14.565	7.138	1.369	208.461	18.109	21.610

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Hg (ppm)	As (ppm)	Na (ppm)
Mean	-0.056	0.065	-0.001	-0.011	0.004	0.002	-0.005	0.064
St.D.	0.008	0.007	0.000	0.002	0.002	0.000	0.002	0.003
% R.S.D.	13.628	10.956	22.634	18.784	57.804	5.971	29.799	4.384

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	-0.001	-0.002	-0.012	0.001	0.000	0.004	238.722	0.001
St.D.	0.001	0.000	0.006	0.000	0.001	0.001	0.624	0.000
% R.S.D.	86.601	9.956	53.208	12.121	147.987	19.330	0.261	17.567

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.031	-0.003	0.001	-0.048
St.D.	0.037	0.001	0.000	0.014
% R.S.D.	119.774	21.832	28.313	28.150

HNF-SD-WM-DP-266, REV. 0

Identity 1: S97T001956_L Identity 2: Fusion, .25-10-2-8ml

1:10 PM September 5, 1997

Mask name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 205.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr	Sr	Bi	Si	Al	Co	Cu	Li
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	0.898	-0.090	2.042	6.538	51.281	-1.257	-0.348	-0.242
D.	0.456	0.040	3.184	1.192	1.930	0.003	0.157	0.098
R.S.D.	50.749	44.096	155.943	18.237	3.763	0.263	45.040	40.535
<hr/>								
	Zn	Ni	La	Fe	Ca	Cr	Nd	U
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	-0.003	1.405	0.875	-0.346	1.805	8.818	-5.363	35.338
D.	0.089	0.508	0.599	0.795	0.009	0.463	2.293	15.163
R.S.D.	3107.370	36.178	68.433	229.575	0.480	5.248	42.752	42.909
<hr/>								
	Ce	Sm	Ba	P	S	Mg	As	Na
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	-12.159	9.763	-0.202	-0.883	11.235	0.264	0.334	382.374
D.	4.565	2.960	0.069	2.593	0.757	0.025	1.041	2.059
R.S.D.	37.541	30.319	34.044	293.575	6.742	9.622	311.691	0.538
<hr/>								
	Mo	Ag	Pb	Ti	Cd	B	K	Mn
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	-0.013	-0.586	-0.447	0.252	0.111	0.667	9963.033	-0.081
D.	0.140	0.257	1.794	0.151	0.101	0.061	15.571	0.002
R.S.D.	1111.959	43.924	401.378	60.018	90.848	9.203	0.156	2.221
<hr/>								
	Sb	V	Be	Tl				
	(ppm)	(ppm)	(ppm)	(ppm)				
Mean	-4.259	-0.589	0.043	-10.653				
D.	4.384	0.239	0.033	6.272				
R.S.D.	102.952	40.514	76.371	58.871				

HNF-SD-WM-DP-266, REV. 0

Identity 1: S97T001956 Identity 2: Fusion, .25-10 ml

1:14 PM September 5, 1997

Task name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 41.00

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	0.176	0.010	-0.062	1.417	51.518	0.204	-0.003	-0.024
D.	0.037	0.005	0.293	0.034	0.192	0.095	0.001	0.013
R.S.D.	20.966	45.826	468.954	2.366	0.374	46.395	34.261	56.557

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.154	2.793	0.003	0.121	1.111	9.639	0.209	6.302
D.	0.007	0.458	0.066	0.019	0.008	0.097	0.411	2.169
R.S.D.	4.732	16.391	2304.920	15.627	0.680	1.001	196.814	34.420

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.871	1.918	0.004	2.939	9.951	0.091	0.006	366.683
D.	0.752	0.423	0.015	0.341	0.278	0.009	0.112	2.400
R.S.D.	86.348	22.033	414.767	11.596	2.792	9.676	1783.150	10.655

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.088	-0.118	0.172	0.040	0.053	0.261	9539.674	0.008
D.	0.043	0.033	0.436	0.010	0.040	0.022	47.259	0.009
R.S.D.	48.388	28.082	252.985	25.081	76.068	8.402	0.495	110.898

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	1.374	-0.034	0.005	-0.152
D.	1.435	0.035	0.000	1.275
R.S.D.	104.387	104.262	9.214	840.378

HNF-SD-WM-DP-266, REV. 0

Identity 1: S97T001956_D Identity 2: Fusion, .25-10 ml

1:20 PM September 5, 1997

Mask name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 41.00

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	0.180	-0.009	0.627	1.430	52.781	-0.013	-0.090	-0.067
D.	0.020	0.005	0.238	0.129	0.246	0.164	0.008	0.002
R.S.D.	11.334	57.735	37.919	9.014	0.466	1251.081	8.480	2.790

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.036	3.336	0.213	0.168	0.509	8.641	-0.841	6.302
D.	0.014	0.243	0.033	0.090	0.002	0.041	0.400	1.016
R.S.D.	39.851	7.274	15.478	53.640	0.340	0.472	47.595	16.127

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-3.089	2.124	-0.039	2.539	9.210	0.097	-0.261	369.716
D.	0.405	0.252	0.007	0.389	0.186	0.005	0.069	1.685
R.S.D.	13.118	11.857	16.777	15.304	2.020	5.247	26.366	0.456

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.207	-0.213	-0.382	0.065	0.000	0.256	9784.882	0.054
D.	0.028	0.018	0.275	0.023	0.028	0.027	16.064	0.009
R.S.D.	13.498	8.435	71.841	35.643	20618.745	10.365	0.164	16.076

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	1.297	-0.176	-0.003	-3.544
D.	1.060	0.013	0.007	0.630
R.S.D.	81.709	7.606	235.443	17.768

HNF-SD-WM-DP-266, REV. 0

Identity 1: S97T001956_A Identity 2: Fusion, .25-10 ml

1:24 PM September 5, 1997

Task name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 41.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr	Sr	Bi	Si	Al	Co	Cu	Li
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	40.666	41.700	41.730	40.458	92.369	40.810	43.233	38.654
D.	0.127	0.193	0.456	0.186	0.659	0.377	0.083	0.043
R.S.D.	0.313	0.463	1.092	0.459	0.713	0.925	0.191	0.111

	Zn	Ni	La	Fe	Ca	Cr	Nd	U
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	41.215	42.648	41.165	39.481	39.018	49.110	41.986	90.090
D.	0.172	0.630	0.099	0.490	0.105	0.388	0.371	0.174
R.S.D.	0.418	1.478	0.241	1.241	0.269	0.791	0.883	0.194

	Ce	Sm	Ba	P	S	Mg	As	Na
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	38.597	44.251	41.345	43.441	49.789	39.263	40.801	418.490
D.	0.388	0.155	0.151	0.285	0.468	0.250	0.598	0.809
R.S.D.	1.006	0.350	0.366	0.657	0.940	0.636	1.466	0.193

	Mo	Ag	Pb	Ti	Cd	B	K	Mn
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Mean	40.852	33.101	39.789	39.553	40.106	39.908	9767.018	40.140
D.	0.274	0.106	1.388	0.236	0.379	0.058	16.976	0.309
R.S.D.	0.671	0.320	3.489	0.596	0.946	0.146	0.174	0.771

	Sb	V	Be	Tl
	(ppm)	(ppm)	(ppm)	(ppm)
Mean	37.591	41.147	40.315	38.030
D.	1.662	0.231	0.112	0.526
R.S.D.	4.421	0.561	0.278	1.383

HNF-SD-WM-DP-266, REV. 0

Identity 1: S97T001956_X Identity 2: Fusion,.25-10-1-9ml

1:28 PM September 5, 1997

Task name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 410.00

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	0.522	0.060	3.702	10.251	50.954	1.738	-0.176	-0.032
SD	0.346	0.052	1.574	0.311	2.652	0.945	0.223	0.064
R.S.D.	66.348	86.603	42.518	3.036	5.206	54.402	126.370	199.438

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.539	0.836	0.774	0.236	2.060	11.156	-0.098	23.069
SD	0.057	0.909	0.003	1.049	0.017	0.653	1.646	5.509
R.S.D.	10.553	108.779	0.325	444.892	0.841	5.857	1673.816	23.880

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.710	16.801	-0.018	4.555	7.636	0.762	5.239	377.758
SD	0.819	0.622	0.008	3.511	1.034	0.051	0.909	1.978
R.S.D.	115.436	3.700	43.301	77.070	13.543	6.663	17.353	0.524

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	1.059	-0.160	4.163	0.232	0.265	1.870	10012.634	0.045
SD	0.279	0.175	6.472	0.106	0.276	0.164	13.991	0.086
R.S.D.	26.369	109.719	155.453	45.662	103.980	8.791	0.140	191.497

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	37.940	0.719	0.077	7.223
SD	6.544	0.449	0.064	6.353
R.S.D.	17.249	62.475	83.108	87.953

HNF-SD-WM-DP-266, REV. 0

Identity 1: S97T001956_AX Identity 2: Fusion, .25-10-1-9ml

1:32 PM September 5, 1997

Mask name: OPTIMA

Sample Weight : 1.0000 Solution Volume : 410.00

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	4020.133	4103.054	4174.002	4029.323	4099.443	4041.163	3860.864	3895.860
D.	6.599	3.688	19.808	10.699	3.844	3.795	5.803	4.901
R.S.D.	0.164	0.090	0.475	0.266	0.094	0.094	0.150	0.126

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
mean	4016.115	4062.310	4064.960	4018.105	4007.162	4030.403	4082.932	8149.626
D.	3.378	1.339	7.734	13.989	2.592	6.456	18.196	5.938
R.S.D.	0.084	0.033	0.190	0.348	0.065	0.160	0.446	0.073

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
mean	4118.165	4098.990	4053.944	4089.862	3963.313	4110.524	4062.692	4322.630
D.	1.550	3.579	5.272	6.649	7.212	2.292	12.058	6.945
R.S.D.	0.038	0.087	0.130	0.163	0.182	0.056	0.297	0.161

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
mean	4021.887	2489.474	4092.515	3968.712	4060.716	3963.062	13811.219	4069.286
D.	1.924	18.820	5.120	1.617	4.308	6.416	7.147	0.530
R.S.D.	0.048	0.756	0.125	0.041	0.106	0.162	0.052	0.013

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
mean	3991.795	4027.733	4016.389	4232.309
D.	8.927	3.676	5.937	5.829
R.S.D.	0.224	0.091	0.148	0.138

HNF-SD-WM-DP-266, REV. 0

Identity 1: ICSC Identity 2: Quality Control 1:42 PM September 5, 1997

Task name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.002	0.002	-0.032	0.031	200.133	-0.000	-0.002	-0.000
SD	0.001	0.000	0.005	0.006	0.961	0.005	0.000	0.000
R.S.D.	66.276	5.774	14.726	19.907	0.480	1572.703	12.160	48.556

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.007	0.000	0.004	94.935	101.169	-0.006	-0.031	0.010
SD	0.001	0.002	0.001	0.131	0.242	0.003	0.010	0.055
R.S.D.	8.946	1715.855	34.620	0.138	0.239	53.661	32.882	572.725

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.026	0.034	0.001	0.018	0.022	91.554	0.020	191.503
SD	0.012	0.011	0.000	0.008	0.006	0.567	0.004	0.796
R.S.D.	44.849	31.273	25.459	46.787	27.674	0.620	21.399	0.415

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	0.000	0.025	0.008	-0.000	0.002	0.014	0.106	0.007
SD	0.001	0.001	0.005	0.000	0.000	0.001	0.012	0.000
R.S.D.	541.703	4.962	59.063	223.970	20.648	5.580	11.370	4.162

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.033	-0.001	0.003	0.004
SD	0.004	0.001	0.000	0.039
R.S.D.	11.339	73.641	4.895	1127.302

HNF-SD-WM-DP-266, REV. 0

Identity 1: ICSAB Identity 2: Quality Control 1:45 PM September 5, 1997

Mask name : OPTIMA

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr	Sr	Bi	Si	Al	Co	Cu	Li
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
mean	0.004	0.002	-0.034	0.037	198.210	0.487	0.482	0.926
D.	0.002	0.000	0.004	0.001	0.504	0.002	0.002	0.005
R.S.D.	40.964	5.587	12.885	3.684	0.254	0.510	0.314	0.539

	Zn	Ni	La	Fe	Ca	Cr	Nd	U
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
mean	0.984	0.988	0.008	96.002	101.068	0.495	-0.012	0.190
D.	0.002	0.008	0.001	0.240	0.171	0.002	0.005	0.034
R.S.D.	0.207	0.837	16.762	0.250	0.169	0.371	46.035	17.828

	Ce	Sm	Ba	P	S	Mg	As	Na
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
mean	0.002	0.052	0.502	0.017	-0.005	92.942	0.029	186.187
D.	0.015	0.006	0.002	0.014	0.008	0.231	0.007	0.864
R.S.D.	760.488	11.985	0.299	81.455	143.825	0.249	25.271	0.464

	Mo	Ag	Pb	Ti	Cd	B	K	Mn
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
mean	-0.001	1.055	0.997	0.002	0.987	0.017	0.257	0.502
D.	0.001	0.000	0.019	0.000	0.006	0.001	0.013	0.001
R.S.D.	91.848	0.021	1.877	22.854	0.655	6.780	4.931	0.240

	Sb	V	Be	Tl
	(ppm)	(ppm)	(ppm)	(ppm)
mean	-0.007	0.488	0.496	-0.040
D.	0.030	0.001	0.000	0.027
R.S.D.	423.950	0.288	0.031	66.841

HNF-SD-WM-DP-266, REV. 0

Identity 1: CCV Identity 2: Quality Control 1:53 PM September 5, 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	4.951	5.107	5.144	4.814	4.958	5.090	5.236	4.894
1.D.	0.008	0.010	0.027	0.008	0.013	0.023	0.010	0.017
R.S.D.	0.154	0.189	0.517	0.159	0.266	0.453	0.185	0.352

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	5.135	4.938	4.967	4.873	4.751	4.875	5.150	10.408
1.D.	0.011	0.025	0.011	0.016	0.007	0.026	0.019	0.037
R.S.D.	0.223	0.512	0.218	0.324	0.154	0.525	0.363	0.360

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	5.030	5.161	5.066	5.211	4.990	4.878	5.141	5.147
1.D.	0.016	0.011	0.009	0.048	0.014	0.011	0.006	0.022
R.S.D.	0.315	0.207	0.187	0.919	0.289	0.224	0.117	0.425

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)	Mn (ppm)
Mean	5.070	5.057	4.847	4.855	4.966	4.979	4.961	4.929
1.D.	0.011	0.012	0.030	0.010	0.012	0.006	0.011	0.016
R.S.D.	0.216	0.230	0.629	0.215	0.251	0.115	0.225	0.323

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	4.803	5.048	5.045	4.974
1.D.	0.016	0.014	0.007	0.025
R.S.D.	0.325	0.285	0.145	0.505

HNF-SD-WM-DP-266, REV. 0

Identity 1: CCB Identity 2: Quality Control 2:00 PM September 5, 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	-0.000	-0.001	0.009	-0.001	0.008	-0.001	-0.000
St.D.	0.001	0.000	0.007	0.004	0.005	0.002	0.000	0.000
% R.S.D.	29.267	100.000	786.171	37.611	1010.972	28.784	39.981	66.669

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.001	-0.002	0.001	-0.001	0.001	-0.000	-0.007	0.079
St.D.	0.000	0.002	0.001	0.001	0.000	0.000	0.006	0.029
% R.S.D.	45.983	79.448	55.818	90.354	14.783	118.102	86.101	36.830

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.025	0.018	-0.000	-0.006	-0.003	0.001	0.007	-0.007
St.D.	0.009	0.005	0.000	0.006	0.002	0.000	0.006	0.000
% R.S.D.	37.342	26.276	30.697	99.120	91.201	21.636	89.807	0.002

	Mo (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	S (ppm)	K (ppm)	Mn (ppm)
Mean	0.000	0.003	-0.000	0.001	-0.000	0.004	0.179	-0.000
St.D.	0.001	0.000	0.016	0.001	0.001	0.001	0.026	0.000
% R.S.D.	567.920	13.550	19409.709	63.740	640.671	34.774	14.649	96.538

	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.045	0.000	0.000	-0.050
St.D.	0.033	0.001	0.000	0.027
% R.S.D.	74.350	240.257	125.415	54.134

Handwritten signature
09-05-97

LABCORE Data Entry Template for Worklist# 20198

Analyst: JK Seib Instrument: ICP01-2 JK 9-5-97 Book# 688480Method: LA-505-157/161 Rev/Mod C-2Worklist Comment: JK 9-5-97 ICP AX-103 (FUSION)

S Type	Sample#	R A	Test	Matrix	Group#	Project
1	ICV		@ICP-QC	QC		
2	ICB		@ICP-QC	QC		
3	LLS		@ICP-QC	QC		
4	ICSA		@ICP-QC	QC		
5	ICSAB		@ICP-QC	QC		
6	PREPBLKTJA		@ICP-F01	SOLID		
7	SERDIL	S97T001954 40 F	@ICP-F01	SOLID		
		<u>JK 9-5-97</u>				
8	SAMPLE	S97T001954 0 F	@ICP-F01	SOLID	97000495	AX-103
	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					
9	DUP	S97T001954 0 F	@ICP-F01	SOLID		
10	SPK	S97T001954 0 F	@ICP-F01	SOLID		
	<u>5th pipet X</u>					
	<u>Spike Gf (10ppm) JK 9-5-97</u>					
11	CCV		@ICP-QC	QC		
12	CCB		@ICP-QC	QC		
13	SAMPLE	S97T001953 0 F	@ICP-F01	SOLID	97000495	AX-103
	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:

LABCORE Data Entry Template for Worklist# 20198

S Type	Sample#	R A	Test	Matrix	Group#	Project
14 DUP	S97T001953	0 F	@ICP-F01	SOLID		
15 SAMPLE	S97T001955	0 F	@ICP-F01	SOLID	97000495	AX-103
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						
16 DUP	S97T001955	0 F	@ICP-F01	SOLID		
17 ICSEA			@ICP-QC	QC		
18 ICSAB			@ICP-QC	QC		
19 CCV			@ICP-QC	QC		
20 CCB			@ICP-QC	QC		

Final page for worklist # 20198

Reviewed & Validated by:

Paul M. Pang 9/8/97
Analyst Signature Date

JX SLD 09-05-97
Analyst Signature Date
Prep by KJA 25-10 13F 1
S97T001954-L 25-10-2-8 205
S97T001954 25-10 41
S97T001954-D 25-10 41
S97T001954-Q 25-10 41
S97T001954-V 25-10-1-9 410
S97T001954-QX 25-10-1-9 410
S97T001953 25-10 41
S97T001953-D 25-10 41
S97T001955 25-10 41
S97T001955-D 25-10 41

Data Entry Comments:

HNF-SD-WM-DP-266, REV. 0

Analysis Report

Summary

Fri 09-05-97 02:33:13 PM

page 1

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	970905B	ICP2	09/05/97	12:45	DKS	Q	CONC
2	ICB	970905B	ICP2	09/05/97	12:50	DKS	Q	CONC
3	LLS	970905B	ICP2	09/05/97	12:53	DKS	Q	CONC
4	ICSA	970905B	ICP2	09/05/97	12:56	DKS	Q	CONC
5	ICSAB	970905B	ICP2	09/05/97	13:00	DKS	Q	CONC
6	PREPBLKTJA	970905B	ICP2	09/05/97	13:05	DKS	Q	CONC
7	S97T001954_L	970905B	ICP2	09/05/97	13:10	DKS	S	CONC
8	S97T001954_	970905B	ICP2	09/05/97	13:14	DKS	S	CONC
9	S97T001954_D	970905B	ICP2	09/05/97	13:20	DKS	S	CONC
10	S97T001954_A	970905B	ICP2	09/05/97	13:25	DKS	S	CONC
11	S97T001954_X	970905B	ICP2	09/05/97	13:29	DKS	S	CONC
12	S97T001954_AX	970905B	ICP2	09/05/97	13:34	DKS	S	CONC
13	CCV	970905B	ICP2	09/05/97	13:42	DKS	Q	CONC
14	CCB	970905B	ICP2	09/05/97	13:47	DKS	Q	CONC
15	S97T001953	970905B	ICP2	09/05/97	13:50	DKS	S	CONC
16	S97T001953_D	970905B	ICP2	09/05/97	13:53	DKS	S	CONC
17	S97T001955_	970905B	ICP2	09/05/97	13:56	DKS	S	CONC
18	S97T001955_D	970905B	ICP2	09/05/97	14:00	DKS	S	CONC
19	ICSA	970905B	ICP2	09/05/97	14:09	DKS	Q	CONC
20	ICSAB	970905B	ICP2	09/05/97	14:12	DKS	Q	CONC
21	CCV_1	970905B	ICP2	09/05/97	14:17	DKS	Q	CONC
22	CCB_1	970905B	ICP2	09/05/97	14:30	DKS	Q	CONC

 09-05-97
 5977001954
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SP 9/6/97

S97T001954

$$Fe = \frac{0.2959 \text{ ug}}{\text{ml}} \times \frac{1}{1.951 \frac{\text{g}}{\text{L}} \times \frac{1\text{L}}{1000\text{ml}}} = \frac{1.28 \text{ ug}}{\text{g}}$$

Spike:

$$Fe = \frac{(39.22)}{41} - \frac{(0.2959)}{41} \times 100 = 94.9\%$$

Sample result:

$$Al = \frac{44.79 \text{ ug}}{\text{ml}} \times \frac{1}{1.951 \frac{\text{g}}{\text{L}} \times \frac{1\text{L}}{1000\text{ml}}} = 2.30 \text{ e} + 4 \frac{\text{ug}}{\text{g}}$$

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 282 TO 286.

HNF-SD-WM-DP-266, REV. 0

Analysis Report

Averages

Fri 09-05-97 02:33:13 PM

page 2

#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	4.947	4.914	5.185	5.023	4.921	5.150
2	ICB	-.0007	.0057	.0040	.0030	.0000	.0001
3	LLS	.0226	.1080	.2126	.1027	.0999	.0113
4	ICSA	.0033	241.6	-.0190	.0022	.0003	.0004
5	ICSAB	.9773	242.0	.0222	-.0014	.4624	.4904
6	PREPBLKTJA	-.0008	.0041	.0141	.0015	.0001	.0002
7	S97T001954_L	.2027	47.06	3.456	.5063	.0208	.0542
8	S97T001954_	.0180	44.79	.1637	.1215	.0117	.0002
9	S97T001954_D	.0233	45.03	.1532	.0808	.0115	.0109
10	S97T001954_A	38.15	85.77	43.82	41.61	39.32	41.90
11	S97T001954_X	-.4896	48.01	2.239	.4070	-.0103	.1265
12	S97T001954_AX	3821.	.068.	4152.	4074.	4077.	4151.
13	CCV	4.954	4.917	5.239	5.048	4.951	5.188
14	CCB	.0021	.0041	.0002	.0015	-.0001	.0002
15	S97T001953	.0397	46.87	.4408	.2429	.0130	.0110
16	S97T001953_D	.0214	46.39	.3697	.1214	.0155	.0218
17	S97T001955_	.0227	46.80	.9865	.1210	.0141	.0200
18	S97T001955_D	.0515	46.66	.7266	-.0812	.0115	.0127
19	ICSA	.0032	241.9	-.0015	-.0027	.0004	.0004
20	ICSAB	.9668	241.6	-.0518	-.0022	.4665	.4891
21	CCV_1	4.962	4.911	5.230	5.078	4.927	5.174
22	CCB_1	.0009	.0162	.0106	-.0005	.0000	.0005
#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	5.252	5.071	5.035	4.556	5.161	5.033
2	ICB	.0082	.0033	-.0015	-.0026	-.0030	-.0002
3	LLS	Q.1286	.1962	.0098	.2058	.0432	.0222
4	ICSA	-.0087	258.5	.0035	.0066	-.0003	-.0028
5	ICSAB	.0028	261.9	.9583	.0071	.4685	.4803
6	PREPBLKTJA	-.0136	-.0007	-.0023	-.0023	-.0024	-.0004
7	S97T001954_L	-5.825	-.4339	-.0829	-.1368	-.4822	7.034
8	S97T001954_	-1.020	.7549	-.0527	.0256	-.1768	6.922
9	S97T001954_D	-.9188	.1285	-.0158	-.1359	-.0980	6.470
10	S97T001954_A	42.23	42.78	41.83	40.37	42.43	48.61
11	S97T001954_X	2.493	-1.479	-.2882	-3.072	-.8436	7.004
12	S97T001954_AX	4293.	4323.	4134.	4124.	4144.	4183.
13	CCV	5.248	5.130	5.085	4.945	5.203	5.076
14	CCB	-.0209	.0050	-.0014	-.0036	-.0018	-.0004
15	S97T001953	.0097	.1748	.0524	-.0147	-.0548	7.036
16	S97T001953_D	.1544	.0241	-.0139	-.2180	-.1033	6.577
17	S97T001955_	-.4930	.0579	-.0349	-.2312	-.0188	6.357
18	S97T001955_D	-.3707	.2249	.0185	-.0950	-.0299	5.791
19	ICSA	-.0394	258.2	.0022	.0053	-.0004	-.0002
20	ICSAB	-.0168	257.8	.9457	.0039	.4651	.4766
21	CCV_1	5.275	5.143	5.065	4.917	5.190	5.072
22	CCB_1	-.0021	-.0152	-.0011	.0056	.0006	.0013

HNF-SD-WM-DP-266, REV. 0

Analysis Report

Averages

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#	Sample Name	Cu	Eu	Fe	K	La	Li
1	ICV	5.075	.0046	4.723	4.825	5.038	4.877
2	ICB	.0004	-.0006	.0001	-.0378	-.0009	.0003
3	LLS	.0184	.0004	.0952	.5218	.1040	.0213
4	ICSA	-.0081	-.0163	93.57	.3532	-.0046	.0031
5	ICSAB	.4482	-.0196	94.15	.1090	-.0051	.9992
6	PREPBLKTJA	.0006	.0000	.0029	Q207.8	-.0004	.0003
7	S97T001954_L	.0980	-.0799	.2595	.11930	-.0772	.0875
8	S97T001954_	-.0043	.0060	.2959	.11670	-.0153	.0263
9	S97T001954_D	.0084	.0057	.2782	.12060	-.0282	.0307
10	S97T001954_A	41.21	.0363	39.22	.11780	40.96	38.89
11	S97T001954_X	.2770	.0466	-.3636	.11900	-.4070	.2182
12	S97T001954_AX	3796	3.732	3894	.15900	4113	4015
13	CCV	5.079	.0046	4.764	4.936	5.036	4.853
14	CCB	.0001	.0003	-.0003	.0273	-.0005	.0007
15	S97T001953	.0373	.0034	.9163	.11710	.0014	.0220
16	S97T001953_D	.0092	-.0235	.9275	.10590	-.0399	-.0042
17	S97T001955_	.0212	-.0250	.3602	.11340	-.0214	.0046
18	S97T001955_D	.0302	.0014	.3359	.10550	-.0155	.0307
19	ICSA	-.0075	-.0163	93.66	.2015	-.0036	.0031
20	ICSAB	.4529	-.0135	93.37	.0750	-.0041	1.012
21	CCV_1	5.070	.0048	4.747	4.838	5.012	4.866
22	CCB_1	.0007	.0002	-.0003	.0410	.0010	.0011
<hr/>							
#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	5.038	4.928	5.114	5.108	5.015	5.002
2	ICB	-.0001	-.0001	-.0010	.0037	.0005	-.0033
3	LLS	.2122	.0203	.1062	.1783	.2026	.0357
4	ICSA	249.6	-.0053	-.0115	192.0	-.0021	.0030
5	ICSAB	250.1	.4524	-.0107	191.6	-.0003	.9450
6	PREPBLKTJA	-.0036	.0007	-.0002	.0481	.0002	Q.1676
7	S97T001954_L	.8461	.0289	-.3614	399.0	.4067	3.409
8	S97T001954_	-.0095	.0552	.0702	389.9	-.0046	4.296
9	S97T001954_D	-.0866	.0453	.0702	388.7	-.0225	4.238
10	S97T001954_A	40.73	39.96	42.51	432.1	40.65	47.03
11	S97T001954_X	-.5875	.1534	.0805	388.2	.4333	2.508
12	S97T001954_AX	4267.	.4132.	.4140.	.4419.	.3989.	.4139.
13	CCV	5.025	4.971	5.145	5.073	5.010	5.050
14	CCB	.0080	.0003	.0006	.0624	-.0001	-.0099
15	S97T001953	-.3783	.0878	.1496	.373.3	.0753	8.921
16	S97T001953_D	.0344	.0484	.0539	366.4	-.0581	2.362
17	S97T001955_	-.0263	.0414	.1492	385.9	-.0036	2.857
18	S97T001955_D	.1317	.0493	.1021	375.2	.0831	3.517
19	ICSA	250.3	-.0054	-.0028	193.1	.0034	-.0061
20	ICSAB	249.0	.4464	.0015	192.8	.0060	.9259
21	CCV_1	5.026	4.959	5.144	5.093	4.990	5.066
22	CCB_1	.0100	.0003	-.0002	-.C132	.0033	-.0086

Analysis Report

Averages

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#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	5.088	4.999	4.946	4.852	4.755	5.067
2	ICB	.0072	-.0102	-.0083	.0019	.0256	-.0016
3	LLS	.4255	.2228	.2113	.1332	.2295	Q.1282
4	ICSA	.0356	.0245	-.0251	.005	.0530	.0146
5	ICSAB	.0224	1.023	-.0369	.0244	.0296	.0146
6	PREPBLKTJA	-.0084	.0037	.0094	.0047	.0395	.0025
7	S97T001954_L	6.311	-3.824	9.909	-.6601	7.667	1.526
8	S97T001954_-	3.999	-.5021	10.21	.0345	1.529	1.121
9	S97T001954_D	7.928	-.0217	9.407	.3087	2.732	1.032
10	S97T001954_A	46.38	41.82	52.07	39.89	40.43	43.20
11	S97T001954_X	3.105	-.8412	4.505	2.919	18.39	4.205
12	S97T001954_AX	4082.	4206.	4035.	4154.	4020.	421.
13	CCV	5.058	5.047	4.971	4.881	4.790	5.099
14	CCB	.0048	.0034	.0030	.0089	.0423	.0041
15	S97T001953	4.800	.1111	10.27	.3115	2.053	1.083
16	S97T001953_D	5.135	-.1881	8.772	.3114	1.923	.6569
17	S97T001955_-	1.904	.0068	9.713	.1265	2.129	.6277
18	S97T001955_D	5.429	-.2424	8.019	.1636	2.727	.9345
19	ICSA	.0251	.0265	-.0267	.0144	.0553	.0148
20	ICSAB	.0160	.9905	-.0250	.0101	.0545	.0140
21	CCV_1	5.086	5.029	5.005	4.900	4.837	5.103
22	CCB_1	.0051	.0070	-.0105	-.0010	.0544	.0028

#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	4.941	4.984	.1518	4.998	4.767	9.697
2	ICB	-.0007	.0000	-.0007	-.0005	.0057	-.0133
3	LLS	.2038	.0206	.0058	.0200	.4148	.5079
4	ICSA	-.0075	.0016	-.0042	.0010	.1150	-.1129
5	ICSAB	-.0063	.0016	.0075	.0012	.0641	-.1029
6	PREPBLKTJA	.0049	.0001	.0033	-.0004	-.0243	-.0539
7	S97T001954_L	-.4416	.0004	.6416	.0522	2.783	4.309
8	S97T001954_-	.1926	.0111	.0594	-.0368	-.0504	-2.389
9	S97T001954_D	.0611	.0111	.1904	-.0269	-1.122	-2.426
10	S97T001954_A	39.88	40.32	1.997	40.90	39.04	75.79
11	S97T001954_X	2.685	.0360	.7105	-.2342	-5.879	3.445
12	S97T001954_AX	3988.	4097.	131.9	4143.	4038.	7782.
13	CCV	4.932	4.976	.1655	5.003	4.855	9.677
14	CCB	.0065	.0000	-.0015	-.0007	.0026	.0198
15	S97T001953	.0886	.0111	.2107	.0022	-.5714	-2.461
16	S97T001953_D	-.1733	.0057	.2983	-.0071	-.3556	-3.284
17	S97T001955_-	-.1429	.0056	.3674	-.0163	.0752	-3.493
18	S97T001955_D	.0746	.0092	.3011	-.0073	.0914	-2.071
19	ICSA	-.0111	.0016	-.0031	.0010	.0664	-.1113
20	ICSAB	-.0144	.0016	-.0022	.0007	.0836	-.1161
21	CCV_1	4.909	4.965	.1582	4.999	4.854	9.639
22	CCB_1	.0067	.0001	.0062	-.0002	-.0096	.0239

Analysis Report

Averages

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#	Sample Name	V	Y	Zn	Zr
1	ICV	5.123	.0069	4.968	4.988
2	ICB	-.0011	-.0001	-.0005	-.0009
3	LLS	.1049	.0005	.0205	.0203
4	ICSA	.0018	.0073	.0077	-.0025
5	ICSAB	.4729	.0076	.9577	-.0029
6	PREPBLKTJA	.0001	-.0001	-.0010	-.0009
7	S97T001954_L	-.1069	-.0303	.0024	-.2486
8	S97T001954_	.0418	.0042	-.0464	.0110
9	S97T001954_D	.0416	.0042	-.0020	.0288
10	S97T001954_A	42.11	.0577	41.41	40.62
11	S97T001954_X	.2951	.0307	-.0599	.0787
12	S97T001954_AX	4122.	5.493	3920.	4092.
13	CCV	5.151	.0069	5.000	5.003
14	CCB	.0011	.0002	.0011	.0004
15	S97T001953	.0262	.0043	.0199	-.0002
16	S97T001953_D	-.0329	-.0115	.0356	-.0738
17	S97T001955_	-.0403	-.0081	.0182	-.0652
18	S97T001955_D	.0330	.0041	.0394	-.0072
19	ICSA	.0003	.0073	.0079	-.0026
20	ICSAB	.4685	.0070	.9420	-.0030
21	CCV_1	5.148	.0069	5.006	4.984
22	CCB_1	.0014	.0001	.0006	.0005

K. AD
09.05.97

LABCORE Data Entry Template for Worklist# 20265

Analyst: B. Goffette Instrument: ICPMS1 _____ Book# 139843

Method: LT-506-101 Rev/Mod A-1

Worklist Comment: AX-103 ICP/MS Actinides

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	ICV				@MSACT	QC		
2	ICB				@MSACTA1	SOLID		
3	BLNK-PREP				@MSACTA1	SOLID		
4	STD-PREP				@MSACTQC	SOLID		
5	SAMPLE	S97T001891	0	A	@MSACTA1	SOLID	97000494	AX-103
		Analytes Requested: 241-A1 , 243-A1 , 244-A1 , NP237-A1, PU239-A1, PU240-A1, PU242-A1, TH229-A1, TH230-A1, TH232-A1						
6	DUP	S97T001891	0	A	@MSACTA1	SOLID		
7	SPK	S97T001891	0	A	@MSACTA1	SOLID		
8	SERDIL	S97T001891	0	A	@MSACTA1	SOLID		
9	CCV				@MSACT	QC		
10	CCB				@MSACTA1	SOLID		

Final page for worklist # 20265

B. Goffette
Analyst Signature

9-29-97
Date

[Signature]
Analyst Signature

10/21/97
Date

Data Entry Comments:

AX-102

5977001891

ICB

ICV

BLANK - prep

STD - prep

SEN. 212

Sample

Dup

SpK

post spk

CCV

CCB

Leslie Diaz for
B. Goeke

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES ~~288~~ TO ~~302~~

HNF-SD-WM-DP-266, REV. 0

Method: MS_TUNE

Sample Name: Sample-0

Operator:

Comment:

Run Time: 09/29/97 12:33 Type: Unk

Mode: INT

Corr.Fact: 1.000000

Elem	In[115]	Ir[193]
Line	115/pulse	193/pulse
Units	Cts/S	Cts/S
Avg	35200.	252500.
Stddev	651.	1960.
%RSD	1.849	.7762

#1	33900.	250500.
#2	34460.	253400.
#3	35710.	251600.
#4	35770.	252800.
#5	35620.	252200.
#6	35930.	256400.
#7	35140.	249300.
#8	34870.	251500.
#9	35550.	253900.
#10	35020.	253300.

Method: ACTINIDE Sample Name: CAL BLANK

Operator:

Comment: BACKGROUND

Run Time: 09/29/97 13:17 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1485	.1433	.4597	.1630	.1584
Stddev	.0184	.0185	.0254	.0127	.0117
%RSD	12.41	12.93	5.526	7.791	7.378

#1	.1306	.1499	.4689	.1513	.1602
#2	.1326	.1326	.4724	.1554	.1448
#3	.1750	.1222	.4842	.1780	.1765
#4	.1470	.1409	.4545	.1545	.1576
#5	.1575	.1710	.4184	.1755	.1530

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.2246	.1722	.1612	.1637	.1741
Stddev	.0167	.0178	.0160	.0190	.0068
%RSD	7.441	10.33	9.934	11.64	3.910

#1	.2478	.1973	.1439	.1365	.1780
#2	.2286	.1676	.1463	.1814	.1646
#3	.2278	.1569	.1795	.1644	.1810
#4	.2166	.1560	.1742	.1545	.1772
#5	.2024	.1829	.1620	.1814	.1695

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1551
Stddev	.0120
%RSD	7.758

#1	.1558
#2	.1615
#3	.1403
#4	.1470
#5	.1710

Method: ACTINIDE Sample Name: CAL STD

Operator:

Comment: 0.010 PPM

Run Time: 09/29/97 13:22 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U_[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1367	.1646	175.0	187.4	.6361
Stddev	.0116	.0075	1.5	1.9	.0306
%RSD	8.467	4.532	.8543	1.037	4.811

#1	.1441	.1635	173.9	188.8	.6078
#2	.1277	.1633	174.0	186.9	.6027
#3	.1270	.1773	173.7	184.3	.6559
#4	.1533	.1578	176.4	188.0	.6738
#5	.1313	.1611	176.8	189.1	.6401

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.2589	.1620	.1453	.1548	.1423
Stddev	.0324	.0158	.0199	.0128	.0143
%RSD	12.49	9.729	13.71	8.276	10.06

#1	.2348	.1739	.1293	.1679	.1620
#2	.3132	.1381	.1737	.1514	.1247
#3	.2393	.1640	.1463	.1344	.1448
#4	.2433	.1563	.1533	.1607	.1474
#5	.2641	.1776	.1238	.1597	.1328

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1527
Stddev	.0265
%RSD	17.35

#1	.1352
#2	.1900
#3	.1463
#4	.1681
#5	.1238

Method: ACTINIDE Sample Name: CAL STD

Operator:

Comment: 0.100 PPM

Run Time: 09/29/97 13:27 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U_[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1574	.3518	1669.	1784.	4.850
Stddev	.0147	.0207	34.	51.	.078
%RSD	9.363	5.899	2.058	2.885	1.617

#1	.1449	.3345	1696.	1834.	4.957
#2	.1621	.3350	1712.	1776.	4.883
#3	.1744	.3855	1628.	1839.	4.773
#4	.1661	.3516	1654.	1724.	4.772
#5	.1394	.3522	1654.	1746.	4.866

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.6789	.1562	.1542	.1596	.1582
Stddev	.0784	.0243	.0198	.0185	.0092
%RSD	11.54	15.54	12.81	11.57	5.802

#1	.7429	.1403	.1418	.1557	.1649
#2	.6532	.1315	.1468	.1759	.1591
#3	.7451	.1484	.1515	.1805	.1423
#4	.6972	.1691	.1421	.1361	.1616
#5	.5560	.1918	.1888	.1499	.1634

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1591
Stddev	.0128
%RSD	8.048

#1	.1603
#2	.1377
#3	.1622
#4	.1720
#5	.1634

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE Sample Name: ICB

Operator:

Comment: DIRECT

Run Time: 09/29/97 13:40 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U_[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1421	.1340	.4019	.1705	.1439
Stddev	.0175	.0076	.0174	.0179	.0168
%RSD	12.33	5.670	4.330	10.53	11.69

#1	.1241	.1436	.3949	.1541	.1570
#2	.1241	.1271	.4284	.1862	.1423
#3	.1624	.1263	.4105	.1834	.1639
#4	.1451	.1331	.3889	.1481	.1227
#5	.1548	.1396	.3871	.1806	.1336

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1869	.1601	.1541	.1544	.1563
Stddev	.0095	.0076	.0149	.0087	.0159
%RSD	5.105	4.749	9.672	5.664	10.17

#1	.1929	.1585	.1451	.1556	.1301
#2	.1983	.1574	.1468	.1408	.1574
#3	.1849	.1549	.1804	.1594	.1714
#4	.1855	.1735	.1466	.1526	.1660
#5	.1730	.1563	.1518	.1639	.1563

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1782
Stddev	.0071
%RSD	3.964

#1	.1885
#2	.1816
#3	.1759
#4	.1750
#5	.1700

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: ICV

Operator:

Comment: DIRECT

Run Time: 09/29/97 13:45 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U_[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1242	.1506	150.9	.7991	213.4
Stddev	.0165	.0179	2.5	.0343	5.3
%RSD	13.29	11.86	1.645	4.287	2.506

#1	.0950	.1351	147.0	.8003	206.4
#2	.1338	.1691	152.1	.7565	214.4
#3	.1291	.1706	153.2	.7975	218.1
#4	.1290	.1351	150.1	.7894	218.7
#5	.1343	.1432	152.3	.8519	209.5

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	180.7	5.085	.1626	.1374	114.1
Stddev	6.3	.243	.0055	.0157	1.4
%RSD	3.475	4.775	3.370	11.39	1.208

#1	173.1	4.792	.1544	.1366	112.0
#2	178.1	4.884	.1691	.1215	115.9
#3	190.3	5.120	.1629	.1275	114.5
#4	181.1	5.350	.1655	.1624	114.2
#5	180.9	5.280	.1611	.1387	114.0

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1250
Stddev	.0094
%RSD	7.491

#1	.1366
#2	.1322
#3	.1137
#4	.1230
#5	.1194

Method: ACTINIDE

Sample Name: BLNK-PREP

Operator: BJG

Comment: DIRECT

Run Time: 09/29/97 14:00 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1382	.1411	.2315	.1539	.1406
Stddev	.0146	.0108	.0133	.0113	.0124
%RSD	10.56	7.641	5.765	7.324	8.800

#1	.1526	.1229	.2370	.1496	.1496
#2	.1506	.1448	.2369	.1375	.1419
#3	.1379	.1497	.2090	.1645	.1527
#4	.1166	.1403	.2436	.1536	.1373
#5	.1331	.1479	.2308	.1642	.1213

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1760	.1494	.1511	.1364	.1489
Stddev	.0109	.0098	.0138	.0103	.0192
%RSD	6.168	6.554	9.117	7.550	12.92

#1	.1777	.1526	.1437	.1244	.1763
#2	.1770	.1448	.1609	.1521	.1258
#3	.1912	.1571	.1453	.1349	.1571
#4	.1609	.1580	.1698	.1314	.1477
#5	.1731	.1346	.1361	.1390	.1376

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1544
Stddev	.0105
%RSD	6.791

#1	.1570
#2	.1419
#3	.1482
#4	.1698
#5	.1553

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE Sample Name: STD-PREP

Operator: BJG

Comment: 101 DF

Run Time: 09/29/97 14:05 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1337	.1364	1.942	1795.	7.094
Stddev	.0097	.0142	.094	41.	.281
%RSD	7.220	10.44	4.855	2.260	3.962

#1	.1171	.1186	1.844	1762.	6.995
#2	.1388	.1404	2.074	1861.	7.515
#3	.1405	.1493	2.003	1802.	6.854
#4	.1389	.1493	1.898	1784.	7.238
#5	.1333	.1244	1.889	1764.	6.869

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.673	.2164	.1430	.1514	1.386
Stddev	.147	.0177	.0123	.0163	.086
%RSD	5.510	8.157	8.591	10.75	6.242

#1	2.645	.2357	.1620	.1518	1.427
#2	2.769	.2066	.1451	.1703	1.490
#3	2.509	.2262	.1434	.1626	1.303
#4	2.871	.2225	.1299	.1433	1.290
#5	2.571	.1910	.1347	.1288	1.420

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1419
Stddev	.0178
%RSD	12.56

#1	.1258
#2	.1593
#3	.1212
#4	.1448
#5	.1584

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: S97T001891_L

Operator: BJG

Comment: 25 DF

Run Time: 09/29/97 14:15 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1379	.1410	7.008	493.9	1.751
Stddev	.0094	.0174	.155	13.3	.079
%RSD	6.833	12.31	2.207	2.694	4.479

#1	.1523	.1346	6.787	470.3	1.617
#2	.1329	.1645	7.118	497.9	1.781
#3	.1356	.1536	7.090	500.2	1.749
#4	.1275	.1292	7.139	502.1	1.808
#5	.1411	.1233	6.904	499.1	1.802

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.7474	.1994	.1471	.1575	.1849
Stddev	.0224	.0096	.0159	.0143	.0277
%RSD	2.990	4.827	10.78	9.059	14.96

#1	.7598	.1956	.1298	.1587	.1667
#2	.7642	.1877	.1362	.1379	.2243
#3	.7485	.2141	.1602	.1504	.2010
#4	.7088	.1987	.1424	.1656	.1557
#5	.7558	.2011	.1670	.1752	.1768

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1455
Stddev	.0063
%RSD	4.342

#1	.1539
#2	.1412
#3	.1406
#4	.1507
#5	.1411

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE Sample Name: S97T001891

Operator: BJG

Comment: 5 DF

Run Time: 09/29/97 14:19 Type: Unk Mode: IR Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1491	.1781	33.40	2400.	8.343
Stddev	.0197	.0184	1.41	87.	.385
%RSD	13.18	10.35	4.215	3.633	4.609

#1	.1733	.1733	32.78	2321.	7.800
#2	.1323	.1765	34.08	2433.	8.583
#3	.1652	.2084	35.52	2528.	8.782
#4	.1461	.1742	32.61	2403.	8.414
#5	.1287	.1582	32.01	2318.	8.138

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.178	.3925	.1811	.1777	.3422
Stddev	.122	.0137	.0241	.0140	.0200
%RSD	3.826	3.484	13.32	7.856	5.851

#1	3.032	.4105	.1902	.1977	.3540
#2	3.220	.3740	.1956	.1822	.3376
#3	3.225	.3854	.2006	.1652	.3697
#4	3.333	.3953	.1405	.1799	.3185
#5	3.079	.3973	.1784	.1637	.3311

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1732
Stddev	.0273
%RSD	15.74

#1	.1281
#2	.1669
#3	.1888
#4	.1930
#5	.1894

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: S97T001891_D

Operator: BJG

Comment: 5 DF

Run Time: 09/29/97 14:30 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1628	.1546	40.50	2893.	10.26
Stddev	.0176	.0330	1.62	92.	.59
%RSD	10.82	21.34	4.002	3.196	5.722

#1	.1553	.2041	40.47	2913.	10.80
#2	.1466	.1169	38.04	2842.	9.364
#3	.1489	.1377	41.48	2828.	10.23
#4	.1779	.1669	40.19	2834.	10.15
#5	.1852	.1474	42.34	3046.	10.78

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.729	.4352	.1909	.1551	.3759
Stddev	.156	.0362	.0107	.0193	.0322
%RSD	4.183	8.308	5.600	12.41	8.562

#1	3.961	.4118	.1969	.1607	.4064
#2	3.610	.4752	.1912	.1633	.4083
#3	3.668	.4503	.1954	.1675	.3312
#4	3.592	.3851	.1724	.1632	.3667
#5	3.813	.4537	.1985	.1210	.3667

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1747
Stddev	.0161
%RSD	9.220

#1	.1662
#2	.1559
#3	.1880
#4	.1687
#5	.1947

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: S97T001891_S

Operator: BJG

Comment: 101 DF

Run Time: 09/29/97 14:41 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1309	.1219	16.88	1863.	26.95
Stddev	.0109	.0145	.33	13.	.48
%RSD	8.320	11.89	1.937	.7032	1.775

#1	.1302	.1348	17.43	1884.	27.69
#2	.1159	.1053	16.92	1855.	26.55
#3	.1429	.1354	16.68	1866.	26.93
#4	.1396	.1263	16.62	1852.	26.51
#5	.1257	.1078	16.76	1859.	27.07

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	19.94	.6875	.1540	.1506	11.74
Stddev	.37	.0292	.0083	.0277	.17
%RSD	1.871	4.241	5.380	18.39	1.433

#1	20.05	.7056	.1469	.1590	11.82
#2	20.32	.7178	.1550	.1098	11.81
#3	20.03	.6515	.1670	.1384	11.77
#4	19.99	.7012	.1545	.1827	11.84
#5	19.31	.6616	.1467	.1632	11.44

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1399
Stddev	.0054
%RSD	3.845

#1	.1469
#2	.1369
#3	.1339
#4	.1441
#5	.1377

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: S97T001891_A

Operator: BJG

Comment: 5 DF

Run Time: 09/29/97 14:56 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1468	.1596	60.89	2332.	54.36
Stddev	.0142	.0183	1.81	76.	1.58
%RSD	9.665	11.45	2.968	3.246	2.911

#1	.1406	.1744	61.72	2371.	55.81
#2	.1515	.1358	58.67	2239.	51.73
#3	.1540	.1812	62.36	2317.	55.20
#4	.1255	.1550	62.49	2437.	54.89
#5	.1622	.1515	59.23	2294.	54.19

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	41.71	1.454	.1688	.1801	23.75
Stddev	1.42	.085	.0102	.0193	.80
%RSD	3.392	5.836	6.032	10.69	3.362

#1	41.47	1.502	.1530	.1940	23.95
#2	40.37	1.348	.1707	.1515	23.47
#3	42.71	1.569	.1812	.1794	23.37
#4	43.58	1.438	.1716	.2012	25.03
#5	40.42	1.412	.1676	.1747	22.93

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1646
Stddev	.0270
%RSD	16.40

#1	.2082
#2	.1445
#3	.1558
#4	.1716
#5	.1426

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: CCV

Operator: BJG

Comment: DIRECT

Run Time: 09/29/97 15:06 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1158	.1332	155.2	.8040	225.3
Stddev	.0110	.0057	2.0	.0279	2.4
%RSD	9.454	4.276	1.284	3.474	1.056

#1	.1036	.1323	152.4	.8386	226.7
#2	.1213	.1284	156.1	.7662	221.4
#3	.1270	.1429	154.8	.8228	227.0
#4	.1227	.1299	157.8	.7934	224.7
#5	.1046	.1325	154.8	.7990	226.6

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	186.5	5.220	.1464	.1240	121.1
Stddev	2.5	.129	.0239	.0142	1.7
%RSD	1.324	2.465	16.29	11.49	1.401

#1	184.7	5.037	.1467	.1367	119.4
#2	183.8	5.185	.1156	.1113	120.2
#3	189.4	5.232	.1371	.1213	123.3
#4	188.8	5.251	.1513	.1099	122.4
#5	185.9	5.395	.1813	.1408	120.1

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1240
Stddev	.0101
%RSD	8.180

#1	.1122
#2	.1199
#3	.1213
#4	.1270
#5	.1394

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: CCB

Operator: BJG

Comment: DIRECT

Run Time: 09/29/97 15:12 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U_[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1202	.1314	.2485	.1585	.1556
Stddev	.0115	.0189	.0394	.0183	.0278
%RSD	9.536	14.37	15.84	11.55	17.86

#1	.1026	.1222	.2895	.1602	.2023
#2	.1323	.1435	.2842	.1843	.1520
#3	.1264	.1278	.2514	.1376	.1460
#4	.1237	.1560	.2137	.1448	.1279
#5	.1159	.1074	.2035	.1654	.1498

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.3627	.1455	.1376	.1292	.1506
Stddev	.0495	.0118	.0126	.0091	.0140
%RSD	13.64	8.129	9.154	7.041	9.288

#1	.4201	.1461	.1532	.1307	.1700
#2	.3546	.1351	.1379	.1407	.1379
#3	.4044	.1643	.1222	.1306	.1517
#4	.3008	.1462	.1462	.1153	.1364
#5	.3336	.1357	.1286	.1286	.1569

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1339
Stddev	.0201
%RSD	15.02

#1	.1672
#2	.1266
#3	.1194
#4	.1378
#5	.1187

LABCORE Data Entry Template for Worklist# 20439

Analyst: B. GORCH Instrument: ICPMS1 _____ Book# 80N10C

Method: LT-506-101 Rev/Mod A-1

Worklist Comment: AX-103 Isotopic U by ICP/MS

S Type	Sample#	R	A	Test	Matrix	Group#	Project
1 ICV				@MSU238	QC		
2 ICB				@MSU-A1	SOLID		
3 BLNK-PREP				@MSU-A1	SOLID		
4 STD-PREP				@MSU238	SOLID		
5 SERDIL	S97T001891	0	A	@MSU-A1	SOLID		
6 SAMPLE	S97T001891	0	A	@MSU-A1	SOLID	97000494	AX-103
Analytes Requested: U233-A1 , U234-A1 , U235-A1 , U236-A1 , U238-A1							
7 DUP	S97T001891	0	A	@MSU-A1	SOLID		
8 SPK	S97T001891	0	A	@MSU-A1	SOLID		
9 CCV				@MSU238	QC		
10 CCB				@MSU-A1	SOLID		
11 CCV				@MSU238	QC		
12 CCB				@MSU-A1	SOLID		
13 BLNK-PREP				@MSU-A1	SOLID		
14 STD-PREP				@MSU238	SOLID		
15 SAMPLE	S97T001957	0	A	@MSU-A1	SOLID	97000495	AX-103
Analytes Requested: U233-A1 , U234-A1 , U235-A1 , U236-A1 , U238-A1							
16 DUP	S97T001957	0	A	@MSU-A1	SOLID		
17 SAMPLE	S97T001958	0	A	@MSU-A1	SOLID	97000495	AX-103
Analytes Requested: U233-A1 , U234-A1 , U235-A1 , U236-A1 , U238-A1							

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 20439

S Type	Sample#	R A	Test	Matrix	Group#	Project
18 DUP	S97T001958	0 A	@MSU-A1	SOLID		
19 SPK	S97T001958	0 A	@MSU-A1	SOLID		
20 CCV			@MSU238	QC		
21 CCB			@MSU-A1	SOLID		
22 BLNK-PREP			@MSU-A1	SOLID		
23 STD-PREP			@MSU238	SOLID		
24 SAMPLE	S97T001959	0 A	@MSU-A1	SOLID	97000495	AX-103
Analytes Requested: U233-A1 , U234-A1 , U235-A1 , U236-A1 , U238-A1						
25 DUP	S97T001959	0 A	@MSU-A1	SOLID		
26 SERDIL	S97T001960	0 A	@MSU-A1	SOLID		
27 SAMPLE	S97T001960	0 A	@MSU-A1	SOLID	97000495	AX-103
Analytes Requested: U233-A1 , U234-A1 , U235-A1 , U236-A1 , U238-A1						
28 DUP	S97T001960	0 A	@MSU-A1	SOLID		
29 SPK	S97T001960	0 A	@MSU-A1	SOLID		
30 CCV			@MSU238	QC		
31 CCB			@MSU-A1	SOLID		

Final page for worklist # 20439

Analyst Signature

Date

11-13-97

Analyst Signature

Date

11/14/97

Data Entry Comments:

ICV	DIRECT	1
ICB	DIRECT	1
DTB BLK (PB)	1-9	10
DTB STD (PS)	1-10	101
597T001891-L	1-9-2-8	50
1891	1-9	10
1891-D	1-9	10
1891-S	1-10	101
CCV	DIRECT	1
CCB	DIRECT	1
CCV	DIRECT	1
CCB	DIRECT	1
DTB BLK (PB)	1-9	10
DTB STD (PS)	1-10	101
597T001957	1-9	10
1957-D	1-9	10
597T001958	1-9	10
1958-D	1-9	10
1958-S	1-10	101
CCV 11-1387		-
CCV	DIRECT	1
CCB	DIRECT	1
DTB BLK (PB)	1-9	10
DTB STD (PS)	1-10	101
597T001959	1-9	10
1959-D	1-9	10
597T001960-L	1-9-2-8	50
1960	1-9	10
1960-D	1-9	10
1960-S	1-10	101
CCV	DIRECT	1
CCB	DIRECT	1

by hand
11-13-97

FILE # U1113A.TXT

FSO-U AX-103

SST6 SONIOL

HNF-SD-WM-DP-266, REV. 0

Method: MS_TUNE

Sample Name: Sample-0

Operator:

Comment:

Run Time: 11/13/97 09:10 Type: Unk

Mode: INT

Corr.Fact: 1.000000

Elem	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	258900.
Stddev	5045.
%RSD	1.948

#1	258100.
#2	268600.
#3	256300.
#4	257000.
#5	259900.
#6	255000.
#7	252100.
#8	265800.
#9	260700.
#10	255700.

Method: ISO_U Sample Name: blank

Operator:

Comment: background

Run Time: 11/13/97 09:25 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.644	1.508	1.546	1.538	2.009
Stddev	.201	.210	.097	.297	.205
%RSD	12.25	13.91	6.294	19.30	10.19
#1	1.440	1.386	1.653	1.600	1.919
#2	1.512	1.406	1.512	1.273	1.724
#3	1.661	1.550	1.606	2.021	2.270
#4	1.645	1.343	1.562	1.343	2.110
#5	1.965	1.857	1.399	1.453	2.018

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	18.498
Stddev	.336
%RSD	1.8188

#1	18.755
#2	18.850
#3	18.061
#4	18.243
#5	18.579

HNF-SD-WM-DP-266, REV. 0

Method: ISO_U Sample Name: blank

Operator:

Comment: background

Run Time: 11/13/97 09:25 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.644	1.508	.0001	1.538	.0012
Stddev	.201	.210	.0003	.297	.0008
%RSD	12.25	13.91	350.5	19.30	62.01
#1	1.440	1.386	.0005	1.600	.0009
#2	1.512	1.406	.0000	1.273	.0002
#3	1.661	1.550	.0003	2.021	.0022
#4	1.645	1.343	.0001	1.343	.0016
#5	1.965	1.857	-.0004	1.453	.0013

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	18.498
Stddev	.336
%RSD	1.8188

#1	18.755
#2	18.850
#3	18.061
#4	18.243
#5	18.579

HNF-SD-WM-DP-266, REV. 0

Method: ISO_U

Sample Name: iso_u check std

Operator:

Comment:

Run Time: 11/13/97 10:00 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.681	3.823	211.0	5.929	25860.
Stddev	.097	.505	4.3	.528	141.
%RSD	5.755	13.22	2.034	8.901	.5438
#1	1.738	3.977	216.2	5.715	26050.
#2	1.599	3.256	212.5	6.018	25870.
#3	1.599	3.620	206.1	5.370	25780.
#4	1.788	4.439	209.3	6.614	25730.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	16.882
Stddev	.267
%RSD	1.5794

#1	16.973
#2	17.198
#3	16.574
#4	16.782

Method: ISO_U

Sample Name: iso_u check std

Operator:

Comment:

Run Time: 11/13/97 10:00 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_ [233]	U_ [234]	U_ [235]	U_ [236]	U_ [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.681	3.823	.6853	5.929	96.13
Stddev	.097	.505	.0140	.528	.52
%RSD	5.755	13.22	2.049	8.901	.5439
#1	1.738	3.977	.7021	5.715	96.85
#2	1.599	3.256	.6901	6.018	96.17
#3	1.599	3.620	.6693	5.370	95.85
#4	1.788	4.439	.6797	6.614	95.66

Int. Std.	Ir [193]
Line	193/pulse
Units	Cts/S
Avg	16.882
Stddev	.267
%RSD	1.5794
#1	16.973
#2	17.198
#3	16.574
#4	16.782

$$\frac{U_{235}}{U_{238}} = 0.71370$$

99.6% Recovery
on $\frac{U_{235}}{U_{238}}$ ratio.

HNF-SD-WM-DP-266, REV. 0

Method: ISO_U

Sample Name: ICV

Operator:

Comment:

Run Time: 11/13/97 10:09 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.982	1.872	21.53	3.678	5841.
Stddev	.252	.188	1.01	.277	63.
%RSD	8.466	10.06	4.671	7.542	1.083
#1	2.843	1.706	22.83	3.561	5799.
#2	3.060	1.913	21.54	4.031	5924.
#3	2.722	1.657	22.16	3.817	5828.
#4	2.907	1.977	20.41	3.692	5887.
#5	3.377	2.107	20.70	3.291	5770.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	17.024
Stddev	.242
%RSD	1.4217

#1	16.711
#2	16.993
#3	16.897
#4	17.199
#5	17.321

Method: ISO_U

Sample Name: ICV

Operator:

Comment:

Run Time: 11/13/97 10:09 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	2.982	1.872	.0654	3.678	21.71
Stddev	.252	.188	.0033	.277	.24
%RSD	8.466	10.06	5.026	7.542	1.083
#1	2.843	1.706	.0697	3.561	21.55
#2	3.060	1.913	.0655	4.031	22.02
#3	2.722	1.657	.0675	3.817	21.66
#4	2.907	1.977	.0618	3.692	21.88
#5	3.377	2.107	.0627	3.291	21.44

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	17.024
Stddev	.242
%RSD	1.4217

#1	16.711
#2	16.993
#3	16.897
#4	17.199
#5	17.321

HNF-SD-WM-DP-266, REV. 0

Method: ISO_U

Sample Name: ICB

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 10:17 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_ [233]	U_ [234]	U_ [235]	U_ [236]	U_ [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.739	1.798	1.872	1.802	2.263
Stddev	.257	.148	.190	.347	.444
%RSD	14.78	8.216	10.12	19.26	19.60

#1	2.046	1.960	1.758	1.326	2.421
#2	1.829	1.947	2.095	2.272	2.685
#3	1.614	1.708	2.049	1.863	2.608
#4	1.837	1.633	1.662	1.895	1.662
#5	1.370	1.740	1.797	1.655	1.940

Int. Std.	Ir [193]
Line	193/pulse
Units	Cts/S
Avg	17.015
Stddev	.553
%RSD	3.2474

#1	17.349
#2	16.947
#3	16.105
#4	17.149
#5	17.524

Method: ISO_U

Sample Name: ICB

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 10:17 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.739	1.798	.0012	1.802	.0022
Stddev	.257	.148	.0006	.347	.0016
%RSD	14.78	8.216	53.60	19.26	75.86
#1	2.046	1.960	.0008	1.326	.0028
#2	1.829	1.947	.0019	2.272	.0037
#3	1.614	1.708	.0017	1.863	.0035
#4	1.837	1.633	.0005	1.895	-.0001
#5	1.370	1.740	.0009	1.655	.0010

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	17.015
Stddev	.553
%RSD	3.2474

#1	17.349
#2	16.947
#3	16.105
#4	17.149
#5	17.524

Method: ISO_U

Sample Name: PB

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 10:21 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.988	1.844	1.750	2.008	3.341
Stddev	.268	.215	.306	.267	.404
%RSD	13.49	11.67	17.49	13.29	12.08
#1	1.963	1.692	1.994	2.145	3.141
#2	2.046	2.108	2.139	1.984	3.100
#3	2.224	1.675	1.675	1.554	3.899
#4	1.544	2.048	1.425	2.167	2.939
#5	2.163	1.695	1.520	2.192	3.624

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	16.610
Stddev	.379
%RSD	2.2816

#1	16.553
#2	16.132
#3	16.414
#4	16.843
#5	17.109

HNF-SD-WM-DP-266, REV.0

Method: ISO_U

Sample Name: PB

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 10:21 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.988	1.844	.0008	2.008	.0062
Stddev	.268	.215	.0010	.267	.0015
%RSD	13.49	11.67	132.1	13.29	24.28
#1	1.963	1.692	.0016	2.145	.0054
#2	2.046	2.108	.0020	1.984	.0053
#3	2.224	1.675	.0005	1.554	.0083
#4	1.544	2.048	-.0003	2.167	.0047
#5	2.163	1.695	.0000	2.192	.0072

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	16.610
Stddev	.379
%RSD	2.2816

#1	16.553
#2	16.132
#3	16.414
#4	16.843
#5	17.109

HNF-SD-WM-DP-266, REV. 0

Method: ISO_U

Sample Name: PS

Operator: BJG

Comment: 101 DF

Run Time: 11/13/97 10:25 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.834	2.703	99.21	11.82	27110.
Stddev	.358	.220	1.93	.39	505.
%RSD	19.54	8.137	1.947	3.259	1.862
#1	2.298	2.533	99.32	11.81	27000.
#2	1.515	2.727	98.80	11.73	27910.
#3	1.670	2.762	102.2	12.20	26770.
#4	1.553	2.467	98.87	11.24	27250.
#5	2.137	3.027	96.84	12.14	26630.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	16.643
Stddev	.251
%RSD	1.5110

#1	16.975
#2	16.503
#3	16.471
#4	16.415
#5	16.848

Method: ISO_U Sample Name: PS

Operator: BJG

Comment: 101 DF

Run Time: 11/13/97 10:25 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.834	2.703	.3195	11.82	100.8
Stddev	.358	.220	.0063	.39	1.9
%RSD	19.54	8.137	1.977	3.259	1.862
#1	2.298	2.533	.3199	11.81	100.4
#2	1.515	2.727	.3182	11.73	103.8
#3	1.670	2.762	.3294	12.20	99.51
#4	1.553	2.467	.3184	11.24	101.3
#5	2.137	3.027	.3118	12.14	99.00

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	16.643
Stddev	.251
%RSD	1.5110

#1	16.975
#2	16.503
#3	16.471
#4	16.415
#5	16.848

Method: ISO_U

Sample Name: S97T001891_L

Operator: BJG

Comment: 50 DF

Run Time: 11/13/97 10:35 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.026	2.148	30.76	4.162	3909.
Stddev	.233	.143	1.19	.177	130.
%RSD	11.49	6.645	3.871	4.244	3.318
#1	2.297	2.226	30.50	4.241	3860.
#2	1.693	2.305	32.67	4.430	4129.
#3	2.043	2.043	29.73	4.053	3796.
#4	2.172	1.958	31.05	3.988	3910.
#5	1.924	2.209	29.85	4.097	3849.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	14.158
Stddev	.308
%RSD	2.1741

#1	14.148
#2	13.882
#3	14.682
#4	14.044
#5	14.035

Method: ISO_U

Sample Name: S97T001891_L

Operator: BJG

Comment: 50 DF

Run Time: 11/13/97 10:35 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	2.026	2.148	.0956	4.162	14.53
Stddev	.233	.143	.0039	.177	.48
%RSD	11.49	6.645	4.072	4.244	3.319

#1	2.297	2.226	.0948	4.241	14.34
#2	1.693	2.305	.1019	4.430	15.35
#3	2.043	2.043	.0923	4.053	14.11
#4	2.172	1.958	.0966	3.988	14.53
#5	1.924	2.209	.0927	4.097	14.30

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	14.158
Stddev	.308
%RSD	2.1741

#1	14.148
#2	13.882
#3	14.682
#4	14.044
#5	14.035

Method: ISO_U

Sample Name: S97T001891

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 10:38 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.447	4.115	140.5	13.25	18920.
Stddev	.495	.673	4.5	.34	512.
%RSD	14.37	16.35	3.198	2.596	2.703
#1	4.103	3.357	133.9	13.35	18730.
#2	2.843	3.544	140.9	13.75	18880.
#3	3.518	4.277	142.7	12.87	19520.
#4	3.090	5.017	146.1	13.28	19290.
#5	3.681	4.379	139.2	12.98	18200.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	12.823
Stddev	.381
%RSD	2.9675

#1	13.406
#2	12.840
#3	12.508
#4	12.458
#5	12.903

Method: ISO_U
Comment: 10 DF

Sample Name: S97T001891

Operator: BJG

Run Time: 11/13/97 10:38 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	3.447	4.115	.4548	13.25	70.34
Stddev	.495	.673	.0147	.34	1.90
%RSD	14.37	16.35	3.233	2.596	2.704
#1	4.103	3.357	.4331	13.35	69.61
#2	2.843	3.544	.4559	13.75	70.18
#3	3.518	4.277	.4618	12.87	72.55
#4	3.090	5.017	.4728	13.28	71.71
#5	3.681	4.379	.4502	12.98	67.67

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	12.823
Stddev	.381
%RSD	2.9675

#1	13.406
#2	12.840
#3	12.508
#4	12.458
#5	12.903

HNF-SD-WM-DP-266, REV. 0

Method: ISO_U

Sample Name: S97T001891_D

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 10:42 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.607	4.218	167.7	14.84	22130.
Stddev	.247	.500	12.9	1.25	677.
%RSD	6.857	11.85	7.717	8.401	3.061
#1	3.305	4.249	155.0	15.03	22450.
#2	3.630	4.996	189.6	15.72	22730.
#3	3.815	4.217	164.1	12.73	21290.
#4	3.412	3.995	164.2	14.90	22670.
#5	3.874	3.632	165.5	15.82	21510.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	12.255
Stddev	.393
%RSD	3.2094

#1	12.709
#2	11.708
#3	12.451
#4	12.016
#5	12.389

This document was too large to scan as a single document; therefore, it has been divided into smaller sections.

Section 2 of 2

Document Information			
Document #	SD-WM-DP-266	Revision	0
Title	TANK 241AX103 CORES 212 & 214 ANALYTICAL RESULTS FOR THE FINAL REPORT		
Date	02/05/98		
Originator	STEEN FH	Originator Co.	WMH
Recipient		Recipient Co.	
References	EDT-623142		
Keywords			
Projects	TFARM		
Other Information			

Method: ISO_U

Sample Name: S97T001891_D

Operator: BJC

Comment: 10 DF

Run Time: 11/13/97 10:42 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	3.607	4.218	.5435	14.84	82.27
Stddev	.247	.500	.0423	1.25	2.52
%RSD	6.857	11.85	7.788	8.401	3.061
#1	3.305	4.249	.5020	15.03	83.45
#2	3.630	4.996	.6151	15.72	84.50
#3	3.815	4.217	.5318	12.73	79.15
#4	3.412	3.995	.5320	14.90	84.26
#5	3.874	3.632	.5364	15.82	79.97

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	12.255
Stddev	.393
%RSD	3.2094

#1	12.709
#2	11.708
#3	12.451
#4	12.016
#5	12.389

Method: ISO_U

Sample Name: S97T001891_S

Operator: BJG

Comment: 101 DF

Run Time: 11/13/97 10:46 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.035	3.098	113.4	14.24	27950.
Stddev	.185	.280	4.5	1.02	827.
%RSD	9.071	9.043	3.923	7.166	2.959

#1	1.954	2.930	107.7	14.34	27450.
#2	2.231	2.864	119.5	14.17	28910.
#3	1.855	3.105	113.8	15.45	28630.
#4	1.900	3.572	115.2	14.59	27830.
#5	2.236	3.017	110.9	12.64	26910.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	13.645
Stddev	.532
%RSD	3.9022

#1	14.332
#2	13.445
#3	13.206
#4	13.160
#5	14.085

Method: ISO_U Sample Name: S97T001891_S

Operator: BJG

Comment: 101 DF

Run Time: 11/13/97 10:46 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	2.035	3.098	.3660	14.24	103.9
Stddev	.185	.280	.0146	1.02	3.1
%RSD	9.071	9.043	3.976	7.166	2.959
#1	1.954	2.930	.3474	14.34	102.0
#2	2.231	2.864	.3859	14.17	107.5
#3	1.855	3.105	.3673	15.45	106.4
#4	1.900	3.572	.3720	14.59	103.5
#5	2.236	3.017	.3577	12.64	100.0

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/s
Avg	13.645
Stddev	.532
%RSD	3.9022

#1	14.332
#2	13.445
#3	13.206
#4	13.160
#5	14.085

Method: ISO_U Sample Name: CCV

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 10:57 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.148	1.855	21.31	4.011	5685.
Stddev	.246	.371	1.69	.276	280.
%RSD	7.831	19.98	7.922	6.879	4.930
#1	2.763	1.969	20.90	3.716	5606.
#2	3.323	1.234	20.00	3.798	5249.
#3	3.245	2.220	23.67	4.372	5996.
#4	3.360	1.863	19.63	3.959	5768.
#5	3.048	1.988	22.36	4.208	5805.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	15.260
Stddev	.498
%RSD	3.2637

#1	15.742
#2	15.799
#3	14.637
#4	15.030
#5	15.091

Method: ISO_U Sample Name: CCV

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 10:57 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	3.148	1.855	.0647	4.011	21.13
Stddev	.246	.371	.0055	.276	1.04
%RSD	7.831	19.98	8.530	6.879	4.931
#1	2.763	1.969	.0634	3.716	20.83
#2	3.323	1.234	.0605	3.798	19.51
#3	3.245	2.220	.0725	4.372	22.29
#4	3.360	1.863	.0592	3.959	21.44
#5	3.048	1.988	.0682	4.208	21.57

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	15.260
Stddev	.498
%RSD	3.2637

#1	15.742
#2	15.799
#3	14.637
#4	15.030
#5	15.091

Method: ISO_U Sample Name: CCB

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 11:02 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.624	2.054	1.512	1.629	2.499
Stddev	.048	.372	.193	.203	.442
%RSD	2.923	18.11	12.77	12.43	17.69
#1	1.597	1.419	1.207	1.881	2.555
#2	1.678	2.181	1.644	1.476	2.315
#3	1.609	2.280	1.643	1.442	1.911
#4	1.669	2.343	1.633	1.811	3.124
#5	1.568	2.045	1.431	1.533	2.590

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	14.533
Stddev	.418
%RSD	2.8780

#1	14.090
#2	14.902
#3	14.914
#4	14.083
#5	14.673

Method: ISO_U

Sample Name: CCB

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 11:02 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.624	2.054	.0000	1.629	.0031
Stddev	.048	.372	.001	.203	.0016
%RSD	2.923	18.11	2703.	12.43	53.88
#1	1.597	1.419	-.0010	1.881	.0033
#2	1.678	2.181	.0004	1.476	.0024
#3	1.609	2.280	.0004	1.442	.0009
#4	1.669	2.343	.0004	1.811	.0054
#5	1.568	2.045	-.0003	1.533	.0034

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	14.533
Stddev	.418
%RSD	2.8780

#1	14.090
#2	14.902
#3	14.914
#4	14.083
#5	14.673

Method: ISO_U

Sample Name: CCV

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 12:58 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.486	2.053	22.01	4.389	5693.
Stddev	.510	.145	.73	.146	103.
%RSD	14.63	7.043	3.326	3.337	1.808
#1	3.495	1.862	22.57	4.279	5669.
#2	4.068	2.017	21.48	4.202	5536.
#3	3.913	2.075	22.56	4.457	5703.
#4	3.017	2.046	20.98	4.439	5811.
#5	2.939	2.266	22.45	4.567	5748.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	14.683
Stddev	.450
%RSD	3.0638

#1	15.306
#2	14.873
#3	14.696
#4	14.417
#5	14.122

Method: ISO_U Sample Name: CCV

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 12:58 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	3.486	2.053	.0670	4.389	21.16
Stddev	.510	.145	.0024	.146	.38
%RSD	14.63	7.043	3.572	3.337	1.809
#1	3.495	1.862	.0689	4.279	21.07
#2	4.068	2.017	.0653	4.202	20.57
#3	3.913	2.075	.0688	4.457	21.20
#4	3.017	2.046	.0637	4.439	21.60
#5	2.939	2.266	.0685	4.567	21.36

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	14.683
Stddev	.450
%RSD	3.0638

#1	15.306
#2	14.873
#3	14.696
#4	14.417
#5	14.122

Method: ISO_U Sample Name: CCB

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 13:02 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.911	2.090	2.154	2.329	2.599
Stddev	.376	.225	.261	.382	.293
%RSD	19.65	10.78	12.12	16.42	11.27
#1	1.692	2.279	2.348	2.037	2.314
#2	2.157	1.925	2.124	2.058	2.489
#3	1.476	2.249	1.863	2.706	2.811
#4	2.417	2.221	2.483	2.058	2.385
#5	1.812	1.777	1.952	2.788	2.997

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	14.685
Stddev	.473
%RSD	3.2218

#1	14.480
#2	15.064
#3	14.227
#4	15.306
#5	14.346

Method: ISO_U Sample Name: CCB

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 13:02 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.911	2.090	.0021	2.329	.0034
Stddev	.376	.225	.0009	.382	.0011
%RSD	19.65	10.78	41.09	16.42	31.81
#1	1.692	2.279	.0027	2.037	.0024
#2	2.157	1.925	.0020	2.058	.0030
#3	1.476	2.249	.0011	2.706	.0042
#4	2.417	2.221	.0032	2.058	.0026
#5	1.812	1.777	.0014	2.788	.0049

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/s
Avg	14.685
Stddev	.473
%RSD	3.2218

#1	14.480
#2	15.064
#3	14.227
#4	15.306
#5	14.346

Method: ISO_U Sample Name: PB

Operator: BJC

Comment: 10 DF

Run Time: 11/13/97 13:05 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.002	2.054	2.166	2.217	3.989
Stddev	.107	.312	.449	.281	.364
%RSD	5.325	15.18	20.74	12.67	9.128
#1	2.154	1.929	1.768	1.897	3.600
#2	1.940	1.623	2.928	2.117	4.163
#3	1.929	2.322	1.929	2.608	3.751
#4	1.912	2.391	2.060	2.391	4.524
#5	2.075	2.006	2.144	2.075	3.907

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	14.355
Stddev	.740
%RSD	5.1522

#1	15.554
#2	14.172
#3	13.996
#4	13.595
#5	14.460

Method: ISO_U Sample Name: PB

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 13:05 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	2.002	2.054	.0021	2.217	.0086
Stddev	.107	.312	.0015	.281	.0014
%RSD	5.325	15.18	69.43	12.67	15.76
#1	2.154	1.929	.0008	1.897	.0071
#2	1.940	1.623	.0046	2.117	.0092
#3	1.929	2.322	.0013	2.608	.0077
#4	1.912	2.391	.0018	2.391	.0106
#5	2.075	2.006	.0020	2.075	.0083

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	14.355
Stddev	.740
%RSD	5.1522

#1	15.554
#2	14.172
#3	13.996
#4	13.595
#5	14.460

Method: ISO_U Sample Name: PS

Operator: BJG

Comment: 101 DF

Run Time: 11/13/97 13:09 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.201	3.077	98.01	12.55	27220.
Stddev	.223	.345	7.32	.66	1337.
%RSD	10.15	11.22	7.467	5.269	4.914
#1	2.308	2.647	91.63	11.84	25210.
#2	2.531	2.965	103.9	12.94	28270.
#3	2.156	3.289	98.23	12.94	26490.
#4	2.000	2.944	106.5	13.21	27940.
#5	2.009	3.542	89.80	11.83	28190.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	13.837
Stddev	.546
%RSD	3.9469

#1	14.733
#2	13.830
#3	13.682
#4	13.249
#5	13.691

Method: ISO_U

Sample Name: PS

Operator: BJG

Comment: 101 DF

Run Time: 11/13/97 13:09 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	2.201	3.077	.3156	12.55	101.2
Stddev	.223	.345	.0239	.66	5.0
%RSD	10.15	11.22	7.584	5.269	4.914

#1	2.308	2.647	.2948	11.84	93.70
#2	2.531	2.965	.3349	12.94	105.1
#3	2.156	3.289	.3163	12.94	98.46
#4	2.000	2.944	.3432	13.21	103.8
#5	2.009	3.542	.2888	11.83	104.8

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	13.837
Stddev	.546
%RSD	3.9469

#1	14.733
#2	13.830
#3	13.682
#4	13.249
#5	13.691

Method: ISO_U

Sample Name: S97T001957

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 13:19 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.724	3.826	148.3	14.99	19250.
Stddev	.504	.366	10.5	1.33	1193.
%RSD	13.53	9.579	7.080	8.851	6.195
#1	3.202	3.792	148.5	13.61	17800.
#2	3.456	3.502	145.1	14.47	19910.
#3	3.679	4.454	163.8	16.41	20280.
#4	3.738	3.690	134.5	16.39	20160.
#5	4.542	3.691	149.4	14.05	18120.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	10.809
Stddev	.623
%RSD	5.7598

#1	11.866
#2	10.852
#3	10.328
#4	10.433
#5	10.567

HNF-SD-WM-DP-266, REV.0

Method: ISO_U

Sample Name: S97T001957

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 13:19 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	3.724	3.826	.4800	14.99	71.57
Stddev	.504	.366	.0343	1.33	4.43
%RSD	13.53	9.579	7.153	8.851	6.195
#1	3.202	3.792	.4809	13.61	66.18
#2	3.456	3.502	.4696	14.47	74.00
#3	3.679	4.454	.5307	16.41	75.37
#4	3.738	3.690	.4351	16.39	74.94
#5	4.542	3.691	.4838	14.05	67.35

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	10.809
Stddev	.623
%RSD	5.7598

#1	11.866
#2	10.852
#3	10.328
#4	10.433
#5	10.567

Method: ISO_U

Sample Name: S97T001957_D

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 13:22 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.914	4.909	171.3	16.96	21390.
Stddev	.507	.361	17.5	2.02	1444.
%RSD	12.96	7.354	10.23	11.89	6.750

#1	3.246	4.752	153.5	17.50	19950.
#2	3.569	4.934	169.3	17.06	23010.
#3	4.464	4.416	156.5	15.14	21060.
#4	4.312	5.390	181.4	20.00	22790.
#5	3.979	5.054	195.6	15.11	20150.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	9.8066
Stddev	.6205
%RSD	6.3269

#1	10.628
#2	9.5252
#3	10.304
#4	9.2763
#5	9.2993

Method: ISO_U

Sample Name: S97T001957_D

Operator: BJG

Comment: 10_DF

Run Time: 11/13/97 13:22 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	3.914	4.909	.5552	16.96	79.52
Stddev	.507	.361	.0573	2.02	5.37
%RSD	12.96	7.354	10.32	11.89	6.751
#1	3.246	4.752	.4972	17.50	74.16
#2	3.569	4.934	.5489	17.06	85.55
#3	4.464	4.416	.5071	15.14	78.27
#4	4.312	5.390	.5883	20.00	84.73
#5	3.979	5.054	.6347	15.11	74.88

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	9.8066
Stddev	.6205
%RSD	6.3269

#1	10.628
#2	9.5252
#3	10.304
#4	9.2763
#5	9.2993

Method: ISO_U

Sample Name: S97T001958

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 13:26 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4.002	4.081	150.6	15.42	19810.
Stddev	.380	.722	5.9	.69	1307.
%RSD	9.503	17.69	3.941	4.505	6.596

#1	4.218	3.241	155.1	16.31	20530.
#2	4.341	4.448	146.7	14.74	21240.
#3	3.569	4.619	151.3	15.90	18700.
#4	4.274	3.358	142.7	14.75	18180.
#5	3.607	4.738	157.1	15.40	20410.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	9.5382
Stddev	.2360
%RSD	2.4743

#1	9.7200
#2	9.3305
#3	9.5258
#4	9.8273
#5	9.2875

Method: ISO_U Sample Name: S97T001958

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 13:26 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	4.002	4.081	.4876	15.42	73.64
Stddev	.380	.722	.0194	.69	4.86
%RSD	9.503	17.69	3.981	4.505	6.596
#1	4.218	3.241	.5025	16.31	76.30
#2	4.341	4.448	.4748	14.74	78.96
#3	3.569	4.619	.4898	15.90	69.51
#4	4.274	3.358	.4618	14.75	67.56
#5	3.607	4.738	.5089	15.40	75.88

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	9.5382
Stddev	.2360
%RSD	2.4743

#1	9.7200
#2	9.3305
#3	9.5258
#4	9.8273
#5	9.2875

Method: ISO_U

Sample Name: S97T001958_D

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 13:30 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.849	4.826	173.2	16.94	23130.
Stddev	.475	.656	18.1	2.61	716.
%RSD	12.35	13.60	10.47	15.40	3.097
#1	4.119	5.089	160.9	15.51	22500.
#2	3.955	4.394	168.4	16.41	22830.
#3	4.411	5.628	172.8	16.27	23930.
#4	3.561	3.951	159.9	15.02	23860.
#5	3.201	5.068	204.2	21.50	22510.

Int. Std.

Ir[193]

Line	193/pulse
Units	Cts/S
Avg	10.009
Stddev	.398
%RSD	3.9729

#1	10.317
#2	10.241
#3	9.8622
#4	10.250
#5	9.3733

Method: ISO_U

Sample Name: S97T001958_D

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 13:30 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	3.849	4.826	.5617	16.94	85.97
Stddev	.475	.656	.0593	2.61	2.66
%RSD	12.35	13.60	10.57	15.40	3.097

#1	4.119	5.089	.5212	15.51	83.63
#2	3.955	4.394	.5459	16.41	84.88
#3	4.411	5.628	.5604	16.27	88.95
#4	3.561	3.951	.5180	15.02	88.71
#5	3.201	5.068	.6631	21.50	83.66

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	10.009
Stddev	.398
%RSD	3.9729

#1	10.317
#2	10.241
#3	9.8622
#4	10.250
#5	9.3733

Method: ISO_U

Sample Name: S97T001958_S

Operator: BJG

Comment: 101 DF

Run Time: 11/13/97

13:33 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.517	3.189	114.8	14.30	27520.
Stddev	.347	.316	5.7	.78	1456.
%RSD	13.78	9.919	4.955	5.462	5.291
#1	2.730	3.698	118.3	14.57	29110.
#2	2.546	3.021	118.3	14.63	27350.
#3	1.946	2.856	106.0	13.04	25880.
#4	2.846	3.213	119.2	15.10	28890.
#5	2.515	3.155	112.1	14.15	26360.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	11.528
Stddev	.442
%RSD	3.8343

#1	11.357
#2	11.585
#3	12.079
#4	10.892
#5	11.729

Method: ISO_U Sample Name: S97T001958_S Operator: BJG
Comment: 101 DF
Run Time: 11/13/97 13:33 Type: Unk Mode: CONC Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	2.517	3.189	.3704	14.30	102.3
Stddev	.347	.316	.0186	.78	5.4
%RSD	13.78	9.919	5.021	5.462	5.291
#1	2.730	3.698	.3821	14.57	108.2
#2	2.546	3.021	.3820	14.63	101.7
#3	1.946	2.856	.3416	13.04	96.20
#4	2.846	3.213	.3848	15.10	107.4
#5	2.515	3.155	.3616	14.15	97.98

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	11.528
Stddev	.442
%RSD	3.8343

#1	11.357
#2	11.585
#3	12.079
#4	10.892
#5	11.729

Method: ISO_U

Sample Name: CCV

Operator: BJC

Comment: DIRECT

Run Time: 11/13/97 13:47 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.919	2.367	22.14	4.119	5904.
Stddev	.446	.245	.90	.328	258.
%RSD	15.27	10.35	4.055	7.953	4.363
#1	3.095	2.664	21.20	3.840	6168.
#2	2.530	2.339	22.73	4.562	5632.
#3	3.482	2.476	22.44	4.217	5634.
#4	2.402	2.364	21.20	3.752	5968.
#5	3.089	1.994	23.15	4.222	6116.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	12.968
Stddev	.229
%RSD	1.7623

#1	12.762
#2	13.042
#3	12.924
#4	13.325
#5	12.789

Method: ISO_U Sample Name: CCV

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 13:47 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	2.919	2.367	.0675	4.119	21.94
Stddev	.446	.245	.0029	.328	.96
%RSD	15.27	10.35	4.354	7.953	4.364
#1	3.095	2.664	.0644	3.840	22.92
#2	2.530	2.339	.0694	4.562	20.93
#3	3.482	2.476	.0684	4.217	20.94
#4	2.402	2.364	.0644	3.752	22.18
#5	3.089	1.994	.0707	4.222	22.73

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	12.968
Stddev	.229
%RSD	1.7623

#1	12.762
#2	13.042
#3	12.924
#4	13.325
#5	12.789

HNF-SD-WM-DP-266, REV.0

Method: ISO_U

Sample Name: CCB

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 13:54 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.753	2.129	2.056	1.853	2.042
Stddev	.253	.115	.176	.429	.184
%RSD	14.44	5.417	8.558	23.15	8.995
#1	1.507	2.087	1.932	2.126	2.087
#2	1.457	2.124	1.957	2.124	1.915
#3	1.938	2.180	2.019	2.140	2.301
#4	2.004	2.284	2.365	1.723	2.084
#5	1.860	1.972	2.009	1.153	1.823

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	12.649
Stddev	.551
%RSD	4.3600

#1	12.937
#2	12.008
#3	12.384
#4	12.476
#5	13.438

*** T C R (Nov. 13, 1997 5:00PM) ***

T T I WHC 222S LAB ROOM 5D FRONTSIDE

{ T X }

Date	Time	Address	Mode	Time	Page	Result	Pers. Code	File
Nov. 10.	12:35PM	3733992	G3TEDM	1'12"	P.	2 OK		9445
	2:12PM		G3TEDM	1'02"	P.	2 OK		9453
Nov. 11.	8:06AM	509 373 7268	G3TEDM	1'08"	P.	2 OK		9456
Nov. 12.	1:46PM	509 373 7268	G3TEDM	1'04"	P.	2 OK		9457
	3:03PM	5083732041	G3TFM	2'12"	P.	1 OK		9485
Nov. 13.	8:07AM	509 373 7268	G3TEDM	1'05"	P.	2 OK		9494

{ R X }

Date	Time	Address	Mode	Time	Page	Result	Pers. Code	File
Nov. 10.	10:12AM	--	G4RU	0'43"	P.	11 OK		9430
	10:14AM	--	G4RU	0'43"	P.	4 OK		9431
	10:16AM	--	G4RU	0'52"	P.	5 OK		9432
	10:26AM	--	G4RD#	0'48"	P.	10 OK		9433
	10:27AM	--	G4RD#	0'14"	P.	2 OK		9434
	10:28AM	--	G4RD	0'10"	P.	2 OK		9435
	10:29AM	--	G4RU	0'01"	P.	1 OK		9436
	10:31AM	--	G4RD	1'01"	P.	11 OK		9437
	10:33AM	--	G4RD	0'10"	P.	3 OK		9438
	10:35AM	--	G4RD	0'52"	P.	10 OK		9439
	10:37AM	--	G4RD	0'20"	P.	3 OK		9440
	10:38AM	--	G4RD	0'55"	P.	9 OK		9441
	11:09AM	--	G4RU	0'39"	P.	6 OK		9442
	11:52AM	--	G4RU	0'06"	P.	1 OK		9443
	12:13PM	509 373 5047	G3RED	0'40"	P.	1 OK		9444
	12:40PM	--	G4RU#	0'48"	P.	8 OK		9446
	12:41PM	--	G4RU#	0'14"	P.	1 OK		9447
	2:57PM	--	G4RU	0'13"	P.	1 OK		9454
	3:27PM	--	G4RS	1'03"	P.	17 OK		9455
	3:33PM	--	G4RU	0'03"	P.	1 OK		9456
	4:27PM	--	G4RU	0'11"	P.	2 OK		9458
	5:31PM	--	G4RU	1'03"	P.	8 OK		9461
Nov. 11.	3:06AM	--	G4RU	0'07"	P.	1 OK		9462
	5:53AM	--	G4RU	0'56"	P.	4 OK		9463
	2:54PM	--	G4RU	0'27"	P.	2 OK		9470
	3:37PM	--	G4RU	0'03"	P.	1 OK		9471
	4:22PM	--	G4RU	0'40"	P.	7 OK		9472
	5:19PM	--	G4RU	0'59"	P.	8 OK		9473
	6:46PM	--	G4RU	1'07"	P.	3 OK		9474
	11:37PM	--	G4RU	0'05"	P.	1 OK		9475
Nov. 12.	5:30AM	--	G4RU	0'37"	P.	4 OK		9476
	5:45AM	--	G4RU	0'06"	P.	4 OK		9477
	9:09AM	5093732041	G3RS	1'15"	P.	2 OK		9480
	3:27PM	--	G4RU	0'03"	P.	1 OK		9486
	5:17PM	--	G4RU	2'30"	P.	28 OK		9487
Nov. 13.	5:22PM	--	G4RU	1'01"	P.	8 OK		9488
	5:15AM	--	G4RU	0'51"	P.	5 OK		9489
	5:16AM	--	G4RU	0'33"	P.	4 OK		9490
	9:24AM	509 376 0335	G3RES	2'23"	P.	2 OK		9501
	9:56AM	--	G4RU	0'14"	P.	3 OK		9502
	12:08PM	--	G4RU	0'16"	P.	2 OK		9505
	3:35PM	--	G4RU	0'03"	P.	1 OK		9506
	4:16PM	509 373 5047	G3RED	0'05"	P.	1 OK		9507
	4:57PM	--	G4RS	0'31"	P.	21 OK		9508

#:Batch Transmission C:Confidential
M:Memory L:Send Later
S:Standard Resolution D:Detail Resolution
>:Reduction

TX Counter 001072 RX Counter 033517
\$:Transfer P:Polling
@:Forwarding E:ECM
F:Fine Resolution U:Super Fine

Method: ISO_U Sample Name: CCB

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 13:54 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.753	2.129	.0018	1.853	.0014
Stddev	.253	.115	.0006	.429	.0007
%RSD	14.44	5.417	32.73	23.15	50.49
#1	1.507	2.087	.0014	2.126	.0015
#2	1.457	2.124	.0014	2.124	.0009
#3	1.938	2.180	.0016	2.140	.0023
#4	2.004	2.284	.0028	1.723	.0015
#5	1.860	1.972	.0016	1.153	.0005

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	12.649
Stddev	.551
%RSD	4.3600

#1	12.937
#2	12.008
#3	12.384
#4	12.476
#5	13.438

Method: ISO_U

Sample Name: PB

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 13:58 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.932	1.658	1.535	2.090	3.195
Stddev	.264	.308	.139	.132	.273
%RSD	13.65	18.57	9.029	6.321	8.532
#1	1.609	1.385	1.460	2.208	2.957
#2	1.978	1.978	1.465	2.161	3.260
#3	2.330	2.003	1.457	2.185	3.641
#4	1.925	1.525	1.779	1.925	3.050
#5	1.818	1.402	1.515	1.970	3.068

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	13.542
Stddev	.250
%RSD	1.8436

#1	13.360
#2	13.651
#3	13.731
#4	13.769
#5	13.200

Method: ISO_U

Sample Name: PB

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 13:58 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.932	1.658	.0001	2.090	.0056
Stddev	.264	.308	.0005	.132	.0010
%RSD	13.65	18.57	840.8	6.321	17.97
#1	1.609	1.385	-.0002	2.208	.0048
#2	1.978	1.978	-.0002	2.161	.0059
#3	2.330	2.003	-.0002	2.185	.0073
#4	1.925	1.525	.0009	1.925	.0051
#5	1.818	1.402	.0000	1.970	.0052

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	13.542
Stddev	.250
%RSD	1.8436

#1	13.360
#2	13.651
#3	13.731
#4	13.769
#5	13.200

Method: ISO_U Sample Name: PS

Operator: BJG

Comment: 101 DF

Run Time: 11/13/97 14:01 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.717	2.929	95.47	11.92	26150.
Stddev	.274	.390	6.29	.93	2279.
%RSD	15.94	13.30	6.590	7.832	8.716

#1	1.569	2.977	85.38	11.91	22820.
#2	1.649	2.684	100.2	10.93	27270.
#3	1.381	3.582	100.3	12.05	26410.
#4	1.941	2.790	97.98	13.38	28930.
#5	2.048	2.614	93.45	11.34	25320.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	13.716
Stddev	1.244
%RSD	9.0704

#1	15.618
#2	13.041
#3	13.401
#4	12.365
#5	14.157

Method: ISO_U

Sample Name: PS

Operator: BJG

Comment: 101 DF

Run Time: 11/13/97 14:01 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.717	2.929	.3073	11.92	97.21
Stddev	.274	.390	.0206	.93	8.47
%RSD	15.94	13.30	6.696	7.832	8.716
#1	1.569	2.977	.2743	11.91	84.84
#2	1.649	2.684	.3228	10.93	101.4
#3	1.381	3.582	.3232	12.05	98.19
#4	1.941	2.790	.3155	13.38	107.5
#5	2.048	2.614	.3007	11.34	94.11

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	13.716
Stddev	1.244
%RSD	9.0704

#1	15.618
#2	13.041
#3	13.401
#4	12.365
#5	14.157

Method: ISO_U

Sample Name: S97T001959

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 14:14 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_ [233]	U_ [234]	U_ [235]	U_ [236]	U_ [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.394	4.049	127.2	12.65	16490.
Stddev	.374	.740	5.0	.48	1090.
%RSD	11.02	18.28	3.904	3.811	6.611
#1	3.126	3.022	126.0	12.40	15700.
#2	4.051	3.739	131.3	12.62	16200.
#3	3.279	4.187	119.1	12.01	16570.
#4	3.306	5.038	128.6	13.01	15650.
#5	3.207	4.258	130.7	13.22	18310.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	9.5412
Stddev	.3147
%RSD	3.2984

#1	9.5972
#2	9.6270
#3	9.9111
#4	9.5280
#5	9.0426

Method: ISO_U

Sample Name: S97T001959

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 14:14 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	3.394	4.049	.4109	12.65	61.29
Stddev	.374	.740	.0162	.48	4.05
%RSD	11.02	18.28	3.951	3.811	6.612
#1	3.126	3.022	.4071	12.40	58.37
#2	4.051	3.739	.4247	12.62	60.22
#3	3.279	4.187	.3846	12.01	61.61
#4	3.306	5.038	.4157	13.01	58.16
#5	3.207	4.258	.4226	13.22	68.08

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	9.5412
Stddev	.3147
%RSD	3.2984

#1	9.5972
#2	9.6270
#3	9.9111
#4	9.5280
#5	9.0426

HNF-SD-WM-DP-266, REV. 0

Method: ISO_U

Sample Name: S97T001959_D

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 14:19 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.878	3.921	134.3	13.50	18260.
Stddev	.371	.849	3.0	1.06	528.
%RSD	9.573	21.66	2.202	7.832	2.892
#1	3.994	3.994	137.0	12.25	17960.
#2	3.650	4.778	131.8	14.33	18120.
#3	4.175	2.695	131.7	12.53	17860.
#4	3.349	3.520	133.0	13.80	18200.
#5	4.222	4.616	137.9	14.58	19170.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	9.1955
Stddev	.3294
%RSD	3.5826

#1	9.5136
#2	9.3141
#3	9.4603
#4	8.8073
#5	8.8823

Method: ISO_U

Sample Name: S97T001959_D

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 14:19 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	3.878	3.921	.4342	13.50	67.88
Stddev	.371	.849	.0097	1.06	1.96
%RSD	9.573	21.66	2.227	7.832	2.892

#1	3.994	3.994	.4432	12.25	66.74
#2	3.650	4.778	.4261	14.33	67.34
#3	4.175	2.695	.4257	12.53	66.38
#4	3.349	3.520	.4301	13.80	67.64
#5	4.222	4.616	.4460	14.58	71.28

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/s
Avg	9.1955
Stddev	.3294
%RSD	3.5826

#1	9.5136
#2	9.3141
#3	9.4603
#4	8.8073
#5	8.8823

Method: ISO_U

Sample Name: S97T001960_L

Operator: BJG

Comment: 50 DF

Run Time: 11/13/97 14:28 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.167	2.424	28.65	4.050	3696.
Stddev	.200	.538	1.67	.424	266.
%RSD	9.229	22.21	5.827	10.48	7.200
#1	2.155	2.765	26.11	4.067	3267.
#2	2.200	3.117	30.44	4.263	3935.
#3	1.849	1.849	27.98	3.578	3666.
#4	2.235	2.446	29.43	3.711	3713.
#5	2.398	1.943	29.31	4.630	3899.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	11.919
Stddev	.606
%RSD	5.0845

#1	12.295
#2	10.907
#3	12.438
#4	11.858
#5	12.096

Method: ISO_U

Sample Name: S97T001960_L

Operator: BJG

Comment: 50 DF

Run Time: 11/13/97 14:28 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	2.167	2.424	.0888	4.050	13.73
Stddev	.200	.538	.0055	.424	.99
%RSD	9.229	22.21	6.153	10.48	7.203
#1	2.155	2.765	.0804	4.067	12.14
#2	2.200	3.117	.0946	4.263	14.62
#3	1.849	1.849	.0865	3.578	13.62
#4	2.235	2.446	.0913	3.711	13.80
#5	2.398	1.943	.0909	4.630	14.49

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	11.919
Stddev	.606
%RSD	5.0845

#1	12.295
#2	10.907
#3	12.438
#4	11.858
#5	12.096

Method: ISO_U

Sample Name: S97T001960

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 14:31 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.729	3.612	137.2	12.41	18270.
Stddev	.315	.380	5.7	1.00	375.
%RSD	8.442	10.51	4.179	8.026	2.051
#1	3.463	3.677	144.6	13.75	18600.
#2	4.119	3.215	135.3	13.06	17910.
#3	3.981	3.428	129.5	11.34	18380.
#4	3.684	3.519	140.7	11.66	18640.
#5	3.400	4.222	136.0	12.23	17840.

Int. Std.

Line	Ir[193]
Units	193/pulse
Avg	Cts/S
Stddev	9.3186
%RSD	.3793
	4.0702

#1	9.3839
#2	9.9544
#3	9.0426
#4	9.0938
#5	9.1181

Method: ISO_U Sample Name: S97T001960 Operator: BJG
Comment: 10 DF
Run Time: 11/13/97 14:31 Type: Unk Mode: CONC Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	3.729	3.612	.4439	12.41	67.93
Stddev	.315	.380	.0188	1.00	1.39
%RSD	8.442	10.51	4.225	8.026	2.051

#1	3.463	3.677	.4680	13.75	69.14
#2	4.119	3.215	.4375	13.06	66.59
#3	3.981	3.428	.4186	11.34	68.32
#4	3.684	3.519	.4553	11.66	69.27
#5	3.400	4.222	.4400	12.23	66.33

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	9.3186
Stddev	.3793
%RSD	4.0702

#1	9.3839
#2	9.9544
#3	9.0426
#4	9.0938
#5	9.1181

Method: ISO_U

Sample Name: S97T001960_D

Operator: BJG

Comment: 10 DF

Run Time: 11/13/97 14:34 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.599	3.818	132.9	12.78	18120.
Stddev	.254	.277	5.6	1.16	900.
%RSD	7.062	7.247	4.231	9.076	4.966

#1	3.463	3.683	130.2	11.21	17120.
#2	3.623	3.802	142.6	14.08	19410.
#3	3.409	3.929	128.2	13.58	17520.
#4	4.030	4.208	131.8	12.03	18560.
#5	3.467	3.467	131.9	13.00	18010.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.6511
Stddev	.2729
%RSD	3.1546

#1	9.0953
#2	8.4177
#3	8.6528
#4	8.4364
#5	8.6535

Method: ISO_U Sample Name: S97T001960_D Operator: BJG
Comment: 10 DF
Run Time: 11/13/97 14:34 Type: Unk Mode: CONC Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	3.599	3.818	.4298	12.78	67.37
Stddev	.254	.277	.0184	1.16	3.35
%RSD	7.062	7.247	4.280	9.076	4.967
#1	3.463	3.683	.4208	11.21	63.63
#2	3.623	3.802	.4615	14.08	72.17
#3	3.409	3.929	.4143	13.58	65.14
#4	4.030	4.208	.4262	12.03	68.97
#5	3.467	3.467	.4263	13.00	66.93

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/s
Avg	8.6511
Stddev	.2729
%RSD	3.1546

#1	9.0953
#2	8.4177
#3	8.6528
#4	8.4364
#5	8.6535

Method: ISO_U

Sample Name: S97T001960_S

Operator: BJG

Comment: 101 DF

Run Time: 11/13/97 14:38 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.033	3.033	107.3	14.39	28600.
Stddev	.307	.271	7.3	1.90	2117.
%RSD	15.12	8.943	6.812	13.20	7.400
#1	1.922	2.711	100.4	13.60	29680.
#2	1.943	3.413	98.97	12.94	25260.
#3	2.578	3.185	110.7	16.63	30540.
#4	1.885	2.899	110.3	12.56	27820.
#5	1.836	2.959	116.0	16.22	29710.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	10.147
Stddev	.311
%RSD	3.0620

#1	10.144
#2	10.549
#3	9.8914
#4	10.347
#5	9.8013

HNF-SD-WM-DP-266, REV. 0

Method: ISO_U

Sample Name: S97T001960_S

Operator: BJG

Comment: 101 DF

Run Time: 11/13/97 14:38 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	2.033	3.033	.3458	14.39	106.3
Stddev	.307	.271	.0239	1.90	7.9
%RSD	15.12	8.943	6.910	13.20	7.400

#1	1.922	2.711	.3233	13.60	110.3
#2	1.943	3.413	.3188	12.94	93.91
#3	2.578	3.185	.3570	16.63	113.5
#4	1.885	2.899	.3557	12.56	103.4
#5	1.836	2.959	.3745	16.22	110.4

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	10.147
Stddev	.311
%RSD	3.0620

#1	10.144
#2	10.549
#3	9.8914
#4	10.347
#5	9.8013

Method: ISO_U

Sample Name: CCV

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 14:46 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.651	1.870	22.75	4.290	5953.
Stddev	.292	.323	.93	.391	306.
%RSD	11.01	17.26	4.105	9.109	5.146

#1	2.635	2.165	22.30	4.564	5799.
#2	2.721	1.583	23.55	3.958	6335.
#3	3.094	2.175	21.51	4.834	5656.
#4	2.489	1.484	22.59	3.973	6226.
#5	2.314	1.944	23.79	4.120	5747.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	10.465
Stddev	.266
%RSD	2.5398

#1	10.626
#2	10.106
#3	10.344
#4	10.446
#5	10.801

HNF-SD-WM-DP-266, REV. 0

Method: ISO_U Sample Name: CCV

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 14:46 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_ [233]	U_ [234]	U_ [235]	U_ [236]	U_ [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	2.651	1.870	.0694	4.290	22.12
Stddev	.292	.323	.0031	.391	1.14
%RSD	11.01	17.26	4.399	9.109	5.147

#1	2.635	2.165	.0680	4.564	21.55
#2	2.721	1.583	.0721	3.958	23.55
#3	3.094	2.175	.0654	4.834	21.02
#4	2.489	1.484	.0689	3.973	23.14
#5	2.314	1.944	.0729	4.120	21.36

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	10.465
Stddev	.266
%RSD	2.5398

#1	10.626
#2	10.106
#3	10.344
#4	10.446
#5	10.801

BJG
11/13/97
Delete
Exposure
outlier

Method: ISO_U

Sample Name: CCB

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 14:51 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.581	1.907	1.933	1.755	2.605
Stddev	.223	.253	.312	.128	.324
%RSD	14.07	13.27	16.16	7.297	12.45

#1	1.232	1.564	2.227	1.706	2.843
#2	1.801	2.263	1.755	1.662	2.447
#3	1.604	1.815	1.478	1.646	2.153
#4	1.739	1.956	2.043	1.956	2.609
#5	1.531	1.937	2.162	1.802	2.973

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	11.165
Stddev	.516
%RSD	4.6254

#1	10.552
#2	10.828
#3	11.844
#4	11.500
#5	11.102

Method: ISO_U Sample Name: CCB

Operator: BJG

Comment: DIRECT

Run Time: 11/13/97 14:51 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.581	1.907	.0014	1.755	.0034
Stddev	.223	.253	.0010	.128	.0012
%RSD	14.07	13.27	75.41	7.297	35.01

#1	1.232	1.564	.0023	1.706	.0043
#2	1.801	2.263	.0008	1.662	.0029
#3	1.604	1.815	-.0001	1.646	.0018
#4	1.739	1.956	.0017	1.956	.0035
#5	1.531	1.937	.0021	1.802	.0048

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	11.165
Stddev	.516
%RSD	4.6254

#1	10.552
#2	10.828
#3	11.844
#4	11.500
#5	11.102

LABCORE Data Entry Template for Worklist# 20854

Analyst: B. Goede Instrument: ICPMS1 Book# 139843

Method: LT-506-101 Rev/Mod A-1

Worklist Comment: AX-103 ACTINIDES BY ICP/MS

S Type	Sample#	R A	Test	Matrix	Group#	Project
1	ICV		@MSACT	QC		
2	ICB		@MSACTA1	SOLID		
3	STD-PREP		@MSACTQC	SOLID		
4	BLNK-PREP		@MSACTA1	SOLID		
5	SAMPLE	S97T001957 0 A	@MSACTA1	SOLID	97000495	AX-103
	Analytes Requested: 241-A1 , 243-A1 , 244-A1 , NP237-A1, PU239-A1, PU240-A1, PU242-A1, TH229-A1, TH230-A1, TH232-A1					
6	DUP	S97T001957 0 A	@MSACTA1	SOLID		
7	SAMPLE	S97T001958 0 A	@MSACTA1	SOLID	97000495	AX-103
	Analytes Requested: 241-A1 , 243-A1 , 244-A1 , NP237-A1, PU239-A1, PU240-A1, PU242-A1, TH229-A1, TH230-A1, TH232-A1					
8	DUP	S97T001958 0 A	@MSACTA1	SOLID		
9	SPK	S97T001958 0 A	@MSACTA1	SOLID		
10	SERDIL	S97T001958 0 A	@MSACTA1	SOLID		
11	CCV		@MSACT	QC		
12	CCB		@MSACTA1	SOLID		

Final page for worklist # 20854

B. Goede
Analyst Signature

10-21-97
Date

[Signature]
Analyst Signature

10/21/97
Date

Data Entry Comments:

ICB DIRECT 2% H₂O₂

AX-103 ACID DREST

ICV : 139843 10 D.F. (1-9)

J. G. G. G.

10-21-97

PREP BLK DIG. BLK 10 D.F. (1-9)

PREP STD DIG. STD 101 D.F. (1-10)

5977001957 10 D.F. (1-9)

1957-D 10 D.F. (1-9)

5977001958-L 50 D.F. (1-9-2-8)

1958 10 D.F. (1-9)

1958-D 10 D.F. (1-9)

1958-5 101 D.F. (1-10)

CLV DIRECT

CLB 139843 (10 D.F.) (1-9)

~~PREP BLK DIG. BLK (10 D.F.)~~~~PREP STD DIG. STD (101 D.F.) (1-10)~~

J. G. G. G. 10-21-97

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 376 TO 392

HNF-SD-WM-DP-266, REV. 0

Method: MS_TUNE

Sample Name: Sample-0

Operator:

Comment:

Run Time: 10/21/97 12:37 Type: Unk

Mode: INT

Corr.Fact: 1.000000

Elem	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	167200.
Stddev	1919.
%RSD	1.148
#1	167700.
#2	165600.
#3	166500.
#4	166700.
#5	164100.
#6	170600.
#7	165900.
#8	169000.
#9	168900.
#10	166700.

Method: ACTINIDE Sample Name: cal blank

Operator:

Comment: background

Run Time: 10/21/97 12:39 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U_[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1274	.1274	.1336	.1629	.1308
Stddev	.0222	.0135	.0086	.0170	.0188
%RSD	17.43	10.60	6.429	10.43	14.37

#1	.1335	.1173	.1416	.1477	.1133
#2	.1344	.1386	.1323	.1848	.1155
#3	.0897	.1190	.1252	.1774	.1294
#4	.1488	.1169	.1254	.1509	.1360
#5	.1308	.1453	.1432	.1536	.1598

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1403	.1356	.1345	.1391	.1284
Stddev	.0162	.0214	.0051	.0064	.0120
%RSD	11.53	15.81	3.783	4.610	9.379

#1	.1315	.1112	.1294	.1396	.1193
#2	.1575	.1323	.1344	.1386	.1407
#3	.1503	.1357	.1377	.1294	.1273
#4	.1169	.1701	.1297	.1403	.1403
#5	.1453	.1287	.1411	.1474	.1142

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1409
Stddev	.0262
%RSD	18.57

#1	.1092
#2	.1281
#3	.1732
#4	.1318
#5	.1619

Method: ACTINIDE Sample Name: cal std

Operator:

Comment: 0.0100 ppm cal

Run Time: 10/21/97 12:45 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1297	.1447	178.0	193.9	.5351
Stddev	.0187	.0250	.9	1.3	.0514
%RSD	14.44	17.28	.5307	.6646	9.597

#1	.1422	.1757	177.0	194.7	.4894
#2	.1105	.1396	177.3	193.3	.5919
#3	.1226	.1101	179.5	192.2	.4757
#4	.1176	.1609	178.0	195.5	.5426
#5	.1557	.1373	178.1	194.1	.5758

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1650	.1343	.1236	.1269	.1476
Stddev	.0174	.0166	.0160	.0149	.0062
%RSD	10.56	12.34	12.92	11.72	4.209

#1	.1694	.1360	.1443	.1464	.1464
#2	.1626	.1250	.1146	.1209	.1584
#3	.1683	.1392	.1371	.1059	.1433
#4	.1382	.1135	.1135	.1300	.1465
#5	.1865	.1578	.1086	.1312	.1434

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1174
Stddev	.0161
%RSD	13.71

#1	.1360
#2	.1125
#3	.1330
#4	.1032
#5	.1025

Method: ACTINIDE Sample Name: cal std

Operator:

Comment: 0.100 ppm

Run Time: 10/21/97 12:51 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1524	.3589	1623.	1769.	4.441
Stddev	.0178	.0379	33.	35.	.193
%RSD	11.71	10.56	2.024	1.978	4.354

#1	.1380	.3701	1639.	1788.	4.565
#2	.1797	.4207	1649.	1812.	4.553
#3	.1543	.3335	1578.	1727.	4.102
#4	.1554	.3321	1650.	1780.	4.521
#5	.1348	.3379	1598.	1740.	4.464

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.4915	.1381	.1497	.1321	.1309
Stddev	.0450	.0273	.0131	.0244	.0147
%RSD	9.163	19.76	8.746	18.48	11.23

#1	.5207	.1819	.1380	.1673	.1338
#2	.4524	.1437	.1480	.0993	.1205
#3	.5524	.1272	.1626	.1251	.1522
#4	.4470	.1277	.1362	.1320	.1341
#5	.4851	.1099	.1638	.1368	.1140

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1457
Stddev	.0117
%RSD	8.043

#1	.1443
#2	.1564
#3	.1480
#4	.1533
#5	.1265

Method: ACTINIDE Sample Name: ICB

Operator:

Comment:

Run Time: 10/21/97 13:07 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U_[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1219	.1280	.2378	.1531	.1363
Stddev	.0112	.0124	.0233	.0135	.0079
%RSD	9.229	9.656	9.800	8.839	5.819

#1	.1134	.1217	.2495	.1629	.1361
#2	.1271	.1271	.2168	.1501	.1355
#3	.1119	.1410	.2342	.1368	.1451
#4	.1390	.1112	.2715	.1454	.1240
#5	.1179	.1389	.2168	.1705	.1410

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1294	.1361	.1301	.1238	.1465
Stddev	.0116	.0116	.0101	.0135	.0100
%RSD	8.984	8.490	7.754	10.91	6.818

#1	.1196	.1341	.1382	.1382	.1423
#2	.1188	.1313	.1167	.1230	.1417
#3	.1285	.1223	.1389	.1099	.1347
#4	.1325	.1390	.1347	.1112	.1561
#5	.1473	.1536	.1221	.1368	.1579

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1376
Stddev	.0089
%RSD	6.498

#1	.1485
#2	.1271
#3	.1347
#4	.1325
#5	.1452

Method: ACTINIDE Sample Name: ICV

Operator:

Comment: 10 DF

Run Time: 10/21/97 13:14 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1189	.1269	16.57	.2118	24.11
Stddev	.0143	.0152	.47	.0366	.43
%RSD	12.04	11.96	2.842	17.27	1.780

#1	.1058	.1397	17.29	.2688	24.43
#2	.1324	.1408	15.97	.1955	23.60
#3	.1267	.1119	16.55	.1816	24.64
#4	.1285	.1327	16.45	.2275	24.04
#5	.1012	.1094	16.60	.1859	23.82

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	20.66	.6657	.1358	.1332	12.95
Stddev	.54	.0373	.0251	.0235	.26
%RSD	2.628	5.601	18.47	17.63	2.002

#1	20.54	.6562	.1376	.1334	12.76
#2	20.47	.7251	.1639	.1156	13.28
#3	20.63	.6249	.1161	.1710	12.86
#4	21.56	.6719	.1559	.1116	13.18
#5	20.10	.6505	.1053	.1342	12.69

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1302
Stddev	.0055
%RSD	4.195

#1	.1291
#2	.1219
#3	.1309
#4	.1369
#5	.1322

Method: ACTINIDE

Sample Name: PREPBLK

Operator: BJG

Comment: 10 DF

Run Time: 10/21/97 13:21 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1034	.1281	.2565	.2514	.1230
Stddev	.0131	.0169	.0090	.0270	.0137
%RSD	12.63	13.18	3.522	10.75	11.15

#1	.1135	.1413	.2527	.2805	.1306
#2	.0963	.1263	.2525	.2397	.1284
#3	.0846	.1269	.2644	.2538	.1227
#4	.1164	.1016	.2456	.2710	.0995
#5	.1060	.1442	.2672	.2120	.1336

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1952	.1455	.1208	.1259	.1281
Stddev	.0163	.0197	.0183	.0090	.0164
%RSD	8.348	13.52	15.14	7.178	12.79

#1	.2099	.1627	.1006	.1242	.1156
#2	.1691	.1241	.1391	.1391	.1520
#3	.1904	.1692	.1185	.1290	.1100
#4	.2053	.1397	.1058	.1228	.1312
#5	.2014	.1315	.1399	.1145	.1315

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1254
Stddev	.0160
%RSD	12.79

#1	.1028
#2	.1220
#3	.1333
#4	.1228
#5	.1463

Method: ACTINIDE Sample Name: PREPSTD

Operator: BJG

Comment: 101 DF

Run Time: 10/21/97 13:26 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1104	.1215	1.809	1717.	6.526
Stddev	.0109	.0164	.080	35.	.158
%RSD	9.842	13.52	4.430	2.019	2.428

#1	.1167	.1368	1.845	1727.	6.475
#2	.1110	.1152	1.929	1711.	6.790
#3	.0971	.1323	1.779	1768.	6.477
#4	.1245	.0959	1.769	1709.	6.523
#5	.1027	.1274	1.722	1672.	6.365

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.459	.1706	.1306	.1277	1.275
Stddev	.110	.0071	.0098	.0175	.076
%RSD	4.458	4.184	7.474	13.67	5.956

#1	2.472	.1750	.1247	.1227	1.175
#2	2.449	.1810	.1295	.1110	1.374
#3	2.280	.1653	.1447	.1529	1.281
#4	2.561	.1673	.1347	.1143	1.232
#5	2.531	.1644	.1192	.1377	1.313

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1305
Stddev	.0190
%RSD	14.58

#1	.1307
#2	.1439
#3	.1033
#4	.1224
#5	.1520

Method: ACTINIDE Sample Name: S97T001957

Operator: BJG

Comment: 10 DF

Run Time: 10/21/97 13:33 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1631	.1497	19.92	1222.	4.044
Stddev	.0138	.0242	1.61	85.	.379
%RSD	8.453	16.13	8.089	6.989	9.375

#1	.1745	.1357	20.59	1221.	3.756
#2	.1589	.1192	18.66	1131.	4.050
#3	.1408	.1580	18.10	1144.	3.582
#4	.1703	.1834	22.16	1322.	4.456
#5	.1710	.1523	20.10	1292.	4.375

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.626	.2919	.1565	.1540	.2240
Stddev	.110	.0321	.0286	.0289	.0319
%RSD	6.740	11.00	18.28	18.77	14.23

#1	1.615	.3241	.1440	.1247	.2299
#2	1.606	.2753	.1249	.1873	.1845
#3	1.520	.2442	.1408	.1235	.2040
#4	1.811	.3110	.1801	.1604	.2685
#5	1.579	.3047	.1928	.1741	.2332

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1606
Stddev	.0414
%RSD	25.75

#1	.1025
#2	.1760
#3	.1408
#4	.2128
#5	.1710

Method: ACTINIDE

Sample Name: S97T001957_D

Operator: BJB

Comment: 10 DF

Run Time: 10/21/97

13:38 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1479	.1501	23.15	1388.	4.722
Stddev	.0234	.0110	.57	61.	.118
%RSD	15.83	7.328	2.441	4.386	2.496

#1	.1124	.1361	22.25	1341.	4.719
#2	.1595	.1657	23.30	1393.	4.763
#3	.1727	.1539	23.02	1486.	4.647
#4	.1570	.1447	23.73	1334.	4.894
#5	.1377	.1500	23.47	1386.	4.585

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.871	.2968	.1781	.1621	.2642
Stddev	.093	.0295	.0096	.0164	.0311
%RSD	4.971	9.922	5.381	10.11	11.78

#1	1.710	.2693	.1894	.1598	.2545
#2	1.886	.3127	.1782	.1438	.3002
#3	1.887	.2606	.1821	.1539	.2167
#4	1.936	.3201	.1631	.1878	.2740
#5	1.935	.3214	.1775	.1653	.2755

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1364
Stddev	.0174
%RSD	12.78

#1	.1243
#2	.1376
#3	.1256
#4	.1662
#5	.1286

Method: ACTINIDE Sample Name: S97T001958_L Operator: BJG
 Comment: 50 DF
 Run Time: 10/21/97 13:48 Type: Unk Mode: IR Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1090	.1189	3.903	271.9	.9748
Stddev	.0173	.0292	.137	11.4	.0813
%RSD	15.90	24.54	3.504	4.186	8.337
#1	.0895	.1309	3.721	265.4	.8930
#2	.1205	.1158	3.911	277.6	.9926
#3	.1305	.1571	4.046	289.3	1.078
#4	.1106	.0768	3.816	264.7	.8919
#5	.0940	.1142	4.020	262.4	1.019

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.3849	.1659	.1382	.1266	.1527
Stddev	.0231	.0130	.0235	.0048	.0243
%RSD	6.000	7.865	17.01	3.774	15.92
#1	.3765	.1768	.1469	.1309	.1332
#2	.3923	.1442	.1111	.1276	.1796
#3	.3601	.1643	.1450	.1184	.1789
#4	.3748	.1694	.1694	.1287	.1332
#5	.4208	.1746	.1186	.1276	.1388

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1242
Stddev	.0143
%RSD	11.49
#1	.1171
#2	.1064
#3	.1233
#4	.1445
#5	.1298

Method: ACTINIDE Sample Name: S97T001958

Operator: BJG

Comment: 10 DF

Run Time: 10/21/97 13:53 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U_[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1551	.1599	18.38	1281.	4.208
Stddev	.0191	.0142	.67	24.	.238
%RSD	12.33	8.862	3.631	1.900	5.669
#1	.1559	.1559	18.47	1312.	4.550
#2	.1480	.1560	17.34	1269.	3.904
#3	.1822	.1402	19.21	1295.	4.119
#4	.1596	.1730	18.44	1248.	4.167
#5	.1296	.1745	18.43	1282.	4.299

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.624	.2645	.1619	.1656	.2276
Stddev	.112	.0299	.0103	.0312	.0200
%RSD	6.888	11.31	6.340	18.85	8.805
#1	1.690	.2983	.1559	.1505	.2177
#2	1.550	.2341	.1587	.2179	.1991
#3	1.766	.2383	.1766	.1598	.2411
#4	1.631	.2927	.1676	.1357	.2501
#5	1.483	.2591	.1507	.1639	.2300

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1467
Stddev	.0077
%RSD	5.263

#1	.1505
#2	.1560
#3	.1430
#4	.1357
#5	.1481

Method: ACTINIDE Sample Name: S97T001958_D

Operator: BJB

Comment: 10 DF

Run Time: 10/21/97 13:58 Type: Unk Mode: IR Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U_[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1362	.1488	21.62	1501.	5.083
Stddev	.0161	.0186	1.15	40.	.156
%RSD	11.83	12.49	5.325	2.669	3.073

#1	.1620	.1515	23.01	1530.	5.249
#2	.1251	.1426	20.80	1446.	4.982
#3	.1264	.1289	21.68	1482.	5.213
#4	.1421	.1421	20.19	1498.	4.876
#5	.1253	.1787	22.42	1547.	5.097

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.750	.2599	.1500	.1641	.2567
Stddev	.075	.0259	.0131	.0268	.0152
%RSD	4.316	9.981	8.721	16.34	5.929

#1	1.879	.2874	.1542	.1306	.2665
#2	1.748	.2676	.1601	.1676	.2601
#3	1.724	.2199	.1416	.2048	.2654
#4	1.712	.2738	.1317	.1627	.2299
#5	1.685	.2507	.1627	.1547	.2614

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1517
Stddev	.0168
%RSD	11.10

#1	.1515
#2	.1526
#3	.1416
#4	.1343
#5	.1787

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: S97T001958_S

Operator: BJG

Comment: 101 DF

Run Time: 10/21/97 14:03 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U_[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1296	.1247	17.37	1848.	27.55
Stddev	.0248	.0252	.67	24.	.91
%RSD	19.13	20.22	3.881	1.279	3.311

#1	.1437	.0995	16.32	1819.	26.54
#2	.1249	.1457	17.35	1880.	27.82
#3	.1590	.0954	17.25	1833.	27.39
#4	.0926	.1365	17.97	1859.	27.04
#5	.1279	.1462	17.95	1848.	28.95

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	20.02	.6765	.1281	.1317	11.87
Stddev	.38	.0246	.0124	.0082	.38
%RSD	1.912	3.636	9.688	6.206	3.225

#1	19.71	.6631	.1304	.1216	11.28
#2	20.16	.6454	.1411	.1411	11.87
#3	20.08	.6927	.1226	.1363	12.22
#4	19.61	.6733	.1365	.1249	11.80
#5	20.56	.7081	.1096	.1348	12.20

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1424
Stddev	.0193
%RSD	13.54

#1	.1569
#2	.1087
#3	.1522
#4	.1481
#5	.1462

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: CCV

Operator: BJG

Comment: 10 DF

Run Time: 10/21/97 14:12 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1098	.1279	17.44	.3148	25.09
Stddev	.0129	.0055	.38	.0250	.89
%RSD	11.71	4.270	2.185	7.934	3.532

#1	.1103	.1249	17.07	.3435	24.18
#2	.1092	.1216	17.13	.2988	24.11
#3	.1277	.1298	17.59	.3406	25.94
#4	.0914	.1360	18.01	.2975	25.39
#5	.1103	.1270	17.37	.2935	25.82

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	21.20	.7047	.1384	.1198	13.50
Stddev	.75	.0476	.0104	.0119	.45
%RSD	3.532	6.750	7.528	9.925	3.350

#1	20.06	.7536	.1270	.1187	13.62
#2	21.04	.6305	.1360	.1360	13.06
#3	21.37	.7067	.1554	.1149	13.15
#4	21.45	.7374	.1381	.1254	14.20
#5	22.10	.6953	.1353	.1041	13.47

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1333
Stddev	.0242
%RSD	18.14

#1	.1187
#2	.1484
#3	.1341
#4	.1636
#5	.1020

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: CCB

Operator: BJG

Comment: 10 DF

Run Time: 10/21/97 14:24 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U_[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1129	.1089	.1838	.2013	.1222
Stddev	.0236	.0144	.0238	.0153	.0137
%RSD	20.94	13.19	12.95	7.597	11.17

#1	.1339	.0961	.2168	.2130	.1207
#2	.1408	.1061	.1755	.1948	.1331
#3	.1016	.1094	.1993	.2169	.1251
#4	.0846	.0999	.1691	.1787	.1326
#5	.1036	.1329	.1583	.2032	.0997

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1963	.1377	.1179	.1204	.1138
Stddev	.0226	.0123	.0194	.0129	.0125
%RSD	11.51	8.917	16.47	10.70	10.96

#1	.1923	.1433	.1188	.1188	.0980
#2	.1832	.1427	.1466	.1350	.1254
#3	.2149	.1270	.1153	.1251	.1036
#4	.2229	.1230	.1172	.0999	.1249
#5	.1680	.1524	.0918	.1231	.1172

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1270
Stddev	.0142
%RSD	11.19

#1	.1075
#2	.1331
#3	.1348
#4	.1422
#5	.1172

LABCORE Data Entry Template for Worklist# 20855

Analyst: B. GOECKE Instrument: ICPMS1 _____ Book# 139643

Method: LT-506-101 Rev/Mod A-1

Worklist Comment: AX-103 ACTINIDES BY ICP/MS

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 ICB			@MSACTA1	SOLID		
2 ICV			@MSACT	QC		
3 BLNK-PREP			@MSACTA1	SOLID		
4 STD-PREP			@MSACTQC	SOLID		
5 SERDIL	S97T001960	0 A	@MSACTA1	SOLID		
6 SAMPLE	S97T001960	0 A	@MSACTA1	SOLID	97000495	AX-103
Analytes Requested: 241-A1 , 243-A1 , 244-A1 , NP237-A1, PU239-A1, PU240-A1, PU242-A1, TH229-A1, TH230-A1, TH232-A1						
7 DUP	S97T001960	0 A	@MSACTA1	SOLID		
8 SPK	S97T001960	0 A	@MSACTA1	SOLID		
9 SAMPLE	S97T001959	0 A	@MSACTA1	SOLID	97000495	AX-103
Analytes Requested: 241-A1 , 243-A1 , 244-A1 , NP237-A1, PU239-A1, PU240-A1, PU242-A1, TH229-A1, TH230-A1, TH232-A1						
10 DUP	S97T001959	0 A	@MSACTA1	SOLID		
11 CCV			@MSACT	QC		
12 CCB			@MSACTA1	SOLID		

Final page for worklist # 20855

[Signature] 11-5-97
Analyst Signature Date

[Signature] 11/6/97
Analyst Signature Date

Data Entry Comments:

Sy-102

HNF-SD-WM-DP-266, REV. 0

ACD DIGEST

ISO-U

11-4-97

ICB

ICV

PREPBLK

PREP STD

597T00 1988-L 145 DF

1988 29 DF

1988-D 29 DF

1988-S 101 DF

597T00 1990 101 DF

1990-D 101 DF

CCV

CCB

Leslie Dean
for B Goette
2/3/98

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 394 TO 413

HNF-SD-WM-DP-266, REV. 0

Method: MS_TUNE

Sample Name: Ir-193

Operator:

Comment:

Run Time: 11/05/97 12:42 Type: Unk

Mode: INT

Corr.Fact: 1.000000

Elem	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	189800.
Stddev	4515.
%RSD	2.379

#1	182200.
#2	190000.
#3	191900.
#4	188800.
#5	189300.
#6	186600.
#7	192000.
#8	196600.
#9	195700.
#10	184900.

Method: MS_TUNE Sample Name: Ir-193

Operator:

Comment:

Run Time: 11/05/97 12:55 Type: Unk

Mode: INT

Corr.Fact: 1.000000

Elem	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	191300.
Stddev	3583.
%RSD	1.873

#1	196700.
#2	193300.
#3	191700.
#4	192300.
#5	192000.
#6	194000.
#7	188900.
#8	187200.
#9	184200.
#10	192600.

Method: ACTINIDE Sample Name: cal blank

Operator:

Comment: background

Run Time: 11/05/97 13:06 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1236	.1250	.1615	.1617	.1402
Stddev	.0153	.0235	.0144	.0154	.0092
%RSD	12.38	18.83	8.914	9.507	6.551

#1	.1142	.1105	.1468	.1522	.1431
#2	.1120	.1120	.1641	.1564	.1487
#3	.1356	.1663	.1464	.1464	.1482
#4	.1120	.1139	.1777	.1680	.1294
#5	.1445	.1222	.1723	.1852	.1315

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1495	.1429	.1503	.1495	.1496
Stddev	.0403	.0166	.0038	.0131	.0225
%RSD	26.97	11.60	2.522	8.792	15.05

#1	.1142	.1413	.1558	.1504	.1450
#2	.1834	.1583	.1525	.1699	.1738
#3	.1067	.1356	.1464	.1338	.1501
#4	.1970	.1197	.1487	.1487	.1642
#5	.1463	.1593	.1482	.1445	.1148

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1316
Stddev	.0193
%RSD	14.70

#1	.1486
#2	.1390
#3	.1012
#4	.1448
#5	.1241

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE Sample Name: calstd

Operator:

Comment: 0.010 ppm cal

Run Time: 11/05/97 13:12 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U_[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1227	.1733	209.7	234.0	.7779
Stddev	.0066	.0299	6.5	9.5	.0241
%RSD	5.352	17.28	3.112	4.059	3.104

#1	.1280	.1974	201.5	220.9	.7948
#2	.1201	.1255	207.2	242.0	.7805
#3	.1181	.1809	209.1	227.1	.8012
#4	.1160	.1977	219.4	241.9	.7394
#5	.1311	.1648	211.4	237.9	.7736

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1907	.1448	.1539	.1479	.1475
Stddev	.0290	.0094	.0206	.0093	.0208
%RSD	15.21	6.495	13.39	6.271	14.11

#1	.2240	.1440	.1405	.1440	.1245
#2	.2110	.1492	.1619	.1346	.1783
#3	.1938	.1477	.1311	.1477	.1477
#4	.1521	.1540	.1844	.1559	.1540
#5	.1723	.1293	.1517	.1573	.1330

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1391
Stddev	.0136
%RSD	9.767

#1	.1351
#2	.1401
#3	.1218
#4	.1597
#5	.1386

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE Sample Name: calstd

Operator:

Comment: 0.100 ppm cal

Run Time: 11/05/97 13:22 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U_[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1721	.4022	1910.	2148.	6.154
Stddev	.0343	.0185	44.	75.	.314
%RSD	19.90	4.608	2.286	3.475	5.099

#1	.1622	.3885	1863.	2180.	6.309
#2	.1558	.3795	1921.	2136.	6.390
#3	.2315	.4021	1975.	2224.	6.393
#4	.1443	.4227	1876.	2174.	5.668
#5	.1668	.4180	1914.	2027.	6.009

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.8140	.1571	.1464	.1413	.1466
Stddev	.0482	.0147	.0047	.0077	.0143
%RSD	5.923	9.342	3.212	5.412	9.768

#1	.8676	.1358	.1471	.1358	.1301
#2	.8370	.1598	.1398	.1378	.1478
#3	.8082	.1746	.1442	.1401	.1381
#4	.8194	.1643	.1523	.1382	.1683
#5	.7376	.1507	.1487	.1548	.1487

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1406
Stddev	.0090
%RSD	6.410

#1	.1320
#2	.1518
#3	.1442
#4	.1443
#5	.1306

Method: ACTINIDE

Sample Name: ICB

Operator:

Comment: DIRECT

Run Time: 11/05/97 13:32 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U_[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1309	.1253	.2493	.1646	.1435
Stddev	.0146	.0150	.0068	.0116	.0228
%RSD	11.15	11.93	2.742	7.033	15.90

#1	.1217	.1369	.2509	.1711	.1673
#2	.1480	.1440	.2561	.1800	.1200
#3	.1432	.1089	.2381	.1594	.1251
#4	.1282	.1135	.2527	.1630	.1373
#5	.1132	.1233	.2486	.1496	.1678

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1421	.1412	.1541	.1456	.1324
Stddev	.0086	.0101	.0109	.0246	.0105
%RSD	6.070	7.160	7.071	16.93	7.928

#1	.1388	.1312	.1483	.1483	.1274
#2	.1300	.1440	.1560	.1460	.1220
#3	.1432	.1432	.1594	.1654	.1291
#4	.1447	.1318	.1392	.1044	.1337
#5	.1536	.1556	.1678	.1637	.1496

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1380
Stddev	.0304
%RSD	22.04

#1	.1331
#2	.1880
#3	.1372
#4	.1062
#5	.1253

Method: ACTINIDE Sample Name: cal std

Operator:

Comment: 0.010 ppm cal

Run Time: 11/05/97 13:41 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1257	.1561	210.5	233.5	.7527
Stddev	.0196	.0220	6.2	4.7	.0468
%RSD	15.60	14.10	2.922	2.030	6.217

#1	.0982	.1303	203.6	229.7	.7747
#2	.1462	.1855	217.8	231.8	.7740
#3	.1145	.1581	207.1	233.6	.6794
#4	.1287	.1395	208.0	230.6	.7993
#5	.1407	.1673	216.2	241.5	.7358

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.2293	.1337	.1428	.1420	.1340
Stddev	.0322	.0167	.0165	.0235	.0133
%RSD	14.05	12.51	11.55	16.55	9.932

#1	.1821	.1196	.1232	.1642	.1321
#2	.2474	.1593	.1537	.1349	.1387
#3	.2289	.1290	.1272	.1363	.1526
#4	.2199	.1198	.1502	.1091	.1305
#5	.2681	.1407	.1597	.1654	.1160

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1417
Stddev	.0195
%RSD	13.73

#1	.1357
#2	.1593
#3	.1126
#4	.1413
#5	.1597

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: ICV

Operator:

Comment: DIRECT

Run Time: 11/05/97 13:49 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Run Status: User Aborted

Elem	Th[229]	Th[230]	Th[232]	U_[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1236	.1223	.4426	3.655	234.1
Stddev	.0068	.0221	.0083	.413	8.9
%RSD	5.511	18.05	1.875	11.30	3.819

#1	.1284	.1067	.4484	3.363	227.8
#2	.1188	.1379	.4367	3.948	240.4

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	111.9	3.403	.1279	.1184	133.0
Stddev	4.3	.099	.0237	.0140	1.8
%RSD	3.837	2.910	18.56	11.85	1.323

#1	115.0	3.333	.1447	.1085	131.8
#2	108.9	3.473	.1111	.1283	134.3

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1246
Stddev	.0028
%RSD	2.266

#1	.1266
#2	.1226

Method: ACTINIDE

Sample Name: ICV

Operator:

Comment: DIRECT

Run Time: 11/05/97 13:53 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1151	.1409	183.8	1.030	279.2
Stddev	.0125	.0069	6.0	.079	12.1
%RSD	10.85	4.898	3.254	7.634	4.345

#1	.0984	.1329	175.4	.9252	263.8
#2	.1286	.1378	183.6	1.068	275.3
#3	.1166	.1486	188.8	1.019	290.2
#4	.1168	.1442	187.3	1.108	287.6

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	242.1	6.758	.1530	.1341	156.5
Stddev	13.8	.353	.0096	.0189	10.0
%RSD	5.707	5.225	6.251	14.10	6.359

#1	223.0	6.416	.1485	.1191	146.3
#2	243.3	6.517	.1672	.1617	158.1
#3	246.5	6.925	.1467	.1298	152.0
#4	255.8	7.172	.1496	.1259	169.5

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1284
Stddev	.0241
%RSD	18.78

#1	.1001
#2	.1305
#3	.1241
#4	.1588

HNF SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: PREP BLANK

Operator:

Comment: 10 DF

Run Time: 11/05/97 14:01 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U_[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1231	.1318	.2620	.2400	.1398
Stddev	.0128	.0307	.0334	.0252	.0140
%RSD	10.43	23.26	12.75	10.50	9.983

#1	.1261	.1045	.3080	.2468	.1603
#2	.1384	.1132	.2588	.1995	.1384
#3	.1089	.1252	.2468	.2377	.1252
#4	.1109	.1830	.2773	.2681	.1294
#5	.1313	.1331	.2188	.2480	.1459

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.6901	.1617	.1415	.1278	.1450
Stddev	.1239	.0155	.0148	.0169	.0145
%RSD	17.95	9.584	10.49	13.21	10.02

#1	.8790	.1459	.1225	.1243	.1567
#2	.7460	.1654	.1456	.1366	.1438
#3	.6171	.1851	.1343	.1524	.1307
#4	.6397	.1627	.1627	.1128	.1627
#5	.5689	.1495	.1422	.1130	.1313

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1283
Stddev	.0063
%RSD	4.876

#1	.1207
#2	.1348
#3	.1343
#4	.1239
#5	.1276

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: PREP STD

Operator: BJG

Comment: 101 DF

Run Time: 11/05/97 14:05 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1364	.1227	2.140	2113.	9.069
Stddev	.0232	.0170	.166	107.	.451
%RSD	16.99	13.86	7.768	5.062	4.968
#1	.1590	.1355	2.211	2095.	8.955
#2	.1556	.1185	2.187	2053.	9.052
#3	.1137	.1436	2.346	2296.	9.797
#4	.1436	.1007	2.046	2101.	8.982
#5	.1099	.1154	1.912	2022.	8.558

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.621	.2111	.1272	.1379	1.699
Stddev	.129	.0252	.0146	.0150	.149
%RSD	3.559	11.93	11.51	10.88	8.782
#1	3.797	.2367	.1210	.1427	1.731
#2	3.472	.1874	.1061	.1308	1.674
#3	3.631	.2394	.1277	.1476	1.899
#4	3.682	.2014	.1436	.1529	1.708
#5	3.524	.1905	.1374	.1154	1.482

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1383
Stddev	.0097
%RSD	7.046
#1	.1391
#2	.1521
#3	.1377
#4	.1380
#5	.1245

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: S97T001960_L

Operator: BJJ

Comment: 50 DF

Run Time: 11/05/97 14:22 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1283	.1213	5.940	286.9	1.181
Stddev	.0184	.0278	.377	15.8	.113
%RSD	14.32	22.92	6.343	5.526	9.594

#1	.1488	.1086	6.114	302.5	1.339
#2	.1121	.1540	5.352	278.2	1.138
#3	.1473	.1009	6.376	305.6	1.253
#4	.1211	.0946	5.902	275.7	1.060
#5	.1122	.1484	5.957	272.4	1.113

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.6699	.1717	.1391	.1512	.1653
Stddev	.0513	.0149	.0201	.0144	.0160
%RSD	7.654	8.683	14.48	9.501	9.663

#1	.7238	.1870	.1106	.1327	.1407
#2	.6861	.1673	.1349	.1482	.1616
#3	.7082	.1836	.1352	.1675	.1655
#4	.6149	.1495	.1646	.1438	.1816
#5	.6164	.1712	.1503	.1636	.1769

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1547
Stddev	.0262
%RSD	16.95

#1	.1769
#2	.1102
#3	.1655
#4	.1533
#5	.1674

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: S97T001960

Operator: BJG

Comment: 10 DF

Run Time: 11/05/97 14:27 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1569	.1404	27.27	1349.	5.306
Stddev	.0157	.0181	1.34	47.	.149
%RSD	9.989	12.91	4.899	3.473	2.802

#1	.1762	.1229	27.10	1304.	5.234
#2	.1712	.1228	26.73	1313.	5.215
#3	.1413	.1432	25.42	1335.	5.155
#4	.1492	.1471	28.82	1417.	5.422
#5	.1467	.1658	28.27	1375.	5.503

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.675	.3405	.1514	.1555	.3320
Stddev	.079	.0177	.0182	.0260	.0273
%RSD	2.949	5.188	12.02	16.73	8.219

#1	2.559	.3114	.1454	.1577	.3011
#2	2.702	.3463	.1812	.1490	.3141
#3	2.660	.3382	.1472	.1154	.3701
#4	2.677	.3496	.1513	.1833	.3474
#5	2.777	.3572	.1318	.1722	.3274

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1656
Stddev	.0157
%RSD	9.453

#1	.1475
#2	.1853
#3	.1651
#4	.1535
#5	.1765

4NF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: S97T001960_DUP

Operator: BJJ

Comment: 10 DF

Run Time: 11/05/97 14:32 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1481	.1449	26.16	1349.	5.383
Stddev	.0155	.0140	1.47	46.	.571
%RSD	10.44	9.647	5.617	3.432	10.61

#1	.1465	.1465	26.54	1342.	5.616
#2	.1733	.1634	28.09	1423.	6.184
#3	.1356	.1426	26.80	1352.	5.448
#4	.1354	.1243	24.52	1297.	4.854
#5	.1499	.1477	24.87	1330.	4.813

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.381	.3125	.1621	.1564	.3430
Stddev	.227	.0341	.0207	.0137	.0241
%RSD	9.553	10.90	12.74	8.786	7.031

#1	2.395	.3063	.1665	.1487	.3219
#2	2.726	.3342	.1881	.1733	.3763
#3	2.226	.3577	.1707	.1637	.3577
#4	2.426	.2930	.1332	.1376	.3396
#5	2.132	.2712	.1521	.1587	.3197

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1841
Stddev	.0338
%RSD	18.38

#1	.1532
#2	.2352
#3	.1894
#4	.1532
#5	.1896

Method: ACTINIDE

Sample Name: S97T001960_S

Operator: BJG

Comment: 101 DF

Run Time: 11/05/97 14:36 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1118	.1239	20.36	2215.	34.14
Stddev	.0052	.0189	.46	93.	.96
%RSD	4.674	15.22	2.250	4.206	2.817
#1	.1121	.1083	19.86	2058.	34.42
#2	.1060	.1081	20.17	2280.	35.67
#3	.1144	.1477	21.05	2200.	33.27
#4	.1189	.1148	20.56	2279.	33.89
#5	.1076	.1407	20.16	2256.	33.47

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	25.44	.8227	.1497	.1418	15.51
Stddev	1.15	.0177	.0240	.0095	.73
%RSD	4.511	2.149	16.02	6.695	4.688
#1	23.88	.7945	.1102	.1521	14.55
#2	26.14	.8208	.1683	.1288	16.10
#3	26.25	.8236	.1539	.1393	15.60
#4	24.55	.8408	.1690	.1502	16.29
#5	26.38	.8338	.1469	.1386	15.02

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1443
Stddev	.0200
%RSD	13.85
#1	.1502
#2	.1351
#3	.1747
#4	.1210
#5	.1407

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: S97T001959

Operator: BJJ

Comment: 10 DF

Run Time: 11/05/97 14:53 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U[238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1433	.1401	16.88	1242.	4.553
Stddev	.0193	.0396	.93	45.	.134
%RSD	13.45	28.29	5.521	3.598	2.942

#1	.1439	.1464	18.43	1213.	4.587
#2	.1484	.1767	16.51	1252.	4.565
#3	.1259	.0792	16.05	1215.	4.617
#4	.1725	.1264	16.39	1244.	4.673
#5	.1259	.1719	17.00	1316.	4.325

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.741	.2714	.1562	.1583	.2632
Stddev	.111	.0344	.0151	.0206	.0211
%RSD	6.372	12.69	9.662	13.02	7.999

#1	1.791	.2853	.1439	.1860	.2828
#2	1.878	.2497	.1461	.1319	.2544
#3	1.592	.2377	.1562	.1701	.2331
#4	1.771	.2600	.1531	.1531	.2624
#5	1.671	.3245	.1816	.1501	.2833

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1565
Stddev	.0175
%RSD	11.18

#1	.1364
#2	.1413
#3	.1748
#4	.1725
#5	.1574

Method: ACTINIDE

Sample Name: S97T001959_D

Operator: BJG

Comment: 10 DF

Run Time: 11/05/97 14:56 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1368	.1457	18.83	1328.	5.244
Stddev	.0155	.0144	.39	50.	.198
%RSD	11.34	9.902	2.090	3.750	3.783

#1	.1229	.1365	19.30	1272.	5.401
#2	.1446	.1266	18.33	1284.	4.900
#3	.1240	.1478	19.01	1361.	5.282
#4	.1598	.1551	18.53	1389.	5.347
#5	.1329	.1627	18.99	1334.	5.291

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.860	.2845	.1455	.1632	.2580
Stddev	.075	.0202	.0188	.0192	.0244
%RSD	4.028	7.117	12.93	11.74	9.457

#1	1.807	.2821	.1456	.1593	.2821
#2	1.991	.2622	.1740	.1876	.2396
#3	1.850	.2766	.1407	.1764	.2384
#4	1.834	.3172	.1459	.1389	.2871
#5	1.819	.2841	.1214	.1535	.2429

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1696
Stddev	.0295
%RSD	17.40

#1	.1206
#2	.1853
#3	.1645
#4	.1829
#5	.1948

HNF-SD-WM-DP-266, REV. 0

Method: ACTINIDE

Sample Name: CCV

Operator: BJG

Comment: DIRECT

Run Time: 11/05/97 15:06 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1157	.1367	189.8	1.080	286.2
Stddev	.0095	.0136	7.2	.051	4.6
%RSD	8.193	9.927	3.771	4.715	1.605

#1	.1167	.1337	180.0	1.026	281.4
#2	.1031	.1452	192.9	1.136	291.9
#3	.1262	.1491	189.4	1.109	283.7
#4	.1169	.1189	196.7	1.051	287.6

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	247.9	7.032	.1334	.1119	160.6
Stddev	12.8	.421	.0094	.0113	5.9
%RSD	5.175	5.991	7.019	10.09	3.679

#1	229.9	6.455	.1280	.1261	155.1
#2	251.0	7.378	.1241	.1146	163.3
#3	260.3	6.983	.1453	.1070	156.5
#4	250.4	7.310	.1361	.0997	167.7

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1334
Stddev	.0227
%RSD	17.01

#1	.1224
#2	.1662
#3	.1300
#4	.1150

HNF-SD-WM-DP-266 REV. 0

Method: ACTINIDE

Sample Name: CCB

Operator: BJG

Comment: DIRECT

Run Time: 11/05/97 15:15 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	Th[229]	Th[230]	Th[232]	U [238]	Np[237]
Line	229/pulse	230/pulse	232/pulse	238/pulse	237/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1079	.1078	.1749	.1580	.1405
Stddev	.0148	.0109	.0197	.0167	.0155
%RSD	13.75	10.14	11.27	10.59	11.05

#1	.1115	.0926	.2003	.1512	.1342
#2	.1065	.1101	.1589	.1481	.1174
#3	.0922	.1224	.1543	.1401	.1543
#4	.1309	.1032	.1714	.1696	.1419
#5	.0983	.1106	.1896	.1808	.1545

Elem	Pu[239]	Pu[240]	Pu[242]	Pu[244]	Am[241]
Line	239/pulse	240/pulse	242/pulse	244/pulse	241/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.1673	.1192	.1315	.1334	.1301
Stddev	.0150	.0163	.0103	.0273	.0187
%RSD	8.964	13.69	7.818	20.43	14.41

#1	.1682	.1172	.1247	.1758	.1172
#2	.1445	.1264	.1390	.1426	.1553
#3	.1720	.0958	.1454	.1188	.1383
#4	.1659	.1161	.1272	.1051	.1327
#5	.1861	.1404	.1211	.1246	.1071

Elem	Am[243]
Line	243/pulse
Units	Cts/S
Avg	.1282
Stddev	.0178
%RSD	13.92

#1	.1096
#2	.1192
#3	.1490
#4	.1456
#5	.1176

LABCORE Completed Worklist Report for Worklist# 21134

Analyst: jds

Instrument: CARB2

Book# TIC BSN12B
TOC 26N12C

Method: LA-342-100 Rev/Mod F-0

Worklist Comment: AX-103, TICTOC, TDM

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLNK	0		@TICTOC1 TIC-02	SOLID	1	2.30E+0	2.300	ug/g
1 BLNK	0		@TICTOC1 TOC-02	SOLID	1	1.50E+0	1.500	ug/g
2 STD	0		@TICTOC1 TIC-02	SOLID	6.02E+02	5.77E+2	95.847	% Recovery
2 STD	0		@TICTOC1 TOC-02	SOLID	3.00E+03	2.76E+3	92.000	% Recovery
3 SAMPLE	S97T001947	0	@TICTOC1 TIC-02	SOLID	N/A	6.11E+03	5.000	ug/g
3 SAMPLE	S97T001947	0	@TICTOC1 TOC-02	SOLID	N/A	3.27E+03	40.000	ug/g
4 DUP	S97T001947	0	@TICTOC1 TIC-02	SOLID	6.11E+3	5.77E+3	5.724	RPD
4 DUP	S97T001947	0	@TICTOC1 TOC-02	SOLID	3.27E+3	3.79E+3	14.731	RPD
5 SPK	S97T001947	0	@TICTOC1 TIC-02	SOLID	1.00E+02	1.44E+02	114.000	% Recovery
5 SPK	S97T001947	0	@TICTOC1 TOC-02	SOLID	1.00E+02	1.20E+02	120.000	% Recovery

Final page for worklist# 21134

Analyst Signature _____ Date _____

11-18-97
Analyst Signature _____ Date _____

11/19/97
Reviewer Signature _____ Date _____

LABCORE Data Entry Template for Worklist# 21134

Analyst: JDS Instrument: CARB2 _____ Book# TIC 25N12B

Method: LA-342-100 Rev/Mod _____

TOC 26N12B

Worklist Comment: AX-103, TICTOC, TDM

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			@TICTOC1	SOLID		
2 STD			@TICTOC1	SOLID		
3 SAMPLE	S97T001947 0		@TICTOC1	SOLID	97000495	AX-103
	Analytes Requested: TIC-02 , TOC-02					
4 DUP	S97T001947 0		@TICTOC1	SOLID		
5 SPK	S97T001947 0		@TICTOC1	SOLID		

Final page for worklist # 21134

Analyst Signature _____ Date _____

Analyst Signature _____ Date 11-18-97

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 21134

Analyst: JLS Instrument: CARB2 Book# 25X12 B .1ml
26X12 B .2ml

Method: LA-342-100 Rev/Mod _____

Worklist Comment: AX-103,TICTOC,TDM

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			@TICTOC1	SOLID		
2 STD			@TICTOC1	SOLID		
3 SAMPLE	S97T001947 0		@TICTOC1	SOLID	97000495	AX-103
	Analytes Requested: TIC-02 , TOC-02					
4 DUP	S97T001947 0		@TICTOC1	SOLID		
5 SAMPLE	S97T001948 0		@TICTOC1	SOLID	97000495	AX-103
	Analytes Requested: TIC-02 , TOC-02					
6 DUP	S97T001948 0		@TICTOC1	SOLID		
7 SPK	S97T001948 0		@TICTOC1	SOLID		

Final page for worklist # 21134

JLS 11/14/97
Analyst Signature Date

Analyst Signature Date

Data Entry Comments: When running sample 1948 Dup the cell
went bad. So I spiked 1947 instead. 1948
needs to be added to a new worklist.

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

HNF-SD-WM-DP-286, REV. C
TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE

Date: 11/13/97

Time: 22:53:37

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE
Blank Value = N/A

Analyst : JD SPELLMAN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==	== Analysis Time ==	== Coulometer ==	== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.00	0.80	50.00
4	1.50	1.40	42.86
5	2.00	1.50	6.67
6	2.50	1.70	11.76
7	3.00	2.00	15.00
8	3.50	2.40	16.67
9	4.00	2.90	17.24
10	4.50	3.10	6.45
11	5.00	3.40	8.82
12	5.50	3.70	8.11
13	6.00	4.00	7.50
14	6.50	4.30	6.98
15	7.00	4.80	10.42
16	7.50	5.50	12.73
17	8.00	5.70	3.51
18	8.50	5.90	3.39
19	9.00	6.30	6.35
20	9.50	6.70	5.97
21	10.00	6.90	2.90
22	10.50	7.40	6.76

BLANK VALUE = 7.4 micrograms carbon

BLANK FACTOR = 7.4 / 10.49805 =

+7.0E-01

ug/min Carbon

Sample Run By:

JD SPELLMAN

RW Schroeder for JD Spellman 11/19/97
22222

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 410 TO 422

HNF-SD-WM-DP-266, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BASE

Date: 11/13/97

Time: 23:06:03

Sample Size = 1 uL

Dil Factor = 1

Blank ID # = BASE

Blank Value = N/A

Analyst : JD SPELLMAN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	1.60	75.00
4	1.50	4.30	62.79
5	2.00	8.30	48.19
6	2.50	12.40	33.06
7	3.00	15.90	22.01
8	3.50	18.60	14.52
9	4.00	20.30	8.37
10	4.50	21.60	6.02
11	5.00	22.70	4.85
12	5.50	23.30	2.58
13	6.00	24.10	3.32
14	6.50	24.80	2.82
15	7.00	25.40	2.36
16	7.50	26.00	2.31
17	8.00	26.60	2.26
18	8.50	27.20	2.21
19	9.00	27.70	1.81
20	9.50	28.10	1.42
21	10.00	28.70	2.09
22	10.50	29.20	1.71

BLANK VALUE = 29.2 micrograms carbon

BLANK FACTOR = 29.2 / 10.49915 =

+2.78E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

JD SPELLMAN

22222

HNF-SD-WM-DP-266, REV.0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

Sample: STD

Date: 11/13/97

Time: 23:20:07

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .7 ug/minute C

Analyst : JD SPELLMAN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.51	1.20	100.00
3	1.01	45.90	97.39
4	1.50	206.10	77.73
5	2.00	352.20	41.48
6	2.50	455.80	22.73
7	3.00	515.50	11.58
8	3.50	549.20	6.14
9	4.00	564.80	2.76
10	4.50	572.00	1.26
11	5.00	575.20	0.56
12	5.50	577.30	0.36
13	6.00	578.30	0.17
14	6.50	579.30	0.17
15	7.00	580.10	0.14
16	7.50	580.90	0.14
17	8.00	581.60	0.12
18	8.50	582.30	0.12
19	9.00	582.90	0.10
20	9.50	583.60	0.12
21	10.00	584.30	0.12
22	10.50	584.70	0.07

USER INPUT BLANK VALUE

BLANK VALUE = 7.349402 micrograms carbon

BLANK FACTOR = 7.349402 / 10.49915 = +7.0E-01 ug/min Carbon

SAMPLE RESULTS:

(584.7 - 7.348034) (1)/(1) = +5.774E+02 g/L Carbon
 (584.7 - 7.348034) (1)/(1) (12) = +4.811E+01 Molar Carbon

Sample Run By:

JD SPELLMAN

22222

HNF-SD-WM-DP-266, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: STD

Date: 11/13/97

Time: 23:35:56

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.78 ug/minute C

Analyst : JD SPELLMAN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.50	0.80	100.00
3	1.00	15.90	94.97
4	1.50	90.70	82.47
5	2.00	240.30	62.26
6	2.50	398.00	39.62
7	3.00	494.80	19.56
8	3.50	541.30	8.59
9	4.00	561.10	3.53
10	4.50	569.10	1.41
11	5.00	572.80	0.65
12	5.50	574.20	0.24
13	6.00	575.40	0.21
14	6.50	576.50	0.19
15	7.00	577.30	0.14
16	7.50	578.10	0.14
17	8.00	578.80	0.12
18	8.50	579.50	0.12
19	9.00	580.10	0.10
20	9.50	580.90	0.14
21	10.00	581.50	0.10
22	10.50	582.00	0.09

USER INPUT BLANK VALUE

BLANK VALUE = 29.18762 micrograms carbon

BLANK FACTOR = 29.18762 / 10.49915 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:

(582 - 29.18219) (1)/(1) = +5.528E+02 g/L Carbon
 (582 - 29.18219) (1)/(1) (12) = +4.607E+01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

JD SPELLMAN

22222

HNF-SD-WM-DP-266, REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLK

Date: 11/13/97

Time: 23:49:41

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .7 ug/minute C

Analyst : JD SPELLMAN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.50	0.90	100.00
3	1.00	1.80	50.00
4	1.50	2.40	25.00
5	2.04	3.00	20.00
6	2.54	3.40	11.76
7	3.04	4.00	15.00
8	3.54	4.60	13.04
9	4.04	5.00	8.00
10	4.54	5.50	9.09
11	5.04	6.00	8.33
12	5.54	6.40	6.25
13	6.04	7.00	8.57
14	6.54	7.40	5.41
15	7.04	7.80	5.13
16	7.54	8.30	6.02
17	8.04	8.70	4.60
18	8.54	9.20	5.43
19	9.04	9.50	3.16
20	9.54	9.70	2.06
21	10.04	9.70	0.00
22	10.53	9.70	0.00

USER INPUT BLANK VALUE

BLANK VALUE = 7.349402 micrograms carbon

BLANK FACTOR = 7.349402 / 10.49915 = +7.0E-01 ug/min Carbon

SAMPLE RESULTS:

(9.7 - 7.374353) (1)/(1) =

+2.3E+00 g/L Carbon

(9.7 - 7.374353) (1)/(1) (12) =

+1.9E-01 Molar Carbon

Sample Run By:

JD SPELLMAN

22222

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLK

Date: 11/14/97

Time: 00:05:15

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.78 ug/minute C

Analyst : JD SPELLMAN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.51	0.60	100.00
3	1.01	3.60	83.33
4	1.50	7.50	52.00
5	2.00	11.50	34.78
6	2.50	15.00	23.33
7	3.00	17.90	16.20
8	3.50	19.30	7.25
9	4.00	20.60	6.31
10	4.50	21.50	4.19
11	5.00	22.60	4.87
12	5.50	23.80	5.04
13	6.00	24.90	4.42
14	6.50	26.00	4.23
15	7.00	26.90	3.35
16	%-1432.50	27.50	2.18
17	%-1432.00	28.20	2.48
18	%-1431.50	28.70	1.74
19	%-1431.00	29.20	1.71
20	%-1430.50	29.70	1.68
21	%-1430.00	30.20	1.66
22	%-1429.50	30.70	1.63

USER INPUT BLANK VALUE

BLANK VALUE = 29.18762 micrograms carbon

BLANK FACTOR = 29.18762 / 10.49915 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:

(30.7 --3974.015) (1)/(1) = +4.00E+03 g/L Carbon
 (30.7 --3974.015) (1)/(1) (12) = +3.34E+02 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

JD SPELLMAN

22222

HNF-SD-WM-DP-266, REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: S97T001947

Date: 11/14/97

Time: 00:41:50

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .7 ug/minute C

Analyst : JD SPELLMAN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.90	100.00
3	1.01	32.90	97.26
4	1.51	149.70	78.02
5	2.00	274.10	45.38
6	2.50	359.50	23.76
7	3.00	408.90	12.08
8	3.50	435.10	6.02
9	4.00	447.10	2.68
10	4.50	452.60	1.22
11	5.00	455.50	0.64
12	5.50	457.70	0.48
13	6.00	459.30	0.35
14	6.50	460.60	0.28
15	7.00	461.90	0.28
16	7.50	463.10	0.26
17	8.00	464.10	0.22
18	8.50	465.20	0.24
19	9.00	466.10	0.19
20	9.50	467.10	0.21
21	10.00	467.90	0.17
22	10.50	468.70	0.17

USER INPUT BLANK VALUE

BLANK VALUE = 7.349402 micrograms carbon

BLANK FACTOR = 7.349402 / 10.49915 = +7.0E-01 ug/min Carbon

SAMPLE RESULTS:

(468.7 - 7.34872) (1)/(1) = +4.614E+02 g/L Carbon
 (468.7 - 7.34872) (1)/(1) (12) = +3.845E+01 Molar Carbon

Sample Run By:

JD SPELLMAN

22222

HNF-SD-WM-DP-266, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T001947

Date: 11/14/97

Time: 02:49:53

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.78 ug/minute C

Analyst : JD SPELLMAN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.51	0.70	100.00
3	1.01	22.90	96.94
4	1.50	73.30	68.76
5	2.00	147.30	50.24
6	2.50	206.90	28.81
7	3.00	238.00	13.07
8	3.50	252.10	5.59
9	4.00	258.70	2.55
10	4.50	262.10	1.30
11	5.00	264.50	0.91
12	5.50	266.10	0.60
13	6.00	267.60	0.56
14	6.50	268.90	0.48
15	7.00	270.00	0.41
16	7.50	271.10	0.41
17	8.00	272.10	0.37
18	8.50	272.90	0.29
19	9.00	273.80	0.33
20	9.50	274.50	0.26
21	10.00	275.20	0.25
22	10.50	276.10	0.33

USER INPUT BLANK VALUE

BLANK VALUE = 29.18762 micrograms carbon

BLANK FACTOR = 29.18762 / 10.49915 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:

(276.1 - 29.18444) (1)/(1) = +2.469E+02 g/L Carbon
 (276.1 - 29.18444) (1)/(1) (12) = +2.058E+01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

JD SPELLMAN

22222

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T001947DUP

Date: 11/14/97

Time: 03:17:59

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .7 ug/minute C

Analyst : JD SPELLMAN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.51	3.40	100.00
3	1.01	41.70	91.85
4	1.51	146.70	71.57
5	2.00	256.10	42.72
6	2.50	324.80	21.15
7	3.00	365.30	11.09
8	3.50	386.60	5.51
9	4.00	397.90	2.84
10	4.50	405.30	1.83
11	5.00	416.70	2.74
12	5.50	432.20	3.59
13	6.00	440.40	1.86
14	6.50	444.30	0.88
15	7.00	446.70	0.54
16	7.50	448.50	0.40
17	8.00	450.20	0.38
18	8.50	451.50	0.29
19	9.00	452.80	0.29
20	9.50	454.20	0.31
21	10.00	455.30	0.24
22	10.50	456.60	0.28

USER INPUT BLANK VALUE

BLANK VALUE = 7.349402 micrograms carbon

BLANK FACTOR = 7.349402 / 10.49915 = +7.0E-01 ug/min Carbon

SAMPLE RESULTS:

(456.6 - 7.349295) (1) / (1) = +4.493E+02 g/L Carbon
 (456.6 - 7.349295) (1) / (1) (12) = +3.744E+01 Molar Carbon

Sample Run By:

JD SPELLMAN

22222

HNF-SD-WM-DP-266, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: S97T001947DUP

Date: 11/14/97

Time: 03:30:49

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.78 ug/minute C

Analyst : JD SPELLMAN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.51	2.50	100.00
3	1.01	16.90	85.21
4	1.50	78.90	78.58
5	2.00	152.70	48.33
6	2.50	217.70	29.86
7	3.00	258.70	15.85
8	3.50	280.30	7.71
9	4.00	289.50	3.18
10	4.50	295.50	2.03
11	5.00	298.90	1.14
12	5.50	301.50	0.86
13	6.00	303.90	0.79
14	6.50	305.90	0.65
15	7.00	308.00	0.68
16	7.50	309.80	0.58
17	8.00	311.50	0.55
18	8.50	313.20	0.54
19	9.00	316.00	0.89
20	9.50	319.70	1.16
21	10.00	322.50	0.87
22	10.50	324.80	0.71

USER INPUT BLANK VALUE

BLANK VALUE = 29.18762 micrograms carbon

BLANK FACTOR = 29.18762 / 10.49915 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:

(324.8 - 29.18444) (1)/(1) = +2.956E+02 g/L Carbon
 (324.8 - 29.18444) (1)/(1) (12) = +2.463E+01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

JD SPELLMAN

22222

HNF-SD-WM-DP-266, REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: S97T001947SPK

Date: 11/14/97

Time: 05:46:17

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .7 ug/minute C

Analyst : JD SPELLMAN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.51	1.90	100.00
3	1.01	6.50	70.77
4	1.50	149.50	95.65
5	2.00	416.10	64.07
6	2.50	633.00	34.27
7	3.00	754.70	16.13
8	3.50	815.30	7.43
9	4.00	845.80	3.61
10	4.50	859.30	1.57
11	5.00	868.10	1.01
12	5.50	875.90	0.89
13	6.00	881.70	0.66
14	6.50	886.20	0.51
15	7.00	890.10	0.44
16	7.50	893.30	0.36
17	8.00	896.60	0.37
18	8.50	899.00	0.27
19	9.00	901.50	0.28
20	9.50	903.20	0.19
21	10.00	905.00	0.20
22	10.50	907.00	0.22

USER INPUT BLANK VALUE

BLANK VALUE = 7.349402 micrograms carbon

BLANK FACTOR = 7.349402 / 10.49915 = +7.0E-01 ug/min Carbon

SAMPLE RESULTS:

(907 - 7.349295) (1)/(1) = +8.997E+02 g/L Carbon
(907 - 7.349295) (1)/(1) (12) = +7.497E+01 Molar Carbon

Sample Run By: *DWS*

JD SPELLMAN

22222

HNF-SD-WM-DP-266, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T001947SPK

Date: 11/14/97

Time: 05:59:18

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.78 ug/minute C

Analyst : JD SPELLMAN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.51	2.70	100.00
3	1.01	52.60	94.87
4	1.50	155.50	66.17
5	2.00	319.00	51.25
6	2.50	484.20	34.12
7	3.00	580.50	16.59
8	3.50	627.10	7.43
9	4.00	650.10	3.54
10	4.50	661.70	1.75
11	5.00	667.40	0.85
12	5.50	671.60	0.63
13	6.00	674.80	0.47
14	6.50	677.40	0.38
15	7.00	679.20	0.27
16	7.50	681.20	0.29
17	8.00	682.90	0.25
18	8.50	684.70	0.26
19	9.00	686.40	0.25
20	9.50	688.00	0.23
21	10.00	689.20	0.17
22	10.50	692.30	0.45

USER INPUT BLANK VALUE

BLANK VALUE = 29.18762 micrograms carbon

BLANK FACTOR = 29.18762 / 10.49915 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:

(692.3 - 29.1872) (1)/(1) = +6.631E+02 g/L Carbon
 (692.3 - 29.1872) (1)/(1) (12) = +5.526E+01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

JD SPELLMAN

22222

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (E-0)

SOLIDS

		TIC	TOC
Type	Sample Size in g (SS)	1.0000	1.0000
BLNK	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	9.7	30.7
21134	µg of Carbon from Baseline (C2)	7.4	29.2

Test Code
@TICTOC1
Matrix
SOLID
Batch Number
97005335
Rerun
0
Sample Prep
N/A
Sample #
BLNK
Instrument Code
CARB2
Prepared By
GJH
Chemist
RWS
Analyst
JDS
Date Complete
11/18/97
Analysis Date
11/14/97
Analysis Time
05:20 AM
Sample Point
AX-103

µg of Carbon = |C1-C2|

		TIC	TOC
Analysis Time	Method Detection Limit in ug/g	5	40
05:20 AM			
Sample Point	µg of Carbon	2.30E+00	1.50E+00
AX-103			

Data Entered By:	GJH	Date:	11/18/97
Signature of Chemist:	<i>R. W. Schroeder</i>	Date:	11/19/97
BLANK.WB1 REV 1.0	342100ML		

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	1.0000	0.2000
STD	Dilution Factor (DF)	1	1
Work List	Final Coulometer Reading in μg (C1)	584.7	582
21134	μg of Carbon from Baseline (C2)	7.4	29.2
Test Code	Standard Book Number	25N12B	26N12B
@TICTOC1	Standard Value ($\mu\text{g/ml}$)	602	3000
Matrix			
LIQUID			
Batch Number			
97005335			
Rerun			
0	QC Actual in $\mu\text{g/mL}$ = Standard Value ($\mu\text{g/mL}$)		
Sample Prep	QC Found in $\mu\text{g/mL}$ = (C1 - C2) * DF / SS		
N/A	QC Found in $\mu\text{g/mL}$ for TIC = 5 if C1 < C2		
Sample #	QC Found in $\mu\text{g/mL}$ for TOC = 40 if C1 < C2		
STD			
Instrument Code	% Recovery = QC Found / QC Actual * 100		
CARB2			
Prepared By			
GJH			
Chemist			
RWS			
Analyst			
JDS			
Date Complete			
11/18/97			
Analysis Date			
11/14/97			
Analysis Time	Method Detection Limit in $\mu\text{g/mL}$	5	40
05:20 AM	QC Actual in $\mu\text{g/mL}$	6.02E+02	3.00E+03
Sample Point	QC Found in $\mu\text{g/mL}$	5.77E+02	2.76E+03
AX-103	Percent Standard Recovery	95.9	92.1

Data Entered By:	GJH	Date:	11/18/97
Signature of Chemist:	<i>RWS</i>	Date:	11/19/97

STANDARD.WB1 REV 1.0

342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (E-0)

SOLIDS

		TIC	TOC
Type	Sample Size in g (SS)	0.0755	0.0755
SAMPLE	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	468.7	276.1
21134	µg of Carbon from Baseline (C2)	7.4	29.2
Test Code			
@TICTOC1			
Matrix			
SOLID			
Batch Number			
97005335			
Rerun	µg of Carbon/g = (C1-C2) * DF / SS		
0	µg of Carbon/g for TIC = 5 if C1 < C2		
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2		
N/A			
Sample #			
S97T001947			
Instrument Code			
CARB2			
Prepared By			
GJH			
Chemist			
RWS			
Analyst			
JDS			
Date Complete			
11/18/97			
Analysis Date			
11/14/97			
Analysis Time	Method Detection Limit in ug/g	5	40
05:20 AM			
Sample Point	µg of Carbon/g	6.11E+03	3.27E+03
AX-103			

Data Entered By:

GJH

Date: 11/18/97

Signature of Chemist:

RWS

Date: 11/19/97

SAMPLE.WB1 REV 1.0

342100ML

TIC/TOC : LA-342-100 (E-0)

SOLIDS

		TIC	TOC
Type	Sample Size in g (SS)	0.0779	0.0779
DUP	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	456.6	324.8
21134	µg of Carbon from Baseline (C2)	7.4	29.2
Test Code	Known µg of C from Original Sample	6.11E+3	3.27E+3
@TICTOC1			
Matrix			
SOLID			
Batch Number			
97005335			
Rerun			
0			
Sample Prep			
N/A			
Sample #			
S97T001947			
Instrument Code			
CARB2			
Prepared By			
GJH			
Chemist			
RWS			
Analyst			
JDS			
Date Complete			
11/18/97			
Analysis Date			
11/14/97			
Analysis Time	Method Detection Limit in ug/g	5	40
05:20 AM			
Sample Point	µg of Carbon/g	5.77E+03	3.79E+03
AX-103			

$\mu\text{g of Carbon/g} = (C1 - C2) * DF / SS$
 $\mu\text{g of Carbon/g for TIC} = 5 \text{ if } C1 < C2$
 $\mu\text{g of Carbon/g for TOC} = 40 \text{ if } C1 < C2$

Data Entered By:

GJH

Date: 11/18/97

Signature of Chemist:

RW Schneider

Date: 11/19/97

SAMPLE.WB1 REV 1.0

342100ML

11/18/97

09:41:20

432

WORKBOOK PAGE: SPIKE5

TIC/TOC : LA-342-100 (E-0)

SOLIDS

Type	Sample Vial Data	TIC	TOC
SPK	Sample Size in g (SS)	0.0755	0.0755
Work List	Final Coulometer Reading in μg (C1)	468.7	276.1
21134	Spiked Vial Data		
Test Code	Sample Size in g (SPK SS)	0.0909	0.0909
@TICTOC1	Amount of Spike Std. in mL (SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in μg (C2)	907	692.3
SOLID	Spike Book Number	25N12B	26N12B
Batch Number	Spike Standard Value in $\mu\text{g/mL}$ (SPK CONC)	602	3000
97005335			
Rerun			
0			
Sample Prep			
N/A			
Sample #	Percent Spike Recovery = $(C2 - C1 * (\text{SPK SS}) / \text{SS}) / ((\text{SPK CONC}) * (\text{SPK VOL})) *$		
S97T001947			
Instrument Code	QC Actual in $\mu\text{g/mL}$ = Spike Value ($\mu\text{g/mL}$)		
CARB2	QC Found in $\mu\text{g/mL}$ = (Percent Spike Recovery)*(QC Actual) / 100		
Prepared By			
GJH			
Chemist			
RWS			
Analyst			
JDS			
Date Complete			
11/18/97			
Analysis Date			
11/14/97			
Analysis Time		TIC	TOC
05:20 AM	QC Actual in $\mu\text{g/mL}$	6.02E+02	3.00E+03
Sample Point	QC Found in $\mu\text{g/mL}$	6.85E+02	3.60E+03
AX-103	Percent Spike Recovery	113.9	120.0

Data Entered By:

GJH

Date: 11/18/97

Signature of Chemist:

Rew. Schmed

Date: 11/19/97

LABCORE Completed Worklist Report for Worklist# 21138

Analyst: rws

Instrument: CARB2

Book# TIC 25N12B
TOC 26N12C

Method: LA342-100 Rev/Mod F-0

Worklist Comment: AX-103,TICTOC,gjh

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLNK	0		ATICTOC1 TIC-02	SOLID	1	8.00e-1	0.800	ug/g
1 BLNK	0		ATICTOC1 TOC-02	SOLID	1	1.22e1	12.200	ug/g
2 STD	0		ATICTOC1 TIC-02	SOLID	6.02e02	5.99e2	99.502 % Recovery	
2 STD	0		ATICTOC1 TOC-02	SOLID	3.00e03	2.69e3	89.667 % Recovery	
3 SAMPLE	S97T001945	0	ATICTOC1 TIC-02	SOLID	N/A	1.58e4	5.000	ug/g
3 SAMPLE	S97T001945	0	ATICTOC1 TOC-02	SOLID	N/A	5.50e3	80.000	ug/g
4 DUP	S97T001945	0	ATICTOC1 TIC-02	SOLID	1.58e4	1.46e4	7.895 RPD	
4 DUP	S97T001945	0	ATICTOC1 TOC-02	SOLID	5.50e3	5.32e3	3.327 RPD	
5 SAMPLE	S97T001946	0	ATICTOC1 TIC-02	SOLID	N/A	1.59e4	5.000	ug/g
5 SAMPLE	S97T001946	0	ATICTOC1 TOC-02	SOLID	N/A	4.92e3	80.000	ug/g
6 DUP	S97T001946	0	ATICTOC1 TIC-02	SOLID	1.59e4	1.57e4	1.266 RPD	
6 DUP	S97T001946	0	ATICTOC1 TOC-02	SOLID	4.92e3	5.80e3	16.418 RPD	
7 SPK	S97T001946	0	ATICTOC1 TIC-02	SOLID	100	108	108.000 % Recovery	
7 SPK	S97T001946	0	ATICTOC1 TOC-02	SOLID	100	95.3	95.300 % Recovery	

Final page for worklist# 21138

Analyst Signature

Date

Analyst Signature

Date

RW Schaefer 11/17/97
Reviewer Signature Date

LABCORE Data Entry Template for Worklist# 21138

Analyst: RM Instrument: CARB2 _____ Book# TIC 25N12B
 Method: LA-342-100 Rev/Mod F-0 TOC 26N12B
 Worklist Comment: AX-103,TICTOC,gjh

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			@TICTOC1	SOLID		
2 STD			@TICTOC1	SOLID		
3 SAMPLE	S97T001945 0		@TICTOC1	SOLID	97000495	AX-103
	Analytes Requested: TIC-02 , TOC-02					
4 DUP	S97T001945 0		@TICTOC1	SOLID		
5 SAMPLE	S97T001946 0		@TICTOC1	SOLID	97000495	AX-103
	Analytes Requested: TIC-02 , TOC-02					
6 DUP	S97T001946 0		@TICTOC1	SOLID		
7 SPK	S97T001946 0		@TICTOC1	SOLID		

Final page for worklist # 21138

RS McCown 11/13/97
 Analyst Signature Date

 Analyst Signature Date

Data Entry Comments:

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

HNF-SD-WM-DP-266, REV.0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BASE-2

Date: 11/13/97

Time: 12:25:16

Sample Size = 1 uL

Analyst : PJ MCCOWN

Dil Factor = 1

Min Readings = 22

Blank ID # = BASE-2

Max Readings = 22

Blank Value = N/A

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.20	100.00
3	1.01	0.50	60.00
4	1.50	0.70	28.57
5	2.00	0.90	22.22
6	2.50	1.30	30.77
7	3.00	1.50	13.33
8	3.50	1.70	11.76
9	4.00	2.00	15.00
10	4.50	2.20	9.09
11	5.00	2.50	12.00
12	5.50	2.80	10.71
13	6.00	3.00	6.67
14	6.50	3.20	6.25
15	7.00	3.50	8.57
16	7.50	3.80	7.89
17	8.00	4.00	5.00
18	8.50	4.20	4.76
19	9.00	4.50	6.67
20	9.50	4.80	6.25
21	10.00	4.90	2.04
22	10.50	5.10	3.92

BLANK VALUE = 5.1 micrograms carbon

BLANK FACTOR = 5.1 / 10.49896 =

+4.9E-01

ug/min Carbon

Sample Run By:

PJ MCCOWN

00000

HNF-SD-WM-DP-266, REV. 0
TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE-2

Date: 11/13/97

Time: 12:38:03

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE-2
Blank Value = N/A

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==	Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.00	0.70	42.86
4	1.51	1.60	56.25
5	2.00	3.70	56.76
6	2.50	7.60	51.32
7	3.00	11.90	36.13
8	3.50	15.40	22.73
9	4.00	18.00	14.44
10	4.50	19.70	8.63
11	5.00	20.80	5.29
12	5.50	21.60	3.70
13	6.00	22.20	2.70
14	6.50	22.80	2.63
15	7.00	23.40	2.56
16	7.50	24.10	2.90
17	8.00	24.50	1.63
18	8.50	24.90	1.61
19	9.00	25.30	1.58
20	9.50	25.70	1.56
21	10.00	26.00	1.15
22	10.50	26.30	1.14

BLANK VALUE = 26.3 micrograms carbon

BLANK FACTOR = 26.3 / 10.49817 = +2.51E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

PJ MCCOWN

00000

HNF-SD-WM-DP-266, REV.0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 25N12B STD

Date: 11/13/97

Time: 12:57:56

Sample Size = 1000 uL

Dil Factor = 1

Blank ID # =

Blank Value = .49 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.50	100.00
3	1.01	1.30	61.54
4	1.50	28.90	95.50
5	2.00	141.80	79.62
6	2.50	290.90	51.25
7	3.00	417.20	30.27
8	3.50	501.50	16.81
9	4.00	551.90	9.13
10	4.50	578.80	4.65
11	5.00	591.10	2.08
12	5.50	596.60	0.92
13	6.00	599.20	0.43
14	6.50	600.60	0.23
15	7.00	601.50	0.15
16	7.50	601.90	0.07
17	8.00	602.60	0.12
18	8.50	602.90	0.05
19	9.00	603.30	0.07
20	9.50	603.70	0.07
21	10.00	604.10	0.07
22	10.50	604.40	0.05

USER INPUT BLANK VALUE

BLANK VALUE = 5.144103 micrograms carbon

BLANK FACTOR = 5.144103 / 10.49817 = +4.9E-01 ug/min Carbon

SAMPLE RESULTS:

(604.4 - 5.144043) (1)/(1000) = +5.993E-01 g/L Carbon
 (604.4 - 5.144043) (1)/(1000) (12) = +4.994E-02 Molar Carbon

Sample Run By:

PJ McCown

11/13/97

PJ MCCOWN

00000

1.0 mL

25N12B

HNF-SD-WM-DP-266, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 26N12-B STD Date: 11/13/97 Time: 13:10:12

Sample Size = 200 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.51 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.50	100.00
3	1.01	0.80	37.50
4	1.51	7.30	89.04
5	2.00	53.10	86.25
6	2.50	153.50	65.41
7	3.00	290.70	47.20
8	3.50	413.30	29.66
9	4.00	487.80	15.27
10	4.50	526.20	7.30
11	5.00	545.60	3.56
12	5.50	553.90	1.50
13	6.00	557.70	0.68
14	6.50	559.40	0.30
15	7.00	560.40	0.18
16	7.50	561.30	0.16
17	8.00	561.90	0.11
18	8.50	562.40	0.09
19	9.00	562.90	0.09
20	9.50	563.30	0.07
21	10.00	563.70	0.07
22	10.50	564.10	0.07

USER INPUT BLANK VALUE

BLANK VALUE = 26.3504 micrograms carbon

BLANK FACTOR = 26.3504 / 10.49817 = +2.5E+00 ug/min Carbon

SAMPLE RESULTS:

(564.1 - 26.3504) (1) / (200) = +2.689E+00 g/L Carbon
 (564.1 - 26.3504) (1) / (200) (12) = +2.241E-01 Molar Carbon
 <<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>

Sample Run By:

PJ MCCOWN11/13/97

PJ MCCOWN

00000

.200mL

26N12B

HNF-SD-WM-DP-266, REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-2

Date: 11/13/97

Time: 13:25:33

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .49 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.00	0.70	42.86
4	1.50	1.00	30.00
5	2.00	1.30	23.08
6	2.50	1.50	13.33
7	3.00	1.80	16.67
8	3.50	2.10	14.29
9	4.00	2.40	12.50
10	4.50	2.70	11.11
11	5.00	2.90	6.90
12	5.50	3.20	9.37
13	6.00	3.50	8.57
14	6.50	3.70	5.41
15	7.00	4.00	7.50
16	7.50	4.20	4.76
17	8.00	4.50	6.67
18	8.50	4.90	8.16
19	9.00	5.10	3.92
20	9.50	5.30	3.77
21	10.00	5.60	5.36
22	10.50	5.90	5.08

USER INPUT BLANK VALUE

BLANK VALUE = 5.144103 micrograms carbon

BLANK FACTOR = 5.144103 / 10.49817 = +4.9E-01 ug/min Carbon

SAMPLE RESULTS:

(5.9 - 5.144013) (1)/(1)	=	+7.6E-01	g/L Carbon
(5.9 - 5.144013) (1)/(1) (12)	=	+6.3E-02	Molar Carbon

Sample Run By:

PJ MCCOWN

00000

HNF-SD-WM-DP-266, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-2

Date: 11/13/97

Time: 14:44:06

Sample Size = 1 uL

Analyst : PJ MCCOWN

Dil Factor = 1

Min Readings = 22

Blank ID # =

Max Readings = 22

Blank Value = 2.51 ug/minute C

% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.50	100.00
3	1.00	0.90	44.44
4	1.50	1.80	50.00
5	2.00	3.40	47.06
6	2.50	5.50	38.18
7	3.00	7.30	24.66
8	3.50	8.50	14.12
9	4.00	9.60	11.46
10	4.50	10.10	4.95
11	5.00	10.60	4.72
12	5.50	11.00	3.64
13	6.00	11.30	2.65
14	6.50	11.70	3.42
15	7.00	12.00	2.50
16	7.50	12.30	2.44
17	8.00	12.60	2.38
18	8.50	12.90	2.33
19	9.00	13.20	2.27
20	9.50	13.50	2.22
21	10.00	13.80	2.17
22	10.50	14.10	2.13

USER INPUT BLANK VALUE

BLANK VALUE = 26.3504 micrograms carbon

BLANK FACTOR = 26.3504 / 10.49817 = +2.5E+00 ug/min Carbon

SAMPLE RESULTS:

(14.1 - 26.34995) (1)/(1) = < 5.00 E-3 g/L Carbon
 (14.1 - 26.34995) (1)/(1) (12) = < 4.17 E-4 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By: *Blm*

PJ MCCOWN

00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T001945-2 Date: 11/13/97 Time: 15:15:23

Sample Size = 1 uL Analyst : PJ MCCOWN
Dil Factor = 1 Min Readings = 22
Blank ID # = Max Readings = 22
Blank Value = .49 ug/minute C % Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.50	100.00
3	1.01	1.60	68.75
4	1.51	173.60	99.08
5	2.01	664.60	73.88
6	2.50	1041.30	36.18
7	3.00	1274.30	18.28
8	3.50	1404.30	9.26
9	4.00	1480.20	5.13
10	4.50	1523.30	2.83
11	5.00	1545.70	1.45
12	5.50	1556.20	0.67
13	6.00	1560.80	0.29
14	6.50	1563.90	0.20
15	7.00	1565.70	0.11
16	7.50	1567.10	0.09
17	8.00	1568.40	0.08
18	8.50	1569.50	0.07
19	9.00	1570.50	0.06
20	9.50	1571.30	0.05
21	10.00	1572.00	0.04
22	10.50	1572.70	0.04

USER INPUT BLANK VALUE

BLANK VALUE = 5.144103 micrograms carbon

BLANK FACTOR = 5.144103 / 10.49817 = +4.9E-01 ug/min Carbon

SAMPLE RESULTS:

(1572.7 - 5.145) (1)/(1) = +1.5676E+03 g/L Carbon
(1572.7 - 5.145) (1)/(1) (12) = +1.3063E+02 Molar Carbon

Sample Run By: PJ MCCOWN

PJ MCCOWN

00000

.0994g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T001945-2

Date: 11/13/97

Time: 16:01:25

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.51 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	1.00	100.00
3	1.00	2.00	50.00
4	1.50	28.20	92.91
5	2.00	104.10	72.91
6	2.50	201.10	48.23
7	3.00	307.90	34.69
8	3.50	401.40	23.29
9	4.00	468.90	14.40
10	4.50	511.70	8.36
11	5.00	536.10	4.55
12	5.50	550.10	2.54
13	6.00	557.10	1.26
14	6.50	561.30	0.75
15	7.00	564.00	0.48
16	7.50	566.30	0.41
17	8.00	567.90	0.28
18	8.50	569.20	0.23
19	9.00	570.40	0.21
20	9.50	571.50	0.19
21	10.00	572.40	0.16
22	10.50	573.20	0.14

USER INPUT BLANK VALUE

BLANK VALUE = 26.3504 micrograms carbon

BLANK FACTOR = 26.3504 / 10.49817 = +2.5E+00 ug/min Carbon

SAMPLE RESULTS:

(573.2 - 26.34795) (1)/(1) = +5.469E+02 g/L Carbon
 (573.2 - 26.34795) (1)/(1) (12) = +4.557E+01 Molar Carbon
 <<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>

Sample Run By:

 PJ MCCOWN

00000

.0994g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1945 DUP-2

Date: 11/13/97

Time: 16:15:30

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .49 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.50	100.00
3	1.01	1.30	61.54
4	1.51	70.10	98.15
5	2.00	256.00	72.62
6	2.50	412.20	37.89
7	3.00	516.00	20.12
8	3.50	579.70	10.99
9	4.00	618.60	6.29
10	4.50	643.60	3.88
11	5.00	658.20	2.22
12	5.50	664.60	0.96
13	6.00	667.30	0.40
14	6.50	669.30	0.30
15	7.00	670.50	0.18
16	7.50	671.50	0.15
17	8.00	672.50	0.15
18	8.50	673.20	0.10
19	9.00	674.00	0.12
20	9.50	674.70	0.10
21	10.00	675.20	0.07
22	10.50	675.80	0.09

USER INPUT BLANK VALUE

BLANK VALUE = 5.144103 micrograms carbon

BLANK FACTOR = 5.144103 / 10.49817 =

+4.9E-01

ug/min Carbon

SAMPLE RESULTS:

(675.8 - 5.145) (1)/(1) =

+6.707E+02 g/L Carbon

(675.8 - 5.145) (1)/(1) (12) =

+5.589E+01 Molar Carbon

Sample Run By:

PJ MCCOWN

00000

.0459g

HNF-SD-WM-DP-266, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1945 DUP-2

Date: 11/13/97

Time: 16:27:17

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.51 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.70	100.00
3	1.01	1.20	41.67
4	1.51	6.50	81.54
5	2.00	33.50	80.60
6	2.50	80.70	58.49
7	3.00	137.00	41.09
8	3.50	186.50	26.54
9	4.00	220.40	15.38
10	4.50	241.50	8.74
11	5.00	251.70	4.05
12	5.50	257.50	2.25
13	6.00	260.70	1.23
14	6.50	262.90	0.84
15	7.00	264.20	0.49
16	7.50	265.40	0.45
17	8.00	266.50	0.41
18	8.50	267.50	0.37
19	9.00	268.30	0.30
20	9.50	269.10	0.30
21	10.00	269.80	0.26
22	10.50	270.30	0.18

USER INPUT BLANK VALUE

BLANK VALUE = 26.3504 micrograms carbon

BLANK FACTOR = 26.3504 / 10.49817 = +2.5E+00 ug/min Carbon

SAMPLE RESULTS:

(270.3 - 26.3504) (1)/(1) = +2.439E+02 g/L Carbon
 (270.3 - 26.3504) (1)/(1) (12) = +2.033E+01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By: *PJm*

PJ MCCOWN

00000

,0459g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97TOO1946-2

Date: 11/13/97

Time: 16:44:23

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .49 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.20	100.00
3	1.01	17.50	98.86
4	1.51	212.70	91.77
5	2.00	460.30	53.79
6	2.50	634.80	27.49
7	3.00	752.70	15.66
8	3.50	824.10	8.66
9	4.00	865.40	4.77
10	4.50	888.10	2.56
11	5.00	898.90	1.20
12	5.50	903.70	0.53
13	6.00	906.20	0.28
14	6.50	907.90	0.19
15	7.00	909.10	0.13
16	7.50	910.20	0.12
17	8.00	911.10	0.10
18	8.50	912.10	0.11
19	9.00	912.80	0.08
20	9.50	913.50	0.08
21	10.00	914.20	0.08
22	10.50	914.70	0.05

USER INPUT BLANK VALUE

BLANK VALUE = 5.144103 micrograms carbon

BLANK FACTOR = 5.144103 / 10.49817 =

+4.9E-01

ug/min Carbon

SAMPLE RESULTS:

(914.7 - 5.144492) (1)/(1) =

+9.096E+02 g/L Carbon

(914.7 - 5.144492) (1)/(1) (12) =

+7.580E+01 Molar Carbon

Sample Run By:

PJ MCCOWN

00000

.0581g

HNF-SD-WM-DP-266, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T001946-2

Date: 11/13/97

Time: 16:56:25

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.51 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.80	100.00
3	1.01	1.30	38.46
4	1.50	8.80	85.23
5	2.00	51.50	82.91
6	2.50	114.10	54.86
7	3.00	184.60	38.19
8	3.50	244.20	24.41
9	4.00	289.70	15.71
10	4.50	318.10	8.93
11	5.00	334.20	4.82
12	5.50	343.40	2.68
13	6.00	348.70	1.52
14	6.50	352.30	1.02
15	7.00	354.70	0.68
16	7.50	356.60	0.53
17	8.00	358.00	0.39
18	8.50	359.30	0.36
19	9.03	360.50	0.33
20	9.53	361.70	0.33
21	10.03	362.30	0.17
22	10.53	363.20	0.25

USER INPUT BLANK VALUE

BLANK VALUE = 26.3504 micrograms carbon

BLANK FACTOR = 26.3504 / 10.49817 = +2.5E+00 ug/min Carbon

SAMPLE RESULTS:

(363.2 - 26.43528) (1) / (1) = +3.368E+02 g/L Carbon
 (363.2 - 26.43528) (1) / (1) (12) = +2.806E+01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By: *PJM*

PJ MCCOWN

00000

.0581g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1946 DUP-2

Date: 11/13/97

Time: 17:13:11

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .49 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	1.20	66.67
4	1.51	102.40	98.83
5	2.00	440.60	76.76
6	2.50	735.00	40.05
7	3.00	931.40	21.09
8	3.50	1048.70	11.19
9	4.00	1117.30	6.14
10	4.50	1158.50	3.56
11	5.00	1179.00	1.74
12	5.50	1188.40	0.79
13	6.00	1192.30	0.33
14	6.50	1194.60	0.19
15	7.00	1196.10	0.13
16	7.50	1197.50	0.12
17	8.00	1198.40	0.08
18	8.50	1199.50	0.09
19	9.00	1200.40	0.07
20	9.50	1201.10	0.06
21	10.00	1201.90	0.07
22	10.50	1202.60	0.06

USER INPUT BLANK VALUE

BLANK VALUE = 5.144103 micrograms carbon

BLANK FACTOR = 5.144103 / 10.49817 = +4.9E-01 ug/min Carbon

SAMPLE RESULTS:

(1202.6 - 5.144492) (1)/(1) =

+1.1975E+03 g/L Carbon

(1202.6 - 5.144492) (1)/(1) (12) =

+9.9788E+01 Molar Carbon

Sample Run By:

PJ MCCOWN

00000

.0753g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1946 DUP-2

Date: 11/13/97

Time: 17:25:47

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.51 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.80	100.00
3	1.01	2.20	63.64
4	1.50	23.20	90.52
5	2.00	77.90	70.22
6	2.50	146.80	46.93
7	3.00	219.90	33.24
8	3.50	281.60	21.91
9	4.00	327.10	13.91
10	4.50	355.10	7.89
11	5.00	370.90	4.26
12	5.50	379.20	2.19
13	6.00	383.70	1.17
14	6.50	386.60	0.75
15	7.00	389.00	0.62
16	7.50	390.50	0.38
17	8.00	392.00	0.38
18	8.50	393.20	0.31
19	9.00	394.40	0.30
20	9.50	395.40	0.25
21	10.00	396.30	0.23
22	10.50	397.10	0.20

USER INPUT BLANK VALUE

BLANK VALUE = 26.3504 micrograms carbon

BLANK FACTOR = 26.3504 / 10.49817 = +2.5E+00 ug/min Carbon

SAMPLE RESULTS:

(397.1 - 26.3504) (1)/(1) = +3.707E+02 g/L Carbon
 (397.1 - 26.3504) (1)/(1) (12) = +3.090E+01 Molar Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

 PJ MCCOWN

00000

.0753g

HNF-SD-WM-DP-266, REV.0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1946 SPK-2

Date: 11/13/97

Time: 17:44:08

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .49 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	1.20	100.00
3	1.01	2.70	55.56
4	1.51	90.50	97.02
5	2.00	385.90	76.55
6	2.50	735.70	47.55
7	3.00	1021.60	27.99
8	3.50	1209.30	15.52
9	4.00	1318.70	8.30
10	4.50	1379.80	4.43
11	5.00	1414.80	2.47
12	5.50	1433.70	1.32
13	6.00	1441.60	0.55
14	6.50	1445.40	0.26
15	7.00	1447.60	0.15
16	7.50	1449.40	0.12
17	8.00	1450.70	0.09
18	8.50	1451.90	0.08
19	9.00	1453.10	0.08
20	9.50	1454.00	0.06
21	10.00	1454.90	0.06
22	10.50	1455.80	0.06

USER INPUT BLANK VALUE

BLANK VALUE = 5.144103 micrograms carbon

BLANK FACTOR = 5.144103 / 10.49817 = +4.9E-01 ug/min Carbon

SAMPLE RESULTS:

(1455.8 - 5.144522) (1)/(1) = +1.4507E+03 g/L Carbon
 (1455.8 - 5.144522) (1)/(1) (12) = +1.2089E+02 Molar Carbon

Sample Run By:

PJ MCCOWN

00000

.0708g

+ .500 mL 25N/2 B

HNF-SD-WM-DP-266, REV. 0
 TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
 TIC/TOC REV 2.0

Sample: 1946 SPK-2

Date: 11/13/97

Time: 17:56:59

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.51 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.70	100.00
3	1.01	1.40	50.00
4	1.51	9.90	85.86
5	2.00	53.60	81.53
6	2.50	118.20	54.65
7	3.00	203.70	41.97
8	3.50	313.80	35.09
9	4.00	425.50	26.25
10	4.50	514.90	17.36
11	5.00	572.60	10.08
12	5.50	607.80	5.79
13	6.00	628.90	3.36
14	6.50	639.60	1.67
15	7.00	645.00	0.84
16	7.50	648.60	0.56
17	8.00	651.10	0.38
18	8.50	653.20	0.32
19	9.00	654.80	0.24
20	9.50	656.40	0.24
21	10.00	657.80	0.21
22	10.50	659.40	0.24

USER INPUT BLANK VALUE

BLANK VALUE = 26.3504 micrograms carbon

BLANK FACTOR = 26.3504 / 10.49817 =

+2.5E+00

ug/min Carbon

SAMPLE RESULTS:

(659.4 - 26.3504) (1)/(1) =

+6.330E+02 g/L Carbon

(659.4 - 26.3504) (1)/(1) (12) =

+5.275E+01 Molar Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By: *PJ*

PJ MCCOWN

00000

.0708 g

+ .100 26N12 B

451

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (E-0)

SOLIDS

		TIC	TOC
Type	Sample Size in g (SS)	0.0000	0.0000
BLNK	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	5.9	14.1
21138	µg of Carbon from Baseline (C2)	5.1	26.3

Test Code
@TICTOC1
Matrix
SOLID
Batch Number
97005340
Rerun
0
Sample Prep
N/A
Sample #
BLANK
Instrument Code
CARB2
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
11/14/97
Analysis Date
11/13/97
Analysis Time
05:00 PM
Sample Point
AX-103

µg of Carbon = |C1-C2|

TIC	TOC
5	40
8.00E-01	1.22E+01

Data Entered By:	RCJ	Date:	11/14/97
Signature of Chemist:	<i>RW Schmoed</i>	Date:	11/17/97

BLANK.WB1 REV 1.0

342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	1.0000	0.2000
STD	Dilution Factor (DF)	1	1
Work List	Final Coulometer Reading in μg (C1)	604.4	564.1
21138	μg of Carbon from Baseline (C2)	5.1	26.3
Test Code	Standard Book Number	25N12B	26N12B
@TICTOC1	Standard Value ($\mu\text{g}/\text{mL}$)	602	3000

Matrix
LIQUID
Batch Number
97005340
Rerun
0
Sample Prep
N/A
Sample #
STANDARD
Instrument Code
CARB2
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
11/14/97
Analysis Date
11/13/97
Analysis Time
05:00 PM
Sample Point
AX-103

QC Actual in $\mu\text{g}/\text{mL}$ = Standard Value ($\mu\text{g}/\text{mL}$)QC Found in $\mu\text{g}/\text{mL}$ = (C1 - C2) * DF / SSQC Found in $\mu\text{g}/\text{mL}$ for TIC = 5 if C1 < C2QC Found in $\mu\text{g}/\text{mL}$ for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

TIC	TOC
5	40
6.02E+02	3.00E+03
5.99E+02	2.69E+03
99.6	89.6

Data Entered By:	RCJ	Date:	11/14/97
Signature of Chemist:	<i>PJM</i>	Date:	11/17/97

STANDARD.WB1 REV 1.0

342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (E-0)

SOLIDS

		TIC	TOC
Type	Sample Size in g (SS)	0.0994	0.0994
SAMPLE	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	1572.7	573.2
21138	µg of Carbon from Baseline (C2)	5.1	26.3
Test Code			
@TICTOC1			
Matrix			
SOLID			
Batch Number			
97005340			
Rerun	µg of Carbon/g = (C1-C2) * DF / SS		
0	µg of Carbon/g for TIC = 5 if C1 < C2		
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2		
N/A			
Sample #			
S97T001945			
Instrument Code			
CARB2			
Prepared By			
RCJ			
Chemist			
RWS			
Analyst			
PJM			
Date Complete			
11/14/97			
Analysis Date			
11/13/97			
Analysis Time	Method Detection Limit in ug/g	TIC	TOC
05:00 PM		5	40
Sample Point	µg of Carbon/g	1.58E+04	5.50E+03
AX-103			

Data Entered By:	RCJ	Date:	11/14/97
Signature of Chemist:	<i>DeW Schmoed</i>	Date:	11/17/97

SAMPLE.WB1 REV 1.0

342100ML

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (E-0)

SOLIDS

		TIC	TOC
Type	Sample Size in g (SS)	0.0459	0.0459
DUP	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	675.8	270.3
21138	µg of Carbon from Baseline (C2)	5.1	26.3
Test Code	Known µg of C from Original Sample	1.58E+4	5.60E+3
@TICTOC1			
Matrix			
SOLID			
Batch Number			
97005340			
Rerun	µg of Carbon/g = (C1-C2) * DF / SS		
0	µg of Carbon/g for TIC = 5 if C1 < C2		
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2		
N/A			
Sample #			
S97T001945			
Instrument Code			
CARB2			
Prepared By			
RCJ			
Chemist			
RWS			
Analyst			
PJM			
Date Complete			
11/14/97			
Analysis Date			
11/13/97			
Analysis Time	Method Detection Limit in ug/g	TIC	TOC
05:00 PM		5	40
Sample Point	µg of Carbon/g	1.46E+04	5.32E+03
AX-103			

Data Entered By:

RCJ

Date: 11/14/97

Signature of Chemist:

Dw. Schneider

Date: 11/17/97

SAMPLE.WB1 REV 1.0

342100ML

WORKBOOK PAGE: SAM5

TIC/TOC : LA-342-100 (E-0)

SOLIDS

		TIC	TOC
Type	Sample Size in g (SS)	0.0753	0.0753
SAMPLE	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	1202.6	397.1
21138	µg of Carbon from Baseline (C2)	5.1	26.3
Test Code			
@TICTOC1			
Matrix			
SOLID			
Batch Number			
97005340			
Rerun	µg of Carbon/g = (C1-C2) * DF / SS		
0	µg of Carbon/g for TIC = 5 if C1 < C2		
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2		
N/A			
Sample #			
S97T001946			
Instrument Code			
CARB2			
Prepared By			
RCJ			
Chemist			
RWS			
Analyst			
PJM			
Date Complete			
11/14/97			
Analysis Date			
11/13/97			
Analysis Time	Method Detection Limit in ug/g	5	40
05:00 PM			
Sample Point	µg of Carbon/g	1.59E+04	4.92E+03
AX-103			

Data Entered By:	RCJ	Date:	11/14/97
Signature of Chemist:	<i>RCJ</i>	Date:	11/17/97

SAMPLE.WB1 REV 1.0

342100ML

WORKBOOK PAGE: DUP6

TIC/TOC : LA-342-100 (E-0)			SOLIDS	
Type	Sample Size in g	(SS)	TIC	TOC
DUP	Dilution Factor	(DF)	0.0581	0.0581
Work List	µg of Carbon in Sample	(C1)	914.7	363.2
21138	µg of Carbon from Baseline	(C2)	5.1	26.3
Test Code	Known µg of C from Original Sample			
@TICTOC1				
Matrix				
SOLID				
Batch Number				
97005340				
Rerun	µg of Carbon/g = (C1-C2) * DF / SS			
0	µg of Carbon/g for TIC = 5 if C1 < C2			
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2			
N/A				
Sample #				
S97T001946				
Instrument Code				
CARB2				
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
PJM				
Date Complete				
11/14/97				
Analysis Date				
11/13/97				
Analysis Time	Method Detection Limit in ug/g		TIC	TOC
05:00 PM			5	40
Sample Point	µg of Carbon/g		1.57E+04	5.80E+03
AX-103				

Data Entered By:	RCJ	Date:	11/14/97
Signature of Chemist:	<i>Ben Schwed</i>	Date:	11/17/97

SAMPLE.WB1 REV 1.0

342100ML

WORKBOOK PAGE: SPIKE7

TIC/TOC : LA-342-100 (E-0)

SOLIDS

Type	Sample Vial Data	TIC	TOC
SPK	Sample Size in g (SS)	0.0753	0.0753
Work List	Final Coulometer Reading in μg (C1)	1202.6	397.1
21138	Spiked Vial Data		
Test Code	Sample Size in g (SPK SS)	0.0708	0.0708
@TIC/TOC1	Amount of Spike Std. in mL (SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in μg (C2)	1455.8	659.4
SOLID	Spike Book Number	25N12B	26N12B
Batch Number	Spike Standard Value in $\mu\text{g/mL}$ (SPK CONC)	602	3000
97005340			
Rerun			
0			
Sample Prep			
N/A			
Sample #	Percent Spike Recovery = $(C2 - C1 * (\text{SPK SS}) / \text{SS}) / ((\text{SPK CONC}) * (\text{SPK VOL})) * 100$		
S97T001946			
Instrument Code	QC Actual in $\mu\text{g/mL}$ = Spike Value ($\mu\text{g/mL}$)		
CARB2	QC Found in $\mu\text{g/mL}$ = (Percent Spike Recovery) * (QC Actual) / 100		
Prepared By			
RCJ			
Chemist			
RWS			
Analyst			
PJM			
Date Complete			
11/14/97			
Analysis Date			
11/13/97			
Analysis Time		TIC	TOC
05:00 PM	QC Actual in $\mu\text{g/mL}$	6.02E+02	3.00E+03
Sample Point	QC Found in $\mu\text{g/mL}$	6.50E+02	2.86E+03
AX-103	Percent Spike Recovery	108.0	95.3

Data Entered By:	RCJ	Date: 11/14/97
Signature of Chemist:	<i>Ron Schmitt</i>	Date: 11/17/97

SPIKE WB1 REV 1.1

342100ML

LABCORE Completed Worklist Report for Worklist# 21208

Analyst: rdm

Instrument: CARB2

Book# 25N12B
26N12B

Method: LA 342-100 Rev/Mod F-0

Worklist Comment: AX-103 TICTOC. gjh

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK	0			@TICTOC1 TIC-02	SOLID	1	7.60E+0	7.600	ug/g
1	BLNK	0			@TICTOC1 TOC-02	SOLID	1	9.00E-1	0.900	ug/g
2	STD	0			@TICTOC1 TIC-02	SOLID	6.02E+02	6.08E+2	100.957 %	Recovery
2	STD	0			@TICTOC1 TOC-02	SOLID	3.00E+03	2.89E+3	96.333 %	Recovery
3	SAMPLE	S97T001948	0		@TICTOC1 TIC-02	SOLID	N/A	3.55E+03	5.000	ug/g
3	SAMPLE	S97T001948	0		@TICTOC1 TOC-02	SOLID	N/A	3.53E+03	40.000	ug/g
4	DUP	S97T001948	0		@TICTOC1 TIC-02	SOLID	3.55E+3	3.41E+3	4.023	RPD
4	DUP	S97T001948	0		@TICTOC1 TOC-02	SOLID	3.53E+3	3.57E+3	1.127	RPD
5	SPK	S97T001948	0		@TICTOC1 TIC-02	SOLID	1.00E+02	1.04E+02	104.000 %	Recovery
5	SPK	S97T001948	0		@TICTOC1 TOC-02	SOLID	1.00E+02	9.34E+01	93.400 %	Recovery

Final page for worklist# 21208

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

RW Schneider 11/20/97
Reviewer Signature Date

LABCORE Data Entry Template for Worklist# 21208

Analyst: Instrument: CARB2 Book# 25N128
26N123

Method: LA-342-100 Rev/Mod

Worklist Comment: AX-103 TICTOC. gjh

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			@TICTOC1	SOLID		
2 STD			@TICTOC1	SOLID		
3 SAMPLE	S97T001948 0		@TICTOC1	SOLID	97000495	AX-103
	Analytes Requested: TIC-02 , TOC-02					
4 DUP	S97T001948 0		@TICTOC1	SOLID		
5 SPK	S97T001948 0		@TICTOC1	SOLID		

Final page for worklist # 21208

Analyst Signature Date

 11-19-97
Analyst Signature Date

Data Entry Comments:

HNF-SD-WM-DP-266, REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE

Date: 11/19/97

Time: 09:24:55

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE
Blank Value = N/AAnalyst : RD MEYERS
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.10	0.00
2	1.01	0.30	66.67
3	1.51	0.40	25.00
4	2.00	0.50	20.00
5	2.50	0.70	28.57
6	3.00	1.10	36.36
7	3.50	1.30	15.38
8	4.00	1.50	13.33
9	4.50	1.70	11.76
10	5.00	1.90	10.53
11	5.50	2.00	5.00
12	6.00	2.20	9.09
13	6.50	2.30	4.35
14	7.00	2.50	8.00
15	7.50	2.60	3.85
16	8.00	2.70	3.70
17	8.50	2.90	6.90
18	9.00	3.00	3.33
19	9.50	3.10	3.23
20	10.00	3.30	6.06
21	10.50	3.40	2.94
22	11.00	3.60	5.56

BLANK VALUE = 3.6 micrograms carbon

BLANK FACTOR = 3.6 / 10.99988 =

+3.3E-01

ug/min Carbon

Sample Run By:

RD MEYERS

RD Schneider for RD Meyers 11/20/97
00000SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 461 TO 477

HNF-SD-WM-DP-266, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0 <<< BLANK ANALYSIS >>>

Sample: BASE

Date: 11/19/97

Time: 09:39:12

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE
Blank Value = N/A

Analyst : RD MEYERS
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	0.30	66.67
3	1.51	0.50	40.00
4	2.00	1.70	70.59
5	2.50	4.20	59.52
6	3.01	7.60	44.74
7	3.50	10.60	28.30
8	4.00	13.90	23.74
9	4.50	16.70	16.77
10	5.00	18.80	11.17
11	5.50	20.50	8.29
12	6.00	21.80	5.96
13	6.50	22.60	3.54
14	7.00	23.20	2.59
15	7.50	23.80	2.52
16	8.00	24.20	1.65
17	8.50	24.60	1.63
18	9.00	25.00	1.60
19	9.50	25.30	1.19
20	10.00	25.60	1.17
21	10.50	25.80	0.78
22	11.00	26.10	1.15

BLANK VALUE = 26.1 micrograms carbon

BLANK FACTOR = 26.1 / 10.99878 = +2.37E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

RD MEYERS

00000

HNFDSDWM DP266, REV.0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: 25N12-B

Date: 11/19/97

Time: 10:17:13

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .33 ug/minute C

Analyst : RD MEYERS

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.30	0.00
2	1.01	0.70	57.14
3	1.50	0.90	22.22
4	2.00	5.30	83.02
5	2.50	49.40	89.27
6	3.00	152.30	67.56
7	3.50	273.40	44.29
8	4.00	382.20	28.47
9	4.50	464.60	17.74
10	5.00	521.40	10.89
11	5.50	558.80	6.69
12	6.00	582.40	4.05
13	6.50	595.40	2.18
14	7.00	602.40	1.16
15	7.50	606.10	0.61
16	8.00	607.80	0.28
17	8.50	609.00	0.20
18	9.00	609.70	0.11
19	9.50	610.40	0.11
20	10.00	610.80	0.07
21	10.50	611.40	0.10
22	11.00	611.60	0.03

USER INPUT BLANK VALUE

BLANK VALUE = 3.629597 micrograms carbon

BLANK FACTOR = 3.629597 / 10.99878 = +3.3E-01 ug/min Carbon

SAMPLE RESULTS:

(611.6 - 3.628731) (1)/(1) = +6.080E+02 g/L Carbon
(611.6 - 3.628731) (1)/(1)(12) = +5.066E+01 Molar Carbon

Sample Run By:

RD MEYERS

00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 26N12-B

Date: 11/19/97

Time: 10:30:33

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.37 ug/minute C

Analyst : RD MEYERS

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.30	0.00
2	1.01	0.70	57.14
3	1.50	1.10	36.36
4	2.00	3.70	70.27
5	2.50	15.10	75.50
6	3.00	46.70	67.67
7	3.50	105.10	55.57
8	4.00	188.00	44.10
9	4.50	283.50	33.69
10	5.00	374.40	24.28
11	5.50	452.20	17.20
12	6.00	508.20	11.02
13	6.50	546.50	7.01
14	7.00	570.60	4.22
15	7.50	585.30	2.51
16	8.00	592.90	1.28
17	8.50	597.20	0.72
18	9.00	599.80	0.43
19	9.50	601.70	0.32
20	10.00	602.80	0.18
21	10.50	603.70	0.15
22	11.00	604.50	0.13

USER INPUT BLANK VALUE

BLANK VALUE = 26.06711 micrograms carbon

BLANK FACTOR = 26.06711 / 10.99878 = +2.4E+00 ug/min Carbon

SAMPLE RESULTS:

(604.5 - 26.0606) (1)/(1) = +5.784E+02 g/L Carbon
 (604.5 - 26.0606) (1)/(1) (12) = +4.820E+01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

RD MEYERS

00000

HNF-SD-WM-DP-266, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLK

Date: 11/19/97

Time: 11:00:25

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.37 ug/minute C

Analyst : RD MEYERS

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.30	0.00
2	1.00	0.50	40.00
3	1.50	0.90	44.44
4	2.00	2.50	64.00
5	2.50	6.00	58.33
6	3.00	10.20	41.18
7	3.50	14.10	27.66
8	4.00	17.60	19.89
9	4.50	19.40	9.28
10	5.00	20.90	7.18
11	5.50	22.10	5.43
12	6.00	22.90	3.49
13	6.50	23.70	3.38
14	7.00	24.20	2.07
15	7.50	24.70	2.02
16	8.00	25.10	1.59
17	8.50	25.50	1.57
18	9.00	25.80	1.16
19	9.50	26.20	1.53
20	10.00	26.60	1.50
21	10.50	26.80	0.75
22	11.00	27.00	0.74

USER INPUT BLANK VALUE

BLANK VALUE = 26.06711 micrograms carbon

BLANK FACTOR = 26.06711 / 10.99878 = +2.4E+00 ug/min Carbon

SAMPLE RESULTS:

(27 - 26.06089) (1)/(1) = +9.39E-01 g/L Carbon
 (27 - 26.06089) (1)/(1) (12) = +7.83E-02 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

RD MEYERS

00000

HNF-SD-WM-DP-266, REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: BLK

Date: 11/19/97

Time: 10:44:55

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .33 ug/minute C

Analyst : RD MEYERS

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.70	0.00
2	1.01	1.20	41.67
3	1.50	2.50	52.00
4	2.00	4.20	40.48
5	2.50	5.70	26.32
6	3.00	6.50	12.31
7	3.50	7.10	8.45
8	4.00	7.60	6.58
9	4.50	7.90	3.80
10	5.00	8.20	3.66
11	5.50	8.50	3.53
12	6.00	8.90	4.49
13	6.50	9.10	2.20
14	7.00	9.30	2.15
15	7.50	9.50	2.11
16	8.00	9.80	3.06
17	8.50	10.10	2.97
18	9.00	10.30	1.94
19	9.50	10.60	2.83
20	10.00	10.80	1.85
21	10.50	11.10	2.70
22	11.00	11.20	0.89

USER INPUT BLANK VALUE

BLANK VALUE = 3.629597 micrograms carbon

BLANK FACTOR = 3.629597 / 10.99878 = +3.3E-01 ug/min Carbon

SAMPLE RESULTS:

(11.2 - 3.629013) (1)/(1) = +7.57E+00 g/L Carbon
(11.2 - 3.629013) (1)/(1) (12) = +6.31E-01 Molar Carbon

Sample Run By:

RD MEYERS

00000

HNF-SD-WM-DP-266, REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: S97T00148

Date: 11/19/97

Time: 12:08:23

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .33 ug/minute C

Analyst : RD MEYERS

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.80	0.00
2	1.00	1.80	55.56
3	1.50	2.10	14.29
4	2.00	4.40	52.27
5	2.50	16.00	72.50
6	3.00	46.90	65.88
7	3.50	98.50	52.39
8	4.00	154.70	36.33
9	4.50	197.60	21.71
10	5.00	227.80	13.26
11	5.50	247.30	7.89
12	6.00	259.00	4.52
13	6.50	265.50	2.45
14	7.00	269.60	1.52
15	7.50	272.30	0.99
16	8.00	273.90	0.58
17	8.50	275.00	0.40
18	9.00	276.00	0.36
19	9.50	276.70	0.25
20	10.00	277.50	0.29
21	10.50	278.20	0.25
22	11.00	278.80	0.22

USER INPUT BLANK VALUE

BLANK VALUE = 3.629597 micrograms carbon

BLANK FACTOR = 3.629597 / 10.99878 = +3.3E-01 ug/min Carbon

SAMPLE RESULTS:

(278.8 - 3.628389) (1)/(1) = +2.752E+02 g/L Carbon
(278.8 - 3.628389) (1)/(1) (12) = +2.293E+01 Molar Carbon

Sample Run By:

RD MEYERS

00000

HNF-SD-WM-DP-266, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T001948

Date: 11/19/97

Time: 12:22:50

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.37 ug/minute C

Analyst : RD MEYERS

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.90	0.00
2	1.00	1.50	40.00
3	1.50	2.30	34.78
4	2.00	5.80	60.34
5	2.50	21.70	73.27
6	3.00	56.60	61.66
7	3.50	105.00	46.10
8	4.00	159.00	33.96
9	4.50	202.90	21.64
10	5.00	235.70	13.92
11	5.50	256.50	8.11
12	6.00	270.70	5.25
13	6.50	279.20	3.04
14	7.00	284.50	1.86
15	7.50	288.70	1.45
16	8.00	291.10	0.82
17	8.50	292.90	0.61
18	9.00	294.80	0.64
19	9.50	296.00	0.41
20	10.00	297.40	0.47
21	10.50	298.20	0.27
22	11.00	299.20	0.33

USER INPUT BLANK VALUE

BLANK VALUE = 26.06711 micrograms carbon

BLANK FACTOR = 26.06711 / 10.99878 = +2.4E+00 ug/min Carbon

SAMPLE RESULTS:

(299.2 - 26.06711) (1)/(1) = +2.731E+02 g/L Carbon
 (299.2 - 26.06711) (1)/(1) (12) = +2.276E+01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

RD MEYERS

00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T001948DUP

Date: 11/19/97

Time: 12:43:59

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .33 ug/minute C

Analyst : RD MEYERS

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.50	0.00
2	1.01	1.10	54.55
3	1.51	2.10	47.62
4	2.01	3.60	41.67
5	2.51	14.40	75.00
6	3.01	40.90	64.79
7	3.51	81.00	49.51
8	4.01	133.80	39.46
9	4.50	181.90	26.44
10	5.00	217.20	16.25
11	5.50	241.30	9.99
12	6.00	256.30	5.85
13	6.50	265.60	3.50
14	7.00	270.90	1.96
15	7.50	274.60	1.35
16	8.00	276.80	0.79
17	8.50	278.20	0.50
18	9.00	279.70	0.54
19	9.50	280.70	0.36
20	10.00	281.80	0.39
21	10.50	282.90	0.39
22	11.00	283.90	0.35

USER INPUT BLANK VALUE

BLANK VALUE = 3.629597 micrograms carbon

BLANK FACTOR = 3.629597 / 10.99878 = +3.3E-01 ug/min Carbon

SAMPLE RESULTS:

(283.9 - 3.630504) (1)/(1) = +2.803E+02 g/L Carbon
 (283.9 - 3.630504) (1)/(1)(12) = +2.336E+01 Molar Carbon

Sample Run By:

RD MEYERS

00000

HNF-SD-WM-DP-266, REV. 0
 HNF-SD-WM-DP-266, REV. 0
 HNF-SD-WM-DP-266, REV. 0
 TOC- TOTAL ORGANIC CARBON REPORT
 TICTOC REV 2.0

Sample: S97T001948DUP Date: 11/19/97 Time: 12:59:26

Sample Size = 1 uL Analyst : RD MEYERS
 Dil Factor = 1 Min Readings = 22
 Blank ID # = Max Readings = 22
 Blank Value = 2.37 ug/minute C % Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference
1	0.51	1.60	0.00
2	1.01	2.60	38.46
3	1.50	3.60	27.78
4	2.00	7.30	50.68
5	2.50	23.80	69.33
6	3.00	59.50	60.00
7	3.50	106.90	44.34
8	4.00	162.10	34.05
9	4.50	211.30	23.28
10	5.00	246.20	14.18
11	5.50	270.20	8.88
12	6.00	286.50	5.69
13	6.50	296.60	3.41
14	7.00	302.60	1.98
15	7.50	307.30	1.53
16	8.00	310.40	1.00
17	8.50	313.20	0.89
18	9.00	314.90	0.54
19	9.50	316.60	0.54
20	10.00	318.00	0.44
21	10.50	319.10	0.34
22	11.00	320.10	0.31

USER INPUT BLANK VALUE

BLANK VALUE = 26.06711 micrograms carbon
 BLANK FACTOR = 26.06711 / 10.99878 = +2.4E+00 ug/min Carbon

SAMPLE RESULTS:

(320.1 - 26.06725) (1)/(1) = +2.940E+02 g/L Carbon
 (320.1 - 26.06725) (1)/(1) (12) = +2.450E+01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By: RD MEYERS 00000

HNF-SD-WM-DP-266, REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: S97T001948SPK Date: 11/19/97 Time: 14:00:16

Sample Size = 1 uL	Analyst : RD MEYERS
Dil Factor = 1	Min Readings = 22
Blank ID # =	Max Readings = 22
Blank Value = .33 ug/minute C	% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==			
1	0.51	0.70	0.00
2	1.01	1.40	50.00
3	1.51	2.40	41.67
4	2.00	7.50	68.00
5	2.50	52.30	85.66
6	3.00	153.40	65.91
7	3.50	285.60	46.29
8	4.00	401.40	28.85
9	4.50	491.50	18.33
10	5.00	547.70	10.26
11	5.50	585.40	6.44
12	6.00	609.30	3.92
13	6.50	622.60	2.14
14	7.00	629.80	1.14
15	7.50	633.80	0.63
16	8.00	636.40	0.41
17	8.50	638.20	0.28
18	9.00	639.50	0.20
19	9.50	640.60	0.17
20	10.00	641.60	0.16
21	10.50	642.50	0.14
22	11.00	643.20	0.11

USER INPUT BLANK VALUE

BLANK VALUE = 3.629597 micrograms carbon

BLANK FACTOR = 3.629597 / 10.99878 = +3.3E-01 ug/min Carbon

SAMPLE RESULTS:

(643.2 - 3.629335) (1) / (1) =	+6.396E+02	g/L Carbon
(643.2 - 3.629335) (1) / (1) (12) =	+5.330E+01	Molar Carbon

Sample Run By:

RD MEYERS

00000

HNF-SD-WM-DP-266, REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: S97T001948SPK

Date: 11/19/97

Time: 14:16:24

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.37 ug/minute C

Analyst : RD MEYERS

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.60	0.00
2	1.01	1.10	45.45
3	1.51	1.60	31.25
4	2.01	7.10	77.46
5	2.51	27.30	73.99
6	3.00	69.80	60.89
7	3.50	133.20	47.60
8	4.00	213.10	37.49
9	4.50	307.30	30.65
10	5.00	399.10	23.00
11	5.50	474.70	15.93
12	6.00	531.10	10.62
13	6.50	570.00	6.82
14	7.00	594.70	4.15
15	7.50	610.30	2.56
16	8.00	618.90	1.39
17	8.50	624.50	0.90
18	9.00	628.30	0.60
19	9.50	631.00	0.43
20	10.00	632.90	0.30
21	10.50	634.50	0.25
22	11.00	636.10	0.25

USER INPUT BLANK VALUE

BLANK VALUE = 26.06711 micrograms carbon

BLANK FACTOR = 26.06711 / 10.99878 = +2.4E+00 ug/min Carbon

SAMPLE RESULTS:

(636.1 - 26.06725) (1)/(1) = +6.100E+02 g/L Carbon
 (636.1 - 26.06725) (1)/(1) (12) = +5.084E+01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

RD MEYERS

00000

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (E-0)

SOLIDS

		TIC	TOC
Type	Sample Size in g (SS)	0.0000	0.0000
BLNK	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	11.2	27
21208	µg of Carbon from Baseline (C2)	3.6	26.1

Test Code
@TICTOC1
Matrix
SOLID
Batch Number
97005413
Rerun
0
Sample Prep
N/A
Sample #
Instrument Code
CARB2
Prepared By
LCM
Chemist
RWS
Analyst
RDM
Date Complete
11/19/97
Analysis Date
11/19/97
Analysis Time
02:00 PM
Sample Point
AX-103

µg of Carbon = |C1-C2|

		TIC	TOC
Analysis Time	Method Detection Limit in ug/g	5	40
Sample Point	µg of Carbon	7.60E+00	9.00E-01

Data Entered By:	LCM	Date:	11/19/97
Signature of Chemist:	<i>Ken Schuerden</i>	Date:	11/20/97

BLANK.WB1 REV 1.0

342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	1.0000	0.2000
STD	Dilution Factor (DF)	1	1
Work List	Final Coulometer Reading in μg (C1)	611.6	604.5
21208	μg of Carbon from Baseline (C2)	3.6	26.1
Test Code	Standard Book Number	25N12B	26N12B
@TIC/TOC1	Standard Value ($\mu\text{g}/\text{mL}$)	602	3000

Matrix
LIQUID
Batch Number
97005413
Rerun
0
Sample Prep
N/A
Sample #
Instrument Code
CARB2
Prepared By
LCM
Chemist
RWS
Analyst
RDM
Date Complete
11/19/97
Analysis Date
11/19/97
Analysis Time
02:00 PM
Sample Point
AX-103

QC Actual in $\mu\text{g}/\text{mL}$ = Standard Value ($\mu\text{g}/\text{mL}$)QC Found in $\mu\text{g}/\text{mL}$ = (C1 - C2) * DF / SSQC Found in $\mu\text{g}/\text{mL}$ for TIC = 5 if C1 < C2QC Found in $\mu\text{g}/\text{mL}$ for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in $\mu\text{g}/\text{mL}$	5	40
QC Actual in $\mu\text{g}/\text{mL}$	6.02E+02	3.00E+03
QC Found in $\mu\text{g}/\text{mL}$	6.08E+02	2.89E+03
Percent Standard Recovery	101.0	96.4

Data Entered By:	LCM	Date:	11/19/97
Signature of Chemist:	<i>Paul Schneider</i>	Date:	11/20/97

STANDARD.WB1 REV 1.0

342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (E-0)

SOLIDS

		TIC	TOC
Type	Sample Size in g (SS)	0.0775	0.0775
SAMPLE	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	278.8	299.2
21208	µg of Carbon from Baseline (C2)	3.6	26.1
Test Code			
@TICTOC1			
Matrix			
SOLID			
Batch Number			
97005413			
Rerun	µg of Carbon/g = (C1-C2) * DF / SS		
0	µg of Carbon/g for TIC = 5 if C1 < C2		
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2		
N/A			
Sample #			
S97T001948			
Instrument Code			
CARB2			
Prepared By			
LCM			
Chemist			
RWS			
Analyst			
RDM			
Date Complete			
11/19/97			
Analysis Date			
11/19/97			
Analysis Time	Method Detection Limit in ug/g	5	40
02:00 PM			
Sample Point	µg of Carbon/g	3.55E+03	3.53E+03
AX-103			

Data Entered By:

LCM

Date: 11/19/97

Signature of Chemist:

R. J. Schroeder

Date: 11/20/97

SAMPLE.WB1 REV 1.0

342100ML

475

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (E-0)

SOLIDS

		TIC	TOC
Type	Sample Size in g (SS)	0.0823	0.0823
DUP	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	283.9	320.1
21208	µg of Carbon from Baseline (C2)	3.6	26.1
Test Code	Known µg of C from Original Sample	3.55E+3	3.53E+3
@TICTOC1			
Matrix			
SOLID			
Batch Number			
97005413			
Rerun	µg of Carbon/g = (C1-C2) * DF / SS		
0	µg of Carbon/g for TIC = 5 if C1 < C2		
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2		
N/A			
Sample #			
S97T001948			
Instrument Code			
CARB2			
Prepared By			
LCM			
Chemist			
RWS			
Analyst			
RDM			
Date Complete			
11/19/97			
Analysis Date			
11/19/97			
Analysis Time	Method Detection Limit in ug/g	5	40
02:00 PM			
Sample Point	µg of Carbon/g	3.41E+03	3.57E+03
AX-103			

Data Entered By:

LCM

Date: 11/19/97

Signature of Chemist:

Date: 11/20/97

SAMPLE.WB1 REV 1.0

342100ML

476

HNF-SD-WM-DP-266, REV. 0

WORKBOOK PAGE: SPIKE5

TIC/TOC : LA-342-100 (E-0)

SOLIDS

Type	Sample Vial Data	TIC	TOC
SPK	Sample Size in g (SS)	0.0775	0.0775
Work List	Final Coulometer Reading in µg (C1)	278.8	299.2
21208	Spiked Vial Data		
Test Code	Sample Size in g (SPK SS)	0.0921	0.0921
@TICTOC1	Amount of Spike Std. in mL (SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg (C2)	643.2	636.1
SOLID	Spike Book Number	25N12B	26N12B
Batch Number	Spike Standard Value in µg/mL (SPK CONC)	602	3000
97005413			
Rerun			
0			
Sample Prep			
N/A			
Sample #	Percent Spike Recovery = (C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) *		
S97T001948			
Instrument Code	QC Actual in µg/mL = Spike Value (µg/mL)		
CARB2	QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100		
Prepared By			
LCM			
Chemist			
RWS			
Analyst			
RDM			
Date Complete			
11/19/97			
Analysis Date			
11/19/97			
Analysis Time			
02:00 PM	QC Actual in µg/mL	6.02E+02	3.00E+03
Sample Point	QC Found in µg/mL	6.23E+02	2.80E+03
AX-103	Percent Spike Recovery	103.5	93.4

Data Entered By:	LCM	Date: 11/19/97
Signature of Chemist:	<i>RWS</i>	Date: 11/20/97

SPIKE.WB1 REV 1.1

342100ML

477

LABCORE Completed Worklist Report for Worklist# 21266

Analyst: pjm

Instrument: CARB2

Book# TIC 25N128
TOC 26N128

Method: LA 342-100 Rev/Mod F-0

Worklist Comment: AX-103 @TICTOC1 RERUN *RUSH* Mix sample well

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLNK	0		@TICTOC1 TIC-02	SOLID	1	1.30E+0	1.300	ug/g
1 BLNK	0		@TICTOC1 TOC-02	SOLID	1	3.30E+0	3.300	ug/g
2 STD	0		@TICTOC1 TIC-02	SOLID	6.02E+02	6.01E+2	99.834	% Recovery
2 STD	0		@TICTOC1 TOC-02	SOLID	3.00E+03	2.82E+3	94.000	% Recovery
3 SAMPLE	S97T001887	0	@TICTOC1 TIC-02	SOLID	N/A	1.98E+04	5.000	ug/g
3 SAMPLE	S97T001887	0	@TICTOC1 TOC-02	SOLID	N/A	5.38E+03	40.000	ug/g
4 DUP	S97T001887	0	@TICTOC1 TIC-02	SOLID	1.98E+4	2.00E+4	1.005	RPD
4 DUP	S97T001887	0	@TICTOC1 TOC-02	SOLID	5.38E+3	5.46E+3	1.476	RPD
5 SPK	S97T001887	0	@TICTOC1 TIC-02	SOLID	1.00E+02	1.02E+02	102.000	% Recovery
5 SPK	S97T001887	0	@TICTOC1 TOC-02	SOLID	1.00E+02	9.59E+01	95.900	% Recovery

Final page for worklist# 21266

Analyst Signature _____ Date _____

Jay Hammett 11-28-97
Analyst Signature Date

RW Schroeder 12/1/97
Reviewer Signature Date

11/25/97 15:47
A-0004-1

HNF-SD-WM-DP-266, REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 21266

Analyst: RLM Instrument: CARB2 _____ Book# TIC 25N12B
TOC 26N12B
Method: LA-342-100 Rev/Mod F-0

Worklist Comment: AX-103 @TICTOC1 RERUN *RUSH* Mix sample well

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			@TICTOC1	SOLID		
2 STD			@TICTOC1	SOLID		
3 SAMPLE	S97T001887 0		@TICTOC1	SOLID	97000494	AX-103
	Analytes Requested: TIC-02 , TOC-02					
4 DUP	S97T001887 0		@TICTOC1	SOLID		
5 SPK	S97T001887 0		@TICTOC1	SOLID		

Final page for worklist # 21266

RLM
Analyst Signature
11/28/97
Date

Ray Hammond
Analyst Signature
11-28-97
Date

Data Entry Comments:

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

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (E-0)

SOLIDS

		TIC	TOC
Type	Sample Size in g (SS)	1.0000	1.0000
BLNK	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	8.3	27.3
21266	µg of Carbon from Baseline (C2)	9.6	30.6
Test Code	µg of Carbon = C1-C2		
@TIC/TOC1			
Matrix			
SOLID			
Batch Number			
97005476			
Rerun			
0			
Sample Prep			
N/A			
Sample #			
BLNK			
Instrument Code			
CARB2			
Prepared By			
GJH			
Chemist			
RWS			
Analyst			
PJM			
Date Complete			
11/28/97			
Analysis Date			
11/28/97			
Analysis Time	Method Detection Limit in ug/g	5	40
03:30 PM			
Sample Point	µg of Carbon	1.30E+00	3.30E+00
AX-103			

Data Entered By:	GJH	Date:	11/28/97
Signature of Chemist:	<i>RWS</i>	Date:	12/1/97

BLANK.WB1 REV 1.0

342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	1.0000	0.2000
STD	Dilution Factor (DF)	1	1
Work List	Final Coulometer Reading in µg (C1)	611	595.5
21266	µg of Carbon from Baseline (C2)	9.6	30.6
Test Code	Standard Book Number	25N12B	26N12B
@TICTOC1	Standard Value (µg/ml)	602	3000
Matrix			
LIQUID			
Batch Number			
97005476			
Rerun			
0	QC Actual in µg/mL = Standard Value (µg/mL)		
Sample Prep	QC Found in µg/mL = (C1 - C2) * DF / SS		
N/A	QC Found in µg/mL for TIC = 5 if C1 < C2		
Sample #	QC Found in µg/mL for TOC = 40 if C1 < C2		
STD			
Instrument Code	% Recovery = QC Found / QC Actual * 100		
CARB2			
Prepared By			
GJH			
Chemist			
RWS			
Analyst			
PJM			
Date Complete			
11/28/97			
Analysis Date			
11/28/97			
Analysis Time	Method Detection Limit in µg/mL	5	40
03:30 PM	QC Actual in µg/mL	6.02E+02	3.00E+03
Sample Point	QC Found in µg/mL	6.01E+02	2.82E+03
AX-103	Percent Standard Recovery	99.9	94.2

Data Entered By:

Signature of Chemist:

STANDARD.WB1 REV 1.0

342100ML

GJH
Pat Schneider

Date: 11/28/97

Date: 12/1/97

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (E-0)

SOLIDS

		TIC	TOC
Type	Sample Size in g (SS)	0.0977	0.0977
SAMPLE	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	1943.8	556.6
21266	µg of Carbon from Baseline (C2)	9.6	30.6
Test Code			
@TICTOC1			

Matrix
SOLID
Batch Number
97005476
Rerun
0
Sample Prep
N/A
Sample #
S97T001887
Instrument Code
CARB2
Prepared By
GJH
Chemist
RWS
Analyst
PJM
Date Complete
11/28/97
Analysis Date
11/28/97
Analysis Time
03:30 PM
Sample Point
AX-103

$\mu\text{g of Carbon/g} = (C1 - C2) * DF / SS$
 $\mu\text{g of Carbon/g for TIC} = 5 \text{ if } C1 < C2$
 $\mu\text{g of Carbon/g for TOC} = 40 \text{ if } C1 < C2$

		TIC	TOC
Analysis Time	Method Detection Limit in ug/g	5	40
Sample Point	µg of Carbon/g	1.98E+04	5.38E+03
AX-103			

Data Entered By:

GJH

Date: 11/28/97

Signature of Chemist:

DeW Schmede

Date: 12/1/97

SAMPLE.WB1 REV 1.0

342100ML

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (E-0)

SOLIDS

		TIC	TOC
Type	Sample Size in g (SS)	0.0536	0.0536
DUP	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	1083.1	323
21266	µg of Carbon from Baseline (C2)	9.6	30.6
Test Code	Known µg of C from Original Sample	1.98E+4	5.38E+3
@TICTOC1			

Matrix
SOLID
Batch Number
97005476
Rerun
0
Sample Prep
N/A
Sample #
S97T001887
Instrument Code
CARB2
Prepared By
GJH
Chemist
RWS
Analyst
PJM
Date Complete
11/28/97
Analysis Date
11/28/97
Analysis Time
03:30 PM
Sample Point
AX-103

$\mu\text{g of Carbon/g} = (\text{C1}-\text{C2}) * \text{DF} / \text{SS}$
 $\mu\text{g of Carbon/g for TIC} = 5 \text{ if } \text{C1} < \text{C2}$
 $\mu\text{g of Carbon/g for TOC} = 40 \text{ if } \text{C1} < \text{C2}$

Analysis Time	Method Detection Limit in ug/g	TIC	TOC
03:30 PM		5	40
Sample Point	µg of Carbon/g	2.00E+04	5.46E+03
AX-103			

Data Entered By:

GJH

Date: 11/28/97

Signature of Chemist:

Date: 12/1/97

SAMPLE.WB1 REV 1.0

342100ML

WORKBOOK PAGE: SPIKE5

TIC/TOC : LA-342-100 (E-0)

SOLIDS

Type	Sample Vial Data	TIC	TOC
SPK	Sample Size in g (SS)	0.0977	0.0977
Work List	Final Coulometer Reading in µg (C1)	1943.8	556.6
21266	Spiked Vial Data		
Test Code	Sample Size in g (SPK SS)	0.0698	0.0698
@TICTOC1	Amount of Spike Std. in mL (SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg (C2)	1697	685.4
SOLID	Spike Book Number	25N12B	26N12B
Batch Number	Spike Standard Value in µg/mL (SPK CONC)	602	3000
97005476			
Rerun			
0			
Sample Prep			
N/A			
Sample #	Percent Spike Recovery = (C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) * 10		
S97T001887			
Instrument Code	QC Actual in µg/mL = Spike Value (µg/mL)		
CARB2	QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100		
Prepared By			
GJH			
Chemist			
RWS			
Analyst			
PJM			
Date Complete			
11/28/97			
Analysis Date			
11/28/97			
Analysis Time			
03:30 PM			
Sample Point			
AX-103			

	TIC	TOC
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	6.17E+02	2.88E+03
Percent Spike Recovery	102.4	95.9

Data Entered By:

GJH

Date: 11/28/97

Signature of Chemist:

R. J. Schwede

Date: 12/1/97

SPIKE.WB1 REV 1.1

342100ML

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BASE-2

Date: 11/28/97

Time: 11:03:09

Sample Size = 1 uL

Dil Factor = 1

Blank ID # = BASE-2

Blank Value = N/A

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	== Analysis Time ==	== Coulometer ==	== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	0.90	55.56
4	1.51	1.40	35.71
5	2.00	1.80	22.22
6	2.50	2.15	28.00
7	3.00	2.90	13.79
8	3.51	3.40	14.71
9	4.00	3.70	8.11
10	4.50	4.20	11.90
11	5.00	4.70	10.64
12	5.50	5.10	7.84
13	6.00	5.50	7.27
14	6.50	6.00	8.33
15	7.00	6.40	6.25
16	7.50	6.90	7.25
17	8.00	7.40	6.76
18	8.50	7.80	5.13
19	9.00	8.20	4.88
20	9.50	8.80	6.82
21	10.00	9.10	3.30
22	10.50	9.60	5.21

BLANK VALUE = 9.6 micrograms carbon

BLANK FACTOR = 9.6 / 10.5 =

+9.1E-01

ug/min Carbon

Sample Run By:

PJ MCCOWN

00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE-2

Date: 11/28/97

Time: 11:16:13

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE-2
Blank Value = N/AAnalyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==	== Analysis Time ==	== Coulometer ==	== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.50	100.00
3	1.01	0.90	44.44
4	1.51	1.40	35.71
5	2.00	2.60	46.15
6	2.50	5.40	51.85
7	3.00	10.10	46.53
8	3.50	14.80	31.76
9	4.00	18.60	20.43
10	4.50	21.50	13.49
11	5.00	23.50	8.51
12	5.50	24.70	4.86
13	6.00	25.70	3.89
14	6.50	26.40	2.65
15	7.00	27.00	2.22
16	7.50	27.60	2.17
17	8.00	28.10	1.78
18	8.50	28.60	1.75
19	9.00	29.20	2.05
20	9.50	29.70	1.68
21	10.00	30.20	1.66
22	10.50	30.60	1.31

BLANK VALUE = 30.6 micrograms carbon

BLANK FACTOR = 30.6 / 10.49902 = +2.91E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

PJ MCCOWN

00000

HNF-SD-WM-DP-266, REV. 0
TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 25N12B-2

Date: 11/28/97

Time: 11:37:52

Sample Size = 1000 uL

Dil Factor = 1

Blank ID # =

Blank Value = .91 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading == Analysis Time == Coulometer == % Difference ==

1	0.08	0.00	0.00
2	0.51	0.50	100.00
3	1.01	0.90	44.44
4	1.51	1.40	35.71
5	2.00	4.00	65.00
6	2.50	36.10	88.92
7	3.00	121.20	70.21
8	3.50	244.30	50.39
9	4.00	363.10	32.72
10	4.50	458.10	20.74
11	5.00	521.10	12.09
12	5.50	562.10	7.29
13	6.00	584.10	3.77
14	6.50	596.20	2.03
15	7.00	601.90	0.95
16	7.50	605.00	0.51
17	8.00	606.70	0.28
18	8.50	608.00	0.21
19	9.00	608.90	0.15
20	9.50	609.70	0.13
21	10.00	610.50	0.13
22	10.50	611.00	0.08

USER INPUT BLANK VALUE

BLANK VALUE = 9.554111 micrograms carbon

BLANK FACTOR = 9.554111 / 10.49902 = +9.1E-01 ug/min Carbon

SAMPLE RESULTS:

(611 - 9.554056) (1)/(1000) = +6.014E-01 g/L Carbon
(611 - 9.554056) (1)/(1000) (12) = +5.012E-02 Molar Carbon

Sample Run By: PJ McCown 11/28/97
PJ MCCOWN 00000

1.0mL 25N12B

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 26N12B

Date: 11/28/97

Time: 11:50:45

Sample Size = 200 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.91 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.51	0.70	100.00
3	1.00	1.30	46.15
4	1.50	1.80	27.78
5	2.00	3.60	50.00
6	2.50	18.30	80.33
7	3.00	76.80	76.17
8	3.50	202.60	62.09
9	4.00	350.20	42.15
10	4.50	457.60	23.47
11	5.00	521.10	12.19
12	5.50	556.40	6.34
13	6.00	574.30	3.12
14	6.50	582.70	1.44
15	7.00	587.00	0.73
16	7.50	589.60	0.44
17	8.00	591.30	0.29
18	8.50	592.40	0.19
19	9.00	593.30	0.15
20	9.50	594.10	0.13
21	10.00	594.80	0.12
22	10.50	595.50	0.12

USER INPUT BLANK VALUE

BLANK VALUE = 30.55216 micrograms carbon

BLANK FACTOR = 30.55216 / 10.49902 = +2.9E+00 ug/min Carbon

SAMPLE RESULTS:

(595.5 - 30.54967) (1)/(200) = +2.825E+00 g/L Carbon
 (595.5 - 30.54967) (1)/(200) (12) = +2.354E-01 Molar Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

PJ MCCOWN 11/28/97

00000

-200mL 26N12B

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-2

Date: 11/28/97

Time: 12:10:50

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .91 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.51	0.60	100.00
3	1.01	1.20	50.00
4	1.51	1.60	25.00
5	2.00	2.10	23.81
6	2.50	2.50	16.00
7	3.00	2.90	13.79
8	3.50	3.20	9.37
9	4.00	3.70	13.51
10	4.50	4.00	7.50
11	5.00	4.40	9.09
12	5.50	4.70	6.38
13	6.00	5.20	9.62
14	6.50	5.50	5.45
15	7.00	5.80	5.17
16	7.50	6.30	7.94
17	8.00	6.60	4.55
18	8.50	6.90	4.35
19	9.00	7.30	5.48
20	9.50	7.70	5.19
21	10.00	8.00	3.75
22	10.50	8.30	3.61

USER INPUT BLANK VALUE

BLANK VALUE = 9.554111 micrograms carbon

BLANK FACTOR = 9.554111 / 10.49902 = +9.1E-01 ug/min Carbon

SAMPLE RESULTS:

(8.3 - 9.554111) (1) / (1) =

< 5.00 E-3 g/L Carbon

(8.3 - 9.554111) (1) / (1) (12) =

< 4.17 E-4 Molar Carbon

Sample Run By:

PJ
PJ MCCOWN

00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV. 2.0

Sample: BLNK-2

Date: 11/28/97

Time: 12:23:17

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.91 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.51	0.50	100.00
3	1.01	0.90	44.44
4	1.51	1.40	35.71
5	2.00	2.00	30.00
6	2.50	3.60	44.44
7	3.00	6.40	43.75
8	3.50	10.10	36.63
9	4.00	14.20	28.87
10	4.50	17.40	18.39
11	5.00	19.70	11.68
12	5.50	21.30	7.51
13	6.00	22.40	4.91
14	6.50	23.10	3.03
15	7.00	23.70	2.53
16	7.50	24.20	2.07
17	8.00	24.90	2.81
18	8.50	25.40	1.97
19	9.00	25.90	1.93
20	9.50	26.40	1.89
21	10.00	26.80	1.49
22	10.50	27.30	1.83

USER INPUT BLANK VALUE

BLANK VALUE = 30.55216 micrograms carbon

BLANK FACTOR = 30.55216 / 10.49902 = +2.9E+00 ug/min Carbon

SAMPLE RESULTS:

(27.3 - 30.54967) (1)/(1) = < 5.00 E-3 g/L Carbon
 (27.3 - 30.54967) (1)/(1) (12) = < 4.17 E-4 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

 PJ MCCOWN

00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T001887-2

Date: 11/28/97

Time: 14:40:23

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .91 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.51	0.00	0.00
3	1.01	7.30	100.00
4	1.50	336.60	97.83
5	2.04	899.60	62.58
6	2.54	1328.30	32.27
7	3.04	1593.20	16.63
8	3.54	1750.60	8.99
9	4.04	1838.50	4.78
10	4.54	1888.90	2.67
11	5.04	1915.00	1.36
12	5.54	1926.30	0.59
13	6.04	1931.40	0.26
14	6.54	1934.50	0.16
15	7.04	1936.70	0.11
16	7.54	1938.00	0.07
17	8.04	1939.30	0.07
18	8.54	1940.40	0.06
19	9.04	1941.40	0.05
20	9.54	1942.40	0.05
21	10.03	1943.20	0.04
22	10.53	1943.80	0.03

USER INPUT BLANK VALUE

BLANK VALUE = 9.554111 micrograms carbon

BLANK FACTOR = 9.554111 / 10.49902 = +9.1E-01 ug/min Carbon

SAMPLE RESULTS:

(1943.8 - 9.586493) (1)/(1) = +1.9342E+03 g/L Carbon
 (1943.8 - 9.586493) (1)/(1) (12) = +1.6118E+02 Molar Carbon

Sample Run By: PJ

PJ MCCOWN

00000

.0977g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T001887-2

Date: 11/28/97

Time: 14:55:13

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.91 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading == Analysis Time == Coulometer == % Difference ==

1	0.08	0.00	0.00
2	0.51	0.60	100.00
3	1.01	1.20	50.00
4	1.51	3.40	64.71
5	2.00	30.00	88.67
6	2.50	109.60	72.63
7	3.00	232.40	52.84
8	3.50	357.60	35.01
9	4.00	446.20	19.86
10	4.50	495.60	9.97
11	5.00	522.20	5.09
12	5.50	535.10	2.41
13	6.00	541.20	1.13
14	6.50	545.30	0.75
15	7.00	548.00	0.49
16	7.50	549.80	0.33
17	8.00	551.50	0.31
18	8.50	552.70	0.22
19	9.00	553.90	0.22
20	9.50	554.80	0.16
21	10.00	555.80	0.18
22	10.50	556.60	0.14

USER INPUT BLANK VALUE

BLANK VALUE = 30.55216 micrograms carbon

BLANK FACTOR = 30.55216 / 10.49902 = +2.9E+00 ug/min Carbon

SAMPLE RESULTS:

(556.6 - 30.54967) (1)/(1) = +5.261E+02 g/L Carbon
 (556.6 - 30.54967) (1)/(1) (12) = +4.384E+01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

 PJ MCCOWN

00000

.0977g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1887 DUP-2

Date: 11/28/97

Time: 15:14:00

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .91 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.60	100.00
3	1.01	1.00	40.00
4	1.51	20.30	95.07
5	2.00	228.20	91.10
6	2.50	533.30	57.21
7	3.00	757.30	29.58
8	3.50	903.60	16.19
9	4.00	987.10	8.46
10	4.50	1035.10	4.64
11	5.00	1058.50	2.21
12	5.50	1068.20	0.91
13	6.00	1072.90	0.44
14	6.50	1075.50	0.24
15	7.00	1077.00	0.14
16	7.50	1078.30	0.12
17	8.00	1079.30	0.09
18	8.50	1080.20	0.08
19	9.00	1081.00	0.07
20	9.50	1081.80	0.07
21	10.00	1082.50	0.06
22	10.50	1083.10	0.06

USER INPUT BLANK VALUE

BLANK VALUE = 9.554111 micrograms carbon

BLANK FACTOR = 9.554111 / 10.49902 = +9.1E-01 ug/min Carbon

SAMPLE RESULTS:

(1083.1 - 9.553334) (1)/(1) = +1.0735E+03 g/L Carbon
 (1083.1 - 9.553334) (1)/(1) (12) = +8.9462E+01 Molar Carbon

Sample Run By: *PJ*

PJ MCCOWN

00000

0536g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1887 DUP-2

Date: 11/28/97

Time: 15:29:00

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.91 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.51	0.70	100.00
3	1.01	1.30	46.15
4	1.51	3.00	56.67
5	2.00	21.00	85.71
6	2.50	72.90	71.19
7	3.00	146.90	50.37
8	3.50	218.60	32.80
9	4.00	266.60	18.00
10	4.50	292.50	8.85
11	5.00	303.80	3.72
12	5.50	309.70	1.91
13	6.00	312.80	0.99
14	6.50	314.90	0.67
15	7.00	316.50	0.51
16	7.50	317.80	0.41
17	8.00	318.90	0.34
18	8.50	320.00	0.34
19	9.00	320.90	0.28
20	9.50	321.80	0.28
21	10.00	322.40	0.19
22	10.50	323.00	0.19

USER INPUT BLANK VALUE

BLANK VALUE = 30.55216 micrograms carbon

BLANK FACTOR = 30.55216 / 10.49902 = +2.9E+00 ug/min Carbon

SAMPLE RESULTS:

(323 - 30.55216) (1)/(1) = +2.924E+02 g/L Carbon
 (323 - 30.55216) (1)/(1) (12) = +2.437E+01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By: *PJ*

PJ MCCOWN

00000

.0534g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1887 SPK-2

Date: 11/28/97

Time: 15:56:49

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .91 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.51	0.70	100.00
3	1.00	1.00	30.00
4	1.50	32.30	96.90
5	2.00	350.50	90.78
6	2.50	815.80	57.04
7	3.00	1193.20	31.63
8	3.50	1434.70	16.83
9	4.00	1564.90	8.32
10	4.50	1630.50	4.02
11	5.00	1663.70	2.00
12	5.50	1677.90	0.85
13	6.00	1684.60	0.40
14	6.50	1687.70	0.18
15	7.00	1689.90	0.13
16	7.50	1691.30	0.08
17	8.00	1692.50	0.07
18	8.50	1693.60	0.06
19	9.00	1694.60	0.06
20	9.50	1695.60	0.06
21	10.00	1696.40	0.05
22	10.50	1697.00	0.04

USER INPUT BLANK VALUE

BLANK VALUE = 9.554111 micrograms carbon

BLANK FACTOR = 9.554111 / 10.49902 = +9.1E-01 ug/min Carbon

SAMPLE RESULTS:

(1697 - 9.553167) (1)/(1) = +1.6874E+03 g/L Carbon
 (1697 - 9.553167) (1)/(1) (12) = +1.4062E+02 Molar Carbon

Sample Run By: PJ McCown

PJ MCCOWN

00000

.0698g

+ .500mL 25N/2B

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1887 SPK-2

Date: 11/28/97

Time: 16:08:55

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.91 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.51	0.90	100.00
3	1.01	1.70	47.06
4	1.51	4.80	64.58
5	2.00	37.70	87.27
6	2.50	130.60	71.13
7	3.00	299.00	56.32
8	3.50	477.60	37.40
9	4.00	580.10	17.67
10	4.50	629.30	7.82
11	5.00	654.30	3.82
12	5.50	667.20	1.93
13	6.00	672.80	0.83
14	6.50	675.70	0.43
15	7.00	677.70	0.30
16	7.50	679.00	0.19
17	8.00	680.30	0.19
18	8.50	681.50	0.18
19	9.00	682.60	0.16
20	9.50	683.60	0.15
21	10.00	684.70	0.16
22	10.50	685.40	0.10

USER INPUT BLANK VALUE

BLANK VALUE = 30.55216 micrograms carbon

BLANK FACTOR = 30.55216 / 10.49902 = +2.9E+00 ug/min Carbon

SAMPLE RESULTS:

(685.4 - 30.55216) (1)/(1) = +6.548E+02 g/L Carbon
 (685.4 - 30.55216) (1)/(1) (12) = +5.457E+01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By: PJ
PJ MCCOWN

00000

- 0698g

+ 100ML 26N12B

HNF-SD-WM-DP-266, REV.0

RADIOCHEMICAL ANALYSIS

HNF-SD-WM-DP-266, REV. 0

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LABCORE Completed Worklist Report for Worklist# 20021

Analyst: knt Instrument: AB14 Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: AX103, @ALPHA01 S.S. by Ludlum. Std:1.0mL Spk:0.1mL sk

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@ALPHA01 ALPHA01 SOLID		2.00E-04	1.81E-4	90.500 % Recovery	
1 STD	0		@ALPHA01 ALPHA01E SOLID		1.00	3.46E+00	3.460 % Ct. Error	
2 BLNK-PREP	0		@ALPHA01 ALPHA01 SOLID		1	<7.52E-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	1.67E+00	1.670 BLNK/BKG	
4 SAMPLE	S97T001954	0 P	@ALPHA01 ALPHA01 SOLID	N/A		4.52E-02	1.19E-002 uCi/g	
4 SAMPLE	S97T001954	0 P	@ALPHA01 ALPHA01E SOLID	N/A		3.51E+01	% Ct. Error	
5 DUP	S97T001954	0 P	@ALPHA01 ALPHA01 SOLID		4.52E-2	3.74E-2	18.886 RPD	
5 DUP	S97T001954	0 P	@ALPHA01 ALPHA01E SOLID		1.00	1.83E+01	18.100 % Ct. Error	
6 SPK	S97T001954	0 P	@ALPHA01 ALPHA01 SOLID		3.75E-02	2.85E-02	76.000 % Recovery	

Final page for worklist# 20021

Analyst Signature	Date	Analyst Signature	Date
9/4/97
Reviewer Signature	Date		

LABCORE Data Entry Template for Worklist# 20021

Analyst: KNT Instrument: AB00 14 Book# 79656

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

Worklist Comment: AX103, @ALPHA01 S.S. by Ludlum. Std:1.0mL Spk:0.1mL sk

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	S97T001954	0 F	@ALPHA01	SOLID	97000495	AX-103
	Analytes Requested: ALPHA01 , ALPHA01E					
5 DUP	S97T001954	0 F	@ALPHA01	SOLID		
6 SPK	S97T001954	0 F	@ALPHA01	SOLID		

Final page for worklist # 20021

Kim Thomas 8-27-97
Analyst Signature Date

See Hogen 8-28-97
Analyst Signature Date
C.J. Opinen 8/28/97

Data Entry Comments:

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

WORKBOOK PAGE: STD1

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

		STANDARD	REPLICATE
Type	DETECTOR NUMBER	14	14
STD	DISH SIZE (1, 2, or 5) (MS)	2	2
WorkList	GROSS COUNTS (GC)	3276	3224
20021	COUNT TIME in MINUTES (CT)	30	30
Alt or B?	BACKGROUND in cpm (BKG)	0.07	0.07
AT	SAMPLE SIZE in mL (SS)	1.000	1.000
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER (Std BN)	79B56	79B56
Matrix	EFFICIENCY FACTOR (EFF)	0.2692	0.2692
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	109.130	107.397
Batch Number	Standard Value in $\mu\text{Ci/mL}$	2.00E-04	
97004171	Concentration in $\mu\text{Ci/L}$ =	1.83E-01	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$ =	1.80E-01	
0	AVERAGE CONCENTRATION in $\mu\text{Ci/L}$ =	1.8116E-01	
Sample Prep			
NIA	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
WL20021	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L}$ / 1000mL/L		
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
SEH			
Chemist			
SLF	ALPHA TOTAL CONCENTRATION in $\mu\text{Ci/mL}$ =	1.81E-04	DETECTION LEVEL
Analyst			
KNT			
Date Complete			5.29E-07 $\mu\text{Ci/mL}$
08/28/97	RELATIVE COUNTING ERROR =	3.5%	
Analysis Date			
08/27/97			
Analysis Time			
01:30 PM			
Sample Point			
AX-103			

Analyst:	SEH	Date: 28-Aug-97
Signature of Chemist:	SLF	Date: 9/4/97

STANDARD.WB1 Rev. 1.0

508101ML

WORKBOOK PAGE: BLANK2

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

SOLIDS

	BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER	14
BLNK-PREP	DISH SIZE (1, 2, or 5)	2
Work List	GROSS COUNTS	3
20021	COUNT TIME in MINUTES	30
Avon/B7	BACKGROUND in cpm	0.07
AT	SAMPLE SIZE in mL	0.250
Test Code	DILUTION FACTOR	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	1.9508
Matrix	EFFICIENCY FACTOR	0.2692
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.154
Batch Number		
97004171	Blank Concentration in $\mu\text{Ci/g}$	< 5.82E-03
Rerun	Replicate Concentration in $\mu\text{Ci/g}$	< 7.52E-03
0	Maximum Concentration in $\mu\text{Ci/g}$	< 7.5170E-03
Sample Prep		
N/A	Rs (Sample Count Rate) = $(TC / CT) - BKG$	
Sample	ALPHA TOTAL $\mu\text{Ci/g}$ = $Rs * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$	
WL20021		
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$	
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.	
Prepared By		
SEH		
Chemist		
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Maximum) =	< 7.52E-03
Analyst		
KNT	LESS THAN Value was Determined from Rmax.	
Date Complete		1.19E-02
08/28/97	RELATIVE COUNTING ERROR	500.0%
Analysis Date		
08/27/97		
Analysis Time		
01:30 PM		
Sample Point		
AX-103		

Analyst:	KNT	Date: 28-Aug-97
Signature of Chemist:	SLF	Date: 9/4/97
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
Work List	GROSS COUNTS (GC)	39	37
20021	COUNT TIME in MINUTES (CT)	30	30
At or Bk	BACKGROUND in cpm (BKG)	0.07	0.07
AT	SAMPLE SIZE in mL (SS)	0.250	0.250
Test Code	DILUTION FACTOR (DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.9508	1.9508
Matrix	EFFICIENCY FACTOR (EFF)	0.2692	0.2692
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	1.230	1.163
Batch Number			
97004171	Blank Concentration in $\mu\text{Ci/g}$	4.64E-02	
Retun	Replicate Concentration in $\mu\text{Ci/g}$	4.39E-02	
0	Average Concentration in $\mu\text{Ci/g}$	4.5163E-02	
Sample Prep			
FUSION01	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample	$\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
S97T001954			
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
SEH			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average) =	4.52E-02	DETECTION LEVEL
Analyst			
KNT			
Date Complete			1.19E-02 $\mu\text{Ci/g}$
08/28/97	RELATIVE COUNTING ERROR	35.1%	
Analysis Date			
08/27/97			
Analysis Time			
01:30 PM			
Sample Point			
AX-103			

{/ system;text|yes-

Analyst:	KNT	Date: 28-Aug-97
Signature of Chemist:	SLF	Date: 9/4/97
SAMPLE.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: DUP5

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

SOLIDS

		DUP	REPLICATE
Type	DETECTOR NUMBER	14	14
DUP	DISH SIZE (1, 2, or 5) (MS)	2	2
Work List	GROSS COUNTS (GC)	32	32
20021	COUNT TIME in MINUTES (CT)	30	30
Atorn Bz	BACKGROUND in cpm (BKG)	0.07	0.07
AT	SAMPLE SIZE in mL (SS)	0.250	0.250
Test Code	DILUTION FACTOR (DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.964	1.964
Matrix	EFFICIENCY FACTOR (EFF)	0.2692	0.2692
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.997	0.997
Batch Number			
97004171	Blank Concentration in $\mu\text{Ci/g}$	3.74E-02	
Retun	Replicate Concentration in $\mu\text{Ci/g}$	3.74E-02	
0	Average Concentration in $\mu\text{Ci/g}$	3.7362E-02	
Sample Prep			
FUSION01	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	$ALPHA \text{ TOTAL } \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
S97T001954			
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
SEH			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average) =	3.74E-02	DETECTION LEVEL
Analyst			
KNT			
Date Complete			1.18E-02 $\mu\text{Ci/g}$
08/28/97	RELATIVE COUNTING ERROR	38.3%	
Analysis Date			
08/27/97			
Analysis Time			
01:30 PM			
Sample Point			
AX-103			

{/ system;exit}yes~

Analyst:	KNT	Date: 28-Aug-97
Signature of Chemist:	SLF	Date: 9/4/97
SAMPLE.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: SPK6

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

		SPIKE	REPLICATE
Type	DETECTOR NUMBER	14	14
SPK	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	49716	52660
20021	COUNT TIME in MINUTES (CT)	30	30
At 09:15	BACKGROUND in cpm (BKG)	0.07	0.07
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)	1.9508	1.9508
Matrix	SPIKE VOLUME in mL (SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR (SDF)	1	1
Batch Number	SPIKE BOOK NUMBER (Spk BN)	137B43	137B43
97004171	SPIKE VALUE in $\mu\text{Ci/mL}$ (SVal)	3.7497E-02	3.7497E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2692	0.2692
0	SAMPLE + SPIKE $\mu\text{Ci/g}$ (S+S)	6.25E+01	6.62E+01
Sample Prep	AVERAGE or MAXIMUM $\mu\text{Ci/g}$ in SAMPLE	4.5163E-02	
FUSION01			
Sample #			
S97T001954			
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			
KNT			
Date Complete			
08/28/97			
Analysis Date			
08/27/97	QC ACTUAL =	3.75E-02	
Analysis Time	QC FOUND =	2.85E-02	
01:30 PM	AVG. PERCENT SPIKE RECOVERY =	76.1%	
Sample Point			
AX-103			

Analyst:	SEH	Date: 28-Aug-97
Signature of Chemist:	SLF	Date: 9/4/97
SPIKE.WB1 Rev. 1.0	508101ML	

LABCORE Completed RadChem Report for Worklist#: 20022

Analyst: knt Instrument: AB15 Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: ax103, @alpha01 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	1.99E-4	99.500	% Recovery
1 STD	0		@ALPHA01 ALPHA01E SOLID		1.00	3.28E+00	3.280	% Ct. Erro
2 BLNK-PREP	0		@ALPHA01 ALPHA01 SOLID		1	<8.48E-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	890E+00	0.830	BLNK/BKG
4 SAMPLE	S97T001956	0 F	@ALPHA01 ALPHA01 SOLID		N/A	6.67E-02	137.0e-004	uCi/g
4 SAMPLE	S97T001956	0 F	@ALPHA01 ALPHA01E SOLID		N/A	2.93E+01	0.0e+000	% Ct. Error
5 DUP	S97T001956	0 F	@ALPHA01 ALPHA01 SOLID		6.67E-2	6.33E-2	5.231	RPD
5 DUP	S97T001956	0 F	@ALPHA01 ALPHA01E SOLID		1.00	3.23E+01	32.300	% Ct. Erro
6 SPK	S97T001956	0 F	@ALPHA01 ALPHA01 SOLID		3.75E-02	3.16E-02	84.267	% Recovery

Final page for worklist# 20022

Analyst Signature	Date	Analyst Signature	Date
Reviewer Signature	Date		
	9/5/97		

LABCORE Data Entry Template for Worklist# 20022

Analyst: KNT Instrument: AB00 15 Book# 79B56

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

Worklist Comment: ax103, @alpha01 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	S97T001956	0	F	@ALPHA01	SOLID	97000495	AX-103
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S97T001956	0	F	@ALPHA01	SOLID		
6	SPK	S97T001956	0	F	@ALPHA01	SOLID		

Final page for worklist # 20022

Kim Thomas 8-27-97
Analyst Signature Date

Cl. Ogan 8/29/97
Analyst Signature Date
Sylvia Z. Cochran 8/29/97

Data Entry Comments:

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

WORKBOOK PAGE: STD1

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

		STANDARD	REPLICATE
Type	DETECTOR NUMBER	15	15
STD	DISH SIZE (1, 2, or 5) (MS)	2	2
Work List	GROSS COUNTS (GC)	3585	3584
20022	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE SIZE in mL (SS)	1.000	1.000
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER (Std BN)	79B56	79B56
Matrix	EFFICIENCY FACTOR (EFF)	0.2701	0.2701
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	119.400	119.367
Batch Number	Standard Value in $\mu\text{Ci/mL}$	2.00E-04	
97004172	Concentration in $\mu\text{Ci/L}$ =	1.99E-01	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$ =	1.99E-01	
0	AVERAGE CONCENTRATION in $\mu\text{Ci/L}$ =	1.9910E-01	
Sample Prep			
N/A	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
w120022	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L}$ / 1000mL/L		
Instrument Code	Relative Counting Error = $[(The\ Square\ Root\ of\ TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
CJO			
Chemist			
SLF	ALPHA TOTAL CONCENTRATION in $\mu\text{Ci/mL}$ =	1.99E-04	DETECTION LEVEL
Analyst			
KNT			
Date Complete			6.01E-07
08/28/97	RELATIVE COUNTING ERROR =	3.3%	$\mu\text{Ci/mL}$
Analysis Date			
08/27/97			
Analysis Time			
01:30 PM			
Sample Point			
AX-103			

Analyst:	CJO	Date: 28-Aug-97
Signature of Chemist:	SLF	Date: 9/3/97
STANDARD.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: BLANK2

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

SOLIDS

		BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER	15	15
BLNK-PREP	DISH SIZE (1, 2, or 5) (MS)	2	2
Work List	GROSS COUNTS (GC)	5	0
20022	COUNT TIME IN MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE SIZE in mL (SS)	0.250	0.250
Test Code	DILUTION FACTOR (DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.924	1.924
Matrix	EFFICIENCY FACTOR (EFF)	0.2701	0.2701
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.222	0.135
Batch Number			
97004172	Blank Concentration in $\mu\text{Ci/g}$	< 8.48E-03	
Rerun	Replicate Concentration in $\mu\text{Ci/g}$	< 5.14E-03	
0	Maximum Concentration in $\mu\text{Ci/g}$	< 8.4757E-03	
Sample Prep			
N/A	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	$\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
CJO			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Maximum) =	< 8.48E-03	DETECTION LEVEL
Analyst			
KNT	LESS THAN Value was Determined from Rmax.		
Date Complete			1.37E-02 $\mu\text{Ci/g}$
08/28/97	RELATIVE COUNTING ERROR	500.0%	
Analysis Date			
08/27/97			
Analysis Time			
01:30 PM			
Sample Point			
AX-103			

Analyst:	KNT	Date: 28-Aug-97
Signature of Chemist:	SLF	Date: 9/5/97
BLANK.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: SAM4

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

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	15	15
SAMPLE	DISH SIZE (1, 2, or 5)	2	2
Work List	GROSS COUNTS (MS)	58	53
20022	COUNT TIME in MINUTES (GC)	30	30
AT or TB ?	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)	1.924	1.924
Matrix	EFFICIENCY FACTOR (EFF)	0.2701	0.2701
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	1.833	1.667
Batch Number			
97004172	Blank Concentration in $\mu\text{Ci/g}$	6.99E-02	
Retun	Replicate Concentration in $\mu\text{Ci/g}$	6.36E-02	
0	Average Concentration in $\mu\text{Ci/g}$	6.6743E-02	
Sample Prep			
FUSION01	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	$\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
S97T001956			
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
CJO			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average) =	6.67E-02	DETECTION LEVEL
Analyst			
KNT			
Date Complete			1.37E-02
08/28/97	RELATIVE COUNTING ERROR	29.3%	$\mu\text{Ci/g}$
Analysis Date			
08/27/97			
Analysis Time			
01:30 PM			
Sample Point			
AX-103			

Analyst:	KNT	Date: 28-Aug-97
Signature of Chemist:	SLF	Date: 9/3/97

SAMPLE.WB1 Rev. 1.0

508101ML

WORKBOOK PAGE: DUP5

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

SOLIDS

		DUP	REPLICATE
Type	DETECTOR NUMBER	15	15
DUP	DISH SIZE (1, 2, or 5)	2	2
Work List	GROSS COUNTS	61	45
20022	COUNT TIME in MINUTES	30	30
AT or TB ?	BACKGROUND in cpm	0.1	0.1
AT	SAMPLE SIZE in mL	0.250	0.250
Test Code	DILUTION FACTOR	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	1.9328	1.9328
Matrix	EFFICIENCY FACTOR	0.2701	0.2701
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	1.933	1.400
Batch Number			
97004172	Blank Concentration in $\mu\text{Ci/g}$	7.34E-02	
Repn	Replicate Concentration in $\mu\text{Ci/g}$	5.32E-02	
0	Average Concentration in $\mu\text{Ci/g}$	6.3276E-02	
Sample Prep			
FUSION01	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	$\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
S97T001956			
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
CJO			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average) =	6.33E-02	DETECTION LEVEL
Analyst			
KNT			
Date Complete			1.37E-02
08/28/97	RELATIVE COUNTING ERROR	32.3%	$\mu\text{Ci/g}$
Analysis Date			
08/27/97			
Analysis Time			
01:30 PM			
Sample Point			
AX-103			

Analyst:	KNT	Date: 28-Aug-97
Signature of Chemist:	SLF	Date: 9/3/97

SAMPLE.WB1 Rev. 1.0

508101ML

WORKBOOK PAGE: SPK6

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

		SPIKE	REPLICATE
Type	DETECTOR NUMBER	15	15
SPK	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	57213	56650
20022	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	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)	1.924	1.924
Matrix	SPIKE VOLUME in mL (SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR (SDF)	1	1
Batch Number	SPIKE BOOK NUMBER (Spk BN)	137B43	137B43
97004172	SPIKE VALUE in $\mu\text{Ci/mL}$ (SVal)	3.7497E-02	3.7497E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2701	0.2701
0	SAMPLE + SPIKE $\mu\text{Ci/g}$ (S+S)	7.27E+01	7.20E+01
Sample Prep	AVERAGE or MAXIMUM $\mu\text{Ci/g}$ in SAMPLE	6.6743E-02	
FUSION01			
Sample #			
S97T001956	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Instrument Code	$SAMPLE + SPIKE \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
WB26872	QC ACTUAL = SVal		
Prepared By	QC FOUND = $((S+S \mu\text{Ci/g} - SAMPLE \mu\text{Ci/g}) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))$		
CJO	PERCENT SPIKE RECOVERY = $(QC \text{ FOUND} / QC \text{ ACTUAL}) * 100$		
Chemist			
SLF			
Analyst			
KNT			
Date Complete			
08/28/97			
Analysis Date			
08/27/97	QC ACTUAL =	3.75E-02	
Analysis Time	QC FOUND =	3.16E-02	
01:30 PM	AVG. PERCENT SPIKE RECOVERY =	84.3%	
Sample Point			
AX-103			

Analyst:	CJO	Date: 28-Aug-97
Signature of Chemist:	SLF	Date: 9/3/97
SPIKE.WB1 Rev. 1.0	508101ML	

LABCORE Completed RadChem Report for Worklist#: 20052

Analyst: jmv

Instrument: AB18

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: AX103, @ALPHA01 S.S. by Ludlum. Std = 1.0mL skm

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	0	ALPHA01 ALPHA01	LIQUID	2.00E-04	1.75E-4	27.500	% Recovery
1 STD	0	0	ALPHA01 ALPHA01E	LIQUID	1.00	3.59E+00	3.590	% Ct. Error
2 BLNK	0	0	ALPHA01 ALPHA01	LIQUID	1	<4.14E-8		uCi/mL
2 BLNK	0	0	ALPHA01 ALPHA01E	LIQUID	1.00	5.00E+02	500.000	uCi/mL
3 BLNK/BKG	0	0	ALPHA01 ALPHA01	LIQUID	1.00E+00	1.54E+00	1.540	BLNK/BKG
3 BLNK/BKG	S97T001828	0	ALPHA01 ALPHA01	LIQUID	N/A	< 2.69E-08	678.0e-010	uCi/mL
4 SAMPLE	S97T001828	0	ALPHA01 ALPHA01E	LIQUID	N/A	5.00E+02	0.0e+000	% Ct. Error
5 DUP	S97T001828	0	ALPHA01 ALPHA01	LIQUID	<2.69E-8	<2.69E-8		RPD
5 DUP	S97T001828	0	ALPHA01 ALPHA01E	LIQUID	1.00	5.00E+02	500.000	% Ct. Error

Final page for worklist# 20052

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Reviewer Signature

9/13/97
Date

LABCORE Data Entry Template for Worklist# 20052

Analyst: jmv Instrument: AB00 #18 Book# 79856

Method: LA-508-101 Rev/Mod F.O

Worklist Comment: AX103, @ALPHA01 S.S. by Ludlum. Std= 1.0mL 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	S97T001828 0		@ALPHA01	LIQUID	97000494	AX-103
	Analytes Requested: ALPHA01 , ALPHA01E					
5 DUP	S97T001828 0		@ALPHA01	LIQUID		

Final page for worklist # 20052

Joseph M. Sant 8-29-97
Analyst Signature Date

He Wright 9/2/97
Analyst Signature Date
She Hogan 9-2-97

Data Entry Comments:

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

WORKBOOK PAGE: STD1

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

		STANDARD	REPLICATE
Type	DETECTOR NUMBER	18	18
STD	DISH SIZE (1, 2, or 5) (MS)	2	2
Work List	GROSS COUNTS (GC)	2985	3198
20052	COUNT TIME in MINUTES (CT)	30	30
At for TB?	BACKGROUND in cpm (BKG)	0.13	0.13
AT	SAMPLE SIZE in mL (SS)	1.000	1.000
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER (Std BN)	79B56	79B56
Matrix	EFFICIENCY FACTOR (EFF)	0.2644	0.2644
LIQUID	Lc, Rmax, or Rs.(SAMPLE RATE) as APPROPRIATE	99.370	106.470
Batch Number	Standard Value in $\mu\text{Ci/mL}$	2.00E-04	
97004203	Concentration in $\mu\text{Ci/L}$ =	1.69E-01	
ReRun	Replicate Concentration in $\mu\text{Ci/L}$ =	1.81E-01	
0	AVERAGE CONCENTRATION in $\mu\text{Ci/L}$ =	1.7534E-01	
Sample Prep			
N/A	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	$\text{ALPHA TOTAL } \mu\text{Ci/L} = R_s * 1000\text{mL/L} * DF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
WL20052	$\text{ALPHA TOTAL } \mu\text{Ci/mL} = \text{ALPHA TOTAL } \mu\text{Ci/L} / 1000\text{mL/L}$		
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
NEW			
Chemist			
SLF	ALPHA TOTAL CONCENTRATION in $\mu\text{Ci/mL}$ =	1.75E-04	DETECTION LEVEL
Analyst			
JMV			
Date Complete			6.78E-07 $\mu\text{Ci/mL}$
09/02/97	RELATIVE COUNTING ERROR =	3.6%	
Analysis Date			
08/29/97			
Analysis Time			
04:30 PM			
Sample Point			
AX-103			

Analyst:	NEW	Date: 02-Sep-97
Signature of Chemist:	SLF	Date: 9/3/97

STANDARD.WB1 Rev. 1.0

508101ML

WORKBOOK PAGE: BLANK2

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

LIQUIDS

		BLNK	REPLICATE
Type	DETECTOR NUMBER	18	18
BLNK	DISH SIZE (1, 2, or 5) (MS)	2	2
Work List	GROSS COUNTS (GC)	6	6
20052	COUNT TIME in MINUTES (CT)	30	30
AT or TB?	BACKGROUND in cpm (BKG)	0.13	0.13
AT	SAMPLE SIZE in mL (SS)	10.000	10.000
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR (DDF)	1	1
Matrix	EFFICIENCY FACTOR (EFF)	0.2644	0.2644
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.243	0.243

Batch Number	
97004203	Blank Concentration in $\mu\text{Ci/L}$ < 4.14E-05
ReRun	Replicate Concentration in $\mu\text{Ci/L}$ < 4.14E-05
0	Maximum Concentration in $\mu\text{Ci/L}$ < 4.1408E-05

Sample Prep	N/A	Rs (Sample Count Rate) = $(TC / CT) - BKG$
Sample	WL20052	ALPHA TOTAL $\mu\text{Ci/L}$ = $Rs * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$
Instrument Code	WB27809	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$
Prepared By	NEW	Relative Counting Error = $[(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$
Chemist		Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$ (Maximum) =	< 4.14E-08	DETECTION LEVEL
Analyst	JMV		
Date Complete	09/02/97	RELATIVE COUNTING ERROR	500.0%
Analysis Date	08/29/97		6.78E-08 $\mu\text{Ci/mL}$
Analysis Time	04:30 PM		
Sample Point	AX-103		

Analyst:	JMV	Date: 02-Sep-97
Signature of Chemist:	SLF	Date: 9/3/97
BLANK.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: SAM4

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

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	18	18
SAMPLE	DISH SIZE (1, 2, or 5) (MS)	2	2
Work List	GROSS COUNTS (GC)	3	4
20052	COUNT TIME in MINUTES (CT)	30	30
At or by	BACKGROUND in cpm (BKG)	0.13	0.13
AT	SAMPLE SIZE in mL (SS)	10.000	10.000
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR (DDF)	1	1
Matrix	EFFICIENCY FACTOR (EFF)	0.2644	0.2644
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.154	0.158
Batch Number			
97004203	Blank Concentration in $\mu\text{Ci/L}$	< 2.62E-05	
Run	Replicate Concentration in $\mu\text{Ci/L}$	< 2.69E-05	
0	Maximum Concentration in $\mu\text{Ci/L}$	< 2.6905E-05	
Sample Prep			
N/A	Rs (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $Rs * 1000\text{mL/L} * DF * DDF / (EFF * SS * 222000\text{dpm}/\mu\text{Ci})$		
S97T001828	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L}$ / 1000mL/L		
Instrument Code	Relative Counting Error = $[(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
NEW			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$ (Maximum) =	< 2.69E-08	DETECTION LEVEL
Analyst	LESS Than Value was Determined from Lc.		
JMV			
Date Complete	RELATIVE COUNTING ERROR	500.0%	6.78E-08 $\mu\text{Ci/mL}$
09/02/97			
Analysis Date			
08/29/97			
Analysis Time			
04:30 PM			
Sample Point			
AX-103			

Analyst:	JMV	Date: 02-Sep-97
Signature of Chemist:	SLF	Date: 9/3/97
SAMPLE.WB1 Rev. 1.	508101ML	

WORKBOOK PAGE: DUP5

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

LIQUIDS

		DUP	REPLICATE
Type	DETECTOR NUMBER	18	18
DUP	DISH SIZE (1, 2, or 5) (MS)	2	2
Work List	GROSS COUNTS (GC)	4	3
20052	COUNT TIME in MINUTES (CT)	30	30
AT for TB	BACKGROUND in cpm (BKG)	0.13	0.13
AT	SAMPLE SIZE in mL (SS)	10.000	10.000
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR (DDF)	1	1
Matrix	EFFICIENCY FACTOR (EFF)	0.2644	0.2644
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.158	0.154

Batch Number	
97004203	Blank Concentration in $\mu\text{Ci/L}$ < 2.69E-05
Replicate	Replicate Concentration in $\mu\text{Ci/L}$ < 2.62E-05
0	Maximum Concentration in $\mu\text{Ci/L}$ < 2.6905E-05

Sample Prep	
N/A	$R_s (\text{Sample Count Rate}) = (TC / CT) - BKG$
Sample	$\text{ALPHA TOTAL } \mu\text{Ci/L} = R_s * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$
S97T001828	$\text{ALPHA TOTAL } \mu\text{Ci/mL} = \text{ALPHA TOTAL } \mu\text{Ci/L} / 1000\text{mL/L}$
Instrument Code	$\text{Relative Counting Error} = [(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.98 * 100$
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By	
NEW	
Chemist	

SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$ (Maximum) = < 2.69E-08	DETECTION LEVEL
Analyst		
JMV	LESS THAN Value was Determined from Rmax.	
Date Complete		6.78E-08
09/02/97	RELATIVE COUNTING ERROR 500.0%	$\mu\text{Ci/mL}$

Analysis Date	
08/29/97	
Analysis Time	
04:30 PM	
Sample Point	
AX-103	

Analyst	JMV	Date: 02-Sep-97
Signature of Chemist:	SLF	Date: 9/3/97
SAMPLE.WB1 Rev. 1.	508101ML	

LABCORE Completed RadChem Report for Worklist#: 20283

Analyst: scl Instrument: AB16 Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: Use .100 mL sample size. Rerun #2. SLF

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		0ALPHA01 ALPHA01	SOLID	1.82E-04	1.51E-4	82.967	% Recovery
1 STD	0		0ALPHA01 ALPHA01E	SOLID	1.00	3.82E+00	3.820	% Ct. Erro
2 BLNK-PREP	0		0ALPHA01 ALPHA01	SOLID	1	<3.74E-3		uCi/g
2 BLNK-PREP	0		0ALPHA01 ALPHA01E	SOLID	1.00	1.67E+02	167.000	uCi/g
3 BLNK/BKG	0		0ALPHA01 ALPHA01	SOLID	1.00E+00	1.81E+00	1.810	BLNK/BKG
4 SAMPLE	S97T001888	0 F	0ALPHA01 ALPHA01	SOLID	N/A	2.95E-02	416.0e-005	uCi/g
4 SAMPLE	S97T001888	0 F	0ALPHA01 ALPHA01E	SOLID	N/A	2.28E+01	0.0e+000	% Ct. Error
5 DUP	S97T001888	0 F	0ALPHA01 ALPHA01	SOLID	2.95E-2	2.67E-2	9.964	RPD
5 DUP	S97T001888	0 F	0ALPHA01 ALPHA01E	SOLID	1.00	2.19E+01	21.900	% Ct. Erro
6 SPK	S97T001888	0 F	0ALPHA01 ALPHA01	SOLID	3.75E-02	2.42E-02	64.533	% Recovery

Final page for worklist# 20283

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Reviewer Signature

Date 9/17/97

The SPK recovery is within method control limits for the STD. No further reruns requested.

9/17/97

09/15/97 11:00
A-0004-1

Page: 1

LABCORE Data Entry Template for Worklist# 20283

Analyst: SL Instrument: AB00 16 Book# 12 B57Method: LA-508-101 Rev/Mod G-0

Worklist Comment: Use .100 mL sample size. Rerun #2. SLF

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@ALPHA01	SOLID		
2 BLNK-PREP			@ALPHA01	SOLID		
3 BLNK/BKG			@ALPHA01	SOLID		
4 SAMPLE	S97T001888	0 F	@ALPHA01	SOLID	97000494	AX-103
	Analytes Requested: ALPHA01 , ALPHA01E					
5 DUP	S97T001888	0 F	@ALPHA01	SOLID		
6 SPK	S97T001888	0 F	@ALPHA01	SOLID		

Final page for worklist # 20283

Sue La 9-16-97
Analyst Signature Date[Signature] 9/17/97
Analyst Signature Date
Sue Hogan 9/17/97

Data Entry Comments:

boil down

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)	2651
20283	COUNT TIME in MINUTES (CT)	30
A or TB?	BACKGROUND in cpm (BKG)	0.23
AT	SAMPLE SIZE in mL (SS)	1.000
Test Code	DILUTION FACTOR (DF)	1
@ALPHA01	STANDARD BOOK NUMBER (Std BN)	12B57
Matrix	EFFICIENCY FACTOR (EFF)	0.2683
LIQUID	Lc, Rmax, or Rs.(SAMPLE RATE) as APPROPRIATE	88.137
Batch Number	Standard Value in $\mu\text{Ci/mL}$	1.82E-04
97004448	Concentration in $\mu\text{Ci/L}$	1.48E-01
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	1.54E-01
0	AVERAGE CONCENTRATION in $\mu\text{Ci/L}$	1.5077E-01

Sample Prep	N/A	R_s (Sample Count Rate) = $(TC / CT) - BKG$
Sample #	WL20283-STD	$\text{ALPHA TOTAL } \mu\text{Ci/L} = R_s * 1000\text{mL/L} * DF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$
Instrument Code	WB27806	$\text{ALPHA TOTAL } \mu\text{Ci/mL} = \text{ALPHA TOTAL } \mu\text{Ci/L} / 1000\text{mL/L}$
Prepared By	MCB	$\text{Relative Counting Error} = [(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$
Chemist	SLF	Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF	ALPHA TOTAL CONCENTRATION in $\mu\text{Ci/mL}$	=	1.51E-04	DETECTION LEVEL
Analyst				
SCL				
Date Complete				8.38E-07
09/17/97	RELATIVE COUNTING ERROR	=	3.8%	$\mu\text{Ci/mL}$
Analysis Date				
09/16/97				
Analysis Time				
02:30 PM				
Sample Point				
AX-103				

Analyst:	MCB	Date: 17-Sep-97
Signature of Chemist:	SLF	Date: 9/17/97
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)	13	12
20283	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.23	0.23
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)	2.014	2.014
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.449	0.409
Batch Number			
97004448	Blank Concentration in $\mu\text{Ci/g}$	< 3.74E-03	
Rerun	Replicate Concentration in $\mu\text{Ci/g}$	< 3.41E-03	
0	Maximum Concentration in $\mu\text{Ci/g}$	< 3.7403E-03	
Sample Prep			
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sample #	ALPHA TOTAL $\mu\text{Ci/g}$ = $Rs * 1000\text{mL/L} * DF / (EFF * SS * \text{Dg/L} * 2220000\text{dpm}/\mu\text{Ci})$		
WL20283-BLNK			
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 $\mu\text{Ci/g}$ (Maximum) =	< 3.74E-03	DETECTION LEVEL
Analyst			
SCL	LESS THAN Value was Determined from Rmax.		
Date Complete	RELATIVE COUNTING ERROR	167.1%	4.16E-03 $\mu\text{Ci/g}$
09/17/97			
Analysis Date			
09/16/97			
Analysis Time			
02:30 PM			
Sample Point			
AX-103			

Analyst:	SCL	Date: 17-Sep-97
Signature of Chemist:	SLF	Date: 9/17/97
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)	93	133
20283	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.23	0.23
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)	2.014	2.014
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	2.870	4.203
Batch Number			
97004448	Blank Concentration in $\mu\text{Ci/g}$	2.39E-02	
Rerun	Replicate Concentration in $\mu\text{Ci/g}$	3.50E-02	
2	Average Concentration in $\mu\text{Ci/g}$	2.9482E-02	
Sample Prep			
FUSION01	Rs (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/g}$ = $Rs * 1000\text{mL/L} * DF / (EFF * SS * \text{Dg/L} * 2220000\text{dpm}/\mu\text{Ci})$		
S97T001888			
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			
MCB			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average) =	2.95E-02	DETECTION LEVEL
Analyst			
SCL			
Date Complete			4.16E-03
09/17/97	RELATIVE COUNTING ERROR	22.8%	$\mu\text{Ci/g}$
Analysis Date			
09/16/97			
Analysis Time			
02:30 PM			
Sample Point			
AX-103			

Analyst:	SCL	Date: 17-Sep-97
Signature of Chemist:	SLF	Date: 9/17/92
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)	99	110
20283	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.23	0.23
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)	2.0492	2.0492
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	3.070	3.437
Batch Number			
97004448	Blank Concentration in $\mu\text{Ci/g}$	2.52E-02	
Rerun	Replicate Concentration in $\mu\text{Ci/g}$	2.82E-02	
2	Average Concentration in $\mu\text{Ci/g}$	2.6655E-02	
Sample Prep			
FUSION01	Rs (Sample Count Rate) = $(\text{TC} / \text{CT}) - \text{BKG}$		
Sample #	ALPHA TOTAL $\mu\text{Ci/g}$ = $\text{Rs} * 1000\text{mL/L} * \text{DF} / (\text{EFF} * \text{SS} * \text{Dg/L} * 2220000\text{dpm}/\mu\text{Ci})$		
S97T001888			
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } \text{TC} + \text{BKG} * \text{CT}) / (\text{TC} - \text{BKG} * \text{CT})] * 1.96 * 100$		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
MCB			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average) =	2.67E-02	DETECTION LEVEL
Analyst			
SCL			
Date Complete			4.09E-03
09/17/97	RELATIVE COUNTING ERROR	21.9%	$\mu\text{Ci/g}$
Analysis Date			
09/16/97			
Analysis Time			
02:30 PM			
Sample Point			
AX-103			

Analyst:	SCL	Date: 17-Sep-97
Signature of Chemist:	SLF	Date: 9/17/97
SAMPLE.WB1 Rev. 1.0	508101ML	

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)	44739	41852
20283	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.23	0.23
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)	2.014	2.014
Matrix	SPIKE VOLUME in mL (SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR (SDF)	1	1
Batch Number	SPIKE BOOK NUMBER (Spk BN)	137B43	137B43
97004448	SPIKE VALUE in $\mu\text{Ci/mL}$ (SVal)	3.7494E-02	3.7494E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2683	0.2683
2	SAMPLE + SPIKE $\mu\text{Ci/g}$ (S+S)	1.24E+01	1.16E+01
Sample Prep	AVERAGE or MAXIMUM $\mu\text{Ci/g}$ in SAMPLE	2.9482E-02	
FUSION01			
Sample #			
S97T001888			
Instrument Code			
WB27806			
Prepared By			
MCB			
Chemist			
SLF			
Analyst			
SCL			
Date Complete			
09/17/97			
Analysis Date			
09/16/97			
Analysis Time			
02:30 PM			
Sample Point			
AX-103			

Rs (Sample Count Rate) = $(TC / CT) - BKG$
 $SAMPLE + SPIKE \mu\text{Ci/g} = Rs * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$
 $QC \text{ ACTUAL} = SVal$
 $QC \text{ FOUND} = (((S+S \mu\text{Ci/g} - SAMPLE \mu\text{Ci/g}) * ((SDF/(SVol*1000)))/(DF/SS/Dg/L))))$
 $PERCENT \text{ SPIKE RECOVERY} = (QC \text{ FOUND} / QC \text{ ACTUAL}) * 100$

QC ACTUAL	=	3.75E-02
QC FOUND	=	2.42E-02
AVG. PERCENT SPIKE RECOVERY	=	64.5%

Analyst:	MCB	Date: 17-Sep-97
Signature of Chemist:	SLF	Date: 9/17/97
SPIKE.WB1 Rev. 1.0	508101ML	

LABCORE Completed RadChem Report for Worklist#: 20023

Analyst: kgh

Instrument: AB15

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: AX103, @AM24101 S.S. by Ludlum. Std: 1.0mL skm

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@AM24101 AM24101	SOLID	1.03E-04	1.08E-4	104.854	% Recovery
1 STD	0		@AM24101 AM24101T	SOLID	100.	8.10E+01	81.000	% Recovery
1 STD	0		@AM24101 AM24101B	SOLID	1.0	1.89E+00	1.890	% Ct Error
2 BLNK-PREP	0		@AM24101 AM24101	SOLID	1	<2.92E-3		uCi/g
2 BLNK-PREP	0		@AM24101 AM24101T	SOLID	100.	8.64E+01	86.400	% Recovery
2 BLNK-PREP	0		@AM24101 AM24101B	SOLID	1.0	1.00E+02	100.000	% Ct Error
3 SAMPLE	S97T001954	0 F	@AM24101 AM24101	SOLID	N/A	3.21E-02	478.0e-005	uCi/g
3 SAMPLE	S97T001954	0 F	@AM24101 AM24101B	SOLID	N/A	2.13E+00	0.0e+000	% Ct. Error
3 SAMPLE	S97T001954	0 F	@AM24101 AM24101T	SOLID	N/A	8.71E+01	0.0e+000	% Recovery
4 DUP	S97T001954	0 F	@AM24101 AM24101	SOLID	3.21E-2	3.12E-2	2.844	RPD
4 DUP	S97T001954	0 F	@AM24101 AM24101T	SOLID	100.0	7.95E+01	79.500	% Recovery
4 DUP	S97T001954	0 F	@AM24101 AM24101B	SOLID	1.0	2.11E+00	2.110	% Ct Error

Final page for worklist# 20023

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

John Relyea 4 Sept 97
Reviewer Signature _____ Date _____
Validated

LABCORE Data Entry Template for Worklist# 20023

Analyst: KCH Instrument: AM01 Book# 75860
Method: LA-953-104 Rev/Mod BO AM 1341843
Worklist Comment: AX103, @AM24101 S.S. by Ludlum. Std: 1.0mL skm

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@AM24101	SOLID		
2 BLNK-PREP			@AM24101	SOLID		
3 SAMPLE	S97T001954	0 F	@AM24101	SOLID	97000495	AX-103
	Analytes Requested: AM24101 , AM24101E, AM24101T					
4 DUP	S97T001954	0 F	@AM24101	SOLID		

Final page for worklist #20023

Analyst Signature [Signature] Date 8-28-97

Analyst Signature [Signature] Date 9-2-97
[Signature] 9/3/97

Data Entry Comments:

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

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (B-0) or LA-953-104(B-0)

LIQUID

STD

Type	Date Counted	AUG-29-97	Am 241 AEA Frac. (C241)	0.504	
STD	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.458	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
20023	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	3499	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	134B43	Background in cpm (Bkg)	0.03	
Matrix	Am-243 Tracer Value (dpm/mL)	1087	Am 241 cpm	47.03	
LIQUID	Detector Number	15	Am 243 cpm	42.74	
Batch Number	Detector Efficiency (DetEff)	0.3032	Cm 243/244 cpm	0	
97004173	Standard Book No	75B56	AEA Count Time (min)	480	
Rerun	Standard Value in µCi/mL	1.030E-04	Am 241 µCi/L =	1.0776E-01	
0			Cm 243/244 µCi/L =	< 1.3195E-02	
Sample Prep					
N/A					
Sample Number	Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))				
WL20023	Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))				
Instrument Code					
WB26872	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100				
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
SEH					
Chemist					
JFR	Am 241 µCi/mL =	1.08E-04	DETECTION LEVELS in µCi/mL		
Analyst	Relative Counting Error =	1.9%			
KGH					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
09/02/97	Cm 243/244 µCi/mL	< 1.32E-05	Am 241		
Analysis Date	Relative Counting Error =	100.0%	1.32E-05		
08/28/97	Am 243 Tracer Recovery =	81.0%	Cm 243/244		
Analysis Time			1.32E-05		
03:00 PM					
Sample Point					
AX-103					

Analyst:	KGH	Date:	09/02/97
Signature of Chemist:	<i>John Rehyen</i>	Date:	4 Sept 97
STANDARD.WB1 REV 1.2	953103ML		

WORKBOOK PAGE: BLANK2

Am 241 and Cm 243/244: LA-953-103 (B-0) or LA-953-104(B-0)

LIQUID / SOLI

BLNK-PREP

Type	Date Counted	AUG-29-97	Am 241 AEA Frac. (C241)	0	
BLNK-PREP	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.995	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
20023	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	1719	
Test Code	Digest Grams of Solids/L (Dg/L)	1.951	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	134B43	Background in cpm (Bkg)	0.03	
Matrix	Am-243 Tracer Value (dpm/mL)	1087	Am 241 cpm	0	
SOLID	Detector Number	15	Am 243 cpm	48.53	
Batch Number	Detector Efficiency (DetEff)	0.3032	Cm 243/244 cpm	0	
97004173			AEA Count Time (min)	480	
Rerun			Am 241 $\mu\text{Ci/g}$ =	< 2.9180E-03	
0			Cm 243/244 $\mu\text{Ci/g}$ =	< 2.9180E-03	
Sample Prep					
N/A					
Sample Number	Am-241 $\mu\text{Ci/g}$ = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]				
WL20023	Cm-243/244 $\mu\text{Ci/g}$ = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]				
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100				
WB26872	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By					
SEH					
Chemist	NOTE: Am-241 Result is a LESS THAN Value.				
JFR	Am241 $\mu\text{Ci/g}$ =	< 2.92E-03	DETECTION LEVELS in $\mu\text{Ci/g}$		
Analyst	Relative Counting Error =	100.0%			
KGH					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
09/02/97	Cm 243/244 $\mu\text{Ci/g}$ =	< 2.92E-03	Am 241		
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244		
08/28/97	Am 243 Tracer Recovery =	86.4%	2.92E-03		
Analysis Time					
03:00 PM					
Sample Point					
AX-103					

Analyst:	KGH	Date:	09/02/97
Signature of Chemist:	JFR	Date:	4 Sept 97

BLANK.WB1 REV 1.2

953103ML

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (B-0) or LA-953-104(B-0)

LIQUID / SOLI

SAMPLE

Type	Date Counted	AUG-29-97	Am 241 AEA Frac. (C241)	0.385
SAMPLE	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.603
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0
20023	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	2857
Test Code	Digest Grams of Solids/L (Dg/L)	1.951	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	134B43	Background in cpm (Bkg)	0.03
Matrix	Am-243 Tracer Value (dpm/mL)	1087	Am 241 cpm	28.97
SOLID	Detector Number	15	Am 243 cpm	45.35
Batch Number	Detector Efficiency (DetEff)	0.3032	Cm 243/244 cpm	0
97004173			AEA Count Time (min)	480
Rerun			Am 241 $\mu\text{Ci/g}$ =	3.2051E-02
0			Cm 243/244 $\mu\text{Ci/g}$ =	< 4.7793E-03
Sample Prep				
FUSION01				
Sample Number	Am-241 $\mu\text{Ci/g}$ = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]			
S97T001954	Cm-243/244 $\mu\text{Ci/g}$ = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]			
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))]] * 1.96 * 100			
WB26872	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
Prepared By				
SEH				
Chemist				
JFR	Am241 $\mu\text{Ci/g}$ =	3.21E-02	DETECTION LEVELS in $\mu\text{Ci/g}$	
Analyst	Relative Counting Error =	2.1%		
KGH				
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
09/02/97	Cm 243/244 $\mu\text{Ci/g}$	< 4.78E-03		4.78E-03
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244	
08/28/97	Am 243 Tracer Recovery =	87.1%		4.78E-03
Analysis Time				
03:00 PM				
Sample Point				
AX-103				

Analyst:	KGH	Date:	09/02/97
Signature of Chemist:	<i>John Relyea</i>	Date:	4 Sep 97
SAMPLE.WB1 REV 1.2	953103ML		

WORKBOOK PAGE: DUP4

Am 241 and Cm 243/244: LA-953-103 (B-0) or LA-953-104(B-0)

LIQUID / SOLI

DUP

Type	Date Counted	AUG-29-97	Am 241 AEA Frac. (C241)	0.366
DUP	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.585
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0
20023	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	2687
Test Code	Digest Grams of Solids/L (Dg/L)	1.964	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	134B43	Background in cpm (Bkg)	0.03
Matrix	Am-243 Tracer Value (dpm/mL)	1087	Am 241 cpm	29.19
SOLID	Detector Number	15	Am 243 cpm	46.69
Batch Number	Detector Efficiency (DetEff)	0.3032	Cm 243/244 cpm	0
97004173			AEA Count Time (min)	480
Rerun			Am 241 $\mu\text{Ci/g}$ =	3.1195E-02
0			Cm 243/244 $\mu\text{Ci/g}$ =	< 5.3630E-03

Sample Prep

FUSION01

Sample Number

S97T001954

Instrument Code

WB26872

Prepared By

SEH

Chemist

JFR

Analyst

KGH

Date Complete

09/02/97

Analysis Date

08/28/97

Analysis Time

03:00 PM

Sample Point

AX-103

Am-241 $\mu\text{Ci/g}$ = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]Cm-243/244 $\mu\text{Ci/g}$ = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]Relative Counting Error = Square Root of $\{ [1 / (\text{Am-243 cpm} * \text{min})] + [1 / (\text{Am-241 or Cm-243/244 cpm} * \text{min})] \} * 1.96 * 100$

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

Am241 $\mu\text{Ci/g}$ = 3.12E-02

Relative Counting Error = 2.1%

DETECTION

LEVELS

in $\mu\text{Ci/g}$

Am 241

5.36E-03

Cm 243/244

5.36E-03

NOTE: Cm-243/244 Result is a LESS THAN Value.

Cm 243/244 $\mu\text{Ci/g}$ < 5.36E-03

Relative Counting Error = 100.0%

Am 243 Tracer Recovery = 79.5%

Analyst:	KGH	Date:	09/02/97
Signature of Chemist:	JFR	Date:	4 Sept 97
SAMPLE.WB1 REV 1.2	953103ML		

222-S Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 WL20023-STD
 File ID: 13a1318.CNF

Counted on: 8/29/97 @11:53
 Detector: AEA13
 Geometry number: 1
 Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1289.4	1289.4	301.860	301.860	12.000	5.781	6.000	1.936
2	1189.6	1189.6	256.159	256.131	12.000	4.826	6.000	1.556

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.	c/m			
1	Pu238	0.504	5.487	5.466	0.0210	0.03	47.03	1.3	261.1 0.118E-03
	Am241		5.479	5.466	0.013				200.0 0.901E-04
2	Am243	0.458	5.266	5.256	0.0100	0.02	42.74	1.4	172.6 0.777E-04
Totals:		0.962	<--valid peaks only-->				89.77		

DETECTOR CALIBRATION

Energy(MEV) = 4.078 + (0.0046)*Channel
 Energy range (MeV): 4.078 TO 6.433
 Efficiency = 0.2502 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	44809.0	100.000
Smoothed	44809.4	100.001
Composite fit	43094.6	96.174
Residuals	1714.4	3.826

Analyzed by:

MB

Spectrum 13a1318.CNF

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

Display Max.:

8944.8

```

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2.
..2
....2.
.....2
.....2.
.....2.
1.....2
.2.1.....
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.....1
.....1
1...

```


Raw Data Dump for AEA Spectrum: 13a1318.CNF

1	0.	0.	0.	0.	1.	1.	0.	1.	2.	0.
11	1.	0.	1.	0.	1.	0.	3.	0.	1.	2.
21	1.	0.	0.	0.	1.	3.	1.	1.	0.	1.
31	5.	2.	2.	1.	2.	2.	1.	1.	1.	1.
41	0.	0.	1.	3.	2.	3.	0.	1.	2.	0.
51	0.	1.	4.	1.	0.	1.	1.	2.	2.	0.
61	1.	4.	3.	1.	1.	2.	3.	0.	3.	4.
71	0.	2.	3.	1.	2.	0.	1.	2.	2.	3.
81	0.	3.	1.	1.	1.	1.	4.	2.	0.	2.
91	4.	1.	2.	3.	4.	7.	3.	3.	6.	1.
101	2.	0.	3.	2.	1.	3.	2.	0.	1.	1.
111	3.	3.	0.	4.	1.	5.	1.	5.	3.	0.
121	0.	1.	0.	4.	2.	2.	4.	0.	2.	4.
131	5.	1.	4.	2.	2.	2.	6.	5.	1.	3.
141	1.	3.	5.	2.	3.	2.	3.	3.	3.	7.
151	8.	5.	2.	4.	7.	5.	2.	2.	5.	1.
161	7.	4.	10.	2.	3.	6.	4.	9.	6.	4.
171	6.	3.	8.	6.	2.	7.	7.	5.	14.	9.
181	13.	7.	5.	7.	10.	6.	12.	10.	13.	6.
191	16.	14.	12.	14.	19.	16.	22.	21.	17.	30.
201	16.	18.	25.	30.	23.	31.	32.	35.	29.	39.
211	27.	42.	40.	48.	41.	42.	64.	48.	62.	53.
221	73.	62.	67.	101.	69.	90.	103.	108.	125.	125.
231	155.	160.	190.	205.	231.	203.	254.	288.	300.	305.
241	364.	368.	405.	480.	510.	604.	603.	699.	720.	814.
251	864.	903.	1012.	1160.	1300.	1338.	1378.	1283.	895.	590.
261	291.	210.	189.	167.	155.	130.	153.	151.	154.	142.
271	136.	107.	135.	134.	150.	147.	152.	168.	189.	182.
281	198.	232.	252.	273.	314.	311.	430.	439.	471.	474.
291	520.	631.	697.	763.	789.	867.	975.	993.	1108.	1196.
301	1402.	1478.	1443.	1187.	867.	577.	358.	270.	231.	226.
311	191.	133.	104.	74.	56.	29.	16.	4.	3.	0.
321	0.	0.	0.	1.	0.	1.	0.	0.	0.	1.
331	0.	0.	0.	0.	0.	0.	3.	1.	0.	1.
341	0.	2.	2.	0.	0.	0.	1.	1.	1.	3.
351	1.	3.	0.	0.	0.	0.	0.	2.	0.	0.
361	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
371	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	1.	0.	0.	0.	2.	0.
481	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

222-S Analytical Laboratory
 G E N E R A L A L P H A E N E R G Y A N A L Y S I S
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 WL20023-BLNK
 File ID: 14a1449.CNF

Counted on: 8/29/97 @11:54
 Detector: AEA14
 Geometry number: 1
 Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	605.7	605.7	250.235	250.235	14.000	7.703	7.000	0.889
2?	4.3	4.3	136.460	135.552	8.000	0.810	4.000	0.336

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err c/m @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Am243	0.995	5.266	5.248	0.0180.04	48.53	1.3	191.3	0.862E-04
2		????		4.721		0.10	105.		
Totals:			0.995	<--valid peaks only-->			48.53		

DETECTOR CALIBRATION

Energy(MEV) = 4.097 + (0.0046)*Channel
 Energy range (MeV): 4.097 TO 6.452
 Efficiency = 0.2562 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	23416.0	100.000
Smoothed	23415.9	99.999
Composite fit	23343.4	99.690
Residuals	72.6	0.310

Analyzed by: _____

MB

4228.7

[illegible]

Raw Data Dump for AEA Spectrum: 14a1449.CNF

HNF-SD-WM-DP-266, REV. 0

1	0.	0.	2.	2.	3.	7.	5.	1.	2.	4.
11	2.	1.	2.	2.	3.	0.	2.	5.	3.	4.
21	0.	3.	2.	0.	4.	4.	5.	4.	4.	3.
31	3.	4.	4.	5.	1.	5.	4.	2.	2.	2.
41	7.	6.	4.	6.	2.	3.	5.	1.	2.	0.
51	2.	2.	4.	2.	2.	10.	4.	3.	8.	2.
61	4.	5.	6.	5.	5.	3.	9.	4.	4.	5.
71	1.	5.	5.	1.	11.	6.	1.	11.	8.	7.
81	3.	6.	10.	8.	8.	11.	8.	4.	4.	7.
91	6.	10.	6.	7.	5.	4.	10.	5.	5.	2.
101	7.	17.	7.	11.	5.	7.	8.	10.	5.	12.
111	4.	12.	8.	9.	9.	9.	10.	8.	11.	17.
121	8.	15.	13.	16.	10.	19.	14.	14.	7.	14.
131	18.	17.	17.	17.	20.	27.	17.	22.	16.	18.
141	17.	24.	20.	13.	32.	22.	27.	24.	17.	25.
151	24.	32.	26.	40.	24.	25.	18.	35.	35.	32.
161	33.	39.	43.	39.	44.	28.	36.	46.	31.	40.
171	41.	47.	43.	50.	53.	53.	60.	56.	67.	42.
181	62.	74.	65.	72.	75.	72.	82.	64.	95.	75.
191	94.	79.	106.	105.	103.	93.	103.	104.	101.	114.
201	117.	121.	106.	128.	117.	144.	137.	126.	147.	169.
211	178.	180.	175.	192.	194.	207.	211.	225.	210.	227.
221	232.	295.	273.	252.	257.	300.	284.	314.	324.	336.
231	360.	350.	313.	363.	377.	436.	447.	405.	447.	428.
241	508.	527.	530.	557.	527.	581.	551.	606.	605.	628.
251	635.	629.	554.	497.	407.	233.	114.	73.	63.	44.
261	50.	34.	37.	35.	26.	30.	15.	13.	7.	8.
271	6.	0.	1.	2.	2.	0.	2.	1.	1.	4.
281	2.	3.	4.	4.	3.	6.	2.	1.	5.	9.
291	1.	5.	6.	7.	2.	1.	6.	7.	2.	3.
301	3.	1.	0.	0.	0.	1.	1.	0.	1.	1.
311	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
321	1.	1.	0.	0.	0.	1.	0.	1.	1.	0.
331	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	1.	1.	0.	0.	1.	0.	0.	0.	0.
351	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
361	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
421	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

222-S Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 S97T1954-SAM
 File ID: 15a1514.CNF

Counted on: 8/29/97 @11:55
 Detector: AEA15
 Geometry number: 1
 Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	432.8	432.8	298.934	298.934	16.000	8.473	8.000	1.250
2	703.2	703.2	253.857	253.710	12.000	5.886	6.000	0.862
3?	6.6	6.6	130.298	129.517	14.000	13.157	7.000	7.239
4?	3.3	3.3	125.902	121.186	14.000	0.704	7.000	3.117

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Am241	0.385	5.479	5.478	0.0010.04	28.97	1.7	125.1	0.563E-04
	Pu238		5.487	5.478	0.009			163.3	0.736E-04
2	Am243	0.603	5.266	5.266	0.0000.03	45.35	1.4	185.9	0.837E-04
3		????		4.682		0.25	33.5		
4		????		4.643		0.03	200.		
Totals:			0.989	<--valid peaks only-->			74.32		

DETECTOR CALIBRATION

Energy(MEV) = 4.073 + (0.0047)*Channel

Energy range (MeV): 4.073 TO 6.480

Efficiency = 0.2464 CPM/DPM

(Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	36087.0	100.000
Smoothed	36091.0	100.011
Composite fit	35809.1	99.230
Residuals	277.9	0.770

Analyzed by:

MB

Display Max.: 5798.7

539

Raw Data Dump for AEA Spectrum: 15a1514.CNF

1	0.	0.	3.	3.	5.	4.	3.	1.	3.	1.
11	2.	3.	2.	4.	2.	1.	1.	3.	3.	2.
21	1.	3.	0.	2.	4.	3.	4.	2.	3.	3.
31	2.	1.	3.	2.	3.	3.	1.	3.	4.	2.
41	1.	3.	2.	5.	1.	3.	1.	2.	3.	9.
51	1.	5.	4.	4.	9.	1.	3.	0.	3.	3.
61	3.	1.	1.	6.	3.	2.	4.	4.	6.	2.
71	4.	0.	6.	5.	4.	7.	5.	0.	1.	3.
81	6.	5.	5.	4.	3.	4.	5.	4.	3.	3.
91	5.	4.	6.	8.	3.	5.	4.	9.	6.	6.
101	5.	4.	7.	6.	6.	6.	4.	4.	4.	4.
111	8.	7.	5.	5.	5.	7.	12.	7.	7.	12.
121	8.	14.	8.	9.	12.	10.	11.	6.	15.	12.
131	10.	13.	9.	9.	10.	9.	7.	9.	14.	9.
141	10.	12.	13.	15.	7.	10.	13.	13.	14.	12.
151	18.	21.	22.	25.	17.	21.	19.	19.	20.	19.
161	21.	21.	17.	20.	21.	20.	20.	26.	15.	26.
171	23.	27.	33.	31.	25.	28.	26.	40.	35.	38.
181	42.	53.	37.	31.	41.	50.	44.	39.	43.	56.
191	54.	65.	57.	68.	67.	52.	74.	70.	92.	84.
201	85.	93.	85.	78.	93.	111.	103.	94.	114.	110.
211	112.	129.	150.	131.	143.	166.	139.	160.	168.	178.
221	200.	210.	225.	226.	229.	249.	269.	276.	247.	305.
231	302.	329.	361.	360.	393.	385.	417.	430.	452.	489.
241	495.	519.	541.	577.	583.	591.	631.	710.	717.	650.
251	690.	797.	790.	809.	838.	778.	657.	464.	284.	211.
261	177.	153.	160.	146.	150.	161.	150.	156.	149.	161.
271	158.	179.	146.	155.	151.	177.	176.	201.	217.	218.
281	219.	217.	232.	251.	238.	282.	291.	272.	301.	339.
291	338.	391.	383.	371.	426.	395.	425.	441.	475.	423.
301	429.	421.	299.	219.	161.	101.	87.	74.	53.	55.
311	30.	22.	22.	9.	2.	3.	4.	3.	1.	2.
321	2.	0.	1.	1.	3.	1.	4.	2.	0.	2.
331	2.	2.	1.	2.	1.	0.	2.	1.	2.	8.
341	3.	3.	7.	7.	2.	5.	0.	8.	14.	5.
351	8.	7.	6.	5.	9.	6.	8.	15.	8.	4.
361	6.	8.	6.	10.	9.	11.	7.	10.	10.	8.
371	12.	5.	2.	0.	0.	1.	0.	0.	0.	1.
381	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
401	0.	0.	0.	1.	1.	0.	0.	1.	0.	0.
411	0.	0.	0.	0.	1.	1.	0.	3.	0.	3.
421	1.	1.	0.	0.	0.	2.	0.	0.	2.	2.
431	0.	1.	0.	0.	2.	2.	2.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
471	1.	1.	0.	0.	1.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

222-S Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 SS97T1954-DUP
 File ID: 16a1637.CNF

Counted on: 8/29/97 @11:55
 Detector: AEA16
 Geometry number: 1
 Count time: 28806. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1?	15.0	15.0	367.396	367.396	14.000	5.186	7.000	1.192
2	483.7	483.7	299.156	299.155	14.000	8.327	7.000	1.411
3	853.5	853.5	253.415	253.329	14.000	6.049	7.000	1.104

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate	%err c/m @95	d/m	Activity uCi/ea
1		????		5.774			0.68	10.9		
2	Am241	0.366	5.479	5.460	0.0190.04		29.19	1.7	114.7	0.517E-04
	Pu238		5.487	5.460	0.027				149.7	0.674E-04
3	Am243	0.585	5.266	5.249	0.0170.03		46.69	1.4	174.1	0.784E-04
Totals:		0.951	<--valid peaks only-->				75.88			

DETECTOR CALIBRATION

Energy(MEV) = 4.084 + (0.0046)*Channel
 Energy range (MeV): 4.084 TO 6.439
 Efficiency = 0.2708 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	38314.0	100.000
Smoothed	38314.1	100.000
Composite fit	36754.6	95.930
Residuals	1559.4	4.070

Analyzed by:

MB

6812.0

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Raw Data Dump for AEA Spectrum: 16a1637.CNF

1	0.	0.	3.	1.	0.	1.	2.	2.	1.	1.
11	3.	1.	2.	3.	1.	3.	1.	1.	3.	1.
21	1.	1.	4.	1.	0.	2.	1.	3.	3.	1.
31	0.	0.	1.	1.	0.	1.	3.	3.	1.	3.
41	0.	3.	4.	1.	4.	2.	3.	3.	2.	1.
51	4.	2.	3.	3.	2.	4.	4.	1.	2.	4.
61	4.	1.	3.	4.	5.	1.	5.	2.	5.	3.
71	2.	6.	3.	3.	4.	2.	8.	0.	4.	6.
81	2.	4.	3.	4.	5.	2.	0.	3.	5.	3.
91	3.	4.	2.	6.	7.	0.	5.	5.	0.	11.
101	2.	3.	4.	6.	9.	4.	8.	3.	5.	8.
111	5.	5.	5.	5.	9.	8.	6.	5.	7.	11.
121	8.	9.	16.	5.	6.	11.	10.	3.	8.	12.
131	6.	14.	5.	8.	8.	12.	9.	7.	7.	13.
141	7.	9.	12.	11.	13.	16.	11.	10.	14.	14.
151	12.	14.	18.	19.	11.	10.	16.	15.	19.	13.
161	16.	26.	19.	22.	15.	15.	19.	23.	22.	24.
171	16.	28.	27.	26.	30.	24.	28.	27.	37.	27.
181	38.	32.	42.	54.	47.	33.	48.	47.	46.	41.
191	52.	67.	46.	48.	61.	52.	54.	71.	66.	63.
201	67.	92.	89.	88.	85.	91.	115.	120.	93.	128.
211	131.	118.	136.	136.	137.	136.	146.	177.	174.	183.
221	200.	200.	191.	216.	220.	225.	282.	282.	272.	294.
231	303.	320.	391.	355.	370.	406.	387.	462.	445.	537.
241	544.	542.	585.	626.	675.	699.	743.	783.	827.	872.
251	774.	952.	985.	979.	942.	839.	726.	435.	289.	193.
261	164.	160.	160.	173.	150.	152.	154.	141.	161.	148.
271	167.	157.	137.	159.	170.	147.	175.	171.	177.	188.
281	209.	221.	248.	267.	272.	300.	337.	275.	329.	337.
291	383.	422.	431.	421.	410.	482.	487.	508.	487.	503.
301	516.	442.	357.	264.	163.	121.	111.	77.	74.	56.
311	57.	30.	17.	14.	4.	9.	1.	2.	1.	1.
321	2.	1.	1.	0.	2.	4.	3.	2.	1.	1.
331	3.	3.	3.	4.	0.	6.	3.	3.	2.	2.
341	1.	4.	2.	2.	3.	5.	4.	6.	2.	7.
351	9.	4.	4.	5.	10.	10.	13.	6.	10.	15.
361	14.	11.	8.	12.	14.	13.	17.	20.	10.	14.
371	13.	9.	1.	1.	1.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	1.	1.	1.	0.	0.	0.
401	0.	1.	0.	1.	1.	0.	0.	0.	1.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
421	2.	0.	0.	0.	2.	1.	1.	1.	0.	0.
431	0.	0.	0.	2.	3.	4.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

LABCORE Completed RadChem Report for Worklist#: 20024

Analyst: kgh

Instrument: AB14

Book# 75B56

Method: LA-953-104 Rev/Mod B-4

Worklist Comment: AX103, @AM24101 S.S. by Ludlum. Std: 1.0mL skm

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@AM24101 AM24101	SOLID	1.03E-04	1.12E-4	108.738	% Recovery
1 STD	0		@AM24101 AM24101T	SOLID	100.	7.91E+01	79.100	% Recovery
1 STD	0		@AM24101 AM24101E	SOLID	1.0	1.86E+00	1.860	% Ct Error
2 BLNK-PREP	0		@AM24101 AM24101	SOLID	1	<3.55E-3		uCi/g
2 BLNK-PREP	0		@AM24101 AM24101T	SOLID	100.	7.70E+01	77.000	% Recovery
2 BLNK-PREP	0		@AM24101 AM24101E	SOLID	1.0	1.00E+02	100.000	% Ct Error
3 SAMPLE	S97T001956	0 F	@AM24101 AM24101	SOLID	N/A	6.19E-02	731.0e-005	uCi/g
3 SAMPLE	S97T001956	0 F	@AM24101 AM24101E	SOLID	N/A	1.83E+00	0.0e+000	% Ct. Error
3 SAMPLE	S97T001956	0 F	@AM24101 AM24101T	SOLID	N/A	8.11E+01	0.0e+000	% Recovery
4 DUP	S97T001956	0 F	@AM24101 AM24101	SOLID	6.19E-2	5.82E-2	6.162	RPD
4 DUP	S97T001956	0 F	@AM24101 AM24101T	SOLID	100.0	7.73E+01	77.300	% Recovery
4 DUP	S97T001956	0 F	@AM24101 AM24101E	SOLID	1.0	1.78E+00	1.780	% Ct Error

Final page for worklist# 20024

Analyst Signature

Date

Analyst Signature

Date

John Relyea 4 Sept 97
Reviewer Signature Date

Validated

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

LABCORE Data Entry Template for Worklist# 20024

Analyst: KCN Instrument: AM01 14 Book# 75B56
Method: LA-953-104 Rev/Mod _____ AM 134B43

Worklist Comment: AX103, @AM24101 S.S. by Ludlum. Std: 1.0mL skm

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@AM24101	SOLID		
2	BLNK-PREP				@AM24101	SOLID		
3	SAMPLE	S97T001956	0	F	@AM24101	SOLID	97000495	AX-103
		Analytes Requested: AM24101 , AM24101E, AM24101T						
4	DUP	S97T001956	0	F	@AM24101	SOLID		

Final page for worklist # 20024

[Signature] 8-28-97
Analyst Signature Date

[Signature] 9-2-97
Analyst Signature Date
MEB 9/3/97

Data Entry Comments:

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

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (B-0) or LA-953-104(B-0))

LIQUID

STD

Type	Date Counted	AUG-29-97	Am 241 AEA Frac. (C241)	0.514
STD	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.451
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0
20024	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	3334
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	134B43	Background in cpm (Bkg)	0.2
Matrix	Am-243 Tracer Value (dpm/mL)	1087	Am 241 cpm	49.69
LIQUID	Detector Number	14	Am 243 cpm	43.63
Batch Number	Detector Efficiency (DetEff)	0.2910	Cm 243/244 cpm	0
97004174	Standard Book No	75B56	AEA Count Time (min)	480
Run	Standard Value in $\mu\text{Ci/mL}$	1.030E-04	Am 241 $\mu\text{Ci/L}$ =	1.1161E-01
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 1.3728E-02

Sample Prep

N/A

Sample Number

WL20024

Instrument Code

WB27807

Prepared By

SEH

Chemist

JFR

Analyst

KGH

Date Complete

09/02/97

Analysis Date

08/28/97

Analysis Time

03:00 PM

Sample Point

AX-103

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

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

Am 241 $\mu\text{Ci/mL}$ = 1.12E-04

Relative Counting Error = 1.9%

DETECTION
LEVELS
in $\mu\text{Ci/mL}$

NOTE: Cm-243/244 Result is a LESS THAN Value.

Cm 243/244 $\mu\text{Ci/mL}$ < 1.37E-05

Relative Counting Error = 100.0%

Am 243 Tracer Recovery = 79.1%

Am 241
1.37E-05
Cm 243/244
1.37E-05

Analyst:	KGH	Date:	09/02/97
Signature of Chemist:	<i>John Relyea</i>	Date:	4 Sept 97

STANDARD.WB1 REV 1.2

953103ML

WORKBOOK PAGE: BLANK2

Am 241 and Cm 243/244: LA-953-103 (B-0) or LA-953-104(B-0)

LIQUID / SOLI

BLNK-PREP

Type	Date Counted	AUG-29-97	Am 241 AEA Frac. (C241)	0
BLNK-PREP	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.931
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0
20024	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	1575
Test Code	Digest Grams of Solids/L (Dg/L)	1.924	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	134B43	Background in cpm (Bkg)	0.2
Matrix	Am-243 Tracer Value (dpm/mL)	1087	Am 241 cpm	0
SOLID	Detector Number	14	Am 243 cpm	45.04
Batch Number	Detector Efficiency (DetEff)	0.2910	Cm 243/244 cpm	0
97004174			AEA Count Time (min)	480
Rerun			Am 241 $\mu\text{Ci/g}$ =	< 3.5516E-03
0			Cm 243/244 $\mu\text{Ci/g}$ =	< 3.5516E-03
Sample Prep				
N/A				
Sample Number	Am-241 $\mu\text{Ci/g}$ = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]			
WL 20024	Cm-243/244 $\mu\text{Ci/g}$ = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]			
Instrument Code				
WB27807	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.98 * 100			
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
SEH				
Chemist	NOTE: Am-241 Result is a LESS THAN Value.			
JFR	Am241 $\mu\text{Ci/g}$ = < 3.55E-03		DETECTION LEVELS in $\mu\text{Ci/g}$	
Analyst	Relative Counting Error = 100.0%		Am 241	
KGH			3.55E-03	
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.		Cm 243/244	
09/02/97	Cm 243/244 $\mu\text{Ci/g}$ < 3.55E-03			
Analysis Date	Relative Counting Error = 100.0%			
08/28/97	Am 243 Tracer Recovery = 77.0%			
Analysis Time				
03:00 PM				
Sample Point				
AX-103				

Analyst:	KGH	Date:	09/02/97
Signature of Chemist:	<i>John Relyea</i>	Date:	4 Sept 97
BLANK.WB1 REV 1.2	953103ML		

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (B-0) or LA-953-104(B-0)

LIQUID / SOLI

SAMPLE

Type	Date Counted	AUG-29-97	Am 241 AEA Frac. (C241)	0.522
SAMPLE	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.429
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0.017
20024	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	3594
Test Code	Digest Grams of Solids/L (Dg/L)	1.924	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	134B43	Background in cpm (Bkg)	0.2
Matrix	Am-243 Tracer Value (dpm/mL)	1087	Am 241 cpm	53.07
SOLID	Detector Number	14	Am 243 cpm	43.59
Batch Number	Detector Efficiency (DetEff)	0.2910	Cm 243/244 cpm	1.74
97004174			AEA Count Time (min)	480
Rerun			Am 241 $\mu\text{Ci/g}$ =	6.1932E-02
0			Cm 243/244 $\mu\text{Ci/g}$ =	< 7.3144E-03
Sample Prep				
FUSION01				
Sample Number	Am-241 $\mu\text{Ci/g}$ = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]			
S97T001956	Cm-243/244 $\mu\text{Ci/g}$ = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]			
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100			
WB27807	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
Prepared By				
SEH				
Chemist				
JFR	Am241 $\mu\text{Ci/g}$ =	6.19E-02	DETECTION LEVELS in $\mu\text{Ci/g}$	
Analyst	Relative Counting Error =	1.8%		
KGH				
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			
09/02/97	Cm 243/244 $\mu\text{Ci/g}$	< 7.31E-03	Am 241	7.31E-03
Analysis Date	Relative Counting Error =	6.9%	Cm 243/244	7.31E-03
08/28/97	Am 243 Tracer Recovery =	81.1%		
Analysis Time				
03:00 PM				
Sample Point				
AX-103				

Analyst:	KGH	Date:	09/02/97
Signature of Chemist:	<i>John Polycar</i>	Date:	4 Sept 97
SAMPLE:WB1 REV 1.2	953103ML		

WORKBOOK PAGE: DUP4

Am 241 and Cm 243/244: LA-953-103 (B-0) or LA-953-104(B-0)

LIQUID / SOLI

DUP

Type	Date Counted	AUG-29-97	Am 241 AEA Frac. (C241)	0.503
DUP	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.438
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0.014
20024	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	3355
Test Code	Digest Grams of Solids/L (Dg/L)	1.933	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	134B43	Background in cpm (Bkg)	0.2
Matrix	Am-243 Tracer Value (dpm/mL)	1087	Am 241 cpm	54.09
SOLID	Detector Number	14	Am 243 cpm	47.13
Batch Number	Detector Efficiency (DetEff)	0.2910	Cm 243/244 cpm	1.54
97004174			AEA Count Time (min)	480
Rerun			Am 241 $\mu\text{Ci/g}$ =	5.8185E-02
0			Cm 243/244 $\mu\text{Ci/g}$ =	< 7.4834E-03
Sample Prep				
FUSION01				
Sample Number	Am-241 $\mu\text{Ci/g}$ = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]			
S977001956	Cm-243/244 $\mu\text{Ci/g}$ = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]			
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100			
WB27807	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
Prepared By				
SEH				
Chemist				
JFR	Am241 $\mu\text{Ci/g}$ =	5.82E-02	DETECTION LEVELS in $\mu\text{Ci/g}$	
Analyst	Relative Counting Error =	1.8%		
KGH			Am 241	
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.		7.48E-03	
09/02/97	Cm 243/244 $\mu\text{Ci/g}$	< 7.48E-03	Cm 243/244	
Analysis Date	Relative Counting Error =	7.3%		
08/28/97	Am 243 Tracer Recovery =	77.3%		
Analysis Time				
03:00 PM				
Sample Point				
AX-103				

Analyst:	KGH	Date:	09/02/97
Signature of Chemist:	JFR	Date:	4 Sept 97

SAMPLE.WB1 REV 1.2

953103ML

222-S Analytical Laboratory
 G E N E R A L A L P H A E N E R G Y A N A L Y S I S
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 WL20024-STD-AM
 File ID: 13a1320.CNF

Counted on: 8/29/97 @23:17
 Detector: AEA13
 Geometry number: 1
 Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	926.3	926.3	300.611	300.611	14.000	7.746	7.000	1.529
2	849.3	849.3	254.981	254.783	14.000	6.169	7.000	1.233
3?	8.3	8.3	141.060	140.750	126.000	1.000	63.000	0.100

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate c/m	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Am241	0.514	5.479	5.461	0.0180.04	49.69	1.3	211.4	0.952E-04
	Pu238		5.487	5.461	0.026			276.0	0.124E-03
2	Am243	0.451	5.266	5.250	0.0160.03	43.63	1.5	176.2	0.794E-04
3		????		4.725		0.65	11.9		
-----			-----						
Totals:			0.965	<--valid peaks only-->			93.32		

DETECTOR CALIBRATION

Energy(MEV) = 4.078 + (0.0046)*Channel
 Energy range (MeV): 4.078 TO 6.433
 Efficiency = 0.2501 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	46426.0	100.000
Smoothed	46425.1	99.998
Composite fit	45110.5	97.166
Residuals	1315.5	2.834

Analyzed by: _____

VR

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

Display Max.: 6923.4

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Raw Data Dump for AEA Spectrum: 13a1320.CNF

1	0.	0.	2.	2.	0.	4.	1.	1.	0.	0.
11	0.	1.	1.	2.	0.	4.	2.	0.	3.	1.
21	1.	2.	2.	0.	0.	1.	0.	2.	0.	1.
31	1.	1.	3.	4.	2.	3.	0.	0.	3.	0.
41	2.	1.	2.	1.	0.	2.	3.	1.	5.	2.
51	3.	0.	2.	2.	1.	1.	0.	2.	1.	4.
61	1.	5.	2.	1.	0.	1.	1.	0.	1.	1.
71	1.	1.	1.	3.	2.	4.	2.	1.	5.	6.
81	1.	3.	2.	3.	0.	2.	7.	4.	2.	3.
91	7.	0.	4.	3.	4.	4.	4.	3.	5.	6.
101	3.	2.	3.	5.	8.	4.	1.	7.	6.	2.
111	8.	3.	9.	5.	9.	7.	3.	9.	7.	3.
121	10.	9.	8.	3.	5.	12.	4.	7.	7.	11.
131	6.	10.	4.	12.	6.	9.	8.	7.	11.	8.
141	12.	11.	9.	8.	6.	12.	9.	8.	10.	9.
151	6.	11.	11.	12.	17.	10.	19.	11.	16.	16.
161	14.	17.	12.	17.	20.	13.	21.	24.	16.	23.
171	25.	31.	33.	21.	18.	21.	32.	27.	20.	29.
181	21.	29.	37.	29.	27.	35.	36.	49.	36.	43.
191	36.	57.	42.	47.	42.	59.	59.	49.	54.	55.
201	58.	56.	58.	70.	56.	58.	72.	86.	81.	88.
211	90.	111.	117.	117.	107.	117.	130.	113.	119.	152.
221	145.	164.	172.	180.	188.	219.	238.	203.	273.	253.
231	259.	295.	281.	320.	345.	339.	368.	353.	414.	455.
241	455.	502.	472.	574.	586.	643.	704.	692.	732.	823.
251	843.	870.	935.	946.	990.	999.	910.	837.	596.	398.
261	290.	215.	209.	188.	202.	186.	198.	195.	214.	209.
271	191.	230.	226.	228.	249.	262.	268.	287.	296.	300.
281	311.	330.	408.	350.	394.	459.	509.	526.	551.	566.
291	634.	643.	706.	734.	820.	782.	847.	888.	952.	959.
301	1001.	933.	911.	799.	558.	350.	246.	187.	161.	123.
311	102.	87.	61.	45.	28.	17.	8.	3.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	2.	0.	1.	0.	1.
351	1.	3.	0.	0.	1.	0.	0.	0.	0.	1.
361	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
421	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	1.	0.	0.	0.	1.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

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DATA REDUCTION REPORT

SAMPLE
 WL20024-BLK-AM
 File ID: 14a1451.CNF

Counted on: 8/29/97 @23:18
 Detector: AEA14
 Geometry number: 1
 Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1252.8	1252.8	255.788	255.788	12.000	4.943	6.000	1.605

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Exp.	Peak Centroid Obs.	Diff.	FWHM	Count Rate	%err @95	d/m	Activity uCi/ea
1	Am243	0.931	5.266	5.261	0.005	0.02	45.04	1.3	178.5	0.804E-04
Totals:		0.931	<--valid peaks only-->				45.04			

DETECTOR CALIBRATION

Energy(MEV) = 4.085 + (0.0046)*Channel
 Energy range (MeV): 4.085 TO 6.440
 Efficiency = 0.2549 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	23230.0	100.000
Smoothed	23230.3	100.001
Composite fit	21618.5	93.063
Residuals	1611.5	6.937

Analyzed by:

VR

[illegible]

Raw Data Dump for AEA Spectrum: 14a1451.CNF

1	0.	0.	0.	0.	1.	1.	1.	0.	0.	1.
11	0.	0.	1.	1.	0.	0.	0.	1.	0.	1.
21	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
31	0.	1.	0.	1.	0.	0.	1.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	2.	1.
51	0.	1.	0.	0.	1.	0.	1.	2.	0.	0.
61	1.	1.	0.	1.	0.	0.	1.	2.	1.	1.
71	1.	1.	0.	1.	1.	0.	1.	1.	0.	1.
81	3.	1.	1.	0.	0.	0.	1.	0.	0.	0.
91	0.	1.	0.	3.	0.	2.	1.	0.	1.	0.
101	1.	3.	0.	1.	2.	1.	0.	0.	0.	2.
111	0.	2.	0.	0.	2.	2.	4.	0.	0.	0.
121	3.	1.	0.	2.	1.	1.	3.	2.	2.	5.
131	3.	1.	1.	2.	0.	0.	4.	1.	3.	1.
141	2.	3.	1.	6.	2.	2.	3.	2.	2.	5.
151	5.	2.	3.	1.	6.	3.	5.	4.	3.	4.
161	6.	4.	2.	4.	6.	3.	1.	5.	3.	3.
171	6.	5.	6.	6.	7.	5.	1.	5.	7.	10.
181	8.	6.	6.	10.	9.	11.	11.	9.	13.	16.
191	10.	18.	13.	17.	18.	19.	25.	24.	19.	19.
201	18.	30.	27.	28.	32.	27.	27.	34.	31.	41.
211	41.	45.	47.	55.	52.	43.	46.	68.	64.	73.
221	82.	80.	93.	105.	92.	104.	137.	142.	129.	139.
231	170.	178.	220.	186.	244.	225.	265.	251.	302.	326.
241	370.	411.	418.	491.	567.	598.	686.	723.	840.	885.
251	938.	1016.	1054.	1274.	1321.	1427.	1350.	1202.	877.	524.
261	239.	136.	136.	117.	94.	94.	77.	71.	72.	65.
271	44.	32.	30.	19.	9.	5.	3.	0.	0.	1.
281	1.	3.	3.	2.	3.	3.	2.	2.	2.	7.
291	3.	5.	8.	7.	4.	4.	11.	6.	13.	9.
301	8.	7.	5.	7.	3.	6.	5.	2.	1.	1.
311	1.	1.	0.	0.	1.	1.	0.	0.	0.	3.
321	0.	1.	1.	0.	0.	1.	0.	0.	0.	0.
331	0.	0.	1.	1.	1.	0.	0.	2.	1.	0.
341	0.	0.	0.	0.	0.	2.	1.	0.	1.	0.
351	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.
361	1.	0.	1.	0.	0.	0.	1.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

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DATA REDUCTION REPORT

SAMPLE
S97T001956-SAM-A
File ID: 15a1516.CNF

Counted on: 8/29/97 @23:19
Detector: AEA15
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	39.3	39.3	368.059	368.059	12.000	4.569	6.000	1.060
2	1263.3	1263.3	300.133	300.133	14.000	6.236	7.000	1.689
3	1051.8	1051.8	254.745	254.668	12.000	5.061	6.000	1.322

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid		Count Rate	%err @95	d/m	Activity uCi/ea
			Exp.	Obs. Diff.				
1	Cm243	0.017	5.779	5.801 -0.022	0.02	1.74	6.8	9.7 0.438E-05
	Cm244		5.795	5.801 -0.006				7.1 0.320E-05
2	Pu238	0.522	5.487	5.482 0.005	0.03	53.07	1.2	301.0 0.136E-03
	Am241		5.479	5.482 -0.003				230.5 0.104E-03
3	Am243	0.429	5.266	5.269 -0.003	0.02	43.59	1.4	179.8 0.810E-04
Totals:			0.969	<--valid peaks only-->		98.40		

DETECTOR CALIBRATION

Energy(MEV) = 4.072 + (0.0047)*Channel
Energy range (MeV): 4.072 TO 6.478
Efficiency = 0.2449 CPM/DPM
(Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	48770.0	100.000
Smoothed	48773.0	100.006
Composite fit	47236.0	96.855
Residuals	1534.0	3.145

Analyzed by: _____
VR

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

Display Max.:

8827.9

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Raw Data Dump for AEA Spectrum: 15a1516.CNF

1	0.	0.	0.	2.	2.	0.	0.	3.	0.
11	0.	1.	0.	1.	0.	1.	0.	2.	2.
21	0.	0.	0.	1.	0.	2.	0.	0.	0.
31	2.	0.	0.	0.	2.	1.	1.	0.	0.
41	1.	0.	1.	1.	3.	1.	2.	1.	0.
51	4.	0.	1.	0.	1.	4.	0.	1.	1.
61	0.	0.	0.	1.	0.	1.	2.	1.	5.
71	1.	0.	2.	0.	4.	0.	0.	1.	2.
81	0.	0.	1.	0.	3.	0.	0.	2.	3.
91	3.	1.	0.	0.	0.	2.	1.	1.	2.
101	1.	3.	2.	1.	3.	1.	2.	1.	3.
111	2.	1.	4.	4.	2.	1.	1.	4.	0.
121	4.	0.	2.	2.	1.	1.	1.	5.	1.
131	4.	3.	5.	2.	1.	2.	5.	4.	2.
141	6.	4.	1.	4.	6.	7.	6.	5.	1.
151	6.	6.	3.	0.	8.	5.	6.	3.	2.
161	10.	10.	10.	8.	5.	2.	12.	5.	10.
171	10.	7.	8.	13.	11.	11.	18.	2.	14.
181	13.	17.	15.	20.	9.	19.	19.	20.	25.
191	24.	20.	29.	25.	29.	21.	28.	26.	35.
201	37.	45.	29.	37.	38.	47.	63.	55.	58.
211	78.	67.	61.	83.	75.	87.	75.	91.	102.
221	106.	138.	135.	149.	145.	146.	176.	193.	204.
231	228.	243.	273.	275.	278.	305.	352.	329.	386.
241	451.	516.	501.	549.	601.	661.	720.	780.	764.
251	883.	1015.	1086.	1112.	1243.	1195.	1048.	719.	478.
261	221.	210.	189.	164.	173.	188.	178.	172.	178.
271	188.	216.	244.	210.	205.	239.	286.	277.	322.
281	321.	381.	358.	432.	444.	508.	503.	547.	590.
291	720.	771.	819.	909.	918.	1009.	1077.	1185.	1286.
301	1308.	1294.	989.	718.	444.	320.	276.	217.	189.
311	117.	80.	57.	41.	23.	15.	5.	4.	1.
321	1.	5.	4.	0.	3.	0.	3.	2.	5.
331	4.	4.	1.	2.	9.	4.	5.	4.	7.
341	8.	7.	6.	17.	4.	11.	12.	11.	12.
351	14.	15.	18.	13.	9.	29.	19.	15.	19.
361	38.	43.	32.	48.	28.	38.	33.	46.	40.
371	41.	17.	13.	3.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	1.	0.	0.
391	0.	0.	0.	0.	1.	0.	0.	1.	1.
401	0.	1.	2.	1.	1.	2.	0.	2.	0.
411	1.	0.	0.	0.	2.	0.	3.	2.	2.
421	0.	2.	2.	1.	3.	2.	3.	1.	0.
431	1.	2.	1.	0.	6.	5.	4.	1.	0.
441	1.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	2.	3.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	1.	0.	0.	0.	0.
511	0.	0.							

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DATA REDUCTION REPORT

SAMPLE
 S97T001956-DUP-A
 File ID: 16a1639.CNF

Counted on: 8/29/97 @23:20
 Detector: AEA16
 Geometry number: 1
 Count time: 28806. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	31.2	31.2	366.699	366.699	16.000	7.174	8.000	1.577
2	980.9	980.9	299.822	299.821	14.000	7.460	7.000	1.403
3	908.4	908.4	254.064	253.906	12.000	5.880	6.000	1.148
4	17.5	17.5	161.525	161.143	106.000	1.000	53.000	0.100
5?	2.0	2.0	132.160	131.469	4.000	0.173	2.000	0.285

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.					
1	Pu236	0.014	5.755	5.768	-0.013	0.03	1.54	7.2	5.8	0.260E-05
	Cm243		5.779	5.768	0.011				7.8	0.350E-05
2	Am241	0.503	5.479	5.460	0.019	0.03	54.09	1.2	212.3	0.956E-04
	Pu238		5.487	5.460	0.027				277.2	0.125E-03
3	Am243	0.438	5.266	5.249	0.017	0.03	47.13	1.4	175.7	0.791E-04
4		0.013		4.822		0.00	1.40	8.6	5.2	0.232E-05
5		????		4.686			0.01	534.		
Totals:			0.968	<--valid peaks only-->			104.15			

DETECTOR CALIBRATION

Energy(MEV) = 4.081 + (0.0046)*Channel
 Energy range (MeV): 4.081 TO 6.436
 Efficiency = 0.2710 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	51663.0	100.000
Smoothed	51663.5	100.001
Composite fit	50009.4	96.799
Residuals	1653.6	3.201

Analyzed by: _____

7353.5

[illegible]
$$\begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \\ \cdot 1 \\ 1 \end{array}$$

Raw Data Dump for AEA Spectrum: 16a1639.CNF

1	0.	0.	1.	2.	1.	2.	4.	0.	2.	2.
11	3.	0.	0.	4.	1.	1.	2.	1.	3.	1.
21	4.	0.	2.	4.	1.	3.	1.	3.	4.	0.
31	2.	10.	3.	3.	1.	2.	2.	4.	4.	3.
41	3.	1.	2.	1.	4.	1.	3.	6.	3.	3.
51	4.	3.	3.	1.	1.	3.	3.	4.	0.	4.
61	1.	5.	1.	2.	5.	2.	6.	10.	6.	1.
71	3.	5.	5.	0.	6.	4.	3.	11.	3.	6.
81	2.	6.	2.	5.	7.	3.	4.	5.	6.	2.
91	7.	5.	4.	7.	4.	7.	5.	9.	4.	4.
101	6.	7.	8.	8.	7.	5.	9.	7.	5.	2.
111	2.	11.	5.	4.	7.	7.	13.	12.	5.	7.
121	4.	7.	5.	7.	9.	14.	5.	9.	11.	6.
131	10.	17.	10.	7.	10.	11.	9.	7.	7.	10.
141	11.	11.	12.	11.	10.	15.	12.	12.	6.	17.
151	9.	22.	13.	14.	15.	25.	19.	18.	10.	16.
161	25.	21.	20.	13.	16.	14.	27.	30.	25.	27.
171	35.	35.	22.	31.	25.	41.	36.	33.	38.	41.
181	34.	24.	44.	42.	43.	46.	41.	45.	50.	51.
191	51.	63.	62.	59.	65.	61.	53.	68.	66.	70.
201	80.	75.	79.	90.	91.	97.	108.	108.	109.	123.
211	127.	115.	124.	155.	136.	162.	157.	185.	182.	207.
221	200.	200.	203.	215.	235.	260.	265.	263.	319.	300.
231	336.	353.	349.	352.	393.	367.	410.	434.	520.	512.
241	516.	583.	606.	615.	652.	744.	757.	800.	847.	841.
251	887.	1003.	1042.	1089.	1058.	1035.	834.	681.	402.	288.
261	259.	238.	242.	223.	230.	247.	231.	217.	217.	250.
271	227.	266.	264.	275.	301.	282.	297.	354.	359.	368.
281	380.	382.	414.	486.	484.	496.	517.	598.	643.	675.
291	674.	752.	764.	812.	816.	840.	927.	969.	1014.	1054.
301	1055.	966.	777.	580.	400.	268.	228.	185.	146.	123.
311	100.	80.	46.	46.	34.	7.	8.	4.	3.	2.
321	2.	0.	3.	2.	3.	5.	1.	5.	7.	6.
331	5.	4.	4.	8.	8.	9.	9.	4.	4.	5.
341	6.	6.	10.	7.	9.	6.	9.	10.	11.	10.
351	15.	17.	14.	16.	21.	19.	24.	22.	21.	17.
361	23.	27.	17.	29.	29.	36.	40.	24.	33.	22.
371	19.	23.	16.	3.	0.	0.	1.	0.	0.	0.
381	0.	0.	0.	1.	1.	0.	0.	0.	0.	1.
391	0.	1.	1.	0.	2.	0.	0.	1.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.
411	0.	0.	1.	1.	3.	0.	2.	2.	2.	1.
421	0.	0.	0.	4.	2.	0.	3.	2.	4.	5.
431	0.	4.	1.	3.	3.	1.	2.	9.	3.	2.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
471	0.	0.	0.	1.	0.	0.	1.	0.	1.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

LABCORE Completed RadChem Report for Worklist#: 20121

Analyst: jmv

Instrument: AB16

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: AX103, @AM24101 S.S. by Ludlum. Std:1.0mL skm

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@AM24101 AM24101	SOLID	1.03E-04	1.07E-4	103.883	% Recovery
1 STD	0		@AM24101 AM24101T	SOLID	100.	7.97E+01	79.700	% Recovery
1 STD	0		@AM24101 AM24101E	SOLID	1.0	1.98E+00	1.980	% Ct Error
2 BLNK-PREP	0		@AM24101 AM24101	SOLID	1	<3.13E-3		uCi/g
2 BLNK-PREP	0		@AM24101 AM24101T	SOLID	100.	8.39E+01	83.900	% Recovery
2 BLNK-PREP	0		@AM24101 AM24101E	SOLID	1.0	1.00E+02	100.000	% Ct Error
3 SAMPLE	S97T001888	0 F	@AM24101 AM24101	SOLID	N/A	3.54E-02	622.0e-005	uCi/g
3 SAMPLE	S97T001888	0 F	@AM24101 AM24101E	SOLID	N/A	2.32E+00	0.0e+000	% Ct. Error
3 SAMPLE	S97T001888	0 F	@AM24101 AM24101T	SOLID	N/A	7.22E+01	0.0e+000	% Recovery
4 DUP	S97T001888	0 F	@AM24101 AM24101	SOLID	3.54E-2	3.30E-2	7.018	RPD
4 DUP	S97T001888	0 F	@AM24101 AM24101T	SOLID	100.0	8.94E+01	89.400	% Recovery
4 DUP	S97T001888	0 F	@AM24101 AM24101E	SOLID	1.0	2.03E+00	2.030	% Ct Error

Final page for worklist# 20121

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

 Reviewer Signature _____ Date 8 Sept 97
 Validated

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

LABCORE Data Entry Template for Worklist# 20121

Analyst: DMJ Instrument: AM01 16 Book# 75356

Method: LA-953-104 Rev/Mod B-0

Worklist Comment: AX103, @AM24101 S.S. by Ludlum. Std:1.0mL skm

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@AM24101	SOLID		
2 BLNK-PREP			@AM24101	SOLID		
3 SAMPLE	S97T001888	0 F	@AM24101	SOLID	97000494	AX-103
	Analytes Requested: AM24101 , AM24101E, AM24101T					1m
4 DUP	S97T001888	0 F	@AM24101	SOLID		

Final page for worklist # 20121

DMJ
Analyst Signature Date 9-4-97

C. J. Quinn
Analyst Signature Date 9/5/97
Sylvia Z Carbone 8/5/97

Data Entry Comments:

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

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (B-0) or LA-953-104(B-0)

LIQUID

STD

Type	Date Counted	SEP-04-97	Am 241 AEA Frac. (C241)	0.479
STD	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.437
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0
20121	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	3237
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	134B43	Background in cpm (Bkg)	0.2
Matrix	Am-243 Tracer Value (dpm/mL)	1087	Am 241 cpm	42.83
LIQUID	Detector Number	18	Am 243 cpm	39.04
Batch Number	Detector Efficiency (DetEff)	0.2717	Cm 243/244 cpm	0
97004272	Standard Book No	75B56	AEA Count Time (min)	480
Rerun	Standard Value in $\mu\text{Ci/mL}$	1.030E-04	Am 241 $\mu\text{Ci/L}$ =	1.0734E-01
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 1.4062E-02
Sample Prep				
N/A				
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
wi20121	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
Instrument Code	Relative Counting Error = Square Root of $\left[\left(\frac{1}{\text{Am-243 cpm} * \text{min}} \right) + \left(\frac{1}{\text{Am-241 or Cm-243/244 cpm} * \text{min}} \right) \right] * 1.96 * 100$			
WB27806	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
Prepared By				
CJO				
Chemist				
JFR	Am 241 $\mu\text{Ci/mL}$ =	1.07E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$	
Analyst	Relative Counting Error =	2.0%		
JMV				
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			
09/05/97	Cm 243/244 $\mu\text{Ci/mL}$	< 1.41E-05	Am 241	
Analysis Date	Relative Counting Error =	100.0%	1.41E-05	
09/04/97	Am 243 Tracer Recovery =	79.7%	Cm 243/244	
Analysis Time			1.41E-05	
01:22 PM				
Sample Point				
AX-103				

Analyst:	JMV	Date:	09/05/97
Signature of Chemist:	JFR	Date:	8 Sept 97

STANDARD.WB1 REV 1.2

953103ML

WORKBOOK PAGE: BLANK2

Am 241 and Cm 243/244: LA-953-103 (B-0) or LA-953-104(B-0)

LIQUID / SOLI

BLNK-PREP

Type	Date Counted	SEP-04-97	Am 241 AEA Frac. (C241)	0			
BLNK-PREP	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.927			
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0			
20121	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	1610			
Test Code	Digest Grams of Solids/L (Dg/L)	2.014	AT Count Time (min) (TC)	30			
@AM24101	Tracer Book No.	134B43	Background in cpm (Bkg)	0.2			
Matrix	Am-243 Tracer Value (dpm/mL)	1087	Am 241 cpm	0			
SOLID	Detector Number	16	Am 243 cpm	42.42			
Batch Number	Detector Efficiency (DetEff)	0.2717	Cm 243/244 cpm	0			
97004272			AEA Count Time (min)	480			
Rerun			Am 241 $\mu\text{Ci/g}$ =	< 3.1255E-03			
0			Cm 243/244 $\mu\text{Ci/g}$ =	< 3.1255E-03			
Sample Prep							
N/A							
Sample Number	Am-241 $\mu\text{Ci/g}$ = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]						
WL20121	Cm-243/244 $\mu\text{Ci/g}$ = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]						
Instrument Code							
WB27806	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100						
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV						
CJO							
Chemist	NOTE: Am-241 Result is a LESS THAN Value.						
JFR	Am241 $\mu\text{Ci/g}$ =	< 3.13E-03	DETECTION LEVELS in $\mu\text{Ci/g}$	Am 241			
Analyst	Relative Counting Error =	100.0%					
JMV							
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.						
09/05/97	Cm 243/244 $\mu\text{Ci/g}$	< 3.13E-03	3.13E-03				
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244				
09/04/97	Am 243 Tracer Recovery =	83.9%	3.13E-03				
Analysis Time							
01:22 PM							
Sample Point							
AX-103							

Analyst:	JMV	Date:	09/05/97
Signature of Chemist:	JFR	Date:	8 Sept 97
BLANKWB1 REV 1.2	953103ME		

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (B-0) or LA-953-104(B-0)

LIQUID / SOLI

SAMPLE

Type	Date Counted	SEP-04-97	Am 241 AEA Frac. (C241)	0.395
SAMPLE	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.542
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0.011
20121	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	2365
Test Code	Digest Grams of Solids/L (Dg/L)	2.014	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	134B43	Background in cpm (Bkg)	0.2
Matrix	Am-243 Tracer Value (dpm/mL)	1087	Am 241 cpm	25.75
SOLID	Detector Number	16	Am 243 cpm	35.37
Batch Number	Detector Efficiency (DetEff)	0.2717	Cm 243/244 cpm	0.69
97004272			AEA Count Time (min)	480
Refun			Am 241 $\mu\text{Ci/g}$ =	3.5436E-02
0			Cm 243/244 $\mu\text{Ci/g}$ =	< 6.2167E-03
Sample Prep				
FUSION01				
Sample Number	Am-241 $\mu\text{Ci/g}$ = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]			
S97T001888	Cm-243/244 $\mu\text{Ci/g}$ = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]			
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min))] + (1 / (Am-241 or Cm-243/244 cpm * min))]] * 1.96 * 100			
WB27506	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
Prepared By				
CJO				
Chemist				
JFR	Am241 $\mu\text{Ci/g}$ =	3.54E-02	DETECTION LEVELS in $\mu\text{Ci/g}$	
Analyst	Relative Counting Error =	2.3%		
JMV				
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			
09/06/97	Cm 243/244 $\mu\text{Ci/g}$	< 6.22E-03	Am 241	
Analysis Date	Relative Counting Error =	10.9%	6.22E-03	
09/04/97	Am 243 Tracer Recovery =	72.2%	Cm 243/244	
Analysis Time			6.22E-03	
01:22 PM				
Sample Point				
AX-103				

Analyst:	JMV	Date:	09/05/97
Signature of Chemist:	JFR	Date:	8 Sept 97
SAMPLE.WB1 REV 1.2	953103ML		

WORKBOOK PAGE: DUP4

Am 241 and Cm 243/244: LA-953-103 (B-0) or LA-953-104(B-0)

LIQUID / SOLI

DUP

Type	Date Counted	SEP-04-97	Am 241 AEA Frac. (C241)	0.382
DUP	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.563
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0.01
20121	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	2871
Test Code	Digest Grams of Solids/L (Dg/L)	2.049	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	134B43	Background in cpm (Bkg)	0.2
Matrix	Am-243 Tracer Value (dpm/mL)	1087	Am 241 cpm	32.82
SOLID	Detector Number	16	Am 243 cpm	47.55
Batch Number	Detector Efficiency (DetEff)	0.2717	Cm 243/244 cpm	0.87
97004272			AEA Count Time (min)	480
Re-run			Am 241 $\mu\text{Ci/g}$ =	3.3011E-02
0			Cm 243/244 $\mu\text{Ci/g}$ =	< 4.8327E-03
Sample Prep				
FUSION01				
Sample Number	Am-241 $\mu\text{Ci/g}$ = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]			
S977001888	Cm-243/244 $\mu\text{Ci/g}$ = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/ μCi)]			
Instrument Code				
WB27806	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))]] * 1.96 * 100			
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
CJO				
Chemist				
JFR	Am241 $\mu\text{Ci/g}$ =	3.30E-02	DETECTION LEVELS	
Analyst	Relative Counting Error =	2.0%	In $\mu\text{Ci/g}$	
JMV			Am 241	
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.		4.83E-03	
09/05/97	Cm 243/244 $\mu\text{Ci/g}$	< 4.83E-03	Cm 243/244	
Analysis Date	Relative Counting Error =	9.7%	4.83E-03	
09/04/97	Am 243 Tracer Recovery =	89.4%		
Analysis Time				
01:22 PM				
Sample Point				
AX-103				

Analyst:	JMV	Date:	09/05/97
Signature of Chemist:	JFR	Date:	8 Sept 97

SAMPLE.WB1 REV 1.2 953103ML

HNF-SD-WM-DP-266, REV. 0
222-S Analytical Laboratory
GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
WL#20121-STD
File ID: 13a1327.CNF

Counted on: 9/ 4/97 @16:43
Detector: AEA13
Geometry number: 1
Count time: 28805. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1337.0	1337.0	301.957	301.957	12.000	5.655	6.000	2.402
2	1293.1	1293.1	256.252	256.241	12.000	4.555	6.000	1.954
3	13.1	13.1	164.968	164.960	134.000	1.000	67.000	0.100

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate c/m	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Pu238 Am241	0.479	5.487	5.466	0.0210.03	42.83	1.4	256.0	0.115E-03
2	Am243	0.437	5.479	5.466	0.013			196.0	0.883E-04
3		0.012	5.266	5.255	0.0110.02	39.04	1.4	169.7	0.764E-04
		-----		4.836	0.00	1.04	8.8	4.5	0.202E-05
Totals:			0.927	<--valid peaks only-->			82.91		

DETECTOR CALIBRATION

Energy(MEV) = 4.077 + (0.0046)*Channel
Energy range (MeV): 4.077 TO 6.432
Efficiency = 0.2324 CPM/DPM
(Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	42928.0	100.000
Smoothed	42927.1	99.998
Composite fit	39803.6	92.722
Residuals	3124.4	7.278

Analyzed by: _____

NEW

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

Display Max.: 9043.5

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Raw Data Dump for AEA Spectrum: 13a1327.CNF

1	0.	0.	1.	0.	0.	2.	0.	3.	0.	1.
11	2.	4.	0.	1.	2.	4.	4.	3.	3.	3.
21	0.	1.	1.	3.	0.	0.	3.	1.	3.	4.
31	1.	0.	0.	2.	1.	1.	1.	2.	2.	3.
41	4.	0.	1.	1.	1.	2.	2.	5.	4.	7.
51	1.	0.	3.	2.	3.	5.	1.	3.	5.	0.
61	8.	2.	7.	2.	2.	4.	5.	0.	3.	1.
71	1.	2.	5.	3.	3.	1.	6.	2.	1.	4.
81	3.	1.	5.	1.	4.	4.	5.	1.	3.	4.
91	5.	4.	2.	2.	3.	3.	6.	3.	4.	2.
101	2.	2.	1.	3.	4.	3.	5.	4.	5.	3.
111	1.	2.	3.	9.	2.	6.	3.	3.	9.	4.
121	3.	5.	3.	4.	3.	7.	8.	2.	9.	6.
131	5.	4.	6.	5.	5.	6.	4.	7.	8.	7.
141	9.	10.	6.	4.	7.	6.	14.	11.	3.	7.
151	17.	13.	11.	12.	11.	11.	8.	16.	10.	12.
161	7.	11.	11.	11.	15.	15.	9.	12.	6.	6.
171	14.	12.	11.	13.	15.	22.	13.	9.	22.	9.
181	19.	17.	13.	14.	25.	18.	27.	17.	13.	24.
191	15.	22.	23.	23.	26.	31.	21.	26.	25.	21.
201	38.	23.	30.	32.	27.	22.	34.	47.	41.	41.
211	40.	43.	41.	46.	49.	52.	56.	54.	46.	57.
221	72.	76.	70.	50.	65.	94.	98.	88.	113.	113.
231	138.	152.	153.	138.	145.	182.	181.	182.	234.	238.
241	218.	292.	333.	374.	401.	506.	509.	531.	642.	698.
251	794.	880.	1015.	1216.	1391.	1506.	1536.	1325.	989.	559.
261	326.	200.	180.	154.	141.	147.	138.	105.	145.	120.
271	132.	135.	92.	104.	110.	101.	130.	145.	124.	159.
281	147.	168.	203.	205.	246.	247.	275.	313.	346.	381.
291	440.	514.	567.	682.	729.	793.	849.	997.	1147.	1297.
301	1408.	1569.	1508.	1241.	911.	576.	414.	294.	232.	241.
311	220.	154.	100.	81.	65.	32.	16.	8.	1.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
331	0.	1.	1.	0.	0.	0.	1.	0.	0.	1.
341	0.	0.	0.	1.	0.	1.	0.	1.	0.	2.
351	0.	0.	0.	0.	1.	1.	2.	0.	4.	0.
361	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	1.	0.	0.	0.	1.	0.	1.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

222-S Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 WL#20121-BLK
 File ID: 14a1462.CNF

Counted on: 9/ 4/97 @16:44
 Detector: AEA14
 Geometry number: 1
 Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1332.6	1332.6	252.065	252.065	12.000	4.729	6.000	1.867
2	12.0	12.0	191.095	190.803	68.000	389.677	34.000	107.307

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid		Count Rate	%err c/m @95	d/m	Activity uCi/ea	
		Exp.	Obs.	Diff.	FWHM				
1	Am243	0.927	5.266	5.256	0.0100.02	42.42 1.4	183.0	0.825E-04	
2	Pu242	0.052	4.891	4.974	-.0831.79	2.36 25.4	10.1	0.454E-05	
Totals:		0.979	<--valid peaks only-->			44.78			

DETECTOR CALIBRATION

Energy (MEV) = 4.096 + (0.0046)*Channel
 Energy range (MeV): 4.096 TO 6.452
 Efficiency = 0.2341 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	21968.0	100.000
Smoothed	21969.8	100.008
Composite fit	21498.3	97.862
Residuals	469.7	2.138

Analyzed by:

NEW

572

Raw Data Dump for AEA Spectrum: 14a1462.CNF

1	0.	0.	0.	2.	2.	2.	1.	0.	2.	0.
11	0.	0.	2.	1.	0.	2.	1.	2.	1.	1.
21	1.	2.	2.	2.	0.	0.	4.	1.	0.	0.
31	0.	1.	0.	1.	2.	0.	2.	1.	0.	0.
41	0.	0.	1.	1.	0.	0.	1.	0.	1.	2.
51	1.	1.	0.	1.	0.	1.	2.	1.	2.	0.
61	1.	0.	2.	1.	2.	0.	0.	4.	2.	0.
71	1.	1.	1.	0.	1.	0.	0.	1.	0.	1.
81	0.	0.	0.	2.	2.	0.	2.	2.	0.	1.
91	1.	0.	1.	1.	3.	2.	1.	2.	2.	1.
101	1.	3.	3.	3.	0.	2.	5.	4.	3.	0.
111	1.	0.	0.	3.	1.	1.	3.	3.	2.	3.
121	1.	1.	1.	2.	2.	3.	1.	1.	2.	1.
131	4.	9.	4.	3.	2.	1.	0.	1.	1.	4.
141	2.	2.	5.	2.	3.	2.	4.	2.	6.	5.
151	3.	2.	3.	1.	7.	3.	1.	0.	5.	6.
161	10.	7.	6.	3.	3.	5.	6.	2.	2.	4.
171	3.	5.	3.	10.	5.	6.	11.	3.	4.	7.
181	6.	11.	8.	12.	5.	3.	7.	11.	13.	19.
191	14.	17.	11.	12.	11.	6.	15.	12.	13.	15.
201	18.	9.	26.	28.	23.	22.	24.	32.	23.	30.
211	43.	31.	32.	37.	49.	43.	46.	49.	48.	56.
221	69.	70.	60.	77.	85.	95.	100.	123.	134.	134.
231	156.	182.	180.	198.	220.	259.	266.	327.	376.	442.
241	480.	534.	630.	643.	808.	828.	918.	1057.	1129.	1305.
251	1354.	1560.	1449.	1332.	1007.	571.	284.	178.	143.	127.
261	98.	92.	84.	99.	90.	78.	43.	35.	27.	26.
271	9.	12.	4.	3.	0.	0.	1.	1.	2.	3.
281	4.	1.	1.	2.	3.	3.	2.	3.	6.	7.
291	2.	4.	6.	7.	7.	6.	6.	15.	6.	11.
301	6.	5.	3.	2.	0.	2.	1.	0.	1.	0.
311	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	1.	0.	1.	0.	1.	1.	0.	0.
351	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
361	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

222-S Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 S97T1888-SAM
 File ID: 15a1523.CNF

Counted on: 9/ 4/97 @16:45
 Detector: AEA15
 Geometry number: 1
 Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	19.1	19.1	368.925	368.925	8.000	3.126	4.000	0.885
2	786.7	786.7	299.850	299.850	12.000	6.443	6.000	2.817
3	1148.4	1148.4	254.319	254.312	10.000	4.909	5.000	2.100

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid		Count Rate	%err @95	d/m	Activity uCi/ea
			Exp.	Obs. Diff.	c/m			
1	Cm243	0.011	5.779	5.806 -0.027	0.01	10.7	4.1	0.186E-05
	Cm244		5.795	5.806 -0.011			3.0	0.136E-05
2	Pu238 <i>Am241</i>	0.395	5.487	5.482 0.005	0.03		155.3	0.700E-04
	Am241		5.479	5.482 -0.003			118.9	0.536E-04
3	Am243	0.542	5.266	5.268 -0.002	0.02		155.1	0.699E-04
Totals:		0.948	<--valid peaks only-->			61.81		

DETECTOR CALIBRATION

Energy(MEV) = $4.072 + (0.0047) \cdot \text{Channel}$
 Energy range (MeV): 4.072 TO 6.479
 Efficiency = 0.2303 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	31299.0	100.000
Smoothed	31299.0	100.000
Composite fit	29671.0	94.799
Residuals	1628.0	5.201

Analyzed by:

NEW

[illegible]

1111

Raw Data Dump for AEA Spectrum: 15a1523.CNF HNF-SD-WM-DP-266, REV. 0

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	0.	0.	0.	0.	1.	0.	0.	4.	0.	1.
21	0.	1.	0.	1.	0.	1.	0.	2.	1.	0.
31	1.	0.	0.	0.	0.	2.	1.	0.	1.	2.
41	0.	0.	1.	1.	1.	0.	2.	0.	0.	0.
51	0.	1.	2.	2.	0.	0.	0.	0.	2.	0.
61	0.	0.	2.	0.	2.	1.	3.	3.	0.	1.
71	1.	0.	0.	1.	0.	2.	3.	0.	0.	0.
81	1.	0.	0.	0.	0.	0.	1.	0.	1.	1.
91	1.	1.	1.	3.	1.	1.	0.	1.	2.	2.
101	1.	0.	1.	0.	0.	2.	0.	1.	1.	1.
111	2.	1.	2.	1.	4.	2.	1.	2.	1.	2.
121	2.	1.	2.	1.	0.	1.	1.	1.	0.	2.
131	1.	2.	1.	2.	3.	1.	2.	2.	0.	2.
141	2.	4.	1.	1.	1.	2.	3.	2.	3.	6.
151	3.	5.	2.	1.	2.	3.	3.	1.	4.	1.
161	3.	2.	5.	0.	2.	2.	2.	5.	2.	3.
171	5.	4.	5.	4.	1.	5.	2.	5.	7.	5.
181	4.	3.	2.	3.	11.	8.	4.	7.	9.	4.
191	6.	7.	9.	10.	13.	10.	16.	10.	11.	16.
201	10.	8.	11.	12.	17.	25.	16.	25.	20.	15.
211	29.	16.	21.	20.	26.	31.	39.	39.	38.	45.
221	46.	48.	51.	41.	53.	67.	73.	64.	74.	86.
231	95.	96.	110.	160.	150.	137.	198.	194.	209.	234.
241	272.	314.	356.	445.	511.	551.	631.	660.	769.	773.
251	908.	1054.	1258.	1311.	1361.	1170.	929.	630.	345.	215.
261	130.	117.	118.	107.	103.	104.	86.	89.	99.	77.
271	78.	57.	51.	60.	58.	61.	69.	71.	79.	112.
281	108.	124.	120.	156.	161.	174.	208.	267.	265.	325.
291	339.	395.	396.	477.	506.	612.	724.	799.	882.	892.
301	853.	753.	563.	380.	259.	187.	165.	162.	124.	102.
311	84.	53.	47.	18.	18.	4.	3.	2.	2.	0.
321	0.	1.	1.	0.	1.	2.	0.	0.	0.	0.
331	0.	1.	0.	4.	0.	0.	2.	2.	1.	1.
341	0.	1.	3.	1.	0.	3.	2.	3.	5.	4.
351	9.	3.	6.	2.	6.	7.	9.	5.	6.	10.
361	12.	22.	17.	19.	16.	22.	17.	15.	15.	26.
371	21.	5.	6.	2.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
411	0.	2.	3.	1.	0.	0.	0.	0.	0.	1.
421	0.	1.	1.	2.	0.	1.	1.	2.	1.	1.
431	1.	0.	4.	2.	1.	1.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	1.	1.	0.	0.	0.	0.	1.	0.
481	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
511	0.	0.								

222-S Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 S97T1888-DUP
 File ID: 16a1646.CNF

Counted on: 9/ 4/97 @16:46
 Detector: AEA16
 Geometry number: 1
 Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	29.1	29.1	369.313	369.313	10.000	3.330	5.000	1.291
2	1022.5	1022.5	300.800	300.800	12.000	6.347	6.000	2.873
3	1599.5	1599.5	255.006	255.001	12.000	4.513	6.000	1.987

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.	c/m			
1	Cm244	0.010	5.795	5.781	0.0140.02	0.87	9.6	3.4	0.154E-05
	Cm243		5.779	5.781	-0.002			4.7	0.211E-05
2	Pu238 <i>MA</i>	0.382	5.487	5.466	0.0210.03	32.82	1.6	179.4	0.808E-04
	Am241		5.479	5.466	0.013			137.4	0.619E-04
3	Am243	0.553	5.266	5.255	0.0110.02	47.55	1.3	189.0	0.851E-04
Totals:		0.945	<--valid peaks only-->			81.24			

DETECTOR CALIBRATION

Energy(MEV) = 4.082 + (0.0046)*Channel
 Energy range (MeV): 4.082 TO 6.438
 Efficiency = 0.2541 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	41285.0	100.000
Smoothed	41285.1	100.000
Composite fit	38999.0	94.463
Residuals	2286.0	5.537

Analyzed by:

NEW

Display Max.: 10327.7

1
1
1

Raw Data Dump for AEA Spectrum: 16a1646.CNF HNF-SD-WM-DP-266, REV. 0

1	0.	0.	1.	0.	0.	0.	0.	2.	0.	1.
11	0.	1.	0.	0.	1.	0.	0.	0.	0.	1.
21	2.	0.	0.	0.	1.	1.	0.	0.	0.	1.
31	1.	0.	0.	1.	1.	0.	1.	1.	0.	2.
41	2.	1.	0.	1.	0.	0.	1.	0.	2.	2.
51	0.	1.	2.	5.	0.	0.	1.	0.	0.	1.
61	1.	3.	1.	2.	1.	2.	3.	1.	1.	2.
71	0.	0.	2.	0.	1.	2.	2.	1.	0.	2.
81	1.	1.	2.	1.	1.	2.	1.	2.	1.	4.
91	1.	1.	0.	0.	2.	0.	1.	0.	1.	1.
101	3.	2.	2.	0.	4.	0.	3.	1.	2.	2.
111	0.	2.	2.	2.	1.	2.	1.	1.	3.	1.
121	1.	2.	3.	3.	4.	2.	2.	3.	2.	2.
131	4.	2.	4.	5.	4.	2.	2.	0.	0.	0.
141	4.	3.	4.	3.	2.	4.	1.	1.	1.	2.
151	2.	2.	2.	4.	4.	3.	2.	3.	2.	1.
161	2.	5.	1.	3.	3.	6.	1.	5.	5.	2.
171	4.	7.	4.	4.	6.	2.	2.	1.	5.	8.
181	9.	6.	5.	6.	8.	12.	7.	8.	13.	10.
191	8.	12.	13.	12.	8.	10.	15.	16.	13.	12.
201	15.	14.	23.	21.	22.	16.	23.	34.	19.	23.
211	37.	32.	21.	27.	27.	52.	52.	38.	38.	43.
221	59.	43.	53.	75.	75.	85.	76.	102.	110.	104.
231	119.	131.	166.	167.	171.	196.	216.	225.	247.	320.
241	357.	406.	454.	515.	538.	672.	767.	836.	880.	1084.
251	1202.	1338.	1566.	1722.	1821.	1866.	1596.	1021.	573.	303.
261	225.	188.	181.	157.	165.	165.	164.	138.	120.	101.
271	96.	86.	70.	55.	78.	70.	70.	82.	96.	82.
281	131.	121.	151.	163.	192.	219.	243.	276.	278.	342.
291	398.	431.	495.	538.	605.	679.	817.	854.	1041.	1131.
301	1177.	1141.	919.	682.	481.	325.	275.	227.	210.	147.
311	121.	105.	67.	57.	38.	17.	9.	1.	0.	1.
321	0.	2.	0.	0.	0.	0.	0.	1.	0.	1.
331	0.	0.	0.	4.	2.	1.	0.	0.	1.	3.
341	2.	2.	2.	0.	1.	2.	3.	4.	1.	3.
351	7.	6.	10.	8.	6.	2.	10.	8.	15.	12.
361	15.	17.	21.	16.	17.	19.	26.	28.	30.	42.
371	23.	21.	17.	3.	1.	0.	0.	0.	0.	0.
381	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
401	0.	1.	0.	0.	0.	0.	0.	1.	0.	0.
411	0.	1.	0.	0.	0.	1.	1.	0.	0.	0.
421	0.	1.	0.	2.	2.	1.	0.	2.	0.	2.
431	3.	0.	1.	3.	3.	4.	3.	3.	1.	2.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
471	0.	0.	0.	1.	0.	1.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

LABCORE Completed Worklist Report for Worklist# 20025

Analyst: kgh

Instrument: AB16

Book# 75856

Method: LA-953-104 Rev/Mod B-Ø

Worklist Comment: AX103, @PU23901 S.S. by Ludlum. Std: 1.0mL skm

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	@PU23901 PU23901	SOLID	1.09E+04	1.203E+4	110.367	% Recovery
1 STD	0	@PU23901 PU23901T	SOLID	100	9.06E+01	90.600	% Recovery
1 STD	0	@PU23901 PU23901E	SOLID	1	1.77E+00	1.770	% Ct Error
2 BLNK-PREP	0	@PU23901 PU23901	SOLID	1	<1.49E-3		uCi/g
2 BLNK-PREP	0	@PU23901 PU23901T	SOLID	100	1.10E+02	110.000	% Recovery
2 BLNK-PREP	0	@PU23901 PU23901E	SOLID	1	1.00E+02	100.000	uCi/g
3 SAMPLE	S97T001954 0 F	@PU23901 PU23901	SOLID	N/A	9.89E-03	1.78e-003	uCi/g
3 SAMPLE	S97T001954 0 F	@PU23901 PU23901T	SOLID	N/A	1.082E+02		% Recovery
3 SAMPLE	S97T001954 0 F	@PU23901 PU23901E	SOLID	N/A	2.8E+00		% Ct. Error
4 DUP	S97T001954 0 F	@PU23901 PU23901	SOLID	9.89E-3	9.29E-3	6.257	RPD
4 DUP	S97T001954 0 F	@PU23901 PU23901T	SOLID	100	1.098E+02	109.800	% Recovery
4 DUP	S97T001954 0 F	@PU23901 PU23901E	SOLID	1.00	3.2E+00	3.200	% Ct Error

Final page for worklist# 20025

Analyst Signature

Date

Analyst Signature

Date

Reviewer Signature

Date

validated

LABCORE Data Entry Template for Worklist# 20025

Analyst: KCH Instrument: PU01 AB16 Book# 75B510
PL 128B43

Method: LA-953-104 Rev/Mod _____

Worklist Comment: AX103, @PU23901 S.S. by Ludlum. Std: 1.0mL skm

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@PU23901	SOLID		
2	BLNK-PREP				@PU23901	SOLID		
3	SAMPLE	S97T001954	0	F	@PU23901	SOLID	97000495	AX-103
Analytes Requested: PU23901 , PU23901E, PU23901T								
4	DUP	S97T001954	0	F	@PU23901	SOLID		

Final page for worklist # 20025

Analyst Signature

Date

8-28-97

Analyst Signature

Date

Joe E. Hogan 8-2-97
Cf. Opinion 9/3/97

Data Entry Comments:

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

WORKBOOK PAGE: STD1

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0)**LIQUID**

Type	DATE COUNTED	AUG-29-97	PU 238 AEA FRAC (C236)	STD	0.446
STD	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC (C236)	0.000
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC (C239)	0.554
20026	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	3558
Test Code	DIGEST DILUTION FACTOR	DDF	1.000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cpm (Bkg)		0.070
Matrix	DETECTOR NUMBER	16	PU 236 cpm		45.360
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE	11/15/96	PU 239 cpm		56.390
97004175	TRACER PREPARATION VALUE (dpm/mL)	2600.000	AEA COUNT TIME		480
Return	PU-236 DECAY CORR'D VALUE (dpm/mL)	2147.714	Pu 239/240 $\mu\text{Ci/L}$		1.2027E-01
0	PU-238 TRACER VALUE (dpm/mL)	0.000			
Sample Prep	STANDARD BOOK NO	75B56			
N/A	STANDARD VALUE in $\mu\text{Ci/mL}$	1.090E-04			
Sample #					
WL20026					
Instrument Code	Decay Time = Date Counted - Tracer Preparation Date				
WB27906	Pu-236 Decay Cor'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]				
Prepared By	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * 1/EFF * C236 * 100 / Pu-236 Decay Cor'd Value * SPKV				
SEH	Pu 239/240 $\mu\text{Ci/L}$ = (C239) / (Pu 236 Decay Cor'd Value) (SPKV) / (1000mL/L) (DF) (DDF) / [(C236) (SS) (2220000 dpm/ μCi)]				
Chemist	Pu 236 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)				
JFR	Pu 238 $\mu\text{Ci/L}$ = [(Pu 238 dpm) (DF) (DDF) (1000mL/L)] / [(Pu-238 Tracer Recovery / 100) (2220000 dpm/ μCi) (D g/L) (SS)]				
Analyst	Relative Counting Error = Square Root of [(1 / (Pu 236 cpm * min))] * (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100				
KGH					
Date Complete					
09/03/97	Pu 239/240 $\mu\text{Ci/mL}$	1.20E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$ Pu 239/240 7.19E-06		
Analysis Date	Relative Counting Error	= 1.8%			
08/28/97					
Analysis Time					
03:00 PM					
Sample Point					
AX-103	Pu 236 Tracer Recovery	= 90.6%			

Analyst:	KGH	Date:	03-Sep-97
Signature of Chemist:	JFR	Date:	4 Sept 97
STANDARD.WB1 REV 1.0	943128ML		

WORKBOOK PAGE: BLANK2

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0)**LIQ****BLNK-PREP**

Type	DATE COUNTED		AUG-29-97	PU 236 AEA FRAC (C236)	1.000
BLNK-PREP	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC (C238)	0.000
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC (C239)	0.000
20025	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	1928
Test Code	DIGEST GRAMS of SOLIDS/L	Dg/L	1.9508	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO		128B43	BACKGROUND in cpm (Bkg)	0.070
Matrix	DETECTOR NUMBER		16	PU 236 cpm	55.830
SOLID	EFFICIENCY FACTOR	EFF	0.2717	PU 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE		11/15/96	PU 239 cpm	0.000
97004175	TRACER PREPARATION VALUE (dpm/mL)		2600.00	AEA COUNT TIME	480
Re-run	PU-236 DECAY CORR'D VALUE (dpm/mL)		2147.71	Pu 239/240 μ Ci/g =	< 1.488E-03
0	PU-238 TRACER VALUE (dpm/mL)		0.00		

Sample Prep

N/A

Sample #

Decay Time = Date Counted - Tracer Preparation Date

WL20025

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]

Instrument Code

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

WB27806

Pu 239/240 $\mu\text{Ci/g}$ = (C239) / (Pu 236 Decay Corr'd Value) * (SPKV) / (1000 mL/L) / (DF) / [(C236) / (SS) / (D g/L) / (2220000 dpm/ μCi)]

Prepared By

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

SEH

Pu 238 $\mu\text{Ci/g}$ = [(Pu 238 dpm) / (DF) / (1000 mL/L)] / [(Pu-236 Tracer Recovery / 100) / (2220000 dpm/ μCi) / (D g/L) / (SS)]

Chemist

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

JFR

Analyst

KGH

Date Complete

05/03/97

Pu 239/240 $\mu\text{Ci/g}$ < 1.49E-03

Analysis Date

Relative Counting Error = 100.0%

05/28/97

Analysis Time

NOTE: Pu 238 Result is a LESS THAN Value.

03:00 PM

Pu 238 $\mu\text{Ci/g}$ < 1.49E-03

Sample Point

Relative Counting Error = 100.0%

AX-103

Pu 236 Tracer Recovery = 110.0%

DETECTION
LEVELS
in $\mu\text{Ci/g}$

Pu 239/240

1.49E-03

Pu 238

1.49E-03

Analyst:

KGH

Date:

03-Sep-97

Signature of Chemist:

JFR

Date:

4 Sept 97

BLANK.WB1 REV 1.0

943128ML

WORKBOOK PAGE: SAM3

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0)

LIQUID / SO

				SAMPLE	
Type	DATE COUNTED		AUG-29-97	PU 238 AEA FRAC (C236)	0.834
SAMPLE	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC (C238)	0.000
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 238 AEA FRAC (C239)	0.166
20025	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	2274
Test Code	DIGEST GRAMS of SOLIDS/L	Dg/L	1.9508	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO		128B43	BACKGROUND in cpm (Bkg)	0.070
Matrix	DETECTOR NUMBER		16	PU 238 cpm	59.320
SOLID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE		11/15/96	PU 239 cpm	11.830
97004175	TRACER PREPARATION VALUE (dpm/mL)		2600.000	AEA COUNT TIME	480
Re-run	PU-236 DECAY CORR'D VALUE (dpm/mL)		2147.714	Pu 239/240 μ Ci/g	9.8861E-03
0	PU-238 TRACER VALUE (dpm/mL)		0.000		

Sample Prep

FUSION01

Sample #

S97T001954

Instrument Code

WB27806

Prepared By

SEH

Chemist

JFR

Analyst

KGH

Date Complete

09/03/97

Analysis Date

09/28/97

Analysis Time

03:00 PM

Sample Point

AX-103

Decay Time = Date Counted - Tracer Preparation Date

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]

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

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

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

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

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

Pu 239/240 μ Ci/g 9.89E-03

Relative Counting Error = 2.8%

DETECTION

LEVELS

in μ Ci/g

Pu 239/240

1.78E-03

Pu 238

1.78E-03

NOTE: Pu 238 Result is a LESS THAN Value.

Pu 238 μ Ci/g < 1.78E-03

Relative Counting Error = 100.0%

Pu 236 Tracer Recovery = 108.2%

Analyst:	KGH	Date:	03-Sep-97
Signature of Chemist:	JFR	Date:	4 Sept 97

SAMPLE.WB1 REV 1.0

943128ML

WORKBOOK PAGE: DUP4

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0)

LIQUID / SO

DUP

Type	DATE COUNTED	AUG-29-97	Pu 236 AEA FRAC (C236)	0.841
DUP	SAMPLE VOLUME in mL	SS	1.000	0.000
Work List	SAMPLE DILUTION FACTOR	DF	1.000	0.168
20025	TRACER VOLUME in mL	SPKV	0.100	2267
Test Code	DIGEST GRAMS of SOLIDS/L	Dg/L	1.9640	30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cpm (Bkg)	0.070
Matrix	DETECTOR NUMBER	16	Pu 236 cpm	50.780
SOLID	EFFICIENCY FACTOR	EFF	0.272	0.000
Batch Number	TRACER PREPARATION DATE	11/15/96	Pu 239 cpm	9.570
97004175	TRACER PREPARATION VALUE (dpm/mL)	2600.000	AEA COUNT TIME	480
Resin	PU-236 DECAY CORR'D VALUE (dpm/mL)	2147.714	Pu 239/240 μ Ci/g	9.2850E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.000		

Sample Prep

FUSION01

Sample #

S97T001954

Instrument Code

WB27806

Prepared By

SEH

Chemist

JFR

Analyst

KGH

Data Complete

03/03/97

Analysis Date

03/29/97

Analysis Time

03:00 PM

Sample Point

AX-103

Decay Time = Date Counted - Tracer Preparation Date

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(ln2 * Decay Time)/1040.95}]

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

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

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

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

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

Pu 239/240 μ Ci/g 9.29E-03

Relative Counting Error = 3.2%

DETECTION

LEVELS

in μ Ci/g

Pu 239/240

1.76E-03

Pu 238

1.76E-03

NOTE: Pu 238 Result is a LESS THAN Value.

Pu 238 μ Ci/g < 1.76E-03

Relative Counting Error = 100.0%

Pu 238 Tracer Recovery = 109.8%

Analyst:

KGH

Date:

03-Sep-97

Signature of Chemist:

JFR

Date:

4 Sept 97

SAMPLE.WB1 REV 1.0

943128ML

222-S Analytical Laboratory
GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
WL20025-STD
File ID: 21a2159.CNF

Counted on: 8/29/97 @11:57
Detector: AEA21
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	925.3	925.3	717.886	717.886	20.000	6.987	10.000	1.180
2?	11.4	11.4	570.882	569.106	20.000	2.020	10.000	1.826
3?	12.8	12.8	531.724	530.426	28.000	12.547	14.000	3.273
4	1150.1	1150.1	454.110	454.105	24.000	7.392	12.000	1.633

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid		Count	%err	d/m	Activity
			Exp.	Obs. Diff.				
1	236Pu	0.505		5.732	0.02	50.50	1.3	205.0
2		????		5.390		0.16	77.0	
3		????		5.301		0.55	20.9	
4	Pu240 ₂₄₀	0.513	5.144	5.126	0.0180.02	51.25	1.3	208.0
Totals:		1.018	<--valid peaks only-->			101.75		

DETECTOR CALIBRATION

Energy(MEV) = 4.081 + (0.0023)*Channel
Energy range (MeV): 4.081 TO 6.436
Efficiency = 0.2464 CPM/DPM
(Data reduction compression factor: 2.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	47993.0	100.000
Smoothed	47994.0	100.002
Composite fit	49188.6	102.491
Residuals	-1195.6	-2.491

Analyzed by: _____

MB

Isotope Peak ht %
236Pu 925.3 44.58
239/240Pu 1150.1 55.42

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 7359.6

[illegible]

Raw Data Dump for AEA Spectrum: 21a2159.CNF

1	0.	0.	1.	0.	2.	2.	1.	0.	4.	2.
11	1.	0.	1.	2.	1.	1.	7.	1.	2.	3.
21	2.	0.	3.	2.	2.	1.	2.	1.	2.	1.
31	1.	3.	1.	2.	2.	3.	3.	1.	3.	1.
41	0.	1.	6.	0.	1.	3.	2.	4.	0.	3.
51	1.	1.	2.	1.	2.	4.	3.	1.	1.	1.
61	0.	5.	2.	0.	3.	3.	2.	1.	3.	2.
71	3.	6.	3.	3.	3.	7.	2.	4.	1.	2.
81	4.	1.	2.	3.	4.	1.	5.	2.	2.	3.
91	3.	3.	5.	5.	1.	1.	3.	4.	3.	4.
101	6.	9.	5.	4.	2.	3.	5.	1.	6.	5.
111	6.	3.	5.	5.	5.	7.	3.	2.	7.	11.
121	5.	5.	8.	4.	9.	7.	9.	10.	11.	9.
131	9.	6.	7.	13.	12.	8.	4.	8.	13.	8.
141	6.	19.	11.	14.	12.	15.	12.	11.	15.	16.
151	23.	15.	21.	27.	17.	22.	24.	27.	26.	30.
161	22.	26.	29.	28.	37.	29.	37.	46.	41.	42.
171	60.	48.	49.	56.	59.	48.	51.	87.	77.	83.
181	62.	81.	89.	97.	90.	121.	103.	117.	105.	129.
191	153.	144.	127.	155.	175.	181.	198.	214.	238.	243.
201	250.	265.	301.	305.	315.	385.	366.	343.	423.	424.
211	435.	493.	544.	574.	650.	614.	727.	748.	758.	744.
221	802.	873.	921.	1089.	1059.	1181.	1253.	1332.	1155.	891.
231	434.	153.	30.	10.	3.	1.	12.	5.	8.	8.
241	6.	11.	5.	6.	14.	15.	6.	5.	8.	9.
251	11.	12.	18.	15.	13.	9.	16.	17.	21.	18.
261	16.	24.	17.	25.	32.	22.	28.	19.	25.	26.
271	22.	15.	19.	30.	19.	21.	22.	25.	32.	24.
281	29.	31.	35.	49.	47.	41.	43.	37.	26.	35.
291	26.	22.	23.	23.	28.	30.	27.	31.	31.	44.
301	37.	49.	40.	30.	39.	26.	36.	50.	40.	40.
311	46.	65.	59.	53.	87.	74.	92.	95.	85.	103.
321	111.	87.	108.	140.	138.	136.	125.	158.	183.	164.
331	216.	218.	215.	251.	265.	277.	309.	334.	356.	358.
341	388.	397.	457.	477.	512.	606.	584.	635.	720.	746.
351	770.	773.	687.	689.	741.	796.	838.	941.	1020.	1037.
361	964.	611.	274.	73.	11.	1.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
391	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
401	0.	1.	0.	0.	1.	1.	1.	0.	0.	0.
411	1.	1.	0.	0.	0.	0.	0.	2.	1.	0.
421	1.	0.	1.	1.	0.	2.	0.	0.	0.	0.
431	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
441	0.	0.	1.	1.	0.	0.	0.	1.	1.	1.
451	2.	2.	1.	2.	0.	3.	2.	2.	2.	1.
461	0.	2.	3.	0.	2.	2.	2.	2.	2.	4.
471	3.	5.	6.	3.	5.	2.	1.	3.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
511	0.	0.								

222-S Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 WL20025-BLNK
 File ID: 22a2253.CNF

Counted on: 8/29/97 @11:58
 Detector: AEA22
 Geometry number: 1
 Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	819.9	819.9	716.255	716.255	20.000	8.664	10.000	1.144
2?	0.0	0.1	568.785	568.785	0.000	0.200	0.000	0.200
3?	0.0	0.1	540.030	540.030	0.000	0.200	0.000	0.200

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Exp.	Centroid Obs.	Diff.	FWHM	Count Rate	%err c/m	%95	d/m	Activity uCi/ea
1		1.149	1.0	5.732		0.02	55.83	1.2		233.2	0.105E-03
2		????	JAR	5.393			0.00	*****			
3		????		5.327			0.00	*****			

Totals: 1.149 <--valid peaks only--> 55.83

DETECTOR CALIBRATION

Energy(MEV) = 4.085 + (0.0023)*Channel
 Energy range (MeV): 4.085 TO 6.440
 Efficiency = 0.2394 CPM/DPM
 (Data reduction compression factor: 2.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	23322.0	100.000
Smoothed	23322.8	100.003
Composite fit	26798.5	114.907
Residuals	-3476.5	-14.907

Analyzed by:

MB

w/peak height

236 pu = 100%

[illegible]

Raw Data Dump for AEA Spectrum: 22a2253.CNF

1	0.	0.	0.	0.	1.	0.	1.	0.	1.	0.
11	0.	1.	0.	1.	0.	0.	0.	2.	1.	1.
21	1.	0.	0.	1.	0.	0.	1.	0.	0.	0.
31	0.	0.	0.	1.	0.	1.	0.	0.	0.	1.
41	0.	1.	0.	3.	0.	0.	0.	0.	0.	0.
51	0.	0.	1.	1.	0.	0.	0.	1.	0.	1.
61	1.	0.	0.	0.	1.	0.	0.	0.	0.	0.
71	0.	0.	0.	0.	0.	1.	1.	0.	4.	0.
81	0.	0.	3.	1.	0.	0.	0.	0.	0.	1.
91	2.	0.	0.	0.	1.	1.	0.	3.	1.	1.
101	0.	0.	1.	1.	0.	4.	1.	1.	0.	1.
111	2.	1.	2.	1.	0.	0.	0.	1.	1.	0.
121	2.	0.	1.	0.	1.	0.	2.	0.	0.	0.
131	3.	2.	0.	0.	2.	0.	1.	0.	0.	1.
141	1.	1.	1.	2.	0.	1.	4.	0.	3.	1.
151	3.	1.	0.	3.	2.	1.	1.	0.	2.	1.
161	4.	1.	1.	2.	1.	1.	4.	0.	3.	2.
171	3.	2.	1.	1.	2.	0.	5.	3.	1.	2.
181	4.	2.	1.	3.	2.	1.	1.	2.	1.	4.
191	2.	3.	1.	3.	1.	1.	1.	2.	1.	3.
201	0.	3.	1.	3.	3.	2.	0.	3.	3.	3.
211	8.	8.	4.	4.	4.	3.	8.	7.	3.	6.
221	2.	5.	4.	5.	11.	12.	5.	6.	7.	7.
231	7.	12.	5.	6.	6.	7.	6.	10.	5.	7.
241	10.	5.	10.	9.	14.	10.	7.	9.	14.	9.
251	11.	13.	12.	13.	14.	18.	11.	23.	20.	26.
261	21.	15.	21.	19.	20.	22.	32.	36.	25.	35.
271	34.	29.	23.	22.	24.	40.	44.	24.	33.	35.
281	43.	41.	50.	45.	46.	45.	44.	34.	21.	27.
291	36.	32.	44.	28.	36.	49.	42.	41.	56.	48.
301	55.	49.	40.	52.	56.	52.	43.	65.	69.	87.
311	70.	73.	92.	93.	91.	115.	104.	117.	95.	108.
321	113.	136.	156.	168.	173.	178.	160.	173.	208.	210.
331	272.	240.	270.	242.	287.	320.	336.	379.	399.	395.
341	454.	463.	492.	520.	532.	520.	601.	667.	683.	772.
351	740.	709.	728.	706.	704.	776.	797.	848.	923.	839.
361	708.	450.	207.	47.	13.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	1.	1.	0.	0.	0.	0.	0.	1.	0.	0.
421	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.
431	1.	0.	0.	1.	0.	1.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	3.	1.	0.	1.	1.
451	1.	2.	0.	0.	3.	0.	0.	0.	1.	1.
461	1.	1.	5.	2.	2.	0.	3.	4.	1.	3.
471	4.	6.	5.	4.	2.	1.	1.	0.	1.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

222-S Analytical Laboratory
GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
S97T1954-SAM
File ID: 23a2352.CNF

Counted on: 8/29/97 @11:58
Detector: AEA23
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	733.9	733.9	718.258	718.258	20.000	9.000	10.000	0.908
2?	0.0	0.1	602.057	602.057	0.000	0.200	0.000	0.200
3?	0.0	0.1	573.070	573.070	0.000	0.200	0.000	0.200
4	146.3	146.3	453.309	452.993	32.000	11.905	16.000	2.105
5?	2.1	2.1	327.112	322.089	12.000	1.699	6.000	7.821

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Exp.	Obs.	Diff.	FWHM	Count Rate	%err @95	d/m	Activity uCi/ea
1	Pu236	1.024	5.755	5.736	0.019	0.02	62.97	1.1	253.8	0.114E-03
2		????		5.469			0.00	*****		
3		????		5.403			0.00	*****		
4	Pu239	0.133	5.147	5.126	0.021	0.03	8.18	3.5	32.3	0.146E-04
	Pu240		5.144	5.126	0.018				32.3	0.146E-04
5		????		4.825			0.02	368.		
Totals:		1.157	<--valid peaks only-->				71.15			

DETECTOR CALIBRATION

Energy(MEV) = 4.084 + (0.0023)*Channel
Energy range (MeV): 4.084 TO 6.440
Efficiency = 0.2532 CPM/DPM
(Data reduction compression factor: 2.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	29521.0	100.000
Smoothed	29520.3	99.997
Composite fit	34167.4	115.739
Residuals	-4646.4	-15.739

Isotope PK ht Activity fraction Cpm Analyzed by: MB
236Pu 733.9 0.8338 59.32
239/240Pu 146.3 0.1662 11.83

[illegible]

Raw Data Dump for AEA Spectrum: 23a2352.CNF

1	0.	0.	1.	0.	1.	3.	2.	1.	1.	0.
11	0.	0.	1.	0.	1.	2.	2.	1.	0.	1.
21	0.	1.	0.	1.	0.	2.	0.	1.	0.	3.
31	1.	2.	1.	1.	0.	0.	3.	0.	2.	2.
41	0.	1.	0.	1.	1.	2.	1.	1.	0.	1.
51	1.	1.	1.	2.	1.	0.	1.	1.	3.	2.
61	2.	2.	0.	0.	1.	1.	2.	2.	0.	1.
71	2.	3.	0.	1.	3.	2.	0.	4.	2.	2.
81	1.	2.	1.	2.	0.	1.	0.	1.	2.	1.
91	1.	3.	0.	1.	2.	2.	2.	0.	3.	1.
101	1.	3.	0.	1.	3.	4.	1.	1.	1.	0.
111	1.	2.	0.	3.	4.	2.	3.	8.	2.	4.
121	2.	1.	5.	3.	2.	3.	7.	4.	4.	6.
131	5.	4.	4.	5.	4.	3.	6.	3.	2.	5.
141	6.	3.	3.	7.	7.	5.	7.	4.	10.	4.
151	5.	10.	9.	8.	3.	4.	9.	5.	11.	11.
161	14.	14.	7.	16.	10.	11.	12.	6.	8.	18.
171	18.	7.	11.	18.	23.	19.	16.	15.	22.	14.
181	13.	18.	17.	28.	14.	31.	41.	22.	25.	32.
191	33.	29.	42.	37.	42.	35.	32.	51.	62.	49.
201	57.	40.	58.	68.	60.	66.	68.	75.	93.	84.
211	95.	91.	82.	92.	104.	109.	101.	130.	135.	146.
221	146.	122.	185.	144.	172.	184.	156.	168.	176.	138.
231	112.	91.	58.	23.	16.	13.	12.	16.	10.	15.
241	19.	12.	18.	15.	9.	13.	29.	19.	25.	19.
251	16.	20.	25.	24.	27.	18.	26.	27.	32.	20.
261	28.	33.	27.	41.	40.	43.	45.	45.	37.	40.
271	54.	43.	52.	47.	58.	51.	50.	61.	55.	53.
281	63.	80.	88.	63.	75.	106.	95.	72.	76.	70.
291	76.	67.	86.	90.	98.	84.	108.	97.	114.	107.
301	106.	121.	96.	110.	88.	67.	85.	51.	83.	77.
311	80.	77.	95.	94.	100.	99.	135.	113.	156.	120.
321	128.	149.	189.	169.	148.	189.	206.	202.	235.	193.
331	262.	240.	267.	309.	268.	322.	298.	377.	381.	378.
341	399.	447.	453.	494.	527.	585.	588.	586.	670.	652.
351	718.	719.	686.	671.	638.	652.	695.	702.	746.	811.
361	753.	660.	436.	188.	60.	9.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
391	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	3.	1.	0.	0.	1.
421	1.	3.	0.	0.	1.	0.	0.	0.	2.	0.
431	0.	1.	0.	1.	1.	0.	0.	0.	0.	0.
441	1.	0.	0.	0.	2.	0.	0.	3.	1.	0.
451	0.	0.	0.	1.	0.	1.	0.	3.	1.	1.
461	2.	2.	1.	0.	2.	2.	1.	0.	2.	7.
471	4.	3.	0.	5.	1.	1.	1.	1.	3.	0.
481	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

222-S Analytical Laboratory
GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
S97T1954-DUP
File ID: 24a2448.CNF

Counted on: 8/29/97 @11:58
Detector: AEA24
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1107.6	1107.6	715.418	715.418	20.000	7.504	10.000	1.675
2	58.8	58.8	600.529	599.419	16.000	4.414	8.000	0.778
3	27.3	27.3	570.967	568.299	20.000	5.792	10.000	3.085
4	208.7	208.7	450.487	450.466	28.000	10.889	14.000	3.542

PEAK RESULTS

Peak Error Limit: 30%

Peak	AEA	Peak Centroid				Count	%err	Activity			
ID	Isotope	Frac	Exp.	Obs.	Diff.	FWHM	Rate	c/m	@95	d/m	uCi/ea
1	Pu-236	0.836	5.730	5.730	0.02	49.07	1.3	202.0	0.910E-04		
2	Am-241/242	0.051	5.479	5.463	0.0160.01	2.98	6.7	13.0	0.587E-05		
3	Th-238	0.011	5.400	5.391	0.0090.01	0.66	25.0	3.8	0.172E-05		
4	Pu-240	0.130	5.144	5.120	0.0240.03	7.64	3.3	31.5	0.142E-04		
Totals:		1.028	<--valid peaks only-->				60.35				

DETECTOR CALIBRATION

Energy(MEV) = 4.084 + (0.0023)*Channel
Energy range (MeV): 4.084 TO 6.440
Efficiency = 0.2429 CPM/DPM
(Data reduction compression factor: 2.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	28176.0	100.000
Smoothed	28176.3	100.001
Composite fit	28970.2	102.819
Residuals	-794.2	-2.819

Isotope Pk. Ht. Fraction cpm
236Pu 1107.6 0.8414 5028
239/240Pu 208.7 0.1586 957

Analyzed by: _____
MB

Spectrum 24a2448.CNF

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

Display Max.: 7904.6

HNF-SD-WM-DP-266, REV. 0

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4
.4
....4
.....4
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4

2
2
3.
32..
12..
.12..
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..... 1
..... 1...
..... 1.
..... 1

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Raw	Data	Dump	for	AEA	Spectrum:	24a2448.CNF	HNF-SD-WM-DP-266, REV. 0			
1	0.	0.	1.	1.	0.	0.	2.	0.	0.	0.
11	0.	0.	0.	0.	1.	0.	0.	0.	1.	1.
21	1.	0.	1.	1.	0.	0.	0.	0.	1.	1.
31	0.	0.	0.	0.	0.	0.	1.	1.	0.	2.
41	2.	0.	0.	0.	1.	2.	0.	0.	0.	1.
51	1.	1.	0.	1.	0.	1.	1.	2.	1.	1.
61	1.	2.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	1.	1.	1.	0.	0.	2.	0.	1.	0.
81	1.	2.	0.	0.	1.	1.	0.	3.	0.	1.
91	0.	1.	0.	0.	1.	0.	0.	0.	2.	1.
101	1.	0.	0.	1.	1.	0.	2.	1.	1.	1.
111	1.	0.	1.	2.	0.	2.	0.	0.	0.	0.
121	1.	1.	2.	1.	2.	2.	1.	3.	0.	1.
131	4.	0.	0.	3.	1.	1.	3.	1.	1.	2.
141	2.	4.	1.	2.	3.	1.	4.	2.	3.	1.
151	3.	0.	2.	4.	1.	2.	2.	4.	4.	1.
161	0.	3.	1.	4.	2.	5.	1.	6.	3.	1.
171	6.	3.	9.	0.	7.	4.	7.	10.	12.	9.
181	7.	6.	6.	6.	13.	15.	10.	11.	8.	12.
191	14.	12.	12.	19.	17.	27.	20.	30.	24.	22.
201	26.	31.	38.	32.	39.	49.	40.	55.	58.	66.
211	54.	78.	85.	101.	94.	93.	120.	123.	136.	165.
221	167.	161.	203.	221.	240.	238.	206.	171.	142.	103.
231	52.	31.	10.	6.	10.	4.	6.	5.	6.	5.
241	11.	9.	10.	10.	4.	8.	7.	7.	12.	12.
251	14.	14.	14.	10.	7.	18.	16.	21.	20.	12.
261	15.	17.	20.	23.	23.	34.	34.	25.	27.	19.
271	24.	25.	24.	30.	30.	47.	30.	44.	32.	46.
281	51.	73.	74.	66.	77.	80.	59.	67.	57.	59.
291	51.	66.	62.	63.	69.	87.	72.	94.	88.	93.
301	110.	98.	76.	45.	29.	28.	27.	28.	35.	27.
311	41.	36.	45.	33.	50.	43.	39.	63.	70.	49.
321	66.	73.	72.	83.	104.	110.	110.	133.	129.	162.
331	155.	193.	200.	204.	225.	240.	251.	270.	327.	376.
341	372.	431.	464.	529.	558.	634.	687.	792.	825.	904.
351	797.	811.	849.	925.	980.	1057.	1129.	1219.	1260.	1054.
361	692.	331.	91.	10.	0.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
391	0.	0.	0.	1.	0.	0.	0.	0.	1.	1.
401	0.	0.	0.	0.	1.	1.	1.	0.	0.	0.
411	1.	0.	1.	0.	0.	0.	0.	3.	0.	0.
421	0.	2.	0.	0.	1.	0.	0.	2.	1.	2.
431	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
441	1.	0.	2.	0.	0.	0.	1.	0.	0.	2.
451	0.	0.	2.	0.	1.	1.	2.	0.	1.	0.
461	6.	1.	2.	4.	2.	3.	7.	5.	5.	10.
471	6.	6.	7.	4.	3.	1.	0.	1.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

LABCORE Completed Worklist Report for Worklist# 20026

Analyst: kgh

Instrument: AB18

Book# 75B56

Method: LA-953-104 Rev/Mod B-0

Worklist Comment: AX103, @PU23901 S.S. by Ludlum. Std: 1.0mL skm

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	@PU23901 PU23901 SOLID		1.09E-04	1.03E-4	94.495 % Recovery	
1 STD	0	@PU23901 PU23901T SOLID		100	9.80E+01	98.000 % Recovery	
1 STD	0	@PU23901 PU23901B SOLID		1	1.82E+00	1.820 % Ct Error	
2 BLNK-PREP	0	@PU23901 PU23901 SOLID		1	<1.56E-3	uCi/g	
2 BLNK-PREP	0	@PU23901 PU23901T SOLID		100	1.08E+02	108.000 % Recovery	
2 BLNK-PREP	0	@PU23901 PU23901B SOLID		1	1.00E+02	100.000 uCi/g	
3 SAMPLE	S97T001956 0 F	@PU23901 PU23901 SOLID	N/A	1.28E-02	2.04E-003	uCi/g	
3 SAMPLE	S97T001956 0 F	@PU23901 PU23901T SOLID	N/A	1.02E+02		% Recovery	
3 SAMPLE	S97T001956 0 F	@PU23901 PU23901B SOLID	N/A	2.92E+00		% Ct. Error	
4 DUP	S97T001956 0 F	@PU23901 PU23901 SOLID		1.28E-2	1.06E-2	18.803 RPD	
4 DUP	S97T001956 0 F	@PU23901 PU23901T SOLID		100	5.06E+01	50.600 % Recovery	
4 DUP	S97T001956 0 F	@PU23901 PU23901B SOLID		1.00	4.41E+00	4.410 % Ct Error	

Final page for worklist# 20026

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

John Kelgen 3 Sept 97
Reviewer Signature _____ Date _____
Vali Latif

LABCORE Data Entry Template for Worklist# 20026

Analyst: KCH Instrument: PU01 18 Book# 058520
Method: LA-953-104 Rev/Mod _____ PUL28843

Worklist Comment: AX103, @PU23901 S.S. by Ludlum. Std: 1.0mL skm

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@PU23901	SOLID		
2	BLNK-PREP				@PU23901	SOLID		
3	SAMPLE	S97T001956	0	F	@PU23901	SOLID	97000495	AX-103
		Analytes Requested: PU23901, PU23901E, PU23901T						
4	DUP	S97T001956	0	F	@PU23901	SOLID		

Final page for worklist # 20026

KCH 8-28-97
Analyst Signature Date

Joe E. Hogan 9-2-97
Analyst Signature Date

Cf. Penen 9/2/97

Data Entry Comments:

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

WORKBOOK PAGE: STD1

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0)

LIQUID

STD

Type	DATE COUNTED	AUG-29-97	Pu 238 AEA FRAC (C236)	0.469
STD	SAMPLE VOLUME in mL	SS 1.000	Pu 238 AEA FRAC (C238)	0.000
Work List	SAMPLE DILUTION FACTOR	DF 1.000	Pu 239 AEA FRAC (C239)	0.499
20026	TRACER VOLUME in mL	SPKV 0.100	TOTAL AT COUNTS	3620
Test Code	DIGEST DILUTION FACTOR	DDF 1.000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cpm (Bkg)	0.100
Matrix	DETECTOR NUMBER	18	Pu 236 cpm	46.840
LIQUID	EFFICIENCY FACTOR	EFF 0.269	Pu 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE	11/15/96	Pu 239 cpm	49.850
97004176	TRACER PREPARATION VALUE (dpm/mL)	2600.000	AEA COUNT TIME	480
Recovery	PU-236 DECAY CORR'D VALUE (dpm/mL)	2147.714	Pu 239/240 $\mu\text{Ci/L}$	1.0293E-01
0	PU-238 TRACER VALUE (dpm/mL)	0.000		
Sample Prep	STANDARD BOOK NO	75B56		
N/A	STANDARD VALUE in $\mu\text{Ci/mL}$	1.090E-04		
Sample #				
WL20026				
Instrument Code	Decay Time = Date Counted - Tracer Preparation Date			
WB27809	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]			
Prepared By	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * 1/EFF * C236 * 100 / Pu-236 Decay Corr'd Value * SPKV			
SEH	Pu 239/240 $\mu\text{Ci/L}$ = (C239) / (Pu 236 Decay Corr'd Value) (SPKV) (1000mL/L) (DF) (DDF) / [(C236) (SS) (2220000 dpm/ μCi)]			
Chemist	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)			
JFR	Pu 238 $\mu\text{Ci/L}$ = [(Pu 238 dpm) (DF) (DDF) (1000mL/L)] / [(Pu-236 Tracer Recovery / 100) (2220000 dpm/ μCi) (D g/L) (SS)]			
Analyst	Relative Counting Error = Square Root of [(1 / (Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100			
KGH				
Date Complete				
09/02/97	Pu 239/240 $\mu\text{Ci/mL}$	1.03E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$ Pu 239/240 6.31E-06	
Analysis Date	Relative Counting Error	= 1.8%		
08/29/97				
Analysis Time				
03:00 PM				
Sample Point				
AX-103	Pu 236 Tracer Recovery	= 98.0%		

Analyst:	KGH	Date:	02-Sep-97
Signature of Chemist:	JFR	Date:	4 Sept 97

STANDARD.WB1 REV 1.0

943128ML

WORKBOOK PAGE: BLANK2

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0))**LIQ****BLNK-PREP**

Type	DATE COUNTED	AUG-29-97	PU 236 AEA FRAC (C236)	0.967
BLNK-PREP	SAMPLE VOLUME in mL	SS 1.000	PU 238 AEA FRAC (C238)	0.000
Work List	SAMPLE DILUTION FACTOR	DF 1.000	PU 239 AEA FRAC (C239)	0.000
20026	TRACER VOLUME in mL	SPKV 0.100	TOTAL AT COUNTS	1930
Test Code	DIGEST GRAMS OF SOLIDS/L	Dg/L 1.9240	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cpm (Bkg)	0.100
Matrix	DETECTOR NUMBER	18	PU 236 cpm	47.060
SOLID	EFFICIENCY FACTOR	EFF 0.2686	PU 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE	11/15/96	PU 239 cpm	0.000
97004176	TRACER PREPARATION VALUE (dpm/mL)	2600.00	AEA COUNT TIME	480
Retun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2147.71	Pu 239/240 $\mu\text{Ci/g}$ =	< 1.56E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.00		

Sample Prep

N/A

Sample #	Decay Time = Date Counted - Tracer Preparation Date
WL 20026	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)
WB27809	Pu 239/240 $\mu\text{Ci/g}$ = (C239) / (Pu 236 Decay Corr'd Value) * (SPKV) / (1000mL/L) * (DF) / [(C236) * (SS) * (D g/L) * (2220000 dpm/ μCi)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)
SEH	Pu 238 $\mu\text{Ci/g}$ = [(Pu 238 dpm) * (DF) * (1000mL/L)] / [(Pu-236 Tracer Recovery / 100) * (2220000 dpm/ μCi) * (D g/L) * (SS)]
Chemist	Relative Counting Error = Square Root of [(1 / (Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
JFR	
Analyst	
KGH	

JFR

Analyst

KGH

Date Complete

09/02/97	Pu 239/240 $\mu\text{Ci/g}$	< 1.56E-03	DETECTION LEVELS in $\mu\text{Ci/g}$
Analysis Date	Relative Counting Error	= 100.0%	
08/26/97	NOTE: Pu 238 Result is a LESS THAN Value.		Pu 239/240
Analysis Time	Pu 238 $\mu\text{Ci/g}$	< 1.56E-03	1.56E-03
03:00 PM	Relative Counting Error	= 100.0%	Pu 238
Sample Point	Pu 236 Tracer Recovery	= 107.7%	1.56E-03
AX-103			

Analyst:	KGH	Date:	02-Sep-97
Signature of Chemist:	<i>John Relyea</i>	Date:	4 Sept 97

BLANK.WB1 REV 1.0

943128ML

WORKBOOK PAGE: SAM3

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0)

LIQUID / SO

				LIQUID / SO	SAMPLE
Type	DATE COUNTED		AUG-29-97	PU 236 AEA FRAC (C236)	0.740
SAMPLE	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC (C238)	0.061
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC (C239)	0.189
20026	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	2388
Test Code	DIGEST GRAMS of SOLIDS/L	Dg/L	1.9240	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO		128B43	BACKGROUND in cpm (Bkg)	0.100
Matrix	DETECTOR NUMBER		18	PU 236 cpm	46.210
SOLID	EFFICIENCY FACTOR	EFF	0.269	PU 238 cpm	5.050
Batch Number	TRACER PREPARATION DATE		11/15/96	PU 239 cpm	11.790
97004176	TRACER PREPARATION VALUE (dpm/mL)		2600.000	AEA COUNT TIME	480
ReRun	PU-236 DECAY CORR'D VALUE (dpm/mL)		2147.714	Pu 239/240 μ Ci/g	1.2842E-02
0	PU-238 TRACER VALUE (dpm/mL)		0.000		
Sample Prep					
FUSION01					
Sample #	Decay Time = Date Counted - Tracer Preparation Date				
S97T001956	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of $\{(-\ln 2 * \text{Decay Time}/1040.95)\}$]				
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)				
W527509	Pu 239/240 μ Ci/g = (C239) (Pu 236 Decay Corr'd Value) (SPKV) (1000mL/L) (DF) / [(C238) (SS) (D g/L) (2220000 dpm/ μ Ci)]				
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)				
SEH	Pu 238 μ Ci/g = [(Pu 238 dpm) (DF) (1000mL/L)] / [(Pu-236 Tracer Recovery / 100) (2220000 dpm/ μ Ci) (D g/L) (SS)]				
Chemist	Relative Counting Error = Square Root of $\{[1 / (\text{Pu 236 cpm} * \text{min})] + [1 / (\text{Pu 238 or 239/240 cpm} * \text{min})]\} * 1.96 * 100$				
JFR					
Analysis					
KGH					
Data Complete					
09/02/97	Pu 239/240 μ Ci/g		1.28E-02	DETECTION LEVELS in μ Ci/g	
Analysis Date	Relative Counting Error	=	2.9%		
09/29/97				Pu 239/240	
Analysis Time				2.04E-03	
03:00 PM	Pu 238 μ Ci/g		5.50E-03	Pu 238	
Sample Point	Relative Counting Error	=	4.2%	2.04E-03	
AX-103	Pu 236 Tracer Recovery	=	102.0%		

Analyst:	KGH	Date:	02-Sep-97
Signature of Chemist:	<i>John Relyea</i>	JFR	Date: 45 Sept 97
SAMPLE.WB1 REV 1.0 943128ML			

WORKBOOK PAGE: DUP4

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0)**LIQUID / SO****DUP**

Type	DATE COUNTED	AUG-29-97	PU 236 AEA FRAC (C236)	0.778	
DUP	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC (C238)	0.126
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC (C239)	0.166
20026	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	1127
Test Code	DIGEST GRAMS OF SOLIDS/L	Dg/L	1.9328	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cpm (Bkg)	0.100	
Matrix	DETECTOR NUMBER	18	PU 236 cpm	23.530	
SOLID	EFFICIENCY FACTOR	EFF	0.269	PU 238 cpm	3.820
Batch Number	TRACER PREPARATION DATE	11/15/96	PU 239 cpm	4.980	
97004176	TRACER PREPARATION VALUE (dpm/mL)	2600.000	AEA COUNT TIME	480	
Return	PU-236 DECAY CORR'D VALUE (dpm/mL)	2147.714	Pu 239/240 µCi/g	1.0602E-02	
0	PU-238 TRACER VALUE (dpm/mL)	0.000			

Sample Prep

FUSION01

Sample #

S977001956

Instrument Code

WB27809

Prepared By

SEH

Chemist

JFR

Analyst

KGH

Date Complete

08/02/97

Analysis Date

08/23/97

Analysis Time

03:06 PM

Sample Point

AX-103

Decay Time = Date Counted - Tracer Preparation Date

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(ln2 * Decay Time/1040.95)}]

Pu 238 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)

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

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

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

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

Pu 239/240 µCi/g	1.06E-02	DETECTION LEVELS
Relative Counting Error =	4.4%	In µCi/g
		Pu 239/240
Pu 238 µCi/g	8.10E-03	3.81E-03
Relative Counting Error =	4.9%	Pu 238
Pu 236 Tracer Recovery =	50.6%	3.81E-03

Analyst:	KGH	Date:	02-Sep-97
Signature of Chemist:	JFR	Date:	4 Sept 97

SAMPLE.WB1 REV 1.0

943128ML

222-S Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 WL20026-STD
 File ID: 17a1770.CNF

Counted on: 8/29/97 @11:56
 Detector: AEA17
 Geometry number: 1
 Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1229.0	1229.0	722.035	722.035	24.000	6.987	12.000	1.894
2?	11.8	11.8	606.550	602.902	24.000	2.108	12.000	0.912
3	33.1	33.1	573.621	573.007	20.000	6.862	10.000	2.603
4?	9.5	9.5	540.622	540.622	32.000	2.921	16.000	0.308
5	1548.2	1548.2	457.189	457.187	20.000	7.875	10.000	2.848

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Exp.	Peak Centroid Obs.	Diff.	FWHM	Count Rate	%err c/m	@95	d/m	Activity uCi/ea
1	Pu236	0.469	5.755	5.740	0.015	0.02	46.84	1.3		193.3	0.871E-04
2		????		5.466			0.27	32.3			
3	Th228	0.010	5.400	5.398	0.002	0.02	1.01	10.8		5.7	0.259E-05
4		????		5.323			0.74	12.9			
5	Pu239	0.499	5.147	5.131	0.016	0.02	49.85	1.3		201.6	0.908E-04
	Pu240		5.144	5.131	0.013					201.6	0.908E-04

Totals:			0.978	<--valid peaks only-->			97.69				

DETECTOR CALIBRATION

Energy(MEV) = 4.080 + (0.0023)*Channel
 Energy range (MeV): 4.080 TO 6.435
 Efficiency = 0.2473 CPM/DPM
 (Data reduction compression factor: 2.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	47966.0	100.000
Smoothed	47966.4	100.001
Composite fit	47383.9	98.786
Residuals	582.1	1.214

Analyzed by:

MB

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 10841.0

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Raw Data Dump for AEA Spectrum: 17a1770.CNF

1	0.	0.	0.	1.	0.	0.	1.	1.	0.	2.
11	1.	0.	0.	0.	1.	0.	0.	0.	0.	0.
21	2.	0.	1.	1.	0.	1.	0.	1.	0.	0.
31	1.	1.	0.	0.	1.	0.	0.	0.	1.	2.
41	0.	1.	0.	0.	1.	0.	0.	0.	0.	1.
51	1.	1.	0.	0.	1.	0.	2.	0.	1.	0.
61	1.	0.	1.	0.	2.	0.	3.	1.	0.	1.
71	1.	0.	0.	0.	0.	0.	1.	1.	2.	0.
81	1.	1.	2.	0.	4.	1.	1.	4.	0.	1.
91	3.	2.	1.	3.	1.	1.	0.	2.	2.	1.
101	1.	0.	0.	3.	0.	2.	1.	2.	0.	1.
111	2.	4.	2.	2.	0.	1.	2.	2.	1.	1.
121	3.	0.	3.	1.	2.	3.	3.	1.	3.	1.
131	1.	3.	3.	3.	1.	3.	2.	6.	2.	6.
141	3.	3.	4.	2.	6.	4.	3.	5.	4.	3.
151	5.	3.	5.	9.	3.	7.	6.	10.	6.	13.
161	10.	7.	4.	6.	8.	8.	15.	19.	25.	12.
171	18.	21.	17.	13.	20.	17.	20.	31.	27.	18.
181	35.	28.	36.	27.	29.	47.	46.	50.	45.	55.
191	65.	57.	67.	66.	94.	93.	93.	109.	118.	118.
201	114.	126.	141.	178.	181.	202.	204.	220.	269.	271.
211	289.	334.	316.	419.	457.	505.	595.	634.	733.	787.
221	854.	874.	956.	1127.	1259.	1421.	1593.	1754.	1721.	1705.
231	1437.	956.	480.	139.	34.	10.	1.	2.	2.	6.
241	3.	3.	3.	1.	2.	8.	9.	2.	11.	5.
251	6.	3.	4.	10.	9.	11.	8.	14.	9.	8.
261	7.	14.	5.	12.	11.	21.	16.	13.	18.	19.
271	19.	16.	12.	17.	15.	14.	10.	22.	17.	23.
281	34.	27.	29.	33.	45.	38.	46.	47.	37.	25.
291	15.	17.	19.	12.	9.	15.	19.	16.	16.	23.
301	26.	21.	28.	29.	17.	25.	20.	20.	19.	17.
311	30.	28.	22.	31.	30.	34.	24.	28.	45.	43.
321	33.	47.	60.	57.	64.	82.	70.	69.	79.	93.
331	83.	101.	112.	126.	137.	139.	183.	185.	205.	228.
341	224.	285.	316.	334.	386.	420.	498.	530.	635.	688.
351	761.	829.	874.	861.	833.	793.	965.	970.	1156.	1277.
361	1376.	1425.	1253.	798.	424.	118.	26.	1.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	1.	0.	0.	0.	1.	1.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	1.	1.	0.	0.	0.	2.	1.	1.	1.
421	1.	4.	0.	4.	2.	1.	0.	1.	3.	0.
431	0.	2.	1.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	2.	1.	2.	2.	2.	1.	0.	3.	1.
461	2.	1.	1.	4.	1.	3.	4.	3.	2.	7.
471	4.	3.	8.	5.	5.	2.	2.	2.	3.	2.
481	0.	2.	1.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
511	0.	0.								

222-S Analytical Laboratory
 G E N E R A L A L P H A E N E R G Y A N A L Y S I S
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 WL20026-BLNK
 File ID: 18a1870.CNF

Counted on: 8/29/97 @11:56
 Detector: AEA18
 Geometry number: 1
 Count time: 28805. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1087.6	1087.6	713.320	713.320	28.000	13.063	14.000	3.420
2?	14.8	14.8	599.130	599.130	20.000	0.000	10.000	8.159
3	34.0	34.0	567.614	566.703	32.000	12.104	16.000	2.351

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate	%err @95	d/m	Activity uCi/ea
1	Ra224	0.967	5.686	5.726	-0.040	0.03	47.08	1.3	204.4	0.921E-04
	Pu236		5.755	5.726	0.029				196.1	0.883E-04
2		????		5.463			0.00	1000.		
3	Th228	0.037	5.400	5.389	0.011	0.03	1.78	7.6	10.2	0.460E-05
Totals:		1.004	<--valid peaks only-->				48.86			

DETECTOR CALIBRATION

Energy(MEV) = 4.085 + (0.0023)*Channel
 Energy range (MeV): 4.085 TO 6.441
 Efficiency = 0.2450 CPM/DPM
 (Data reduction compression factor: 2.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	23363.0	100.000
Smoothed	23363.7	100.003
Composite fit	23455.8	100.397
Residuals	-92.8	-0.397

Analyzed by:

MB

Spectrum 18a1870.CNF

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

Display Max.:

8178.6

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1	0.	0.	1.	0.	1.	1.	0.	0.	0.	0.
11	0.	0.	0.	1.	1.	0.	0.	1.	0.	0.
21	0.	0.	0.	2.	0.	0.	0.	0.	0.	1.
31	0.	1.	0.	0.	0.	0.	0.	0.	0.	2.
41	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
61	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.
71	1.	0.	0.	0.	0.	0.	1.	1.	0.	1.
81	1.	2.	0.	0.	0.	0.	0.	0.	2.	0.
91	1.	0.	0.	0.	0.	0.	0.	0.	1.	1.
101	1.	0.	0.	1.	0.	1.	0.	0.	0.	0.
111	0.	1.	1.	0.	2.	0.	1.	0.	0.	0.
121	0.	0.	0.	0.	1.	1.	0.	0.	2.	0.
131	1.	1.	1.	2.	0.	0.	0.	1.	1.	0.
141	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
151	1.	0.	1.	0.	0.	0.	0.	0.	0.	1.
161	0.	1.	1.	0.	0.	1.	0.	1.	0.	1.
171	0.	0.	0.	2.	0.	0.	2.	1.	2.	1.
181	1.	0.	0.	1.	1.	1.	0.	1.	0.	1.
191	1.	0.	0.	0.	0.	1.	1.	3.	0.	2.
201	1.	0.	1.	1.	1.	4.	1.	1.	1.	0.
211	1.	1.	1.	2.	3.	4.	2.	1.	5.	4.
221	3.	4.	3.	3.	5.	8.	4.	6.	3.	6.
231	7.	3.	1.	2.	3.	4.	3.	6.	6.	6.
241	6.	3.	4.	2.	10.	8.	7.	6.	4.	7.
251	8.	8.	7.	5.	8.	10.	9.	9.	11.	9.
261	17.	21.	12.	14.	18.	29.	15.	25.	18.	24.
271	16.	19.	18.	26.	10.	24.	27.	36.	30.	37.
281	35.	51.	36.	41.	42.	44.	32.	20.	18.	13.
291	20.	17.	14.	14.	16.	10.	16.	16.	26.	15.
301	21.	18.	13.	7.	16.	20.	21.	19.	30.	28.
311	24.	28.	29.	29.	33.	42.	37.	37.	65.	68.
321	56.	67.	55.	65.	85.	73.	78.	112.	124.	119.
331	133.	146.	187.	172.	197.	226.	229.	289.	297.	337.
341	363.	424.	497.	505.	596.	660.	717.	855.	819.	879.
351	894.	895.	1016.	1048.	1146.	1146.	1129.	1151.	1068.	936.
361	709.	408.	228.	117.	67.	39.	13.	3.	0.	0.
371	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
401	2.	0.	0.	0.	0.	0.	1.	0.	1.	0.
411	2.	1.	0.	1.	2.	2.	0.	0.	1.	3.
421	1.	0.	0.	1.	0.	0.	0.	1.	0.	0.
431	0.	1.	1.	0.	0.	0.	0.	0.	0.	1.
441	0.	0.	1.	0.	0.	0.	0.	0.	1.	1.
451	2.	1.	1.	1.	1.	1.	3.	2.	5.	3.
461	1.	3.	2.	4.	1.	6.	9.	8.	9.	7.
471	4.	3.	9.	3.	4.	1.	1.	3.	1.	2.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

HNF-SD-WM-DP-266, REV. 0

222-S Analytical Laboratory

GENERAL ALPHA ENERGY ANALYSIS

Rev. 2.10

DATA REDUCTION REPORT

SAMPLE

S97T1956-SAM

File ID: 19a1972.CNF

Counted on: 8/29/97 @11:57
 Detector: AEA19
 Geometry number: 1
 Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1104.8	1104.8	719.302	719.302	24.000	8.473	12.000	2.096
2	72.7	72.7	603.138	601.941	28.000	8.964	14.000	1.157
3?	16.9	16.9	576.376	574.328	12.000	2.512	6.000	2.140
4	309.0	309.0	456.212	456.177	24.000	10.364	12.000	3.099

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Exp.	Obs.	Diff.	FWHM	Count Rate	%err	d/m	Activity uCi/ea
1	$Pu-236$	0.740		5.732		0.02	46.21	1.3	191.1	0.861E-04
2	$Am-241$	0.081	5.479	5.462	0.017	0.02	5.06	4.6	22.3	0.100E-04
3		????		5.399			0.26	68.7		
4	Pu239	0.189	5.147	5.127	0.020	0.02	11.79	2.7	48.8	0.220E-04
	Pu240		5.144	5.127	0.017				48.8	0.220E-04
Totals:		1.009	<--valid peaks only-->				63.06			

DETECTOR CALIBRATION

Energy (MEV) = $4.078 + (0.0023) \cdot \text{Channel}$

Energy range (MeV): 4.078 TO 6.433

Efficiency = 0.2418 CPM/DPM

(Data reduction compression factor: 2.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	29991.0	100.000
Smoothed	29991.4	100.001
Composite fit	30397.0	101.354
Residuals	-406.0	-1.354

Analyzed by: _____

MB

Spectrum 19a1972.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 7576.0

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Raw Data Dump for AEA Spectrum: 19a1972.CNF

1	0.	0.	0.	1.	0.	0.	0.	1.	0.	0.
11	0.	0.	0.	0.	1.	0.	1.	1.	2.	1.
21	0.	0.	0.	1.	0.	0.	0.	0.	1.	1.
31	0.	1.	0.	0.	1.	0.	0.	1.	1.	1.
41	0.	0.	1.	0.	0.	1.	2.	1.	1.	1.
51	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.
61	0.	0.	1.	0.	0.	0.	0.	1.	0.	3.
71	0.	1.	0.	0.	0.	0.	0.	0.	1.	0.
81	0.	1.	0.	0.	0.	1.	2.	1.	1.	0.
91	0.	0.	0.	2.	0.	0.	0.	1.	0.	1.
101	2.	1.	1.	1.	1.	1.	0.	2.	2.	3.
111	2.	1.	1.	0.	0.	1.	2.	1.	0.	1.
121	1.	0.	0.	4.	1.	1.	3.	1.	0.	2.
131	0.	2.	3.	1.	0.	7.	1.	0.	1.	0.
141	0.	3.	0.	1.	2.	3.	3.	4.	2.	3.
151	1.	1.	1.	1.	7.	1.	2.	2.	6.	3.
161	5.	5.	4.	5.	3.	7.	4.	3.	7.	2.
171	6.	4.	7.	6.	5.	8.	6.	8.	11.	10.
181	13.	11.	5.	18.	8.	13.	11.	12.	16.	20.
191	9.	22.	10.	22.	15.	26.	29.	21.	35.	40.
201	42.	45.	44.	40.	46.	45.	51.	54.	56.	70.
211	72.	93.	91.	129.	126.	129.	165.	167.	165.	199.
221	227.	239.	284.	273.	265.	302.	344.	332.	358.	298.
231	295.	186.	123.	65.	25.	17.	8.	1.	5.	3.
241	1.	5.	7.	6.	2.	3.	3.	6.	5.	1.
251	13.	11.	6.	9.	15.	13.	8.	13.	15.	17.
261	17.	15.	15.	21.	16.	15.	17.	23.	30.	19.
271	26.	16.	23.	27.	29.	27.	37.	35.	43.	43.
281	54.	55.	51.	66.	66.	68.	73.	79.	81.	68.
291	54.	61.	61.	73.	76.	86.	75.	83.	88.	100.
301	101.	97.	98.	97.	67.	68.	40.	28.	31.	30.
311	20.	28.	23.	34.	44.	41.	43.	36.	57.	61.
321	51.	85.	52.	65.	66.	88.	84.	91.	102.	113.
331	115.	123.	140.	153.	172.	178.	188.	182.	227.	270.
341	306.	294.	353.	403.	467.	475.	535.	642.	668.	765.
351	803.	811.	889.	836.	851.	949.	1018.	1086.	1114.	1223.
361	1214.	1018.	801.	425.	122.	28.	3.	0.	2.	1.
371	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	2.	0.	0.	0.	1.
401	1.	0.	0.	0.	1.	0.	0.	0.	0.	2.
411	0.	0.	1.	0.	1.	0.	1.	0.	1.	2.
421	1.	2.	1.	2.	2.	0.	0.	0.	1.	2.
431	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
441	0.	1.	0.	0.	1.	0.	0.	0.	1.	0.
451	2.	0.	0.	0.	2.	1.	1.	1.	1.	1.
461	2.	0.	3.	5.	7.	3.	4.	5.	5.	9.
471	2.	12.	10.	9.	8.	6.	5.	3.	2.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
511	0.	0.								

222-S Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 SS97T1956-DUP
 File ID: 20a2069.CNF

Counted on: 8/29/97 @11:57
 Detector: AEA20
 Geometry number: 1
 Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	515.7	515.7	718.747	718.747	20.000	6.629	10.000	1.395
2	26.4	26.4	604.920	603.504	16.000	3.998	8.000	0.217
3	141.6	141.6	455.684	455.636	20.000	7.052	10.000	2.150

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate	%err @95	d/m	Activity uCi/ea
1	²³⁸ Pu	0.779	5.735	5.735	0.02	23.53	1.8	95.3	0.429E-04	
2	Pu238	0.126	5.487	5.470	0.017	0.01	3.82	5.2	21.5	0.967E-05
	Am241		5.479	5.470	0.009				16.4	0.740E-05
3	Pu239	0.165	5.147	5.130	0.017	0.02	4.98	4.5	20.2	0.909E-05
	Pu240		5.144	5.130	0.014				20.2	0.909E-05
Totals:		1.070	<--valid peaks only-->				32.33			

DETECTOR CALIBRATION

Energy(MEV) = 4.082 + (0.0023)*Channel
 Energy range (MeV): 4.082 TO 6.437
 Efficiency = 0.2469 CPM/DPM
 (Data reduction compression factor: 2.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	14501.0	100.000
Smoothed	14501.0	100.000
Composite fit	15519.9	107.027
Residuals	-1018.9	-7.027

Analyzed by:

MB

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 3457.3

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2
2
2
2
3.
2.3.
2....3.
2.....3.
2.....3.
23.
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1.2.
1.2..
.12...
2..1
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Raw Data Dump for AEA Spectrum: 20a2069.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
31	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.	0.
41	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
71	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
91	1.	1.	1.	0.	0.	0.	0.	0.	1.	1.	0.
101	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.	0.
111	1.	0.	1.	0.	0.	0.	0.	0.	0.	2.	1.
121	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
131	0.	0.	0.	0.	1.	1.	1.	0.	0.	0.	0.
141	1.	1.	4.	1.	1.	0.	0.	1.	1.	1.	0.
151	2.	1.	1.	0.	2.	0.	0.	0.	0.	2.	4.
161	2.	1.	4.	0.	1.	2.	1.	2.	7.	4.	4.
171	4.	5.	1.	5.	6.	3.	2.	2.	8.	6.	6.
181	6.	11.	8.	4.	5.	9.	12.	17.	14.	13.	13.
191	20.	9.	14.	20.	13.	16.	21.	9.	13.	24.	24.
201	16.	19.	22.	34.	35.	24.	30.	31.	37.	45.	45.
211	35.	43.	61.	60.	70.	71.	76.	82.	91.	84.	84.
221	86.	101.	112.	104.	136.	166.	150.	168.	165.	154.	154.
231	108.	40.	31.	13.	7.	1.	6.	1.	1.	4.	4.
241	4.	4.	2.	2.	4.	2.	4.	7.	7.	10.	10.
251	4.	4.	7.	7.	9.	2.	7.	7.	8.	7.	7.
261	9.	8.	13.	9.	10.	12.	9.	16.	10.	14.	14.
271	13.	12.	20.	17.	13.	7.	24.	23.	28.	25.	25.
281	12.	25.	22.	29.	31.	38.	38.	31.	41.	29.	29.
291	19.	28.	31.	35.	42.	39.	32.	37.	43.	45.	45.
301	40.	46.	53.	50.	42.	22.	15.	15.	13.	15.	15.
311	20.	19.	19.	28.	20.	28.	27.	25.	31.	44.	44.
321	33.	39.	38.	54.	48.	47.	47.	56.	70.	75.	75.
331	92.	90.	94.	99.	112.	114.	133.	128.	133.	159.	159.
341	174.	181.	206.	226.	212.	255.	257.	337.	363.	410.	410.
351	393.	408.	350.	382.	363.	397.	455.	478.	569.	600.	600.
361	569.	419.	199.	66.	12.	1.	0.	0.	0.	0.	0.
371	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
421	1.	1.	0.	0.	1.	1.	0.	1.	1.	0.	0.
431	2.	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.
441	0.	1.	0.	0.	1.	0.	0.	1.	1.	0.	0.
451	0.	0.	0.	0.	1.	0.	1.	0.	3.	1.	1.
461	0.	2.	1.	1.	0.	2.	2.	0.	0.	0.	0.
471	3.	4.	1.	1.	5.	1.	0.	0.	1.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.									

LABCORE Completed Worklist Report for Worklist# 20124

Analyst: jmv

Instrument: AB19

Book# 75 B56

Method: LA-953-104 Rev/Mod B-0

Worklist Comment: AX103, @PU23901 S.S. by Ludlum. Std: 1.0mL skm

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@PU23901 PU23901	SOLID	1.09E-04	1.01E-4	92.661 % Recovery	
1 STD	0		@PU23901 PU23901T	SOLID	100	9.07E+01	90.700 % Recovery	
1 STD	0		@PU23901 PU23901E	SOLID	1	1.89E+00	1.890 % Ct Error	
2 BLNK-PREP	0		@PU23901 PU23901	SOLID	1	<1.52E-3	uCi/g	
2 BLNK-PREP	0		@PU23901 PU23901T	SOLID	100	9.63E+01	96.300 % Recovery	
2 BLNK-PREP	0		@PU23901 PU23901E	SOLID	1	1.00E+02	100.000 uCi/g	
3 SAMPLE	S97T001888	0 F	@PU23901 PU23901	SOLID	N/A	1.11E-02	2.55e-003 uCi/g	
3 SAMPLE	S97T001888	0 F	@PU23901 PU23901T	SOLID	N/A	7.40E+01	% Recovery	
3 SAMPLE	S97T001888	0 F	@PU23901 PU23901E	SOLID	N/A	3.39E+00	% Ct. Error	
4 DUP	S97T001888	0 F	@PU23901 PU23901	SOLID	1.11E-2	1.06E-2	4.608 RPD	
4 DUP	S97T001888	0 F	@PU23901 PU23901T	SOLID	100	9.87E+01	98.700 % Recovery	
4 DUP	S97T001888	0 F	@PU23901 PU23901E	SOLID	1.00	3.07E+00	3.070 % Ct Error	

Final page for worklist# 20124

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

John Kelly 5 Sept 97.
Reviewer Signature _____ Date _____
Validated

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

09/02/97 07:15
A-0004-1

Page: 1

LABCORE Data Entry Template for Worklist# 20124Analyst: dmv Instrument: PU01 19 Book# 7585L

Method: LA-953-104 Rev/Mod _____

Worklist Comment: AX103, @PU23901 S.S. by Ludlum. Std: 1.0mL skm

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@PU23901	SOLID		
2	BLNK-PREP				@PU23901	SOLID		
3	SAMPLE	S97T001888	0	F	@PU23901	SOLID	97000494	AX-103 1ml
Analytes Requested: PU23901, PU23901E, PU23901T								
4	DUP	S97T001888	0	F	@PU23901	SOLID		

Final page for worklist # 20124Analyst Signature dmvDate 9-4-97Analyst Signature [Signature]Date 9/5/97[Signature] 2/15/99

Data Entry Comments:

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

WORKBOOK PAGE: STD1

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0)

LIQUID

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0)				LIQUID	STD
Type	DATE COUNTED	SEP-04-97	PU 236 AEA FRAC (C236)		0.458
STD	SAMPLE VOLUME in mL	SS 1.000	PU 238 AEA FRAC (C238)		0.000
Work List	SAMPLE DILUTION FACTOR	DF 1.000	PU 239 AEA FRAC (C239)		0.481
20124	TRACER VOLUME in mL	SPKV 0.100	TOTAL AT COUNTS		4252
Test Code	DIGEST DILUTION FACTOR	DDF 1.000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cp (Bkg)		0.180
Matrix	DETECTOR NUMBER	19	PU 236 cpm		43.690
LIQUID	EFFICIENCY FACTOR	EFF 0.335	PU 238 cpm		0.000
Batch Number	TRACER PREPARATION DATE	11/15/96	PU 239 cpm		45.880
97004275	TRACER PREPARATION VALUE (dpm/mL)	2600.000	AEA COUNT TIME		480
Retent	PU-236 DECAY CORR'D VALUE (dpm/mL)	2139.150	Pu 239/240 $\mu\text{Ci/L}$		1.0120E-01
0	PU-238 TRACER VALUE (dpm/mL)	0.000			
Sample Prep	STANDARD BOOK NO	75B56			
N/A	STANDARD VALUE in $\mu\text{Ci/mL}$	1.090E-04			
Sample #					
WL20124					
Instrument Code	Decay Time = Date Counted - Tracer Preparation Date				
WC16100	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of $\{(-\ln 2 * \text{Decay Time}/1040.95)\}$]				
Prepared By	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * 1/EFF * C236 * 100 / Pu-236 Decay Corr'd Value * SPKV				
CJO	Pu 239/240 $\mu\text{Ci/L}$ = (C239) / (Pu 236 Decay Corr'd Value) (SPKV) (1000mL/L) (DF) (DDF) / [(C236) (SS) (2220000 dpm/ μCi)]				
Chemist	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)				
JFR	Pu 238 $\mu\text{Ci/L}$ = [(Pu 238 dpm) (DF) (DDF) (1000mL/L)] / [(Pu-236 Tracer Recovery / 100) (2220000 dpm/ μCi) (D g/L) (SS)]				
Analyst	Relative Counting Error = Square Root of $\{[1/(\text{Pu 238 cpm} * \text{min})] + [1/(\text{Pu 238 or 239/240 cpm} * \text{min})]\} * 1.96 * 100$				
JMV					
Date Complete					
09/05/97	Pu 239/240 $\mu\text{Ci/mL}$	1.01E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$ Pu 239/240 6.96E-06		
Analysis Date	Relative Counting Error	= 1.9%			
09/04/97					
Analysis Time					
02:15 PM					
Sample Point					
AX-103	Pu 236 Tracer Recovery	= 90.7%			

Analyst:	JMV	Date:	05-Sep-97
Signature of Chemist:	JFR	Date:	5 Sept 97

STANDARD.WB1 REV 1.0

943128M2

WORKBOOK PAGE: BLANK2

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0)

LIQ

BLNK-PREP

Type	DATE COUNTED		SEP-04-97	PU 236 AEA FRAC (C236)	0.978
BLNK-PREP	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC (C238)	0.000
Work List	SAMPLE DILUTION FACTO	DF	1.000	PU 239 AEA FRAC (C239)	0.000
20124	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	2120
Test Code	DIGEST GRAMS OF SOLIDS/	Dg/L	2.0140	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO		128B43	BACKGROUND in cp (Bkg)	0.180
Matrix	DETECTOR NUMBER		19	PU 236 cpm	47.670
SOLID	EFFICIENCY FACTOR	EFF	0.3345	PU 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE		11/15/96	PU 239 cpm	0.000
97004275	TRACER PREPARATION VALUE (dpm/mL)		2600.00	AEA COUNT TIME	480
Return	PU-236 DECAY CORR'D VALUE (dpm/mL)		2139.15	Pu 239/240 $\mu\text{Ci/g}$ =	< 1.52E-03
0	PU-238 TRACER VALUE (dpm/		0.00		

Sample Prep

N/A

Sample #

WL20124

Instrument Code

WC16100

Prepared By

CJO

Chemist

JFR

Analyst

JMV

Date Complete

09/05/97

Analysis Date

09/04/97

Analysis Time

02:15 PM

Sample Point

AX-105

Decay Time = Date Counted - Tracer Preparation Date

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]

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

Pu 239/240 $\mu\text{Ci/g}$ = (C239) / (Pu 236 Decay Corr'd Value) * (SPKV) / (1000 mL/L) / (DF) / [(C236) / (SS) / (2220000 dpm/ μCi)]

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

Pu 238 $\mu\text{Ci/g}$ = [(Pu 238 dpm) / (DF) / (1000 mL/L)] / [(Pu-236 Tracer Recovery / 100) / (2220000 dpm/ μCi) / (D g/L) / (SS)]

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

Pu 239/240 $\mu\text{Ci/g}$ < 1.52E-03

Relative Counting Error = 100.0%

DETECTION

LEVELS

In $\mu\text{Ci/g}$

NOTE: Pu 238 Result is a LESS THAN Value.

Pu 239/240

Pu 238 $\mu\text{Ci/g}$ < 1.52E-03

1.52E-03

Relative Counting Error = 100.0%

Pu 238

Pu 236 Tracer Recovery = 98.3%

1.52E-03

Analyst:	JMV	Date:	05-Sep-97
Signature of Chemist:	<i>John Redman</i>	Date:	5 Sept 97

BLANK.WB1 REV 1.

963128ML

WORKBOOK PAGE: SAM3

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0)

LIQUID / SO

				SAMPLE	
Type	DATE COUNTED	SEP-04-97	Pu 238 AEA FRAC (C238)		0.759
SAMPLE	SAMPLE VOLUME in mL	SS 1.000	Pu 238 AEA FRAC (C238)		0.065
Work List	SAMPLE DILUTION FACTOR	DF 1.000	Pu 239 AEA FRAC (C239)		0.176
20124	TRACER VOLUME in mL	SPKV 0.100	TOTAL AT COUNTS		2099
Test Cells	DIGEST GRAMS of SOLIDS/L	Dg/L 2.0140	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cpm (Bkg)		0.180
Matrix	DETECTOR NUMBER	19	Pu 238 cpm		36.990
SOLID	EFFICIENCY FACTOR	EFF 0.335	Pu 238 cpm		3.170
Batch Number	TRACER PREPARATION DATE	11/15/96	Pu 239 cpm		8.570
97004275	TRACER PREPARATION VALUE (dpm/mL)	2600.000	AEA COUNT TIME		480
Rerun	PU-238 DECAY CORR'D VALUE (dpm/mL)	2139.150	Pu 239/240 μ Ci/g		1.1094E-02
0	PU-238 TRACER VALUE (dpm/mL)	0.000			
Sample Prep					
FUSION01					
Sample #	Decay Time = Date Counted - Tracer Preparation Date				
S97T001888	Pu-238 Decay Corr'd Value = Pu-238 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]				
Instrument Code	Pu 238 Tracer Recovery = (Total AT Counts / TC - Bkg) * C238*100/(Pu-238 Decay Corr'd Value * SPKV * EFF)				
WC16100	Pu 239/240 μ Ci/g = (C239)/(Pu 238 Decay Corr'd Value)(SPKV)(1000mL/L)(DF) / [(C238)(SS)(D g/L)(2220000 dpm/ μ Ci)]				
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 238 Tracer Recovery / 100)				
CJO	Pu 238 μ Ci/g = [(Pu 238 dpm)(DF)(1000mL/L)] / [(Pu-238 Tracer Recovery / 100)(2220000 dpm/ μ Ci)(D g/L)(SS)]				
Chemist	Relative Counting Error = Square Root of [(1/(Pu 238 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100				
JFR					
Analyst					
JMV					
Date Complete					
09/05/97	Pu 239/240 μ Ci/g	1.11E-02	DETECTION LEVELS		
Analysis Date	Relative Counting Error	= 3.4%	In μ Ci/g		
09/04/97			Pu 239/240		
Analysis Time			2.55E-03		
02:15 PM	Pu 238 μ Ci/g	4.10E-03	Pu 238		
Sample Point	Relative Counting Error	= 5.2%	2.55E-03		
AX-103	Pu 238 Tracer Recovery	= 74.0%			

Analyst:	JMV	Date:	05-Sep-97
Signature of Chemist:	JFR	Date:	5 Sept 97
SAMPLE.WB1 REV 1.0	943128ML		

WORKBOOK PAGE: DUP4

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0)**LIQUID / SO****DUP**

Type	DATE COUNTED	SEP-04-97	Pu 238 AEA FRAC (C236)	0.757
DUP	SAMPLE VOLUME in mL	SS	1.000 Pu 238 AEA FRAC (C238)	0.055
Work List	SAMPLE DILUTION FACTOR	DF	1.000 Pu 238 AEA FRAC (C239)	0.171
20124	TRACER VOLUME in mL	SPKV	0.100 TOTAL AT COUNTS	2805
Test Code	DIGEST GRAMS of SOLIDS/L	Dg/L	2.0452 AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cpm (Bkg)	0.180
Matrix	DETECTOR NUMBER	19	Pu 236 cpm	46.160
SOLID	EFFICIENCY FACTOR	EFF	0.335 Pu 238 cpm	3.940
Batch Number	TRACER PREPARATION DATE	11/15/96	Pu 239 cpm	10.440
97004275	TRACER PREPARATION VALUE (dpm/mL)	2600.000	AEA COUNT TIME	480
Re-run	PU-236 DECAY CORR'D VALUE (dpm/mL)	2139.150	Pu 239/240 $\mu\text{Ci/g}$	1.0622E-02
0	PU-238 TRACER VALUE (dpm/mL)	0.000		

Sample Prep

FUSION01

Sample #

S97T001888

Instrument Code

WC16100

Prepared By

CJO

Chemist

JFR

Analyst

JMV

Date Complete

09/05/97

Analysis Date

09/04/97

Analysis Time

02:15 PM

Sample Point

AX-103

Decay Time = Date Counted - Tracer Preparation Date

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

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

Pu 239/240 $\mu\text{Ci/g}$ = (C239) / (Pu 236 Decay Corr'd Value) * (SPKV) / (1000 mL/L) * (DF) / [(C236) * (SS) * (D g/L) * (2220000 dpm/ μCi)]

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

Pu 238 $\mu\text{Ci/g}$ = [(Pu 238 dpm) / (DF) * (1000 mL/L)] / [(Pu-238 Tracer Recovery / 100) * (2220000 dpm/ μCi) * (D g/L) * (SS)]Relative Counting Error = Square Root of $\{[1 / (\text{Pu 236 cpm} * \text{min})] + [1 / (\text{Pu 238 or 239/240 cpm} * \text{min})]\} * 1.96 * 100$ Pu 239/240 $\mu\text{Ci/g}$ = 1.06E-02

Relative Counting Error = 3.1%

DETECTION

LEVELS

In $\mu\text{Ci/g}$

Pu 239/240

1.89E-03

Pu 238

1.89E-03

Analyst:

JMV

Date:

05-Sep-97

Signature of Chemist:

JFR

Date:

5 Sept 97

SAMPLE.WB1 REV 1.0

943128ML

222-S Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 WL20124-STD
 File ID: 21a2166.CNF

Counted on: 9/ 4/97 @20:23
 Detector: AEA21
 Geometry number: 1
 Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1357.6	1357.6	719.043	719.043	16.000	5.418	8.000	1.771
2?	19.1	19.1	602.426	601.134	60.000	18.670	30.000	30.671
3	45.0	45.0	571.307	571.042	24.000	6.661	12.000	1.795
4	1674.0	1674.0	454.829	454.828	20.000	6.139	10.000	2.674

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid		Count	%err	d/m	Activity	
			Exp.	Obs. Diff.	FWHM Rate c/m	@95		uCi/ea	
1	²³⁶ Pu →	0.458		5.732	0.01	43.69	1.4	174.1	0.784E-04
2	94R	????		5.461		0.58	18.6		
3	Th228	0.018	5.400	5.392	0.0080.02	1.71	7.4	9.6	0.433E-05
4	Pu240/ ²³⁹	0.481	5.144	5.125	0.0190.01	45.88	1.3	182.9	0.824E-04
-----			-----			-----			
Totals:		0.957	<--valid peaks only-->			91.29			

DETECTOR CALIBRATION

Energy(MEV) = 4.079 + (0.0023)*Channel

Energy range (MeV): 4.079 TO 6.434

Efficiency = 0.2509 CPM/DPM

(Data reduction compression factor: 2.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	45816.0	100.000
Smoothed	45817.5	100.003
Composite fit	44101.6	96.258
Residuals	1714.4	3.742

Analyzed by:

EMB

Spectrum 21a2166.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 10425.3

HNF-SD-WM-DP-266, REV. 0

1	0.	0.	0.	0.	2.	1.	0.	0.	1.	0.
11	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
21	2.	2.	0.	1.	0.	0.	2.	1.	0.	0.
31	1.	2.	1.	2.	1.	0.	0.	1.	1.	0.
41	1.	0.	1.	0.	0.	0.	3.	1.	0.	1.
51	2.	1.	1.	1.	1.	0.	3.	1.	0.	1.
61	1.	1.	4.	2.	2.	1.	1.	1.	0.	1.
71	1.	2.	1.	0.	0.	3.	0.	1.	1.	0.
81	0.	2.	1.	0.	1.	2.	0.	0.	0.	2.
91	0.	2.	1.	1.	2.	2.	1.	2.	0.	5.
101	4.	1.	3.	2.	2.	2.	2.	1.	3.	0.
111	4.	4.	3.	4.	5.	3.	5.	3.	4.	2.
121	2.	4.	1.	4.	3.	3.	2.	6.	5.	5.
131	4.	4.	6.	3.	3.	5.	6.	5.	8.	5.
141	3.	4.	6.	5.	5.	3.	4.	9.	9.	6.
151	5.	4.	4.	7.	18.	5.	7.	9.	6.	9.
161	6.	9.	14.	7.	10.	12.	14.	12.	18.	17.
171	17.	23.	23.	24.	21.	24.	22.	25.	35.	27.
181	31.	33.	40.	37.	43.	44.	41.	51.	42.	51.
191	61.	58.	58.	87.	76.	79.	105.	129.	108.	109.
201	130.	139.	136.	165.	164.	183.	196.	208.	217.	264.
211	330.	334.	356.	381.	480.	561.	605.	684.	737.	785.
221	746.	821.	995.	1208.	1512.	1670.	1978.	2032.	1834.	1248.
231	633.	164.	44.	9.	4.	4.	1.	6.	4.	5.
241	4.	3.	1.	9.	5.	2.	2.	5.	7.	10.
251	5.	5.	15.	7.	5.	5.	7.	6.	11.	6.
261	9.	7.	10.	16.	17.	19.	26.	28.	25.	9.
271	16.	16.	11.	19.	17.	19.	23.	16.	37.	26.
281	28.	30.	31.	43.	63.	54.	53.	34.	31.	11.
291	12.	20.	15.	11.	23.	15.	21.	21.	19.	31.
301	21.	31.	26.	16.	16.	17.	19.	26.	16.	13.
311	22.	26.	28.	30.	32.	26.	40.	44.	38.	38.
321	47.	48.	57.	41.	68.	71.	82.	75.	74.	106.
331	101.	121.	126.	97.	135.	165.	163.	187.	191.	258.
341	248.	258.	286.	355.	417.	420.	536.	615.	725.	793.
351	822.	789.	758.	713.	822.	880.	1017.	1289.	1499.	1701.
361	1561.	982.	408.	103.	12.	3.	0.	0.	0.	0.
371	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
431	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	1.	0.	2.	2.	1.	1.	0.	3.	3.	3.
471	2.	4.	2.	2.	3.	2.	0.	1.	1.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

222-S Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 WL20124-BLK
 File ID: 22a2260.CNF

Counted on: 9/ 4/97 @20:24
 Detector: AEA22
 Geometry number: 1
 Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1393.9	1393.9	715.963	715.963	24.000	7.589	12.000	2.472
2	42.9	42.9	567.896	567.708	24.000	10.532	12.000	4.749
3?	9.2	9.2	529.916	528.337	24.000	7.763	12.000	1.831

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid		Count Rate	%err	Activity
		Exp.	Obs.	Diff.	c/m	@95	d/m uCi/ea
1	²³⁶ Pu	0.978	5.734	0.02	47.57	1.3	196.1 0.883E-04
2	Th228	0.027	5.400	5.393	0.007	0.02	1.31 8.3 7.6 0.342E-05
3	<i>gR</i>	????	5.302		0.39	19.6	
Totals:		1.005	<--valid peaks only-->			48.88	

DETECTOR CALIBRATION

Energy (MEV) = 4.087 + (0.0023)*Channel
 Energy range (MeV): 4.087 TO 6.442
 Efficiency = 0.2426 CPM/DPM
 (Data reduction compression factor: 2.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	23346.0	100.000
Smoothed	23346.2	100.001
Composite fit	23655.3	101.325
Residuals	-309.3	-1.325

Analyzed by:

EMB

Spectrum 22a2260.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 9674.6

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1	0.	0.	1.	0.	0.	0.	0.	0.	0.
11	0.	1.	1.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	1.	0.	1.	0.	0.	1.	0.
41	0.	0.	0.	0.	1.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	1.	0.	0.
61	1.	1.	0.	0.	0.	0.	0.	0.	0.
71	0.	0.	0.	0.	0.	1.	0.	0.	1.
81	0.	0.	0.	0.	0.	0.	0.	1.	0.
91	1.	1.	0.	0.	0.	0.	0.	1.	0.
101	0.	0.	0.	0.	0.	0.	0.	0.	0.
111	0.	0.	0.	1.	0.	1.	0.	0.	0.
121	1.	0.	0.	0.	0.	0.	0.	0.	0.
131	1.	1.	2.	0.	0.	0.	0.	0.	0.
141	1.	0.	0.	0.	0.	1.	0.	0.	1.
151	0.	0.	0.	1.	0.	0.	1.	0.	1.
161	0.	0.	0.	1.	0.	1.	1.	0.	0.
171	1.	0.	1.	0.	0.	0.	0.	1.	0.
181	0.	0.	0.	0.	0.	2.	0.	1.	0.
191	1.	0.	1.	1.	0.	1.	1.	0.	0.
201	0.	1.	0.	1.	2.	4.	1.	0.	2.
211	1.	2.	0.	2.	0.	3.	2.	4.	1.
221	0.	1.	9.	4.	4.	3.	5.	5.	3.
231	4.	1.	1.	2.	2.	3.	2.	2.	7.
241	4.	2.	4.	4.	1.	0.	2.	7.	3.
251	8.	8.	7.	7.	9.	7.	6.	7.	9.
261	13.	9.	14.	16.	18.	14.	10.	15.	11.
271	14.	12.	15.	11.	18.	15.	25.	24.	22.
281	46.	37.	50.	57.	43.	38.	42.	17.	14.
291	8.	10.	9.	8.	14.	8.	10.	13.	16.
301	19.	12.	11.	9.	12.	9.	14.	11.	13.
311	15.	12.	9.	24.	18.	19.	20.	19.	20.
321	30.	34.	45.	33.	54.	50.	55.	74.	71.
331	85.	80.	83.	123.	120.	130.	164.	161.	212.
341	277.	307.	368.	442.	507.	631.	740.	802.	892.
351	963.	899.	923.	1063.	1174.	1376.	1425.	1561.	1611.
361	983.	533.	210.	33.	4.	0.	0.	1.	0.
371	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	1.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	1.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	1.	0.	0.	0.
441	1.	0.	1.	0.	2.	0.	0.	0.	0.
451	0.	1.	0.	0.	1.	0.	0.	0.	1.
461	1.	2.	0.	1.	2.	2.	1.	3.	2.
471	6.	2.	6.	4.	0.	2.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.	0.	0.	0.	0.	0.	0.	0.

222-S Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 S97T1888-SAM
 File ID: 23a2359.CNF

Counted on: 9/ 4/97 @20:24
 Detector: AEA23
 Geometry number: 1
 Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1011.5	1011.5	718.554	718.554	20.000	7.117	10.000	2.056
2	76.0	76.0	602.064	601.655	20.000	6.541	10.000	1.546
3?	23.3	23.3	573.178	571.271	20.000	3.540	10.000	2.034
4	264.0	264.0	454.652	454.645	28.000	9.581	14.000	3.668

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Exp.	Obs.	Diff.	FWHM	Count Rate	%err	d/m	Activity uCi/ea
1	Pu236	0.759	5.755	5.737	0.018	0.02	36.99	1.5	149.5	0.674E-04
2	Pu238	0.065	5.487	5.468	0.019	0.02	3.17	5.5	17.5	0.786E-05
	Am241		5.479	5.468	0.011				13.4	0.602E-05
3		????		5.398			0.48	28.0		
4	Pu239	0.176	5.147	5.130	0.017	0.02	8.57	3.1	34.0	0.153E-04
	Pu240		5.144	5.130	0.014				34.0	0.153E-04
Totals:			1.001	<--valid peaks only-->				48.73		

DETECTOR CALIBRATION

Energy(MEV) = 4.084 + (0.0023)*Channel
 Energy range (MeV): 4.084 TO 6.439
 Efficiency = 0.2524 CPM/DPM
 (Data reduction compression factor: 2.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	23378.0	100.000
Smoothed	23378.0	100.000
Composite fit	23622.5	101.046
Residuals	-244.5	-1.046

Analyzed by:

EMB

Spectrum 23a2359.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 6682.4

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Raw Data Dump for AEA Spectrum: 23a2359.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	1.	0.	0.	1.	0.	0.	1.	1.
31	0.	1.	0.	0.	0.	3.	0.	0.	0.	0.
41	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
51	1.	0.	0.	1.	1.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	1.	1.	0.	1.	0.
71	1.	0.	1.	0.	0.	0.	1.	0.	0.	0.
81	0.	1.	1.	0.	1.	0.	1.	0.	0.	1.
91	1.	0.	0.	2.	0.	1.	1.	1.	0.	0.
101	0.	0.	1.	2.	0.	0.	0.	0.	0.	1.
111	1.	0.	2.	1.	0.	0.	1.	1.	2.	0.
121	0.	1.	0.	0.	0.	0.	1.	2.	1.	1.
131	0.	1.	0.	0.	2.	0.	1.	2.	3.	0.
141	2.	1.	1.	1.	0.	1.	1.	1.	1.	3.
151	2.	1.	3.	2.	3.	5.	4.	1.	2.	5.
161	2.	3.	2.	2.	1.	3.	4.	3.	3.	3.
171	1.	2.	3.	4.	4.	4.	5.	7.	5.	6.
181	8.	10.	10.	8.	7.	3.	7.	13.	11.	2.
191	7.	17.	13.	17.	8.	9.	23.	13.	14.	17.
201	18.	18.	21.	24.	32.	36.	34.	35.	47.	46.
211	56.	61.	59.	60.	94.	94.	98.	127.	142.	152.
221	163.	203.	177.	222.	273.	268.	298.	301.	270.	225.
231	171.	94.	50.	16.	9.	4.	2.	2.	4.	4.
241	2.	3.	2.	4.	6.	7.	6.	10.	3.	3.
251	4.	2.	5.	16.	10.	9.	7.	5.	5.	7.
261	11.	4.	10.	7.	21.	19.	13.	24.	17.	12.
271	14.	17.	23.	18.	16.	22.	21.	30.	23.	30.
281	50.	37.	35.	61.	67.	54.	65.	68.	43.	41.
291	39.	44.	57.	57.	52.	80.	74.	67.	83.	76.
301	98.	104.	78.	62.	36.	22.	17.	13.	29.	10.
311	13.	21.	19.	20.	18.	16.	20.	24.	33.	32.
321	26.	43.	36.	39.	46.	58.	55.	66.	56.	79.
331	70.	83.	88.	88.	114.	120.	144.	126.	179.	203.
341	201.	245.	274.	319.	343.	395.	449.	523.	575.	669.
351	658.	661.	617.	717.	717.	831.	933.	1010.	1128.	1183.
361	1067.	811.	432.	150.	31.	1.	1.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
421	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
451	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
461	1.	1.	0.	0.	1.	0.	0.	4.	1.	1.
471	2.	1.	1.	3.	0.	0.	1.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	1.	0.								

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GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
S97T1888-DUP
File ID: 24a2455.CNF

Counted on: 9/ 4/97 @20:25
Detector: AEA24
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1421.9	1421.9	715.411	715.411	20.000	6.619	10.000	2.244
2	104.6	104.6	599.580	599.394	20.000	6.547	10.000	1.779
3?	25.7	25.7	569.288	567.172	16.000	3.285	8.000	2.574
4	359.7	359.7	451.432	451.429	24.000	8.706	12.000	3.945

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid	Count	%err	Activity
Exp.	Obs.	Diff.	FWHM	Rate c/m	@95	d/m uCi/ea
1	<i>236Pu</i>	0.757	5.729	0.02	46.16	1.3
2	Am241	0.065	5.479	5.462	0.0170.02	3.94 4.8
3	<i>238Pu</i>	????	5.388		0.44 30.3	
4	<i>239/240Pu</i>	0.171	5.122	0.02	10.44 2.8	43.0

Totals:		0.993	<--valid peaks only-->		60.54	

DETECTOR CALIBRATION

Energy(MEV) = 4.083 + (0.0023)*Channel

Energy range (MeV): 4.083 TO 6.439

Efficiency = 0.2429 CPM/DPM

(Data reduction compression factor: 2.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	29266.0	100.000
Smoothed	29266.0	100.000
Composite fit	29275.4	100.032
Residuals	-9.4	-0.032

Analyzed by:

EMB

Spectrum 24a2455.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 9625.5

4
 ...4
4
4
 4

3
 32.
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Raw Data Dump for AEA Spectrum: 24a2455.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
21	1.	0.	0.	0.	1.	0.	0.	0.	0.	1.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.
51	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	1.	0.	0.	0.	1.	0.	0.	0.	2.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	1.	2.	0.	0.	1.	0.	0.	1.
101	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
111	0.	0.	1.	1.	0.	1.	1.	0.	0.	0.
121	1.	1.	1.	0.	0.	0.	2.	0.	1.	0.
131	1.	0.	0.	0.	1.	1.	0.	1.	3.	0.
141	1.	1.	3.	2.	4.	1.	0.	0.	1.	1.
151	0.	4.	1.	2.	0.	2.	2.	0.	1.	5.
161	2.	2.	0.	2.	2.	3.	3.	3.	6.	0.
171	3.	3.	2.	0.	3.	4.	0.	5.	5.	6.
181	8.	4.	3.	5.	6.	8.	8.	10.	9.	5.
191	7.	12.	12.	13.	18.	10.	24.	19.	12.	14.
201	29.	29.	28.	33.	38.	46.	37.	37.	51.	50.
211	63.	89.	104.	76.	111.	145.	166.	165.	165.	219.
221	245.	283.	339.	331.	408.	427.	386.	313.	240.	124.
231	91.	37.	17.	2.	3.	2.	4.	2.	8.	4.
241	3.	0.	2.	4.	2.	5.	8.	5.	6.	3.
251	10.	7.	7.	13.	3.	11.	9.	6.	14.	12.
261	9.	19.	16.	24.	17.	22.	19.	13.	11.	27.
271	7.	14.	15.	24.	16.	25.	36.	29.	41.	40.
281	43.	66.	53.	73.	69.	65.	45.	43.	49.	65.
291	53.	65.	78.	70.	89.	74.	81.	119.	124.	117.
301	139.	105.	65.	28.	18.	14.	14.	8.	12.	20.
311	13.	24.	21.	11.	20.	18.	13.	27.	35.	30.
321	47.	31.	44.	48.	41.	62.	61.	71.	68.	86.
331	86.	90.	117.	125.	148.	165.	159.	183.	227.	236.
341	287.	294.	347.	459.	511.	625.	733.	831.	822.	892.
351	855.	856.	881.	1027.	1175.	1350.	1604.	1639.	1628.	1274.
361	783.	262.	68.	9.	2.	1.	1.	0.	2.	1.
371	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
441	1.	0.	0.	0.	0.	1.	0.	0.	2.	0.
451	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	1.	0.	2.	0.	3.	4.	2.	5.	4.
471	4.	2.	2.	3.	1.	3.	2.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

HNH-SD-WM-DP-266, REV. 0

APPENDIX A
OPPORTUNISTIC ANALYTE RESULTS

HNH-SD-WM-DP-266, REV. 0

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Appendix A. Opportunistic Analyte Results
AX-103CORE NUMBER: 212
SEGMENT #: 2

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S98T000042			Dose Rate(hotcell) in mrad/hr	mrad/hour	n/a	n/a	1.35e+02	n/a	n/a	n/a	n/a	1.00e-01	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%
S97T001887			TIC by Acid/Coulometry	ug/g	99.83	1.300	1.98e+04	2.00e+04	1.99e+04	1.01	102.0	5.000	n/a
S97T001888	F		Silver -ICP-Fusion	ug/g	99.60	<1.00e-02	<2.04e+02	<2.00e2	n/a	n/a	82.80	204.0	n/a
S97T001888	F		Aluminium -ICP-Fusion	ug/g	96.80	<5.00e-02	2.28e+04	2.29e+04	2.28e+04	0.44	99.20	1.02e+03	n/a
S97T001888	F		Arsenic -ICP-Fusion	ug/g	99.80	<1.00e-01	<2.04e+03	<2.00e3	n/a	n/a	103.0	2.04e+03	n/a
S97T001888	F		Boron -ICP-Fusion	ug/g	99.80	<5.00e-02	<1.02e+03	<1.00e3	n/a	n/a	97.80	1.02e+03	n/a
S97T001888	F		Barium -ICP-Fusion	ug/g	99.20	<5.00e-02	<1.02e+03	<1.00e3	n/a	n/a	102.0	1.02e+03	n/a
S97T001888	F		Beryllium -ICP-Fusion	ug/g	100.6	<5.00e-03	<1.02e+02	<1.00e2	n/a	n/a	99.10	102.0	n/a
S97T001888	F		Bismuth -ICP-Fusion	ug/g	99.80	<1.00e-01	<2.04e+03	<2.00e3	n/a	n/a	102.0	2.04e+03	n/a
S97T001888	F		Calcium -ICP-Fusion	ug/g	94.40	<1.00e-01	<2.04e+03	<2.00e3	n/a	n/a	96.90	2.04e+03	n/a
S97T001888	F		Cadmium -ICP-Fusion	ug/g	97.00	<5.00e-03	<1.02e+02	<1.00e2	n/a	n/a	98.10	102.0	n/a
S97T001888	F		Cerium -ICP-Fusion	ug/g	96.00	<1.00e-01	<2.04e+03	<2.00e3	n/a	n/a	95.30	2.04e+03	n/a
S97T001888	F		Cobalt -ICP-Fusion	ug/g	97.60	<2.00e-02	<4.07e+02	<4.00e2	n/a	n/a	101.0	407.0	n/a
S97T001888	F		Chromium -ICP-Fusion	ug/g	96.60	<1.00e-02	3.84e+03	3.48e+03	3.66e+03	9.84	95.30	204.0	n/a
S97T001888	F		Copper -ICP-Fusion	ug/g	104.2	<1.00e-02	<2.04e+02	<2.00e2	n/a	n/a	107.0	204.0	n/a
S97T001888	F		Iron -ICP-Fusion	ug/g	96.80	<5.00e-02	<1.02e+03	<1.00e3	n/a	n/a	97.60	1.02e+03	n/a
S97T001888	F		Lanthanum -ICP-Fusion	ug/g	98.60	<5.00e-02	<1.02e+03	<1.00e3	n/a	n/a	101.0	1.02e+03	n/a
S97T001888	F		Magnesium -ICP-Fusion	ug/g	94.00	<1.00e-01	<2.04e+03	<2.00e3	n/a	n/a	96.30	2.04e+03	n/a
S97T001888	F		Manganese -ICP-Fusion	ug/g	97.00	<1.00e-02	<2.04e+02	<2.00e2	n/a	n/a	98.40	204.0	n/a
S97T001888	F		Molybdenum -ICP-Fusion	ug/g	96.60	<5.00e-02	<1.02e+03	<1.00e3	n/a	n/a	101.0	1.02e+03	n/a
S97T001888	F		Sodium -ICP-Fusion	ug/g	101.2	<1.00e-01	2.02e+05	2.01e+05	2.02e+05	0.50	113.0	2.04e+03	n/a
S97T001888	F		Neodymium -ICP-Fusion	ug/g	105.2	<1.00e-01	<2.04e+03	<2.00e3	n/a	n/a	103.0	2.04e+03	n/a
S97T001888	F		Phosphorus -ICP-Fusion	ug/g	98.80	<2.00e-01	<4.07e+03	<4.00e3	n/a	n/a	110.0	4.07e+03	n/a
S97T001888	F		Lead -ICP-Fusion	ug/g	94.60	<1.00e-01	<2.04e+03	<2.00e3	n/a	n/a	95.10	2.04e+03	n/a
S97T001888	F		Sulfur -ICP-Fusion	ug/g	94.40	<1.00e-01	6.17e+03	5.90e+03	6.04e+03	4.47	97.70	2.04e+03	n/a
S97T001888	F		Antimony -ICP-Fusion	ug/g	93.60	<6.00e-02	<1.22e+03	<1.20e3	n/a	n/a	93.00	1.22e+03	n/a
S97T001888	F		Silicon -ICP-Fusion	ug/g	93.60	<5.00e-02	<1.02e+03	<1.00e3	n/a	n/a	100.0	1.02e+03	n/a
S97T001888	F		Samarium -ICP-Fusion	ug/g	101.2	<1.00e-01	<2.04e+03	<2.00e3	n/a	n/a	108.0	2.04e+03	n/a
S97T001888	F		Strontium -ICP-Fusion	ug/g	99.20	<1.00e-02	<2.04e+02	<2.00e2	n/a	n/a	103.0	204.0	n/a
S97T001888	F		Titanium -ICP-Fusion	ug/g	94.40	<1.00e-02	<2.04e+02	<2.00e2	n/a	n/a	97.70	204.0	n/a
S97T001888	F		Thallium -ICP-Fusion	ug/g	98.80	<2.00e-01	<4.07e+03	<4.00e3	n/a	n/a	95.10	4.07e+03	n/a
S97T001888	F		Uranium -ICP-Fusion	ug/g	103.0	<5.00e-01	<1.02e+04	<1.00e4	n/a	n/a	107.5	1.02e+04	n/a
S97T001888	F		Vanadium -ICP-Fusion	ug/g	99.00	<5.00e-02	<1.02e+03	<1.00e3	n/a	n/a	101.0	1.02e+03	n/a
S97T001888	F		Zinc -ICP-Fusion	ug/g	99.80	<1.00e-02	2.07e+02	<2.00e2	n/a	n/a	100.0	204.0	n/a
S97T001888	F		Zirconium -ICP-Fusion	ug/g	97.20	<1.00e-02	<2.04e+02	<2.00e2	n/a	n/a	100.0	204.0	n/a
S97T001889	W		Fluoride-IC-Dionex 4000/4500	ug/g	96.27	<1.20e-02	1.17e+03	1.18e+03	1.18e+03	0.85	58.64	98.48	n/a
S97T001889	W		Chloride-IC-Dionex 4000/4500	ug/g	91.12	3.00e-02	5.03e+03	5.06e+03	5.06e+03	1.38	99.75	139.5	n/a
S97T001889	W		Nitrite-IC - Dionex 4000/4500	ug/g	97.79	4.63e-01	9.25e+04	9.40e+04	9.32e+04	1.61	109.6	886.4	n/a
S97T001889	W		Nitrate by IC-Dionex 4000/4500	ug/g	96.80	<1.39e-01	1.11e+05	1.13e+05	1.12e+05	1.79	110.3	1.14e+03	n/a
S97T001889	W		Phosphate-IC-Dionex 4000/4500	ug/g	103.1	<1.20e-01	4.54e+03	4.79e+03	4.67e+03	5.36	103.9	984.8	n/a

INF-SD-WM-DP-266, REV. 0

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Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T001889	W		Sulfate by IC-Dionex 4000/4500	ug/g	98.10	<1.38e-01	1.64e+04	1.66e+04	1.65e+04	1.21	101.6	1.13e+03	n/a	
S97T001889	W		Oxalate-IC-Dionex 4000/4500	ug/g	98.50	<1.05e-01	7.82e+03	8.16e+03	7.99e+03	4.26	101.1	861.8	n/a	
S97T001891	A		Thorium-229 by ICP/MS	ug/g	n/a	<7.66e-06	<7.60e-03	<7.64e-3	n/a	n/a	n/a	8.00e-03	n/a	
S97T001891	A		Thorium-230 by ICP/MS	ug/g	n/a	<7.60e-06	<7.54e-03	<7.59e-3	n/a	n/a	n/a	8.00e-03	n/a	
S97T001891	A		Thorium-232 by ICP/MS	ug/g	86.20	<1.02e-05	1.872	2.290	2.081	20.2	85.60	1.00e-02	n/a	
S97T001891	A		Silver -ICP-Acid Digest	ug/g	32.60	<1.00e-02	15.50	16.70	16.10	7.45	90.30	4.950	n/a	
S97T001891	A		Aluminium -ICP-Acid Digest	ug/g	97.40	1.47e-01	2.05e+04	2.02e+04	2.04e+04	1.47	144.8	24.80	n/a	
S97T001891	A		Arsenic -ICP-Acid Digest	ug/g	99.60	<1.00e-01	< 49.60	<4.99e1	n/a	n/a	95.00	49.50	n/a	
S97T001891	A		Boron -ICP-Acid Digest	ug/g	106.2	7.07e-01	1.44e+02	136.0	140.0	5.71	99.40	24.80	n/a	
S97T001891	A		Barium -ICP-Acid Digest	ug/g	97.20	<5.00e-02	< 24.80	<2.50e1	n/a	n/a	94.20	24.80	n/a	
S97T001891	A		Beryllium -ICP-Acid Digest	ug/g	99.80	<5.00e-03	< 2.480	<2.50e0	n/a	n/a	97.20	2.480	n/a	
S97T001891	A		Bismuth -ICP-Acid Digest	ug/g	97.40	<1.00e-01	< 49.60	<4.99e1	n/a	n/a	100.2	49.50	n/a	
S97T001891	A		Calcium -ICP-Acid Digest	ug/g	102.4	2.98e-01	2.71e+02	299.0	285.0	9.82	94.20	49.50	n/a	
S97T001891	A		Cadmium -ICP-Acid Digest	ug/g	95.80	<5.00e-03	5.280	6.960	6.120	27.5	95.20	2.480	n/a	
S97T001891	A		Cerium -ICP-Acid Digest	ug/g	96.00	<1.00e-01	< 49.60	<4.99e1	n/a	n/a	93.00	49.50	n/a	
S97T001891	A		Cobalt -ICP-Acid Digest	ug/g	95.00	<2.00e-02	< 9.920	<9.98e0	n/a	n/a	93.80	9.930	n/a	
S97T001891	A		Chromium -ICP-Acid Digest	ug/g	96.20	<1.00e-02	2.66e+03	3.22e+03	2.94e+03	19.0	115.2	4.950	n/a	
S97T001891	A		Copper -ICP-Acid Digest	ug/g	90.40	<1.00e-02	< 4.960	<4.99e0	n/a	n/a	88.60	4.950	n/a	
S97T001891	A		Iron -ICP-Acid Digest	ug/g	91.20	<5.00e-02	1.16e+02	138.0	127.0	17.3	89.80	24.80	n/a	
S97T001891	A		Potassium -ICP-Acid Digest	ug/g	96.80	<5.00e-01	3.16e+03	2.99e+03	3.08e+03	5.53	90.60	248.0	n/a	
S97T001891	A		Lanthanum -ICP-Acid Digest	ug/g	97.80	<5.00e-02	< 24.80	<2.50e1	n/a	n/a	95.80	24.80	n/a	
S97T001891	A		Magnesium -ICP-Acid Digest	ug/g	97.20	1.12e-01	< 49.60	<4.99e1	n/a	n/a	96.20	49.50	n/a	
S97T001891	A		Manganese -ICP-Acid Digest	ug/g	94.40	<1.00e-02	8.730	10.80	9.765	21.2	92.00	4.950	n/a	
S97T001891	A		Molybdenum -ICP-Acid Digest	ug/g	96.20	<5.00e-02	72.20	68.70	70.45	4.97	95.00	24.80	n/a	
S97T001891	A		Sodium -ICP-Acid Digest	ug/g	114.6	8.60e-01	1.83e+05	1.91e+05	1.87e+05	4.28	468.0	49.50	n/a	
S97T001891	A		Neodymium -ICP-Acid Digest	ug/g	95.60	<1.00e-01	< 49.60	<4.99e1	n/a	n/a	93.40	49.50	n/a	
S97T001891	A		Nickel -ICP-Acid Digest	ug/g	97.20	<2.00e-02	42.20	52.90	47.55	22.5	96.20	9.930	n/a	
S97T001891	A		Phosphorus -ICP-Acid Digest	ug/g	95.40	<2.00e-01	1.32e+03	1.24e+03	1.28e+03	6.25	82.60	99.20	n/a	
S97T001891	A		Lead -ICP-Acid Digest	ug/g	94.00	<1.00e-01	63.30	74.80	69.05	16.7	94.80	49.50	n/a	
S97T001891	A		Sulfur -ICP-Acid Digest	ug/g	96.80	1.27e-01	4.95e+03	5.74e+03	5.34e+03	14.8	107.6	49.50	n/a	
S97T001891	A		Antimony -ICP-Acid Digest	ug/g	95.20	<6.00e-02	< 29.80	<2.99e1	n/a	n/a	96.40	29.80	n/a	
S97T001891	A		Selenium -ICP-Acid Digest	ug/g	91.20	<1.00e-01	< 49.60	<4.99e1	n/a	n/a	92.80	49.50	n/a	
S97T001891	A		Silicon -ICP-Acid Digest	ug/g	156.2	2.040	3.92e+02	437.0	414.5	10.9	122.0	24.80	n/a	
S97T001891	A		Samarium -ICP-Acid Digest	ug/g	94.40	<1.00e-01	< 49.60	<4.99e1	n/a	n/a	92.40	49.50	n/a	
S97T001891	A		Strontium -ICP-Acid Digest	ug/g	97.80	<1.00e-02	< 4.960	<4.99e0	n/a	n/a	95.60	4.950	n/a	
S97T001891	A		Titanium -ICP-Acid Digest	ug/g	89.40	<1.00e-02	< 4.960	<4.99e0	n/a	n/a	87.40	4.950	n/a	
S97T001891	A		Thallium -ICP-Acid Digest	ug/g	92.60	<2.00e-01	< 99.20	<9.98e1	n/a	n/a	92.60	99.20	n/a	
S97T001891	A		Uranium -ICP-Acid Digest	ug/g	93.30	<5.00e-01	<2.48e+02	<2.50e2	n/a	n/a	96.10	248.0	n/a	
S97T001891	A		Vanadium -ICP-Acid Digest	ug/g	96.40	<5.00e-02	< 24.80	<2.50e1	n/a	n/a	94.80	24.80	n/a	
S97T001891	A		Zinc -ICP-Acid Digest	ug/g	92.20	2.09e-01	46.60	46.60	46.60	0.00	90.40	4.950	n/a	
S97T001891	A		Zirconium -ICP-Acid Digest	ug/g	98.20	<1.00e-02	11.30	12.90	12.10	13.2	96.40	4.950	n/a	

INF-SD-WM-DP-266, REV. 0

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Appendix A. Opportunistic Analyte Results
AX-103CORE NUMBER: 212
SEGMENT #: Field Blank

SEGMENT PORTION: Field Blank

Sample#	R	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T001828	D	Silver-ICP-Acid Dil.	ug/mL	99.20	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S97T001828	D	Aluminum-ICP-Acid Dil.	ug/mL	100.6	<5.00e-02	<5.00e-02	<5.00e-2	n/a	n/a	n/a	5.00e-02	n/a
S97T001828	D	Arsenic-ICP-Acid Dil.	ug/mL	103.4	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S97T001828	D	Boron-ICP-Acid Dil.	ug/mL	99.20	<5.00e-02	6.99e-02	7.12e-02	7.06e-02	1.84	n/a	5.00e-02	n/a
S97T001828	D	Barium-ICP-Acid Dil.	ug/mL	102.8	<5.00e-02	<5.00e-02	<5.00e-2	n/a	n/a	n/a	5.00e-02	n/a
S97T001828	D	Beryllium-ICP-Acid Dil.	ug/mL	101.4	<5.00e-03	<5.00e-03	<5.00e-3	n/a	n/a	n/a	5.00e-03	n/a
S97T001828	D	Bismuth-ICP-Acid Dil.	ug/mL	102.6	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S97T001828	D	Calcium-ICP-Acid Dil.	ug/mL	95.20	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S97T001828	D	Cadmium-ICP-Acid Dil.	ug/mL	97.60	<5.00e-03	<5.00e-03	<5.00e-3	n/a	n/a	n/a	5.00e-03	n/a
S97T001828	D	Cerium-ICP-Acid Dil.	ug/mL	99.40	<1.00e-01	<1.00e-01	1.30e-01	n/a	n/a	n/a	1.00e-01	n/a
S97T001828	D	Cobalt-ICP-Acid Dil.	ug/mL	99.20	<2.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	n/a	2.00e-02	n/a
S97T001828	D	Chromium-ICP-Acid Dil.	ug/mL	93.60	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S97T001828	D	Copper-ICP-Acid Dil.	ug/mL	109.0	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S97T001828	D	Iron-ICP-Acid Dil.	ug/mL	95.20	<5.00e-02	<5.00e-02	<5.00e-2	n/a	n/a	n/a	5.00e-02	n/a
S97T001828	D	Potassium-ICP-Acid Dil.	ug/mL	104.0	<5.00e-01	<5.00e-01	<5.00e-1	n/a	n/a	n/a	5.00e-01	n/a
S97T001828	D	Lanthanum-ICP-Acid Dil.	ug/mL	99.20	<5.00e-02	<5.00e-02	<5.00e-2	n/a	n/a	n/a	5.00e-02	n/a
S97T001828	D	Magnesium-ICP-Acid Dil.	ug/mL	93.60	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S97T001828	D	Manganese-ICP-Acid Dil.	ug/mL	95.80	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S97T001828	D	Molybdenum-ICP-Acid Dil.	ug/mL	99.20	<5.00e-02	<5.00e-02	<5.00e-2	n/a	n/a	n/a	5.00e-02	n/a
S97T001828	D	Sodium-ICP-Acid Dil.	ug/mL	112.8	<1.00e-01	5.39e-01	5.39e-01	5.39e-01	0.00	n/a	1.00e-01	n/a
S97T001828	D	Neodymium-ICP-Acid Dil.	ug/mL	102.8	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S97T001828	D	Nickel-ICP-Acid Dil.	ug/mL	97.00	<2.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	n/a	2.00e-02	n/a
S97T001828	D	Phosphorus-ICP-Acid Dil.	ug/mL	103.8	<2.00e-01	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S97T001828	D	Lead-ICP-Acid Dil.	ug/mL	95.40	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S97T001828	D	Sulfur-ICP-Acid Dil.	ug/mL	99.20	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S97T001828	D	Antimony-ICP-Acid Dil.	ug/mL	96.60	7.30e-02	6.00e-02	9.69e-02	7.84e-02	47.0	n/a	6.00e-02	n/a
S97T001828	D	Silicon-ICP-Acid Dil.	ug/mL	96.40	<5.00e-02	5.83e-01	5.66e-01	5.75e-01	2.96	n/a	5.00e-02	n/a
S97T001828	D	Samarium-ICP-Acid Dil.	ug/mL	106.0	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S97T001828	D	Strontium-ICP-Acid Dil.	ug/mL	102.2	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S97T001828	D	Titanium-ICP-Acid Dil.	ug/mL	97.20	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S97T001828	D	Thallium-ICP-Acid Dil.	ug/mL	101.8	<2.00e-01	<2.00e-01	2.43e-01	n/a	n/a	n/a	2.00e-01	n/a
S97T001828	D	Uranium-ICP-Acid Dil.	ug/mL	106.0	<5.00e-01	<5.00e-01	<5.00e-1	n/a	n/a	n/a	5.00e-01	n/a
S97T001828	D	Vanadium-ICP-Acid Dil.	ug/mL	99.40	<5.00e-02	<5.00e-02	<5.00e-2	n/a	n/a	n/a	5.00e-02	n/a
S97T001828	D	Zinc-ICP-Acid Dil.	ug/mL	100.4	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S97T001828	D	Zirconium-ICP-Acid Dil.	ug/mL	98.20	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S97T001828		Fluoride-IC-Dionex 4000/4500	ug/mL	96.95	<1.20e-02	<1.20e-02	<1.20e-2	n/a	n/a	n/a	1.20e-02	n/a
S97T001828		Chloride-IC-Dionex 4000/4500	ug/mL	92.12	<1.70e-02	4.10e-02	4.20e-02	4.15e-02	2.41	n/a	1.70e-02	n/a
S97T001828		Nitrite-IC-Dionex 4000/4500	ug/mL	99.08	<1.08e-01	<1.08e-01	<1.08e-1	n/a	n/a	n/a	1.08e-01	n/a
S97T001828		Nitrate by IC-Dionex 4000/4500	ug/mL	94.11	<1.39e-01	<1.39e-01	<1.39e-1	n/a	n/a	n/a	1.39e-01	n/a
S97T001828		Phosphate-IC-Dionex 4000/4500	ug/mL	99.08	<1.20e-01	<1.20e-01	<1.20e-1	n/a	n/a	n/a	1.20e-01	n/a
S97T001828		Sulfate by IC-Dionex 4000/4500	ug/mL	98.73	<1.38e-01	<1.38e-01	<1.38e-1	n/a	n/a	n/a	1.38e-01	n/a
S97T001828		Oxalate-IC-Dionex 4000/4500	ug/mL	99.16	<1.05e-01	<1.05e-01	<1.05e-1	n/a	n/a	n/a	1.05e-01	n/a

HMF-SD-WM-DP-266, REV. 0

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Appendix A. Opportunistic Analyte Results
AX-103CORE NUMBER: 214
SEGMENT #: 1

SEGMENT PORTION: U Upper Half of Segment

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T001945		TiC by Acid/Coulometry	ug/g	99.50	8.00e-01	1.58e+04	1.46e+04	1.52e+04	7.89	n/a	5.000	n/a	
S97T001953	F	Silver - ICP-Fusion	ug/g	99.00	<1.00e-02	<2.16e+02	<2.19e2	n/a	n/a	n/a	216.0	n/a	
S97T001953	F	Aluminum - ICP-Fusion	ug/g	98.20	<5.00e-02	2.47e+04	2.48e+04	2.48e+04	0.40	n/a	1.08e+03	n/a	
S97T001953	F	Arsenic - ICP-Fusion	ug/g	103.6	<1.00e-01	<2.16e+03	<2.19e3	n/a	n/a	n/a	2.16e+03	n/a	
S97T001953	F	Boron - ICP-Fusion	ug/g	100.4	<5.00e-02	<1.08e+03	<1.10e3	n/a	n/a	n/a	1.08e+03	n/a	
S97T001953	F	Barium - ICP-Fusion	ug/g	98.40	<5.00e-02	<1.08e+03	<1.10e3	n/a	n/a	n/a	1.08e+03	n/a	
S97T001953	F	Beryllium - ICP-Fusion	ug/g	103.0	<5.00e-03	<1.08e+02	<1.10e2	n/a	n/a	n/a	108.0	n/a	
S97T001953	F	Bismuth - ICP-Fusion	ug/g	105.0	<1.00e-01	<2.16e+03	<2.19e3	n/a	n/a	n/a	2.16e+03	n/a	
S97T001953	F	Calcium - ICP-Fusion	ug/g	101.4	<1.00e-01	<2.16e+03	<2.19e3	n/a	n/a	n/a	2.16e+03	n/a	
S97T001953	F	Cadmium - ICP-Fusion	ug/g	100.6	<5.00e-03	<1.08e+02	<1.10e2	n/a	n/a	n/a	108.0	n/a	
S97T001953	F	Cerium - ICP-Fusion	ug/g	99.20	<1.00e-01	<2.16e+03	<2.19e3	n/a	n/a	n/a	2.16e+03	n/a	
S97T001953	F	Cobalt - ICP-Fusion	ug/g	103.2	<2.00e-02	<4.32e+02	<4.39e2	n/a	n/a	n/a	430.0	n/a	
S97T001953	F	Chromium - ICP-Fusion	ug/g	100.6	<1.00e-02	3.71e+03	3.52e+03	3.62e+03	5.26	n/a	216.0	n/a	
S97T001953	F	Copper - ICP-Fusion	ug/g	101.4	<1.00e-02	<2.16e+02	<2.19e2	n/a	n/a	n/a	216.0	n/a	
S97T001953	F	Iron - ICP-Fusion	ug/g	94.40	<5.00e-02	<1.08e+03	<1.10e3	n/a	n/a	n/a	1.08e+03	n/a	
S97T001953	F	Lanthanum - ICP-Fusion	ug/g	100.8	<5.00e-02	<1.08e+03	<1.10e3	n/a	n/a	n/a	1.08e+03	n/a	
S97T001953	F	Magnesium - ICP-Fusion	ug/g	100.8	<1.00e-01	<2.16e+03	<2.19e3	n/a	n/a	n/a	2.16e+03	n/a	
S97T001953	F	Manganese - ICP-Fusion	ug/g	98.60	<1.00e-02	<2.16e+02	<2.19e2	n/a	n/a	n/a	216.0	n/a	
S97T001953	F	Molybdenum - ICP-Fusion	ug/g	102.2	<5.00e-02	<1.08e+03	<1.10e3	n/a	n/a	n/a	1.08e+03	n/a	
S97T001953	F	Sodium - ICP-Fusion	ug/g	102.2	<1.00e-01	1.97e+05	1.98e+05	1.98e+05	0.51	n/a	2.16e+03	n/a	
S97T001953	F	Neodymium - ICP-Fusion	ug/g	100.4	<1.00e-01	<2.16e+03	<2.19e3	n/a	n/a	n/a	2.16e+03	n/a	
S97T001953	F	Phosphorus - ICP-Fusion	ug/g	101.8	<2.00e-01	<4.32e+03	<4.39e3	n/a	n/a	n/a	4.30e+03	n/a	
S97T001953	F	Lead - ICP-Fusion	ug/g	100.0	<1.00e-01	<2.16e+03	<2.19e3	n/a	n/a	n/a	2.16e+03	n/a	
S97T001953	F	Sulfur - ICP-Fusion	ug/g	99.00	<1.00e-01	5.41e+03	4.69e+03	5.05e+03	14.3	n/a	2.16e+03	n/a	
S97T001953	F	Antimony - ICP-Fusion	ug/g	97.00	<6.00e-02	<1.30e+03	<1.32e3	n/a	n/a	n/a	1.30e+03	n/a	
S97T001953	F	Selenium - ICP-Fusion	ug/g	95.00	<1.00e-01	<2.16e+03	<2.19e3	n/a	n/a	n/a	2.16e+03	n/a	
S97T001953	F	Silicon - ICP-Fusion	ug/g	101.4	<5.00e-02	<1.08e+03	<1.10e3	n/a	n/a	n/a	1.08e+03	n/a	
S97T001953	F	Samarium - ICP-Fusion	ug/g	98.80	<1.00e-01	<2.16e+03	<2.19e3	n/a	n/a	n/a	2.16e+03	n/a	
S97T001953	F	Strontium - ICP-Fusion	ug/g	99.60	<1.00e-02	<2.16e+02	<2.19e2	n/a	n/a	n/a	216.0	n/a	
S97T001953	F	Titanium - ICP-Fusion	ug/g	100.0	<1.00e-02	<2.16e+02	<2.19e2	n/a	n/a	n/a	216.0	n/a	
S97T001953	F	Thallium - ICP-Fusion	ug/g	95.40	<2.00e-01	<4.32e+03	<4.39e3	n/a	n/a	n/a	4.30e+03	n/a	
S97T001953	F	Uranium - ICP-Fusion	ug/g	97.00	<5.00e-01	<1.08e+04	<1.10e4	n/a	n/a	n/a	1.08e+04	n/a	
S97T001953	F	Vanadium - ICP-Fusion	ug/g	102.4	<5.00e-02	<1.08e+03	<1.10e3	n/a	n/a	n/a	1.08e+03	n/a	
S97T001953	F	Zinc - ICP-Fusion	ug/g	99.40	<1.00e-02	<2.16e+02	<2.19e2	n/a	n/a	n/a	216.0	n/a	
S97T001953	F	Zirconium - ICP-Fusion	ug/g	99.80	<1.00e-02	<2.16e+02	<2.19e2	n/a	n/a	n/a	216.0	n/a	
S97T001957	A	Thorium-229 by ICP/MS	ug/g	n/a	<9.14e-05	<1.82e-02	<1.82e-2	n/a	n/a	n/a	1.80e-02	n/a	
S97T001957	A	Thorium-230 by ICP/MS	ug/g	n/a	<5.48e-05	<1.09e-02	<1.09e-2	n/a	n/a	n/a	1.10e-02	n/a	
S97T001957	A	Thorium-232 by ICP/MS	ug/g	92.40	6.91e-05	2.215	2.580	2.397	15.4	n/a	7.00e-03	n/a	
S97T001957	A	Silver - ICP-Acid Digest	ug/g	95.10	<1.00e-02	15.90	16.00	15.95	0.63	n/a	4.970	n/a	
S97T001957	A	Aluminum - ICP-Acid Digest	ug/g	97.20	2.34e-01	2.30e+04	2.30e+04	2.30e+04	0.00	n/a	24.90	n/a	
S97T001957	A	Arsenic - ICP-Acid Digest	ug/g	97.20	<1.00e-01	<4.980	<4.981	n/a	n/a	n/a	49.80	n/a	
S97T001957	A	Boron - ICP-Acid Digest	ug/g	107.6	6.99e-01	1.83e+02	179.0	181.0	2.21	n/a	24.90	n/a	
S97T001957	A	Barium - ICP-Acid Digest	ug/g	96.40	<5.00e-02	<2.90	<2.49e1	n/a	n/a	n/a	24.90	n/a	
S97T001957	A	Beryllium - ICP-Acid Digest	ug/g	100.2	<5.00e-03	<2.490	<2.490	n/a	n/a	n/a	2.490	n/a	

HNF-SD-WM-DP-266, REV. 0

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T001957	A		Bismuth -ICP-Acid Digest	ug/g	95.00	<1.00e-01	< 49.80	<4.98e1	n/a	n/a	n/a	49.80	n/a	n/a
S97T001957	A		Calcium -ICP-Acid Digest	ug/g	102.4	3.92e-01	2.40e+02	258.0	249.0	7.23	n/a	49.80	n/a	n/a
S97T001957	A		Cadmium -ICP-Acid Digest	ug/g	93.60	<5.00e-03	7.080	6.830	6.955	3.59	n/a	2.490	n/a	n/a
S97T001957	A		Cerium -ICP-Acid Digest	ug/g	96.00	<1.00e-01	< 49.80	<4.98e1	n/a	n/a	n/a	49.80	n/a	n/a
S97T001957	A		Cobalt -ICP-Acid Digest	ug/g	93.40	<2.00e-02	< 9.960	<9.97e0	n/a	n/a	n/a	9.950	n/a	n/a
S97T001957	A		Chromium -ICP-Acid Digest	ug/g	95.40	<1.00e-02	2.75e+03	3.01e+03	2.88e+03	9.03	n/a	4.970	n/a	n/a
S97T001957	A		Copper -ICP-Acid Digest	ug/g	89.00	<1.00e-02	< 4.980	<4.98e0	n/a	n/a	n/a	4.970	n/a	n/a
S97T001957	A		Iron -ICP-Acid Digest	ug/g	90.20	6.30e-02	1.94e+02	323.0	258.5	49.9	n/a	24.90	n/a	n/a
S97T001957	A		Potassium -ICP-Acid Digest	ug/g	91.80	<5.00e-01	3.26e+03	3.09e+03	3.18e+03	5.35	n/a	249.0	n/a	n/a
S97T001957	A		Lanthanum -ICP-Acid Digest	ug/g	97.40	<5.00e-02	< 24.90	<2.49e1	n/a	n/a	n/a	24.90	n/a	n/a
S97T001957	A		Magnesium -ICP-Acid Digest	ug/g	98.80	3.20e-01	< 49.80	<4.98e1	n/a	n/a	n/a	49.80	n/a	n/a
S97T001957	A		Manganese -ICP-Acid Digest	ug/g	93.40	<1.00e-02	10.90	13.00	11.95	17.6	n/a	4.970	n/a	n/a
S97T001957	A		Molybdenum -ICP-Acid Digest	ug/g	95.00	<5.00e-02	77.00	77.00	77.00	0.00	n/a	24.90	n/a	n/a
S97T001957	A		Sodium -ICP-Acid Digest	ug/g	115.8	9.34e-01	1.80e+05	1.82e+05	1.82e+05	2.74	n/a	49.80	n/a	n/a
S97T001957	A		Neodymium -ICP-Acid Digest	ug/g	95.20	<1.00e-01	< 49.80	<4.98e1	n/a	n/a	n/a	49.80	n/a	n/a
S97T001957	A		Nickel -ICP-Acid Digest	ug/g	95.20	<2.00e-02	< 47.10	45.80	46.45	2.80	n/a	9.950	n/a	n/a
S97T001957	A		Phosphorus -ICP-Acid Digest	ug/g	93.20	<2.00e-01	1.94e+03	1.89e+03	1.92e+03	2.61	n/a	99.50	n/a	n/a
S97T001957	A		Lead -ICP-Acid Digest	ug/g	92.60	<1.00e-01	69.20	72.20	70.70	4.24	n/a	49.80	n/a	n/a
S97T001957	A		Sulfur -ICP-Acid Digest	ug/g	94.00	1.29e-01	4.29e+03	4.65e+03	4.47e+03	8.05	n/a	49.80	n/a	n/a
S97T001957	A		Antimony -ICP-Acid Digest	ug/g	93.40	<6.00e-02	< 29.90	<2.99e1	n/a	n/a	n/a	29.80	n/a	n/a
S97T001957	A		Selenium -ICP-Acid Digest	ug/g	89.20	<1.00e-01	< 49.80	<4.98e1	n/a	n/a	n/a	49.80	n/a	n/a
S97T001957	A		Silicon -ICP-Acid Digest	ug/g	173.4	1.680	2.74e+02	460.0	367.0	50.7	n/a	24.90	n/a	n/a
S97T001957	A		Samarium -ICP-Acid Digest	ug/g	94.00	<1.00e-01	< 49.80	<4.98e1	n/a	n/a	n/a	49.80	n/a	n/a
S97T001957	A		Strontium -ICP-Acid Digest	ug/g	97.40	<1.00e-02	< 4.980	<4.98e0	n/a	n/a	n/a	4.970	n/a	n/a
S97T001957	A		Titanium -ICP-Acid Digest	ug/g	88.40	<1.00e-02	< 4.980	<4.98e0	n/a	n/a	n/a	4.970	n/a	n/a
S97T001957	A		Thallium -ICP-Acid Digest	ug/g	90.60	<2.00e-01	< 99.60	<9.97e1	n/a	n/a	n/a	99.50	n/a	n/a
S97T001957	A		Uranium -ICP-Acid Digest	ug/g	92.90	<5.00e-01	<2.49e+02	<2.49e2	n/a	n/a	n/a	249.0	n/a	n/a
S97T001957	A		Vanadium -ICP-Acid Digest	ug/g	95.60	<5.00e-02	< 24.90	<2.49e1	n/a	n/a	n/a	24.90	n/a	n/a
S97T001957	A		Zinc -ICP-Acid Digest	ug/g	98.00	8.28e-01	53.70	53.40	53.55	0.56	n/a	4.970	n/a	n/a
S97T001957	A		Zirconium -ICP-Acid Digest	ug/g	97.40	<1.00e-02	10.40	11.50	10.95	10.0	n/a	4.970	n/a	n/a
S97T001961	W		Fluoride-IC-Dionex 4000/4500	ug/g	96.27	<1.20e-02	1.59e+03	1.13e+03	1.36e+03	33.8	n/a	95.69	n/a	n/a
S97T001961	W		Chloride-IC-Dionex 4000/4500	ug/g	94.88	4.10e-02	5.01e+03	5.10e+03	5.06e+03	1.78	n/a	135.6	n/a	n/a
S97T001961	W		Nitrite-IC-Dionex 4000/4500	ug/g	100.9	<1.08e-01	8.82e+04	9.01e+04	8.92e+04	2.13	n/a	861.4	n/a	n/a
S97T001961	W		Nitrate by IC-Dionex 4000/4500	ug/g	96.30	<1.39e-01	1.14e+05	1.05e+05	1.10e+05	8.22	n/a	1.11e+03	n/a	n/a
S97T001961	W		Phosphate-IC-Dionex 4000/4500	ug/g	105.3	<1.20e-01	1.12e+04	6.70e+03	8.94e+03	50.3	n/a	956.9	n/a	n/a
S97T001961	W		Sulfate by IC-Dionex 4000/4500	ug/g	101.7	<1.38e-01	1.31e+04	1.25e+04	1.28e+04	4.69	n/a	1.10e+03	n/a	n/a
S97T001961	W		Oxalate-IC-Dionex 4000/4500	ug/g	99.91	<1.05e-01	7.67e+03	8.78e+03	8.22e+03	13.5	n/a	837.2	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%
S97T001946			TIC by Acid/Coulometry	ug/g	99.50	8.00e-01	1.59e+04	1.57e+04	1.58e+04	1.27	108.0	5.000	n/a	n/a
S97T001954	F		Silver -ICP-Fusion	ug/g	99.20	<1.00e-02	<2.10e+02	<2.09e2	n/a	n/a	n/a	93.00	n/a	n/a
S97T001954	F		Aluminum -ICP-Fusion	ug/g	98.00	<5.00e-02	2.30e+04	2.29e+04	2.30e+04	0.44	99.90	1.05e+03	n/a	n/a
S97T001954	F		Arsenic -ICP-Fusion	ug/g	103.6	<1.00e-01	<2.10e+03	<2.09e3	n/a	n/a	n/a	107.0	n/a	n/a
S97T001954	F		Boron -ICP-Fusion	ug/g	100.4	<5.00e-02	<1.05e+03	<1.04e3	n/a	n/a	n/a	101.0	n/a	n/a
S97T001954	F		Barium -ICP-Fusion	ug/g	98.40	<5.00e-02	<1.05e+03	<1.04e3	n/a	n/a	n/a	95.90	n/a	n/a
S97T001954	F		Beryllium -ICP-Fusion	ug/g	103.0	<5.00e-03	<1.05e+02	<1.04e2	n/a	n/a	n/a	102.0	n/a	n/a
S97T001954	F		Bismuth -ICP-Fusion	ug/g	105.0	<1.00e-01	<2.10e+03	<2.09e3	n/a	n/a	n/a	103.0	n/a	n/a
S97T001954	F		Calcium -ICP-Fusion	ug/g	101.4	<1.00e-01	<2.10e+03	<2.09e3	n/a	n/a	n/a	104.0	n/a	n/a
S97T001954	F		Cadmium -ICP-Fusion	ug/g	100.6	<5.00e-03	<1.05e+02	<1.04e2	n/a	n/a	n/a	102.0	n/a	n/a

HNF-SD-WM-DP-266, REV. 0

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Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T001954	F		Cerium - ICP-Fusion	ug/g	99.20	<1.00e-01	<2.10e+03	<2.09e3	n/a	n/a	98.50	2.10e+03	n/a	
S97T001954	F		Cobalt - ICP-Fusion	ug/g	103.2	<2.00e-02	<4.20e+02	<4.18e2	n/a	n/a	103.0	422.0	n/a	
S97T001954	F		Chromium - ICP-Fusion	ug/g	100.6	<1.00e-02	3.55e+03	3.29e+03	3.42e+03	7.60	102.0	210.0	n/a	
S97T001954	F		Copper - ICP-Fusion	ug/g	101.4	<1.00e-02	<2.10e+02	<2.09e2	n/a	n/a	101.0	210.0	n/a	
S97T001954	F		Iron - ICP-Fusion	ug/g	94.40	<5.00e-02	<1.05e+03	<1.04e3	n/a	n/a	95.70	1.05e+03	n/a	
S97T001954	F		Lanthanum - ICP-Fusion	ug/g	100.8	<5.00e-02	<1.05e+03	<1.04e3	n/a	n/a	99.90	1.05e+03	n/a	
S97T001954	F		Magnesium - ICP-Fusion	ug/g	100.8	<1.00e-01	<2.10e+03	<2.09e3	n/a	n/a	99.30	2.10e+03	n/a	
S97T001954	F		Manganese - ICP-Fusion	ug/g	98.60	<1.00e-02	<2.10e+02	<2.09e2	n/a	n/a	97.50	210.0	n/a	
S97T001954	F		Molybdenum - ICP-Fusion	ug/g	102.2	<5.00e-02	<1.05e+03	<1.04e3	n/a	n/a	104.0	1.05e+03	n/a	
S97T001954	F		Sodium - ICP-Fusion	ug/g	102.2	<1.00e-01	2.00e+05	1.98e+05	1.99e+05	1.01	103.0	2.10e+03	n/a	
S97T001954	F		Neodymium - ICP-Fusion	ug/g	100.4	<1.00e-01	<2.10e+03	<2.09e3	n/a	n/a	99.20	2.10e+03	n/a	
S97T001954	F		Phosphorus - ICP-Fusion	ug/g	101.8	<2.00e-01	<4.20e+03	<4.18e3	n/a	n/a	113.0	4.22e+03	n/a	
S97T001954	F		Lead - ICP-Fusion	ug/g	100.0	<1.00e-01	<2.10e+03	<2.09e3	n/a	n/a	102.0	2.10e+03	n/a	
S97T001954	F		Sulfur - ICP-Fusion	ug/g	99.00	<1.00e-01	5.23e+03	4.79e+03	5.01e+03	8.78	102.0	2.10e+03	n/a	
S97T001954	F		Antimony - ICP-Fusion	ug/g	97.00	<6.00e-02	<1.26e+03	<1.25e3	n/a	n/a	97.30	1.26e+03	n/a	
S97T001954	F		Selenium - ICP-Fusion	ug/g	95.00	<1.00e-01	<2.10e+03	<2.09e3	n/a	n/a	98.60	2.10e+03	n/a	
S97T001954	F		Silicon - ICP-Fusion	ug/g	101.4	<5.00e-02	<1.05e+03	<1.04e3	n/a	n/a	105.0	1.05e+03	n/a	
S97T001954	F		Samarium - ICP-Fusion	ug/g	98.80	<1.00e-01	<2.10e+03	<2.09e3	n/a	n/a	97.30	2.10e+03	n/a	
S97T001954	F		Strontium - ICP-Fusion	ug/g	99.60	<1.00e-02	<2.10e+02	<2.09e2	n/a	n/a	98.40	210.0	n/a	
S97T001954	F		Titanium - ICP-Fusion	ug/g	100.0	<1.00e-02	<2.10e+02	<2.09e2	n/a	n/a	99.70	210.0	n/a	
S97T001954	F		Thallium - ICP-Fusion	ug/g	95.40	<2.00e-01	<4.20e+03	<4.18e3	n/a	n/a	95.20	4.22e+03	n/a	
S97T001954	F		Uranium - ICP-Fusion	ug/g	97.00	<5.00e-01	<1.05e+04	<1.04e4	n/a	n/a	92.50	1.05e+04	n/a	
S97T001954	F		Vanadium - ICP-Fusion	ug/g	102.4	<5.00e-02	<1.05e+03	<1.04e3	n/a	n/a	103.0	1.05e+03	n/a	
S97T001954	F		Zinc - ICP-Fusion	ug/g	99.40	<1.00e-02	<2.10e+02	<2.09e2	n/a	n/a	101.0	210.0	n/a	
S97T001954	F		Zirconium - ICP-Fusion	ug/g	99.80	<1.00e-02	<2.10e+02	<2.09e2	n/a	n/a	99.10	210.0	n/a	
S97T001958	A		Thorium-229 by ICP/MS	ug/g	n/a	<9.14e-05	<1.81e-02	<1.82e-2	n/a	n/a	n/a	1.80e-02	n/a	
S97T001958	A		Thorium-230 by ICP/MS	ug/g	n/a	<5.48e-05	<1.09e-02	<1.09e-2	n/a	n/a	n/a	1.10e-02	n/a	
S97T001958	A		Thorium-232 by ICP/MS	ug/g	92.40	6.91e-05	2.036	2.400	2.218	16.2	87.60	7.00e-03	n/a	
S97T001958	A		Silver - ICP-Acid Digest	ug/g	95.10	<1.00e-02	15.60	15.90	15.75	1.90	39.20	4.950	n/a	
S97T001958	A		Aluminum - ICP-Acid Digest	ug/g	97.20	2.34e-01	2.18e+04	2.18e+04	2.18e+04	0.00	80.80	24.80	n/a	
S97T001958	A		Arsenic - ICP-Acid Digest	ug/g	97.20	<1.00e-01	< 49.60	<4.97e1	n/a	n/a	97.20	49.50	n/a	
S97T001958	A		Boron - ICP-Acid Digest	ug/g	107.6	6.99e-01	1.95e+02	178.0	186.5	9.12	92.80	24.80	n/a	
S97T001958	A		Barium - ICP-Acid Digest	ug/g	96.40	<5.00e-02	< 24.80	<2.48e1	n/a	n/a	94.80	24.80	n/a	
S97T001958	A		Beryllium - ICP-Acid Digest	ug/g	100.2	<5.00e-03	< 2.480	<2.48e0	n/a	n/a	97.40	2.480	n/a	
S97T001958	A		Bismuth - ICP-Acid Digest	ug/g	95.00	<1.00e-01	< 49.60	<4.97e1	n/a	n/a	97.00	49.50	n/a	
S97T001958	A		Calcium - ICP-Acid Digest	ug/g	102.4	3.92e-01	2.30e+02	301.0	265.5	26.7	105.6	49.50	n/a	
S97T001958	A		Cadmium - ICP-Acid Digest	ug/g	93.60	<5.00e-03	6.170	7.250	6.710	16.1	97.00	2.480	n/a	
S97T001958	A		Cerium - ICP-Acid Digest	ug/g	96.00	<1.00e-01	< 49.60	<4.97e1	n/a	n/a	94.60	49.50	n/a	
S97T001958	A		Cobalt - ICP-Acid Digest	ug/g	93.40	<2.00e-02	< 9.920	<9.94e0	n/a	n/a	95.60	9.930	n/a	
S97T001958	A		Chromium - ICP-Acid Digest	ug/g	95.40	<1.00e-02	2.37e+03	3.04e+03	2.70e+03	24.8	141.0	4.950	n/a	
S97T001958	A		Copper - ICP-Acid Digest	ug/g	89.00	<1.00e-02	< 4.960	<4.97e0	n/a	n/a	87.60	4.950	n/a	
S97T001958	A		Iron - ICP-Acid Digest	ug/g	90.20	6.30e-02	1.01e+02	112.0	106.5	10.3	93.60	24.80	n/a	
S97T001958	A		Potassium - ICP-Acid Digest	ug/g	91.80	<5.00e-01	3.18e+03	2.92e+03	3.05e+03	8.52	76.60	248.0	n/a	
S97T001958	A		Lanthanum - ICP-Acid Digest	ug/g	97.40	<5.00e-02	< 24.80	<2.48e1	n/a	n/a	96.60	24.80	n/a	
S97T001958	A		Magnesium - ICP-Acid Digest	ug/g	98.80	3.20e-01	< 49.60	63.70	n/a	n/a	103.2	49.50	n/a	
S97T001958	A		Manganese - ICP-Acid Digest	ug/g	93.40	<1.00e-02	8.020	9.600	8.810	17.9	93.60	4.950	n/a	
S97T001958	A		Molybdenum - ICP-Acid Digest	ug/g	95.00	<5.00e-02	75.50	73.50	74.50	2.68	96.00	24.80	n/a	
S97T001958	A		Sodium - ICP-Acid Digest	ug/g	115.8	9.34e-01	1.81e+05	1.85e+05	1.83e+05	2.19	478.0	49.50	n/a	
S97T001958	A		Neodymium - ICP-Acid Digest	ug/g	95.20	<1.00e-01	< 49.60	<4.97e1	n/a	n/a	93.80	49.50	n/a	
S97T001958	A		Nickel - ICP-Acid Digest	ug/g	95.20	<2.00e-02	34.80	45.00	39.90	25.6	97.00	9.930	n/a	
S97T001958	A		Phosphorus - ICP-Acid Digest	ug/g	93.20	<2.00e-01	9.05e+02	1.08e+03	992.5	17.6	142.2	99.20	n/a	

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HNF-SD-MW-DP-266, REV. 0

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T001958	A	Lead -ICP-Acid Digest	ug/g	92.60	<1.20e-01	69.70	77.30	73.50	10.3	97.40	49.50	n/a
S97T001958	A	Sulfur -ICP-Acid Digest	ug/g	94.00	1.29e-01	4.25e+03	4.88e+03	4.56e+03	13.8	136.8	49.50	n/a
S97T001958	A	Antimony -ICP-Acid Digest	ug/g	93.40	<6.00e-02	<29.80	<2.98e1	n/a	n/a	97.20	29.80	n/a
S97T001958	A	Selenium -ICP-Acid Digest	ug/g	89.20	<1.00e-01	<49.60	<4.97e1	n/a	n/a	95.00	49.50	n/a
S97T001958	A	Silicon -ICP-Acid Digest	ug/g	173.4	1.680	6.84e+02	543.0	613.5	23.0	78.80	24.80	n/a
S97T001958	A	Samarium -ICP-Acid Digest	ug/g	94.00	<1.00e-01	<49.60	<4.97e1	n/a	n/a	93.00	49.50	n/a
S97T001958	A	Strontium -ICP-Acid Digest	ug/g	97.40	<1.00e-02	<4.960	<4.97e0	n/a	n/a	96.20	4.950	n/a
S97T001958	A	Titanium -ICP-Acid Digest	ug/g	88.40	<1.00e-01	<4.960	<4.97e0	n/a	n/a	87.80	4.950	n/a
S97T001958	A	Thallium -ICP-Acid Digest	ug/g	90.60	<2.00e-01	<99.20	<9.94e1	n/a	n/a	91.00	99.20	n/a
S97T001958	A	Uranium -ICP-Acid Digest	ug/g	92.90	<5.00e-01	<2.48e+02	<2.48e2	n/a	n/a	98.00	248.0	n/a
S97T001958	A	Vanadium -ICP-Acid Digest	ug/g	95.60	<5.00e-02	<24.80	<2.48e1	n/a	n/a	96.40	24.80	n/a
S97T001958	A	Zinc -ICP-Acid Digest	ug/g	98.00	8.28e-01	49.10	143.0	96.05	97.8	113.8	4.950	n/a
S97T001958	A	Zirconium -ICP-Acid Digest	ug/g	97.40	<1.20e-02	8.940	11.00	9.970	20.7	97.40	4.950	n/a
S97T001962	W	Fluoride-IC-B lonex 4000/4500	ug/g	96.27	<1.00e-02	1.09e+03	1.15e+03	1.12e+03	5.36	94.07	97.95	n/a
S97T001962	W	Chloride-IC-B lonex 4000/4500	ug/g	94.88	4.10e-02	5.26e+03	5.25e+03	5.26e+03	0.19	100.0	138.7	n/a
S97T001962	W	Nitrate-IC-B lonex 4000/4500	ug/g	100.9	<1.00e-01	9.32e+04	9.32e+04	9.32e+04	0.00	115.1	881.5	n/a
S97T001962	W	Nitrate by IC-B lonex 4000/4500	ug/g	96.30	<1.39e-01	1.09e+05	1.08e+05	1.08e+05	0.92	99.16	1.13e+03	n/a
S97T001962	W	Phosphate-IC-B lonex 4000/4500	ug/g	105.3	<1.20e-01	5.42e+03	5.30e+03	5.36e+03	2.24	104.8	979.5	n/a
S97T001962	W	Sulfate by IC-B lonex 4000/4500	ug/g	101.7	<1.38e-01	1.28e+04	1.36e+04	1.32e+04	6.06	103.6	1.13e+03	n/a
S97T001962	W	Oxalate-IC-B lonex 4000/4500	ug/g	99.91	<1.05e-01	7.58e+03	7.28e+03	7.43e+03	4.04	99.06	856.9	n/a

Appendix A. Opportunistic Analyte Results
AX-103CORE NUMBER: 214
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%
S97T001947			TIC by Acid/Coulometry	ug/g	95.85	2.300	6.11e+03	5.77e+03	5.94e+03	5.72	114.0	5.000	n/a
S97T001955	F		Silver - ICP-Fusion	ug/g	99.00	<1.00e-02	<2.11e+02	<2.07e2	n/a	n/a	n/a	211.0	n/a
S97T001955	F		Aluminum - ICP-Fusion	ug/g	98.20	<5.00e-02	2.41e+04	2.35e+04	2.38e+04	2.52	n/a	1.06e+03	n/a
S97T001955	F		Arsenic - ICP-Fusion	ug/g	103.6	<1.00e-01	<2.11e+03	<2.07e3	n/a	n/a	n/a	2.11e+03	n/a
S97T001955	F		Boron - ICP-Fusion	ug/g	100.4	<5.00e-02	<1.06e+03	<1.03e3	n/a	n/a	n/a	1.06e+03	n/a
S97T001955	F		Barium - ICP-Fusion	ug/g	98.40	<5.00e-02	<1.06e+03	<1.03e3	n/a	n/a	n/a	1.06e+03	n/a
S97T001955	F		Beryllium - ICP-Fusion	ug/g	103.0	<5.00e-03	<1.06e+02	<1.03e2	n/a	n/a	n/a	106.0	n/a
S97T001955	F		Bismuth - ICP-Fusion	ug/g	105.0	<1.00e-01	<2.11e+03	<2.07e3	n/a	n/a	n/a	2.11e+03	n/a
S97T001955	F		Calcium - ICP-Fusion	ug/g	101.4	<1.00e-01	<2.11e+03	<2.07e3	n/a	n/a	n/a	2.11e+03	n/a
S97T001955	F		Cadmium - ICP-Fusion	ug/g	100.6	<5.00e-03	<1.06e+02	<1.03e2	n/a	n/a	n/a	106.0	n/a
S97T001955	F		Cerium - ICP-Fusion	ug/g	99.20	<1.00e-01	<2.11e+03	<2.07e3	n/a	n/a	n/a	2.11e+03	n/a
S97T001955	F		Cobalt - ICP-Fusion	ug/g	103.2	<2.00e-02	<4.23e+02	<4.13e2	n/a	n/a	n/a	422.0	n/a
S97T001955	F		Chromium - ICP-Fusion	ug/g	100.6	<1.00e-02	3.28e+03	2.92e+03	3.10e+03	11.6	n/a	211.0	n/a
S97T001955	F		Copper - ICP-Fusion	ug/g	101.4	<1.00e-02	<2.11e+02	<2.07e2	n/a	n/a	n/a	211.0	n/a
S97T001955	F		Iron - ICP-Fusion	ug/g	94.40	<5.00e-02	<1.06e+03	<1.03e3	n/a	n/a	n/a	1.06e+03	n/a
S97T001955	F		Lanthanum - ICP-Fusion	ug/g	100.8	<5.00e-02	<1.06e+03	<1.03e3	n/a	n/a	n/a	1.06e+03	n/a
S97T001955	F		Magnesium - ICP-Fusion	ug/g	100.8	<1.00e-01	<2.11e+03	<2.07e3	n/a	n/a	n/a	2.11e+03	n/a
S97T001955	F		Manganese - ICP-Fusion	ug/g	98.60	<1.00e-02	<2.11e+02	<2.07e2	n/a	n/a	n/a	211.0	n/a
S97T001955	F		Molybdenum - ICP-Fusion	ug/g	102.2	<5.00e-02	<1.06e+03	<1.03e3	n/a	n/a	n/a	1.06e+03	n/a
S97T001955	F		Sodium - ICP-Fusion	ug/g	102.2	<1.00e-01	1.99e+05	1.91e+05	1.95e+05	4.10	n/a	2.11e+03	n/a
S97T001955	F		Neodymium - ICP-Fusion	ug/g	100.4	<1.00e-01	<2.11e+03	<2.07e3	n/a	n/a	n/a	2.11e+03	n/a
S97T001955	F		Phosphorus - ICP-Fusion	ug/g	101.8	<2.00e-01	<4.23e+03	<4.13e3	n/a	n/a	n/a	4.22e+03	n/a
S97T001955	F		Lead - ICP-Fusion	ug/g	100.0	<1.00e-01	<2.11e+03	<2.07e3	n/a	n/a	n/a	2.11e+03	n/a
S97T001955	F		Sulfur - ICP-Fusion	ug/g	99.00	<1.00e-01	5.01e+03	4.04e+03	4.52e+03	21.4	n/a	2.11e+03	n/a
S97T001955	F		Antimony - ICP-Fusion	ug/g	97.00	<6.00e-02	<1.27e+03	<1.24e3	n/a	n/a	n/a	1.27e+03	n/a
S97T001955	F		Selenium - ICP-Fusion	ug/g	95.00	<1.00e-01	<2.11e+03	<2.07e3	n/a	n/a	n/a	2.11e+03	n/a
S97T001955	F		Silicon - ICP-Fusion	ug/g	101.4	<5.00e-02	<1.06e+03	<1.03e3	n/a	n/a	n/a	1.06e+03	n/a
S97T001955	F		Samarium - ICP-Fusion	ug/g	98.80	<1.00e-01	<2.11e+03	<2.07e3	n/a	n/a	n/a	2.11e+03	n/a
S97T001955	F		Strontium - ICP-Fusion	ug/g	99.60	<1.00e-02	<2.11e+02	<2.07e2	n/a	n/a	n/a	211.0	n/a
S97T001955	F		Titanium - ICP-Fusion	ug/g	100.0	<1.00e-02	<2.11e+02	<2.07e2	n/a	n/a	n/a	211.0	n/a
S97T001955	F		Thallium - ICP-Fusion	ug/g	95.40	<2.00e-01	<4.23e+03	<4.13e3	n/a	n/a	n/a	4.22e+03	n/a
S97T001955	F		Uranium - ICP-Fusion	ug/g	97.00	<5.00e-01	<1.06e+04	<1.03e4	n/a	n/a	n/a	1.06e+04	n/a
S97T001955	F		Vanadium - ICP-Fusion	ug/g	102.4	<5.00e-02	<1.06e+03	<1.03e3	n/a	n/a	n/a	1.06e+03	n/a
S97T001955	F		Zinc - ICP-Fusion	ug/g	99.40	<1.00e-02	<2.11e+02	<2.07e2	n/a	n/a	n/a	211.0	n/a
S97T001955	F		Zirconium - ICP-Fusion	ug/g	99.80	<1.00e-02	<2.11e+02	<2.07e2	n/a	n/a	n/a	211.0	n/a
S97T001959	A		Thorium-229 by ICP/MS	ug/g	n/a	<5.43e-05	<1.08e-02	<1.07e-2	n/a	n/a	n/a	1.10e-02	n/a
S97T001959	A		Thorium-230 by ICP/MS	ug/g	n/a	<8.17e-05	<1.62e-02	<1.62e-2	n/a	n/a	n/a	1.60e-02	n/a
S97T001959	A		Thorium-232 by ICP/MS	ug/g	87.60	<4.81e-05	1.583	1.760	1.671	10.8	n/a	1.00e-02	n/a
S97T001959	A		Silver - ICP-Acid Digest	ug/g	91.80	<1.00e-02	26.70	19.60	23.15	30.7	n/a	4.950	n/a
S97T001959	A		Aluminum - ICP-Acid Digest	ug/g	97.60	1.62e-01	2.23e+04	2.18e+04	2.20e+04	2.27	n/a	24.80	n/a
S97T001959	A		Arsenic - ICP-Acid Digest	ug/g	98.60	<1.00e-01	< 49.60	< 4.95e1	n/a	n/a	n/a	49.50	n/a
S97T001959	A		Boron - ICP-Acid Digest	ug/g	109.4	6.97e-01	1.79e+02	182.0	180.5	1.66	n/a	24.80	n/a
S97T001959	A		Barium - ICP-Acid Digest	ug/g	98.40	<5.00e-02	< 24.80	<2.47e1	n/a	n/a	n/a	24.80	n/a
S97T001959	A		Beryllium - ICP-Acid Digest	ug/g	101.0	<5.00e-03	< 2.480	<2.47e0	n/a	n/a	n/a	2.480	n/a

HNF-SD-WM-DP-266, REV. 0

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Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T001959	A		Bismuth -ICP-Acid Digest	ug/g	96.20	<1.00e-01	< 49.60	<4.95e1	n/a	n/a	n/a	49.50	n/a
S97T001959	A		Calcium -ICP-Acid Digest	ug/g	103.2	4.43e-01	2.75e+02	301.0	288.0	9.03	n/a	49.50	n/a
S97T001959	A		Cadmium -ICP-Acid Digest	ug/g	94.80	<5.00e-03	5.080	5.020	5.050	1.19	n/a	2,480	n/a
S97T001959	A		Cerium -ICP-Acid Digest	ug/g	96.80	<1.00e-01	< 49.60	<4.95e1	n/a	n/a	n/a	49.50	n/a
S97T001959	A		Cobalt -ICP-Acid Digest	ug/g	94.60	<2.00e-02	< 9.920	<9.89e0	n/a	n/a	n/a	9,930	n/a
S97T001959	A		Chromium -ICP-Acid Digest	ug/g	96.60	1.40e-02	2.11e+03	2.23e+03	2.17e+03	5.53	n/a	4,950	n/a
S97T001959	A		Copper -ICP-Acid Digest	ug/g	89.60	<1.00e-02	< 4.960	<4.95e0	n/a	n/a	n/a	4,950	n/a
S97T001959	A		Iron -ICP-Acid Digest	ug/g	91.80	<5.00e-02	84.70	88.20	86.45	4.05	n/a	24.80	n/a
S97T001959	A		Potassium -ICP-Acid Digest	ug/g	92.40	<5.00e-01	3.19e+03	3.13e+03	3.16e+03	1.90	n/a	248.0	n/a
S97T001959	A		Lanthanum -ICP-Acid Digest	ug/g	98.40	<5.00e-02	< 24.80	<2.47e1	n/a	n/a	n/a	24.80	n/a
S97T001959	A		Magnesium -ICP-Acid Digest	ug/g	97.40	1.27e-01	< 49.60	<4.95e1	n/a	n/a	n/a	49.50	n/a
S97T001959	A		Manganese -ICP-Acid Digest	ug/g	94.40	<1.00e-02	7.380	7.630	7.505	3.33	n/a	4,950	n/a
S97T001959	A		Molybdenum -ICP-Acid Digest	ug/g	96.00	<5.00e-02	80.30	76.20	78.25	5.24	n/a	24.80	n/a
S97T001959	A		Sodium -ICP-Acid Digest	ug/g	119.2	9.26e-01	1.75e+05	1.77e+05	1.76e+05	1.14	n/a	49.50	n/a
S97T001959	A		Neodymium -ICP-Acid Digest	ug/g	95.80	<1.00e-01	< 49.60	<4.95e1	n/a	n/a	n/a	49.50	n/a
S97T001959	A		Nickel -ICP-Acid Digest	ug/g	96.40	<2.00e-02	30.50	35.90	33.20	16.3	n/a	9,930	n/a
S97T001959	A		Phosphorus -ICP-Acid Digest	ug/g	91.60	<2.00e-01	1.02e+03	996.0	1.01e+03	2.38	n/a	99.20	n/a
S97T001959	A		Lead -ICP-Acid Digest	ug/g	93.80	<1.00e-01	73.70	66.40	70.05	10.4	n/a	49.50	n/a
S97T001959	A		Sulfur -ICP-Acid Digest	ug/g	94.00	1.38e-01	3.78e+03	4.04e+03	3.91e+03	6.65	n/a	49.50	n/a
S97T001959	A		Antimony -ICP-Acid Digest	ug/g	94.40	<6.00e-02	< 29.80	<2.97e1	n/a	n/a	n/a	29.80	n/a
S97T001959	A		Selenium -ICP-Acid Digest	ug/g	90.20	<1.00e-01	< 49.60	<4.95e1	n/a	n/a	n/a	49.50	n/a
S97T001959	A		Silicon -ICP-Acid Digest	ug/g	179.6	1.740	5.32e+02	475.0	503.5	11.3	n/a	24.80	n/a
S97T001959	A		Samarium -ICP-Acid Digest	ug/g	95.00	<1.00e-01	< 49.60	<4.95e1	n/a	n/a	n/a	49.50	n/a
S97T001959	A		Strontium -ICP-Acid Digest	ug/g	98.40	<1.00e-02	< 4.960	<4.95e0	n/a	n/a	n/a	4,950	n/a
S97T001959	A		Titanium -ICP-Acid Digest	ug/g	89.00	<1.00e-02	< 4.960	<4.95e0	n/a	n/a	n/a	4,950	n/a
S97T001959	A		Thallium -ICP-Acid Digest	ug/g	91.40	<2.00e-01	< 99.20	<9.89e1	n/a	n/a	n/a	99.20	n/a
S97T001959	A		Uranium -ICP-Acid Digest	ug/g	93.70	<5.00e-01	<2.48e+02	<2.47e2	n/a	n/a	n/a	248.0	n/a
S97T001959	A		Vanadium -ICP-Acid Digest	ug/g	96.40	<5.00e-02	< 24.80	<2.47e1	n/a	n/a	n/a	24.80	n/a
S97T001959	A		Zinc -ICP-Acid Digest	ug/g	92.40	2.61e-01	50.10	49.00	49.55	2.22	n/a	4,950	n/a
S97T001959	A		Zirconium -ICP-Acid Digest	ug/g	98.60	<1.00e-02	9.960	9.850	9.905	1.11	n/a	4,950	n/a
S97T001963	W		Fluoride-IC-Dionex 4000/4500	ug/g	96.78	<1.20e-02	8.40e+02	809.0	824.4	3.76	n/a	98.32	n/a
S97T001963	W		Chloride-IC-Dionex 4000/4500	ug/g	93.88	<1.70e-02	5.23e+03	5.18e+03	5.20e+03	0.96	n/a	139.3	n/a
S97T001963	W		Nitrite-IC - Dionex 4000/4500	ug/g	99.82	1.25e-01	9.38e+04	9.34e+04	9.36e+04	0.43	n/a	884.8	n/a
S97T001963	W		Nitrate by IC-Dionex 4000/4500	ug/g	103.2	<1.39e-01	1.08e+05	1.08e+05	1.08e+05	0.00	n/a	1.14e+03	n/a
S97T001963	W		Phosphate-IC-Dionex 4000/4500	ug/g	100.2	<1.20e-01	4.27e+03	3.35e+03	3.81e+03	24.1	n/a	983.2	n/a
S97T001963	W		Sulfate by IC-Dionex 4000/4500	ug/g	104.9	<1.38e-01	1.25e+04	1.11e+04	1.18e+04	11.9	n/a	1.13e+03	n/a
S97T001963	W		Oxalate-IC-Dionex 4000/4500	ug/g	100.6	<1.05e-01	6.76e+03	6.29e+03	6.52e+03	7.20	n/a	860.2	n/a

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%
S97T001948	F		TiC by Acid/Coulometry	ug/g	101.0	7.600	3.55e+03	3.41e+03	3.48e+03	4.02	104.0	5,000	n/a
S97T001956	F		Silver -ICP-Fusion	ug/g	99.60	<1.00e-02	<2.13e+02	<2.12e2	n/a	n/a	80.70	213.0	n/a
S97T001956	F		Aluminum -ICP-Fusion	ug/g	96.80	<5.00e-02	2.68e+04	2.73e+04	2.70e+04	1.85	99.60	1.07e+03	n/a
S97T001956	F		Arsenic -ICP-Fusion	ug/g	99.80	<1.00e-01	<2.13e+03	<2.12e3	n/a	n/a	99.50	2.13e+03	n/a
S97T001956	F		Boron -ICP-Fusion	ug/g	99.80	<5.00e-02	<1.07e+03	<1.06e3	n/a	n/a	97.30	1.07e+03	n/a
S97T001956	F		Barium -ICP-Fusion	ug/g	99.20	<5.00e-02	<1.07e+03	<1.06e3	n/a	n/a	101.0	1.07e+03	n/a
S97T001956	F		Beryllium -ICP-Fusion	ug/g	100.6	<5.00e-03	<1.07e+02	<1.06e2	n/a	n/a	98.30	107.0	n/a
S97T001956	F		Bismuth -ICP-Fusion	ug/g	99.80	<1.00e-01	<2.13e+03	<2.12e3	n/a	n/a	102.0	2.13e+03	n/a
S97T001956	F		Calcium -ICP-Fusion	ug/g	94.40	<1.00e-01	<2.13e+03	<2.12e3	n/a	n/a	95.20	2.13e+03	n/a
S97T001956	F		Cadmium -ICP-Fusion	ug/g	97.00	<5.00e-03	<1.07e+02	<1.06e2	n/a	n/a	97.80	107.0	n/a

NIN-SD-WM-DF-286, REV. 0

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	SPK	Rec %	Det Limit	Count Err%
S97T001960	A	Cerium -ICP-Fusion	ug/g	96.00	<1.00e-01	<2.12e-03	<2.12e-03	96.10	94.10	n/a	94.10	2.13e+03	n/a
S97T001960	F	Cobalt -ICP-Fusion	ug/g	97.60	<2.00e-02	<4.26e+02	<4.26e+02	99.50	94.50	n/a	94.50	426.0	n/a
S97T001960	F	Chromium -ICP-Fusion	ug/g	96.60	<1.00e-02	5.13e+02	4.47e+03	11.4	96.30	n/a	96.30	2.13	n/a
S97T001960	F	Copper -ICP-Fusion	ug/g	104.2	<1.00e-02	5.13e+02	4.47e+03	11.4	96.30	n/a	96.30	2.13	n/a
S97T001960	F	Lead -ICP-Fusion	ug/g	96.80	<5.00e-02	<1.07e+03	<1.06e+03	99.60	97.20	n/a	97.20	2.13e+03	n/a
S97T001960	F	Antimony -ICP-Fusion	ug/g	93.60	<5.00e-02	<1.27e+03	<1.27e+03	99.70	91.70	n/a	91.70	1.07e+03	n/a
S97T001960	F	Sulfur -ICP-Fusion	ug/g	94.40	<1.00e-01	5.17e+03	4.77e+03	8.05	97.00	n/a	97.00	2.13e+03	n/a
S97T001960	F	Lead -ICP-Fusion	ug/g	94.60	<1.00e-01	<2.12e+03	<2.12e+03	106.0	96.30	n/a	96.30	2.13e+03	n/a
S97T001960	F	Phosphorus -ICP-Fusion	ug/g	98.80	<2.00e-01	<4.26e+02	<4.26e+02	102.0	96.30	n/a	96.30	2.13e+03	n/a
S97T001960	F	Neodymium -ICP-Fusion	ug/g	101.2	<1.00e-01	<1.91e+05	1.91e+05	99.60	97.60	n/a	97.60	1.07e+03	n/a
S97T001960	F	Molybdenum -ICP-Fusion	ug/g	96.60	<1.00e-02	<1.07e+03	<1.06e+03	99.60	97.20	n/a	97.20	2.13e+03	n/a
S97T001960	F	Manganese -ICP-Fusion	ug/g	97.00	<1.00e-01	<2.13e+02	<2.12e+02	101.0	99.20	n/a	99.20	213.0	n/a
S97T001960	F	Zinc -ICP-Fusion	ug/g	99.80	<1.00e-02	<2.13e+02	<2.12e+02	101.0	99.20	n/a	99.20	213.0	n/a
S97T001960	F	Zirconium -ICP-Fusion	ug/g	97.20	<2.00e-02	<2.13e+02	<2.12e+02	101.0	99.20	n/a	99.20	213.0	n/a
S97T001960	F	Vanadium -ICP-Fusion	ug/g	99.00	<5.00e-02	<1.07e+03	<1.06e+03	100.0	97.00	n/a	97.00	1.07e+03	n/a
S97T001960	F	Uranium -ICP-Fusion	ug/g	103.0	<5.00e-01	<1.07e+04	<1.06e+04	110.0	96.30	n/a	96.30	1.07e+04	n/a
S97T001960	F	Thallium -ICP-Fusion	ug/g	98.80	<2.00e-01	<4.26e+02	<4.26e+02	96.50	92.80	n/a	92.80	4.26e+03	n/a
S97T001960	F	Titanium -ICP-Fusion	ug/g	94.40	<1.00e-02	<2.13e+02	<2.12e+02	102.0	96.30	n/a	96.30	2.13e+03	n/a
S97T001960	F	Strontium -ICP-Fusion	ug/g	99.20	<1.00e-01	<2.13e+02	<2.12e+02	102.0	96.30	n/a	96.30	2.13e+03	n/a
S97T001960	F	Samarium -ICP-Fusion	ug/g	101.2	<1.00e-01	<2.13e+02	<2.12e+02	108.0	96.30	n/a	96.30	2.13e+03	n/a
S97T001960	F	Silicon -ICP-Fusion	ug/g	93.60	<5.00e-02	<1.07e+03	<1.06e+03	99.70	91.70	n/a	91.70	1.07e+03	n/a
S97T001960	F	Antimony -ICP-Fusion	ug/g	93.60	<5.00e-02	<1.27e+03	<1.27e+03	99.70	91.70	n/a	91.70	1.07e+03	n/a
S97T001960	F	Sulfur -ICP-Fusion	ug/g	94.40	<1.00e-01	5.17e+03	4.77e+03	8.05	97.00	n/a	97.00	2.13e+03	n/a
S97T001960	F	Lead -ICP-Fusion	ug/g	94.60	<1.00e-01	<2.12e+03	<2.12e+03	106.0	96.30	n/a	96.30	2.13e+03	n/a
S97T001960	F	Phosphorus -ICP-Fusion	ug/g	98.80	<2.00e-01	<4.26e+02	<4.26e+02	102.0	96.30	n/a	96.30	2.13e+03	n/a
S97T001960	F	Neodymium -ICP-Fusion	ug/g	101.2	<1.00e-01	<1.91e+05	1.91e+05	99.60	97.60	n/a	97.60	1.07e+03	n/a
S97T001960	F	Molybdenum -ICP-Fusion	ug/g	96.60	<1.00e-02	<1.07e+03	<1.06e+03	99.60	97.20	n/a	97.20	2.13e+03	n/a
S97T001960	F	Manganese -ICP-Fusion	ug/g	97.00	<1.00e-01	<2.13e+02	<2.12e+02	101.0	99.20	n/a	99.20	213.0	n/a
S97T001960	F	Iron -ICP-Fusion	ug/g	94.00	<1.00e-01	<2.13e+02	<2.12e+02	102.0	96.30	n/a	96.30	2.13e+03	n/a
S97T001960	F	Lanthanum -ICP-Fusion	ug/g	98.60	<5.00e-02	<1.07e+03	<1.06e+03	100.0	96.30	n/a	96.30	1.07e+03	n/a
S97T001960	F	Iron -ICP-Fusion	ug/g	96.80	<5.00e-02	<1.07e+03	<1.06e+03	99.60	97.20	n/a	97.20	2.13e+03	n/a
S97T001960	F	Copper -ICP-Fusion	ug/g	104.2	<1.00e-02	5.13e+02	4.47e+03	11.4	96.30	n/a	96.30	2.13	n/a
S97T001960	F	Chromium -ICP-Fusion	ug/g	96.60	<1.00e-02	5.13e+02	4.47e+03	11.4	96.30	n/a	96.30	2.13	n/a
S97T001960	F	Cobalt -ICP-Fusion	ug/g	97.60	<2.00e-02	<4.26e+02	<4.26e+02	99.50	94.50	n/a	94.50	426.0	n/a
S97T001960	F	Cerium -ICP-Fusion	ug/g	96.00	<1.00e-01	<2.12e+03	<2.12e+03	96.10	94.10	n/a	94.10	2.13e+03	n/a
S97T001960	A	Lead -ICP-Acid Digest	ug/g	93.80	<1.00e-01	<2.07e+03	83.60	82.90	1.69	n/a	94.60	49.50	n/a
S97T001960	A	Phosphorus -ICP-Acid Digest	ug/g	97.60	<2.00e-02	5.13e+03	1.71e+03	56.65	42.1	n/a	13.30	69.00	n/a
S97T001960	A	Nickel -ICP-Acid Digest	ug/g	96.40	<2.00e-02	5.13e+03	1.71e+03	56.65	42.1	n/a	13.30	69.00	n/a
S97T001960	A	Neodymium -ICP-Acid Digest	ug/g	95.80	<1.00e-01	<4.97e+01	85.60	82.90	1.69	n/a	94.60	49.50	n/a
S97T001960	A	Sodium -ICP-Acid Digest	ug/g	119.2	9.26e+01	1.84e+05	1.80e+05	3.88	2.2	n/a	94.60	49.50	n/a
S97T001960	A	Molybdenum -ICP-Acid Digest	ug/g	96.00	<5.00e-02	1.84e+05	1.80e+05	3.88	2.2	n/a	94.60	49.50	n/a
S97T001960	A	Manganese -ICP-Acid Digest	ug/g	94.40	<1.00e-02	1.84e+05	1.80e+05	3.88	2.2	n/a	94.60	49.50	n/a
S97T001960	A	Magnesium -ICP-Acid Digest	ug/g	97.40	1.72e-01	<4.97e+01	85.60	82.90	1.69	n/a	94.60	49.50	n/a
S97T001960	A	Lanthanum -ICP-Acid Digest	ug/g	98.40	<5.00e-02	<4.97e+01	85.60	82.90	1.69	n/a	94.60	49.50	n/a
S97T001960	A	Potassium -ICP-Acid Digest	ug/g	92.40	<5.00e-02	3.07e+03	3.09e+03	122.0	13.1	n/a	94.40	247.0	n/a
S97T001960	A	Iron -ICP-Acid Digest	ug/g	91.80	<1.00e-01	1.30e+02	114.0	122.0	13.1	n/a	94.40	247.0	n/a
S97T001960	A	Copper -ICP-Acid Digest	ug/g	89.60	<1.00e-02	<4.95e+01	85.60	82.90	1.69	n/a	94.40	247.0	n/a
S97T001960	A	Chromium -ICP-Acid Digest	ug/g	96.60	<3.77e+03	3.55e+03	3.66e+03	6.01	n/a	n/a	94.50	4.950	n/a
S97T001960	A	Cobalt -ICP-Acid Digest	ug/g	94.60	<2.00e-02	<9.89e+01	85.60	82.90	1.69	n/a	94.40	247.0	n/a
S97T001960	A	Cerium -ICP-Acid Digest	ug/g	96.80	<2.00e-02	<4.95e+01	85.60	82.90	1.69	n/a	94.40	247.0	n/a
S97T001960	A	Cadmium -ICP-Acid Digest	ug/g	94.80	<1.00e-03	9.16e+01	8.590	8.775	8.77	n/a	94.80	94.50	n/a
S97T001960	A	Calcium -ICP-Acid Digest	ug/g	103.2	4.45e-01	2.70e+02	253.0	261.5	6.50	n/a	100.4	49.50	n/a
S97T001960	A	Bismuth -ICP-Acid Digest	ug/g	96.20	<1.00e-01	<4.95e+01	85.60	82.90	1.69	n/a	94.40	247.0	n/a
S97T001960	A	Beryllium -ICP-Acid Digest	ug/g	101.0	<5.00e-03	<2.47e+01	188.0	188.0	0.00	n/a	95.40	24.70	n/a
S97T001960	A	Barium -ICP-Acid Digest	ug/g	98.40	<5.00e-02	<2.47e+01	188.0	188.0	0.00	n/a	95.40	24.70	n/a
S97T001960	A	Boron -ICP-Acid Digest	ug/g	109.4	6.97e-01	1.88e+02	188.0	188.0	0.00	n/a	95.40	24.70	n/a
S97T001960	A	Arsenic -ICP-Acid Digest	ug/g	98.60	<1.00e-01	<4.95e+01	85.60	82.90	1.69	n/a	94.40	247.0	n/a
S97T001960	A	Aluminum -ICP-Acid Digest	ug/g	97.60	1.62e-01	2.65e+04	2.44e+04	0.82	31.00	n/a	94.50	4.950	n/a
S97T001960	A	Silver -ICP-Acid Digest	ug/g	91.80	<1.00e-02	9.20e+01	15.30	15.75	5.71	n/a	95.40	4.950	n/a
S97T001960	A	Thorium-232 by ICP/MS	ug/g	87.60	<4.81e-05	2.56e+01	2.470	2.515	3.58	n/a	84.40	1.00e-02	n/a
S97T001960	A	Thorium-230 by ICP/MS	ug/g	n/a	<8.17e-05	<1.62e-02	<1.62e-02	n/a	n/a	n/a	1.60e-02	n/a	n/a
S97T001960	A	Thorium-229 by ICP/MS	ug/g	n/a	<5.43e-05	<1.07e-02	<1.08e-02	n/a	n/a	n/a	1.10e-02	n/a	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T001960	A		Sulfur -ICP-Acid Digest	ug/g	94.00	1.38e-01	4.11e+03	4.06e+03	4.08e+03	1.22	103.0	49.50	n/a
S97T001960	A		Antimony -ICP-Acid Digest	ug/g	94.40	<6.00e-02	< 29.70	<2.98e1	n/a	n/a	94.60	29.80	n/a
S97T001960	A		Selenium -ICP-Acid Digest	ug/g	90.20	<1.00e-01	< 49.50	<4.97e1	n/a	n/a	93.20	49.50	n/a
S97T001960	A		Silicon -ICP-Acid Digest	ug/g	179.6	1.740	3.83e+02	583.0	483.0	41.4	92.40	24.70	n/a
S97T001960	A		Samarium -ICP-Acid Digest	ug/g	95.00	<1.00e-01	< 49.50	<4.97e1	n/a	n/a	93.20	49.50	n/a
S97T001960	A		Strontium -ICP-Acid Digest	ug/g	98.40	<1.00e-02	< 4.950	<4.97e0	n/a	n/a	96.60	4.950	n/a
S97T001960	A		Titanium-ICP-Acid Digest	ug/g	89.00	<1.00e-02	< 4.950	<4.97e0	n/a	n/a	87.20	4.950	n/a
S97T001960	A		Thallium -ICP-Acid Digest	ug/g	91.40	<2.00e-01	< 98.90	<9.94e1	n/a	n/a	89.80	99.00	n/a
S97T001960	A		Uranium -ICP-Acid Digest	ug/g	93.70	<5.00e-01	<2.47e+02	<2.48e2	n/a	n/a	96.80	247.0	n/a
S97T001960	A		Vanadium -ICP-Acid Digest	ug/g	96.40	<5.00e-02	< 24.70	<2.48e1	n/a	n/a	95.20	24.70	n/a
S97T001960	A		Zinc -ICP-Acid Digest	ug/g	92.40	2.61e-01	83.90	67.50	75.70	21.7	88.60	4.950	n/a
S97T001960	A		Zirconium -ICP-Acid Digest	ug/g	98.60	<1.00e-02	13.60	12.30	12.95	10.0	97.00	4.950	n/a
S97T001964	W		Fluoride-IC-Dionex 4000/4500	ug/g	96.78	<1.20e-02	8.68e+02	793.0	830.2	9.03	62.54	99.06	n/a
S97T001964	W		Chloride-IC-Dionex 4000/4500	ug/g	93.88	<1.70e-02	5.41e+03	5.44e+03	5.42e+03	0.55	98.25	140.3	n/a
S97T001964	W		Nitrite-IC - Dionex 4000/4500	ug/g	99.82	1.23e-01	9.59e+04	9.74e+04	9.66e+04	1.55	106.6	891.3	n/a
S97T001964	W		Nitrate by IC-Dionex 4000/4500	ug/g	103.2	<1.39e-01	1.01e+05	1.02e+05	1.01e+05	0.99	113.0	1.15e+03	n/a
S97T001964	W		Phosphate-IC-Dionex 4000/4500	ug/g	104.2	<1.20e-01	3.22e+03	3.09e+03	3.16e+03	4.12	105.1	990.6	n/a
S97T001964	W		Sulfate by IC-Dionex 4000/4500	ug/g	100.9	<1.38e-01	1.24e+04	1.11e+04	1.17e+04	11.1	103.0	1.14e+03	n/a
S97T001964	W		Oxalate-IC-Dionex 4000/4500	ug/g	100.6	<1.05e-01	7.52e+03	6.75e+03	7.14e+03	10.8	100.9	866.7	n/a

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