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Tank 241-TX-302C Grab Samples, 302C-TX-97-1A through 302C-TX-97-3B Analytical Results for the Final Report

Ruth A. Esch

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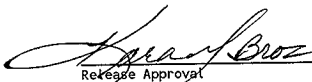
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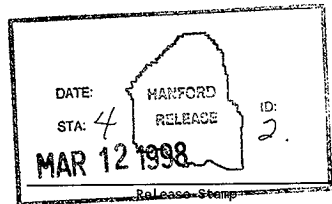
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ANALYTICAL SERVICES

**TANK 241-TX-302C GRAB SAMPLES,
302C-TX-97-1A THROUGH 302C-TX-97-3B
ANALYTICAL RESULTS FOR THE FINAL REPORT**

Project Coordinator: RUTH A. ESCH

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

by

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NARRATIVE

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222-S ANALYTICAL SERVICES

**TANK 241-TX-302C, GRAB SAMPLES,
302C-TX-97-1A THROUGH 302C-TX-97-3B
ANALYTICAL RESULTS FOR THE FINAL REPORT**

This document is the final report for tank 241-TX-302C grab samples. Six grab samples (302C-TX-97-1A, 302C-TX-97-1B, 302C-TX-97-2A, 302C-TX-97-2B, 302C-TX-97-3A, and 302C-TX-97-3B) were collected from the catch tank level gauge riser on December 19, 1997. The "A" and "B" portions from each sample location were composited and analyses were performed on the composites in accordance with the *Compatibility Grab Sampling and Analysis Plan* (TSAP) (Sasaki, 1997) and the *Data Quality Objectives for Tank Farms Waste Compatibility Program* (DQO) (Rev. 1: Fowler, 1995; Rev. 2: Mulkey and Miller, 1997). The analytical results are presented in Table 1. No notification limits were exceeded.

Appearance and Sample Handling

Attachment 1 is provided as a cross-reference for relating the tank farm customer identification numbers with the 222-S Laboratory sample numbers and the portion of sample analyzed. Table 2 provides the appearance information.

Table 2: Appearance Information for Tank 241-TX-302C Grab Samples

Sample Number	Date Sampled	Date Received	Sampling Depth (in.)*	% Settled Solids	Sample Description
302C-TX-97-1A	12/19/97	12/19/97	1 in. below zipcord	< 1	Clear, colorless liquid; no organic layer.
302C-TX-97-1B	12/19/97	12/19/97	1 in. below zipcord	< 1	Clear, colorless liquid; no organic layer.
302C-TX-97-2A	12/19/97	12/19/97	360	< 1	Clear, colorless liquid; no organic layer.
302C-TX-97-2B	12/19/97	12/19/97	360	< 1	Clear, colorless liquid; no organic layer.
302C-TX-97-3A	12/19/97	12/19/97	372	< 1	Clear, colorless liquid; no organic layer.
302C-TX-97-3B	12/19/97	12/19/97	372	< 1	Clear, colorless liquid; no organic layer.

* Sample depth is measured from the top riser to the top of the sample bottle. This data was obtained from Process Memo # CFE-97-005, no field data was received.

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Due to riser restrictions, the normal 125-mL sampling bottle could not be used for this sampling event. Two 60-mL samples, portions A and B were taken from each depth in order to obtain enough sample material to perform all of the requested analyses. The two sample portions were combined at the laboratory to form one composite sample from each depth. Analysis aliquots were removed from the 125-mL composite bottle.

Analytical Results Summary

The data summary report (Table 1) presents the analytical results that comply with the applicable DQO. The aliquot class (A#) column indicates the type of preparation performed prior to analysis. A "D" indicates that the analysis was performed on an acid dilution and a blank indicates a direct sample analysis.

Some multi element methods provide results for analytes that are not required by the TSAP or the DQO. These analytes are considered "opportunistic" and the results are provided in Appendix A. There are no customer defined QC parameters for these analytes and the results are not discussed in this document.

Compatibility Program Concerns

Tank 241-TX-302C is neither a double shell tank nor a double contained receiver tank and the corrosion decision rules do not apply.

DSC - Differential Scanning Calorimetry - Energetics Decision Rule

The DSC analyses were performed in duplicate on direct sample aliquots. The average of the TGA result for each subsample was used in the dry weight correction for that subsample. No exotherms were observed.

The standard recoveries for this analysis were within the required limits. Since the results were all reported as 0.00 Joules/g, the relative percent difference (RPD) calculation was not applicable.

For waste compatibility energetics decision concerns for safe waste transfers, the ratio of exothermic energy to endotherm energy must be less than one (1). Since the results were all reported as 0.00 Joules/g, the ratio of exotherm/endotherm was also 0.0 and the requirement was satisfied for all samples

^{239/240}Pu - Plutonium-239/240 - Criticality Decision Rule

^{239/240}Pu concentration is used to evaluate criticality safety for waste transfers. The analysis was performed on direct sample aliquots. The standard recovery for this analysis was within the

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required limits. Results were all reported as less than the detection limit and the RPD calculation was not applicable. The highest reported result was $< 3.09\text{e-}06 \mu\text{Ci/mL}$, which is well below both the immediate notification limit of $61.5 \mu\text{Ci/mL}$ and the criticality prevention concern level of 0.001g/L ($6.2\text{e-}02 \mu\text{Ci/mL}$) stated in the TSAP (Sasaki, 1997) and the Compatibility DQO (Mulkey and Miller, 1997).

Total Uranium (U) - Criticality Decision Rule

Total U was analyzed to provide information for evaluation of criticality safety for waste transfers. The analysis was performed on direct sample aliquots using the phosphorescence technique. The results ranged from 19.60 to $24.40 \mu\text{g/mL}$ total U. The standard recovery and RPDs for this analysis were within the required limits. High spike recovery results were obtained because the concentration of spike added was low with respect to the sample concentration. However, since there was insufficient sample material available for a rerun, the spike recovery was reported as "n/a".

A small amount of U was detected in the blank. However, the level of contamination was considered insignificant with respect to the sample results and, therefore, does not affect the usability of these results. The result reported as "Count Err%" is actually the instrument uncertainty.

Inorganic Analyses

TGA - Thermogravimetric Analysis

The TGA analysis was performed on direct sample aliquots. Standard recoveries and RPDs were within the required limits. The percent moisture of the samples was reported as the sum of all weight loss steps that began below 200°C . The weight loss occurred in one step for all three samples. More information may be obtained by examining the thermograms. The results ranged from 99.43 to 99.82% moisture.

pH

The pH analysis was performed on direct sample aliquots. The results ranged from 8.83 to 8.77. The pH 7.00 standard was measured at 7.01, which was within the control limits of the method. There were no precision or accuracy requirements for this analysis.

Specific Gravity (Sp.G.)

The specific gravity (Sp.G.) analysis was performed on direct sample aliquots. The results ranged from 0.969 to 0.992 with a weighted mean of 0.985. The RPDs were within the required limits.

Hydroxide – OH⁻

The OH⁻ analysis was performed on direct sample aliquots. The results were all reported as less than 42 µg/mL except for the sample result for 302C-TX-97-2A/B (S98T000141), which was 78 µg/mL. The standard recovery was within the required limits for this analysis. Since most of the results were less than the detection limit, the RPD calculation was not applicable.

Ammonia – NH₃

The NH₃ results are considered “opportunistic” and are provided in Appendix A.

IC - Ion Chromatography

The ion chromatography (IC) analysis was performed on direct sample aliquots. The required analytes were fluoride (F⁻), chloride (Cl⁻), nitrate (NO₃⁻), nitrite (NO₂⁻), phosphate (PO₄⁻³) and sulfate (SO₄⁻²). The results for bromide (Br⁻) and oxalate are considered “opportunistic” and are provided in Appendix A.

The standard recoveries, spike recoveries and RPDs for the required analytes were all within the required limits.

A rerun was required on the composite samples 302C-97-1A/B (S98T000140) and 302C-TX-97-2A/B (S98T000141) due to chloride contamination from the sample analysis vials. There was insufficient sample available from the composites to perform this rerun, so the analysis was performed on portions of the “B” samples that remained after the composites were created; 302C-TX-97-1B (S97T002431) and 302C-TX-97-2B (S97T002432).

ICP - Inductively Coupled Plasma Spectrophotometry

The ICP analysis was performed on acid diluted sample aliquots. Aluminum (Al), iron (Fe) and sodium (Na) were the only required analytes. The results for all other analytes are considered “opportunistic” and are provided in Appendix A. The standard recoveries, spike recoveries and RPDs met the requested criteria, with the exception noted below.

The Na results were more than four times the concentration of the spike added resulting in spike recoveries outside of the 75% - 125% recovery range requested. Typically, with high analyte concentrations it is difficult to add sufficient spike to perform a meaningful analysis. A second sample aliquot was spiked with a higher concentration of Na and reported in the raw data as a post-digest spike. The post-digest spike recovery was 92.9%. The assessment of the accuracy of the measurement for this analyte was also made by comparison of the sample results to those of a serial dilution of the sample. The serial dilution was performed by preparing and analyzing an additional five-fold dilution of the sample. The results obtained from this analysis were within ±10% of the undiluted sample result and, therefore, are acceptable. Table 3 presents the results

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of the original undiluted sample, the serial dilution and the percent difference between the two results.

Table 3: ICP Serial Dilution Results for Tank 241-TX-302C

Sample ID	Analyte	Undiluted Sample Result ($\mu\text{g/mL}$)	Serial Dilution Result ($\mu\text{g/mL}$)	Percent Difference (%)
S98T000140				
302C-TX-97-1A/B	Na	268.04	267.07	0.36

$$\text{Percent Difference} = \left[\frac{|\text{Sample} - \text{Serial Dilution}|}{\text{Sample}} \right] \times 100$$

TIC/TOC - Total Inorganic/Organic Carbon

The TIC analysis was performed on direct sample aliquots using the persulfate oxidation method. The TOC by persulfate results are considered "opportunistic" and are provided in Appendix A. The standard recovery, spike recovery and RPD criteria were met for this analysis.

For the TIC/TOC analysis, 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.

TOC - Total Organic Carbon

The TOC analysis was performed on direct sample aliquots using the furnace oxidation method. The standard recovery and spike recovery criteria were met for this analysis. The RPD for sample 302C-TX-97-2A/B (S98T000141) (49.0%) exceeded the requested limit of $\leq 20\%$. However, the analyte concentration was less than 4 times the detection limit resulting in reduced precision and the 20% RPD criterion is not applicable. The results did not exceed the notification limit stated in the TSAP (Sasaki, 1997).

Radionuclide Analyses

GEA - Gamma Energy Analysis

GEA analysis was performed for ^{137}Cs on direct sample aliquots. The ^{60}Co results are considered "opportunistic" and are provided in Appendix A. The standard recoveries and RPDs for ^{137}Cs were within the required limits.

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⁹⁰Sr - Strontium-90

⁹⁰Sr analysis was performed on direct sample aliquots. The standard recoveries and RPDs were within the required limits. ⁹⁰Sr was detected in the method blank for this analysis. However, the level of contamination was insignificant with respect to the sample results and does not affect the usability of these results. No reruns were requested.

²⁴¹Am - Americium-241

²⁴¹Am analysis was performed on direct sample aliquots. The standard recovery was within the required limits. There was no ²⁴¹Am detected in any of the samples, so the RPD calculation was not applicable.

Procedures

Table 4 lists the analytical procedures used for performing the analyses.

Table 4: Analytical Procedures

Analysis	Preparation Procedure	Analysis Procedure
Inorganic Analyses		
Settled % Solids	Direct Analysis	LA-519-151 Rev. F-0
DSC	Direct Analysis	LA-514-114 Rev. D-1
TGA	Direct Analysis	LA-514-114 Rev. D-1
Sp.G.	Direct Analysis	LA-510-112 Rev. D-1
pH	Direct Analysis	LA-212-106 Rev. C-0
OH ⁻	Direct Analysis	LA-211-102 Rev. D-0
NH ₃	Direct Analysis	LA-631-001 Rev. C-0
IC	Direct Analysis	LA-533-105 Rev. E-0
ICP	Acid Dilution	LA-505-161 Rev. C-2
Total U	Direct Analysis	LA-925-009 Rev. B-0
TIC/TOC	Direct Analysis	LA-342-100 Rev. F-0
TOC: Furnace Ox.	Direct Analysis	LA-344-105 Rev. E-0

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Table 4: Analytical Procedures

Analysis	Preparation Procedure	Analysis Procedure
Radionuclide Analyses		
GEA	Direct Analysis	LA-548-121 Rev. F-0
⁹⁰ Sr	Direct Analysis	LA-220-101 Rev. E-3
²⁴¹ Am	Direct Analysis	LA-953-104 Rev. B-0
^{239/240} Pu	Direct Analysis	LA-953-104 Rev. B-0

Abbreviations:

DSC = differential scanning calorimetry
TGA = thermogravimetric analysis
Sp.G. = specific gravity
OH⁻ = hydroxide
IC = ion chromatography
ICP = inductively coupled plasma
TOC = total organic carbon

TIC = total inorganic carbon
GEA = gamma energy analysis
⁹⁰Sr = strontium 90
²⁴¹Am = americium 241
^{239/240}Pu = plutonium 239/240

References

- Fowler, K.D., 1995, *Data Quality Objectives for Tank Farms Waste Compatibility Program*, WHC-SD-WM-DQO-001, Rev. 1, Westinghouse Hanford Company, Richland, WA 99352.
- Mulkey, C. H., and M. S. Miller, 1997, *Data Quality Objectives for Tank Farms Waste Compatibility Program*, WHC-SD-WM-DQO-001, Rev. 2, Lockheed Martin Hanford Corporation, Richland, WA 99352.
- Sasaki, L. M., 1997, *Compatibility Grab Sampling and Analysis Plan*, WHC-SD-TSAP-115, Rev. 0-L, Lockheed Martin Hanford Corporation, WA 99352.

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ATTACHMENT 1

TX-302C SAMPLE BREAKDOWN

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TX-302C Grab Samples

Attachment 1

302C-TX-97-1A 302C-TX-97-1B
S97T002428 S97T002431



S98T000140

pH
DSC
TGA
Sp.G.
OH
IC: Antions
ICP: Al, Fe, Na
TOC: Furnace Ox.
TIC/TOC: Persulfate
NH3
S
Am-241
Total U
Pu-239/240
GEA: Cs-137

302C-TX-97-2A 302C-TX-97-2B
S97T002429 S97T002432



S98T000141

pH
DSC
TGA
Sp.G.
OH
IC: Antions
ICP: Al, Fe, Na
TOC: Furnace Ox.
TIC/TOC: Persulfate
NH3
S
Am-241
Total U
Pu-239/240
GEA: Cs-137

TX-302C Grab Samples

Attachment 1

302C-TX-97-3A 302C-TX-97-3B
S97T002430 S97T002433



S98T000142

PH
DSC
TGA
Sp.G.
OH
IC: Anions
ICP: Al, Fe, Na
TOC: Furnace Ox.
TIC/TOC: Persulfate
NH3
As-01
As-241
Total U
Pu-239/240
GEA: Cs-137

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SAMPLE DATA SUMMARY

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Table 1: Data Summary Report
TX-302C GRAB

RISER: Catch Tk. Level Gage Riser

SEGMENT #: 302C-TX-97-1A/B

SEGMENT PORTION: Supernate

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S98T000140		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
S98T000140		DSC Exotherm on Perkin Elmer	Joules/g	102.5	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S98T000140		DSC Exotherm on Perkin Elmer	Joules/g	99.40	< 42.00	< 42.00	8.830	8.830	0.00	n/a	41.70	n/a
S98T000140		Oil by Pot. Titration	wt%	100.1	n/a	8.830	8.830	8.830	0.00	n/a	1.00e-02	n/a
S98T000140		Oil Direct Gravity	Sp. G.	99.64	n/a	9.69e-01	9.88e-01	9.78e-01	1.94	n/a	1.00e-02	n/a
S98T000140		Acetic by TGA on Perkin Elmer	%	99.39	n/a	99.82	99.60	99.71	0.22	n/a	96.20	5.500
S98T000140		IC-1 on by Carbon by Coul.	ug/ml	96.67	1.00e-01	< 5.500	< 5.50e+00	19.60	12.0	n/a	3.70e-05	3.29e+00
S98T000140		TIC on by Phosphorescence	ug/ml	98.72	1.00e-03	22.10	112.0	20.85	2.64	n/a	97.70	5.000
S98T000140		TIC by Acid/Phosphorescence	ug/ml	99.34	6.00e-01	1.15e+02	2.56e-02	2.53e-02	2.37	n/a	1.37e-05	8.15e-01
S98T000140		Strontium-89/90 High Level	uCi/ml	99.39	9.14e-05	< 2.79e-06	< 2.85E-6	113.5	2.64	n/a	2.79e-06	1.00E+02
S98T000140		Aluminum-ICP-Acid Dil.	uCi/ml	94.50	< 5.00e-02	2.91e-01	2.84e-01	2.87e-01	2.43	102.0	5.00e-02	n/a
S98T000140		Pb-239/240 by TRI-SPEC Resin	uCi/ml	99.00	< 5.00e-02	< 5.00e-02	< 5.00e-02	270.0	1.48	83.60	5.00e-02	n/a
S98T000140		Aluminum-ICP-Acid Dil.	uCi/ml	96.60	< 5.00e-02	2.68e+02	272.0	2.223	2.70	94.24	1.32e-01	n/a
S98T000140		Iron-ICP-Acid Dil.	uCi/ml	104.4	< 1.00e-01	2.255	2.190	2.223	2.70	94.24	1.32e-01	n/a
S98T000140		Sodium-ICP-Acid Dil.	uCi/ml	96.10	< 1.00e-02	< 1.188	< 1.190	n/a	n/a	93.92	1.188	n/a
S98T000140		Fluoride-IC-Dioxex 4000/4500	ug/ml	91.71	< 1.08e-01	85.02	84.30	84.66	0.83	93.60	1.529	n/a
S98T000140		Nitrate by IC-Dioxex 4000/4500	ug/ml	93.43	< 1.39e-01	19.04	19.00	19.02	0.00	94.31	1.320	n/a
S98T000140		Phosphate by IC-Dioxex 4000/4500	ug/ml	92.84	< 1.20e-01	24.39	24.30	24.34	0.41	97.76	1.518	n/a
S98T000140		Sulfate by IC-Dioxex 4000/4500	ug/ml	95.41	< 1.38e-01	4.95e-02	4.81e-02	4.88e-02	2.87	n/a	n/a	0.590
S98T000140		Cesium-137 by GEA	uCi/ml	105.1	< 3.38e-05	< 3.38e-05	< 3.38e-05	< 3.38e-05	< 3.38e-05	n/a	n/a	6.53e-06
S98T000140		Am-241 by Extraction	uCi/ml	106.8	< 5.30e-06	< 5.30e-06	< 5.30e-06	< 5.30e-06	< 5.30e-06	n/a	n/a	1.00E+02

Table 1: Data Summary Report
TX-302C GRABRISER: Catch Tk. Level Gage Riser
SEGMENT #: 302C-TX-97-2A/B

SEGMENT PORTION: Supernate

Sample #	R A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD % Spk	Rec %	Det Limit	Count Err%
S98T000141		DSC Exotherm Dry	Calculated	Joules/g Dry								
S98T000141		DSC Exotherm on Perkin Elmer	Joules/g	102.5	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S98T000141		OH- by Pot. Titration	ug/mL	99.40	<42.00	78.00	<42	n/a	n/a	n/a	41.70	n/a
S98T000141		pH Direct	pH	100.1	n/a	8.670	8.670	8.670	0.00	n/a	1.00e-02	n/a
S98T000141		Specific Gravity	Sp.G.	99.64	n/a	9.92e-01	9.92e-01	9.90e-01	0.51	n/a	1.00e-02	n/a
S98T000141		% Water by TGA on Perkin Elmer	%	99.39	n/a	99.70	99.63	99.66	0.07	n/a	5.500	n/a
S98T000141		Tot. Organic Carbon by Coul.	ug/mL	96.67	1.00e-01	7.700	12.70	10.20	49.0	n/a	3.70e-05	n/a
S98T000141		Uranium by Phosphorescence	ug/mL	98.72	1.00e-03	22.40	22.20	22.30	0.90	n/a	5.00e-02	n/a
S98T000141		TIC by Acid/Coulometry	ug/mL	99.34	6.00e-01	1.12e+02	113.0	112.5	0.89	n/a	5.000	n/a
S98T000141		Strontium-89/90 High Level	uCi/mL	94.50	<2.67e-06	2.26e-06	2.22e-06	2.24e-06	1.79	n/a	1.39e-05	8.64E-01
S98T000141		Pu-239/240 by TRU-SPEC Resin	uCi/mL	99.00	<5.00e-02	3.01e-01	2.90e-01	2.95e-01	3.72	n/a	2.62e-06	1.00E+02
S98T000141		D. Aluminum-ICP-Acid Dil.	ug/mL	99.60	<5.00e-02	5.00e-02	<5.00e-02	n/a	n/a	n/a	5.00e-02	n/a
S98T000141		D. Iron-ICP-Acid Dil.	ug/mL	104.4	<1.00e-01	2.65e+02	269.0	267.0	1.50	n/a	1.00e-01	n/a
S98T000141		D. Sodium-ICP-Acid Dil.	ug/mL	96.10	<1.20e-02	2.375	2.410	2.393	1.25	n/a	1.32e-01	n/a
S98T000141		Nitrite-IC - Dionex 4000/4500	ug/mL	91.71	<1.08e-01	< 1.188	<1.1960	n/a	n/a	n/a	1.188	n/a
S98T000141		Nitrate by IC-Dionex 4000/4500	ug/mL	93.43	<1.39e-01	87.77	86.40	87.09	1.61	n/a	1.529	n/a
S98T000141		Phosphate-IC-Dionex 4000/4500	ug/mL	92.84	<1.20e-01	19.21	19.50	19.36	1.55	n/a	1.320	n/a
S98T000141		Sulfate by IC-Dionex 4000/4500	ug/mL	95.41	<1.38e-01	26.34	28.10	27.22	6.62	n/a	1.518	n/a
S98T000141		Cesium-137 by GEA	uCi/mL	105.1	<3.30e-05	4.89e-02	4.41e-02	4.65e-02	10.3	n/a	n/a	0.460
S98T000141		Am-241 by Extraction	uCi/mL	106.8	<5.30e-06	<7.11e-06	<9.19E-6	n/a	n/a	n/a	7.11e-06	1.00E+02

Table 1: Data Summary Report
TX-302C GRAB

RISER: Catch Tk. Level Gage Riser
SEGMENT #: 302C-TX-97-3A/B

SEGMENT PORTION: Supernate

Sample#	R A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S98T000142		DSC Exotherm Dry	Calculated	Joules/g Dry		0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S98T000142		DSC Exotherm on Perkin Elmer	Calculated	Joules/g		0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S98T000142		OH- by Pot. Titration			< 42.00	< 42.00	< 42.00	< 42.00	0.00	n/a	41.70	n/a
S98T000142		pH Direct			100.1	100.1	100.1	100.1	0.00	n/a	1.00e-02	n/a
S98T000142		pH			100.1	100.1	100.1	100.1	0.00	n/a	1.00e-02	n/a
S98T000142		Specific Gravity	Sp.G.		99.64	99.64	99.64	99.64	0.00	n/a	5.500	n/a
S98T000142		% Water by TGA on Perkin Elmer			99.39	99.39	99.39	99.39	0.05	n/a	5.500	n/a
S98T000142		Tot. Organic Carbon by Coul.			94.67	94.67	94.67	94.67	0.05	n/a	5.500	n/a
S98T000142		Uranium by Phosphorescence			98.72	98.72	98.72	98.72	3.76	n/a	3.70e-05	n/a
S98T000142		TIC by Acid/Coulometry			98.67	98.67	98.67	98.67	0.00	n/a	5.000	n/a
S98T000142		Strontium-89/90 High Level	uCi/mL		94.50	94.50	94.50	94.50	4.52	n/a	1.38e-05	7.56E-01
S98T000142		Pu-239/240 by TRU-SPEC Resin	uCi/mL		94.50	94.50	94.50	94.50	2.24	n/a	2.67e-06	1.00E+02
S98T000142		D Aluminum-ICP-Acid Dil.	ug/mL		99.00	99.00	99.00	99.00	2.24	n/a	5.00e-02	n/a
S98T000142		D Iron-ICP-Acid Dil.	ug/mL		96.60	96.60	96.60	96.60	1.11	n/a	1.00e-01	n/a
S98T000142		D Sodium-ICP-Acid Dil.	ug/mL		104.4	104.4	104.4	104.4	1.11	n/a	4.92e-01	n/a
S98T000142		Fluoride-IC-Dionex 4000/4500	ug/mL		105.8	105.8	105.8	105.8	0.73	n/a	6.97e-01	n/a
S98T000142		Chloride-IC-Dionex 4000/4500	ug/mL		100.1	100.1	100.1	100.1	0.73	n/a	6.97e-01	n/a
S98T000142		Nitrate-IC - Dionex 4000/4500	ug/mL		100.4	100.4	100.4	100.4	0.52	n/a	5.699	n/a
S98T000142		Nitrate by IC-Dionex 4000/4500	ug/mL		95.29	95.29	95.29	95.29	2.93	n/a	4.920	n/a
S98T000142		Phosphate-IC-Dionex 4000/4500	ug/mL		94.86	94.86	94.86	94.86	7.71	n/a	5.658	n/a
S98T000142		Sulfate by IC-Dionex 4000/4500	ug/mL		101.3	101.3	101.3	101.3	6.44	n/a	n/a	0.580
S98T000142		Cesium-137 by GEA	uCi/mL		105.1	105.1	105.1	105.1	6.44	n/a	9.76e-06	1.00E+02
S98T000142		Am-241 by Extraction			106.8	106.8	106.8	106.8	n/a	n/a	n/a	n/a

Table 1: Data Summary Report
TX-302C GRAB

RISER: Catch Tk. Level Gage Riser
SEGMENT #: 1A

SEGMENT PORTION: Supernate

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
SP7T002428		Volume % Settled Solids	%	n/a	n/a	< 1.000	n/a	n/a	n/a	n/a	1.00e-01		n/a

Table 1: Data Summary Report
TX-302C GRAB

RISER: Catch Tk. Level Gage Riser
SEGMENT #: 1B

SEGMENT PORTION: Supernate

Sample#	R. #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T002431		Fluoride-IC-Dionex 4000/4500	ug/ml	100.3	<1.20e-02	2.091	2.160	2.126	3.29	93.39	1.32e-01	N/A
S97T002431		Chloride-IC-Dionex 4000/4500	ug/ml	100.0	<1.70e-02	13.65	13.20	13.43	3.72	96.25	1.87e-01	N/A
S97T002431		Nitrite-IC - Dionex 4000/4500	ug/ml	100.9	<1.08e-01	< 1.188	<1.19e0	n/a	n/a	95.21	1.188	N/A
S97T002431		Nitrate by IC-Dionex 4000/4500	ug/ml	94.44	<1.39e-01	80.93	81.50	81.22	0.74	98.82	1.320	N/A
S97T002431		Phosphate-IC-Dionex 4000/4500	ug/ml	95.05	<1.20e-01	19.33	20.50	19.91	6.03	95.96	1.320	N/A
S97T002431		Sulfate by IC-Dionex 4000/4500	ug/ml	99.05	<1.38e-01	23.89	23.70	23.80	0.84	99.37	1.518	N/A
S97T002431		Volume % Settled Solids	%	n/a	n/a	< 1.000	n/a	n/a	n/a	n/a	1.00e-01	N/A

Table 1: Data Summary Report
TX-302C GRAB

RISER: Catch Tk. Level Gage Riser
SEGMENT #: 2A

SEGMENT PORTION: Supernate

Sample#	R A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
5971002429		Volume % Settled Solids	%	n/a	n/a	< 1.000	n/a	n/a	n/a	n/a	1.00e-01	n/a

Table 1: Data Summary Report
TX-302C GRAB

RISER: Catch Tk. Level Gage Riser
SEGMENT #: 2B

SEGMENT PORTION: Supernate

Sample#	R A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD % Spk Rec %	Det Limit	Count Err%
S97T002432		Fluoride-IC-Dionex 4000/4500	ug/mL	100.3	<1.20e-02	2.010	2.040	2.025	1.48	n/a	1.32e-01
S97T002432		Chloride-IC-Dionex 4000/4500	ug/mL	100.0	<1.70e-02	12.56	12.60	12.58	0.00	n/a	1.87e-01
S97T002432		Nitrite-IC - Dionex 4000/4500	ug/mL	100.9	<1.08e-01	< 1.188	<1.190	n/a	n/a	n/a	1.188
S97T002432		Nitrate by IC-Dionex 4000/4500	ug/mL	94.44	<1.39e-01	78.07	79.60	78.83	1.90	n/a	1.529
S97T002432		Phosphate-IC-Dionex 4000/4500	ug/mL	95.05	<1.20e-01	18.03	18.30	18.16	1.65	n/a	1.320
S97T002432		Sulfate by IC-Dionex 4000/4500	ug/mL	99.05	<1.38e-01	23.23	23.50	23.37	1.28	n/a	1.518
S97T002432		Volume % Settled Solids	%	n/a	n/a	< 1.000	n/a	n/a	n/a	n/a	1.00e-01

Table 1: Data Summary Report
TX-302C GRAB

RISER: Catch Ik. Level Gage Riser
SEGMENT #: 3A

SEGMENT PORTION: Supernate

Sample#	R A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S971002430		Volume % Settled Solids	%	n/a	n/a	< 1.000	n/a	n/a	n/a	n/a	1.00e-01	n/a

Table 1: Data Summary Report
TX-302C GRAB

RISER: Catch Tk. Level Gage Riser
SEGMENT #: 3B

SEGMENT PORTION: Supernate

Sample#	R. A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
SS77002433		Volume % Settled Solids	%	n/a	n/a	< 1.000	n/a	n/a	n/a	n/a	1.00e-01	n/a

HNH-SD-WM-DP-292, REV. 0

CHAIN OF CUSTODY FORMS

HNF-SD-WM-DP-292, REV. 0

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CHAIN-OF-CUSTODY RECORD FOR CPO

Sample Number 1020-TX-97-1A		(2) Supplied/Sampler James Skeels	
Tank 11-TX-302C		(4) Bag/Can/Seal No. Can/Seal No. 12-19-97	(5) Catalogue/Serial No. 6001M
Shipment Description: Level Gate Riser			
A. Work Package Number WS-97-00184		(7) Sampling Data Y ☐ N ☒	
B. Sealing Seal Number 812-19-97		Amount N/A	
C. Date Sample Collected 12-19-97		Concentration N/A	
D. Time Sample Collected 1040		X-Ray ☐ ☒	
Field Comments:		Partial Sample ☐ ☒	
		Retrieved Partial Sample Stroke Length N/A	
(3) Relinquished By (Sign and PRINT) James Skeels		(14) Received By (Sign and PRINT) James Skeels	
(7) Relinquished By (Sign and PRINT) James Skeels		(18) Received By (Sign and PRINT) James Skeels	
(1) Relinquished By (Sign and PRINT) James Skeels		(22) Received By (Sign and PRINT) James Skeels	
(5) Relinquished By (Sign and PRINT)		(26) Received By (Sign and PRINT)	
(15) Date/Time 11/4/3		(16) Receiver Comments	
(19) Date/Time 12-19-97		(20) Receiver Comments	
(23) Date/Time 12/8		(24) Receiver Comments	
(27) Date/Time		(28) Receiver Comments	
(8) Seal Intact Upon Release?		☒ Yes ☐ No	
(10) Seal Intact Upon Receipt?		☒ Yes ☐ No	
(11) Seal Number AND Catalog/Serial Number consistent with this record? (Block 5 & 6b)		☒ Yes ☐ No	
(12) Laboratory Comments: 597002428			

HNF-SD-WM-DP-292 REV. 0

CHAIN-OF-CUSTODY RECORD FOR CPO

Sample Number 02C-7X-97-18		(2) Supervisor/Sampler Jim Sicks	
(4) Bagged 241-7X-302 C Level ONE Kiosk		(5) Sealing Seal No. 6001K	
Shipment Description: 03-97-00184			
(6) Work Package Number 12359		(7) Sampling Date 12-19-97	
(8) Sealing Seal Number 12-19-97		Amount N/A	
(9) Date Sample Collected 12-19-97		Concentration N/A	
(10) Time Sample Collected 1045		- Lithium Bromide ☐ Y ☒ N - X-Ray ☐ ☒ - Partial Sample ☐ ☒ - Retrieved Partial Sample Stroke Length ☐ N/A	

5977002431

HNF-SD-WM-DP-292 REV. 0

(13) Requested By (Sign and PRINT) Jim Sicks		(14) Received By (Sign and PRINT) Jim Sicks		(15) Date/Time 12-19-97		(16) Receiver Comments 12-19-97	
(17) Requested By (Sign and PRINT) Jim Sicks		(18) Received By (Sign and PRINT) Jim Sicks		(19) Date/Time 12-19-97		(20) Receiver Comments 12-19-97	
(21) Requested By (Sign and PRINT) Jim Sicks		(22) Received By (Sign and PRINT) Jim Sicks		(23) Date/Time 12-19-97		(24) Receiver Comments 12-19-97	
(25) Requested By (Sign and PRINT) Jim Sicks		(26) Received By (Sign and PRINT) Jim Sicks		(27) Date/Time 12-19-97		(28) Receiver Comments 12-19-97	

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Dec. 19, 1997 2:11PM WHC 222S LAB ROOM 2F BACKSIDE

CHAIN-OF-CUSTODY RECORD FOR CPO

2	Sample Number	(2) Supervisor/Sampler	
2	02C-TX-97-24	James S. Kelly	
3	Truck	(4) Fleet #	
3	041-TX-302	Local Truck	
4	Shipment Description:	(5) Casting Firm No.	
4		Local One Road	
5	Work Package Number	(7) Sampling Date	
5	02S-97-00184	6001 D	
6	Casting Seal Number	Amount	
6	000256181249-7	12340	
7	Date Sample Collected	Concentration	
7	12-19-97	12-19-97	
8	Time Sample Collected	- X-Ray	
8	1050	- Partial Sample	
9		- Retrieved Partial Sample Stroke Length	
9		12-19-97	
10		- Lithium Bromide	
10		12-19-97	
11		- X-Ray	
11		12-19-97	
12		- Partial Sample	
12		12-19-97	
13		- Retrieved Partial Sample Stroke Length	
13		12-19-97	
14		- Lithium Bromide	
14		12-19-97	
15		- X-Ray	
15		12-19-97	
16		- Partial Sample	
16		12-19-97	
17		- Retrieved Partial Sample Stroke Length	
17		12-19-97	
18		- Lithium Bromide	
18		12-19-97	
19		- X-Ray	
19		12-19-97	
20		- Partial Sample	
20		12-19-97	
21		- Retrieved Partial Sample Stroke Length	
21		12-19-97	
22		- Lithium Bromide	
22		12-19-97	
23		- X-Ray	
23		12-19-97	
24		- Partial Sample	
24		12-19-97	
25		- Retrieved Partial Sample Stroke Length	
25		12-19-97	
26		- Lithium Bromide	
26		12-19-97	
27		- X-Ray	
27		12-19-97	
28		- Partial Sample	
28		12-19-97	
29		- Retrieved Partial Sample Stroke Length	
29		12-19-97	
30		- Lithium Bromide	
30		12-19-97	
31		- X-Ray	
31		12-19-97	
32		- Partial Sample	
32		12-19-97	
33		- Retrieved Partial Sample Stroke Length	
33		12-19-97	
34		- Lithium Bromide	
34		12-19-97	
35		- X-Ray	
35		12-19-97	
36		- Partial Sample	
36		12-19-97	
37		- Retrieved Partial Sample Stroke Length	
37		12-19-97	
38		- Lithium Bromide	
38		12-19-97	
39		- X-Ray	
39		12-19-97	
40		- Partial Sample	
40		12-19-97	
41		- Retrieved Partial Sample Stroke Length	
41		12-19-97	
42		- Lithium Bromide	
42		12-19-97	
43		- X-Ray	
43		12-19-97	
44		- Partial Sample	
44		12-19-97	
45		- Retrieved Partial Sample Stroke Length	
45		12-19-97	
46		- Lithium Bromide	
46		12-19-97	
47		- X-Ray	
47		12-19-97	
48		- Partial Sample	
48		12-19-97	
49		- Retrieved Partial Sample Stroke Length	
49		12-19-97	
50		- Lithium Bromide	
50		12-19-97	
51		- X-Ray	
51		12-19-97	
52		- Partial Sample	
52		12-19-97	
53		- Retrieved Partial Sample Stroke Length	
53		12-19-97	
54		- Lithium Bromide	
54		12-19-97	
55		- X-Ray	
55		12-19-97	
56		- Partial Sample	
56		12-19-97	
57	</		

5977002429

HNF-SD-WM-DP-292 REV. 0

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Field Comments:

Dec. 19, 1997 2:10PM E1 WHC 222S LAB ROOM 2F BACKSIDE

3) Reinforced By (SIGN and PRINT)

(14) Processed by (SIGN and PRINT)

(15) Date/time

RECEIVED COMMUNITIES

Relinquished By (Sign and PRINT)

(118) Received by ASK and HAIN

1991

(C) INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

} Relinquished By (Sign and PRINT)

(22) RECEIVED BY AIR MAIL

1507 DATE/ TIME

157

ii) Reinquilished By (Sign and PRINT)

(126) Received by (Sign and PRINT)

12/16/11

המחלקה לבריאות הציבור, משרד הבריאות, תל אביב, ישראל

CHAIN-OF-CUSTODY RECORD FOR CPO

Sample Number 02C-TX-97-28		(2) Supervisor/Sampler James Sicks	
(3) Tank 02C-TX-802C	(4) Bag 1/11-19-97	(5) Seal Number 6001L	(6) Date/Time 12-11-97
Shipment Description: 1/11-TX-802C 1/11-19-97			
A. Work Package Number 02S-97-00184		(7) Sampling Data ☐ Lithium Bromide ☒ Amount ☐ Concentration ☐ X-Ray ☒ Partial Sample ☐ Retrieved Partial Sample Stroke Length N/A	
B. Packaging Seal Number 18895		(12) Laboratory Comments: S977002432	
C. Date Sample Collected 12-19-97			
D. Time Sample Collected 1055			

Field Comments:

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HNF-SD-WM-DP-292 REV. 0

(8) Requisitioned By (Sign and PRINT) James Sicks	(14) Received By (Sign and PRINT) James Sicks	(15) Date/Time 11/45	(16) Receiver Comments
(9) Requisitioned By (Sign and PRINT) James Sicks	(17) Received By (Sign and PRINT) James Sicks	(18) Date/Time 12-11-97	(20) Receiver Comments
(10) Requisitioned By (Sign and PRINT) James Sicks	(21) Received By (Sign and PRINT) James Sicks	(22) Date/Time 12-19-97	(24) Receiver Comments
(25) Requisitioned By (Sign and PRINT)	(26) Received By (Sign and PRINT)	(27) Date/Time	(28) Receiver Comments

Dec. 19, 1997 - 2:11PM WHC 222S LAB ROOM 2F BACKSIDE

No. 9438 P. 5/6

CHAIN-OF-CUSTODY RECORD FOR CPO

Dec. 19, 1997 - 2:10 PM		WHC 2225 LAB ROOM 2F BACKSIDE		No. 94389 P. 3/6	
(1) Sample Number 202-7X-97-34		(2) Subject/Donor/Sampler James Sticks		(3) Seal Intact Upon Release? ☒ Yes ☐ No	
(4) Date 12/17/97		(5) Receiving Serial No. 6001 A		(6) Seal Intact Upon Receipt? ☒ Yes ☐ No	
(7) Shipment Description Level Cage Aired		(8) Sampling Date 12-19-97		(9) Seal Number AND Certifying SERIAL Number consistent with this record? (Block 5 & 8b) ☒ Yes ☐ No	
(10) A. Work Package Number WDS-97-00184		(11) B. Sealing Seal Number 12361		(12) Laboratory Comments: 5977002430	
(13) C. Date Sample Collected 12-19-97		(14) Concentration N/A		(15) Date/Time 12-19-97	
(16) D. Time Sample Collected 1100		(17) Partial Sample ☒		(18) Date/Time 12-22-97	
(19) Field Comments: Retrieved Partial Sample Stroke Length N/A		(20) X-Ray ☒		(21) Date/Time 12-29-97	
(22) Requisitioned By (Sign and PRINT) James Sticks		(23) Received By (Sign and PRINT) James Sticks		(24) Receiver Comments 130-97	
(25) Requisitioned By (Sign and PRINT) James Sticks		(26) Received By (Sign and PRINT) James Sticks		(27) Receiver Comments 130-97	
(28) Requisitioned By (Sign and PRINT) James Sticks		(29) Received By (Sign and PRINT) James Sticks		(30) Receiver Comments 130-97	
(31) Requisitioned By (Sign and PRINT) James Sticks		(32) Received By (Sign and PRINT) James Sticks		(33) Receiver Comments 130-97	
(34) Requisitioned By (Sign and PRINT) James Sticks		(35) Received By (Sign and PRINT) James Sticks		(36) Receiver Comments 130-97	
(37) Requisitioned By (Sign and PRINT) James Sticks		(38) Received By (Sign and PRINT) James Sticks		(39) Receiver Comments 130-97	
(40) Requisitioned By (Sign and PRINT) James Sticks		(41) Received By (Sign and PRINT) James Sticks		(42) Receiver Comments 130-97	
(43) Requisitioned By (Sign and PRINT) James Sticks		(44) Received By (Sign and PRINT) James Sticks		(45) Receiver Comments 130-97	
(46) Requisitioned By (Sign and PRINT) James Sticks		(47) Received By (Sign and PRINT) James Sticks		(48) Receiver Comments 130-97	
(49) Requisitioned By (Sign and PRINT) James Sticks		(50) Received By (Sign and PRINT) James Sticks		(51) Receiver Comments 130-97	
(52) Requisitioned By (Sign and PRINT) James Sticks		(53) Received By (Sign and PRINT) James Sticks		(54) Receiver Comments 130-97	
(55) Requisitioned By (Sign and PRINT) James Sticks		(56) Received By (Sign and PRINT) James Sticks		(57) Receiver Comments 130-97	
(58) Requisitioned By (Sign and PRINT) James Sticks		(59) Received By (Sign and PRINT) James Sticks		(60) Receiver Comments 130-97	
(61) Requisitioned By (Sign and PRINT) James Sticks		(62) Received By (Sign and PRINT) James Sticks		(63) Receiver Comments 130-97	
(64) Requisitioned By (Sign and PRINT) James Sticks		(65) Received By (Sign and PRINT) James Sticks		(66) Receiver Comments 130-97	
(67) Requisitioned By (Sign and PRINT) James Sticks		(68) Received By (Sign and PRINT) James Sticks		(69) Receiver Comments 130-97	
(70) Requisitioned By (Sign and PRINT) James Sticks		(71) Received By (Sign and PRINT) James Sticks		(72) Receiver Comments 130-97	
(73) Requisitioned By (Sign and PRINT) James Sticks		(74) Received By (Sign and PRINT) James Sticks		(75) Receiver Comments 130-97	
(76) Requisitioned By (Sign and PRINT) James Sticks		(77) Received By (Sign and PRINT) James Sticks		(78) Receiver Comments 130-97	
(79) Requisitioned By (Sign and PRINT) James Sticks		(80) Received By (Sign and PRINT) James Sticks		(81) Receiver Comments 130-97	
(82) Requisitioned By (Sign and PRINT) James Sticks		(83) Received By (Sign and PRINT) James Sticks		(84) Receiver Comments 130-97	
(85) Requisitioned By (Sign and PRINT) James Sticks		(86) Received By (Sign and PRINT) James Sticks		(87) Receiver Comments 130-97	
(88) Requisitioned By (Sign and PRINT) James Sticks		(89) Received By (Sign and PRINT) James Sticks		(90) Receiver Comments 130-97	
(91) Requisitioned By (Sign and PRINT) James Sticks		(92) Received By (Sign and PRINT) James Sticks		(93) Receiver Comments 130-97	
(94) Requisitioned By (Sign and PRINT) James Sticks		(95) Received By (Sign and PRINT) James Sticks		(96) Receiver Comments 130-97	
(97) Requisitioned By (Sign and PRINT) James Sticks		(98) Received By (Sign and PRINT) James Sticks		(99) Receiver Comments 130-97	
(100) Requisitioned By (Sign and PRINT) James Sticks		(101) Received By (Sign and PRINT) James Sticks		(102) Receiver Comments 130-97	
(103) Requisitioned By (Sign and PRINT) James Sticks		(104) Received By (Sign and PRINT) James Sticks		(105) Receiver Comments 130-97	
(106) Requisitioned By (Sign and PRINT) James Sticks		(107) Received By (Sign and PRINT) James Sticks		(108) Receiver Comments 130-97	
(109) Requisitioned By (Sign and PRINT) James Sticks		(110) Received By (Sign and PRINT) James Sticks		(111) Receiver Comments 130-97	
(112) Requisitioned By (Sign and PRINT) James Sticks		(113) Received By (Sign and PRINT) James Sticks		(114) Receiver Comments 130-97	
(115) Requisitioned By (Sign and PRINT) James Sticks		(116) Received By (Sign and PRINT) James Sticks		(117	

CHAIN-OF-CUSTODY RECORD FOR CPO

Sample Number 302-TX-97-38		(2) Suspect/Sample James Earl Ray	(9) Seal Intact Upon Release? ☒ Yes ☐ No
(3) Tank 711-TX-302C	(4) Risk Level 4	(5) Shipping Label No. 6001 H	(10) Seal Intact Upon Receipt? ☒ Yes ☐ No
Shipment Description: Work Package Number W5-97-00184			(11) Seal Number AND Casting SERIAL Number consistent with this record? (Block B & 58) ☒ Yes ☐ No

B. Casting/Seal Number Box 518/8	12391	Amount N/A
C. Date Sample Collected 12-15-97	12-19-97	Concentration N/A
D. Time Sample Collected 1105		X-Ray ☒
		Partial Sample ☒
		Retrieved Partial Sample Stroke Length N/A

Field Comments:

32

HNF-SD-WM-DP-292 REV. 0

(1) Requested By (Sign and PRINT) James Earl Ray	(14) Received By (Sign and PRINT) James Earl Ray	(15) Date/Time 11/1/97	(16) Receiver Comments
(7) Requested By (Sign and PRINT) James Earl Ray	(18) Received By (Sign and PRINT) James Earl Ray	(19) Date/Time 11/2-14-97	(20) Receiver Comments
(11) Requested By (Sign and PRINT) James Earl Ray	(22) Received By (Sign and PRINT) James Earl Ray	(23) Date/Time 12-15-97	(24) Receiver Comments
(5) Relinquished By (Sign and PRINT)	(26) Received By (Sign and PRINT)	(27) Date/Time	(28) Receiver Comments

HNH-SD-WM-DP-292, REV. 0

SAMPLE HANDLING

HNF-SD-WM-DP-292, REV. 0

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LABCORE Data Entry Template for Worklist# 21565

Analyst: KRM Instrument: NONE Book # _____

Method: LA-519-151 Rev/Mod F-0

Worklist Comment: TX302C, @BRKDWN1 skw

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
97000887	TX-302C	GRAB	1	SAMPLE	S97T002428	0	@BRKDWN1 DOSERATE	LIQUID	N/A	1		mrad/hour
97000887	TX-302C	GRAB	1	SAMPLE	S97T002428	0	@BRKDWN1 SEALNUM	LIQUID	N/A	12390		
97000887	TX-302C	GRAB	1	SAMPLE	S97T002428	0	@BRKDWN1 ETCHNUM	LIQUID	N/A	302C-TX-97-1A		
97000887	TX-302C	GRAB	1	SAMPLE	S97T002428	0	@BRKDWN1 APPEAR02	LIQUID	N/A	CLEAR		
97000887	TX-302C	GRAB	1	SAMPLE	S97T002428	0	@BRKDWN1 SAMPAMT2	LIQUID	N/A	60		mL
97000887	TX-302C	GRAB	1	SAMPLE	S97T002428	0	@BRKDWN1 STLSD01	LIQUID	N/A	41		%
97000887	TX-302C	GRAB	1	SAMPLE	S97T002428	0	@BRKDWN1 COLOR-01	LIQUID	N/A	COLORLESS		
97000887	TX-302C	GRAB	1	SAMPLE	S97T002428	0	@BRKDWN1 ORGVOL02	LIQUID	N/A	Ø		mL
97000887	TX-302C	GRAB	2	SAMPLE	S97T002431	0	@BRKDWN1 DOSERATE	LIQUID	N/A	1		mrad/hour
97000887	TX-302C	GRAB	2	SAMPLE	S97T002431	0	@BRKDWN1 SEALNUM	LIQUID	N/A	12359 12360		
97000887	TX-302C	GRAB	2	SAMPLE	S97T002431	0	@BRKDWN1 ETCHNUM	LIQUID	N/A	302C-TX-97-1B		
97000887	TX-302C	GRAB	2	SAMPLE	S97T002431	0	@BRKDWN1 APPEAR02	LIQUID	N/A	CLEAR		
97000887	TX-302C	GRAB	2	SAMPLE	S97T002431	0	@BRKDWN1 SAMPAMT2	LIQUID	N/A	60		mL
97000887	TX-302C	GRAB	2	SAMPLE	S97T002431	0	@BRKDWN1 STLSD01	LIQUID	N/A	41		%
97000887	TX-302C	GRAB	2	SAMPLE	S97T002431	0	@BRKDWN1 COLOR-01	LIQUID	N/A	COLORLESS		
97000887	TX-302C	GRAB	2	SAMPLE	S97T002431	0	@BRKDWN1 ORGVOL02	LIQUID	N/A	Ø		mL
97000887	TX-302C	GRAB	3	SAMPLE	S97T002429	0	@BRKDWN1 DOSERATE	LIQUID	N/A	1		mrad/hour
97000887	TX-302C	GRAB	3	SAMPLE	S97T002429	0	@BRKDWN1 SEALNUM	LIQUID	N/A	12359 12360		

Data Entry Comments:

SAMPLE S97T002428 Had A SHEEN ON TOP OF
THE LIQUIDS

LABCORE Data Entry Template for Worklist# 21565

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
97000887	TX-302C	GRAB	3	SAMPLE	S97T002429	0	@BRKDOWN1	ETCHNUM	LIQUID	N/A	302C - TX-97-2A	
97000887	TX-302C	GRAB	3	SAMPLE	S97T002429	0	@BRKDOWN1	APPEAR02	LIQUID	N/A	CLEAR	
97000887	TX-302C	GRAB	3	SAMPLE	S97T002429	0	@BRKDOWN1	SAMPAMT2	LIQUID	N/A	60	mL
97000887	TX-302C	GRAB	3	SAMPLE	S97T002429	0	@BRKDOWN1	STLSLD01	LIQUID	N/A	LI	%
97000887	TX-302C	GRAB	3	SAMPLE	S97T002429	0	@BRKDOWN1	COLOR-01	LIQUID	N/A	COLORLESS	
97000887	TX-302C	GRAB	3	SAMPLE	S97T002429	0	@BRKDOWN1	ORGVOL02	LIQUID	N/A	Ø	mL
97000887	TX-302C	GRAB	4	SAMPLE	S97T002432	0	@BRKDOWN1	DOSERATE	LIQUID	N/A	1	mrad/hour
97000887	TX-302C	GRAB	4	SAMPLE	S97T002432	0	@BRKDOWN1	SEALNUM	LIQUID	N/A	12395	
97000887	TX-302C	GRAB	4	SAMPLE	S97T002432	0	@BRKDOWN1	ETCHNUM	LIQUID	N/A	302C - TX-97-2B	
97000887	TX-302C	GRAB	4	SAMPLE	S97T002432	0	@BRKDOWN1	APPEAR02	LIQUID	N/A	CLEAR	
97000887	TX-302C	GRAB	4	SAMPLE	S97T002432	0	@BRKDOWN1	SAMPAMT2	LIQUID	N/A	60	mL
97000887	TX-302C	GRAB	4	SAMPLE	S97T002432	0	@BRKDOWN1	STLSLD01	LIQUID	N/A	LI	%
97000887	TX-302C	GRAB	4	SAMPLE	S97T002432	0	@BRKDOWN1	COLOR-01	LIQUID	N/A	COLORLESS	
97000887	TX-302C	GRAB	4	SAMPLE	S97T002432	0	@BRKDOWN1	ORGVOL02	LIQUID	N/A	Ø	mL
97000887	TX-302C	GRAB	5	SAMPLE	S97T002430	0	@BRKDOWN1	DOSERATE	LIQUID	N/A	1	mrad/hour
97000887	TX-302C	GRAB	5	SAMPLE	S97T002430	0	@BRKDOWN1	SEALNUM	LIQUID	N/A	12361	
97000887	TX-302C	GRAB	5	SAMPLE	S97T002430	0	@BRKDOWN1	ETCHNUM	LIQUID	N/A	302C - TX-97-3A	
97000887	TX-302C	GRAB	5	SAMPLE	S97T002430	0	@BRKDOWN1	APPEAR02	LIQUID	N/A	CLEAR	
97000887	TX-302C	GRAB	5	SAMPLE	S97T002430	0	@BRKDOWN1	SAMPAMT2	LIQUID	N/A	60	mL
97000887	TX-302C	GRAB	5	SAMPLE	S97T002430	0	@BRKDOWN1	STLSLD01	LIQUID	N/A	LI	%
97000887	TX-302C	GRAB	5	SAMPLE	S97T002430	0	@BRKDOWN1	COLOR-01	LIQUID	N/A	COLORLESS	

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# 21565

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
97000887	TX-302C	GRAB	5	SAMPLE	S97T002430	0	@BRKDOWN1 ORGVOL02	LIQUID	N/A	<u>Ø</u>		mL
97000887	TX-302C	GRAB	6	SAMPLE	S97T002433	0	@BRKDOWN1 DOSERATE	LIQUID	N/A	<u>3</u>		mrads/hour
97000887	TX-302C	GRAB	6	SAMPLE	S97T002433	0	@BRKDOWN1 SEALNUM	LIQUID	N/A	<u>12391</u>		
97000887	TX-302C	GRAB	6	SAMPLE	S97T002433	0	@BRKDOWN1 ETCHNUM	LIQUID	N/A	<u>302C-TX-923B</u>		
97000887	TX-302C	GRAB	6	SAMPLE	S97T002433	0	@BRKDOWN1 APPEAR02	LIQUID	N/A	<u>CLEAR</u>		
97000887	TX-302C	GRAB	6	SAMPLE	S97T002433	0	@BRKDOWN1 SAMPAMT2	LIQUID	N/A	<u>60</u>		mL
97000887	TX-302C	GRAB	6	SAMPLE	S97T002433	0	@BRKDOWN1 STLSLD01	LIQUID	N/A	<u>L1</u>		%
97000887	TX-302C	GRAB	6	SAMPLE	S97T002433	0	@BRKDOWN1 COLOR-01	LIQUID	N/A	<u>COLORLESS</u>		
97000887	TX-302C	GRAB	6	SAMPLE	S97T002433	0	@BRKDOWN1 ORGVOL02	LIQUID	N/A	<u>Ø</u>		mL

Final page for worklist # 21565

Analyst Signature

Date

12-23-97

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.

HNF-SD-WM-DP-292, REV. 0

INORGANIC ANALYSIS

HNF-SD-WM-DP-292, REV. 0

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worklist rpt Version 2.1 05/15/95
01/19/98 10:05

HNF-SD-WM-DP-292 REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 21898Analyst: RL Instrument: DSC0 3 Book # 12114BMethod: LA-514-114 Rev/Mod D-1

Worklist Comment: TX302C GRAB, DSC-01, Run under nitrogen. skw

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	LIQUID	<u>28.45</u>	<u>29.15</u>	<u>N/A</u>	Joules/g
97000887	TX-302C GRAB	2 SAMPLE	S98T000140	0	DSC-03	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g
97000887	TX-302C GRAB	3 DUP	S98T000140	0	DSC-03	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000887	TX-302C GRAB	4 SAMPLE	S98T000141	0	DSC-03	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g
97000887	TX-302C GRAB	5 DUP	S98T000141	0	DSC-03	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 21898

Not King 1/23/98
 Analyst Signature Date

et. P. 1/26/98
 Analyst Signature Date

Validated 4/28/98 [Signature]

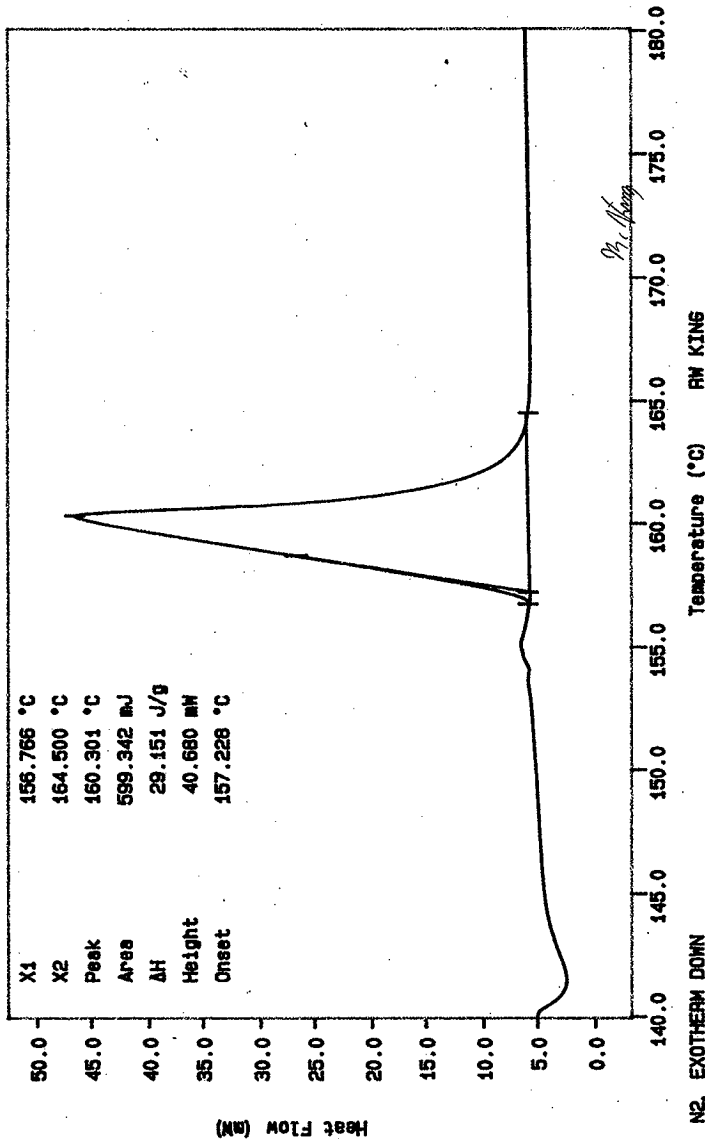
Data Entry Comments:

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-292 REV. 0

Curve 1: DSC
 File Info: IN0012301 Fri Jan 23 07: 10: 36 1998
 Sample Weight: 20.560 mg
 IN STD

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 41 TO 45

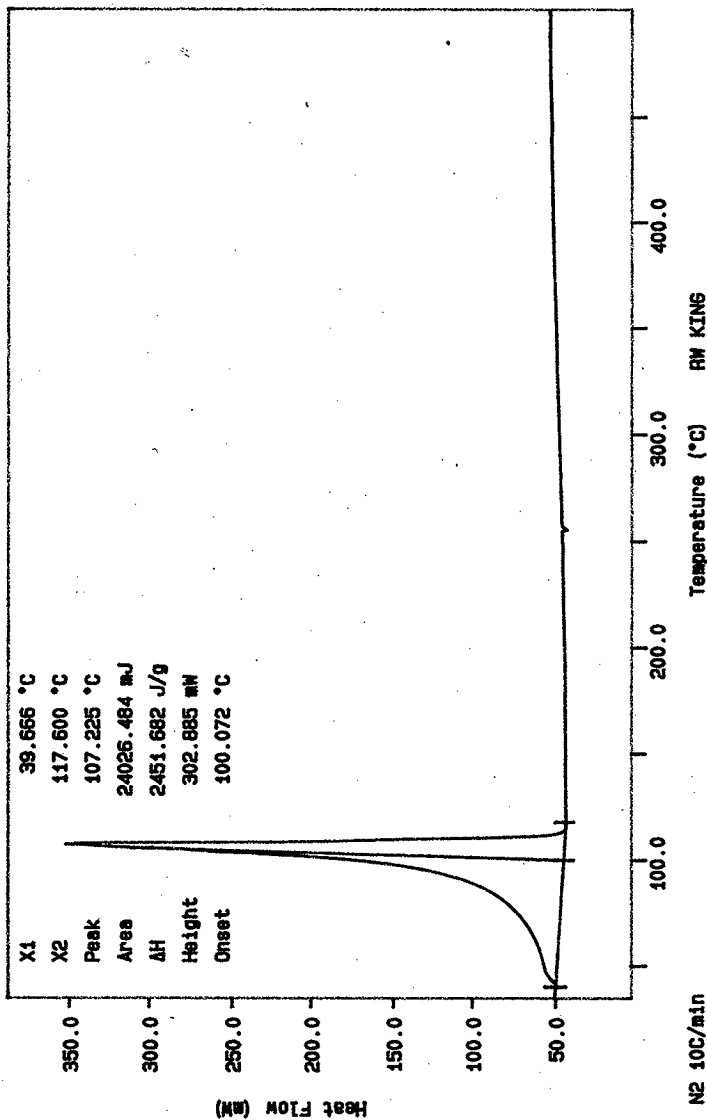


N2, EXOTHERM DOWN
 THERM 148.8 g THERM: 0.0 min RATE: 10.0 C/min
 RW KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fri Jan 23 07: 11: 18 1998

HNF-SD-WM-DP-292 REV. 0

Curve 1: DSC
 File Info: SAM012301 Fri Jan 23 08:17:57 1998
 Sample Weight: 9.800 mg
 S97T000142-08 1/24/98

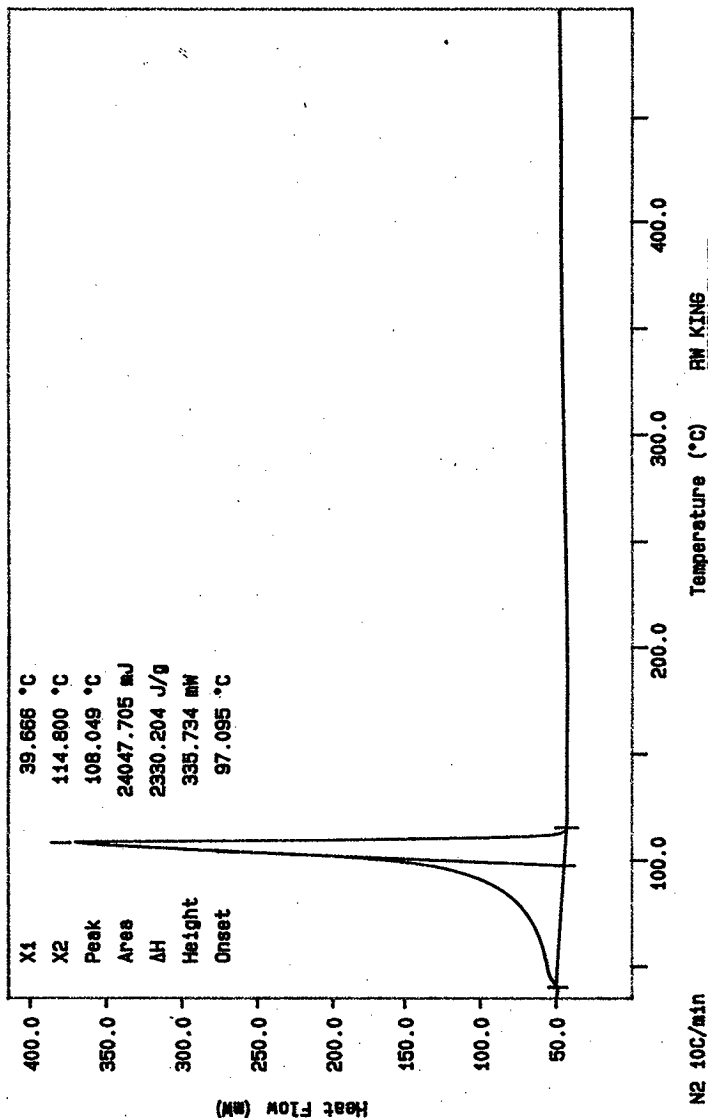
S97T000140



RW KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fri Jan 23 10:30:54 1998

HNF-SD-WM-DP-292 REV. 0

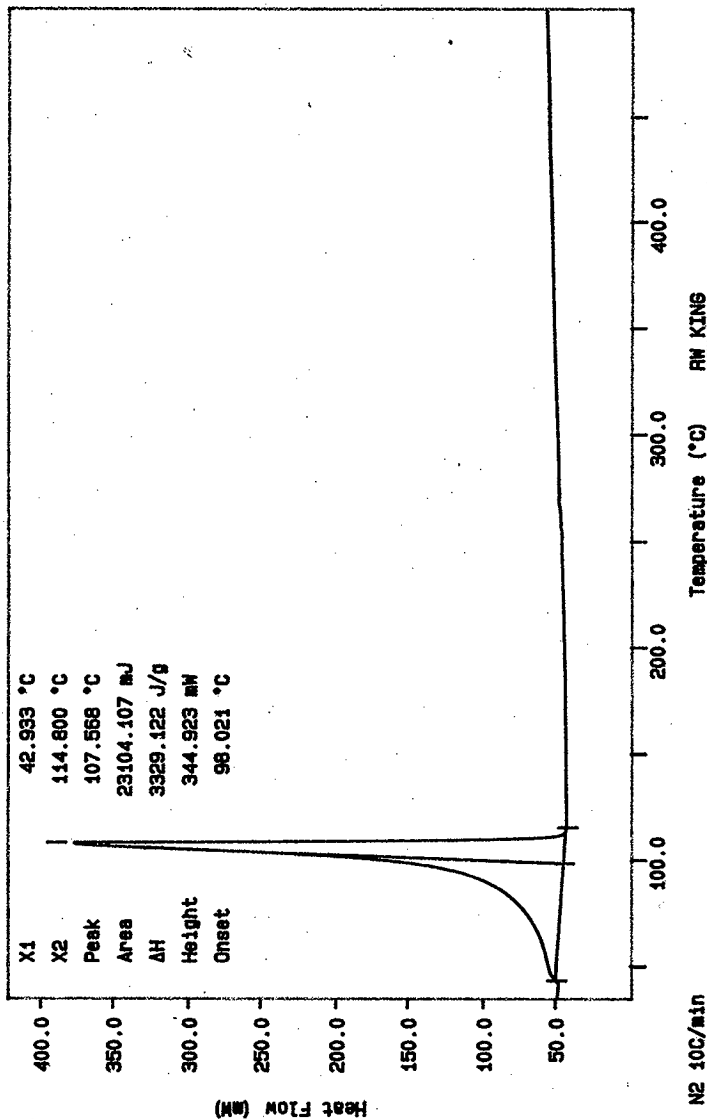
Curve 1: DSC
 File info: SAM012302 Fri Jan 23 10:35:41 1998
 Sample Weight: 10.320 mg
 S97T000140 DUP



PH KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fri Jan 23 10:46:13 1998

HNF-SD-WM-DP-292 REV. 0

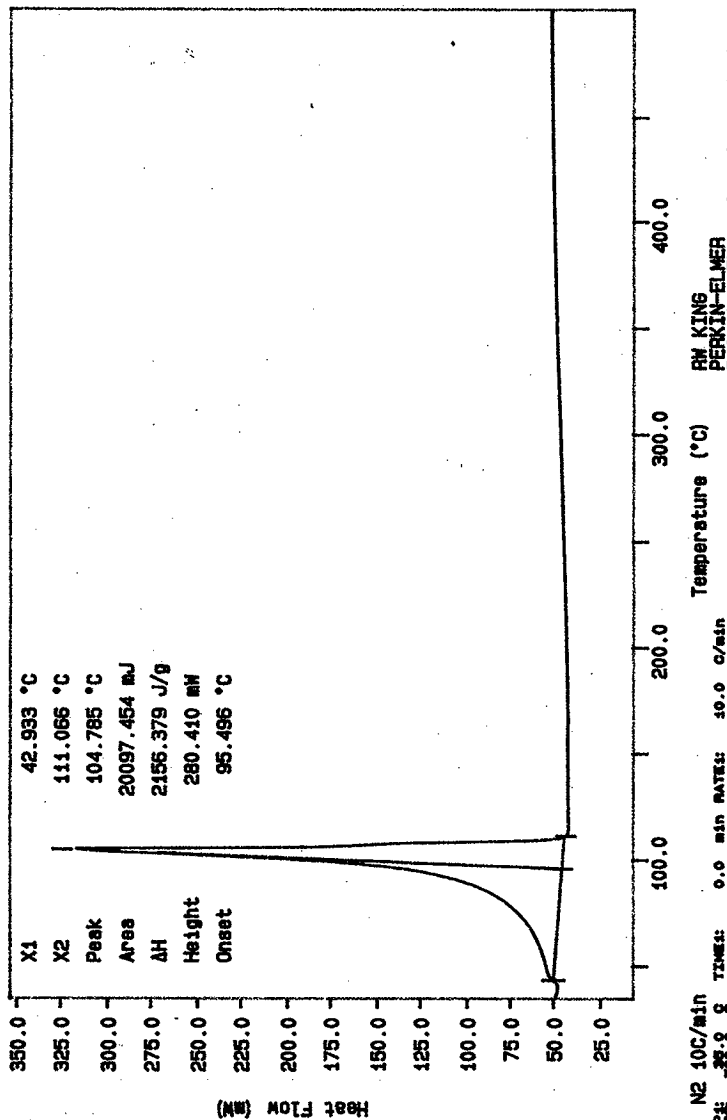
Curve 1: DSC
 File info: SAM012303 Fri Jan 23 11:31:21 1998
 Sample Weight: 6.940 mg
 S97T000141



N2 100/min
 TIME: 55.8 s
 RN KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fri Jan 23 11:35:29 1998

HNF-SD-WM-DP-292 REV. 0

Curve 1: DSC
 File Info: SAM012304 Fri Jan 23 12:27:51 1998
 Sample Weight: 9.320 mg
 S97T000141 DUP



RW KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fri Jan 23 13:54:32 1998

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01/19/98 10:10

HNF-SD-WM-DP-292 REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 21899

Analyst: MLK Instrument: DSC0 3 Book # 12714/8Method: LA-514-114 Rev/Mod D-1

Worklist Comment: TX302C GRAB, DSC-01, Run under nitrogen. skw

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	LIQUID	<u>28.45</u>	<u>29.13*</u>	<u>N/A</u>	Joules/g
97000887	TX-302C GRAB	2 SAMPLE	S98T000142	0	DSC-03	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g
97000887	TX-302C GRAB	3 DUP	S98T000142	0	DSC-03	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 21899

MLK 1/23/98
Analyst Signature Datepl ltrch 1/26/98
Analyst Signature DateValidated 1/28/98 Drachler

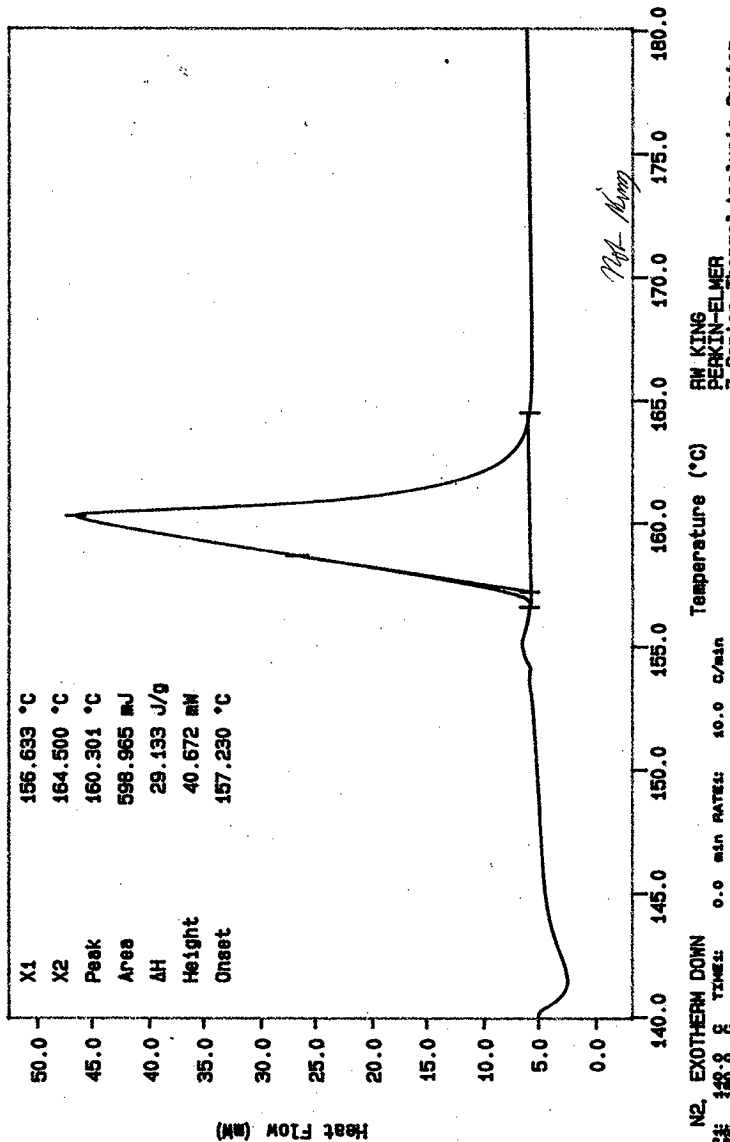
Data Entry Comments:

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-292 REV. 0

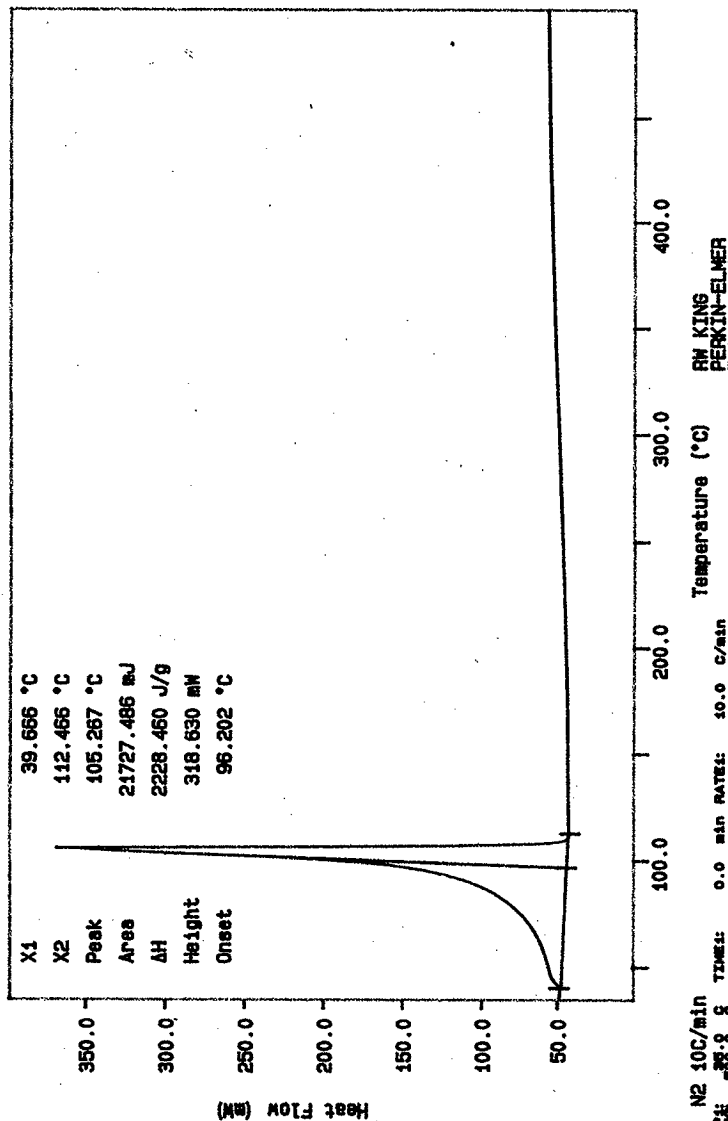
Curve 1: DSC
 File info: IND012301 Fr:1 Jan 23 07: 10: 36 1998
 Sample Weight: 20.560 mg
 IN STD

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 47 TO 49.



HNF-SD-WM-DP-292 REV. 0

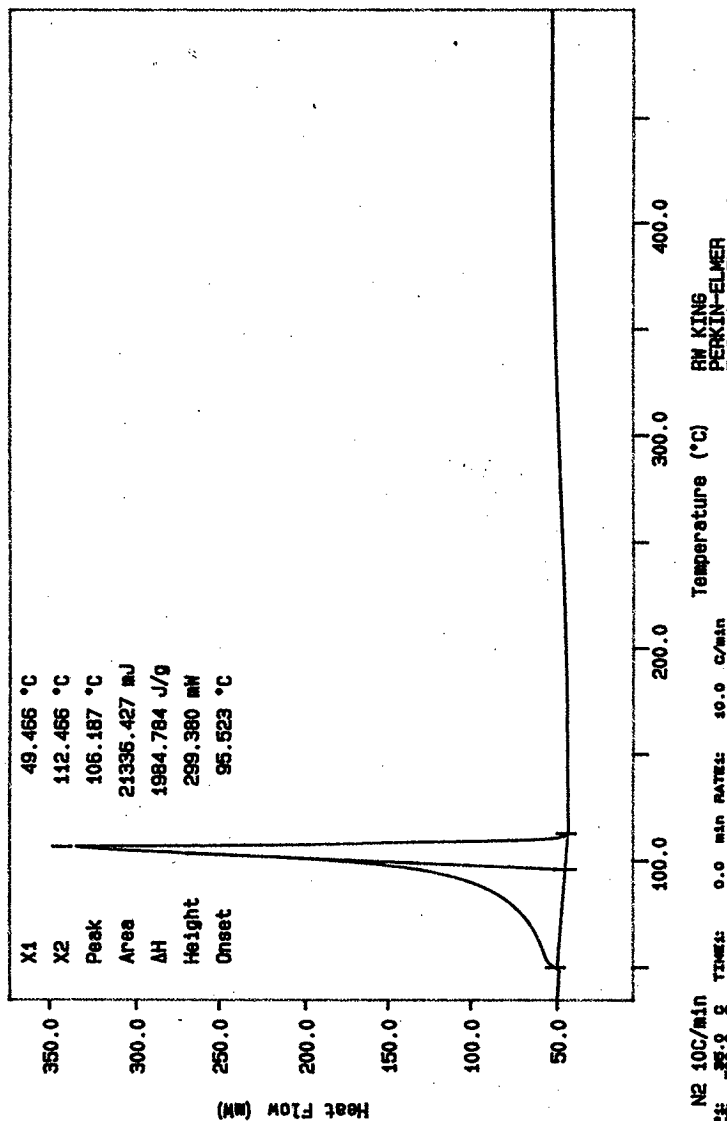
Curve 1: DSC
 File info: SAM012305 Fri Jan 23 14: 24: 27 1998
 Sample Weight: 9.750 mg
 S97T000142



RM KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fri Jan 23 14: 37: 18 1998

HNF-SD-WM-DP-292 REV. 0

Curve 1: DSC
 File info: S4W012308 Fri Jan 23 15: 27 1998
 Sample Weight: 10.750 mg
 S97T000142 DUP



RW KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fri Jan 23 15: 49 1998

LABCORE Data Entry Template for Worklist# 22049

Analyst: ppb Instrument: DSC0 2 Book # NA

Method: LA-514-113 Rev/Met Q2 1/28/98

Worklist Comment: DSC-02 TX-302C Grab liquid. -ppb

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
97000887	TX-302C GRAB	1 SAMPLE	S98T000140	0	DSC-02	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000887	TX-302C GRAB	2 DUP	S98T000140	0	DSC-02	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000887	TX-302C GRAB	3 SAMPLE	S98T000141	0	DSC-02	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000887	TX-302C GRAB	4 DUP	S98T000141	0	DSC-02	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000887	TX-302C GRAB	5 SAMPLE	S98T000142	0	DSC-02	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000887	TX-302C GRAB	6 DUP	S98T000142	0	DSC-02	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry

Final page for worklist # 22049

Q2 Machelo 1/28/98
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.

worklist rpt Version 2.1 05/15/95
01/19/98 10:06

HNF-SD-WM-DP-292 REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 21900

Analyst: ML Instrument: TGA0 3 Book # 103177-4

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

Worklist Comment: TX302C GRAB, TGA-01, Run under nitrogen. skw

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	LIQUID	<u>59.0</u>	<u>58.64</u>	<u>N/A</u>	%
97000887	TX-302C GRAB	2 SAMPLE	S98T000140	0	TGA-03	LIQUID	<u>N/A</u>	<u>99.82</u>		%
97000887	TX-302C GRAB	3 DUP	S98T000140	0	TGA-03	LIQUID	<u>99.82</u>	<u>99.60</u>	<u>N/A</u>	%
97000887	TX-302C GRAB	4 SAMPLE	S98T000141	0	TGA-03	LIQUID	<u>N/A</u>	<u>99.70</u>		%
97000887	TX-302C GRAB	5 DUP	S98T000141	0	TGA-03	LIQUID	<u>99.70</u>	<u>99.63</u>	<u>N/A</u>	%

Final page for worklist # 21900

ML 1/23/98
Analyst Signature Date

xt lab 1/26/98
Analyst Signature Date

Validated 1/28/98 Smachels

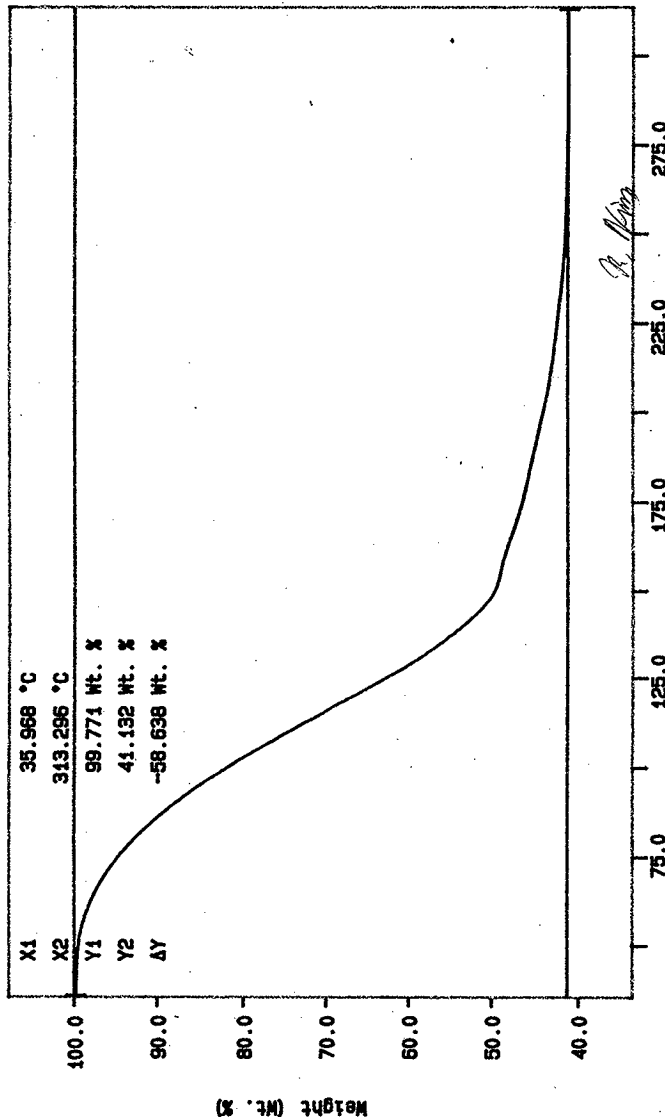
Data Entry Comments:

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-292 REV. 0

Curve 1: T8A
 File Info: TER012301 Fri Jan 23 07:32:45 1998
 Sample Weight: 12.353 mg
 STD 103N8-A

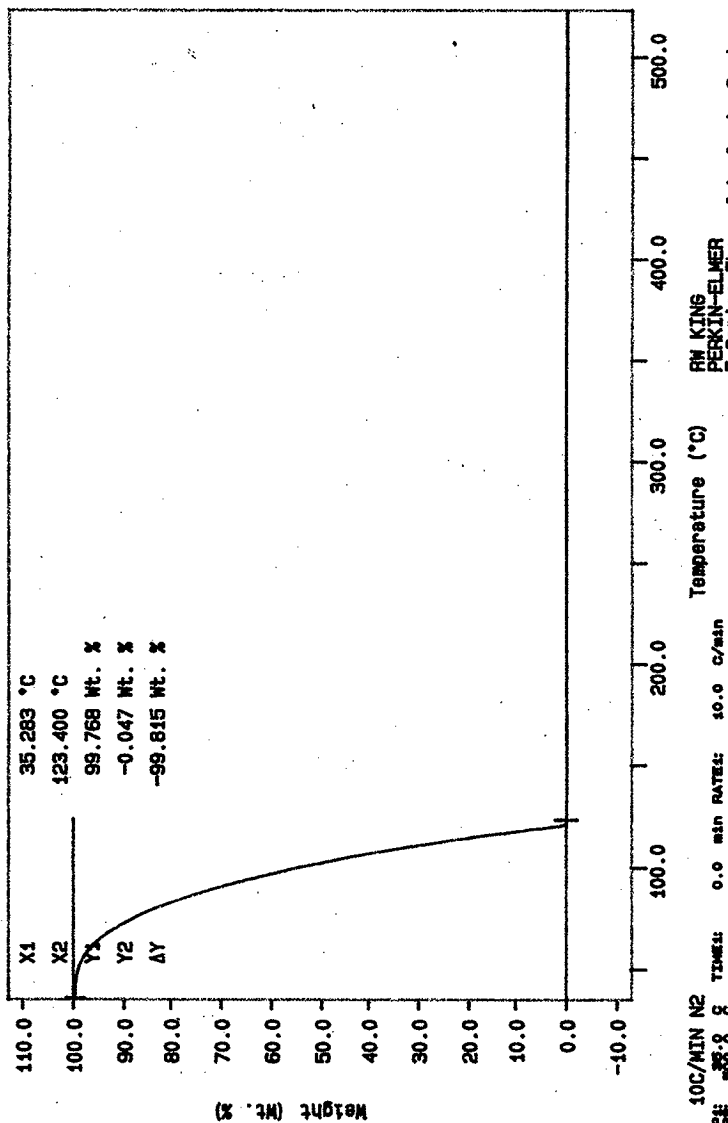
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 22 TO 26



10C/MIN N2
 RATE: 35.8 8 TIME: 0.0 min RATE: 10.0 g/min
 RW KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fri Jan 23 14:06:06 1998

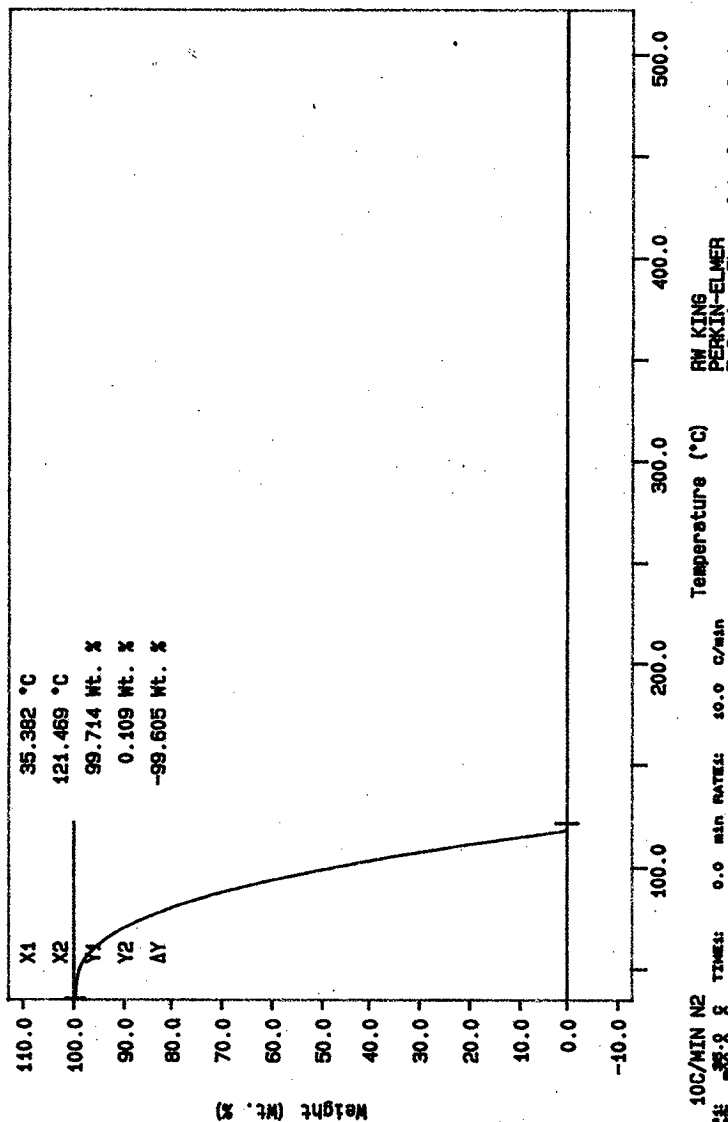
HNF-SD-WM-DP-292 REV. 0

Curve 1: TGA
File info: SAM012303 Fri Jan 23 11:25:33 1998
Sample Weight: 8.409 mg
S97T000140



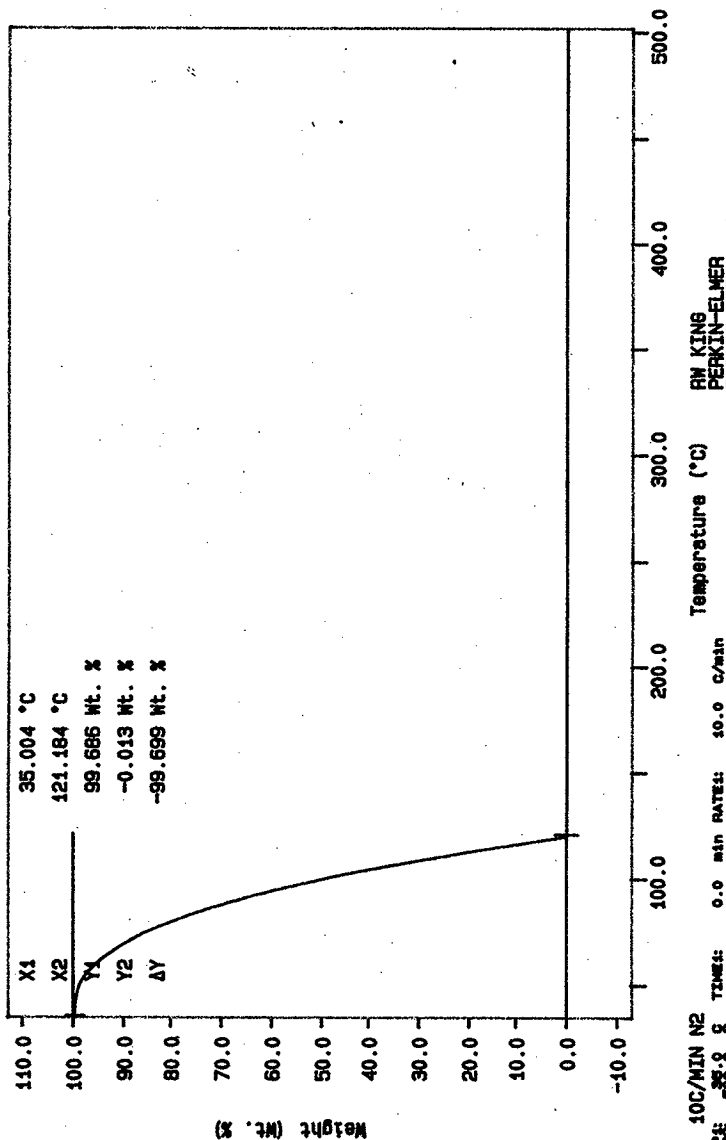
HNF-SD-WM-DP-292 REV. 0

Curve 1: TGA
File info: SAK012304 Fri Jan 23 12:32:46 1998
Sample Weight: 7.811 mg
S97T000140 DUP



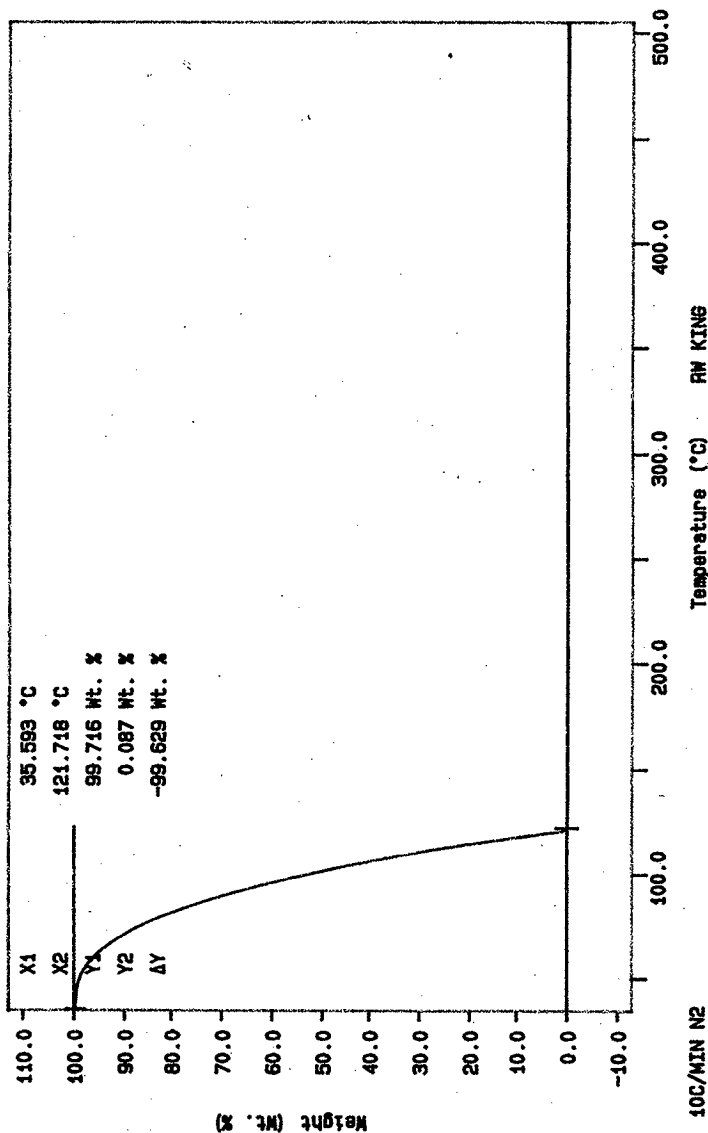
HNF-SD-WM-DP-292 REV. 0

Curve 1: TGA
 File info: SAM012305 Fri Jan 23 14: 15: 23 1998
 Sample Weight: 8.638 mg
 S97T000141



HNF-SD-WM-DP-292 REV. 0

Curve 1: TGA
 File Info: SAM012305 Fri Jan 23 15:18:58 1998
 Sample Weight: 9.068 mg
 S97T000141 DUP



RM KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fri Jan 23 15:18:58 1998

worklistrpt Version 2.1 05/15/95
01/23/98 07:04

HNF-SD-WM-DP-292 REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 21902Analyst: RL Instrument: TGA0 3 Book # 10378-AMethod: LA-514-114 Rev/Mod D-1

Worklist Comment: TX302C GRAB, TGA-01, Run under nitrogen. skw

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	LIQUID	<u>59.0</u>	<u>58.64*</u>	N/A	%
97000887	TX-302C GRAB	2 SAMPLE	S98T000142	0	TGA-03	LIQUID	N/A	<u>99.43</u>		%
97000887	TX-302C GRAB	3 DUP	S98T000142	0	TGA-03	LIQUID	<u>99.43</u>	<u>99.48</u>	N/A	%

Final page for worklist # 21902
RL
Analyst Signature Date 1/23/98
RL
Analyst Signature Date 1/26/98
Validated 1/28/98 JS

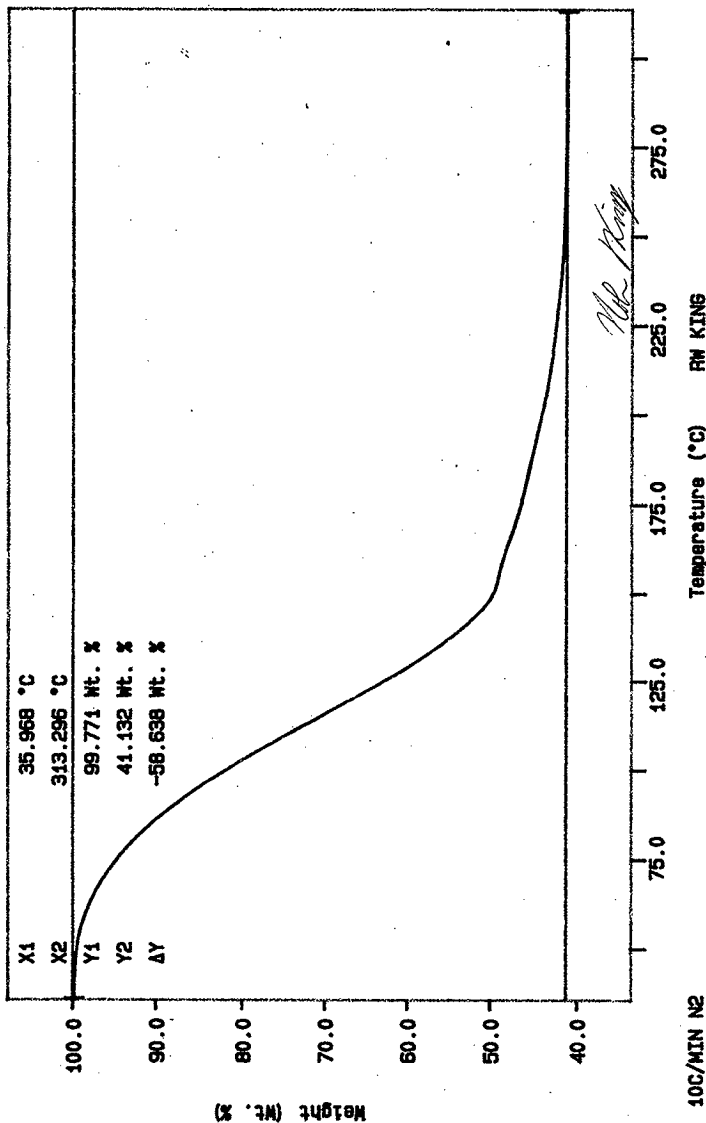
Data Entry Comments:

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-292 REV. 0

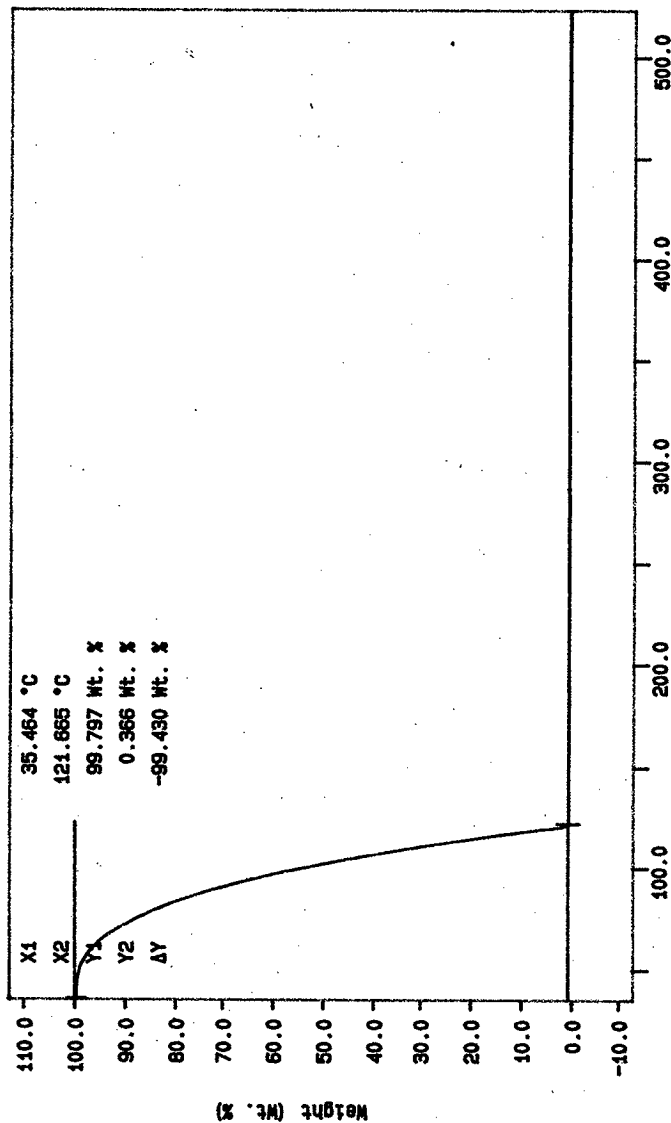
Curve 1: TGA
 File info: TER012301 Fri Jan 23 07:32:46 1998
 Sample Weight: 12.353 mg
 STD 403NB-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 58 TO 60



HNF-SD-WM-DP-292 REV. 0

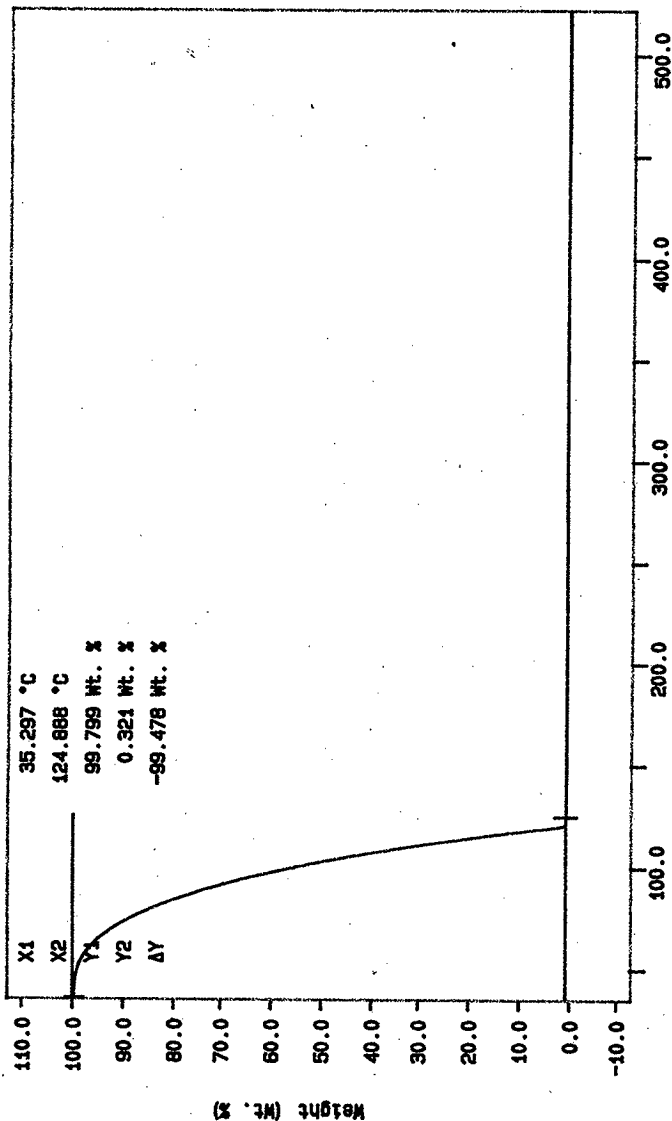
Curve 1: TGA
 File info: SAM012307 Fr-1 Jan 23 16:24:02 1998
 Sample Weight: 8.341 mg
 S97T000142



10C/MIN N2
 TIME: 55.8 S
 RM KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fr-1 Jan 23 16:27:55 1998

HNF-SD-WM-DP-292 REV. 0

Curve 1: TGA
File info: SAM012308 Fri Jan 23 17:34:22 1998
Sample Weight: 8.313 mg
S97T000142 DUP



RW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Jan 24 07:14:27 1998

LABCORE Data Entry Template for Worklist# 21903

Analyst: DPB Instrument: BA001 Book # 134N/6-C

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

Worklist Comment: TX302C GRAB, SPG-01, Use a cal. pipette. skw

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			SPG-01	LIQUID	<u>1.378</u>	<u>1.373</u>	<u>N/A</u>	Sp.G.
97000887	TX-302C GRAB	2 SAMPLE	S98T000140	0	SPG-01	LIQUID	<u>N/A</u>	<u>0.969</u>	<u>0.010</u>	Sp.G.
97000887	TX-302C GRAB	3 DUP	S98T000140	0	SPG-01	LIQUID	<u>0.969</u>	<u>0.988</u>	<u>N/A</u>	Sp.G.
97000887	TX-302C GRAB	4 SAMPLE	S98T000141	0	SPG-01	LIQUID	<u>N/A</u>	<u>0.992</u>	<u>0.010</u>	Sp.G.
97000887	TX-302C GRAB	5 DUP	S98T000141	0	SPG-01	LIQUID	<u>0.992</u>	<u>0.987</u>	<u>N/A</u>	Sp.G.
97000887	TX-302C GRAB	6 SAMPLE	S98T000142	0	SPG-01	LIQUID	<u>N/A</u>	<u>0.987</u>	<u>0.010</u>	Sp.G.
97000887	TX-302C GRAB	7 DUP	S98T000142	0	SPG-01	LIQUID	<u>0.987</u>	<u>0.989</u>	<u>N/A</u>	Sp.G.

Final page for worklist # 21903

Analyst Signature

Date

Analyst Signature

Date

Approved AW Schroeder

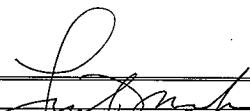
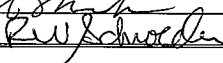
1/22/98

Data Entry Comments:

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		STD	REPLICATE
STD	Gross Weight (W2)	1.4757	1.4803
Work List	Tare Weight (W1)	1.3719	1.3782
21903	Weight of Solution (W2-W1)	0.1038	0.1021
Test Code	Volume of Solution μ L	75.0000	75.0000
SPG-01	Specific Gravity	1.3840	1.3613
Matrix	Specific Gravity (Average)	1.3727	
LIQUID			
Sample #			
STD#134N16C			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DPB	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
01/21/98	$\vee$ RESULT $\vee$		
Time	Specific Gravity Average =	1.373	
02:15 PM			

Data Entry by:		Date:	01/21/98
Approved by:		Date:	1/22/98

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.4666	1.4495
Work List	Tare Weight (W1)	1.3939	1.3754
21903	Weight of Solution (W2-W1)	0.0727	0.0741
Test Code	Volume of Solution μ L	75.0000	75.0000
SPG-01	Specific Gravity	0.9693	0.9880
Matrix	Specific Gravity (Average)	0.9787	
LIQUID			
Sample #			
S98T000140			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DPB	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L}/\text{mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
01/21/98	v RESULT v		
Time	Specific Gravity Average =	0.979	
02:15 PM			

Data Entry by:	<i>[Signature]</i>	Date:	01/21/98
Approved by:	<i>[Signature]</i>	Date:	1/22/98

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.4164	1.4667
Work List	Tare Weight (W1)	1.3420	1.3927
21903	Weight of Solution (W2-W1)	0.0744	0.074
Test Code	Volume of Solution μ L	75.0000	75.0000
SPG-01	Specific Gravity	0.9920	0.9867
Matrix	Specific Gravity (Average)	0.9893	
LIQUID			
Sample #			
S98T000141			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DPB	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
01/21/98	∇ RESULT ∇		
Time	Specific Gravity Average =	0.989	
02:15 PM			

Data Entry by: *[Signature]* Date: 01/21/98
 Approved by: *[Signature]* Date: 1/22/98

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.4501	1.4674
Work List	Tare Weight (W1)	1.3761	1.3932
21903	Weight of Solution (W2-W1)	0.074	0.0742
Test Code	Volume of Solution μ L	75.0000	75.0000
SPG-01	Specific Gravity	0.9867	0.9893
Matrix	Specific Gravity (Average)	0.9880	
LIQUID			
Sample #			
S98T000142			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DPB	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
01/21/98	v RESULT v		
Time	Specific Gravity Average =	0.988	
02:15 PM			

Data Entry by:

Date:

01/21/98

Approved by:

Date:

1/22/98

LABCORE Data Entry Template for Worklist# 21945

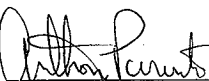
Analyst: ADP Instrument: PH01 _____ Book # 18N19-C

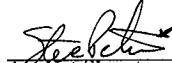
Method: LA-212-106 Rev/Mod C-D

Worklist Comment: PH-01, TX-302C, TDM

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STDPH				PH-01	LIQUID	<u>7.00</u>	<u>7.01</u>	<u>N/A</u>	pH
97000887	TX-302C GRAB	2	SAMPLE	S98T000140	0		PH-01	LIQUID	<u>N/A</u>	<u>8.83</u>	<u>0.01</u>	pH
97000887	TX-302C GRAB	3	DUP	S98T000140	0		PH-01	LIQUID	<u>8.83</u>	<u>8.83</u>	<u>N/A</u>	pH
97000887	TX-302C GRAB	4	SAMPLE	S98T000141	0		PH-01	LIQUID	<u>N/A</u>	<u>8.67</u>	<u>0.01</u>	pH
97000887	TX-302C GRAB	5	DUP	S98T000141	0		PH-01	LIQUID	<u>8.67</u>	<u>8.67</u>	<u>N/A</u>	pH
97000887	TX-302C GRAB	6	SAMPLE	S98T000142	0		PH-01	LIQUID	<u>N/A</u>	<u>8.77</u>	<u>0.01</u>	pH
97000887	TX-302C GRAB	7	DUP	S98T000142	0		PH-01	LIQUID	<u>8.77</u>	<u>8.77</u>	<u>N/A</u>	pH

Final page for worklist # 21945


Analyst Signature _____ Date 1-22-98


Analyst Signature _____ Date 1-22-98

Approved RW Schaefer 1/26/98

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# 21906

Analyst: KRM

Instrument: PH01

Book # 101N8A

Method: LA-211-102 Rev/Mod D-O

Worklist Comment: TX302C GRAB, OH-01, STD: .050mL skw

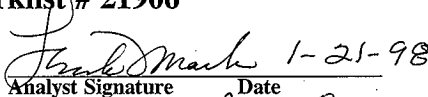
GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK			OH-01	LIQUID	<u>1</u>	<u><42</u>	<u>N/A</u>	ug/mL
		2 STD			OH-01	LIQUID	<u>1.66e⁺⁴</u>	<u>1.65e⁺⁴</u>	<u>N/A</u>	ug/mL
97000887	TX-302C GRAB	3 SAMPLE	S98T000140	0	OH-01	LIQUID	<u>N/A</u>	<u><42</u>	<u>4.17e⁺¹</u>	ug/mL
97000887	TX-302C GRAB	4 DUP	S98T000140	0	OH-01	LIQUID	<u><42</u>	<u><42</u>	<u>N/A</u>	ug/mL
97000887	TX-302C GRAB	5 SAMPLE	S98T000141	0	OH-01	LIQUID	<u>N/A</u>	<u>7.80e⁺¹</u>	<u>4.17e⁺¹</u>	ug/mL
97000887	TX-302C GRAB	6 DUP	S98T000141	0	OH-01	LIQUID	<u>7.80e⁺¹</u>	<u><42</u>	<u>N/A</u>	ug/mL
97000887	TX-302C GRAB	7 SAMPLE	S98T000142	0	OH-01	LIQUID	<u>N/A</u>	<u><42</u>	<u>4.17e⁺¹</u>	ug/mL
97000887	TX-302C GRAB	8 DUP	S98T000142	0	OH-01	LIQUID	<u><42</u>	<u><42</u>	<u>N/A</u>	ug/mL

Final page for worklist # 21906



Analyst Signature Date

1-21-98



Analyst Signature Date

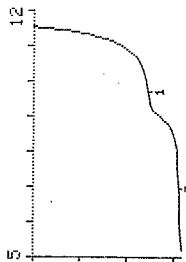
1-21-98

Approved RW Schroeder
1/23/98

Data Entry Comments:

date 98-01-21 time 06:35
 GET pH 12 # 216
 Id.#1 1
 Id.#2 .1994
 pH 11.50
 pH(init) 7.26
 V/ml .244
 EP1 .311 9.88
 EP2 6.85
 stop volt.reached
 =====

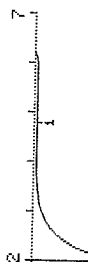
date 98-01-21 time 06:36
 GET pH 12 # 216
 .10ml/div dPH=1/div
 start V .000 ml



STD 10108A
 .05M

date 98-01-21 time 06:29
 GET pH 12 # 215
 Id.#1 1
 Id.#2 .1994
 pH 5.26
 pH(init) 7.68
 V/ml .008
 EP1 4.80
 stop volt.reached
 =====

date 98-01-21 time 06:29
 GET pH 12 # 215
 .10ml/div dPH=1/div
 start V .000 ml



B/LK

598T000140

date 98-01-21 time 10:30
 GET pH 12 # 218
 Id.#1 1
 Id.#2 .1994
 pH 7.68
 pH(init) 7.64
 V/ml .017
 EP1 6.21
 EP2 5.39
 EP3 4.16
 EP4 .147
 stop volt.reached
 =====

date 98-01-21 time 10:31
 GET pH 12 # 218
 .10ml/div dPH=1/div
 start V .000 ml



3M DIRECT

date 98-01-21 time 10:56
 GET pH 12 # 219
 Id.#1 1
 Id.#2 .1994
 pH 7.64
 pH(init) 7.64
 V/ml .021
 EP1 7.26
 EP2 5.35
 EP3 .146
 stop volt.reached
 =====

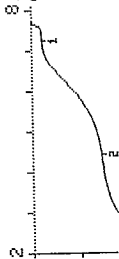
date 98-01-21 time 10:57
 GET pH 12 # 219
 .10ml/div dPH=1/div
 start V .000 ml



598T000140 DUP
 3M DIRECT

date 98-01-21 time 11:43
 GET pH 12 # 223
 Id.#1 1
 Id.#2 .1994
 pH(init) 7.67
 V/ml
 EP1 .021 7.28
 EP2 .143 4.45
 stop volt.reached
 =====

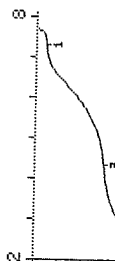
date 98-01-21 time 11:45
 GET pH 12 # 223
 Id.#1 1
 Id.#2 .10ml/div dPH=1/div
 start V .000 ml



598T000142 Dup
 3mL DIRECT

date 98-01-21 time 11:31
 GET pH 12 # 222
 Id.#1 1
 Id.#2 .1994
 pH(init) 7.71
 V/ml
 EP1 .021 7.31
 EP2 .144 4.33
 stop volt.reached
 =====

date 98-01-21 time 11:32
 GET pH 12 # 222
 Id.#1 1
 Id.#2 .10ml/div dPH=1/div
 start V .000 ml



598T000142

3mL DIRECT

date 98-01-21 time 11:15
 GET pH 12 # 221
 Id.#1 1
 Id.#2 .1994
 pH(init) 7.59
 V/ml
 EP1 .021 7.19
 EP2 .143 4.32
 stop volt.reached
 =====

date 98-01-21 time 11:15
 GET pH 12 # 221
 Id.#1 1
 Id.#2 .10ml/div dPH=1/div
 start V .000 ml



598T000141 Dup

3mL DIRECT

date 98-01-21 time 11:04
 GET pH 12 # 220
 Id.#1 1
 Id.#2 .1994
 pH(init) 7.59
 V/ml
 EP1 .069 6.12
 EP2 .144 4.30
 stop volt.reached
 =====

date 98-01-21 time 11:05
 GET pH 12 # 220
 Id.#1 1
 Id.#2 .10ml/div dPH=1/div
 start V .000 ml



598T000141

3mL DIRECT

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

OH (AUTO) : LA-211-102 (D-0)		STD
Type	Sample Size (mL) SS	0.050
STD	Concentration of HNO3 (Molarity)	0.1994
Work List	HNO3 Titrant at OH end-point in mL	0.244
21906	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	9.73E-01
OH-01	OH in Sample in µg/mL (PPM)	1.65E+04
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
STD#101N8A		
Instrument Code	Detection Limit (µg/mL)	2.50E+03
PH01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
KRM		
Date	OH in µg/mL = (OH MOLARITY)*((17.0g/mole)*((1000000µg/g)/(1000mL/L))	
01/21/98		
Time		
		STD
	Concentration of OH in Sample (Molarity)	9.73E-01
	OH in Sample in µg/mL (PPM)	1.65E+04

Data Entry by:

Date: 01/21/98

Approved by:

Date: 1/22/98

Form 211102_1 Rev. 1.3

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		BLANK
Type	Sample Size (mL) SS	3.000
BLANK	Concentration of HNO3 (Molarity)	0.1994
Work List	HNO3 Titrant at OH end-point in mL	0.008
21906	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	5.32E-04
OH-01	OH in Sample in µg/mL (PPM)	9.04E+00

Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
Instrument Code	Detection Limit (µg/mL)	4.17E+01
PH01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
KRM		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
01/21/98		
Time		
		BLANK
Concentration of OH in Sample (Molarity)		5.32E-04
OH in Sample in µg/mL (PPM)		<42

The Result is < Detection Limit

Data Entry by:	Date: 01/21/98
Approved by: <i>Rw Schroeder</i>	Date: 1/22/98

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

	SAMPLE
Type	Sample Size (mL) SS
SAMPLE	Concentration of HNO ₃ (Molarity)
Work List	HNO ₃ Titrant at OH end-point in mL
21906	Dilution Factor DF
Test Code	Concentration of OH in Sample (Molarity)
OH-01	OH in Sample in µg/mL (PPM)

Matrix	
LIQUID	
Sample #	Detection Limit = 125µg / SS * DF
S98T000140	
Instrument Code	Detection Limit (µg/mL)
PH01	4.17E+01

Analyst	OH Molarity = ((mL HNO ₃)*(M HNO ₃))/Sample Size in mL*Dilution Factor
KRM	
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))
01/21/98	

Time	SAMPLE
	Concentration of OH in Sample (Molarity)
	1.13E-03
	OH in Sample in µg/mL (PPM)
	<42

The Result is < Detection Limit

Data Entry by:	Date: 01/21/98
Approved by:	Date: 1/22/98
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PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

OH (AUTO) : LA-211-102 (D-0)		DUP
Type	Sample Size (mL) SS	3.000
DUP	Concentration of HNO3 (Molarity)	0.1994
Work List	HNO3 Titrant at OH end-point in mL	0.021
21906	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.40E-03
OH-01	OH in Sample in µg/mL (PPM)	2.37E+01
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S98T000140		
Instrument Code	Detection Limit (µg/mL)	4.17E+01
PH01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
KRM		
Date	OH in µg/mL = (OH MOLARITY)*((17.0g/mole)*((1000000µg/g)/(1000mL/L))	
01/21/98		
Time		DUP
	Concentration of OH in Sample (Molarity)	1.40E-03
	OH in Sample in µg/mL (PPM)	<42

The Result is < Detection Limit

Data Entry by:	Date:	01/21/98
Approved by:	Date:	1/22/98
Form 211102_1 Rev. 1.3		Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

OH (AUTO) : LA-211-102 (D-0)		SAMPLE
Type	Sample Size (mL) SS	3.000
SAMPLE	Concentration of HNO3 (Molarity)	0.1994
Work List	HNO3 Titrant at OH end-point in mL	0.069
21906	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	4.59E-03
OH-01	OH in Sample in µg/mL (PPM)	7.80E+01
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S98T000141		
Instrument Code	Detection Limit (µg/mL)	4.17E+01
PH01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
KRM		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
01/21/98		
Time		
	Concentration of OH in Sample (Molarity)	4.59E-03
	OH in Sample in µg/mL (PPM)	7.80E+01

Data Entry by:

Date: 01/21/98

Approved by:

Date: 1/22/98

Form 211102_1 Rev. 1.3

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		DUP
Type	Sample Size (mL) SS	3.000
DUP	Concentration of HNO3 (Molarity)	0.1994
Work List	HNO3 Titrant at OH end-point in mL	0.021
21906	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.40E-03
OH-01	OH in Sample in µg/mL (PPM)	2.37E+01

Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S98T000141		
Instrument Code	Detection Limit (µg/mL)	4.17E+01
PH01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
KRM		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
01/21/98		
Time		
		DUP
Concentration of OH in Sample (Molarity)		1.40E-03
OH in Sample in µg/mL (PPM)		<42

The Result is < Detection Limit

Data Entry by:	Date: 01/21/98
Approved by: <i>R. Schneider</i>	Date: 1/22/98

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

	SA MPLE
Type	Sample Size (mL) SS
SA MPLE	Concentration of HNO ₃ (Molarity)
Work List	HNO ₃ Titrant at OH end-point in mL
21906	Dilution Factor DF
Test Code	Concentration of OH in Sample (Molarity)
OH-01	OH in Sample in µg/mL (PPM)

Matrix	
LIQUID	
Sample #	Detection Limit = 125µg / SS * DF
S98T000142	
Instrument Code	Detection Limit (µg/mL)
PH01	
Analyst	OH Molarity = ((mL HNO ₃)*(M HNO ₃))/Sample Size in mL*Dilution Factor
KRM	
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))
01/21/98	
Time	
	SA MPLE
	Concentration of OH in Sample (Molarity)
	OH in Sample in µg/mL (PPM)

The Result is < Detection Limit

Data Entry by:	Date:	01/21/98
Approved by:	Date:	1/22/98

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

	DUP
Type	Sample Size (mL) SS
DUP	Concentration of HNO ₃ (Molarity)
Work List	HNO ₃ Titrant at OH end-point in mL
21906	Dilution Factor DF
Test Code	Concentration of OH in Sample (Molarity)
OH-01	OH in Sample in µg/mL (PPM)

Matrix	
LIQUID	
Sample #	Detection Limit = 125µg / SS * DF
S98T000142	
Instrument Code	Detection Limit (µg/mL)
PH01	4.17E+01

Analyst	OH Molarity = ((mL HNO ₃)*(M HNO ₃))/Sample Size in mL*Dilution Factor
KRM	
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))
01/21/98	
Time	
	DUP
	Concentration of OH in Sample (Molarity)
	OH in Sample in µg/mL (PPM)

The Result is < Detection Limit

Data Entry by:	Date: 01/21/98
Approved by: <i>RW Schneider</i>	Date: 1/22/98

LABCORE Data Entry Template for Worklist# 21913

Analyst: SLH Instrument: NH301 Book # 41519-C

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

Worklist Comment: TX302C GRAB, NH3-01, STD = 1.0mL skw

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK				NH3-01	LIQUID	<u>1</u>	<u><0.200</u>	<u>N/A</u>	ug/mL
		2	STD				NH3-01	LIQUID	<u>3.91e2</u>	<u>3.91e2</u>	<u>N/A</u>	ug/mL
97000887	TX-302C GRAB	3	SAMPLE	S98T000141	0		NH3-01	LIQUID	<u>N/A</u>	<u><1.00</u>	<u>1.00</u>	ug/mL
97000887	TX-302C GRAB	4	DUP	S98T000141	0		NH3-01	LIQUID	<u><1.00</u>	<u><1.00</u>	<u>N/A</u>	ug/mL
97000887	TX-302C GRAB	5	TRIPL	S98T000141	0		NH3-01	LIQUID	<u><1.00</u>	<u><1.00</u>	<u>N/A</u>	ug/mL
97000887	TX-302C GRAB	6	SPK	S98T000141	0		NH3-01	LIQUID	<u>1.00</u>	<u>89</u>	<u>N/A</u>	ug/mL
97000887	TX-302C GRAB	7	SAMPLE	S98T000142	0		NH3-01	LIQUID	<u>N/A</u>	<u><1.00</u>	<u>1.00</u>	ug/mL
97000887	TX-302C GRAB	8	DUP	S98T000142	0		NH3-01	LIQUID	<u><1.00</u>	<u><1.00</u>	<u>N/A</u>	ug/mL
97000887	TX-302C GRAB	9	SAMPLE	S98T000140	0		NH3-01	LIQUID	<u>N/A</u>	<u><5.00</u>	<u>5.00</u>	ug/mL
		10	STD				NH3-01	LIQUID	<u>100</u>	<u>101</u>	<u>N/A</u>	ug/mL

Final page for worklist # 21913

SLH ANALYST
Analyst Signature _____ Date _____

SLH 1-30-98
Analyst Signature _____ Date _____

Approved RW Scholten 2/3/98

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# 21913

Analyst: SLH Instrument: NH301 Book # 41N19-C

Method: LA-631-001 Rev/Mod _____

Worklist Comment: TX302C GRAB, NH3-01, STD= 1.0mL skw

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK			NH3-01	LIQUID	_____	_____	N/A	ug/mL
		2 STD			NH3-01	LIQUID	_____	_____	N/A	ug/mL
97000887	TX-302C GRAB	3 SAMPLE	S98T000140	0	NH3-01	LIQUID	N/A	_____	_____	ug/mL
97000887	TX-302C GRAB	4 DUP	S98T000140	0	NH3-01	LIQUID	_____	_____	N/A	ug/mL
97000887	TX-302C GRAB	5 SPK	S98T000140	0	NH3-01	LIQUID	_____	_____	N/A	ug/mL
97000887	TX-302C GRAB	6 SAMPLE	S98T000141	0	NH3-01	LIQUID	N/A	_____	_____	ug/mL
97000887	TX-302C GRAB	7 DUP	S98T000141	0	NH3-01	LIQUID	_____	_____	N/A	ug/mL
97000887	TX-302C GRAB	8 SAMPLE	S98T000142	0	NH3-01	LIQUID	N/A	_____	_____	ug/mL
97000887	TX-302C GRAB	9 DUP	S98T000142	0	NH3-01	LIQUID	_____	_____	N/A	ug/mL
		10 STD			NH3-01	LIQUID	_____	_____	N/A	ug/mL

Final page for worklist # 21913

Sandra Hord Deatright
Analyst Signature Date
1-29-98

Analyst Signature Date

Data Entry Comments:

Changes S98T000140 Sam NO Dup → used in process
S98T000141 Sam Dup Spk + Trp

SAMPLE VOL= 25.000 AT 04:44, 01-29-98
ENTERED

EMF= 105.5 mV AT 04:46, 01-29-98

EMF= 163.5 mV AT 04:53, 01-29-98

EMF= 163.7 mV AT 04:53, 01-29-98

EMF= 164.0 mV AT 04:54, 01-29-98

EMF= 164.4 mV AT 04:54, 01-29-98

EMF= 164.6 mV AT 04:54, 01-29-98

EMF= 164.7 mV AT 04:55, 01-29-98

EMF= 164.7 mV AT 04:55, 01-29-98
ENTERED

STD CONC= 1000 AT 04:56, 01-29-98
ENTERED

STD VOL= .25000 AT 04:56, 01-29-98
ENTERED

EMF= 71.3 mV AT 04:59, 01-29-98

EMF= 71.1 mV AT 04:59, 01-29-98

EMF= 70.9 mV AT 04:59, 01-29-98

EMF= 70.8 mV AT 05:00, 01-29-98

EMF= 70.7 mV AT 05:00, 01-29-98

EMF= 70.8 mV AT 05:00, 01-29-98
ENTERED

STD VOL= 2.5000 AT 05:01, 01-29-98
ENTERED

EMF= 13.0 mV AT 05:03, 01-29-98

EMF= 12.6 mV AT 05:03, 01-29-98

EMF= 12.4 mV AT 05:04, 01-29-98

EMF= 12.2 mV AT 05:04, 01-29-98

EMF= 12.1 mV AT 05:05, 01-29-98

EMF= 12.2 mV AT 05:07, 01-29-98

EMF= 12.2 mV AT 05:07, 01-29-98

EMF= 12.3 mV AT 05:08, 01-29-98

EMF= 12.4 mV AT 05:08, 01-29-98

EMF= 12.3 mV AT 05:09, 01-29-98

SAMPLE VOL= 25.000 AT 07:18, 01-29-98
ENTERED

HNH-SD-WM-DP-292 REV. 0

EMF= 48.8 mV AT 07:20, 01-29-98
EMF= 52.6 mV AT 07:23, 01-29-98
EMF= 53.1 mV AT 07:23, 01-29-98
EMF= 53.4 mV AT 07:23, 01-29-98
EMF= 53.7 mV AT 07:24, 01-29-98
EMF= 54.0 mV AT 07:24, 01-29-98
EMF= 54.3 mV AT 07:25, 01-29-98
EMF= 54.5 mV AT 07:25, 01-29-98
EMF= 54.9 mV AT 07:26, 01-29-98
EMF= 55.2 mV AT 07:27, 01-29-98
EMF= 55.5 mV AT 07:28, 01-29-98
EMF= 55.6 mV AT 07:28, 01-29-98
EMF= 55.7 mV AT 07:29, 01-29-98
EMF= 55.9 mV AT 07:29, 01-29-98
EMF= 56.0 mV AT 07:29, 01-29-98
EMF= 56.0 mV AT 07:30, 01-29-98
EMF= 56.2 mV AT 07:30, 01-29-98
EMF= 56.5 mV AT 07:31, 01-29-98
EMF= 56.5 mV AT 07:31, 01-29-98
EMF= 56.5 mV AT 07:32, 01-29-98
EMF= 56.7 mV AT 07:32, 01-29-98
EMF= 56.9 mV AT 07:33, 01-29-98
EMF= 56.9 mV AT 07:33, 01-29-98
EMF= 57.0 mV AT 07:34, 01-29-98
EMF= 57.1 mV AT 07:34, 01-29-98
EMF= 57.3 mV AT 07:35, 01-29-98
EMF= 57.5 mV AT 07:36, 01-29-98
EMF= 57.6 mV AT 07:36, 01-29-98
EMF= 57.7 mV AT 07:37, 01-29-98
EMF= 57.7 mV AT 07:37, 01-29-98
EMF= 57.9 mV AT 07:38, 01-29-98

EMF= 58.1 mV AT 07:39, 01-29-98

EMF= 58.2 mV AT 07:39, 01-29-98

EMF= 58.3 mV AT 07:40, 01-29-98

HNF-SD-WM-DP-292 REV. 0

EMF= 58.4 mV AT 07:41, 01-29-98

EMF= 58.4 mV AT 07:41, 01-29-98

EMF= 58.4 mV AT 07:42, 01-29-98

ENTERED

STD CONC= 1000 AT 07:42, 01-29-98

ENTERED

STD VOL= .25000 AT 07:42, 01-29-98

ENTERED

EMF= 45.7 mV AT 07:44, 01-29-98

EMF= 45.5 mV AT 07:45, 01-29-98

EMF= 45.6 mV AT 07:45, 01-29-98

EMF= 45.5 mV AT 07:46, 01-29-98

ENTERED

STD VOL= 2.5000 AT 07:46, 01-29-98

ENTERED

EMF= 6.4 mV AT 07:48, 01-29-98

EMF= 6.0 mV AT 07:49, 01-29-98

EMF= 5.8 mV AT 07:49, 01-29-98

EMF= 5.7 mV AT 07:50, 01-29-98

EMF= 5.9 mV AT 07:50, 01-29-98

ENTERED

1:NH3 SLOPE=-60.8 mV/DEC

AT 07:50, 01-29-98

1:NH3 CONC= 15.5

STD ml 4/M9-C

DOUBLE KNOWN ADDITION SELECTED

AT 07:56, 01-29-98

SAMPLE VOL= 25.000 AT 07:56, 01-29-98

ENTERED

EMF= 136.1 mV AT 08:06, 01-29-98

EMF= 136.6 mV AT 08:07, 01-29-98

EMF= 169.3 mV AT 08:16, 01-29-98

EMF= 169.7 mV AT 08:16, 01-29-98

ENTERED

STD CONC= 1000 AT 08:16, 01-29-98

ENTERED

STD VOL= .25000 AT 08:16, 01-29-98
ENTERED

HNFS-D-WM-DP-292 REV. 0

EMF= 67.3 mV AT 08:19, 01-29-98

EMF= 67.0 mV AT 08:20, 01-29-98

EMF= 66.9 mV AT 08:21, 01-29-98

EMF= 66.8 mV AT 08:21, 01-29-98

EMF= 66.9 mV AT 08:22, 01-29-98
ENTERED

STD VOL= 2.5000 AT 08:23, 01-29-98
ENTERED

EMF= 9.2 mV AT 08:25, 01-29-98

EMF= 9.0 mV AT 08:26, 01-29-98

EMF= 16.5 mV AT 08:27, 01-29-98

EMF= 15.2 mV AT 08:29, 01-29-98

EMF= 15.2 mV AT 08:29, 01-29-98
ENTERED

1:NH3 SLOPE=-51.9 mV/DEC
AT 08:29, 01-29-98

1:NH3 CONC= .105

598T000141 sam 5ml

DOUBLE KNOWN ADDITION SELECTED
AT 08:30, 01-29-98

SAMPLE VOL= 25.000 AT 08:30, 01-29-98
ENTERED

EMF= 153.9 mV AT 08:40, 01-29-98

EMF= 157.6 mV AT 08:41, 01-29-98

EMF= 159.0 mV AT 08:42, 01-29-98

EMF= 160.2 mV AT 08:43, 01-29-98

EMF= 160.7 mV AT 08:43, 01-29-98

EMF= 160.1 mV AT 08:43, 01-29-98
ENTERED

STD CONC= 1000 AT 08:43, 01-29-98
ENTERED

STD VOL= .25000 AT 08:43, 01-29-98
ENTERED

EMF= 67.2 mV AT 08:46, 01-29-98

EMF= 66.9 mV AT 08:46, 01-29-98

EMF= 66.7 mV AT 08:47, 01-29-98

EMF= 66.5 mV AT 08:47, 01-29-98

STD VOL= 2.5000 AT 08:47, 01-29-98
ENTERED

HNFS-D-WM-DP-292 REV. 0

EMF= 9.4 mV AT 08:50, 01-29-98

EMF= 9.1 mV AT 08:50, 01-29-98

EMF= 8.9 mV AT 08:51, 01-29-98

EMF= 9.1 mV AT 08:52, 01-29-98
ENTERED

1:NH3 SLOPE=-57.9 mV/DEC
AT 08:52, 01-29-98

1:NH3 CONC= .246

598700014/ Dup 5ml

DOUBLE KNOWN ADDITION SELECTED
AT 08:56, 01-29-98

SAMPLE VOL= 25.000 AT 08:56, 01-29-98
ENTERED

EMF= 174.5 mV AT 09:10, 01-29-98

EMF= 175.0 mV AT 09:10, 01-29-98

EMF= 175.5 mV AT 09:11, 01-29-98

EMF= 175.7 mV AT 09:11, 01-29-98
ENTERED

STD CONC= 1000 AT 09:11, 01-29-98
ENTERED

STD VOL= .25000 AT 09:11, 01-29-98
ENTERED

EMF= 67.3 mV AT 09:14, 01-29-98

EMF= 67.0 mV AT 09:14, 01-29-98

EMF= 66.8 mV AT 09:14, 01-29-98

EMF= 66.7 mV AT 09:15, 01-29-98

EMF= 66.6 mV AT 09:15, 01-29-98

EMF= 66.6 mV AT 09:16, 01-29-98

EMF= 66.6 mV AT 09:16, 01-29-98

EMF= 66.6 mV AT 09:16, 01-29-98
ENTERED

STD VOL= 2.5000 AT 09:17, 01-29-98
ENTERED

EMF= 8.7 mV AT 09:19, 01-29-98

EMF= 8.5 mV AT 09:20, 01-29-98
ENTERED

1:NH3 SLOPE=-58.4 mV/DEC
AT 09:20, 01-29-98

SAMPLE VOL= 25.000 AT 11:07, 01-29-98
ENTERED

HNF-SD-WM-DP-292 REV. 0

EMF= 71.2 mV AT 11:11, 01-29-98
EMF= 71.7 mV AT 11:11, 01-29-98
EMF= 72.0 mV AT 11:11, 01-29-98
EMF= 72.3 mV AT 11:12, 01-29-98
EMF= 72.6 mV AT 11:12, 01-29-98
EMF= 72.7 mV AT 11:12, 01-29-98
EMF= 72.9 mV AT 11:13, 01-29-98
EMF= 73.2 mV AT 11:14, 01-29-98
EMF= 73.3 mV AT 11:14, 01-29-98
EMF= 73.5 mV AT 11:15, 01-29-98
EMF= 73.6 mV AT 11:15, 01-29-98
EMF= 73.8 mV AT 11:16, 01-29-98
EMF= 73.9 mV AT 11:17, 01-29-98
EMF= 74.0 mV AT 11:17, 01-29-98
EMF= 74.3 mV AT 11:18, 01-29-98
EMF= 74.5 mV AT 11:19, 01-29-98
EMF= 74.7 mV AT 11:20, 01-29-98
EMF= 74.8 mV AT 11:21, 01-29-98
EMF= 75.0 mV AT 11:22, 01-29-98
EMF= 75.2 mV AT 11:22, 01-29-98
EMF= 75.2 mV AT 11:23, 01-29-98
EMF= 75.4 mV AT 11:24, 01-29-98
EMF= 75.4 mV AT 11:24, 01-29-98
EMF= 75.6 mV AT 11:25, 01-29-98
EMF= 75.7 mV AT 11:25, 01-29-98
EMF= 75.8 mV AT 11:26, 01-29-98
EMF= 76.1 mV AT 11:27, 01-29-98
EMF= 76.4 mV AT 11:29, 01-29-98
EMF= 76.6 mV AT 11:29, 01-29-98
ENTERED

STD CONC= 1000 AT 11:29, 01-29-98
ENTERED

HNF-SD-WM-DP-292 REV. 0

STD VOL= .25000 AT 11:29, 01-29-98
ENTERED

EMF= 54.6 mV AT 11:32, 01-29-98

EMF= 54.3 mV AT 11:33, 01-29-98

EMF= 54.2 mV AT 11:33, 01-29-98
ENTERED

STD VOL= 2.5000 AT 11:34, 01-29-98
ENTERED

EMF= 7.5 mV AT 11:36, 01-29-98

EMF= 7.3 mV AT 11:36, 01-29-98

EMF= 7.1 mV AT 11:37, 01-29-98

EMF= 7.1 mV AT 11:38, 01-29-98

EMF= 7.1 mV AT 11:38, 01-29-98
ENTERED

1:NH3 SLOPE=-59.2 mV/DEC
AT 11:38, 01-29-98

1:NH3 CONC= 7.08

5ml
398T000141 *3am + 5pk .500ml*
4/1/9-C

DOUBLE KNOWN ADDITION SELECTED
AT 11:39, 01-29-98

SAMPLE VOL= 25.000 AT 11:40, 01-29-98
ENTERED

EMF= 173.8 mV AT 11:51, 01-29-98

EMF= 174.1 mV AT 11:52, 01-29-98

EMF= 174.4 mV AT 11:52, 01-29-98

EMF= 174.7 mV AT 11:52, 01-29-98

EMF= 174.8 mV AT 11:52, 01-29-98
ENTERED

STD CONC= 1000 AT 11:53, 01-29-98
ENTERED

STD VOL= .25000 AT 11:53, 01-29-98
ENTERED

EMF= 69.4 mV AT 11:55, 01-29-98

EMF= 67.4 mV AT 11:56, 01-29-98

EMF= 67.2 mV AT 11:56, 01-29-98

EMF= 67.3 mV AT 11:58, 01-29-98

EMF= 67.4 mV AT 11:59, 01-29-98

~~EMF= 67.5 mV AT 12:00, 01-29-98~~

EMF= 67.7 mV AT 12:01, 01-29-98

EMF= 67.8 mV AT 12:01, 01-29-98

EMF= 67.9 mV AT 12:02, 01-29-98

EMF= 67.5 mV AT 12:03, 01-29-98

ENTERED

STD VOL= 2.5000 AT 12:03, 01-29-98

ENTERED

EMF= 9.3 mV AT 12:06, 01-29-98

EMF= 9.1 mV AT 12:06, 01-29-98

EMF= 8.8 mV AT 12:07, 01-29-98

EMF= 9.0 mV AT 12:09, 01-29-98

EMF= 8.5 mV AT 12:09, 01-29-98

ENTERED

1:NH3 SLOPE=-59.3 mV/DEC

AT 12:09, 01-29-98

1:NH3 CONC= .156

598T000142 Sam Sm.

DOUBLE KNOWN ADDITION SELECTED

AT 12:14, 01-29-98

SAMPLE VOL= 25.000 AT 12:14, 01-29-98

ENTERED

EMF= 168.7 mV AT 12:26, 01-29-98

EMF= 169.1 mV AT 12:27, 01-29-98

EMF= 169.2 mV AT 12:27, 01-29-98

EMF= 168.4 mV AT 12:28, 01-29-98

EMF= 168.3 mV AT 12:28, 01-29-98

EMF= 168.0 mV AT 12:28, 01-29-98

EMF= 168.2 mV AT 12:29, 01-29-98

EMF= 173.4 mV AT 12:32, 01-29-98

EMF= 174.3 mV AT 12:32, 01-29-98

ENTERED

STD CONC= 1000 AT 12:32, 01-29-98

ENTERED

STD VOL= .25000 AT 12:32, 01-29-98

ENTERED

EMF= 67.3 mV AT 12:35, 01-29-98

EMF= 67.1 mV AT 12:35, 01-29-98

EMF= 67.0 mV AT 12:36, 01-29-98

EMF= 67.0 mV AT 12:37, 01-29-98

EMF= 66.9 mV AT 12:37, 01-29-98
ENTERED

STD VOL= 2.5000 AT 12:38, 01-29-98
ENTERED

EMF= 9.1 mV AT 12:40, 01-29-98

EMF= 8.8 mV AT 12:41, 01-29-98

EMF= 8.7 mV AT 12:41, 01-29-98

EMF= 8.7 mV AT 12:42, 01-29-98

EMF= 8.7 mV AT 12:42, 01-29-98

EMF= 8.9 mV AT 12:43, 01-29-98

EMF= 9.0 mV AT 12:44, 01-29-98

EMF= 9.1 mV AT 12:45, 01-29-98

EMF= 9.2 mV AT 12:45, 01-29-98

EMF= 9.4 mV AT 12:46, 01-29-98
ENTERED

1:NH3 SLOPE=-57.8 mV/DEC
AT 12:46, 01-29-98

1:NH3 CONC= .139

— — 598 1000142 dup 5ml

DOUBLE KNOWN ADDITION SELECTED
AT 12:51, 01-29-98

SAMPLE VOL= 25.000 AT 12:51, 01-29-98
ENTERED

EMF= 182.5 mV AT 13:04, 01-29-98

EMF= 183.4 mV AT 13:04, 01-29-98

EMF= 184.1 mV AT 13:05, 01-29-98

EMF= 184.4 mV AT 13:05, 01-29-98

EMF= 184.8 mV AT 13:06, 01-29-98

EMF= 185.0 mV AT 13:06, 01-29-98

EMF= 185.3 mV AT 13:06, 01-29-98

EMF= 185.5 mV AT 13:07, 01-29-98

EMF= 185.7 mV AT 13:07, 01-29-98

EMF= 186.2 mV AT 13:08, 01-29-98

EMF= 186.4 mV AT 13:08, 01-29-98

EMF= 186.7 mV AT 13:08, 01-29-98

EMF= 187.1 mV AT 13:10, 01-29-98

EMF= 187.4 mV AT 13:10, 01-29-98
ENTERED

STD CONC= 1000 AT 13:11, 01-29-98
ENTERED

STD VOL= .25000 AT 13:11, 01-29-98
ENTERED

EMF= 67.1 mV AT 13:14, 01-29-98

EMF= 66.7 mV AT 13:15, 01-29-98

EMF= 66.6 mV AT 13:15, 01-29-98

EMF= 66.5 mV AT 13:15, 01-29-98

EMF= 66.6 mV AT 13:16, 01-29-98
ENTERED

STD VOL= 2.5000 AT 13:16, 01-29-98
ENTERED

EMF= 8.4 mV AT 13:19, 01-29-98

EMF= 8.2 mV AT 13:19, 01-29-98

EMF= 8.3 mV AT 13:20, 01-29-98

EMF= 8.4 mV AT 13:20, 01-29-98
ENTERED

1:NH3 SLOPE=-58.4 mV/DEC
AT 13:20, 01-29-98

1:NH3 CONC= .0851

DOUBLE KNOWN ADDITION SELECTED
AT 13:22, 01-29-98

used in process

398T000140

1ml sample

DOUBLE KNOWN ADDITION SELECTED
AT 13:57, 01-29-98

SAMPLE VOL= 25.000 AT 13:57, 01-29-98
ENTERED

EMF= 53.4 mV AT 14:01, 01-29-98

EMF= 53.8 mV AT 14:01, 01-29-98

EMF= 54.0 mV AT 14:01, 01-29-98

EMF= 54.4 mV AT 14:02, 01-29-98

EMF= 54.6 mV AT 14:03, 01-29-98

EMF= 54.7 mV AT 14:03, 01-29-98

EMF= 55.0 mV AT 14:04, 01-29-98

EMF= 55.1 mV AT 14:04, 01-29-98

EMF= 55.4 mV AT 14:06, 01-29-98

EMF= 55.6 mV AT 14:06, 01-29-98

EMF= 55.7 mV AT 14:07, 01-29-98

EMF= 56.0 mV AT 14:08, 01-29-98

EMF= 56.1 mV AT 14:09, 01-29-98

EMF= 56.2 mV AT 14:09, 01-29-98

EMF= 56.4 mV AT 14:09, 01-29-98
ENTERED

STD CONC= 1000 AT 14:10, 01-29-98
ENTERED

STD VOL= .25000 AT 14:10, 01-29-98
ENTERED

EMF= 44.3 mV AT 14:12, 01-29-98

EMF= 44.1 mV AT 14:12, 01-29-98

EMF= 44.0 mV AT 14:13, 01-29-98

EMF= 44.0 mV AT 14:13, 01-29-98

EMF= 44.1 mV AT 14:14, 01-29-98

EMF= 44.1 mV AT 14:14, 01-29-98

EMF= 44.1 mV AT 14:15, 01-29-98
ENTERED

STD VOL= 2.5000 AT 14:15, 01-29-98
ENTERED

EMF= 5.6 mV AT 14:18, 01-29-98

EMF= 5.4 mV AT 14:18, 01-29-98

EMF= 5.3 mV AT 14:19, 01-29-98

EMF= 5.4 mV AT 14:20, 01-29-98

EMF= 5.6 mV AT 14:21, 01-29-98
ENTERED

1:NH3 SLOPE=-59.9 mV/DEC
AT 14:21, 01-29-98

1:NH3 CONC= 16.1

STD 1ml 4119-C

DOUBLE KNOWN ADDITION SELECTED
AT 14:23, 01-29-98

WORKBOOK PAGE: BLANK1

AMMONIA (NH3) : LA-631-001 (C-0)

LIQUIDS/SOLIDS

BLNK

Type	Instrument Data (µg/mL)	ID	0.267
BLNK	Blank Result from the Instrument (µg/mL)	BR	0.2670
Work List	Vol of Sample for Dilution (mL) or Vol of Sample Direct (mL)	VSAM	25 5.0
21913	Final Vol of Dilution (mL) or Vol of Sample Direct (mL)	FVOL	25.0
Test Code			
NH3-01			
Matrix			
LIQUID			
Batch Number			
98000192			
Rerun			
0			
Sample Prep			
N/A	NH3 Concentration (µg/mL)	NH3 CONC	< .244.00E+00
Sample #			
BLANK	Method Detection Limit (µg/mL)		0.2 x ²⁵ / ₂₅ = .2 1.00 1/30/98
Instrument Code			
NH301			
Prepared By			
RCJ	NH3 Concentration (µg/mL) = (BR) * (FVOL / VSAM)		
Chemist			
RWS			
Analyst			
SLH			
Date Complete			
01/30/98			
Analysis Date			
01/29/98			
Analysis Time			
Sample Point	NH3 Concentration (µg/mL)		0.267 < 0.200 < 1.00E+00
TX-302C GRAB			RWS 1/30/98

Analyst:

SLH Date: 01/30/98

Signature of Chemist:

RWS Date: 1/30/98

SAMPLE.WB1 REV XX

37810NML

WORKBOOK PAGE: STD2

AMMONIA (NH3) : LA-631-001 (C-0)

LIQUIDS/SOLIDS

		STD
Type	Instrument Data (µg/mL)	ID 15.500
STD	Blank Result from the Instrument (µg/mL)	BR 0.2670
Work List	Vol of Sample for Dilution (mL) or Vol of Sample Direct (mL)	VSAM 1.0
21913	Final Vol of Dilution (mL) or Vol of Sample Direct (mL)	FVOL 25.0
Test Code	LCS Standard Book Number	LCS 41N19C
NH3-01	LCS Standard Concentration (µg/mL)	STD VAL 3.91E+02
Matrix		
LIQUID		
Batch Number		
98000192		
Retain		
0		
Sample Prep		
N/A	NH3 Concentration (µg/mL)	NH3 CONC 3.81E+02
Sample #		
STANDARD	Method Detection Limit (µg/mL)	5.00 1.00 DLS 1/30/98
Instrument Code		
NH301		
Prepared By		
RCJ	NH3 Concentration (µg/mL) = (ID-BR) * (FVOL / VSAM)	
Chemist		
RWS		
Analyst		
SLH	LCS Standard % Recovery = (NH3 CONC / STD VAL) * 100	
Date Complete		
01/30/98		
Analysis Date		
01/29/98		
Analysis Time	LCS Standard % Recovery	97%
Sample Point	NH3 Concentration (µg/mL)	3.81E+02
TX-302C GRAB		

Analyst:	SLH Date: 01/30/98
Signature of Chemist:	RWS Date: 1/30/98

SAMPLE.WB1 REV XX

37810NML

WORKBOOK PAGE: SAM3

AMMONIA (NH3) : LA-631-001 (C-0)

LIQUIDS/SOLIDS

		SAMPLE
Type	Instrument Data (µg/mL)	ID 0.105
SAMPLE	Blank Result from the Instrument (µg/mL)	BR 0.2670
Work List	Vol of Sample for Dilution (mL) or Vol of Sample Direct (mL)	VSAM 5.0
21913	Final Vol of Dilution (mL) or Vol of Sample Direct (mL)	FVOL 25.0
Test Code		
NH3-01		
Matrix		
LIQUID		
Batch Number		
98000192		
Rerun		
0		
Sample Prep		
N/A	NH3 Concentration (µg/mL)	NH3 CONC < 1.00E+00
Sample #		
S98T000141	Method Detection Limit (µg/mL)	$2 \times \frac{25}{5} = 1.00$
Instrument Code		
NH301		
Prepared By		
RCJ	NH3 Concentration (µg/mL) = (ID-BR) * (FVOL / VSAM)	
Chemist		
RWS		
Analyst		
SLH		
Date Complete		
01/30/98		
Analysis Date		
01/29/98		
Analysis Time		
Sample Point	NH3 Concentration (µg/mL)	< 1.00E+00
TX-302C GRAB		

Analyst:	SLH Date: 01/30/98
Signature of Chemist:	RWS Date: 1/30/98
SAMPLE.WB1 REV XX	37810NML

WORKBOOK PAGE: DUP4

AMMONIA (NH3) : LA-631-001 (C-0)

LIQUIDS/SOLIDS

DUP

Type	Instrument Data (µg/mL)	ID	0.246
DUP	Blank Result from the Instrument (µg/mL)	BR	0.2670
Work List	Vol of Sample for Dilution (mL) or Vol of Sample Direct (mL)	VSAM	5.0
21913	Final Vol of Dilution (mL) or Vol of Sample Direct (mL)	FVOL	25.0
Test Code			
NH3-01			
Matrix			
LIQUID			
Batch Number	Sample Concentration (µg/mL)	SAM CONC	< 1.00E+00
98000192			
Rerun			
0			
Sample Prep			
N/A	NH3 Concentration (µg/mL)	NH3 CONC	< 1.00E+00
Sample #			
S98T000141	Method Detection Limit (µg/mL)	$2 \times \frac{25}{5} = 1.00$	
Instrument Code			
NH301	RPD (DUP & SAM) = Absolute Val. ((NH3 CONC - SAM CONC) / ((NH3 CONC + SAM CONC) / 2)) * 1		
Prepared By			
RCJ	NH3 Concentration (µg/mL) = (ID-BR) * (FVOL / VSAM)		
Chemist			
RWS			
Analyst			
SLH			
Date Complete			
01/30/98			
Analysis Date			
01/29/98			
Analysis Time			
	RPD (DUP & SAM)		ERR
Sample Point	NH3 Concentration (µg/mL)		< 1.00E+00
TX-302C GRAB			

Analyst:	SLH Date: 01/30/98
Signature of Chemist:	RWS Date: 1/30/98
SAMPLE.WB1 REV XX	37810NML

WORKBOOK PAGE: TRIPL5

AMMONIA (NH3) : LA-631-001 (C-0)

LIQUIDS/SOLIDS

TRIPL

Type	Instrument Data (µg/mL)	ID	0.136
TRIPL	Blank Result from the Instrument (µg/mL)	BR	0.2670
Work List	Vol of Sample for Dilution (mL) or Vol of Sample Direct (mL)	VSAM	5.0
21913	Final Vol of Dilution (mL) or Vol of Sample Direct (mL)	FVOL	25.0
Test Code			
NH3-01			
Matrix			
LIQUID			
Batch Number	Sample Concentration (µg/mL)	SAM CONC <	1.00E+00
98000192	Duplicate Concentration (µg/mL)	DUP CONC <	1.00E+00
Rerun			
0			
Sample Prep			
N/A	NH3 Concentration (µg/mL)	NH3 CONC <	1.00E+00
Sample #			
S98T000141	Method Detection Limit (µg/mL)	1.00	
Instrument Code			
NH301	RPD (TRIPL & SAM) = Absolute Val. ((NH3 CONC - SAM CONC) / ((NH3 CONC + SAM CONC) / 2)) *		
Prepared By			
RCJ	NH3 Concentration (µg/mL) = (ID-BR) * (FVOL / VSAM)		
Chemist			
RWS			
Analyst			
SLH			
Date Complete			
01/30/98			
Analysis Date			
01/29/98			
Analysis Time			
	RPD (TRIPL & SAM)	ERR	
Sample Point	NH3 Concentration (µg/mL)	<	1.00E+00
TX-302C GRAB			

Analyst:	SLH Date: 01/30/98
Signature of Chemist:	RWS Date: 1/30/98
SAMPLE.WB1 REV XX	37810NML

WORKBOOK PAGE: SPIKE6

AMMONIA (NH3) : LA-631-001 (C-0)

LIQUIDS/SOLIDS

		SPK
Type	Instrument Data (µg/mL)	ID 7.080
SPK	Blank Result from the Instrument (µg/mL)	BR 0.2670
Work List	Vol of Sample for Dilution (mL) or Vol of Sample Direct (mL)	VSAM 5.0
21913	Final Vol of Dilution (mL) or Vol of Sample Direct (mL)	FVOL 25.0
Test Code	Spike Book Number	SPK 41N19C
NH3-01	Spike Value (µg/mL)	SPK VAL 3.91E+02
Matrix	Vol of Spike Standard Used (mL)	VOL SPK 0.500
LIQUID		
Batch Number		
98000192		
Rerun	Sample Instrument Data (µg/mL)	SAM ID 0.105
0	Sample Volume of Sample (mL)	SAM VSAM 5.0
Sample Prep	Sample Final Volume (mL)	SAM FVOL 25.0
N/A	NH3 Concentration (µg/mL)	NH3 CONC 3.41E+01
Sample #		
S98T000141	Method Detection Limit (µg/mL)	1.00
Instrument Code		
NH301		
Prepared By		
RCJ	NH3 Concentration (µg/mL) = (ID-BR) * (FVOL / VSAM)	
Chemist		
RWS	QC ACTUAL = SPK VAL	
Analyst	QC FOUND = (((ID-BR) * FVOL) - (SAM ID - BR) * SAM FVOL * (VSAM / SAM VSAM)) / .500	
SLH	Spike % Recovery =	
Date Complete	(((ID-BR) * FVOL) - (SAM ID - BR) * SAM FVOL * (VSAM / SAM VSAM)) / (SPK VAL * VOL SPK) * 100	
01/30/98		
Analysis Date	QC ACTUAL (µg)	3.91E+02
01/29/98	QC FOUND (µg)	340 4.74E+02
Analysis Time	Spike % Recovery	89%
Sample Point	NH3 Concentration (µg/mL)	3.41E+01
TX-302C GRAB		

Analyst:	SLH Date: 01/30/98
Signature of Chemist:	RWS Date: 1/30/98
SAMPLE.WB1 REV XX	37810NML

AMMONIA (NH₃) : LA-631-001 (C-0)

LIQUIDS/SOLIDS

		SAMPLE
Type	Instrument Data (µg/mL)	ID 0.156
SAMPLE	Blank Result from the Instrument (µg/mL)	BR 0.2670
Work List	Vol of Sample for Dilution (mL) or Vol of Sample Direct (mL)	VSAM 5.0
21913	Final Vol of Dilution (mL) or Vol of Sample Direct (mL)	FVOL 25.0
Test Code		
NH3-01		
Matrix		
LIQUID		
Batch Number		
98000192		
Rerun		
0		
Sample Prep		
N/A	NH3 Concentration (µg/mL)	NH3 CONC < 1.00E+00
Sample #		
S98T000142	Method Detection Limit (µg/mL)	$2 \times \frac{25}{5} = 1.00$
Instrument Code		
NH301		
Prepared By		
RCJ	NH3 Concentration (µg/mL) = (ID-BR) * (FVOL / VSAM)	
Chemist		
RWS		
Analyst		
SLH		
Date Complete		
01/30/98		
Analysis Date		
01/29/98		
Analysis Time		
Sample Point		
TX-302C GRAB	NH3 Concentration (µg/mL)	< 1.00E+00

Analyst:	SLH Date: 01/30/98
Signature of Chemist:	RWS Date:

SAMPLE.WB1 REV XX

RWS
37810NML

WORKBOOK PAGE: DUP8

AMMONIA (NH3) : LA-631-001 (C-0)

LIQUIDS/SOLIDS

DUP

Type	Instrument Data (µg/mL)	ID	0.139
DUP	Blank Result from the Instrument (µg/mL)	BR	0.2670
Work List	Vol of Sample for Dilution (mL) or Vol of Sample Direct (mL)	VSAM	5.0
21913	Final Vol of Dilution (mL) or Vol of Sample Direct (mL)	FVOL	25.0
Test Code			
NH3-01			
Matrix			
LIQUID			
Batch Number	Sample Concentration (µg/mL)	SAM CONC	< 1.00E+00
98000192			
Rerun			
0			
Sample Prep			
N/A	NH3 Concentration (µg/mL)	NH3 CONC	< 1.00E+00
Sample #			
S98T000142	Method Detection Limit (µg/mL)	0.2 x 25/5 =	1.00
Instrument Code			
NH301	RPD (DUP & SAM) = Absolute Val. ((NH3 CONC - SAM CONC) / ((NH3 CONC + SAM CONC) / 2)) * 1		
Prepared By			
RCJ	NH3 Concentration (µg/mL) = (ID-BR) * (FVOL / VSAM)		
Chemist			
RWS			
Analyst			
SLH			
Date Complete			
01/30/98			
Analysis Date			
01/29/98			
Analysis Time			
	RPD (DUP & SAM)		ERR
Sample Point	NH3 Concentration (µg/mL)		< 1.00E+00
TX-302C GRAB			

Analyst:	SLH Date: 01/30/98
Signature of Chemist:	RWS Date: 1/30/98
SAMPLE.WB1 REV XX	37810NML

WORKBOOK PAGE: SAM9

AMMONIA (NH3) : LA-631-001 (C-0)

LIQUIDS/SOLIDS

SAMPLE

Type	Instrument Data (µg/mL)	ID	0.085
SAMPLE	Blank Result from the Instrument (µg/mL)	BR	0.2670
Work List	Vol of Sample for Dilution (mL) or Vol of Sample Direct (mL)	VSAM	1.0
21913	Final Vol of Dilution (mL) or Vol of Sample Direct (mL)	FVOL	25.0
Test Code			
NH3-01			
Matrix			
LIQUID			
Batch Number			
98000192			
Rerun			
0			
Sample Prep			
N/A	NH3 Concentration (µg/mL)	NH3 CONC	< 5.00 1.00E+00
Sample #	5.00 RWS		
S98T000140	Method Detection Limit (µg/mL)	.2 x 2% = 25.00 1.00 RWS 1/30/98	
Instrument Code			
NH301			
Prepared By			
RCL	NH3 Concentration (µg/mL) = (ID-BR) * (FVOL / VSAM)		
Chemist			
RWS			
Analyst			
SLH			
Date Complete			
01/30/98			
Analysis Date			
01/29/98			
Analysis Time			
Sample Point	NH3 Concentration (µg/mL) < 5.00 1.00E+00 RWS 1/30/98		
TX-302C GRAB			

Analyst:	SLH Date: 01/30/98
Signature of Chemist:	RWS Date: 1/30/98

SAMPLE.WB1 REV XX 37810NML

WORKBOOK PAGE: ST_END10

AMMONIA (NH3) : LA-631-001 (C-0)

LIQUIDS/SOLIDS

STD

Type	Instrument Data (µg/mL)	ID	16.100
STD	Blank Result from the Instrument (µg/mL)	BR	0.2670
Work List	Vol of Sample for Dilution (mL) or Vol of Sample Direct (mL)	VSAM	1.0
21913	Final Vol of Dilution (mL) or Vol of Sample Direct (mL)	FVOL	25.0
Test Code	LCS Standard Book Number	LCS	41N19C
NH3-01	LCS Standard Concentration (µg/mL)	STD VAL	3.91E+02
Matrix			
LIQUID			
Batch Number			
98000192			
Rerun			
0			
Sample Prep			
N/A	NH3 Concentration (µg/mL)	NH3 CONC	3.96E+02
Sample #			
END STANDARD	Method Detection Limit (µg/mL)	$0.2 \times 25 / 1 = 500 \text{ } 4.00$	
Instrument Code			
NH301			
Prepared By			
RCJ	NH3 Concentration (µg/mL) = (ID-BR) * (FVOL / VSAM)		
Chemist			
RWS			
Analyst			
SLH	LCS Standard % Recovery = (NH3 CONC / STD VAL) * 100		
Date Complete			
01/30/98			
Analysis Date			
01/29/98			
Analysis Time	LCS Standard % Recovery		101%
Sample Point	NH3 Concentration (µg/mL)		3.96E+02
TX-302C GRAB			

RWS
1/30/98

Analyst:	SLH Date: 01/30/98
Signature of Chemist:	RWS Date: 1/30/98
SAMPLE.VB1 REV XX	37810NML

LABCORE Completed Worklist Report for Worklist# 21904

Analyst: adp

Instrument: IC01

Book# 111/2008

Method: 14-533-105 Rev/Mod E-0

Worklist Comment: TX302C GRAB, @IC-01 skw

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	1.29e-01	0.129	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	5.90e1	5.67e+01	96.102 % Recovery	
2 CCV	0	@IC-QC CL	QC	8.00e1	1.26e+02	157.500 % Recovery	
2 CCV	0	@IC-QC NO2	QC	5.43e2	4.98e+02	91.713 % Recovery	
2 CCV	0	@IC-QC BR	QC	5.89e2	5.65e+02	95.925 % Recovery	
2 CCV	0	@IC-QC NO3	QC	5.94e2	5.55e+02	93.434 % Recovery	
2 CCV	0	@IC-QC P04	QC	5.45e2	5.06e+02	92.844 % Recovery	
2 CCV	0	@IC-QC S04	QC	6.32e2	6.03e+02	95.411 % Recovery	
2 CCV	0	@IC-QC OXALATE2	QC	5.32e2	5.19e+02	97.556 % Recovery	
3 SAMPLE	S98T000140 0	@IC-01 F-02	LIQUID	N/A	2.255e+00	0.132	ug/mL
3 SAMPLE	S98T000140 0	@IC-01 CL-02	LIQUID	N/A	2.024e+01	0.187	ug/mL
3 SAMPLE	S98T000140 0	@IC-01 NO2-02	LIQUID	N/A	2.188e+00	1.188	ug/mL
3 SAMPLE	S98T000140 0	@IC-01 BR-02	LIQUID	N/A	2.1375e+00	1.375	ug/mL
3 SAMPLE	S98T000140 0	@IC-01 NO3-02	LIQUID	N/A	8.502e+01	1.529	ug/mL
3 SAMPLE	S98T000140 0	@IC-01 P04-02	LIQUID	N/A	1.904e+01	1.320	ug/mL
3 SAMPLE	S98T000140 0	@IC-01 S04-02	LIQUID	N/A	2.439e+01	1.518	ug/mL
3 SAMPLE	S98T000140 0	@IC-01 OXALATE2	LIQUID	N/A	1.155e+00	1.155	ug/mL
4 DUP	S98T000140 0	@IC-01 F-02	LIQUID	2.25e+00	2.19e+00	2.703	RPD
4 DUP	S98T000140 0	@IC-01 CL-02	LIQUID	2.02e+01	2.05e+01	1.474	RPD
4 DUP	S98T000140 0	@IC-01 NO2-02	LIQUID	<1.19e0	<1.19e0		RPD
4 DUP	S98T000140 0	@IC-01 BR-02	LIQUID	<1.38e0	<1.38e0		RPD
4 DUP	S98T000140 0	@IC-01 NO3-02	LIQUID	8.50e+01	8.43e+01	0.827	RPD
4 DUP	S98T000140 0	@IC-01 P04-02	LIQUID	1.90e+01	1.90e+01	0.000	RPD
4 DUP	S98T000140 0	@IC-01 S04-02	LIQUID	2.44e+01	2.43e+01	0.411	RPD
4 DUP	S98T000140 0	@IC-01 OXALATE2	LIQUID	<1.16e0	<1.16e0		RPD
5 SPK	S98T000140 0	@IC-01 F-02	LIQUID	5.90e1	5.86e+01	94.237 % Recovery	
5 SPK	S98T000140 0	@IC-01 CL-02	LIQUID	8.00e1	8.88e+01	111.000 % Recovery	
5 SPK	S98T000140 0	@IC-01 NO2-02	LIQUID	5.43e2	5.10e+02	93.923 % Recovery	
5 SPK	S98T000140 0	@IC-01 BR-02	LIQUID	5.89e2	5.66e+02	96.095 % Recovery	
5 SPK	S98T000140 0	@IC-01 NO3-02	LIQUID	5.94e2	5.56e+02	93.603 % Recovery	
5 SPK	S98T000140 0	@IC-01 P04-02	LIQUID	5.45e2	5.14e+02	94.312 % Recovery	
5 SPK	S98T000140 0	@IC-01 S04-02	LIQUID	6.32e2	6.18e+02	97.785 % Recovery	
5 SPK	S98T000140 0	@IC-01 OXALATE2	LIQUID	5.32e2	5.26e+02	98.872 % Recovery	
6 SAMPLE	S98T000141 0	@IC-01 F-02	LIQUID	N/A	2.375e+00	0.132	ug/mL

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

LABCORE Completed Worklist Report for Worklist# 21904

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
6 SAMPLE	S98T000141	0	②IC-01	CL-02	LIQUID	N/A	2.330e+01	0.187 ug/mL
6 SAMPLE	S98T000141	0	②IC-01	NO2-02	LIQUID	N/A	1.188e+00	1.188 ug/mL
6 SAMPLE	S98T000141	0	②IC-01	BR-02	LIQUID	N/A	1.275e+00	1.275 ug/mL
6 SAMPLE	S98T000141	0	②IC-01	NO3-02	LIQUID	N/A	8.777e+01	1.529 ug/mL
6 SAMPLE	S98T000141	0	②IC-01	PO4-02	LIQUID	N/A	1.921e+01	1.320 ug/mL
6 SAMPLE	S98T000141	0	②IC-01	SO4-02	LIQUID	N/A	2.634e+01	1.518 ug/mL
6 SAMPLE	S98T000141	0	②IC-01	OXALATE2	LIQUID	N/A	1.155e+00	1.155 ug/mL
7 DUP	S98T000141	0	②IC-01	F-02	LIQUID	2.38e+00	2.41e+00	1.253 RPD
7 DUP	S98T000141	0	②IC-01	CL-02	LIQUID	2.33e+01	2.39e+01	2.542 RPD
7 DUP	S98T000141	0	②IC-01	NO2-02	LIQUID	<1.19e0	<1.19e0	RPD
7 DUP	S98T000141	0	②IC-01	BR-02	LIQUID	<1.38e0	<1.38e0	RPD
7 DUP	S98T000141	0	②IC-01	NO3-02	LIQUID	8.78e+01	8.64e+01	1.607 RPD
7 DUP	S98T000141	0	②IC-01	PO4-02	LIQUID	1.92e+01	1.95e+01	1.550 RPD
7 DUP	S98T000141	0	②IC-01	SO4-02	LIQUID	2.63e+01	2.81e+01	6.618 RPD
7 DUP	S98T000141	0	②IC-01	OXALATE2	LIQUID	<1.16e0	<1.16e0	RPD

Final page for worklist# 21904

Analyst Signature _____ Date _____

 1-30-98
Analyst Signature _____ Date _____

 1/30/98
Reviewer Signature _____ Date _____

Cl rejected & will be put out
for rerun

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

01/19/98 10:18

A-0004-1

HNF-SD-WM-DP-292 REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 21904Analyst: ADP Instrument: IC0 1 Book# 111N20BMethod: LA-533-105 Rev/Mod E-O

Worklist Comment: TX302C GRAB, @IC-01 skw

S Type	Sample#	R A Test	Matrix	Group#	Project
1 CCB		@IC-QC	QC		
2 CCV		@IC-QC	QC		
3 SAMPLE	S98T000140 0	@IC-01	LIQUID	97000887	TX-302C GRAB
	Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02				
4 DUP	S98T000140 0	@IC-01	LIQUID		
5 SPK	S98T000140 0	@IC-01	LIQUID		
6 SAMPLE	S98T000141 0	@IC-01	LIQUID	97000887	TX-302C GRAB
	Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02				
7 DUP	S98T000141 0	@IC-01	LIQUID		

Final page for worklist # 21904

Anthony Purnetto 1-21-98
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

Problem with Cl results. JMF21904 JAN. 5CH

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

Sample Name: BLANK Date: 01/21/1998 04:19:57
 Data File : C:\DX\DATA\98011591.D18
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 18 Detector: CDM-1
 Analyst : *James Jey* Column: AG4A/AS4A anion column

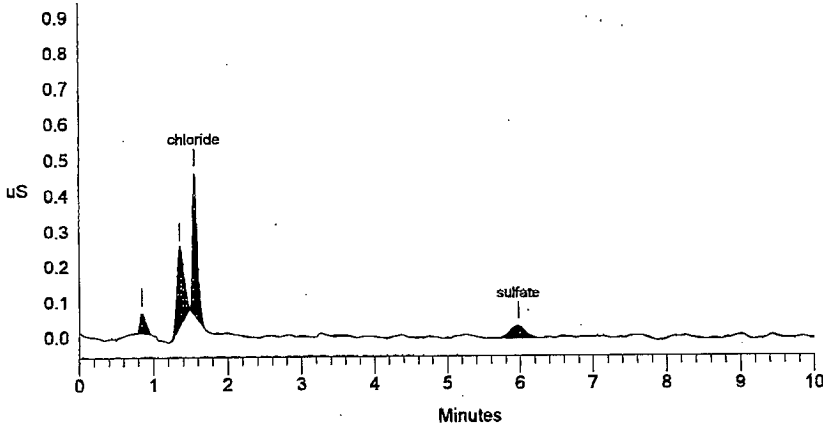
HNF-SO-WM-UF-292 REV. 0

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	59	317	1	
2	1.35		0.000	226	1439	1	
3	1.55	chloride	0.129	399	1699	1	0.43
4	5.97	sulfate	-0.073	34	445	1	0.90
Totals			0.055	718	3899		

File: 98011591.D18 Sample: BLANK



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 106 TO 112.

SS-1

Ending Blank

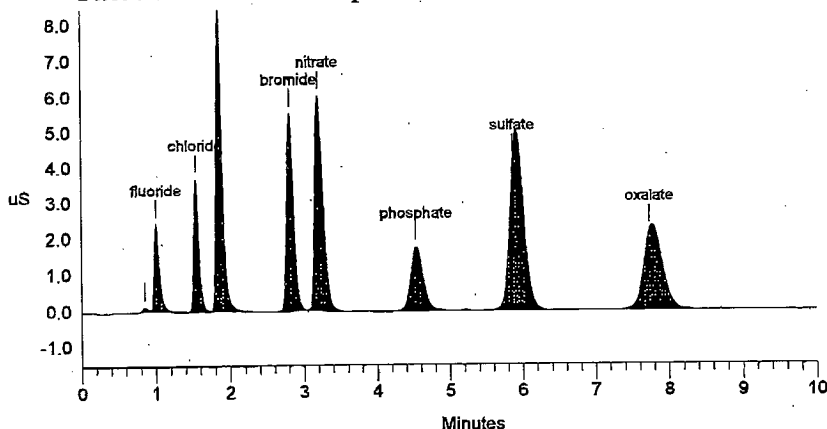
Sample Name: 111N20-B Date: 01/21/1998 04:32:51
 Data File : C:\DX\DATA\98011591.D19
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 19 Detector: CDM-1
 Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	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	96	434	2	
2	1.01	fluoride	56.730	2402	11380	2	-0.33
3	1.54	chloride	126.205	3701	17105	1	-0.43
4	1.85	nitrite	497.859	8416	46403	1	-1.42
5	2.81	bromide	564.669	5539	35243	1	2.18
6	3.19	nitrate	554.921	6028	46331	1	-0.52
7	4.53	phosphate	506.493	1757	20528	1	0.59
8	5.87	sulfate	603.089	4234	65046	1	-0.90
9	7.73	oxalate	519.456	2216	41160	1	0.00
Totals			3429.424	34388	283630		

File: 98011591.D19 Sample: 111N20-B



SS 100 TO

Ending STD

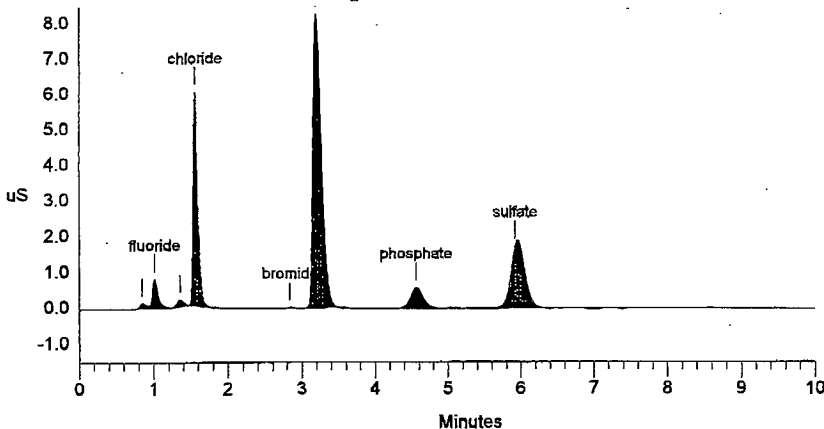
Sample Name: S98T000140 SAM Date: 01/21/1998 03:23:53
 Data File : C:\DX\DATA\98011591.D13
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 13 Detector: CDM-1
 Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	11	3000	5Hz	0.00	10.00		30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	132	674	2	
2	1.01	fluoride	2.255	806	3979	2	0.33
3	1.35		0.000	203	1193	1	
4	1.55	chloride	20.238	6011	25437	1	0.43
5	2.83	bromide	1.086	33	197	1	3.16
6	3.19	nitrate	85.021	8260	65401	1	-0.52
7	4.56	phosphate	19.043	588	6875	1	1.18
8	5.92	sulfate	24.392	1755	24703	1	0.00
Totals			152.035	17787	128458		

File: 98011591.D13 Sample: S98T000140 SAM



SS 1-10

Sample Name: S98T000140 DUP Date: 01/21/1998 03:35:21
 Data File : C:\DX\DATA\98011591.D14
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 14 Detector: CDM-1
 Analyst : Column: AG4A/AS4A anion column

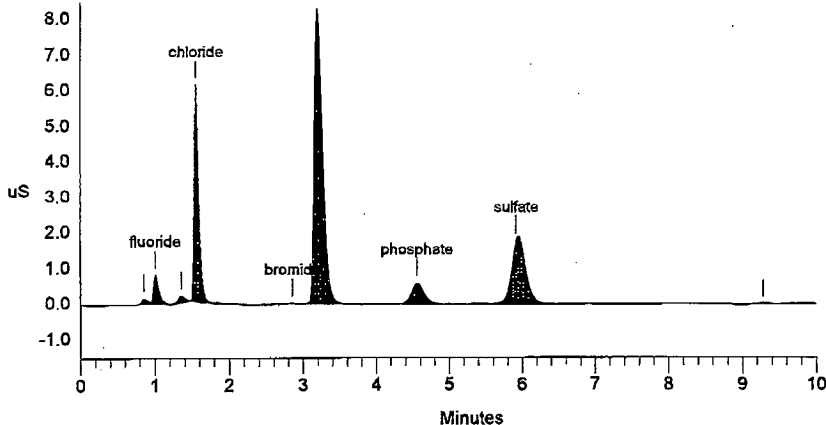
Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 11 3000 5Hz 0.00 10.00 30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	126	587	2	
2	1.01	fluoride	2.193	794	3861	2	-0.33
3	1.35		0.000	195	1161	1	
4	1.55	chloride	20.487	6092	25758	1	0.43
5	2.85	bromide	1.076	31	191	1	3.88
6	3.20	nitrate	84.329	8302	64861	1	-0.31
7	4.56	phosphate	19.047	588	6877	1	1.18
8	5.92	sulfate	24.337	1774	24649	1	0.00
9	9.28		0.000	22	452	1	
Totals			151.467	17924	128398		

File: 98011591.D14 Sample: S98T000140 DUP



35 1-10

Sample Name: S98T000140 SPK Date: 01/21/1998 03:47:09
 Data File : C:\DX\DATA\98011591.D15
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 15 Detector: CDM-1
 Analyst : Column: AG4A/AS4A anion column

HNF-SD-WM-DF-292 REV. 0

Calibration Volume Dilution Points Rate Start Stop Area Reject

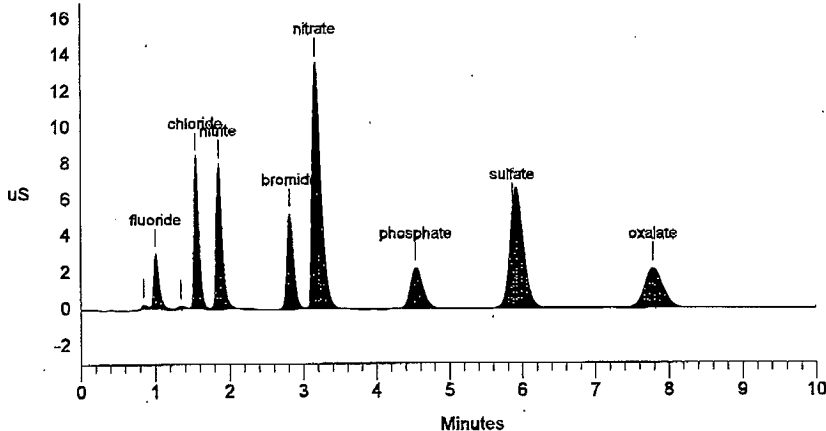
External 1 11 3000 5Hz 0.00 10.00 30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	194	880	2	
2	1.01	fluoride	7.816	2970	14479	2	-0.33
3	1.35		0.000	184	1044	1	
4	1.55	chloride	29.121	8316	37099	1	0.00
5	1.85	nitrite	50.977	7944	43573	1	-1.07
6	2.81	bromide	56.611	5241	32367	1	2.43
7	3.16	nitrate	140.608	13530	109209	1	-1.56
8	4.53	phosphate	70.481	2229	26394	1	0.59
9	5.87	sulfate	86.227	5503	85404	1	-0.90
10	7.79	oxalate	52.638	2201	38266	1	0.69

Totals 494.479 48313 388715

File: 98011591.D15 Sample: S98T000140 SPK



SS 1-10

Sample Name: S98T000141 SAM Date: 01/21/1998 03:58:14
 Data File : C:\DX\DATA\98011591.D16
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 16 Detector: CDM-1
 Analyst : Column: AG4A/AS4A anion column

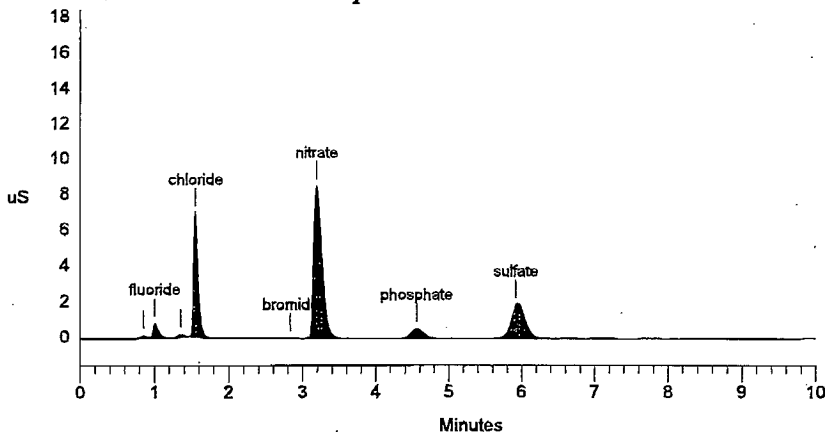
Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 11 3000 5Hz 0.00 10.00 30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	126	600	2	
2	1.01	fluoride	2.375	833	4204	2	-0.33
3	1.35		0.000	211	1244	1	
4	1.55	chloride	23.296	6932	29416	1	0.43
5	2.83	bromide	1.015	29	156	1	3.16
6	3.19	nitrate	87.768	8540	67544	1	-0.52
7	4.56	phosphate	19.215	591	6940	1	1.18
8	5.92	sulfate	26.344	1885	26593	1	0.00
Totals			160.014	19147	136696		

File: 98011591.D16 Sample: S98T000141 SAM



SS 1-10

Sample Name: S98T000141 DUP Date: 01/21/1998 04:09:01
 Data File : C:\DX\DATA\98011591.D17
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 17 Detector: CDM-1
 Analyst : Column: AG4A/AS4A anion column

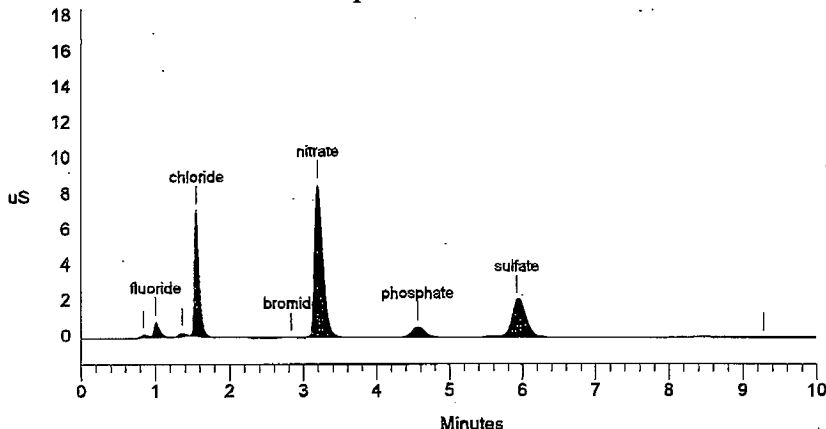
HNF-SD-WM-DF-292 REV. 0

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	11	3000	5Hz	0.00	10.00		30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	125	575	2	
2	1.01	fluoride	2.406	834	4263	2	-0.33
3	1.36		0.000	218	1301	1	
4	1.55	chloride	23.870	7060	30167	1	0.43
5	2.83	bromide	1.038	32	169	1	3.16
6	3.19	nitrate	86.404	8563	66479	1	-0.52
7	4.56	phosphate	19.527	593	7057	1	1.18
8	5.92	sulfate	28.127	2104	28321	1	0.00
9	9.28		0.000	23	346	1	
Totals			161.372	19552	138677		

File: 98011591.D17 Sample: S98T000141 DUP



SS 1-10

LABCORE Completed Worklist Report for Worklist# 21905

Analyst: rwk

Instrument: IC01

Book# 111N20D

Method: 14-533-105 Rev/Mod E-0

Worklist Comment: TX302C GRAB, @IC-01 skw

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	<1.00e-1		ug/mL
1 CCB	0	@IC-QC BR	QC	1	<1.25e-1		ug/mL
1 CCB	0	@IC-QC NO3	QC	1	<1.30e-1		ug/mL
1 CCB	0	@IC-QC P04	QC	1	<1.20e-1		ug/mL
1 CCB	0	@IC-QC S04	QC	1	<1.30e-1		ug/mL
1 CCB	0	@IC-QC OXALATE2	QC	1	<1.05e-1		ug/mL
2 CCV	0	@IC-QC F	QC	5.90e1	6.24e+01	105.763 % Recovery	
2 CCV	0	@IC-QC CL	QC	8.00e1	8.01e+01	100.125 % Recovery	
2 CCV	0	@IC-QC NO2	QC	5.43e2	5.45e+02	100.368 % Recovery	
2 CCV	0	@IC-QC BR	QC	5.89e2	5.86e+02	99.491 % Recovery	
2 CCV	0	@IC-QC NO3	QC	5.94e2	5.66e+02	95.286 % Recovery	
2 CCV	0	@IC-QC P04	QC	5.45e2	5.17e+02	94.862 % Recovery	
2 CCV	0	@IC-QC S04	QC	6.32e2	6.40e+02	101.266 % Recovery	
2 CCV	0	@IC-QC OXALATE2	QC	5.32e2	5.46e+02	102.632 % Recovery	
3 SAMPLE	S98T000142 0	@IC-01 F-02	LIQUID	N/A	2.522e+00	0.492 ug/mL	
3 SAMPLE	S98T000142 0	@IC-01 CL-02	LIQUID	N/A	1.365e+01	0.697 ug/mL	
3 SAMPLE	S98T000142 0	@IC-01 NO2-02	LIQUID	N/A	4.429e+00	4.428 ug/mL	
3 SAMPLE	S98T000142 0	@IC-01 BR-02	LIQUID	N/A	5.125e+00	5.125 ug/mL	
3 SAMPLE	S98T000142 0	@IC-01 NO3-02	LIQUID	N/A	7.709e+01	5.699 ug/mL	
3 SAMPLE	S98T000142 0	@IC-01 P04-02	LIQUID	N/A	2.075e+01	4.920 ug/mL	
3 SAMPLE	S98T000142 0	@IC-01 S04-02	LIQUID	N/A	2.291e+01	5.658 ug/mL	
3 SAMPLE	S98T000142 0	@IC-01 OXALATE2	LIQUID	N/A	4.305e+00	4.305 ug/mL	
4 DUP	S98T000142 0	@IC-01 F-02	LIQUID	2.52e+00	2.40e+00	4.878 RPD	
4 DUP	S98T000142 0	@IC-01 CL-02	LIQUID	1.37e+01	1.38e+01	0.727 RPD	
4 DUP	S98T000142 0	@IC-01 NO2-02	LIQUID	<4.43e0	<4.43e0	RPD	
4 DUP	S98T000142 0	@IC-01 BR-02	LIQUID	<5.12e0	<5.12e0	RPD	
4 DUP	S98T000142 0	@IC-01 NO3-02	LIQUID	7.71e+01	7.75e+01	0.517 RPD	
4 DUP	S98T000142 0	@IC-01 P04-02	LIQUID	2.08e+01	2.02e+01	2.927 RPD	
4 DUP	S98T000142 0	@IC-01 S04-02	LIQUID	2.29e+01	2.12e+01	7.710 RPD	
4 DUP	S98T000142 0	@IC-01 OXALATE2	LIQUID	<4.30e0	<4.30e0	RPD	

Final page for worklist# 21905

Analyst Signature _____ Date _____

Analyst Signature *[Signature]* Date 1-30-98

[Signature]

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

01/19/98 10:19
A-0004-1

Page: 1

LABCORE Data Entry Template for Worklist# 21905

Analyst: RL Instrument: IC0 1 Book# 111720-D

Method: LA-533-105 Rev/Mod _____

Worklist Comment: TX302C GRAB, @IC-01 skw

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	CCB				@IC-QC	QC		
2	CCV				@IC-QC	QC		
3	SAMPLE	S98T000142 0			@IC-01	LIQUID	97000887	TX-302C GRAB
		Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
4	DUP	S98T000142 0			@IC-01	LIQUID		

Final page for worklist # 21905

Mark Wynn 1/28/98
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

of axial. 1/29/9821905 JAN. SEC" " CSV

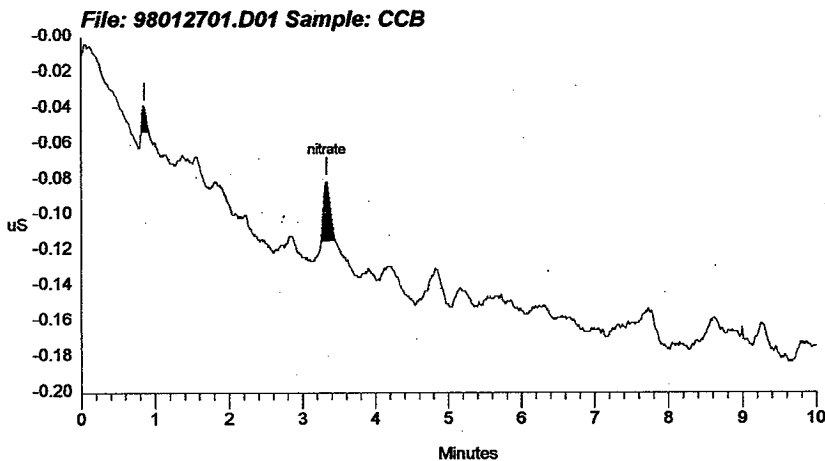
S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Sample Name: CCB Date: 01/28/1998 22:17:32
Data File : C:\DX\DATA\98012701.D01
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 1 Detector: CDM-1
Analyst : *James M. Seay* Column: AG4A/AS4A anion column
for RWK 2/2/98

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	0.85		0.000	14	54	1	
2	3.33	nitrate	0.001	34	206	1	1.32
Totals			0.001	48	260		



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 115 TO 118.

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Sample Name: CCV                               Date: 01/28/1998 22:34:56
Data File  : C:\DX\DATA\98012711.D02
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 2           Detector: CDM-1
Analyst    : W. King                        Column: AG4A/AS4A anion column
=====
  
```

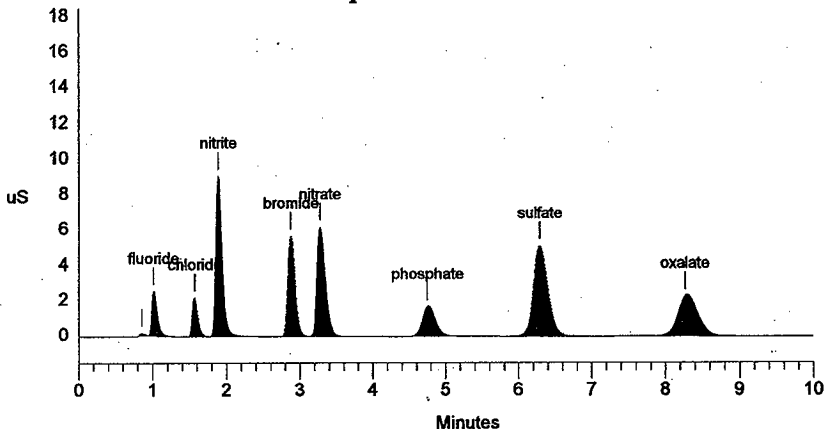
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Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          101    3000  5Hz   0.00 10.00      30
  
```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	123	588	2	
2	1.01	fluoride	62.358	2516	12540	2	0.33
3	1.57	chloride	80.068	2190	10763	1	-0.21
4	1.89	nitrite	544.812	9053	50864	1	-1.74
5	2.87	bromide	586.075	5649	36617	1	1.17
6	3.27	nitrate	566.090	6153	47270	1	-0.51
7	4.75	phosphate	517.494	1681	20985	1	-0.49
8	6.29	sulfate	639.708	5098	68982	1	0.05
9	8.27	oxalate	546.425	2292	43320	1	-0.04
Totals			3543.029	34754	291929		

File: 98012711.D02 Sample: CCV



HNF-SD-WM-DP-292 REV. 0

```

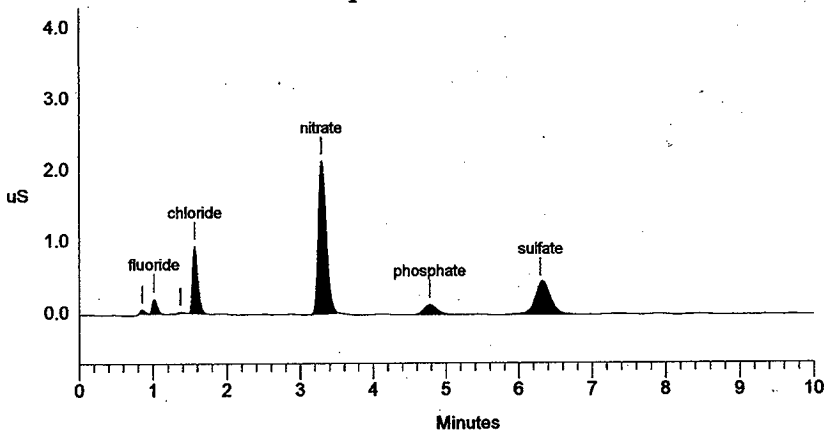
=====
Sample Name: S98T000142          Date: 01/28/1998 23:11:50
Data File  : C:\DX\DATA\98012711.D04
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 4      Detector: CDM-1
Analyst    :                      Column: AG4A/AS4A anion column
=====
  
```

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

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	57	275	2	
2	1.01	fluoride	2.522	215	1010	2	0.33
3	1.37		0.000	21	117	1	
4	1.56	chloride	13.655	929	4468	1	-0.64
5	3.29	nitrate	77.089	2136	15870	1	-0.10
6	4.77	phosphate	20.745	145	1844	1	0.07
7	6.29	sulfate	22.910	451	7111	1	0.05
Totals			136.922	3955	30695		

File: 98012711.D04 Sample: S98T000142



```

=====
Sample Name: S98T000142 DUP          Date: 01/28/1998 23:27:06
Data File  : C:\DX\DATA\98012711.D05
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 5   Detector: CDM-1
Analyst    :                          Column: AG4A/AS4A anion column
=====

```

```

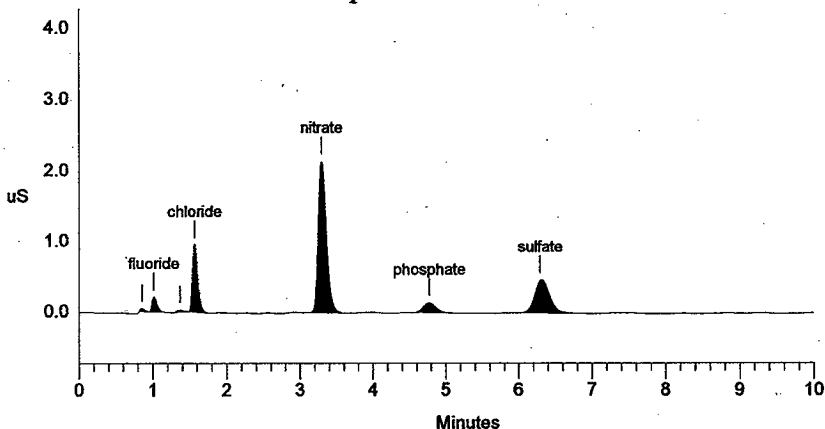
=====
Calibration Volume  Dilution Points Rate Start Stop Area Reject
-----
External           1           41 3000 5Hz 0.00 10.00          30
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	46	198	2	
2	1.01	fluoride	2.404	213	950	2	0.33
3	1.37		0.000	32	187	1	
4	1.56	chloride	13.792	948	4514	1	-0.64
5	3.29	nitrate	77.460	2142	15946	1	0.10
6	4.77	phosphate	20.196	143	1789	1	0.07
7	6.29	sulfate	21.243	465	6682	1	0.05
Totals			135.094	3989	30266		

File: 98012711.D05 Sample: S98T000142 DUP



LABCORE Completed Worklist Report for Worklist# 22116

Analyst: adp

Instrument: IC01

Book# 111020D

Method: 4-533-105 Rev/Mod E-0

Worklist Comment: TX302C GRAB, @IC-01 skw

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	5.90e1	5.92e+01	100.339 % Recovery	
2 CCV	0	@IC-QC CL	QC	8.00e1	8.00e+01	100.000 % Recovery	
2 CCV	0	@IC-QC NO2	QC	5.43e2	5.48e+02	100.921 % Recovery	
2 CCV	0	@IC-QC BR	QC	5.89e2	5.79e+02	98.302 % Recovery	
2 CCV	0	@IC-QC NO3	QC	5.94e2	5.61e+02	94.444 % Recovery	
2 CCV	0	@IC-QC P04	QC	5.45e2	5.18e+02	95.046 % Recovery	
2 CCV	0	@IC-QC SO4	QC	6.32e2	6.26e+02	99.051 % Recovery	
2 CCV	0	@IC-QC OXALATE2	QC	5.32e2	5.30e+02	99.624 % Recovery	
3 SAMPLE	S97T002431 0	@IC-01 F-02	LIQUID	N/A	2.091e+00	0.132	ug/mL
3 SAMPLE	S97T002431 0	@IC-01 CL-02	LIQUID	N/A	1.965e+01	0.187	ug/mL
3 SAMPLE	S97T002431 0	@IC-01 NO2-02	LIQUID	N/A	1.188e+00	1.188	ug/mL
3 SAMPLE	S97T002431 0	@IC-01 BR-02	LIQUID	N/A	1.375e+00	1.375	ug/mL
3 SAMPLE	S97T002431 0	@IC-01 NO3-02	LIQUID	N/A	6.093e+01	1.529	ug/mL
3 SAMPLE	S97T002431 0	@IC-01 P04-02	LIQUID	N/A	1.933e+01	1.320	ug/mL
3 SAMPLE	S97T002431 0	@IC-01 SO4-02	LIQUID	N/A	2.389e+01	1.518	ug/mL
3 SAMPLE	S97T002431 0	@IC-01 OXALATE2	LIQUID	N/A	1.155e+00	1.155	ug/mL
4 DUP	S97T002431 0	@IC-01 F-02	LIQUID	2.09e+00	2.16e+00	3.294	RPD
4 DUP	S97T002431 0	@IC-01 CL-02	LIQUID	1.37e+01	1.32e+01	3.717	RPD
4 DUP	S97T002431 0	@IC-01 NO2-02	LIQUID	<1.19e0	<1.19e0		RPD
4 DUP	S97T002431 0	@IC-01 BR-02	LIQUID	<1.38e0	<1.38e0		RPD
4 DUP	S97T002431 0	@IC-01 NO3-02	LIQUID	8.09e+01	8.15e+01	0.739	RPD
4 DUP	S97T002431 0	@IC-01 P04-02	LIQUID	1.93e+01	2.05e+01	6.030	RPD
4 DUP	S97T002431 0	@IC-01 SO4-02	LIQUID	2.39e+01	2.37e+01	0.840	RPD
4 DUP	S97T002431 0	@IC-01 OXALATE2	LIQUID	<1.16e0	<1.16e0		RPD
5 SPK	S97T002431 0	@IC-01 F-02	LIQUID	5.98e1	5.51e+01	93.390 % Recovery	
5 SPK	S97T002431 0	@IC-01 CL-02	LIQUID	8.00e1	7.70e+01	96.250 % Recovery	
5 SPK	S97T002431 0	@IC-01 NO2-02	LIQUID	5.43e2	5.17e+02	95.212 % Recovery	
5 SPK	S97T002431 0	@IC-01 BR-02	LIQUID	5.89e2	5.79e+02	98.302 % Recovery	
5 SPK	S97T002431 0	@IC-01 NO3-02	LIQUID	5.94e2	5.87e+02	98.822 % Recovery	
5 SPK	S97T002431 0	@IC-01 P04-02	LIQUID	5.45e2	5.23e+02	95.963 % Recovery	
5 SPK	S97T002431 0	@IC-01 SO4-02	LIQUID	6.32e2	6.28e+02	99.367 % Recovery	
5 SPK	S97T002431 0	@IC-01 OXALATE2	LIQUID	5.32e2	5.17e+02	97.180 % Recovery	
6 SAMPLE	S97T002432 0	@IC-01 F-02	LIQUID	N/A	2.010e+00	0.132	ug/mL

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

LABCORE Completed Worklist Report for Worklist# 22116

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
6 SAMPLE	S97T002432	0	QIC-01 CL-02	LIQUID	N/A	1.256e+01	0.187	ug/mL
6 SAMPLE	S97T002432	0	QIC-01 NO2-02	LIQUID	N/A	1.188e+00	1.188	ug/mL
6 SAMPLE	S97T002432	0	QIC-01 BR-02	LIQUID	N/A	1.375e+00	1.375	ug/mL
6 SAMPLE	S97T002432	0	QIC-01 NO3-02	LIQUID	N/A	7.807e+01	1.529	ug/mL
6 SAMPLE	S97T002432	0	QIC-01 PO4-02	LIQUID	N/A	1.803e+01	1.320	ug/mL
6 SAMPLE	S97T002432	0	QIC-01 SO4-02	LIQUID	N/A	2.323e+01	1.518	ug/mL
6 SAMPLE	S97T002432	0	QIC-01 OXALATE2	LIQUID	N/A	1.155e+00	1.155	ug/mL
7 DUP	S97T002432	0	QIC-01 F-02	LIQUID	2.01e+00	2.04e+00	1.481	RPD
7 DUP	S97T002432	0	QIC-01 CL-02	LIQUID	1.26e+01	1.26e+01	0.000	RPD
7 DUP	S97T002432	0	QIC-01 NO2-02	LIQUID	<1.19e0	<1.19e0		RPD
7 DUP	S97T002432	0	QIC-01 BR-02	LIQUID	<1.38e0	<1.38e0		RPD
7 DUP	S97T002432	0	QIC-01 NO3-02	LIQUID	7.81e+01	7.96e+01	1.902	RPD
7 DUP	S97T002432	0	QIC-01 PO4-02	LIQUID	1.80e+01	1.83e+01	1.653	RPD
7 DUP	S97T002432	0	QIC-01 SO4-02	LIQUID	2.32e+01	2.35e+01	1.285	RPD
7 DUP	S97T002432	0	QIC-01 OXALATE2	LIQUID	<1.16e0	<1.16e0		RPD

Final page for worklist# 22116

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

John M. Laje 2/5/98
Reviewer Signature Date

LABCORE Data Entry Template for Worklist# 22116

Analyst: ADP Instrument: IC0 1 Book# 111N20D

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

Worklist Comment: TX302C GRAB, @IC-01 skw

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 CCB			@IC-QC	QC		
2 CCV			@IC-QC	QC		
3 SAMPLE	S97T002431 0		@IC-01	LIQUID	97000887	TX-302C GRAB
Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
4 DUP	S97T002431 0		@IC-01	LIQUID		
5 SPK	S97T002431 0		@IC-01	LIQUID		
6 SAMPLE	S97T002432 0		@IC-01	LIQUID	97000887	TX-302C GRAB
Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
7 DUP	S97T002432 0		@IC-01	LIQUID		

Final page for worklist # 22116

Anthony Parente 2-4-98
Analyst Signature Date

Analyst Signature Date

UPLOADED 2-5-98
John W. Howell
22116 FEB. CSV

Validated 2/5/98 Jim Lye

Data Entry Comments:

=====

Sample Name: BLANK	Date: 02/03/1998 23:29:06
Data File : C:\DX\DATA\98020231.D12	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 12	Detector: CDM-1
Analyst : <i>Bele D. 4/1/98</i>	Column: AG4A/AS4A anion column

=====

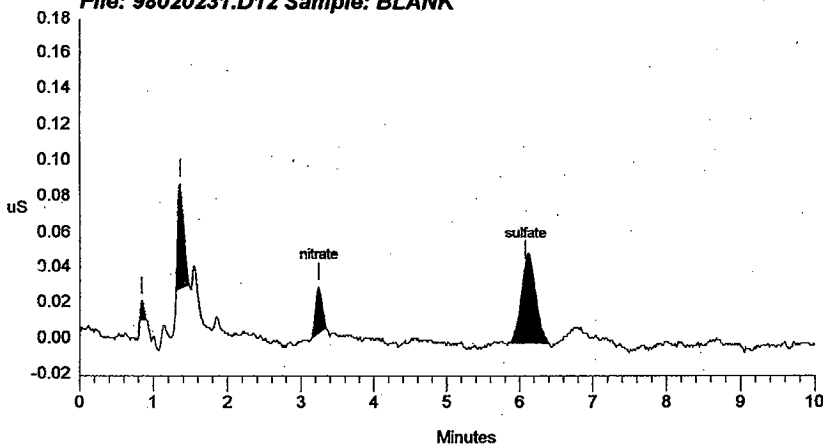
Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
-------------	--------	----------	--------	------	-------	------	------	--------

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	0.84		0.000	11	33	1	
2	1.36		0.000	59	326	1	
3	3.24	nitrate	-0.006	26	155	1	-1.52
4	6.08	sulfate	-0.050	44	687	1	-3.34
Totals			-0.056	140	1201		

File: 98020231.D12 Sample: BLANK



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 122 TO 128

=====

Sample Name: 111N20-D	Date: 02/04/1998 01:35:33
Data File : C:\DX\DATA\98020231.D13	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: A System: 1 Inject#: 13	Detector: CDM-1
Analyst : <i>Anthony Parmita</i>	Column: AG4A/AS4A anion column

=====

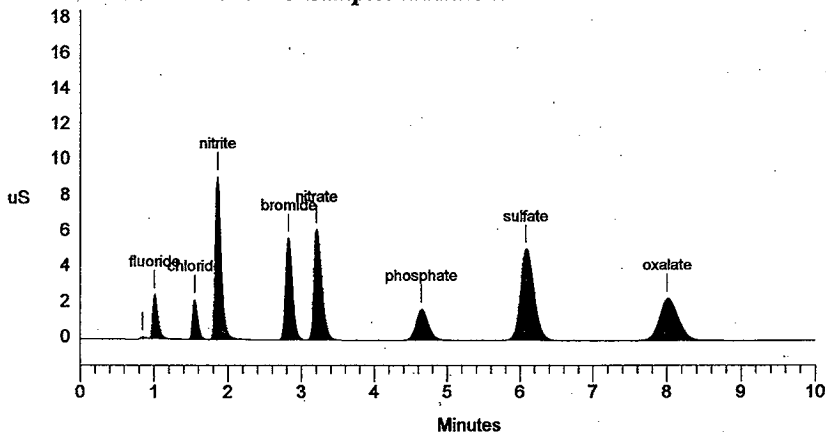
Calibration Volume Dilution Points Rate Start Stop Area Reject

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	101	448	2	
2	1.01	fluoride	59.198	100.32	11889	2	-0.33
3	1.55	chloride	80.030	100.04	10757	1	-1.49
4	1.86	nitrite	547.533	106.21	51123	1	-3.12
5	2.82	bromide	578.715	98.25	36145	1	-0.70
6	3.21	nitrate	560.691	94.39	46816	1	-2.53
7	4.64	phosphate	517.715	94.32	20994	1	-2.73
8	6.08	sulfate	626.092	98.29	67518	1	-3.34
9	8.00	oxalate	529.521	99.16	41966	1	-3.26
Totals			3499.496	35175	287656		

File: 98020231.D13 Sample: 111N20-D



```

=====
Sample Name: S97T002431 SAM                      Date: 02/04/1998 02:42:49
Data File  : C:\DX\DATA\98020231.D18
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 18              Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

```

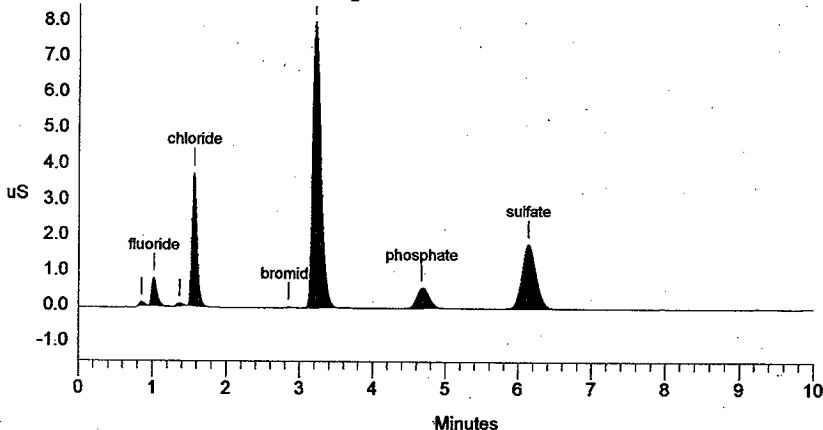
=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External      1      11      3000 5Hz 0.00 10.00      30
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	95	426	2	
2	1.02	fluoride	2.091	790	3670	2	0.99
3	1.37		0.000	77	436	1	
4	1.56	chloride	13.650	3753	16985	1	-0.64
5	2.85	bromide	1.006	27	151	1	0.23
6	3.21	nitrate	80.927	8058	62212	1	-2.53
7	4.67	phosphate	19.332	572	6984	1	-2.17
8	6.13	sulfate	23.893	1834	24219	1	-2.49
Totals			140.899	15206	115082		

File: 98020231.D18 Sample: S97T002431 SAM



SS 1-10

```

=====
Sample Name: S97T002431 DUP                      Date: 02/04/1998 02:53:59
Data File  : C:\DX\DATA\98020231.D19
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 19              Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====
  
```

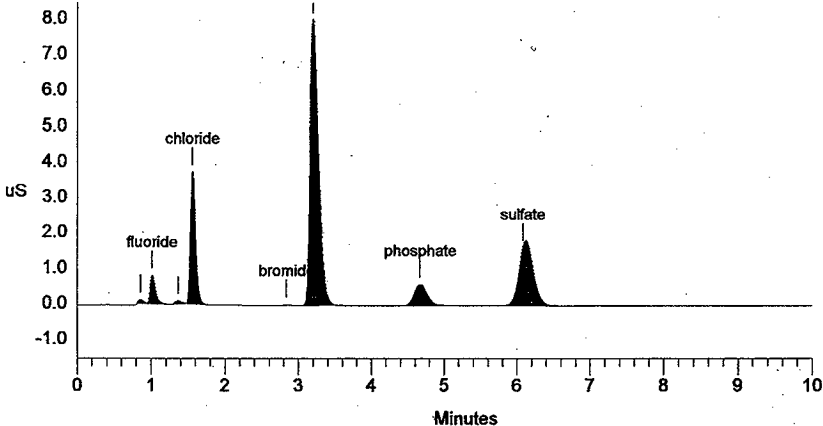
```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
=====
External          1          11    3000   5Hz   0.00 10.00          30
=====
  
```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	97	469	2	
2	1.01	fluoride	2.159	784	3798	2	0.33
3	1.37		0.000	86	483	1	
4	1.55	chloride	13.177	3722	16384	1	-1.06
5	2.83	bromide	0.963	25	126	1	-0.23
6	3.19	nitrate	81.478	8003	62642	1	-2.94
7	4.67	phosphate	20.515	601	7427	1	-2.17
8	6.08	sulfate	23.746	1627	24077	1	-3.34
Totals			142.039	14946	115406		

File: 98020231.D19 Sample: S97T002431 DUP



SS 1-10

Data Reprocessed On 02/04/1998 14:58:09

```

=====
Sample Name: S97T002431 SPK                      Date: 02/04/1998 03:04:46
Data File  : F:\DATA\98020231.D20
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 20              Detector: CDM-1
Analyst    :                      Column: AG4A/AS4A anion column
=====

```

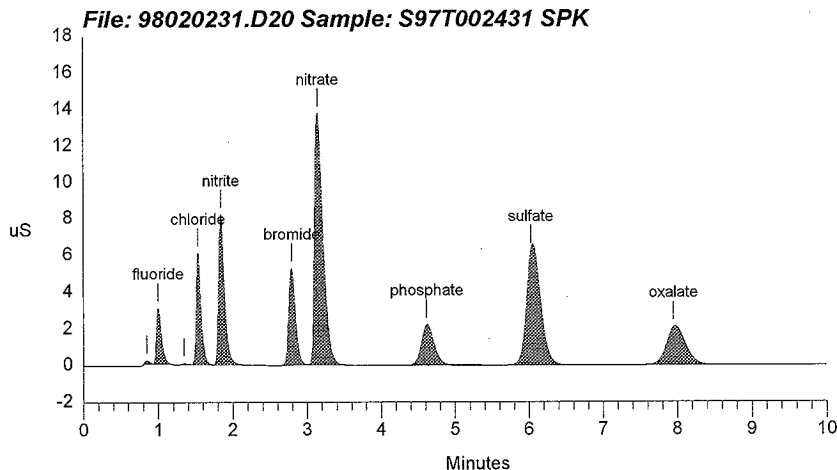
Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
-------------	--------	----------	--------	------	-------	------	------	--------

External	1	11	3000	5Hz	0.00	10.00		30
----------	---	----	------	-----	------	-------	--	----

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	169	680	1	
2	1.00	fluoride	7.606	3004	14081	1	-0.99
3	1.35		0.000	71	397	1	
4	1.53	chloride	21.355	6047	26885	1	-2.34
5	1.84	nitrite	51.739	8192	44237	1	-4.17
6	2.79	bromide	57.930	5261	33143	1	-1.64
7	3.14	nitrate	139.652	13738	108447	1	0.00
8	4.61	phosphate	71.617	2211	26831	1	-3.28
9	6.03	sulfate	86.715	6248	85890	1	-4.19
10	7.95	oxalate	51.675	2066	37559	1	-3.91

Totals			488.288	47007	378148		
--------	--	--	---------	-------	--------	--	--



=====

Sample Name: S97T002432 SAM	Date: 02/04/1998 03:30:46
Data File : C:\DX\DATA\98020231.D23	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 23	Detector: CDM-1
Analyst :	Column: AG4A/AS4A anion column

=====

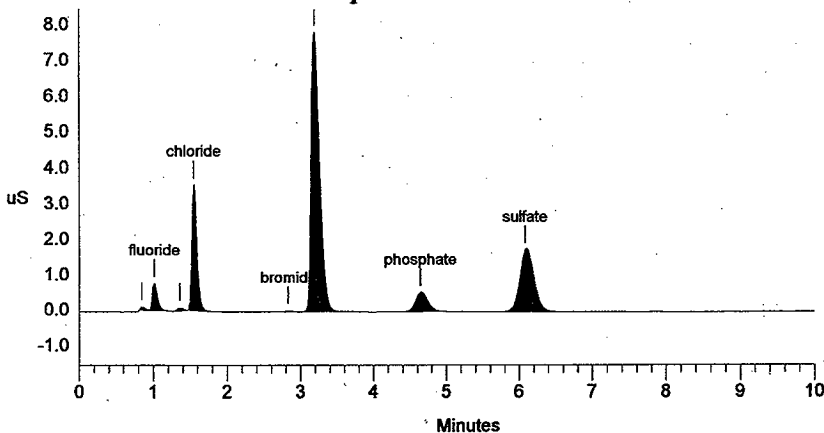
Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 11 3000 5Hz 0.00 10.00 30

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

Pk. Num	Ret. Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	88	401	2	
2	1.01	fluoride	2.010	762	3517	2	0.33
3	1.35		0.000	78	438	1	
4	1.55	chloride	12.557	3534	15598	1	-1.49
5	2.83	bromide	0.932	22	109	1	-0.47
6	3.19	nitrate	78.067	7833	59988	1	-3.14
7	4.64	phosphate	18.033	540	6497	1	-2.73
8	6.08	sulfate	23.231	1749	23579	1	-3.34
Totals			134.831	14606	110128		

File: 98020231.D23 Sample: S97T002432 SAM



SS 1-10

Sample Name: S97T002432 DUP Date: 02/04/1998 03:41:37
 Data File : C:\DX\DATA\98020231.D24
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 24 Detector: CDM-1
 Analyst : Column: AG4A/AS4A anion column

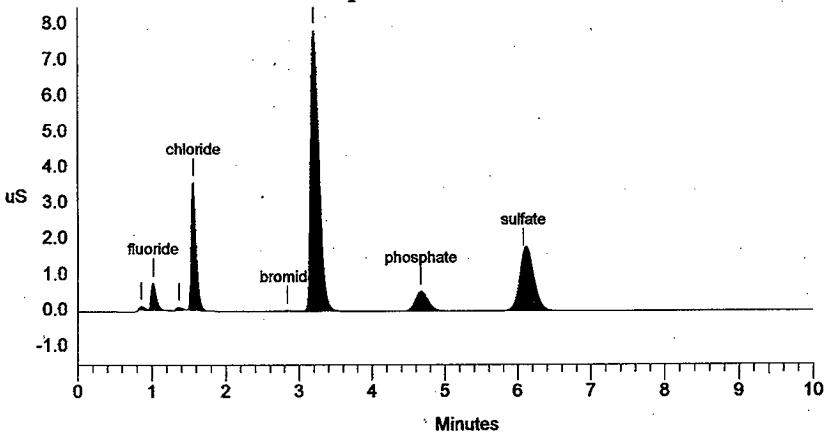
Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 11 3000 5Hz 0.00 10.00 30

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	96	476	2	
2	1.02	fluoride	2.037	766	3567	2	0.99
3	1.37		0.000	79	434	1	
4	1.56	chloride	12.550	3565	15588	1	-0.64
5	2.84	bromide	0.979	25	136	1	0.00
6	3.20	nitrate	79.586	7859	61170	1	-2.74
7	4.67	phosphate	18.304	552	6599	1	-2.17
8	6.08	sulfate	23.467	1621	23807	1	-3.34
Totals			136.923	14562	111777		

File: 98020231.D24 Sample: S97T002432 DUP



SS 1-10

1 01/20/98 10:51
A-0004-1

File #: 980123 B.TYT

Page: 1

LABCORE Data Entry Template for Worklist# 21932

Analyst: JK Safo Instrument: ICP01 2 14-98 Book# 708480Method: LA-505-151/161 Rev/Mod C-2Worklist Comment: 14-98
ICP TX-302C GRAB (DIRECT)

S Type	Sample#	R A	Test	Matrix	Group#	Project
1	ICV		@ICP-QC	QC		
2	ICB		@ICP-QC	QC		
3	LLS		@ICP-QC	QC		
4	ICSA		@ICP-QC	QC		
5	ICSAB		@ICP-QC	QC		
6	SERDIL	S98T000140	0 D	@ICP-D01	LIQUID	
7	SAMPLE	S98T000140	0 D	@ICP-D01	LIQUID	97000887 TX-302C GRAB
	Analytes Requested: AG-D-01, AL-D-01, AS-D-01, B-D-01, BA-D-01, BE-D-01, BI-D-01, CA-D-01, CD-D-01, CE-D-01, CO-D-01, CR-D-01, CU-D-01, FE-D-01, K-D-01, LA-D-01, LI-D-01, MG-D-01, MN-D-01, MO-D-01, NA-D-01, ND-D-01, NI-D-01, P-D-01, PB-D-01, S-D-01, SB-D-01, SE-D-01, SI-D-01, SM-D-01, SR-D-01, TI-D-01, TL-D-01, U-D-01, V-D-01, ZN-D-01, ZR-D-01					
8	DUP	S98T000140	0 D	@ICP-D01	LIQUID	
9	SPK (1 ppm)	S98T000140	0 D	@ICP-D01	LIQUID	
	Spike at (10 ppm) 14-98					
10	CCV		@ICP-QC	QC		
11	CCB		@ICP-QC	QC		
12	SAMPLE	S98T000141	0 D	@ICP-D01	LIQUID	97000887 TX-302C GRAB
	Analytes Requested: AG-D-01, AL-D-01, AS-D-01, B-D-01, BA-D-01, BE-D-01, BI-D-01, CA-D-01, CD-D-01, CE-D-01, CO-D-01, CR-D-01, CU-D-01, FE-D-01, K-D-01, LA-D-01, LI-D-01, MG-D-01, MN-D-01, MO-D-01, NA-D-01, ND-D-01, NI-D-01, P-D-01, PB-D-01, S-D-01, SB-D-01, SE-D-01, SI-D-01, SM-D-01, SR-D-01, TI-D-01, TL-D-01, U-D-01, V-D-01, ZN-D-01, ZR-D-01					

Data Entry Comments:

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

01/20/98 10:51
A-0004-1

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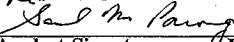
LABCORE Data Entry Template for Worklist# 21932

S Type	Sample#	R	A	Test	Matrix	Group#	Project
13 DUP	S98T000141	0	D	@ICP-D01	LIQUID		
14 SAMPLE	S98T000142	0	D	@ICP-D01	LIQUID	97000887	TX-302C GRAB
				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			
15 DUP	S98T000142	0	D	@ICP-D01	LIQUID		
16 ICSA				@ICP-QC	QC		
17 ICSAB				@ICP-QC	QC		
18 CCV				@ICP-QC	QC		
19 CCB				@ICP-QC	QC		

Final page for worklist # 21932


 Analyst Signature 01-21-98
 Date

S98T000140-L	2-8	JF 5
S98T000140	direct	1
S98T000140-D	direct	1
S98T000140-G	direct	* 1.25 8 ml sample + 2 ml 5575
S98T000140-X	1-9	10
S98T000140-GX	1-9	10, 1 ml sample + 1 ml each xwHC 28 + 35 + 7 ml HNO ₃
S98T000141	direct	1
S98T000141-D	direct	1
S98T000142	direct	1
S98T000142-D	direct	1

Reviewed & Validated by:

 Analyst Signature 1/26/98
 Date

Data Entry Comments:

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

S987000140

$$al = \frac{\left(\frac{1.5682}{1.25}\right) - \left(\frac{0.29081}{1.25}\right)}{1} \times 100 = 102.0\%$$

Post Spike:

$$A_f = \frac{\left(\frac{71.851}{10}\right) - \left(\frac{0.66597}{10}\right)}{10} \times 100 = 71.2\%$$

$$Na = \frac{\left(\frac{359.80}{10}\right) - \left(\frac{266.89}{10}\right)}{10} \times 100 = 92.9\%$$

$$P = \frac{\left(\frac{105.57}{10}\right) - \left(\frac{6.6025}{10}\right)}{10} \times 100 = 98.97\%$$

$$S = \frac{\left(\frac{107.58}{10}\right) - \left(\frac{9.0206}{10}\right)}{10} \times 100 = 98.56\%$$

Analysis Report

Summary

Mon 01-26-98 09:02:07 AM

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#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	980123B	ICP2	01/23/98	11:14	DKS	Q	CONC
2	ICB	980123B	ICP2	01/23/98	11:17	DKS	Q	CONC
3	LIS	980123B	ICP2	01/23/98	11:20	DKS	Q	CONC
4	ICSA	980123B	ICP2	01/23/98	11:24	DKS	Q	CONC
5	ICSAB	980123B	ICP2	01/23/98	11:27	DKS	Q	CONC
6	S98T000140 L	980123B	ICP2	01/23/98	11:32	DKS	S	CONC
7	S98T000140	980123B	ICP2	01/23/98	11:35	DKS	S	CONC
8	S98T000140 D	980123B	ICP2	01/23/98	11:38	DKS	S	CONC
9	S98T000140 A	980123B	ICP2	01/23/98	11:43	DKS	S	CONC
10	S98T000140 X	980123B	ICP2	01/23/98	11:51	DKS	S	CONC
11	S98T000140 AX	980123B	ICP2	01/23/98	11:54	DKS	S	CONC
12	CCV	980123B	ICP2	01/23/98	12:07	DKS	Q	CONC
13	CCB	980123B	ICP2	01/23/98	12:11	DKS	Q	CONC
14	S98T000141	980123B	ICP2	01/23/98	12:14	DKS	S	CONC
15	S98T000141 D	980123B	ICP2	01/23/98	12:18	DKS	S	CONC
16	S98T000142	980123B	ICP2	01/23/98	12:23	DKS	S	CONC
17	S98T000142 D	980123B	ICP2	01/23/98	12:26	DKS	S	CONC
18	ICSA	980123B	ICP2	01/23/98	12:34	DKS	Q	CONC
19	ICSAB	980123B	ICP2	01/23/98	12:37	DKS	Q	CONC
20	CCV 1	980123B	ICP2	01/23/98	12:41	DKS	Q	CONC
21	CCB 1	980123B	ICP2	01/23/98	12:46	DKS	Q	CONC

X *980* *sun...*
 01-23-98
 Worklist # 21732

TX-302C Gred
 5987000140
 5987000141
 5987000142

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 132 TO 136

Analysis Report

Averages

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#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	4.9384	4.9456	5.0740	5.0423	4.9551	5.0451
2	ICB	-.00037	-.00403	-.01121	.00211	.00000	.00012
3	LLS	.02177	.10232	.18353	.10121	.09864	.01057
4	ICSA	.00283	233.52	.04366	-.00712	.00219	.00036
5	ICSAB	.95685	235.13	.03687	-.01108	.46800	.48141
6	S98T000140 L	.02582	.31928	-.06474	.54588	.00551	.00158
7	S98T000140	.02847	.29081	.02493	.54739	.00518	.00030
8	S98T000140 D	.02789	.28371	.02317	.55452	.00531	.00027
9	S98T000140 A	.66597	1.5682	1.3600	1.8398	1.2541	1.2963
10	S98T000140 X	.05820	.34439	-.00812	.55853	.00624	.00342
11	S98T000140 AX	71.851	97.455	100.61	98.741	99.337	99.189
12	CCV	4.9587	4.9703	5.1296	5.0339	5.0373	5.0842
13	CCB	.00437	.01003	-.02026	.00084	.00002	.00037
14	S98T000141	.03602	.30149	.01965	.51523	.00476	.00042
15	S98T000141 D	.02949	.28993	.01388	.52481	.00502	.00046
16	S98T000142	.02853	.31563	.01850	.54320	.00376	.00041
17	S98T000142 D	.02832	.30899	.00073	.55242	.00377	.00039
18	ICSA	.02877	235.10	.04679	-.00598	.00212	.00053
19	ICSAB	.96519	237.03	.04340	-.00782	.47526	.48638
20	CCV 1	5.0045	5.0170	5.1669	5.1031	5.0956	5.1369
21	CCB 1	.00084	.01132	-.00416	.00210	.00013	.00028

#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	4.9290	5.0065	4.9412	5.0370	5.0001	4.8028
2	ICB	-.00677	-.00130	-.00161	-.00359	.00104	.00042
3	LLS	.21178	.21966	.00953	.20363	.04228	.01958
4	ICSA	.00509	252.44	.00334	.01077	.00258	-.00185
5	ICSAB	-.01030	255.64	.93279	.01722	.46416	.45894
6	S98T000140 L	.00565	4.7713	-.00678	.00068	.00257	.05623
7	S98T000140	.00840	4.5505	-.00251	-.00314	.00133	.05539
8	S98T000140 D	-.00395	4.6833	-.00138	-.00723	.00099	.05465
9	S98T000140 A	1.2450	5.9576	1.2626	1.2805	1.2742	1.2762
10	S98T000140 X	.04167	4.7605	.00127	.09994	.02187	.05497
11	S98T000140 AX	99.555	106.93	98.520	99.239	98.907	99.469
12	CCV	4.9406	5.0454	4.9847	5.0704	5.0246	4.8408
13	CCB	-.00571	-.00265	-.00057	.00097	.00000	-.00032
14	S98T000141	-.00353	4.3963	-.00205	-.00755	.00361	.05401
15	S98T000141 D	.00196	4.5788	-.00171	-.00403	.00194	.05106
16	S98T000142	.00155	4.4593	-.00193	-.00672	.00177	.05043
17	S98T000142 D	-.00400	4.5997	-.00210	-.00429	.00234	.05327
18	ICSA	-.00458	254.21	.00275	-.00197	.00102	-.00277
19	ICSAB	-.00485	258.36	.93788	.01114	.46645	.46103
20	CCV 1	4.9831	5.0945	5.0111	5.1308	5.0601	4.8791
21	CCB 1	.00621	-.00008	-.00052	.00529	.00176	.00119

Analysis Report

Averages

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#	Sample Name	Cu	Ku	Fa	K	La	Li
1	ICV	4.7305	.00581	4.8337	5.0889	5.0108	5.1024
2	ICB	-.00093	.00017	-.00069	-.13581	-.00045	.00054
3	LLS	.01717	.00009	.09615	.48145	.10148	.02168
4	ICSA	-.01028	.01053	91.524	.28022	-.00363	.00275
5	ICSAB	.45719	.01160	92.312	.04301	-.00255	.97679
6	S98T000140 L	-.09266	.00295	-.16666	4.3097	.00810	.01190
7	S98T000140	-.09839	-.00190	-.20117	4.0629	.00859	.00753
8	S98T000140 D	-.09719	-.00210	-.19953	4.0863	.00797	.00732
9	S98T000140 A	1.1243	-.00001	1.0454	5.4670	1.2909	1.2876
10	S98T000140 X	.09246	.00307	-.17112	4.8292	.01663	.01244
11	S98T000140 AX	93.199	.12963	95.258	101.30	99.144	96.764
12	CCV	4.7715	.00567	4.8737	4.9074	5.0616	5.0435
13	CCB	.00001	-.00068	-.00012	.23164	-.00024	-.00011
14	S98T000141	.01166	.00197	-.19536	3.8935	.00756	.00756
15	S98T000141 D	-.09921	-.00113	-.18571	4.0679	.00934	.00848
16	S98T000142	-.10753	-.00279	-.19591	4.0144	.00886	.00708
17	S98T000142 D	-.10482	-.00200	-.18808	4.1141	.00906	.00743
18	ICSA	-.01013	.01076	92.331	.08181	-.00487	.00209
19	ICSAB	.46102	.00877	93.204	.06703	-.00324	.97724
20	CCV 1	4.8296	.00587	4.9055	5.1745	5.1232	5.1310
21	CCB 1	.00048	-.00017	.00016	.17075	.00065	.00011

#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	5.1104	4.8566	4.9953	5.2209	4.8607	4.8446
2	ICB	-.01098	.00015	.00093	-.01524	-.00027	.00079
3	LLS	.19626	.01910	.09934	.21207	.19733	.03888
4	ICSA	255.63	-.00740	-.01467	194.72	.00256	-.00709
5	ICSAB	257.30	.44024	-.01597	194.48	.00058	.92212
6	S98T000140 L	.61223	.02579	.00208	267.07	-.00089	.01908
7	S98T000140	.61938	.01739	.00437	268.04	-.00655	.01898
8	S98T000140 D	.65006	.02019	.00530	272.45	-.00670	.01335
9	S98T000140 A	1.9667	1.2356	1.2792	276.29	1.2347	1.2606
10	S98T000140 X	.63209	.02626	-.00043	266.89	.01344	.07690
11	S98T000140 AX	103.94	98.884	98.663	359.80	95.792	98.109
12	CCV	5.1314	4.8924	5.0186	5.1617	4.8896	4.9027
13	CCB	-.00794	-.00002	-.00026	-.00671	-.00054	.00239
14	S98T000141	.60929	.00753	.00425	265.36	-.00342	.01208
15	S98T000141 D	.63167	.00903	.00438	269.34	-.00676	.01842
16	S98T000142	.63007	.01561	.00433	268.89	-.00797	.02113
17	S98T000142 D	.65274	.01794	.00530	271.68	-.00571	.01397
18	ICSA	257.63	-.00762	-.01429	195.32	.00263	-.00956
19	ICSAB	259.49	.44351	-.01442	194.62	.00291	.90600
20	CCV 1	5.1593	4.9290	5.0648	5.2523	4.9601	4.9106
21	CCB 1	-.00314	-.00005	.00025	.00704	.00283	.00168

Analysis Report

Averages

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#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	4.9999	4.8991	4.9343	4.7498	4.6877	4.8451
2	ICB	.00854	-.00302	.00420	-.00020	.01730	.00062
3	LLS	.39536	.20408	.19163	.09046	.20922	.12255
4	ICSA	.00193	.04817	-.02385	-.00063	.04789	-.01543
5	ICSAB	.00176	.99087	-.01266	-.00998	.04431	-.01549
6	S98T000140_L	6.6340	-.01161	9.1084	-.02749	.27213	10.021
7	S98T000140_D	7.1034	.00847	8.8928	.01536	.22241	10.020
8	S98T000140_A	7.0330	.00566	9.1043	.00860	.15658	10.174
9	S98T000140_X	7.9834	1.2537	10.636	1.2465	1.3157	11.518
10	S98T000140_AX	6.6025	-.04015	9.0206	.05119	.40076	9.9682
11	CCV	105.57	99.965	107.58	100.46	99.926	111.80
12	CCB	5.0018	4.9483	4.9708	4.8217	4.7422	4.8739
13	S98T000141	.00205	-.00688	-.00677	.00220	.02059	-.00219
14	S98T000141_D	6.8542	.00972	8.8608	.00922	.19736	9.8693
15	S98T000142	6.7071	.00275	9.2883	.00929	.09922	10.155
16	S98T000142_D	7.0072	.00023	8.8942	.01131	.18091	9.9686
17	S98T000142_X	6.8700	-.00434	9.2735	.01414	.10738	10.193
18	ICSA	-.00576	.02555	-.01186	-.00683	.04501	-.00974
19	ICSAB	.00828	1.0087	-.01959	-.00081	.06024	-.01468
20	CCV_1	5.0314	4.9772	4.9922	4.8521	4.8025	4.9109
21	CCB_1	.00187	-.00028	-.00497	-.00285	.02525	-.00028

#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	4.8880	5.0835	.03799	4.9314	4.7519	9.6767
2	ICB	.00397	.00008	-.00585	-.00003	-.00120	.02917
3	LLS	.19796	.02043	-.00265	.01972	.43319	.48712
4	ICSA	-.01814	-.00246	-.01217	.00122	-.04291	-.00594
5	ICSAB	-.01891	-.00257	-.01049	.00081	-.04951	-.02473
6	S98T000140_L	.02430	.02311	.03305	.00079	.08841	34.679
7	S98T000140_D	-.01366	.02215	.04077	.00026	.00869	36.085
8	S98T000140_A	-.01526	.02287	.04670	.00017	.01485	35.890
9	S98T000140_X	1.2251	1.3164	.07327	1.2634	1.2007	38.024
10	S98T000140_AX	.05738	.02331	.04487	.00618	-.11657	34.905
11	CCV	96.335	98.518	.89151	99.220	96.577	221.73
12	CCB	4.9388	5.1212	.03984	4.9710	4.7324	9.7547
13	S98T000141	-.00402	-.00004	-.00268	-.00001	-.01371	-.00184
14	S98T000141_D	-.01637	.01978	.05462	.00086	-.00068	35.447
15	S98T000142	-.00409	.02058	.06417	.00060	-.00229	34.774
16	S98T000142_D	-.02506	.02435	.04820	-.00001	.00469	36.240
17	S98T000142_X	-.01749	.02508	.06285	.00044	-.02010	35.899
18	ICSA	-.01924	-.00252	-.01800	.00099	-.03938	-.02537
19	ICSAB	-.01526	-.00262	-.00922	.00082	-.05555	-.04158
20	CCV_1	4.9941	5.1900	.03688	5.0284	4.8136	9.8762
21	CCB_1	.00154	-.00004	-.00015	.00107	.00355	.00357

Analysis Report

Averages

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#	Sample Name	V	Y	Zn	Zr
1	ICV	4.9886	.00717	4.8647	4.9339
2	ICB	.00061	.00030	-.00033	.00102
3	LLS	.09741	.00042	.01900	.01967
4	ICSA	-.00036	.00737	-.00175	-.00261
5	ICSAB	.46084	.00745	.91272	-.00261
6	S98T000140 L	.01189	.00211	.01434	-.00210
7	S98T000140	.00316	-.00099	.01132	-.00810
8	S98T000140 D	.00202	-.00114	.01257	-.00869
9	S98T000140 A	1.2763	.00079	1.2743	1.2489
10	S98T000140 X	.01553	.00397	.01374	-.00168
11	S98T000140 AX	98.329	.15110	93.513	98.399
12	CCV	5.0195	.00690	4.8677	4.9768
13	CCB	-.00113	-.00007	-.00033	-.00071
14	S98T000141	.00280	-.00087	.01304	-.00891
15	S98T000141 D	.00545	-.00019	.01502	-.00845
16	S98T000142	.00042	-.00129	.01169	-.00969
17	S98T000142 D	.00294	-.00091	.01216	-.00989
18	ICSA	-.00161	.00714	-.00216	-.00254
19	ICSAB	.46474	.00754	.91600	-.00247
20	CCV 1	5.0696	.00701	4.8974	5.0249
21	CCB 1	-.00098	.00000	-.00008	-.00061

Avg:

01-23-98

LABCORE Completed Worklist Report for Worklist# 21894

Analyst: pjm

Instrument: CARB1

Book# TIC 25N12B
TOC 26N12C

Method: LA342-100 Rev/Mod F-1

Worklist Comment: TX302C GRAB, @TICTOC1, STD: TIC= 1.0mL, TOC= 0.200mL skw

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLNK	0		@TICTOC1 TIC-02	LIQUID	1	6.00E-1	0.600	ug/mL
1 BLNK	0		@TICTOC1 TOC-02	LIQUID	1	3.60E+0	3.600	ug/mL
2 STD	0		@TICTOC1 TIC-02	LIQUID	6.02E+02	5.98E+2	99.336 % Recovery	
2 STD	0		@TICTOC1 TOC-02	LIQUID	3.00E+03	2.79E+3	93.000 % Recovery	
3 SAMPLE	S98T000140	0	@TICTOC1 TIC-02	LIQUID	N/A	1.15E+02	5.000	ug/mL
3 SAMPLE	S98T000140	0	@TICTOC1 TOC-02	LIQUID	N/A <	4.00E+01	40.000	ug/mL
4 DUP	S98T000140	0	@TICTOC1 TIC-02	LIQUID	1.15E+2	1.12E+2	2.643	RPD
4 DUP	S98T000140	0	@TICTOC1 TOC-02	LIQUID	<4.00E+1	<4.00E+1		RPD
5 SPK	S98T000140	0	@TICTOC1 TIC-02	LIQUID	1.00E+02	9.77E+01	97.700 % Recovery	
5 SPK	S98T000140	0	@TICTOC1 TOC-02	LIQUID	1.00E+02	8.89E+01	88.900 % Recovery	
6 SAMPLE	S98T000141	0	@TICTOC1 TIC-02	LIQUID	N/A	1.12E+02	5.000	ug/mL
6 SAMPLE	S98T000141	0	@TICTOC1 TOC-02	LIQUID	N/A <	4.00E+01	40.000	ug/mL
7 DUP	S98T000141	0	@TICTOC1 TIC-02	LIQUID	1.12E+2	1.13E+2	0.889	RPD
7 DUP	S98T000141	0	@TICTOC1 TOC-02	LIQUID	<4.00E+1	<4.00E+1		RPD

Final page for worklist# 21894

Analyst Signature

Date

Analyst Signature

Date

RW Scherden 1/20/98
Reviewer Signature Date

01/19/98 08:57

A-0004-1

Page: 1

LABCORE Data Entry Template for Worklist# 21894Analyst: Bill Instrument: CARB2 Book# TIC 25 N12 BMethod: LA-342-100 Rev/Mod F-1 TOC 26 N12 C

Worklist Comment: TX302C GRAB, @TICTOC1, STD: TIC= 1.0mL, TOC= 0.200mL skw

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	LIQUID		
2	STD				@TICTOC1	LIQUID		
3	SAMPLE	S98T000140 0			@TICTOC1	LIQUID	97000887	TX-302C GRAB
Analytes Requested: TIC-02 , TOC-02								
4	DUP	S98T000140 0			@TICTOC1	LIQUID		
5	SPK	S98T000140 0			@TICTOC1	LIQUID		
6	SAMPLE	S98T000141 0			@TICTOC1	LIQUID	97000887	TX-302C GRAB
Analytes Requested: TIC-02 , TOC-02								
7	DUP	S98T000141 0			@TICTOC1	LIQUID		

Final page for worklist # 21894
Bill McCown 1/20/98
 Analyst Signature Date

Frank March 1-20-98
 Analyst Signature Date

Data Entry Comments:

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 25N12B-1

Date: 01/19/98

Time: 22:04:00

Sample Size = 1000 uL

Analyst : PJ MCCOWN

Dil Factor = 1

Min Readings = 22

Blank ID # =

Max Readings = 22

Blank Value = .43 ug/minute C

% Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference ==
1	0.51	0.90	0.00
2	1.01	1.60	43.75
3	1.51	2.50	36.00
4	2.00	8.80	71.59
5	2.50	61.00	85.57
6	3.00	172.70	64.68
7	3.50	304.20	43.23
8	4.00	413.50	26.43
9	4.50	490.60	15.72
10	5.00	540.30	9.20
11	5.50	567.20	4.74
12	6.00	582.50	2.63
13	6.50	590.10	1.29
14	7.00	594.00	0.66
15	7.50	596.50	0.42
16	8.00	598.20	0.28
17	8.50	599.30	0.18
18	9.00	600.20	0.15
19	9.50	600.90	0.12
20	10.00	601.70	0.13
21	10.50	602.10	0.07
22	11.00	602.70	0.10

USER INPUT BLANK VALUE

BLANK VALUE = 4.728688 micrograms carbon

BLANK FACTOR = 4.728688 / 10.99695 = +4.3E-01 ug/min Carbon

SAMPLE RESULTS:

(602.7 - 4.729527) (1)/(1000) =

+5.980E-01 g/L Carbon

(602.7 - 4.729527) (1)/(1000) (12) =

+4.983E-02 Molar Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 139 TO 141.Sample Run By: PJ McCown 1/19/98

PJ MCCOWN

00000

LOMC 25N12B

HNF-SD-WM-DP-292 REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT TIC/TOC REV 2.0

Sample: 26N12C-1

Date: 01/19/98

Time: 22:17:52

Sample Size = 200 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.95 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	0.30	66.67
3	1.50	0.60	50.00
4	2.00	1.30	53.85
5	2.50	7.10	81.69
6	3.00	39.90	82.21
7	3.50	138.40	71.17
8	4.00	289.00	52.11
9	4.50	412.80	29.99
10	5.00	489.70	15.70
11	5.50	530.40	7.67
12	6.00	552.10	3.93
13	6.50	564.40	2.18
14	7.00	571.70	1.28
15	7.50	576.30	0.80
16	8.00	579.60	0.57
17	8.50	582.40	0.48
18	9.00	584.60	0.38
19	9.50	586.60	0.34
20	10.00	588.20	0.27
21	10.50	589.60	0.24
22	11.00	590.70	0.19

USER INPUT BLANK VALUE

BLANK VALUE = 32.441 micrograms carbon

BLANK FACTOR = 32.441 / 10.99695 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:

(590.7 - 32.441) (1)/(200) = +2.791E+00 g/L Carbon
 (590.7 - 32.441) (1)/(200) (12) = +2.326E-01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By: PJ McCown 1/19/98
 PJ MCCOWN 00000

200 mL 26N12C

HNF-SD-WM-DP-292 REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT

TICTOC REV. 2.0

<<< BLANK ANALYSIS >>>

Sample: BASE-1

Date: 01/19/98

Time: 21:24:04

Sample Size = 1 uL

Dil Factor = 1

Blank ID # = BASE-1

Blank Value = N/A

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

PJ MCCOWN

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	0.70	57.14
3	1.51	0.90	22.22
4	2.00	1.20	25.00
5	2.50	1.40	14.29
6	3.00	1.60	12.50
7	3.50	1.80	11.11
8	4.00	2.00	10.00
9	4.50	2.10	4.76
10	5.00	2.40	12.50
11	5.50	2.50	4.00
12	6.00	2.80	10.71
13	6.50	3.00	6.67
14	7.00	3.10	3.23
15	7.50	3.40	8.82
16	8.00	3.50	2.86
17	8.50	3.70	5.41
18	9.00	3.90	5.13
19	9.50	4.10	4.88
20	10.00	4.40	6.82
21	10.50	4.50	2.22
22	11.00	4.70	4.26

BLANK VALUE = 4.7 micrograms carbon

BLANK FACTOR = 4.7 / 10.9978 =

+4.3E-01

ug/min Carbon

Sample Run By:

PJ MCCOWN

00000

HNF-SD-WM-DP-292 REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BASE-1

Date: 01/19/98

Time: 21:51:24

Sample Size = 1 uL

Dil Factor = 1

Blank ID # = BASE-1

Blank Value = N/A

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.60	0.00
2	1.00	1.20	50.00
3	1.50	2.00	40.00
4	2.00	2.90	31.03
5	2.50	3.30	12.12
6	3.00	4.00	17.50
7	3.50	4.70	14.89
8	4.00	5.50	14.55
9	4.50	6.90	20.29
10	5.00	9.20	25.00
11	5.50	12.20	24.59
12	6.00	18.00	32.22
13	6.50	22.70	20.70
14	7.00	26.00	12.69
15	7.50	28.30	8.13
16	8.00	29.80	5.03
17	8.50	30.60	2.61
18	9.00	30.80	0.65
19	9.50	31.20	1.28
20	10.00	31.60	1.27
21	10.50	32.00	1.25
22	11.00	32.40	1.23

BLANK VALUE = 32.4 micrograms carbon

BLANK FACTOR = 32.4 / 10.99695 = +2.95E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By: PJ
PJ MCCOWN

00000

HNF-SD-WM-DP-292 REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: BLNK-1

Date: 01/19/98

Time: 22:35:01

Sample Size = 1 uL

Analyst : PJ MCCOWN

Dil Factor = 1

Min Readings = 22

Blank ID # =

Max Readings = 22

Blank Value = .43 ug/minute C

% Difference = 10

== Reading ==	Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	0.70	57.14
3	1.51	0.90	22.22
4	2.00	1.30	30.77
5	2.50	1.50	13.33
6	3.00	1.90	21.05
7	3.50	2.00	5.00
8	4.00	2.30	13.04
9	4.50	2.50	8.00
10	5.00	2.70	7.41
11	5.50	3.00	10.00
12	6.00	3.20	6.25
13	6.50	3.40	5.88
14	7.00	3.70	8.11
15	7.50	3.90	5.13
16	8.00	4.10	4.88
17	8.50	4.30	4.65
18	9.00	4.50	4.44
19	9.50	4.70	4.26
20	10.00	4.90	4.08
21	10.50	5.10	3.92
22	11.00	5.30	3.77

USER INPUT BLANK VALUE

BLANK VALUE = 4.728688 micrograms carbon

BLANK FACTOR = 4.728688 / 10.99695 = +4.3E-01 ug/min Carbon

SAMPLE RESULTS:

(5.3 - 4.72916) (1)/(1) = +5.7E-01 g/L Carbon
(5.3 - 4.72916) (1)/(1)(12) = +4.8E-02 Molar Carbon

Sample Run By:

PJ

PJ MCCOWN

00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-1

Date: 01/19/98

Time: 22:52:15

Sample Size = 1 uL

Analyst : PJ MCCOWN

Dil Factor = 1

Min Readings = 22

Blank ID # =

Max Readings = 22

Blank Value = 2.95 ug/minute C

% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.20	100.00
3	1.51	0.40	50.00
4	2.00	0.90	55.56
5	2.50	2.30	60.87
6	3.00	5.10	54.90
7	3.50	9.60	46.88
8	4.00	13.60	29.41
9	4.50	17.50	22.29
10	5.00	20.70	15.46
11	5.50	23.20	10.78
12	6.00	24.60	5.69
13	6.50	25.00	1.60
14	7.00	25.40	1.57
15	7.50	25.90	1.93
16	8.00	26.40	1.89
17	8.50	26.80	1.49
18	9.00	27.10	1.11
19	9.50	27.60	1.81
20	10.00	28.00	1.43
21	10.50	28.40	1.41
22	11.00	28.80	1.39

USER INPUT BLANK VALUE

BLANK VALUE = 32.441 micrograms carbon

BLANK FACTOR = 32.441 / 10.99695 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:

(28.8 - 32.44424) (1)/(1) = < 5.00 E-3 g/L Carbon
 (28.8 - 32.44424) (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: S98T000140-1

Date: 01/19/98

Time: 23:33:19

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .43 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	0.40	50.00
3	1.50	1.30	69.23
4	2.00	9.50	86.32
5	2.50	36.50	73.97
6	3.00	67.70	46.09
7	3.50	90.20	24.94
8	4.00	102.30	11.83
9	4.50	108.80	5.97
10	5.00	111.80	2.68
11	5.50	113.60	1.58
12	6.00	114.60	0.87
13	6.50	115.30	0.61
14	7.00	116.10	0.69
15	7.50	116.60	0.43
16	8.00	117.00	0.34
17	8.50	117.60	0.51
18	9.00	118.00	0.34
19	9.50	118.30	0.25
20	10.00	118.70	0.34
21	10.50	118.90	0.17
22	11.00	119.30	0.34

USER INPUT BLANK VALUE

BLANK VALUE = 4.728688 micrograms carbon

BLANK FACTOR = 4.728688 / 10.99695 = +4.3E-01 ug/min Carbon

SAMPLE RESULTS:

(119.3 - 4.729108) (1)/(1)	=	+1.146E+02	g/L Carbon
(119.3 - 4.729108) (1)/(1) (12)	=	+9.548E+00	Molar Carbon

Sample Run By: PJ McCown

PJ MCCOWN

00000

1.0 mL

1.0225g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T000140-1

Date: 01/19/98

Time: 23:46:45

Sample Size = 1 uL

Analyst : PJ MCCOWN

Dil Factor = 1

Min Readings = 22

Blank ID # =

Max Readings = 22

Blank Value = 2.95 ug/minute C

% Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference
1	0.51	0.10	0.00
2	1.01	0.30	66.67
3	1.51	0.80	62.50
4	2.00	3.00	73.33
5	2.50	8.40	64.29
6	3.00	15.60	46.15
7	3.50	21.50	27.44
8	4.00	25.20	14.68
9	4.50	28.00	10.00
10	5.00	30.20	7.28
11	5.50	31.80	5.03
12	6.04	33.10	3.93
13	6.54	34.20	3.22
14	7.04	35.10	2.56
15	7.54	36.10	2.77
16	8.04	36.90	2.17
17	8.54	37.60	1.86
18	9.03	38.20	1.57
19	9.53	38.90	1.80
20	10.03	39.30	1.02
21	10.53	39.70	1.01
22	11.03	40.10	1.00

USER INPUT BLANK VALUE

BLANK VALUE = 32.441 micrograms carbon

BLANK FACTOR = 32.441 / 10.99695 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:

(40.1 - 32.54615) (1)/(1) = +7.55E+00 g/L Carbon
 (40.1 - 32.54615) (1)/(1) (12) = +6.29E-01 Molar Carbon
 <<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>

Sample Run By: *PJ McCown*

PJ MCCOWN

00000

1.0mc
 1.0225g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 140 DUP-1

Date: 01/20/98

Time: 00:03:03

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .43 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	1.30	100.00
4	2.00	11.50	88.70
5	2.50	36.50	68.49
6	3.00	65.80	44.53
7	3.50	86.60	24.02
8	4.00	99.30	12.79
9	4.50	105.90	6.23
10	5.00	109.10	2.93
11	5.50	110.90	1.62
12	6.00	112.10	1.07
13	6.50	112.80	0.62
14	7.00	113.40	0.53
15	7.50	114.00	0.53
16	%-1432.00	114.40	0.35
17	%-1431.50	114.90	0.44
18	%-1431.00	115.20	0.26
19	%-1430.50	115.70	0.43
20	%-1430.00	115.90	0.17
21	%-1429.50	116.20	0.26
22	%-1429.00	116.50	0.26

USER INPUT BLANK VALUE

BLANK VALUE = 4.728688 micrograms carbon

BLANK FACTOR = 4.728688 / 10.99695 = +4.3E-01 ug/min Carbon

SAMPLE RESULTS:

(116.5 --614.4708) (1)/(1)	=	+7.310E+02	g/L Carbon
(116.5 --614.4708) (1)/(1)(12)	=	+6.091E+01	Molar Carbon

Sample Run By:

PJ MCCOWN

00000

1.0 mL

1.0067g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

#

Sample: 140 DUP-1

Date: 01/20/98

Time: 00:18:06

Sample Size = 1 uL

Analyst : PJ MCCOWN

Dil Factor = 1

Min Readings = 22

Blank ID # =

Max Readings = 22

Blank Value = 2.95 ug/minute C

% Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.10	100.00
3	1.50	0.50	80.00
4	2.00	1.50	66.67
5	2.50	5.10	70.59
6	3.00	10.40	50.96
7	3.50	16.00	35.00
8	4.00	19.90	19.60
9	4.50	22.50	11.56
10	5.00	24.40	7.79
11	5.50	25.60	4.69
12	6.00	27.40	6.57
13	6.50	29.00	5.52
14	7.00	30.30	4.29
15	7.50	31.50	3.81
16	8.00	32.50	3.08
17	8.50	33.30	2.40
18	9.00	34.00	2.06
19	9.50	34.70	2.02
20	10.00	35.20	1.42
21	10.50	35.60	1.12
22	11.00	36.10	1.39

USER INPUT BLANK VALUE

BLANK VALUE = 32.441 micrograms carbon

BLANK FACTOR = 32.441 / 10.99695 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:

(36.1 - 32.44361) (1)/(1) = +3.66E+00 g/L Carbon
 (36.1 - 32.44361) (1)/(1) (12) = +3.05E-01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By: PJ McCown

PJ MCCOWN

00000

1.0 mL
1.0067g

148

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

dMBP?_ *+%&APage &P"?U

Sample: 140 SPK-1

Date: 01/20/98

Time: 02:11:58

3
Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .43 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	0.40	50.00
3	1.51	5.10	92.16
4	2.00	66.60	92.34
5	2.50	184.40	63.88
6	3.00	289.50	36.30
7	3.50	352.00	17.76
8	4.00	382.40	7.95
9	4.50	396.10	3.46
10	5.00	401.80	1.42
11	5.50	404.80	0.74
12	6.00	406.70	0.47
13	6.50	407.90	0.29
14	7.00	408.70	0.20
15	7.50	409.70	0.24
16	8.00	410.20	0.12
17	8.50	410.90	0.17
18	9.00	411.30	0.10
19	9.50	411.90	0.15
20	10.00	412.50	0.15
21	10.50	412.80	0.07
22	11.00	413.30	0.12

USER INPUT BLANK VALUE

BLANK VALUE = 4.728688 micrograms carbon

BLANK FACTOR = 4.728688 / 10.99695 = +4.3E-01 ug/min Carbon

SAMPLE RESULTS:

(413.3 - 4.729501) (1)/(1) = +4.086E+02 g/L Carbon
(413.3 - 4.729501) (1)/(1) (12) = +3.405E+01 Molar Carbon

Sample Run By: *PJM*

PJ MCCOWN

00000

1.0 mL

1.0010g

+ .500 mL 25N/2 B

149

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 140 SPK-1

Date: 01/20/98

Time: 02:25:15

Sample Size = 1 uL

Analyst : PJ MCCOWN

Dil Factor = 1

Min Readings = 22

Blank ID # =

Max Readings = 22

Blank Value = 2.95 ug/minute C

% Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.20	100.00
3	1.50	5.50	96.36
4	2.00	53.90	89.80
5	2.50	152.10	64.56
6	3.00	226.50	32.85
7	3.50	265.50	14.69
8	4.00	283.40	6.32
9	4.50	291.30	2.71
10	5.00	295.10	1.29
11	5.50	297.70	0.87
12	6.00	299.20	0.50
13	6.50	300.60	0.47
14	7.00	301.50	0.30
15	7.50	302.70	0.40
16	8.00	303.70	0.33
17	8.50	304.20	0.16
18	9.00	304.80	0.20
19	9.50	305.60	0.26
20	10.00	306.00	0.13
21	10.50	306.50	0.16
22	11.00	306.90	0.13

USER INPUT BLANK VALUE

BLANK VALUE = 32.441 micrograms carbon

BLANK FACTOR = 32.441 / 10.99695 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:

(306.9 - 32.4441) (1)/(1) = +2.745E+02 g/L Carbon
 (306.9 - 32.4441) (1)/(1) (12) = +2.287E+01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By: PJM

PJ MCCOWN

00000

1.0mL

1.0010g

+ 1.00mL 26N12C

150

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

dMbP?_ *+%&APage &P"??U

Sample: S98T000141-1

Date: 01/20/98

Time: 02:44:57

3
Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .43 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.00	0.00
2	1.00	0.20	100.00
3	1.50	1.80	88.89
4	2.00	15.20	88.16
5	2.50	43.40	64.98
6	3.00	73.70	41.11
7	3.50	92.40	20.24
8	4.00	102.80	10.12
9	4.50	107.50	4.37
10	5.00	110.00	2.27
11	5.50	111.30	1.17
12	6.00	112.20	0.80
13	6.50	113.10	0.80
14	7.00	113.60	0.44
15	7.50	114.10	0.44
16	8.00	114.50	0.35
17	8.50	115.00	0.43
18	9.00	115.40	0.35
19	9.50	115.90	0.43
20	10.00	116.20	0.26
21	10.50	116.50	0.26
22	11.00	116.80	0.26

USER INPUT BLANK VALUE

BLANK VALUE = 4.728688 micrograms carbon

BLANK FACTOR = 4.728688 / 10.99695 = +4.3E-01 ug/min Carbon

SAMPLE RESULTS:

(116.8 - 4.728707) (1)/(1) = +1.121E+02 g/L Carbon
(116.8 - 4.728707) (1)/(1) (12) = +9.339E+00 Molar Carbon

Sample Run By: PJ

PJ MCCOWN

00000

1.0mc

1.00639

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T000141-1

Date: 01/20/98

Time: 03:07:45

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.95 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	0.80	62.50
3	1.51	3.20	75.00
4	2.00	8.30	61.45
5	2.50	13.30	37.59
6	3.00	17.40	23.56
7	3.50	20.10	13.43
8	4.00	21.90	8.22
9	4.50	23.20	5.60
10	5.00	24.20	4.13
11	5.50	25.00	3.20
12	6.00	25.60	2.34
13	6.50	26.20	2.29
14	7.00	26.90	2.60
15	7.50	27.40	1.82
16	8.00	27.90	1.79
17	8.50	28.40	1.76
18	9.00	28.70	1.05
19	9.50	29.10	1.37
20	10.00	29.60	1.69
21	10.50	29.80	0.67
22	11.00	30.20	1.32

USER INPUT BLANK VALUE

BLANK VALUE = 32.441 micrograms carbon

BLANK FACTOR = 32.441 / 10.99695 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:

(30.2 - 32.44361) (1)/(1) = < 5.00 E-3 g/L Carbon

(30.2 - 32.44361) (1)/(1) (12) = < 4.17 E-4 Molar Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By: PJ McCown

PJ MCCOWN

00000

1.0 mL

1.0063g

152

HNF-SD-WM-DP-292 REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT TICTOC REV. 2.0

Sample: 141 DUP-1

Date: 01/20/98

Time: 03:29:15

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .43 ug/minute C.

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	0.50	40.00
3	1.50	2.40	79.17
4	2.00	16.40	85.37
5	2.50	44.20	62.90
6	3.00	71.80	38.44
7	3.50	91.30	21.36
8	4.00	102.70	11.10
9	4.50	108.10	5.00
10	5.00	110.60	2.26
11	5.50	111.90	1.16
12	6.00	113.00	0.97
13	6.50	113.60	0.53
14	7.00	114.20	0.53
15	7.50	114.80	0.52
16	8.00	115.30	0.43
17	8.50	115.70	0.35
18	9.00	116.00	0.26
19	9.50	116.40	0.34
20	10.00	116.90	0.43
21	10.50	117.10	0.17
22	11.00	117.50	0.34

USER INPUT BLANK VALUE

BLANK VALUE = 4.728688 micrograms carbon

BLANK FACTOR = 4.728688 / 10.99695 = +4.3E-01 ug/min Carbon

SAMPLE RESULTS:

(117.5 - 4.729501) (1)/(1) = +1.128E+02 g/L Carbon
(117.5 - 4.729501) (1)/(1) (12) = +9.398E+00 Molar Carbon

Sample Run By: *PJ*

PJ MCCOWN

00000

1.0mL

1.0074g

HNF-SD-WM-DP-292 REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: 141 DUP-1

Date: 01/20/98

Time: 03:44:47

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.95 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.40	100.00
3	1.51	1.50	73.33
4	2.00	6.30	76.19
5	2.50	13.20	52.27
6	3.00	19.10	30.89
7	3.50	23.00	16.96
8	4.00	25.40	9.45
9	4.50	27.10	6.27
10	5.00	27.90	2.87
11	5.50	28.80	3.12
12	6.00	29.70	3.03
13	6.50	30.20	1.66
14	7.00	30.80	1.95
15	7.50	31.50	2.22
16	8.00	32.10	1.87
17	8.50	32.50	1.23
18	9.00	32.90	1.22
19	9.50	33.30	1.20
20	10.00	33.90	1.77
21	10.50	34.20	0.88
22	11.00	34.40	0.58

USER INPUT BLANK VALUE

BLANK VALUE = 32.441 micrograms carbon

BLANK FACTOR = 32.441 / 10.99695 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:

(34.4 - 32.44653) (1)/(1) = +1.95E+00 g/L Carbon
 (34.4 - 32.44653) (1)/(1) (12) = +1.63E-01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By: *PJ*

PJ MCCOWN

00000

1.0 mL

1.0074g

154

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (F-1)

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	0.0000	0.0000
BLNK	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	5.3	28.8
21894	µg of Carbon from Baseline (C2)	4.7	32.4
Test Code			
@TICTOC1			
Matrix			
LIQUID			
Batch Number			
98000172			
Rerun	µg of Carbon = C1-C2		
0			
Sample Prep			
N/A			
Sample #			
Instrument Code			
CARB1			
Prepared By			
LCM			
Chemist			
RWS			
Analyst			
PJM			
Date Complete			
01/20/98			
Analysis Date			
01/20/98			
Analysis Time	Method Detection Limit in µg/mL	5	40
Sample Point	µg of Carbon	6.00E-01	3.60E+00
TX-302C GRAB			

Data Entered By:

LCM

Date: 01/20/98

Signature of Chemist:

RWS

Date: 1/20/98

BLANK.WB1 REV 1.0

342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (F-1)

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)	602.7	590.7
21894	µg of Carbon from Baseline (C2)	4.7	32.4
Test Code	Standard Book Number	25N12B	26N12B
@TIC/TOC1	Standard Value (µg/ml)	602	3000

Matrix
LIQUID
Batch Number
98000172
Rerun
0
Sample Prep
N/A
Sample #
Instrument Code
CARB1
Prepared By
LCM
Chemist
RWS
Analyst
PJM
Date Complete
01/20/98
Analysis Date
01/20/98
Analysis Time
Sample Point
TX-302C GRAB

QC Actual in µg/mL = Standard Value (µg/mL)

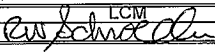
QC Found in µg/mL = (C1 - C2) * DF / SS

QC Found in µg/mL for TIC = 5 if C1 < C2

QC Found in µg/mL for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in µg/mL	5	40
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	5.98E+02	2.79E+03
Percent Standard Recovery	99.3	93.1

Data Entered By:	LCM	Date:	01/20/98
Signature of Chemist:		Date:	1/20/98

STANDARD.WB1 REV 1.0

342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (F-1)

LIQUIDS

Type	Sample Size in mL (SS)	TIC	TOC
SAMPLE	Dilution Factor (DF)	1.0000	1.0000
Work List	µg of Carbon in Sample (C1)	1	1
21894	µg of Carbon from Baseline (C2)	119.3	40.1
Test Code		4.7	32.4
@TICTOC1			
Matrix			
LIQUID			
Batch Number			
98000172			
Rerun			
0			
Sample Prep			
N/A			
Sample #			
S98T000140			
Instrument Code			
CARB1			
Prepared By			
LCM			
Chemist			
RWS			
Analyst			
PJM			
Date Complete			
01/20/98			
Analysis Date			
01/20/98			
Analysis Time			
Sample Point			
TX-302C GRAB			

µg of Carbon/mL = (C1-C2) * DF / SS
 µg of Carbon/mL for TIC = 5 if C1 < C2
 µg of Carbon/mL for TOC = 40 if C1 < C2

NOTE: FOR TOC: The Reported Result is < 40.

TIC	TOC
5	40
1.15E+02	7.70E+00

Data Entered By:

LCM

Date: 01/20/98

Signature of Chemist:

RWS

Date: 1/20/98

SAMPLE.WB1 REV 1.0

342100ML

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (F-1)

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	1.0000	1.0000
DUP	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	116.5	36.1
21894	µg of Carbon from Baseline (C2)	4.7	32.4
Test Code	Known µg of C from Original Sample	1.15E+2	<7.70E+0
@TICTOC1			

Matrix

LIQUID

Batch Number

98000172

Rerun

0

Sample Prep

N/A

Sample #

S98T000140

Instrument Code

CARB1

Prepared By

LCM

Chemist

RWS

Analyst

PJM

Date Complete

01/20/98

Analysis Date

01/20/98

Analysis Time

NOTE: FOR TOC: The Reported Result is < 40.

Method Detection Limit in µg/mL

TIC

TOC

5

40

Sample Point

TX-302C GRAB

µg of Carbon/mL Note: <

1.12E+02

3.70E+00

Data Entered By:

LCM

Date: 01/20/98

Signature of Chemist:

Date: 1/20/98

SAMPLE.WB1 REV 1.0

342100ML

WORKBOOK PAGE: SPIKE5

TIC/TOC : LA-342-100 (F-1)

LIQUIDS

Type	Sample Vial Data	TIC	TOC
SPK	Sample Volume in mL (SS)	1.0000	1.0000
Work List	Final Coulometer Reading in µg (C1)	119.3	40.1
21894	Spiked Vial Data		
Test Code	Sample Volume in mL (SPK SS)	1.0000	1.0000
@TIC/TOC1	Amount of Spike Std. in mL (SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg (C2)	413.3	306.9
LIQUID	Spike Book Number	25N12B	26N12B
Batch Number	Spike Standard Value in µg/mL (SPK CONC)	602	3000
98000172			
Rerun			
0			
Sample Prep			
N/A			
Sample #	Percent Spike Recovery = $(C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) *$		
S98T000140			
Instrument Code	QC Actual in µg/mL = Spike Value (µg/mL)		
CARB1	QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100		
Prepared By			
LCM			
Chemist			
RWS			
Analyst			
PJM			
Date Complete			
01/20/98			
Analysis Date			
01/20/98			
Analysis Time			
		TIC	TOC
	QC Actual in µg/mL	6.02E+02	3.00E+03
Sample Point	QC Found in µg/mL	5.88E+02	2.67E+03
TX-302C GRAB	Percent Spike Recovery	97.7	88.9

Data Entered By:

LCM

Date: 01/20/98

Signature of Chemist:

RW Schroeder

Date: 1/20/98

WORKBOOK PAGE: SAM6

TIC/TOC : LA-342-100 (F-1)

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	1.0000	1.0000
SAMPLE	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	116.8	30.2
21894	µg of Carbon from Baseline (C2)	4.7	32.4
Test Code			
@TICTOC1			
Matrix			
LIQUID			
Batch Number			
98000172			
Rerun	µg of Carbon/mL = (C1-C2) * DF / SS		
0	µg of Carbon/mL for TIC = 5 if C1 < C2		
Sample Prep	µg of Carbon/mL for TOC = 40 if C1 < C2		
N/A			
Sample #			
S98T000141			
Instrument Code			
CARB1			
Prepared By			
LCM			
Chemist			
RWS			
Analyst			
PJM			
Date Complete			
01/20/98			
Analysis Date	NOTE: FOR TOC: The Reported Result is < 40.		
01/20/98			
Analysis Time	Method Detection Limit in µg/mL	TIC	TOC
		5	40
Sample Point	µg of Carbon/mL Note: <	1.12E+02	4.00E+01
TX-302C GRAB			

Data Entered By:

LCM

Date: 01/20/98

Signature of Chemist:

RWS

Date: 1/20/98

SAMPLE.WB1 REV 1.0

342100ML

WORKBOOK PAGE: DUP7

TIC/TOC : LA-342-100 (F-1)

LIQUIDS

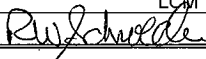
		TIC	TOC
Type	Sample Size in mL (SS)	1.0000	1.0000
DUP	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	117.5	34.4
21894	µg of Carbon from Baseline (C2)	4.7	32.4
Test Code	Known µg of C from Original Sample	1.12E+2	<4.00E+1
@TICTOC1			
Matrix			
LIQUID			
Batch Number			
98000172			
Rerun	µg of Carbon/mL = (C1-C2) * DF / SS		
0	µg of Carbon/mL for TIC = 5 if C1 < C2		
Sample Prep	µg of Carbon/mL for TOC = 40 if C1 < C2		
N/A			
Sample #			
S98T000141			
Instrument Code			
CARB1			
Prepared By			
LCM			
Chemist			
RWS			
Analyst			
PJM			
Date Complete			
01/20/98			
Analysis Date	NOTE: FOR TOC: The Reported Result is	<	40.
01/20/98			
Analysis Time	Method Detection Limit in µg/mL	TIC	TOC
		5	40
Sample Point	µg of Carbon/mL Note: <	1.13E+02	2.00E+00
TX-302C GRAB			

Data Entered By:

LCM

Date: 01/20/98

Signature of Chemist:



Date: 1/20/98

SAMPLE.WB1 REV 1.0

342100ML

161

LABCORE Completed Worklist Report for Worklist# 21895

Analyst: pjm

Instrument: CARB2

Book# TIC 25N12B
TOC 26N12C

Method: LA 342-100 Rev/Mod F-1

Worklist Comment: TX302C GRAB, @TICTOC1, STD: TIC = 1.0mL, TOC = 0.200mL skw

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLNK	0		@TICTOC1 TIC-02	LIQUID	1	7.00E-1	0.700	ug/mL
1 BLNK	0		@TICTOC1 TOC-02	LIQUID	1	4.70E+0	4.700	ug/mL
2 STD	0		@TICTOC1 TIC-02	LIQUID	6.02E+02	5.94E+2	98.671	% Recovery
2 STD	0		@TICTOC1 TOC-02	LIQUID	3.00E+03	2.76E+3	92.000	% Recovery
3 SAMPLE	S98T000142	0	@TICTOC1 TIC-02	LIQUID	N/A	1.13E+02	5.000	ug/mL
3 SAMPLE	S98T000142	0	@TICTOC1 TOC-02	LIQUID	N/A	4.00E+01	40.000	ug/mL
4 DUP	S98T000142	0	@TICTOC1 TIC-02	LIQUID	1.13E+2	1.13E+2	0.000	RPD
4 DUP	S98T000142	0	@TICTOC1 TOC-02	LIQUID	<4.00E+1	<4.00E+1		RPD

Final page for worklist# 21895

Analyst Signature

Date

Analyst Signature

Date

RW Schroeder 1/20/98
Reviewer Signature Date

LABCORE Data Entry Template for Worklist# 21895

Analyst: RM Instrument: CARB2 _____ Book# TIC 25 N12B
TOC 26 N12C
Method: LA-342-100 Rev/Mod F-1

Worklist Comment: TX302C GRAB, @TICTOC1, STD: TIC= 1.0mL, TOC= 0.200mL skw

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			@TICTOC1	LIQUID		
2 STD			@TICTOC1	LIQUID		
3 SAMPLE	S98T000142 0		@TICTOC1	LIQUID	97000887	TX-302C GRAB
	Analytes Requested: TIC-02 , TOC-02					
4 DUP	S98T000142 0		@TICTOC1	LIQUID		

Final page for worklist # 21895

RM 1/20/98
Analyst Signature Date

[Signature] 1/20/98
Analyst Signature Date

Data Entry Comments:

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 25N12B-2

Date: 01/19/98

Time: 23:12:53

Sample Size = 1000 uL

Dil Factor = 1

Blank ID # =

Blank Value = .55 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference ==
1	0.08	0.00	0.00
2	0.51	0.30	100.00
3	1.01	1.00	70.00
4	1.51	388.80	97.42
5	2.00	190.10	79.59
6	2.50	363.70	47.73
7	3.00	479.40	24.13
8	3.50	539.20	11.09
9	4.00	567.30	4.95
10	4.50	579.50	2.11
11	5.00	584.90	0.92
12	5.50	588.30	0.58
13	6.00	590.20	0.32
14	6.50	591.80	0.27
15	7.00	593.20	0.24
16	7.50	594.40	0.20
17	8.00	595.50	0.18
18	8.50	596.50	0.17
19	9.00	597.50	0.17
20	9.50	598.30	0.13
21	10.00	598.90	0.10
22	10.50	599.60	0.12

USER INPUT BLANK VALUE

BLANK VALUE = 5.773926 micrograms carbon

BLANK FACTOR = 5.773926 / 10.49805 = +5.5E-01 ug/min Carbon

SAMPLE RESULTS:

(599.6 - 5.774463) (1) / (1000) = +5.938E-01 g/L Carbon
 (599.6 - 5.774463) (1) / (1000) (12) = +4.949E-02 Molar Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 164 TO 177

Sample Run By: PJ McCown 1/19/98

PJ MCCOWN

00000

1.0mL 25N12B

HNF-SD-WM-DP-292 REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: 26N12C-2

Date: 01/19/98

Time: 23:27:31

Sample Size = 200 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.72 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference ==
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	1.00	60.00
4	1.51	13.10	67.74
5	2.00	19.60	84.18
6	2.50	89.70	78.15
7	3.00	248.40	63.89
8	3.50	414.60	40.09
9	4.00	502.60	17.51
10	4.50	539.90	6.91
11	5.00	555.30	2.77
12	5.50	562.60	1.30
13	6.00	566.70	0.72
14	6.50	569.50	0.49
15	7.00	571.70	0.38
16	7.50	573.40	0.30
17	8.00	575.00	0.28
18	8.50	576.20	0.21
19	9.00	577.40	0.21
20	9.50	578.50	0.19
21	10.00	579.40	0.16
22	10.50	580.30	0.16

USER INPUT BLANK VALUE

BLANK VALUE = 28.55469 micrograms carbon

BLANK FACTOR = 28.55469 / 10.49805 = +2.7E+00 ug/min Carbon

SAMPLE RESULTS:

(580.3 - 28.55734) (1)/(200) = +2.759E+00 g/L Carbon
 (580.3 - 28.55734) (1)/(200)(12) = +2.299E-01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

PJ McCown 1/19/98
PJ MCCOWN

00000

200ML 26N12C

HNF-SD-WM-DP-292 REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BASE-2

Date: 01/19/98

Time: 22:34:52

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	0.30	100.00
3	1.00	0.70	57.14
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	2.20	18.18
9	4.00	2.30	4.35
10	4.50	2.60	11.54
11	5.00	2.90	10.34
12	5.50	3.10	6.45
13	6.00	3.40	8.82
14	6.50	3.70	8.11
15	7.00	4.00	7.50
16	7.50	4.20	4.76
17	8.00	4.50	6.67
18	8.50	4.80	6.25
19	9.00	5.10	5.88
20	9.50	5.30	3.77
21	10.00	5.50	3.64
22	10.50	5.80	5.17

BLANK VALUE = 5.8 micrograms carbon

BLANK FACTOR = 5.8 / 10.49902 = +5.5E-01 ug/min Carbon

Sample Run By:

PJ
PJ MCCOWN

00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
 TIC/TOC REV 2.0
 <<< BLANK ANALYSIS >>>

Sample: BASE-2

Date: 01/19/98

Time: 22:51:51

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	0.30	100.00
3	1.01	0.60	50.00
4	1.50	1.80	66.67
5	2.00	3.90	53.85
6	2.50	6.90	43.48
7	3.00	10.40	33.65
8	3.50	13.70	24.09
9	4.00	16.60	17.47
10	4.50	18.50	10.27
11	5.00	20.10	7.96
12	5.50	21.30	5.63
13	6.00	22.40	4.91
14	6.50	23.30	3.86
15	7.00	24.30	4.12
16	7.50	25.10	3.19
17	8.00	25.80	2.71
18	8.50	26.40	2.27
19	9.00	27.00	2.22
20	9.50	27.50	1.82
21	10.00	28.00	1.79
22	10.50	28.60	2.10

BLANK VALUE = 28.6 micrograms carbon

BLANK FACTOR = 28.6 / 10.49805 = +2.72E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:


 PJ MCCOWN

00000

HNF-SD-WM-DP-292 REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: BLNK-2

Date: 01/19/98

Time: 23:44:37

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .55 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	% Difference ==
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	0.80	50.00
4	1.50	1.20	33.33
5	2.00	1.50	20.00
6	2.50	1.80	16.67
7	3.00	2.20	18.18
8	3.50	2.40	8.33
9	4.00	2.80	14.29
10	4.50	3.10	9.68
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	4.60	6.52
16	7.50	4.80	4.17
17	8.00	5.20	7.69
18	8.50	5.40	3.70
19	9.00	5.70	5.26
20	9.50	6.00	5.00
21	10.00	6.20	3.23
22	10.50	6.50	4.62

USER INPUT BLANK VALUE

BLANK VALUE = 5.773926 micrograms carbon

BLANK FACTOR = 5.773926 / 10.49805 = +5.5E-01 ug/min Carbon

SAMPLE RESULTS:

(6.5 - 5.773926) (1)/(1) = +7.3E-01 g/L Carbon
 (6.5 - 5.773926) (1)/(1) (12) = +6.1E-02 Molar Carbon

Sample Run By:

PJ McCown
PJ MCCOWN

00000

HNF-SD-WM-DP-292 REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: BLNK-2

Date: 01/20/98

Time: 00:03:51

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.72 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.30	100.00
3	1.01	0.50	40.00
4	1.50	1.60	68.75
5	2.00	3.70	56.76
6	2.50	6.70	44.78
7	3.00	10.10	33.66
8	3.50	13.10	22.90
9	4.00	15.40	14.94
10	4.50	17.20	10.47
11	5.00	18.40	6.52
12	5.50	19.30	4.66
13	6.00	20.00	3.50
14	6.50	20.70	3.38
15	7.00	21.30	2.82
16	7.50	21.60	1.39
17	8.00	22.10	2.26
18	8.50	22.40	1.34
19	9.00	22.80	1.75
20	9.50	23.20	1.72
21	10.00	23.60	1.69
22	10.50	23.90	1.26

USER INPUT BLANK VALUE

BLANK VALUE = 28.55469 micrograms carbon

BLANK FACTOR = 28.55469 / 10.49805 = +2.7E+00 ug/min Carbon

SAMPLE RESULTS:

(23.9 - 28.55436) (1)/(1) = < 5.00 E-3 g/L Carbon
(23.9 - 28.55436) (1)/(1) (12) = < 4.17 E-4 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By: *PJ*

PJ MCCOWN

00000

HNF-SD-WM-DP-292 REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: S98T000142-2

Date: 01/20/98

Time: 00:43:27

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .55 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.20	100.00
3	1.01	1.80	88.89
4	1.50	14.30	87.41
5	2.04	48.40	70.45
6	2.54	81.50	40.61
7	3.04	100.30	18.74
8	3.54	109.20	8.15
9	4.04	112.30	2.76
10	4.54	113.70	1.23
11	5.04	114.60	0.79
12	5.54	115.10	0.43
13	6.04	115.60	0.43
14	6.54	115.90	0.26
15	7.03	116.30	0.34
16	7.53	116.70	0.34
17	8.03	117.10	0.34
18	8.53	117.50	0.34
19	9.03	117.80	0.25
20	9.53	118.00	0.17
21	10.03	118.30	0.25
22	10.53	118.70	0.34

USER INPUT BLANK VALUE

BLANK VALUE = 5.773926 micrograms carbon

BLANK FACTOR = 5.773926 / 10.49805 = +5.5E-01 ug/min Carbon

SAMPLE RESULTS:

(118.7 - 5.79306) (1)/(1) = +1.129E+02 g/L Carbon
(118.7 - 5.79306) (1)/(1) (12) = +9.409E+00 Molar Carbon

Sample Run By: *PJ*

PJ MCCOWN

00000

1.0 mL

1.01608

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T000142-2

Date: 01/20/98

Time: 00:56:22

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.72 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.30	100.00
3	1.01	0.60	50.00
4	1.51	2.90	79.31
5	2.00	7.80	62.82
6	2.50	14.10	44.68
7	3.00	19.30	26.94
8	3.50	23.10	16.45
9	4.00	25.20	8.33
10	4.50	26.70	5.62
11	5.00	27.90	4.30
12	5.50	28.70	2.79
13	6.00	29.40	2.38
14	6.50	29.90	1.67
15	7.00	30.60	2.29
16	7.50	30.90	0.97
17	8.00	31.40	1.59
18	8.50	32.10	2.18
19	9.00	32.70	1.83
20	9.50	33.30	1.80
21	10.00	33.80	1.48
22	10.50	34.20	1.17

USER INPUT BLANK VALUE

BLANK VALUE = 28.55469 micrograms carbon

BLANK FACTOR = 28.55469 / 10.49805 = +2.7E+00 ug/min Carbon

SAMPLE RESULTS:

(34.2 - 28.55727) (1)/(1) = +5.64E+00 g/L Carbon
 (34.2 - 28.55727) (1)/(1) (12) = +4.70E-01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

PJ McC
 PJ MCCOWN

00000

1.0mL

1.0160g

171

HNF-SD-WM-DP-292 REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: 142 DUP-2

Date: 01/20/98

Time: 01:12:53

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .55 ug/minute C

Analyst : PJ MCCOWN

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	1.20	66.67
4	1.50	14.00	91.43
5	2.00	47.60	70.59
6	2.50	80.60	40.94
7	3.00	100.60	19.88
8	3.50	109.50	8.13
9	4.00	112.70	2.84
10	4.50	114.30	1.40
11	5.00	115.00	0.61
12	5.50	115.50	0.43
13	6.00	116.00	0.43
14	6.50	116.30	0.26
15	7.00	116.70	0.34
16	7.50	117.00	0.26
17	8.00	117.40	0.34
18	8.50	117.70	0.25
19	9.00	118.00	0.25
20	9.50	118.30	0.25
21	10.00	118.70	0.34
22	10.50	118.90	0.17

USER INPUT BLANK VALUE

BLANK VALUE = 5.773926 micrograms carbon

BLANK FACTOR = 5.773926 / 10.49805 =

+5.5E-01 ug/min Carbon

SAMPLE RESULTS:

(118.9 - 5.773899) (1) / (1) =

+1.131E+02 g/L Carbon

(118.9 - 5.773899) (1) / (1) (12) =

+9.427E+00 Molar Carbon

Sample Run By: *PJ*

PJ MCCOWN

00000

1.0mL

1.0079 g

172

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

dMbP?_?+?&APage &P"?U

Sample: 142 DUP-2

Date: 01/20/98

Time: 01:29:11

3

Sample Size = 1 uL

Analyst : PJ MCCOWN

Dil Factor = 1

Min Readings = 22

Blank ID # =

Max Readings = 22

Blank Value = 2.72 ug/minute C

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.08	0.00	0.00
2	0.50	0.30	100.00
3	1.01	0.60	50.00
4	1.50	2.10	71.43
5	2.00	5.60	62.50
6	2.50	10.30	45.63
7	3.00	15.60	33.97
8	3.50	19.00	17.89
9	4.00	21.20	10.38
10	4.50	22.60	6.19
11	5.00	23.40	3.42
12	5.50	24.10	2.90
13	6.00	24.70	2.43
14	6.50	25.20	1.98
15	7.00	25.50	1.18
16	7.50	25.90	1.54
17	8.00	26.30	1.52
18	8.50	26.70	1.50
19	9.00	27.10	1.48
20	9.50	27.40	1.09
21	10.00	27.70	1.08
22	10.50	28.10	1.42

USER INPUT BLANK VALUE

BLANK VALUE = 28.55469 micrograms carbon

BLANK FACTOR = 28.55469 / 10.49805 = +2.7E+00 ug/min Carbon

SAMPLE RESULTS:

(28.1 - 28.55728) (1)/(1) = < 5.00 E-3 g/L Carbon

(28.1 - 28.55728) (1)/(1) (12) = < 4.17 E-4 Molar Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

PJ MCCOWN

00000

1.0mL

1.0079g

173

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (F-1)

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	0.0000	0.0000
BLNK	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	6.5	23.9
21895	µg of Carbon from Baseline (C2)	5.8	28.6

Test Code
@TICTOC1
Matrix
LIQUID
Batch Number
98000173
Rerun
0
Sample Prep
N/A
Sample #
Instrument Code
CARB2
Prepared By
LCM
Chemist
RWS
Analyst
PJM
Date Complete
01/20/98
Analysis Date
01/20/98
Analysis Time
Sample Point
TX-302C GRAB

µg of Carbon = |C1-C2|

	TIC	TOC
Analysis Time	5	40
Sample Point	7.00E-01	4.70E+00

Data Entered By:	LCM	Date:	01/20/98
Signature of Chemist:	<i>Eric Schaefer</i>	Date:	1/20/98

BLANK.WB1 REV 1.0

342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (F-1)

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)	599.6	580.3
21895	µg of Carbon from Baseline (C2)	5.8	28.6
Test Code	Standard Book Number	25N12B	26N12B
@TICTOC1	Standard Value (µg/ml)	602	3000

Matrix
LIQUID
Batch Number
98000173
Rerun
0
Sample Prep
N/A
Sample #
Instrument Code
CARB2
Prepared By
LCM
Chemist
RWS
Analyst
PJM
Date Complete
01/20/98
Analysis Date
01/20/98
Analysis Time
Sample Point
TX-302C GRAB

QC Actual in µg/mL = Standard Value (µg/mL)

QC Found in µg/mL = (C1 - C2) * DF / SS

QC Found in µg/mL for TIC = 5 if C1 < C2

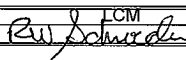
QC Found in µg/mL for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in µg/mL	5	40
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	5.94E+02	2.76E+03
Percent Standard Recovery	98.6	92.0

Data Entered By:

Signature of Chemist:



LCM

Date: 01/20/98

Date: 1/20/98

STANDARD.WB1 REV 1.0

342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (F-1)

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	1.0000	1.0000
SAMPLE	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	118.7	34.2
21895	µg of Carbon from Baseline (C2)	5.8	28.6
Test Code			
@TICTOC1			
Matrix			
LIQUID			
Batch Number			
98000173			
Rerun	µg of Carbon/mL = (C1-C2) * DF / SS		
0	µg of Carbon/mL for TIC = 5 if C1 < C2		
Sample Prep	µg of Carbon/mL for TOC = 40 if C1 < C2		
N/A			
Sample #			
S98T000142			
Instrument Code			
CARB2			
Prepared By			
LCM			
Chemist			
RWS			
Analyst			
PJM			
Date Complete			
01/20/98			
Analysis Date	NOTE: FOR TOC: The Reported Result is	<	40.
01/20/98			
Analysis Time	Method Detection Limit in µg/mL		
		TIC	TOC
		5	40
Sample Point	µg of Carbon/mL Note: <	1.13E+02	5.60E+00
TX-302C GRAB			

Data Entered By:	LCM	Date:	01/20/98
Signature of Chemist:	<i>[Signature]</i>	Date:	1/20/98

SAMPLE.WB1 REV 1.0

342100ML

01/20/98

07:04:52

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (F-1)

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	1.0000	1.0000
DUP	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	118.9	28.1
21895	µg of Carbon from Baseline (C2)	5.8	28.6
Test Code	Known µg of C from Original Sample	1.13E+2	<5.60E+0
@TIC/TOC1			
Matrix			
LIQUID			
Batch Number			
98000173			
Rerun	µg of Carbon/mL = (C1-C2) * DF / SS		
0	µg of Carbon/mL for TIC = 5 if C1 < C2		
Sample Prep	µg of Carbon/mL for TOC = 40 if C1 < C2		
N/A			
Sample #			
S98T000142			
Instrument Code			
CARB2			
Prepared By			
LCM			
Chemist			
RWS			
Analyst			
PJM			
Date Complete			
01/20/98			
Analysis Date	NOTE: FOR TOC: The Reported Result is	<	40.
01/20/98			
Analysis Time	Method Detection Limit in µg/mL		
Sample Point	µg of Carbon/mL Note: <	1.13E+02	4.00E+01
TX-302C GRAB			

Data Entered By:	LCM	Date:	01/20/98
Signature of Chemist:	<i>RWSchroeder</i>	Date:	1/20/98

SAMPLE.WB1 REV 1.0

342100ML

LABCORE Completed Worklist Report for Worklist# 21896

Analyst: slh

Instrument: TOC01

Book# TOC 26 N12 B

Method: LA344-105 Rev/Mod E-0

Worklist Comment: TX302C GRAB, TOC-01, STD: 0.200mL - 2.0mL - 0.200mL skw

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLNK	0	TOC-01	LIQUID	1	1.00E-1	0.100 ug/mL	
2 STD	0	TOC-01	LIQUID	3.00E+03	2.90E+3	96.667 % Recovery	
3 SAMPLE	S98T000140 0	TOC-01	LIQUID	N/A	5.50E+00	5.500 ug/mL	
4 DUP	S98T000140 0	TOC-01	LIQUID	<5.50E+0	<5.50E+0	RPD	
5 SPK	S98T000140 0	TOC-01	LIQUID	1.00E+02	9.62E+01	96.200 % Recovery	
6 SAMPLE	S98T000141 0	TOC-01	LIQUID	N/A	7.70E+00	5.500 ug/mL	
7 DUP	S98T000141 0	TOC-01	LIQUID	7.70E+0	1.27E+1	49.020 RPD	

Final page for worklist# 21896

Analyst Signature

Date

Analyst Signature

Date

RW Schroeder
Reviewer Signature Date

S98T000141 high RPD. Sample is < 4x the
detection limit. No reanalysis requested.
RW Schroeder 1/26/98

01/19/98 10:03
A-0004-1

Page: 1

LABCORE Data Entry Template for Worklist# 21896

Analyst: SLH Instrument: TOC01 Book# TOC 26N12-B

Method: LA-344-105 Rev/Mod _____

Worklist Comment: TX302C GRAB, TOC-01, STD: 0.200mL - 2.0mL - 0.200mL skw

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			TOC-01	LIQUID		
2 STD			TOC-01	LIQUID		
3 SAMPLE	S98T000140 0		TOC-01	LIQUID	97000887	TX-302C GRAB
Analytes Requested: TOC-01						
4 DUP	S98T000140 0		TOC-01	LIQUID		
5 SPK	S98T000140 0		TOC-01	LIQUID		
6 SAMPLE	S98T000141 0		TOC-01	LIQUID	97000887	TX-302C GRAB
Analytes Requested: TOC-01						
7 DUP	S98T000141 0		TOC-01	LIQUID		

Final page for worklist # 21896

Debra L. Hord Boatright
Analyst Signature Date

Frank M. Mah 1-21-98
Analyst Signature Date

Data Entry Comments:

Ran all samples + dup at 2ml - .200ml - .200ml

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

HNF-SD-WM-DP-292 REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD

Date: 01/21/98

Time: 03:35:34

Sample Size = 200 uL

Analyst : SL HOOD

Dil Factor = 11

Min Readings = 14

Blank ID # = BASE

Max Readings = 14

Blank Value = .4283361 ug/minute C

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.10	0.00
2	1.00	5.50	98.18
3	1.50	32.10	82.87
4	2.00	42.30	24.11
5	2.50	46.90	9.81
6	3.00	49.90	6.01
7	3.50	51.70	3.48
8	4.00	53.00	2.45
9	4.50	53.70	1.30
10	5.00	54.40	1.29
11	5.50	54.80	0.73
12	6.00	55.20	0.72
13	6.50	55.50	0.54
14	7.00	55.70	0.36

BLANK VALUE = 3 micrograms carbon

BLANK FACTOR = 3 / 7.003845 =

+4.3E-01

ug/min Carbon

SAMPLE RESULTS:

(55.7 - 2.999634) (11)/(200) =

+2.90E+00 g/L Carbon

(55.7 - 2.999634) (11)/(200) (12) =

+2.42E-01 Molar Carbon

Sample Run By:

SL HOOD

00000

200 ml

26N12-8

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 180 TO 194

HNF-SD-WM-DP-292 REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BASE

Date: 01/21/98

Time: 03:16:00

Sample Size = 200 uL

Analyst : SL HOOD

Dil Factor = 1

Min Readings = 14

Blank ID # = BASE

Max Readings = 14

Blank Value = N/A

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.10	0.00
2	1.01	0.30	66.67
3	1.51	0.80	62.50
4	2.00	1.10	27.27
5	2.50	1.40	21.43
6	3.00	1.50	6.67
7	3.50	1.80	16.67
8	4.00	1.90	5.26
9	4.50	2.10	9.52
10	5.00	2.30	8.70
11	5.50	2.50	8.00
12	6.00	2.70	7.41
13	6.50	2.90	6.90
14	7.00	3.00	3.33

BLANK VALUE = 3 micrograms carbon

BLANK FACTOR = 3 / 7.003845 =

+4.3E-01

ug/min Carbon

Sample Run By:

SL HOOD

00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLK

Date: 01/21/98

Time: 03:51:43

Sample Size = 200 uL

Analyst : SL HOOD

Dil Factor = 1

Min Readings = 14

Blank ID # = BASE

Max Readings = 14

Blank Value = .4283361 ug/minute C

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.00	0.00
2	1.01	0.40	100.00
3	1.51	0.90	55.56
4	2.01	1.20	25.00
5	2.51	1.40	14.29
6	3.01	1.60	12.50
7	3.51	1.80	11.11
8	4.01	2.00	10.00
9	4.51	2.20	9.09
10	5.01	2.40	8.33
11	5.51	2.60	7.69
12	6.01	2.70	3.70
13	6.50	2.90	6.90
14	7.00	3.10	6.45

BLANK VALUE = 3 micrograms carbon

BLANK FACTOR = 3 / 7.003845 =

+4.3E-01

ug/min Carbon

SAMPLE RESULTS:

(3.1 - 3.000412) (1)/(200) =

< 5.00 E-3 g/L Carbon

(3.1 - 3.000412) (1)/(200) (12) =

< 4.17 E-4 Molar Carbon

Sample Run By:

SL HOOD

00000

HNF-SD-WM-DP-292 REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: S98T00140

Date: 01/21/98

Time: 04:22:53

Sample Size = 200 uL

Analyst : SL HOOD

Dil Factor = 1.1

Min Readings = 14

Blank ID # = BASE

Max Readings = 14

Blank Value = .4283361 ug/minute C

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.10	0.00
2	1.01	0.50	80.00
3	1.50	1.10	54.55
4	2.00	1.50	26.67
5	2.50	1.70	11.76
6	3.00	1.90	10.53
7	3.50	2.20	13.64
8	4.00	2.30	4.35
9	4.50	2.60	11.54
10	5.00	2.70	3.70
11	5.50	2.90	6.90
12	6.00	3.10	6.45
13	6.50	3.30	6.06
14	7.00	3.40	2.94

BLANK VALUE = 3 micrograms carbon

BLANK FACTOR = 3 / 7.003845 =

+4.3E-01

ug/min Carbon

SAMPLE RESULTS:

(3.4 - 2.999647) (1.1)/(200) =

< 5.00 E-3 g/L Carbon

(3.4 - 2.999647) (1.1)/(200) (12) =

< 4.17 E-4 Molar Carbon

Sample Run By:

SL HOOD

00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T00140 DUP Date: 01/21/98 Time: 04:35:32

Sample Size = 200 uL Analyst : SL HOOD
Dil Factor = 1.1 Min Readings = 14
Blank ID # = BASE Max Readings = 14
Blank Value = .4283361 ug/minute C % Difference = 10

== Reading ==	Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	0.50	80.00
3	1.51	1.30	61.54
4	2.01	1.70	23.53
5	2.51	1.90	10.53
6	3.01	2.20	13.64
7	3.51	2.40	8.33
8	4.01	2.60	7.69
9	4.50	2.70	3.70
10	5.00	2.90	6.90
11	5.51	3.10	6.45
12	6.01	3.30	6.06
13	6.51	3.50	5.71
14	7.00	3.70	5.41

BLANK VALUE = 3 micrograms carbon

BLANK FACTOR = 3 / 7.003845 = +4.3E-01 ug/min Carbon

SAMPLE RESULTS:

(3.7 - 3.000431) (1.1)/(200) = < 5.00 E-3 g/L Carbon
(3.7 - 3.000431) (1.1)/(200) (12) = < 4.17 E-4 Molar Carbon

Sample Run By: SL HOOD 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T00141 SPK Date: 01/21/98 Time: 05:19:36

Sample Size = 200 uL Analyst : SL HOOD
Dil Factor = 2.5 Min Readings = 14
Blank ID # = BASE Max Readings = 14
Blank Value = .4283361 ug/minute C % Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	3.80	0.00
2	1.01	45.00	91.56
3	1.51	51.80	13.13
4	2.00	55.10	5.99
5	2.50	57.00	3.33
6	3.00	58.30	2.23
7	3.50	59.20	1.52
8	4.00	59.90	1.17
9	4.50	60.40	0.83
10	5.00	60.90	0.82
11	5.50	61.30	0.65
12	6.00	61.70	0.65
13	6.50	62.00	0.48
14	7.00	62.20	0.32

BLANK VALUE = 3 micrograms carbon

BLANK FACTOR = 3 / 7.003845 = +4.3E-01 ug/min Carbon

SAMPLE RESULTS:

(62.2 - 3.000065) (2.5) / (200) = +7.40E-01 g/L Carbon
(62.2 - 3.000065) (2.5) / (200) (12) = +6.17E-02 Molar Carbon

Sample Run By: SL HOOD 00000

, 400 ml original sample + .200 ml H₂SO₄ + .400 ml spk - .200 inject
185 23N/2-D

HNF-SD-WM-DP-292 REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: S98T00141

Date: 01/21/98

Time: 04:58:07

Sample Size = 200 uL

Analyst : SL HOOD

Dil Factor = 1.1

Min Readings = 14

Blank ID # = BASE

Max Readings = 14

Blank Value = .4283361 ug/minute C

% Difference = 10

== Reading ==	Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	1.30	92.31
3	1.50	1.60	18.75
4	2.01	2.00	20.00
5	2.51	2.20	9.09
6	3.01	2.50	12.00
7	3.51	2.70	7.41
8	4.01	2.90	6.90
9	4.50	3.20	9.37
10	5.00	3.40	5.88
11	5.50	3.60	5.56
12	6.00	3.90	7.69
13	6.50	4.20	7.14
14	7.00	4.40	4.55

BLANK VALUE = 3 micrograms carbon

BLANK FACTOR = 3 / 7.003845 =

+4.3E-01 ug/min Carbon

SAMPLE RESULTS:

(4.4 - 3) (1.1) / (200) =

+7.7E-03 g/L Carbon

(4.4 - 3) (1.1) / (200) (12) =

+6.4E-04 Molar Carbon

Sample Run By:

SL HOOD

00000

HNF-SD-WM-DP-292 REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T00141 DUP Date: 01/21/98 Time: 05:09:08

Sample Size = 200 uL Analyst : SL HOOD
Dil Factor = 1.1 Min Readings = 14
Blank ID # = BASE Max Readings = 14
Blank Value = .4283361 ug/minute C % Difference = 10

== Reading ==	Analysis	Time	Coulometer	% Difference
1	0.51	0.40	0.00	
2	1.01	1.70	76.47	
3	1.51	2.20	22.73	
4	2.01	2.60	15.38	
5	2.51	3.00	13.33	
6	3.01	3.20	6.25	
7	3.51	3.50	8.57	
8	4.01	3.80	7.89	
9	4.50	4.10	7.32	
10	5.00	4.30	4.65	
11	5.50	4.60	6.52	
12	6.00	4.80	4.17	
13	6.50	5.10	5.88	
14	7.00	5.30	3.77	

BLANK VALUE = 3 micrograms carbon

BLANK FACTOR = 3 / 7.003845 = +4.3E-01 ug/min Carbon

SAMPLE RESULTS:

(5.3 - 3) (1.1) / (200) =	+1.3E-02	g/L Carbon
(5.3 - 3) (1.1) / (200) (12) =	+1.1E-03	Molar Carbon

Sample Run By:

SL HOOD

00000

WORKBOOK PAGE: BLANK1

TOC : LA-344-105 (E-0)

LIQUIDS

BLNK

Type	Sample Volume in mL (SS)	0.200
BLNK	H2SO4 Volume in mL (VR)	0.000
Work List	Volume Injected in mL (VI)	0.200
21896	Dilution Factor (calculated) (DF)	1.000
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Blank (C1)	3.1
Matrix	µg of Carbon from Baseline (C2)	3
LIQUID		
Batch Number		
98000174	µg of Carbon = C1-C2	
Rerun		
0	Method Detection Limit (µg/mL) = $1 \mu\text{g C} * \text{DF} * \text{DDF} / \text{VI}$	
Sample Prep		
N/A		
Sample #		
Instrument Code		
TOC01		
Prepared By		
LCM		
Chemist		
RWS		
Analyst		
SLH		
Date Complete		
01/21/98		
Analysis Date		
01/21/98		
Analysis Time	Method Detection Limit in µg/mL	5.00E+00
Sample Point	µg of Carbon	1.00E-01
TX-302C GRAB		

Data Entered By:

LCM

Date:

01/21/98

Signature of Chemist:

Rw. Schroeder

Date:

1/26/98

BLANK.WB1 REV 2.0

344105ML

WORKBOOK PAGE: STD2

TOC : LA-344-105 (E-0)

LIQUIDS

		STD
Type	Sample Volume in mL (SS)	0.200
STD	H2SO4 Volume in mL (VR)	2.000
Work List	Volume Injected in mL (VI)	0.200
21896	Dilution Factor (calculated) (DF)	11.000
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon Found (C1)	55.7
Matrix	µg of Carbon from Baseline (C2)	3
LIQUID	Standard Book Number	26N12B
Batch Number	Standard Value (µg/ml)	3000
98000174		
Rerun		
0	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
Sample Prep		
N/A	Method Detection Limit (µg/mL) = 1 µg C * DF * DDF / VI	
Sample #		
Instrument Code		
TOC01		
Prepared By		
LCM		
Chemist		
RWS		
Analyst		
SLH		
Date Complete		
01/21/98		
Analysis Date		
01/21/98		
Analysis Time	Method Detection Limit in µg/mL	5.50E+01
	QC Actual in µg/mL	3.00E+03
Sample Point	QC Found in µg/mL	2.90E+03
TX-302C GRAB	Percent Standard Recovery	96.6

Data Entered By:

LCM

Date:

01/21/98

Signature of Chemist:

RWS

Date:

1/26/98

STANDARD.WB1 REV 2.0

344105ML

WORKBOOK PAGE: SAM3

TOC : LA-344-105 (E-0)

LIQUIDS

		SAMPLE
Type	Sample Volume in mL (SS)	2.000
SAMPLE	H2SO4 Volume in mL (VR)	0.200
Work List	Volume Injected in mL (VI)	0.200
21896	Dilution Factor (calculated) (DF)	1.100
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	3.4
Matrix	µg of Carbon from Baseline (C2)	3
LIQUID		
Batch Number		
98000174		
Rerun	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
0		
Sample Prep	Method Detection Limit = 1 µg C * DF * DDF / VI	
N/A		
Sample #		
S98T000140		
Instrument Code		
TOC01		
Prepared By		
LCM		
Chemist		
RWS		
Analyst		
SLH		
Date Complete		
01/21/98		
Analysis Date	NOTE: Reported Result is Below Detection Level.	
01/21/98		
Analysis Time	Method Detection Limit in µg/mL	5.50E+00
Sample Point	µg of Carbon/mL	< 5.50E+00
TX-302C GRAB		

Data Entered By:

LCM

Date: 01/21/98

Signature of Chemist:

RW Schoedon

Date: 1/26/98

SAMPLE.WB1 REV 2.0

344105ML

WORKBOOK PAGE: DUP4

TOC : LA-344-105 (E-0)

LIQUIDS

DUP

Type	Sample Volume in mL (SS)	2.000
DUP	H2SO4 Volume in mL (VR)	0.200
Work List	Volume Injected in mL (VI)	0.200
21896	Dilution Factor (calculated) (DF)	1.100
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	3.7
Matrix	µg of Carbon from Baseline (C2)	3
LIQUID	Result from Sample Page	<5.50E+0
Batch Number		
98000174		
Rerun	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
0		
Sample Prep	Method Detection Limit = 1 µg C * DF * DDF / VI	
N/A		
Sample #		
S98T000140		
Instrument Code		
TOC01		
Prepared By		
LCM		
Chemist		
RWS		
Analyst		
SLH		
Date Complete		
01/21/98		
Analysis Date	NOTE: Reported Result is Below Detection Level.	
01/21/98		
Analysis Time	Method Detection Limit in µg/mL	5.50E+00
Sample Point	µg of Carbon/mL	< 5.50E+00
TX-302C GRAB		

Data Entered By:

LCM

Date:

01/21/98

Signature of Chemist:

RWS

Date:

1/26/98

SAMPLE.WB1 REV 2.0

344105ML

TOC : LA-344-105 (E-0)

LIQUIDS

SPIKE

Type	Sample Vial Data		Spiked Vial Data	
SPK	Sample Volume in mL (SS)	2.000	Was the sample dilution used? (yes/no)	YES
Work List	H2SO4 Volume in mL (VR)	0.200	Sample Volume in mL (SPK SS)	0.400
21896	Volume Injected in mL (VI)	0.200	H2SO4 Volume in mL (SPK VR)	0.200
Test Code	µg of Carbon in Sample (C1)	3.4	Amount of Spike Std. in mL (SPK VOL)	0.400
TOC-01	µg of Carbon from Baseline (C2)	3	Volume Injected in mL (SPK VI)	0.200
Matrix			µg C in Sample + Spike (C3)	62.2
LIQUID			Pre-Spike Dilution Factor (PDF)	1.10
Batch Number			Spike Book Number	23N12D
98000174			Spike Value in µg/ml	769
Rerun				
0	Spike Correction Factor (SPK CF) = (SPK SS + SPK VOL + SPK VR) / SPK VI			
Sample Prep	Sample Correction Factor (SAM CF) = (SS + VR) / (VI)			
N/A	Sample Size Correction Factor (SS CF) = (SPK SS) / (SS)			
Sample #	QC Actual in µg/mL = Spike Value (µg/mL)			
S98T000140	QC Found in µg/mL = [(C3 - C2)(SPK CF) - (C1-C2)(SAM CF)(SS CF)/(PDF)] / (SPK VOL)			
Instrument Code	Percent Spike Recovery = (QC Found) / (QC Actual) * 100			
TOC01				
Prepared By				
LCM				
Chemist				
RWS				
Analyst				
SLH				
Date Complete				
01/21/98				
Analysis Date				
01/21/98				
Analysis Time				
	QC Actual in µg/mL		7.69E+02	
Sample Point	QC Found in µg/mL		7.40E+02	
TX-302C GRAB	Percent Spike Recovery		96.2	

Data Entered By:	LCM	Date:	01/21/98
Signature of Chemist:	<i>RWSchweid</i>	Date:	1/26/98

WORKBOOK PAGE: SAM6

TOC : LA-344-105 (E-0)

LIQUIDS

		SAMPLE
Type	Sample Volume in mL (SS)	2.000
SAMPLE	H2SO4 Volume in mL (VR)	0.200
Work List	Volume Injected in mL (VI)	0.200
21896	Dilution Factor (calculated) (DF)	1.100
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	4.4
Matrix	µg of Carbon from Baseline (C2)	3
LIQUID		
Batch Number		
98000174		
Rerun	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
0		
Sample Prep	Method Detection Limit = 1 µg C * DF * DDF / VI	
N/A		
Sample #		
S98T000141		
Instrument Code		
TOC01		
Prepared By		
LCM		
Chemist		
RWS		
Analyst		
SLH		
Date Complete		
01/21/98		
Analysis Date		
01/21/98		
Analysis Time	Method Detection Limit in µg/mL	5.50E+00
Sample Point	µg of Carbon/mL	7.70E+00
TX-302C GRAB		

Data Entered By:

LCM

Date:

01/21/98

Signature of Chemist:

R. Schneider

Date:

1/26/98

SAMPLE.WB1 REV 2.0

344105ML

WORKBOOK PAGE: DUP7

TOC : LA-344-105 (E-0)

LIQUIDS

DUP

Type	Sample Volume in mL (SS)	2.000
DUP	H2SO4 Volume in mL (VR)	0.200
Work List	Volume Injected in mL (VI)	0.200
21896	Dilution Factor (calculated) (DF)	1.100
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	5.3
Matrix	µg of Carbon from Baseline (C2)	3
LIQUID	Result from Sample Page	7.70E+0
Batch Number		
98000174		
Rerun	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
0		
Sample Prep	Method Detection Limit = 1 µg C * DF * DDF / VI	
N/A		
Sample #		
S98T000141		
Instrument Code		
TOC01		
Prepared By		
LCM		
Chemist		
RWS		
Analyst		
SLH		
Date Complete		
01/21/98		
Analysis Date		
01/21/98		
Analysis Time	Method Detection Limit in µg/mL	5.50E+00
Sample Point	µg of Carbon/mL	1.27E+01
TX-302C GRAB		

Data Entered By:

LCM

Date:

01/21/98

Signature of Chemist:

RWS

Date:

1/26/98

SAMPLE.WB1 REV 2.0

344105ML

LABCORE Completed Worklist Report for Worklist# 21897

Analyst: adp Instrument: TOC01 Book# 26N12C

Method: LA344-105 Rev/Mod E-0

Worklist Comment: TX302C GRAB, TOC-01, STD: 0.200mL - 2.0mL - 0.200mL skw

Seq	Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK	0		TOC-01	LIQUID	1	6.00E-1	0.600	ug/mL
2	STD	0		TOC-01	LIQUID	3.00E+03	2.84E+3	94.667 % Recovery	
3	SAMPLE	S98T000142	0	TOC-01	LIQUID	N/A	1.93e1	5.500	ug/mL
4	DUP	S98T000142	0	TOC-01	LIQUID	1.93e1	1.87e1	3.158	RPD

Final page for worklist# 21897

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

RW Schweden 1/27/98
Reviewer Signature Date

LABCORE Data Entry Template for Worklist# 21897

Analyst: AJP Instrument: TOC01 Book# 26N12C

Method: LA-344-105 Rev/Mod E-0

Worklist Comment: TX302C GRAB, TOC-01, STD: 0.200mL - 2.0mL - 0.200mL skw

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			TOC-01	LIQUID		
2 STD			TOC-01	LIQUID		
3 SAMPLE	S98T000142 0		TOC-01	LIQUID	97000887	TX-302C GRAB
	Analytes Requested: TOC-01					
4 DUP	S98T000142 0		TOC-01	LIQUID		

Final page for worklist # 21897

[Signature] 1-21-98
Analyst Signature Date
1-22-98

[Signature] 1/22/98
Analyst Signature Date

Data Entry Comments:

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD 26N12C

Date: 01/21/98

Time: 23:31:11

Sample Size = 200 uL

Dil Factor = 11

Blank ID # = BASE

Blank Value = .6139324 ug/minute C

Analyst : AD PURINTON

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	1.30	0.00
2	1.01	33.40	96.11
3	1.51	46.80	28.63
4	2.01	50.70	7.69
5	2.51	52.10	2.69
6	3.01	52.80	1.33
7	3.51	53.50	1.31
8	4.01	53.70	0.37
9	4.50	54.20	0.92
10	5.00	54.50	0.55
11	5.50	54.90	0.73
12	6.00	55.30	0.72
13	6.50	55.60	0.54
14	7.00	56.00	0.71

BLANK VALUE = 4.3 micrograms carbon

BLANK FACTOR = 4.3 / 7.004028 =

+6.1E-01 ug/min Carbon

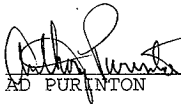
SAMPLE RESULTS:

(56 - 4.29985) (11) / (200) =

+2.84E+00 g/L Carbon

(56 - 4.29985) (11) / (200) (12) =

+2.37E-01 Molar Carbon

Sample Run By: 

AD PURINTON

00000

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 197 TO 205

HNF-SD-WM-DP-292 REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BASE

Date: 01/21/98

Time: 23:22:05

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BASE

Blank Value = N/A

Analyst : AD PURINTON

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.40	0.00
2	1.01	0.50	20.00
3	1.51	0.90	44.44
4	2.01	1.20	25.00
5	2.51	1.50	20.00
6	3.01	1.80	16.67
7	3.51	2.00	10.00
8	4.01	2.40	16.67
9	4.50	2.60	7.69
10	5.00	2.90	10.34
11	5.50	3.20	9.37
12	6.00	3.50	8.57
13	6.50	3.80	7.89
14	7.00	4.30	11.63

BLANK VALUE = 4.3 micrograms carbon

BLANK FACTOR = 4.3 / 7.004028 =

+6.1E-01

ug/min Carbon

Sample Run By:

AD PURINTON

00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLANK

Date: 01/22/98

Time: 02:21:06

Sample Size = 200 uL

Analyst : AD PURINTON

Dil Factor = 1

Min Readings = 14

Blank ID # = BASE

Max Readings = 14

Blank Value = .6139324 ug/minute C

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.10	0.00
2	1.01	0.40	75.00
3	1.51	0.80	50.00
4	2.00	0.90	11.11
5	2.50	1.20	25.00
6	3.01	1.50	20.00
7	3.51	1.90	21.05
8	4.01	2.10	9.52
9	4.50	2.30	8.70
10	5.00	2.60	11.54
11	5.50	2.80	7.14
12	6.00	3.10	9.68
13	6.50	3.40	8.82
14	7.00	3.70	8.11

BLANK VALUE = 4.3 micrograms carbon

BLANK FACTOR = 4.3 / 7.004028 =

+6.1E-01 ug/min Carbon

SAMPLE RESULTS:

(3.7 - 4.299991) (1)/(200) =

< 5.00 E-3 g/L Carbon

(3.7 - 4.299991) (1)/(200) (12) =

< 4.17 E-4 Molar Carbon

Sample Run By:

AD PURINTON

00000

HNF-SD-WM-DP-292 REV. 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T000142 SA Date: 01/22/98 Time: 02:45:49

Sample Size = 200 uL Analyst : AD PURINTON
Dil Factor = 1.1 Min Readings = 14
Blank ID # = BASE Max Readings = 14
Blank Value = .6139324 ug/minute C % Difference = 10

== Reading ==	Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.40	0.00
2	1.01	2.20	81.82
3	1.51	3.10	29.03
4	2.01	3.50	11.43
5	2.51	4.20	16.67
6	3.01	4.50	6.67
7	3.51	4.90	8.16
8	4.01	5.40	9.26
9	4.50	5.80	6.90
10	5.00	6.20	6.45
11	5.51	6.70	7.46
12	6.01	7.00	4.29
13	6.51	7.40	5.41
14	7.00	7.80	5.13

BLANK VALUE = 4.3 micrograms carbon
BLANK FACTOR = 4.3 / 7.004028 =

+6.1E-01 ug/min Carbon

SAMPLE RESULTS:

(7.8 - 4.300497) (1.1)/(200)	=	+1.9E-02	g/L Carbon
(7.8 - 4.300497) (1.1)/(200) (12)	=	+1.6E-03	Molar Carbon

Sample Run By: AD PURINTON 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T000142 DU Date: 01/22/98 Time: 02:54:15

Sample Size = 200 uL Analyst : AD PURINTON
Dil Factor = 1.1 Min Readings = 14
Blank ID # = BASE Max Readings = 14
Blank Value = .6139324 ug/minute C % Difference = 10

== Reading ==	Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.50	0.00
2	1.01	2.30	78.26
3	1.51	2.90	20.69
4	2.01	3.60	19.44
5	2.51	4.00	10.00
6	3.01	4.50	11.11
7	3.51	5.00	10.00
8	4.01	5.40	7.41
9	4.51	5.80	6.90
10	5.01	6.20	6.45
11	5.51	6.60	6.06
12	6.01	7.00	5.71
13	6.51	7.40	5.41
14	7.00	7.70	3.90

BLANK VALUE = 4.3 micrograms carbon
BLANK FACTOR = 4.3 / 7.004028 =

+6.1E-01 ug/min Carbon

SAMPLE RESULTS:

(7.7 - 4.300497) (1.1) / (200) = +1.9E-02 g/L Carbon
(7.7 - 4.300497) (1.1) / (200) (12) = +1.6E-03 Molar Carbon

Sample Run By:

AD PURINTON

00000

WORKBOOK PAGE: BLANK1

TOC : LA-344-105 (E-0)

LIQUIDS

BLNK

Type	Sample Volume in mL (SS)	0.200
BLNK	H2SO4 Volume in mL (VR)	0.000
Work List	Volume Injected in mL (VI)	0.200
21897	Dilution Factor (calculated) (DF)	1.000
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Blank (C1)	3.7
Matrix	µg of Carbon from Baseline (C2)	4.3
LIQUID		
Batch Number		
98000175	µg of Carbon = C1-C2	
Rerun		
0	Method Detection Limit (µg/mL) = $1 \mu\text{g C} * \text{DF} * \text{DDF} / \text{VI}$	
Sample Prep		
N/A		
Sample #		
BLNK		
Instrument Code		
TOC01		
Prepared By		
RTS		
Chemist		
RWS		
Analyst		
ADP		
Date Complete		
01/22/98		
Analysis Date		
01/21/98		
Analysis Time	Method Detection Limit in µg/mL	5.00E+00
Sample Point	µg of Carbon	6.00E-01
TX-302C GRAB		

Data Entered By:

RTS

Date: 01/22/98

Signature of Chemist:

Rob Schneider

Date: 1/27/98

WORKBOOK PAGE: STD2

TOC : LA-344-105 (E-0)

LIQUIDS

		STD
Type	Sample Volume in mL (SS)	0.200
STD	H2SO4 Volume in mL (VR)	2.000
Work List	Volume Injected in mL (VI)	0.200
21897	Dilution Factor (calculated) (DF)	11.000
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon Found (C1)	56
Matrix	µg of Carbon from Baseline (C2)	4.3
LIQUID	Standard Book Number	26N12C
Batch Number	Standard Value (µg/ml)	3000
98000175		
Rerun		
0	$\mu\text{g of Carbon/mL} = (C1-C2) * DF * DDF / VI$	
Sample Prep		
N/A	Method Detection Limit (µg/mL) = 1 µg C * DF * DDF / VI	
Sample #		
STD		
Instrument Code		
TOC01		
Prepared By		
RTS		
Chemist		
RWS		
Analyst		
ADP		
Date Complete		
01/22/98		
Analysis Date		
01/21/98		
Analysis Time	Method Detection Limit in µg/mL	5.50E+01
	QC Actual in µg/mL	3.00E+03
Sample Point	QC Found in µg/mL	2.84E+03
TX-302C GRAB	Percent Standard Recovery	94.8

Data Entered By:

RTS

Date: 01/22/98

Signature of Chemist:

R. J. Schroeder

Date: 1/27/98

STANDARD.WB1 REV 2.0

344105ML

WORKBOOK PAGE: SAM3

TOC : LA-344-105 (E-0)

LIQUIDS

		SAMPLE
Type	Sample Volume in mL (SS)	2.000
SAMPLE	H2SO4 Volume in mL (VR)	0.200
Work List	Volume Injected in mL (VI)	0.200
21897	Dilution Factor (calculated) (DF)	1.100
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	7.8
Matrix	µg of Carbon from Baseline (C2)	4.3
LIQUID		
Batch Number		
98000175		
Rerun	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
0		
Sample Prep	Method Detection Limit = 1 µg C * DF * DDF / VI	
N/A		
Sample #		
S98T000142		
Instrument Code		
TOC01		
Prepared By		
RTS		
Chemist		
RWS		
Analyst		
ADP		
Date Complete		
01/22/98		
Analysis Date		
01/21/98		
Analysis Time	Method Detection Limit in µg/mL	5.50E+00
Sample Point	µg of Carbon/mL	1.93E+01
TX-302C GRAB		

Data Entered By:	RTS	Date:	01/22/98
Signature of Chemist:	<i>R. Schneider</i>	Date:	1/27/98

SAMPLE.WB1 REV 2.0

344105ML

PRINT

7

TOC : LA-344-105 (E-0)

LIQUIDS

		DUP
Type	Sample Volume in mL (SS)	2.000
DUP	H2SO4 Volume in mL (VR)	0.200
Work List	Volume Injected in mL (VI)	0.200
21897	Dilution Factor (calculated) (DF)	1.100
Test Code	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	7.7
Matrix	µg of Carbon from Baseline (C2)	4.3
LIQUID	Result from Sample Page	<5.50E+1
Batch Number		RWS 1/27/98
98000175		
Rerun	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
0		
Sample Prep	Method Detection Limit = 1 µg C * DF * DDF / VI	
N/A		
Sample #		
S98T000142		
Instrument Code		
TOC01		
Prepared By		
RTS		
Chemist		
RWS		
Analyst		
ADP		
Date Complete		
01/22/98		
Analysis Date		
01/21/98		
Analysis Time	Method Detection Limit in µg/mL	5.50E+00
Sample Point	µg of Carbon/mL	1.87E+01
TX-302C GRAB		

Data Entered By:	RTS	Date:	01/22/98
Signature of Chemist:	<i>RWS</i>	Date:	1/27/98

SAMPLE.WB1 REV 2.0

344105ML

PRINT

LABCORE Completed Worklist Report for Worklist# 21907

Analyst: slh

Instrument: U01

Book# 13857

Method: L4925-009 Rev/Mod B-0

Worklist Comment: TX302C GRAB, @U-01, STD: 10.0mL skw

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLNK	0 @U-01	U-02	LIQUID	1	5.29E-4	0.001 ug/mL	
1 BLNK	0 @U-01	U-02E	LIQUID	1	1.56E+00	1.560 Ratio	
2 STD	0 @U-01	U-02	LIQUID	6.26E-02	6.18E-02	98.722 % Recovery	
2 STD	0 @U-01	U-02E	LIQUID	1	3.16E+00	3.160 Ratio	
3 SAMPLE	S98T000140 0	@U-01	U-02	LIQUID	N/A	3.70e-005 ug/mL	
3 SAMPLE	S98T000140 0	@U-01	U-02E	LIQUID	N/A	3.29E+00	% Inst Error
4 DUP	S98T000140 0	@U-01	U-02	LIQUID	2.21E+1	1.96E+1	11.990 RPD
4 DUP	S98T000140 0	@U-01	U-02E	LIQUID	1	3.29E+00	3.290 Ratio
5 SEK	S98T000140 0	@U-01	U-02	LIQUID	4.93E-02	5.90E-02	118.557 % Recovery
6 SAMPLE	S98T000141 0	@U-01	U-02	LIQUID	N/A	2.24E+1	3.70e-005 ug/mL
6 SAMPLE	S98T000141 0	@U-01	U-02E	LIQUID	N/A	3.35E+00	% Inst Error
7 DUP	S98T000141 0	@U-01	U-02	LIQUID	2.24E+1	2.22E+1	0.897 RPD
7 DUP	S98T000141 0	@U-01	U-02E	LIQUID	1	3.29E+00	3.290 Ratio
8 SAMPLE	S98T000142 0	@U-01	U-02	LIQUID	N/A	2.44E+1	3.70e-005 ug/mL
8 SAMPLE	S98T000142 0	@U-01	U-02E	LIQUID	N/A	3.26E+00	% Inst Error
9 DUP	S98T000142 0	@U-01	U-02	LIQUID	2.44E+1	2.35E+1	3.758 RPD
9 DUP	S98T000142 0	@U-01	U-02E	LIQUID	1	3.32E+00	3.320 Ratio

Final page for worklist# 21907

Analyst Signature

Date

Analyst Signature

Date

RWS 1/30/98
Reviewer Signature Date

Spike conc. is too low relative to sample analyte conc.
No sample remains to reanalyze. RWS 3/4/98

01/27/98 09:39
A-0004-1

LABCORE Data Entry Template for Worklist# 21907

Analyst: SLH Instrument: U01 Book# 13857

Method: LA-925-009 Rev/Mod _____

Worklist Comment: TX302C GRAB, @U-01, STD: 10.0mL skw

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			@U-01	LIQUID		
2 STD			@U-01	LIQUID		
3 SAMPLE	S98T000140 0		@U-01	LIQUID	97000887	TX-302C GRAB
	Analytes Requested:		U-02	, U-02E		
4 DUP	S98T000140 0		@U-01	LIQUID		
5 SPK	S98T000140 0		@U-01	LIQUID		
6 SAMPLE	S98T000141 0		@U-01	LIQUID	97000887	TX-302C GRAB
	Analytes Requested:		U-02	, U-02E		
7 DUP	S98T000141 0		@U-01	LIQUID		
8 SAMPLE	S98T000142 0		@U-01	LIQUID	97000887	TX-302C GRAB
	Analytes Requested:		U-02	, U-02E		
9 DUP	S98T000142 0		@U-01	LIQUID		

Final page for worklist # 21907

Sandra L Hood Boatright
 Analyst Signature Date
 1-27-98

Alto Bergen 1-28-98
 Analyst Signature Date
C.J. Quinn 1-28-98

Data Entry Comments:

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

Sample ID BLK
Description BLKT000140
Ref. Ratio 1.05
Laser Pulses 1000
Lifetime 356 + 3.738 us
R2 .9953

Integrated 52584
Range: LOW

FINAL RESULT 5.29E-07 + 8.26E-09 g/L

Date/Time 01/27/98/17:11:24
Cal Y=5.11E+09X+4.88E-04
Intensity 2480 (t= 39 us)
Conc 5.29E-07 + 8.26E-09 g/L
Dilution Factor 1 mL/mL

Sample ID STD
Description 13B57 STD
Ref. Ratio 1.032
Laser Pulses 1000
Lifetime 312 + 1.572 us
R2 .9989

Integrated 60448
Range: HIGH

FINAL RESULT 6.18E-05 + 1.95E-06 g/L

Date/Time 01/27/98/17:13:36
Cal Y=8.25E+07X-1.65E+03
Intensity 2993 (t= 39 us)
Conc 6.18E-05 + 1.95E-06 g/L
Dilution Factor 1 mL/mL

Sample ID SAM
Description S98T000140
Ref. Ratio 1.077
Laser Pulses 1000
Lifetime 311 + .886 us
R2 .9996

Integrated 2016777
Range: HIGH

FINAL RESULT 2.21E-02 + 7.27E-04 g/L

Date/Time 01/27/98/17:44:43
Cal Y=8.25E+07X-1.65E+03
Intensity 97818 (t= 897 us)
Conc 2.21E-02 + 7.27E-04 g/L
Dilution Factor 1 mL/mL

Sample ID DUP
Description S98T000140
Ref. Ratio 1.088
Laser Pulses 1000
Lifetime 307 + .885 us
R2 .9996

Integrated 1933065
Range: HIGH

FINAL RESULT 1.96E-02 + 6.44E-04 g/L

Date/Time 01/27/98/17:48:59
Cal Y=8.25E+07X-1.65E+03
Intensity 94307 (t= 858 us)
Conc 1.96E-02 + 6.44E-04 g/L
Dilution Factor 1 mL/mL

Sample ID SPK
Description S98T000140
Ref. Ratio 1.105
Laser Pulses 1000
Lifetime 259 + .527 us
R2 .9998

Integrated 1768379
Range: HIGH

FINAL RESULT 2.78E-02 + 8.89E-04 g/L

Date/Time 01/27/98/17:50:52
Cal Y=8.25E+07X-1.65E+03
Intensity 96585 (t= 806 us)
Conc 2.78E-02 + 8.89E-04 g/L
Dilution Factor 1 mL/mL

Sample ID SAM
Description S98T000141
Ref. Ratio 1.09
Laser Pulses 1000
Lifetime 320 + 1.064 us
R2 .9995

Integrated 1994349
Range: HIGH

FINAL RESULT 2.24E-02 + 7.51E-04 g/L

Date/Time 01/27/98/17:53:06
Cal Y=8.25E+07X-1.65E+03
Intensity 94589 (t= 936 us)
Conc 2.24E-02 + 7.51E-04 g/L
Dilution Factor 1 mL/mL

Sample ID DUP
Description S98T000141
Ref. Ratio 1.096
Laser Pulses 1000
Lifetime 310 + .892 us
R2 .9997
Integrated 1922558
Range: HIGH

DUP
141

Date/Time 01/27/98/17:57:35
Cal Y=8.25E+07X-1.65E+03
Intensity 93523 (t= 910 us)
Conc 2.22E-02 + 7.30E-04 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 2.22E-02 + 7.30E-04 g/L

Sample ID SAM
Description S98T000142
Ref. Ratio 1.106
Laser Pulses 1000
Lifetime 312 + .818 us
R2 .9997
Integrated 1982008
Range: HIGH

SAM
142

Date/Time 01/27/98/18:08:49
Cal Y=8.25E+07X-1.65E+03
Intensity 95587 (t= 936 us)
Conc 2.44E-02 + 7.96E-04 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 2.44E-02 + 7.96E-04 g/L

Sample ID DUP
Description S98T000142
Ref. Ratio 1.132
Laser Pulses 1000
Lifetime 313 + .924 us
R2 .9996
Integrated 1949460
Range: HIGH

DUP
142

Date/Time 01/27/98/18:10:36
Cal Y=8.25E+07X-1.65E+03
Intensity 93343 (t= 936 us)
Conc 2.35E-02 + 7.80E-04 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 2.35E-02 + 7.80E-04 g/L

WORKBOOK PAGE: BLANK1

Uranium by Phosphorescence: LA-925-009 (B-0) LIQUID/SOLID

Type	BLNK	
Work List	VOLUME OF SAMPLE (mL) (SS)	1.00
21907	DILUTION FACTOR OF SAMPLE (DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE (PF)	1.00
@U-01	DIGEST DILUTION FACTOR (DDF)	1.0000
Matrix	LIFETIME IN MICROSECONDS	356.00
LIQUID	R2 VALUE	0.9963
Batch Number	RANGE (HIGH OR LOW)	LOW
98000185	INSTRUMENT UNCERTAINTY (IU)	8.26E-09
Rerun	INSTRUMENT RESULT (IR)	5.29E-07
0	DETECTION LEVEL (µg/mL)	3.70E-05
Sample Prep		
N/A		
Sample #	RESULT (µg/mL)	5.29E-04
WL21907	RELATIVE % UNCERTAINTY	1.6
Instrument Code		
U01		
Prepared By	Result = $DF * PF * DDF * IR * 1000$	
SEH		
Chemist	Detection Level = $3.70 \text{ E-}08 * DF * PF * DDF * 1000$	
RWS		
Analyst	Relative % Uncertainty = $IU / IR * 100$	
SLH		
Date Complete		
01/28/98		
Analysis Date		
01/27/98		
Analysis Time		
05:30 PM		
Sample Point		
TX-302C GRAB		

Analyst:	SLH	Date:	28-Jan-98
Signature of Chemist:	<i>RWS</i>	Date:	1/28/98

BLANK.WB1 REV 2.0

925009ML

WORKBOOK PAGE: STD2

Uranium by Phosphorescence: LA-925-009 (B-0) LIQUID/SOLID

Type		
STD	STANDARD	
Work List	STANDARD BOOK #	13B57
21907	VOLUME OF SAMPLE (mL) (SS)	1.00
Test Code	DILUTION FACTOR OF SAMPLE (DF)	1.00
@U-01	PREPARATION FACTOR OF SAMPLE (PF)	1.00
Matrix	LIFETIME IN MICROSECONDS	312.00
LIQUID	R2 VALUE	0.9989
Batch Number	RANGE (HIGH OR LOW)	HIGH
98000185	INSTRUMENT UNCERTAINTY (IU)	1.95E-06
Rerun	INSTRUMENT RESULT (IR)	6.18E-05
0	DETECTION LEVEL (µg/mL)	3.70E-05
Sample Prep		
N/A	RESULT (µg/mL)	6.18E-02
Sample #	VALUE OF STANDARD	6.26E-02
WL21907	%RECOVERY	98.72
Instrument Code	RELATIVE % UNCERTAINTY	3.2
U01		
Prepared By		
SEH	Result = DF * PF * IR * 1000	
Chemist		
RWS	Detection Level = 3.70 E-08 * DF * PF * 1000	
Analyst		
SLH	% Recovery = Result / Value of Standard * 100	
Date Complete		
01/28/98	Relative % Uncertainty = IU / IR * 100	
Analysis Date		
01/27/98		
Analysis Time		
05:30 PM		
Sample Point		
TX-302C GRAB		

Analyst:	SLH	Date: 28-Jan-98
Signature of Chemist:	<i>RWS</i>	Date: 1/28/98

STANDARD.WB1 REV 2.0

925009ML

WORKBOOK PAGE: SAM3

Uranium by Phosphorescence: LA-925-009 (B-0) LIQUID/SOLID

Type	SAMPLE	
Work List	VOLUME OF SAMPLE (mL) (SS)	1.00
21907	DILUTION FACTOR OF SAMPLE (DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE (PF)	1.00
@U-01	DIGEST DILUTION FACTOR (DDF)	1.0000
Matrix:	LIFETIME IN MICROSECONDS	311.00
LIQUID	R2 VALUE	0.9996
Batch Number	RANGE (HIGH OR LOW)	HIGH
98000185	INSTRUMENT UNCERTAINTY (IU)	7.27E-04
Rerun:	INSTRUMENT RESULT (IR)	2.21E-02
0	DETECTION LEVEL (µg/mL)	3.70E-05
Sample Prep		
N/A	CONCENTRATION IN SOLUTION (g/L)	2.21E-02
Sample #	RESULT (µg/mL)	2.21E+01
S98T000140	RELATIVE % UNCERTAINTY	3.3
Instrument Code		
U01		
Prepared By	Result = $DF * PF * DDF * IR * 1000$	
SEH		
Chemist	Detection Level = $3.70 E-08 * DF * PF * DDF * 1000$	
RWS		
Analyst	Relative % Uncertainty = $IU / IR * 100$	
SLH		
Date Complete		
01/28/98		
Analysis Date		
01/27/98		
Analysis Time		
05:30 PM		
Sample Point		
TX-302C GRAB		

Analyst:	SLH	Date: 28-Jan-98
Signature of Chemist:	RWS	Date: 1/28/98

SAMPLE.WB1 REV 2.0

925009ML

WORKBOOK PAGE: DUP4

Uranium by Phosphorescence: LA-925-009 (B-0) LIQUID/SOLID

Type	DUP	
Work List	VOLUME OF SAMPLE (mL) (SS)	1.00
21907	DILUTION FACTOR OF SAMPLE (DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE (PF)	1.00
@U-01	DIGEST DILUTION FACTOR (DDF)	1.0000
Matrix	LIFETIME IN MICROSECONDS	307.00
LIQUID	R2 VALUE	0.9996
Batch Number	RANGE (HIGH OR LOW)	HIGH
98000185	INSTRUMENT UNCERTAINTY (IU)	6.44E-04
Rerun	INSTRUMENT RESULT (IR)	1.96E-02
0	DETECTION LEVEL (µg/mL)	3.70E-05
Sample Prep		
N/A	CONCENTRATION IN SOLUTION (g/L)	1.96E-02
Sample #	RESULT (µg/mL)	1.96E+01
S98T000140	RELATIVE % UNCERTAINTY	3.3
Instrument Code		
U01		
Prepared By	Result = DF * PF * DDF * IR * 1000	
SEH		
Chemist	Detection Level = 3.70 E-05 * DF * PF * DDF * 1000	
RWS		
Analyst	Relative % Uncertainty = IU / IR * 100	
SLH		
Date Complete		
01/28/98		
Analysis Date		
01/27/98		
Analysis Time		
05:30 PM		
Sample Point		
TX-302C GRAB		

Analyst:	SLH	Date: 28-Jan-98
Signature of Chemist:	<i>Rw Schneider</i> RWS	Date: 1/28/98

SAMPLE.WB1 REV 2.0

925009ML

WORKBOOK PAGE: SPIKE5

Uranium by Phosphorescence: LA-925-009 (B-0) LIQUID/SOLID

Type	SPIKE	
SPK	SPIKE BOOK #	
Work List	VOLUME OF SAMPLE + SPIKE (mL)	(SS) 1.00
21907	DILUTION FACTOR OF SAMPLE + SPIKE	(DF) 1.00
Test Code	PREPARATION FACTOR OF SAMPLE + SPIKE	(PF) 1.00
@U-01	DIGEST DILUTION FACTOR OF SAMPLE	(DDF) 1.0000
Matrix	LIFETIME IN MICROSECONDS	259.00
LIQUID	R2 VALUE	0.9998
Batch Number	RANGE (HIGH OR LOW)	HIGH
98000185	INSTRUMENT RESULT	(IR) 2.78E-02
Rerun	CONCENTRATION IN SOLUTION (g/L)	(CONC) 2.78E-02
0	SPIKE VALUE (g/L)	(SV) 4.92E-02
Sample Prep	INITIAL VOLUME OF SPIKE (mL)	(IV) 0.10
N/A	ORIGINAL SAMPLE VOLUME BEFORE PREP (mL)	(OSV) 10.00
Sample Number	CONCENTRATION IN SOLN (g/L) FROM SAMPLE FORM	(SR) 2.21E-02
S98T000140		
Instrument Code		
U01	Concentration = IR * DF * PF	
Prepared By		
SEH	QC Actual (µg/mL) = SV (g/L) * 1000	
Chemist		
RWS	QC Found (µg/mL) = (CONC - SR) * OSV / IV * 1000	
Analyst		
SLH	% Recovery = QC FOUND / QC ACTUAL	
Date Complete		
01/28/98		
Analysis Date		
01/27/98	QC ACTUAL	= 4.92E+01 µg/mL
Analysis Time	QC FOUND	= 5.70E+02 µg/mL
05:30 PM	% SPIKE RECOVERY	= 1168.5%
Sample Point		
TX-302C GRAB		

Analyst:	SLH	Date:	28-Jan-98
Signature of Chemist:	RWS	Date:	1/29/98
			
SPIKE.WB1 REV 2.0	925009ML		

WORKBOOK PAGE: SAM6

Uranium by Phosphorescence: LA-925-009 (B-0) LIQUID/SOLID

Type	SAMPLE	
Work List	VOLUME OF SAMPLE (mL) (SS)	1.00
21907	DILUTION FACTOR OF SAMPLE (DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE (PF)	1.00
@U-01	DIGEST DILUTION FACTOR (DDF)	1.0000
Matrix	LIFETIME IN MICROSECONDS	320.00
LIQUID	R2 VALUE	0.9995
Batch Number	RANGE (HIGH OR LOW)	HIGH
98000185	INSTRUMENT UNCERTAINTY (IU)	7.51E-04
Rerun	INSTRUMENT RESULT (IR)	2.24E-02
0	DETECTION LEVEL (µg/mL)	3.70E-05
Sample Prep		
N/A	CONCENTRATION IN SOLUTION (g/L)	2.24E-02
Sample #	RESULT (µg/mL)	2.24E+01
S98T000141	RELATIVE % UNCERTAINTY	3.4
Instrument Code		
U01		
Prepared By	Result = $DF * PF * DDF * IR * 1000$	
SEH		
Chemist	Detection Level = $3.70 \text{ E-}05 * DF * PF * DDF * 1000$	
RWS		
Analyst	Relative % Uncertainty = $IU / IR * 100$	
SLH		
Date Complete		
01/28/98		
Analysis Date		
01/27/98		
Analysis Time		
05:30 PM		
Sample Point		
TX-302C GRAB		

Analyst:	SLH	Date:	28-Jan-98
Signature of Chemist:	<i>R. J. Schroeder</i>	RWS	Date: 1/28/98

SAMPLE:WB1 REV 2.0

925009ML

WORKBOOK PAGE: DUP7

Uranium by Phosphorescence: LA-925-009 (B-0) LIQUID/SOLID

Type	DUP	
Work List	VOLUME OF SAMPLE (mL) (SS)	1.00
21907	DILUTION FACTOR OF SAMPLE (DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE (PF)	1.00
@U-01	DIGEST DILUTION FACTOR (DDF)	1.0000
Matrix	LIFETIME IN MICROSECONDS	310.00
LIQUID	R2 VALUE	0.9997
Batch Number	RANGE (HIGH OR LOW)	HIGH
98000185	INSTRUMENT UNCERTAINTY (IU)	7.30E-04
Rerun	INSTRUMENT RESULT (IR)	2.22E-02
0	DETECTION LEVEL (µg/mL)	3.70E-05
Sample Prep		
N/A	CONCENTRATION IN SOLUTION (g/L)	2.22E-02
Sample #	RESULT (µg/mL)	2.22E+01
S98T000141	RELATIVE % UNCERTAINTY	3.3
Instrument Code		
U01		
Prepared By	Result = DF * PF * DDF * IR * 1000	
SEH		
Chemist	Detection Level = 3.70 E-08 * DF * PF * DDF * 1000	
RWS		
Analyst	Relative % Uncertainty = IU / IR * 100	
SLH		
Date Complete		
01/28/98		
Analysis Date		
01/27/98		
Analysis Time		
05:30 PM		
Sample Point		
TX-302C GRAB		

Analyst:	SLH	Date: 28-Jan-98
Signature of Chemist:	<i>RWS</i>	Date: 1/28/98

SAMPLE:WB1 REV 2.0

925009ML

WORKBOOK PAGE: SAM8

Uranium by Phosphorescence: LA-925-009 (B-0) LIQUID/SOLID

Type	SAMPLE	
Work List	VOLUME OF SAMPLE (mL) (SS)	1.00
21907	DILUTION FACTOR OF SAMPLE (DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE (PF)	1.00
@U-01	DIGEST DILUTION FACTOR (DDF)	1.0000
Matrix	LIFETIME IN MICROSECONDS	312.00
LIQUID	R2 VALUE	0.9997
Batch Number	RANGE (HIGH OR LOW)	HIGH
98000185	INSTRUMENT UNCERTAINTY (IU)	7.96E-04
Rerun	INSTRUMENT RESULT (IR)	2.44E-02
0	DETECTION LEVEL (µg/mL)	3.70E-05
Sample Prep		
N/A	CONCENTRATION IN SOLUTION (g/L)	2.44E-02
Sample #	RESULT (µg/mL)	2.44E+01
S98T000142	RELATIVE % UNCERTAINTY	3.3
Instrument Code		
U01		
Prepared By	Result = DF * PF * DDF * IR * 1000	
SEH		
Chemist	Detection Level = 3.70 E-06 * DF * PF * DDF * 1000	
RWS		
Analyst	Relative % Uncertainty = IU / IR * 100	
SLH		
Date Complete		
01/28/98		
Analysis Date		
01/27/98		
Analysis Time		
05:30 PM		
Sample Point		
TX-302C GRAB		

Analyst:	SLH	Date:	28-Jan-98
Signature of Chemist:	<i>R. J. Schneider</i>	RWS	Date: 1/28/98

SAMPLE.WB1 REV 2.0

925009ML

WORKBOOK PAGE: DUP9

Uranium by Phosphorescence: LA-925-009 (B-0) LIQUID/SOLID

Type	DUP	
Work List	VOLUME OF SAMPLE (mL) (SS)	1.00
21907	DILUTION FACTOR OF SAMPLE (DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE (PF)	1.00
@U-01	DIGEST DILUTION FACTOR (DDF)	1.0000
Matrix	LIFETIME IN MICROSECONDS	313.00
LIQUID	R2 VALUE	0.9996
Batch Number	RANGE (HIGH OR LOW)	HIGH
98000185	INSTRUMENT UNCERTAINTY (IU)	7.80E-04
Rerun	INSTRUMENT RESULT (IR)	2.35E-02
0	DETECTION LEVEL (µg/mL)	3.70E-05
Sample Prep		
N/A	CONCENTRATION IN SOLUTION (g/L)	2.35E-02
Sample #	RESULT (µg/mL)	2.35E+01
S98T000142	RELATIVE % UNCERTAINTY	3.3
Instrument Code		
U01		
Prepared By	Result = DF * PF * DDF * IR * 1000	
SEH		
Chemist	Detection Level = 3.70 E-08 * DF * PF * DDF * 1000	
RWS		
Analyst	Relative % Uncertainty = IU / IR * 100	
SLH		
Date Complete		
01/28/98		
Analysis Date		
01/27/98		
Analysis Time		
05:30 PM		
Sample Point		
TX-302C GRAB		

Analyst:	SLH	Date:	28-Jan-98
Signature of Chemist:	<i>RWS</i>	Date:	1/28/98

SAMPLE WB1 REV 2.0

925009ML

HNF-SD-WM-DP-292, REV. 0

RADIOCHEMICAL ANALYSIS

HNF-SD-WM-DP-292, REV. 0

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LABCORE Completed RadChem Report for Worklist#: 21910

Analyst: crj

Instrument: GEA01

Book# _____

Method: _____ Rev/Mod F-O

Worklist Comment: TX302C GRAB, @GEA-01, S.S. = 1.0mL, STD = 1.0mL skw

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	@GEA-01 CO60-02 LIQUID		5.555e-03	5.83e-03	104.950	% Recovery
1 STD	0	@GEA-01 CO60-02E LIQUID		1	2.80	2.800	% Ct Error
1 STD	0	@GEA-01 CS13702 LIQUID		5.490e-03	5.77e-03	105.100	% Recovery
1 STD	0	@GEA-01 CS13702E LIQUID		1	3.35	3.350	% Ct Error
2 BLNK	0	@GEA-01 CO60-02 LIQUID		1	<2.50e-5		uCi/mL
2 BLNK	0	@GEA-01 CS13702 LIQUID		1	<3.38e-5		uCi/mL
3 SAMPLE	S98T000140 0	@GEA-01 CO60-02 LIQUID		N/A	2.778e-05	277.8e-007	uCi/mL
3 SAMPLE	S98T000140 0	@GEA-01 CO60-02E LIQUID		N/A	n/a	0.0e+000	% Ct. Error
3 SAMPLE	S98T000140 0	@GEA-01 CS13702 LIQUID		N/A	4.950e-02	0.0e+000	uCi/mL
3 SAMPLE	S98T000140 0	@GEA-01 CS13702E LIQUID		N/A	0.590	0.0e+000	% Ct. Error
4 DUP	S98T000140 0	@GEA-01 CO60-02 LIQUID		<2.78e-5	<2.50e-5		RPD
4 DUP	S98T000140 0	@GEA-01 CO60-02E LIQUID		1	n/a		% Ct Error
4 DUP	S98T000140 0	@GEA-01 CS13702 LIQUID		4.95e-02	4.81e-02	2.869	RPD
4 DUP	S98T000140 0	@GEA-01 CS13702E LIQUID		1	0.600	0.600	% Ct Error
5 SAMPLE	S98T000141 0	@GEA-01 CO60-02 LIQUID		N/A	2.781e-05	278.1e-007	uCi/mL
5 SAMPLE	S98T000141 0	@GEA-01 CO60-02E LIQUID		N/A	n/a	0.0e+000	% Ct. Error
5 SAMPLE	S98T000141 0	@GEA-01 CS13702 LIQUID		N/A	4.890e-02	0.0e+000	uCi/mL
5 SAMPLE	S98T000141 0	@GEA-01 CS13702E LIQUID		N/A	0.600	0.0e+000	% Ct. Error
6 DUP	S98T000141 0	@GEA-01 CO60-02 LIQUID		<2.78e-5	<2.89e-5		RPD
6 DUP	S98T000141 0	@GEA-01 CO60-02E LIQUID		1	n/a		% Ct Error
6 DUP	S98T000141 0	@GEA-01 CS13702 LIQUID		4.89e-02	4.41e-02	10.323	RPD
6 DUP	S98T000141 0	@GEA-01 CS13702E LIQUID		1	0.630	0.630	% Ct Error
7 SAMPLE	S98T000142 0	@GEA-01 CO60-02 LIQUID		N/A	2.646e-05	264.6e-007	uCi/mL
7 SAMPLE	S98T000142 0	@GEA-01 CO60-02E LIQUID		N/A	n/a	0.0e+000	% Ct. Error
7 SAMPLE	S98T000142 0	@GEA-01 CS13702 LIQUID		N/A	5.130e-02	0.0e+000	uCi/mL
7 SAMPLE	S98T000142 0	@GEA-01 CS13702E LIQUID		N/A	0.580	0.0e+000	% Ct. Error
8 DUP	S98T000142 0	@GEA-01 CO60-02 LIQUID		<2.65e-5	<2.66e-5		RPD
8 DUP	S98T000142 0	@GEA-01 CO60-02E LIQUID		1	n/a		% Ct Error
8 DUP	S98T000142 0	@GEA-01 CS13702 LIQUID		5.13e-02	4.81e-02	6.439	RPD
8 DUP	S98T000142 0	@GEA-01 CS13702E LIQUID		1	0.600	0.600	% Ct Error

Comments Section:

Comments for sample# S98T000140 and test @GEA-01 .
DL=0 => n/a.

Comments for sample# S98T000141 and test @GEA-01 .
DL=0 => n/a.

Comments for sample# S98T000142 and test @GEA-01 .

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

LABCORE Completed RadChem Report for Worklist#: 21910

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

DL=0 => n/a.

Final page for worklist# 21910

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

John Rehyen 26 Jan 98
Reviewer Signature _____ Date _____

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

01/19/98 11:00
A-0004-1

Page: 1

LABCORE Data Entry Template for Worklist# 21910

Analyst: CRJ Instrument: GEA00 #1 Book# 86 B50Method: LA-548-121 Rev/Mod F-U

Worklist Comment: TX302C GRAB, @GEA-01, S.S. = 1.0mL, STD = 1.0mL skw

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@GEA-01	LIQUID		
2 BLNK			@GEA-01	LIQUID		
3 SAMPLE	S98T000140 0		@GEA-01	LIQUID	97000887	TX-302C GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E					
4 DUP	S98T000140 0		@GEA-01	LIQUID		
5 SAMPLE	S98T000141 0		@GEA-01	LIQUID	97000887	TX-302C GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E					
6 DUP	S98T000141 0		@GEA-01	LIQUID		
7 SAMPLE	S98T000142 0		@GEA-01	LIQUID	97000887	TX-302C GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E					
8 DUP	S98T000142 0		@GEA-01	LIQUID		

Final page for worklist # 21910

Analyst Signature

Date

Analyst Signature

Date

Data Entry Comments:

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

Removed by: Aue Hogan

Verified by: *[Signature]*

```
>>>>>>>> ANALYSIS INFORMATION <<<<<<<<
Sample Count Time:      21-JAN-1998 14:12:33.46
Decayed to:             21-JAN-1998 14:12:33.46
Standard Deviations:    2
Analysis Library:       ENVGEA
Analyst:                 SEH
Background Subtract:    DKA300:[SPEC.GEA1]1GBACK
```

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.83	850	1.05	64.31	59	11	17.0			
0	36.38	253	1.55	73.41	70	9	41.9			
0	59.17	333	0.97	118.99	115	8	32.3		AM-241	0.231
0	582.79*	61	1.71	1166.19	1161	11	102.6			
0	661.36*	4765	1.43	1323.35	1315	15	3.4		CS-137	5.77
0	1172.65	3430	1.89	2346.20	2337	17	3.9		CO-60	5.90
0	1331.93	3018	1.80	2664.89	2658	17	4.0		CO-60	5.76

Total number of lines in spectrum	7	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	5	71.43%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.00	5.829E+00	5.829E+00	0.163E+00	2.80	
CS-137	30.00Y	1.00	5.769E+00	5.769E+00	0.194E+00	3.35	
AM-241	432.20Y	1.00	2.307E-01	2.307E-01	0.745E-01	32.28	
Total Activity :			1.183E+01	1.183E+01			

Grand Total Activity : 1.183E+01 1.183E+01

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

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

Minimum Detectable Activity Report

Sample ID : WL21910-STD

Acquisition date : 21-JAN-1998 14:12:33

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	373.	477.59	6.8130E-01
NA-22	47.	1274.53	6.3788E-02
NA-24	22.	1368.55	4.8750E-02
K-40	600.	1460.75	2.2382E+00
CR-51	431.	320.08	5.2437E-01
MN-54	216.	834.83	9.0869E-02
CO-56	224.	846.76	9.3636E-02
CO-57	700.	122.06	4.0765E-02
CO-58	198.	810.78	8.5240E-02
FE-59	239.	1099.25	2.1488E-01
SE-75	509.	264.66	8.3675E-02
SR-85	318.	514.01	7.2762E-02
Y-88	17.	1836.06	5.3739E-02
NB-94	213.	871.09	9.3743E-02
ZRNB-95	232.	724.18	1.8870E-01
RU-103	296.	497.08	7.1882E-02
RURH-106	224.	621.93	1.4205E+00
AG-108m	219.	722.94	8.8217E-02
CD-109	606.	88.03	8.1661E-01
AG-110M	374.	657.76	1.0047E-01
SN-113	423.	391.69	9.7747E-02
TE-123m	653.	159.00	4.6057E-02
SB-124	213.	602.73	6.8238E-02
SB-125	394.	427.89	2.2268E-01
TE-125m	628.	109.27	1.1282E+01
I-131	401.	364.48	7.0517E-02
CS-134	218.	604.70	6.9414E-02
BA-140	255.	537.31	2.6856E-01
LA-140	17.	1596.21	5.0315E-02
CEPR-144	702.	133.51	6.5821E-01
EU-152	28.	1408.01	2.5848E-01
EU-154	47.	1274.51	1.8504E-01
EU-155	626.	105.31	1.4389E-01
HG-203	452.	279.20	5.9258E-02
TL-208	478.	277.36	7.8119E-01
BI-212	214.	727.18	1.1969E+00
PB-212	640.	238.63	1.1578E-01
BI-214	373.	609.31	1.9722E-01
PB-214	477.	351.92	3.0081E-01
RA-224	585.	240.99	1.2301E+00
RA-226	728.	186.10	1.2853E+00
AC-228	309.	911.21	4.3877E-01
TH-228	674.	84.37	2.4339E+00
TH-229	616.	88.47	1.2045E-01
PA-233	441.	312.17	1.3558E-01
UTH-233	560.	245.34	4.5147E+01
PA-234M	248.	1001.03	1.9329E-01
TH-234	573.	63.29	6.2614E-01
U-235	732.	185.71	7.8359E-02
NP-237	607.	86.48	2.3703E-01
NP-239	638.	106.12	1.3929E-01

Minimum Detectable Activity Report (continued)

Page : 4

Sample ID : WL21910-STD

Acquisition date : 21-JAN-1998 14:12:33

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	675.	129.30	5.5038E+02
AM-243	670.	74.67	5.0550E-02

HNF-SD-WM-DP-292 REV. 0

 * 222-S Laboratory Counting Room 21-JAN-1998 17:42:18.04 *

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

Worklist #: 21910
 Sample ID: WL21910-BLK
 Sample Size: 1.00000E-03 L
 Dilution Factor: 1.00000E+00

Removed by:

Em Bueco

>>>>>>> COUNT INFORMATION <<<<<<<<

Detector ID: GEAL
 File Number: dka300:[spec.GEAL]lg1584.cnf
 Geometry: 41
 Count Time: 0 02:30:00.00 sec
 Real Time: 0 02:30:33.41 sec
 Dead Time: 0.4%

Verified by:

St JHL

HNF-SD-WM-DP-292 REV. 0

>>>>>>> ANALYSIS INFORMATION <<<<<<<<

Sample Count Time: 21-JAN-1998 15:11:09.43
 Decayed to: 21-JAN-1998 15:11:09.43
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: SEH
 Background Subtract: DKA300:[SPEC.GEAL]1GBACK

>>>>>>> CALIBRATION INFORMATION <<<<<<<<

Date of last energy calibration: 20-MAR-1996 09:10:33.62
 Date of last efficiency calibration: 20-MAR-1996 09:10:52.48

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	12.51	217	0.95	25.67	23	6	47.9			
0	15.97	374	1.38	32.58	29	10	40.0			
0	1397.06	26	3.37	2795.20	2788	11	93.7			
0	1460.15*	106	2.04	2921.45	2911	19	94.4		K-40	0.677

Total number of lines in spectrum	4	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	1	25.00%

Nuclide Type :

Nuclide	Hlfe	Decay	Wtd Mean	Wtd Mean	Decay Corr	2-Sigma	2-Sigma Error	%Error	Flags
			Uncorrected	Decay Corr					
			uCi/L	uCi/L					
K-40	1.28E+09Y	1.00	6.768E-01	6.768E-01	6.386E-01	94.35	5.4F		
			-----	-----					
									1/23/98
									Bkg
			Total Activity :	6.768E-01	6.768E-01				

Grand Total Activity : 6.768E-01 6.768E-01

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

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

Minimum Detectable Activity Report

Sample ID : WL21910-BLK

Acquisition date : 21-JAN-1998 15:11:09

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	314.	477.59	2.0907E-01
NA-22	103.	1274.53	3.0644E-02
NA-24	43.	1368.55	2.2700E-02
CR-51	588.	320.08	2.0364E-01
MN-54	197.	834.83	2.8933E-02
CO-56	183.	846.76	2.8323E-02
CO-57	1419.	122.06	1.9230E-02
CO-58	149.	810.78	2.4828E-02
FE-59	130.	1099.25	5.3537E-02
CO-60	62.	1332.50	2.4987E-02
SE-75	781.	264.66	3.4393E-02
SR-85	336.	514.01	2.4904E-02
Y-88	28.	1836.06	2.2236E-02
NB-94	157.	871.09	2.6975E-02
ZRNB-95	214.	724.18	6.0493E-02
RU-103	301.	497.08	2.4161E-02
RURH-106	197.	621.93	4.4442E-01
AG-108m	194.	722.94	2.7748E-02
CD-109	1227.	88.03	3.8466E-01
AG-110M	231.	657.76	2.6527E-02
SN-113	439.	391.69	3.3183E-02
TE-123m	1328.	159.00	2.1753E-02
SB-124	228.	602.73	2.3523E-02
SB-125	392.	427.89	7.4008E-02
TE-125m	1319.	109.27	5.4112E+00
I-131	496.	364.48	2.6144E-02
CS-134	242.	604.70	2.4319E-02
CS-137	304.	661.66	3.3806E-02
BA-140	280.	537.31	9.3787E-02
LA-140	33.	1596.21	2.2869E-02
CEPR-144	1437.	133.51	3.1188E-01
EU-152	67.	1408.01	1.2978E-01
EU-154	103.	1274.51	8.9003E-02
EU-155	1360.	105.31	7.0193E-02
HG-203	757.	279.20	2.5412E-02
TL-208	784.	277.36	3.3161E-01
BI-212	240.	727.18	4.2206E-01
PB-212	1243.	238.63	5.3421E-02
BI-214	610.	609.31	8.3540E-02
PB-214	814.	351.92	2.8963E-01
RA-224	1049.	240.99	5.4945E-01
RA-226	1224.	186.10	5.5288E-01
AC-228	319.	911.21	1.4855E-01
TH-228	1330.	84.37	1.1327E+00
TH-229	1209.	88.47	5.5871E-02
PA-233	605.	312.17	5.2788E-02
UTH-233	896.	245.34	1.8934E+01
PA-234M	141.	1001.03	4.9211E-02
TH-234	1131.	63.29	2.9107E-01
U-235	1206.	185.71	3.3363E-02
NP-237	1263.	86.48	1.1321E-01

Sample ID : WL21910-BLK

Acquisition date : 21-JAN-1998 15:11:09

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	1345.	106.12	6.7639E-02
PU-239	1439.	129.30	2.6612E+02
AM-241	1077.	59.54	3.5878E-02
AM-243	1340.	74.67	2.3674E-02

HNF-SD-WM-DP-292 REV. 0

Removed by:
Em Bauer

Verified by: 

HNF-SD-WM-DP-292 REV. 0

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.62	597	1.15	43.89	41	8	46.2			
0	31.67	20960	1.00	63.99	60	8	2.2			
0	36.22	6212	0.99	73.08	69	9	5.7			
0	510.27*	268	1.67	1021.13	1015	13	92.7			
0	661.31*	122623	1.43	1323.26	1315	16	0.6		CS-137	49.5
0	1731.17	47	6.27	3463.79	3452	23	71.6			

Total number of lines in spectrum	6	
Number of unidentified lines	4	
Number of lines tentatively identified by NID	2	33.33%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.00	4.949E+01	4.949E+01	0.029E+01	0.59	
Total Activity :			4.949E+01	4.949E+01			

Grand Total Activity : 4.949E+01 4.949E+01

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

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

Minimum Detectable Activity Report

Sample ID : S98T140-SAM

Acquisition date : 21-JAN-1998 18:10:26

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4036.	477.59	7.3211E-01
NA-22	105.	1274.53	3.0885E-02
NA-24	37.	1368.55	2.1191E-02
K-40	1696.	1460.75	1.2425E+00
CR-51	3561.	320.08	4.9410E-01
MN-54	189.	834.83	2.8387E-02
CO-56	160.	846.76	2.6556E-02
CO-57	4360.	122.06	3.3484E-02
CO-58	155.	810.78	2.5305E-02
FE-59	112.	1099.25	4.9818E-02
CO-60	78.	1332.50	2.7784E-02
SE-75	3797.	264.66	7.4974E-02
SR-85	2265.	514.01	6.3479E-02
Y-88	20.	1836.06	1.8989E-02
NB-94	159.	871.09	2.7193E-02
ZRNB-95	230.	724.18	6.2661E-02
RU-103	2586.	497.08	6.9334E-02
RURH-106	768.	621.93	8.6111E-01
AG-108m	223.	722.94	2.9672E-02
CD-109	4060.	88.03	6.9453E-01
AG-110M	5444.	657.76	1.2504E-01
SN-113	3764.	391.69	9.5413E-02
TE-123m	4080.	159.00	3.7872E-02
SB-124	822.	602.73	4.3871E-02
SB-125	4360.	427.89	2.4193E-01
TE-125m	4199.	109.27	9.5893E+00
I-131	3666.	364.48	6.9906E-02
CS-134	830.	604.70	4.4279E-02
BA-140	1551.	537.31	2.1646E-01
LA-140	32.	1596.21	2.2605E-02
CEPR-144	4330.	133.51	5.3786E-01
EU-152	82.	1408.01	1.4284E-01
EU-154	105.	1274.51	8.9831E-02
EU-155	4006.	105.31	1.1968E-01
HG-203	3550.	279.20	5.4413E-02
TL-208	3666.	277.36	7.0932E-01
BI-212	267.	727.18	4.4404E-01
PB-212	4266.	238.63	9.8242E-02
BI-214	1297.	609.31	1.2100E-01
PB-214	3863.	351.92	6.2627E-01
RA-224	4100.	240.99	1.0766E+00
RA-226	5550.	186.10	1.1672E+00
AC-228	391.	911.21	1.6397E-01
TH-228	4223.	84.37	2.0045E+00
TH-229	3978.	88.47	1.0059E-01
PA-233	3561.	312.17	1.2631E-01
UTH-233	3870.	245.34	3.8966E+01
PA-234M	145.	1001.03	4.9726E-02
TH-234	3898.	63.29	5.3623E-01
U-235	5464.	185.71	7.0403E-02
NP-237	4112.	86.48	2.0280E-01

Sample ID : S98T140-SAM

Acquisition date : 21-JAN-1998 18:10:26

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	4009.	106.12	1.1602E-01
PU-239	4391.	129.30	4.6185E+02
AM-241	3945.	59.54	6.8102E-02
AM-243	4200.	74.67	4.1628E-02

HNF-SD-WM-DP-292 REV. 0

 * 222-S Laboratory Counting Room 22-JAN-1998 02:41:59.45 *

>>>>>>> SAMPLE INFORMATION <<<<<<<<<
 Worklist #: 21910
 Sample ID: S98T140-DUP
 Sample Size: 1.00000E-03 L
 Dilution Factor: 1.00000E+00

Removed by:

Mr. B...

>>>>>>> COUNT INFORMATION <<<<<<<<<
 Detector ID: GEAL
 File Number: dka300:[spec.GEAL]lg1586.cnf
 Geometry: 41
 Count Time: 0 02:30:00.00 sec
 Real Time: 0 02:31:03.62 sec
 Dead Time: 0.7%

Verified by:

St. J...

>>>>>>> ANALYSIS INFORMATION <<<<<<<<<
 Sample Count Time: 22-JAN-1998 00:10:19.79
 Decayed to: 22-JAN-1998 00:10:19.79
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: EMB
 Background Subtract: DKA300:[SPEC.GEAL]1GBACK

HNF-SD-WM-DP-292 REV. 0

>>>>>>> CALIBRATION INFORMATION <<<<<<<<<
 Date of last energy calibration: 20-MAR-1996 09:10:33.62
 Date of last efficiency calibration: 20-MAR-1996 09:10:52.48

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	12.46	234	1.02	25.57	24	6	81.9			
0	21.45	788	1.05	43.55	40	7	30.3			
0	31.71	21359	1.00	64.06	60	9	2.3			
0	36.19	5695	1.05	73.02	69	9	6.1			
0	186.46*	1289	3.66	373.52	366	17	39.5		RA-226	4.31
0	661.33*	119253	1.41	1323.28	1315	16	0.6		CS-137	48.1
0	1377.10*	22	1.69	2755.27	2751		8112.6			

Summary of Nuclide Activity

Sample ID : S98T140-DUP

Acquisition date : 22-JAN-1998 00:10:19

Total number of lines in spectrum	7	
Number of unidentified lines	5	
Number of lines tentatively identified by NID	2	28.57%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.00	4.813E+01	4.813E+01	0.029E+01	0.60	SLA
RA-226	1600.00Y	1.00	4.310E+00	4.310E+00	1.701E+00	39.46	1/23/98 BK9
Total Activity :			5.244E+01	5.244E+01			

Grand Total Activity : 5.244E+01 5.244E+01

Flags: "K" = Keyline not found

"E" = Manually edited

"M" = Manually accepted

"A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3979.	477.59	7.2693E-01
NA-22	93.	1274.53	2.9171E-02
NA-24	48.	1368.55	2.4091E-02
K-40	1727.	1460.75	1.2538E+00
CR-51	3393.	320.08	4.8244E-01
MN-54	156.	834.83	2.5873E-02
CO-56	151.	846.76	2.5880E-02
CO-57	4208.	122.06	3.2900E-02
CO-58	170.	810.78	2.6389E-02
FE-59	119.	1099.25	5.1410E-02
CO-60	62.	1332.50	2.5009E-02
SE-75	3666.	264.66	7.3685E-02
SR-85	2186.	514.01	6.2367E-02
Y-88	20.	1836.06	1.9218E-02
NB-94	145.	871.09	2.6011E-02
ZRNB-95	221.	724.18	6.1453E-02
RU-103	2589.	497.08	6.9368E-02
RURH-106	805.	621.93	8.8156E-01
AG-108m	190.	722.94	2.7496E-02
CD-109	3977.	88.03	6.8748E-01
AG-110M	5157.	657.76	1.2172E-01
SN-113	3647.	391.69	9.3939E-02
TE-123m	4061.	159.00	3.7787E-02
SB-124	827.	602.73	4.4007E-02
SB-125	4167.	427.89	2.3658E-01
TE-125m	4125.	109.27	9.5046E+00
I-131	3560.	364.48	6.8900E-02
CS-134	804.	604.70	4.3592E-02
BA-140	1480.	537.31	2.1154E-01
LA-140	38.	1596.21	2.4576E-02
CEPR-144	4212.	133.51	5.3055E-01
EU-152	76.	1408.01	1.3731E-01
EU-154	93.	1274.51	8.4806E-02
EU-155	3979.	105.31	1.1928E-01
HG-203	3550.	279.20	5.4410E-02
TL-208	3702.	277.36	7.1276E-01
BI-212	272.	727.18	4.4791E-01
PB-212	4266.	238.63	9.8243E-02
BI-214	1195.	609.31	1.1618E-01
PB-214	3821.	351.92	6.2277E-01
RA-224	4062.	240.99	1.0717E+00
AC-228	344.	911.21	1.5407E-01
TH-228	4124.	84.37	1.9812E+00
TH-229	3945.	88.47	1.0017E-01
PA-233	3516.	312.17	1.2550E-01
UTH-233	3810.	245.34	3.8669E+01
PA-234M	146.	1001.03	4.9881E-02
TH-234	3831.	63.29	5.3161E-01
U-235	5426.	185.71	7.0160E-02
NP-237	3916.	86.48	1.9795E-01
NP-239	4007.	106.12	1.1601E-01

Sample ID : S98T140-DUP

Acquisition date : 22-JAN-1998 00:10:19

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	4237.	129.30	4.5376E+02
AM-241	3750.	59.54	6.6407E-02
AM-243	4046.	74.67	4.0863E-02

HNF-SD-WM-DP-292 REV. 0

 * 222-S Laboratory Counting Room 22-JAN-1998 08:59:50.39 *

>>>>>>> SAMPLE INFORMATION <<<<<<<<<
 Worklist #: 21910
 Sample ID: S98T0141-SAM
 Sample Size: 1.00000E-03 L
 Dilution Factor: 1.00000E+00

Removed by:

Shu Hoga

>>>>>>> COUNT INFORMATION <<<<<<<<<
 Detector ID: GEAL
 File Number: dka300:[spec.GEAL]lg1590.cnf
 Geometry: 41
 Count Time: 0 02:30:00.00 sec
 Real Time: 0 02:31:02.64 sec
 Dead Time: 0.7%

Verified by:

St Jhl

>>>>>>> ANALYSIS INFORMATION <<<<<<<<<
 Sample Count Time: 22-JAN-1998 06:28:08.15
 Decayed to: 22-JAN-1998 06:28:08.15
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: SLH2
 Background Subtract: DKA300:[SPEC.GEAL]1GBACK

HNF-SD-WM-DP-292 REV.0

>>>>>>> CALIBRATION INFORMATION <<<<<<<<<
 Date of last energy calibration: 20-MAR-1996 09:10:33.62
 Date of last efficiency calibration: 20-MAR-1996 09:10:52.48

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.63	596	1.05	43.90	41	6	35.0			
0	31.70	22003	1.00	64.04	60	9	2.2			
0	36.21	5953	0.97	73.08	69	9	5.7			
0	351.56*	401	0.95	703.71	699	11	69.3			
0	661.33*	121082	1.41	1323.29	1315	16	0.6		CS-137	48.9
0	1460.10*	82	1.95	2921.35	2911	211	25.9		K-40	0.524

Total number of lines in spectrum 6
Number of unidentified lines 3
Number of lines tentatively identified by NID 3 50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	5.240E+01	5.240E+01	6.594E+01	125.85	SLF
CS-137	30.00Y	1.00	4.887E+01	4.887E+01	0.029E+01	0.60	1/23/98 High Bkg
Total Activity :			4.939E+01	4.939E+01			

Grand Total Activity : 4.939E+01 4.939E+01

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

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4053.	477.59	7.3365E-01
NA-22	89.	1274.53	2.8587E-02
NA-24	62.	1368.55	2.7047E-02
CR-51	3492.	320.08	4.8930E-01
MN-54	180.	834.83	2.7690E-02
CO-56	142.	846.76	2.5084E-02
CO-57	4287.	122.06	3.3205E-02
CO-58	156.	810.78	2.5338E-02
FE-59	143.	1099.25	5.6049E-02
CO-60	78.	1332.50	2.7812E-02
SE-75	3693.	264.66	7.3947E-02
SR-85	2206.	514.01	6.2654E-02
Y-88	18.	1836.06	1.8117E-02
NB-94	129.	871.09	2.4610E-02
ZRNB-95	204.	724.18	5.9176E-02
RU-103	2514.	497.08	6.8371E-02
RURH-106	769.	621.93	8.6203E-01
AG-108m	185.	722.94	2.7116E-02
CD-109	3754.	88.03	6.6810E-01
AG-110M	5241.	657.76	1.2270E-01
SN-113	3723.	391.69	9.4899E-02
TE-123m	4058.	159.00	3.7774E-02
SB-124	813.	602.73	4.3652E-02
SB-125	4241.	427.89	2.3865E-01
TE-125m	4049.	109.27	9.4176E+00
I-131	3607.	364.48	6.9342E-02
CS-134	787.	604.70	4.3148E-02
BA-140	1624.	537.31	2.2141E-01
LA-140	37.	1596.21	2.4325E-02
CEPR-144	4167.	133.51	5.2770E-01
EU-152	65.	1408.01	1.2750E-01
EU-154	89.	1274.51	8.3074E-02
EU-155	3961.	105.31	1.1901E-01
HG-203	3552.	279.20	5.4427E-02
TL-208	3635.	277.36	7.0636E-01
BI-212	251.	727.18	4.3069E-01
PB-212	4241.	238.63	9.7956E-02
BI-214	1166.	609.31	1.1482E-01
PB-214	4032.	351.92	6.3957E-01
RA-224	3910.	240.99	1.0516E+00
RA-226	5429.	186.10	1.1545E+00
AC-228	393.	911.21	1.6432E-01
TH-228	3914.	84.37	1.9306E+00
TH-229	3722.	88.47	9.7326E-02
PA-233	3543.	312.17	1.2599E-01
UTH-233	3955.	245.34	3.9388E+01
PA-234M	150.	1001.03	5.0538E-02
TH-234	3761.	63.29	5.2677E-01
U-235	5417.	185.71	7.0103E-02
NP-237	3803.	86.48	1.9510E-01
NP-239	3964.	106.12	1.1538E-01

Sample ID : S98T0141-SAM

Acquisition date : 22-JAN-1998 06:28:08

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	4257.	129.30	4.5482E+02
AM-241	3619.	59.54	6.5256E-02
AM-243	3972.	74.67	4.0495E-02

HNF-SD-WM-DP-292 REV. 0

* 222-S Laboratory Counting Room 22-JAN-1998 11:37:45.42 *

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

Worklist #: 21910
Sample ID: S98T000141-DUP
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+00

Removed by:

C. J. Opine

>>>>>>> COUNT INFORMATION <<<<<<<<<

Detector ID: GEAl
File Number: dka300:[spec.GEAl]lg1591.cnf
Geometry: 41
Count Time: 0 02:30:00.00 sec
Real Time: 0 02:31:00.26 sec
Dead Time: 0.7%

Verified by:

[Signature]

>>>>>>> ANALYSIS INFORMATION <<<<<<<<<

Sample Count Time: 22-JAN-1998 09:06:11.78
Decayed to: 22-JAN-1998 09:06:11.78
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: SEH
Background Subtract: DKA300:[SPEC.GEAl]1GBACK

HNF-SD-WM-DP-292 REV.0

>>>>>>> CALIBRATION INFORMATION <<<<<<<<<

Date of last energy calibration: 20-MAR-1996 09:10:33.62
Date of last efficiency calibration: 20-MAR-1996 09:10:52.48

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	12.56	374	0.98	25.76	23	6	47.9			
0	21.63	474	1.18	43.92	41	7	45.9			
0	31.69	18803	1.01	64.03	60	10	2.5			
0	36.21	5193	1.00	73.07	69	9	6.2			
0	661.32*	109246	1.42	1323.28	1315	16	0.6		CS-137	44.1
0	733.21	162	14.23	1467.08	1448	36104.6				
0	1460.03*	56	2.09	2921.21	2911	19183.3			K-40	0.356
0	1763.72*	30	2.19	3528.93	3521	16116.1				

Summary of Nuclide Activity
 Sample ID : S98T000141-DUP

Acquisition date : 22-JAN-1998 09:06:11

Total number of lines in spectrum 8
 Number of unidentified lines 5
 Number of lines tentatively identified by NID 3 37.50%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.563E-01	3.563E-01	6.529E-01	183.26	SLF
CS-137	30.00Y	1.00	4.409E+01	4.409E+01	0.028E+01	0.63	1/23/98 High BKG
Total Activity :			4.445E+01	4.445E+01			

Grand Total Activity : 4.445E+01 4.445E+01

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

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

Minimum Detectable Activity Report
Sample ID : S98T000141-DUPPage : 3
Acquisition date : 22-JAN-1998 09:06:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3695.	477.59	7.0079E-01
NA-22	94.	1274.53	2.9360E-02
NA-24	64.	1368.55	2.7439E-02
CR-51	3197.	320.08	4.6843E-01
MN-54	193.	834.83	2.8695E-02
CO-56	157.	846.76	2.6361E-02
CO-57	3957.	122.06	3.1912E-02
CO-58	147.	810.78	2.4638E-02
FE-59	122.	1099.25	5.1986E-02
CO-60	84.	1332.50	2.8779E-02
SE-75	3468.	264.66	7.1685E-02
SR-85	2057.	514.01	6.0527E-02
Y-88	20.	1836.06	1.8972E-02
NB-94	156.	871.09	2.6962E-02
ZRNB-95	234.	724.18	6.3166E-02
RU-103	2293.	497.08	6.5331E-02
RURH-106	717.	621.93	8.3254E-01
AG-108m	209.	722.94	2.8740E-02
CD-109	3508.	88.03	6.4606E-01
AG-110M	4771.	657.76	1.1712E-01
SN-113	3306.	391.69	8.9474E-02
TE-123m	3725.	159.00	3.6203E-02
SB-124	815.	602.73	4.3685E-02
SB-125	3886.	427.89	2.2852E-01
TE-125m	3786.	109.27	9.1091E+00
I-131	3191.	364.48	6.5259E-02
CS-134	754.	604.70	4.2257E-02
BA-140	1439.	537.31	2.0863E-01
LA-140	31.	1596.21	2.2219E-02
CEPR-144	3896.	133.51	5.1045E-01
EU-152	88.	1408.01	1.4731E-01
EU-154	94.	1274.51	8.5227E-02
EU-155	3639.	105.31	1.1412E-01
HG-203	3361.	279.20	5.2961E-02
TL-208	3470.	277.36	6.9030E-01
BI-212	256.	727.18	4.3529E-01
PB-212	4018.	238.63	9.5371E-02
BI-214	1112.	609.31	1.1215E-01
PB-214	3594.	351.92	6.0400E-01
RA-224	3721.	240.99	1.0262E+00
RA-226	4990.	186.10	1.1073E+00
AC-228	373.	911.21	1.6018E-01
TH-228	3688.	84.37	1.8746E+00
TH-229	3480.	88.47	9.4133E-02
PA-233	3257.	312.17	1.2085E-01
UTH-233	3582.	245.34	3.7502E+01
PA-234M	141.	1001.03	4.9176E-02
TH-234	3363.	63.29	4.9838E-01
U-235	4925.	185.71	6.6869E-02
NP-237	3437.	86.48	1.8557E-01
NP-239	3589.	106.12	1.0984E-01

Minimum Detectable Activity Report (continued)

Page : 4

Sample ID : S98T000141-DUP

Acquisition date : 22-JAN-1998 09:06:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	3905.	129.30	4.3576E+02
AM-241	3403.	59.54	6.3294E-02
AM-243	3733.	74.67	3.9265E-02

HNF-SD-WM-DP-292 REV. 0

 * 222-S Laboratory Counting Room 22-JAN-1998 14:16:32.64 *

>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
 Worklist #: 21910
 Sample ID: S98T000142-SAM
 Sample Size: 1.00000E-03 L
 Dilution Factor: 1.00000E+00

Removed by:
Ann Hogan

>>>>>>> COUNT INFORMATION <<<<<<<<<<
 Detector ID: GEAL
 File Number: dka300:[spec.GEAL]lg1592.cnf
 Geometry: 41
 Count Time: 0 02:30:00.00 sec
 Real Time: 0 02:31:06.05 sec
 Dead Time: 0.7%

Verified by:

>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
 Sample Count Time: 22-JAN-1998 11:44:48.52
 Decayed to: 22-JAN-1998 11:44:48.52
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: CJO
 Background Subtract: DKA300:[SPEC.GEAL]1GBACK

HNF-SD-WM-DP-292 REV. 0

>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration: 20-MAR-1996 09:10:33.62
 Date of last efficiency calibration: 20-MAR-1996 09:10:52.48

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	12.63	236	1.29	25.90	24	6	82.4			
0	21.60	626	1.23	43.85	41	7	40.2			
0	31.70	23524	1.00	64.05	60	9	2.2			
0	36.23	6552	1.02	73.10	69	9	5.5			
0	187.09*	1116	4.27	374.79	367	18	49.0		RA-226	3.73
0	661.32*	127060	1.42	1323.28	1315	16	0.6		CS-137	51.3
0	1763.63*	19	2.19	3528.76	3522	16167	8			

Total number of lines in spectrum 7
Number of unidentified lines 4
Number of lines tentatively identified by NID 3 42.86%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.00	5.128E+01	5.128E+01	0.030E+01	0.58	
RA-226	1600.00Y	1.00	3.731E+00	3.731E+00	1.829E+00	49.02	SLF 1/23/98 BKC
Total Activity :			5.501E+01	5.501E+01			

Grand Total Activity : 5.501E+01 5.501E+01

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

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4184.	477.59	7.4525E-01
NA-22	104.	1274.53	3.0781E-02
NA-24	54.	1368.55	2.5271E-02
K-40	1719.	1460.75	1.2508E+00
CR-51	3736.	320.08	5.0600E-01
MN-54	191.	834.83	2.8506E-02
CO-56	154.	846.76	2.6117E-02
CO-57	4449.	122.06	3.3821E-02
CO-58	137.	810.78	2.3856E-02
FE-59	127.	1099.25	5.2906E-02
CO-60	70.	1332.50	2.6465E-02
SE-75	3837.	264.66	7.5370E-02
SR-85	2315.	514.01	6.4165E-02
Y-88	23.	1836.06	2.0426E-02
NB-94	155.	871.09	2.6880E-02
ZRNB-95	227.	724.18	6.2287E-02
RU-103	2691.	497.08	7.0710E-02
RURH-106	809.	621.93	8.8330E-01
AG-108m	214.	722.94	2.9090E-02
CD-109	4088.	88.03	6.9692E-01
AG-110M	5557.	657.76	1.2632E-01
SN-113	3889.	391.69	9.6969E-02
TE-123m	4339.	159.00	3.9047E-02
SB-124	807.	602.73	4.3480E-02
SB-125	4449.	427.89	2.4438E-01
TE-125m	4367.	109.27	9.7772E+00
I-131	3742.	364.48	7.0616E-02
CS-134	835.	604.70	4.4416E-02
BA-140	1604.	537.31	2.2007E-01
LA-140	36.	1596.21	2.3981E-02
CEPR-144	4455.	133.51	5.4553E-01
EU-152	80.	1408.01	1.4054E-01
EU-154	104.	1274.51	8.9411E-02
EU-155	4248.	105.31	1.2321E-01
HG-203	3773.	279.20	5.6079E-02
TL-208	3870.	277.36	7.2865E-01
BI-212	281.	727.18	4.5508E-01
PB-212	4627.	238.63	1.0228E-01
BI-214	1192.	609.31	1.1608E-01
PB-214	4031.	351.92	6.3968E-01
RA-224	4398.	240.99	1.1147E+00
AC-228	388.	911.21	1.6327E-01
TH-228	4264.	84.37	2.0142E+00
TH-229	4005.	88.47	1.0092E-01
PA-233	3584.	312.17	1.2671E-01
UTH-233	4117.	245.34	4.0180E+01
PA-234M	147.	1001.03	5.0043E-02
TH-234	4082.	63.29	5.4860E-01
U-235	5577.	185.71	7.1124E-02
NP-237	4111.	86.48	2.0278E-01
NP-239	4270.	106.12	1.1972E-01

Sample ID : S98T000142-SAM

Acquisition date : 22-JAN-1998 11:44:48

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	4533.	129.30	4.6921E+02
AM-241	4083.	59.54	6.9270E-02
AM-243	4326.	74.67	4.2242E-02

HNF-SD-WM-DP-292 REV. 0

 * 222-S Laboratory Counting Room 22-JAN-1998 17:12:42.54 *

>>>>>>> SAMPLE INFORMATION <<<<<<<<<
 Worklist #: 21910
 Sample ID: S98T000142-DUP
 Sample Size: 1.00000E-03 L
 Dilution Factor: 1.00000E+00

Removed by:

Sharon L. Hall

>>>>>>> COUNT INFORMATION <<<<<<<<<
 Detector ID: GEAL
 File Number: dka300:[spec.GEAL]lg1594.cnf
 Geometry: 41
 Count Time: 0 02:30:00.00 sec
 Real Time: 0 02:31:03.48 sec
 Dead Time: 0.7%

Verified by:

[Signature]

HNF-SD-WM-DP-292 REV. 0

>>>>>>> ANALYSIS INFORMATION <<<<<<<<<
 Sample Count Time: 22-JAN-1998 14:41:02.59
 Decayed to: 22-JAN-1998 14:41:02.59
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: SEH
 Background Subtract: DKA300:[SPEC.GEAL]1GBACK

>>>>>>> CALIBRATION INFORMATION <<<<<<<<<
 Date of last energy calibration: 20-MAR-1996 09:10:33.62
 Date of last efficiency calibration: 20-MAR-1996 09:10:52.48

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.56	618	1.15	43.78	41	7	38.7			
0	31.70	21614	1.02	64.05	60	8	2.1			
0	36.19	5800	1.01	73.02	69	9	6.1			
0	608.75*	186	1.54	1218.11	1211	15	87.7			
0	661.32*	119201	1.43	1323.27	1315	16	0.6		CS-137	48.1
0	1509.32*	34	1.98	3019.83	3012	18	88.4			
0	1660.42	25	3.05	3322.21	3317	11	65.8			

Summary of Nuclide Activity

Sample ID : S98T000142-DUP

Acquisition date : 22-JAN-1998 14:41:02

Total number of lines in spectrum	7	
Number of unidentified lines	5	
Number of lines tentatively identified by NID	2	28.57%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.00	4.811E+01	4.811E+01	0.029E+01	0.60	
Total Activity :			4.811E+01	4.811E+01			

Grand Total Activity :	4.811E+01	4.811E+01
------------------------	-----------	-----------

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

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3910.	477.59	7.2068E-01
NA-22	107.	1274.53	3.1172E-02
NA-24	56.	1368.55	2.5776E-02
K-40	1742.	1460.75	1.2590E+00
CR-51	3568.	320.08	4.9459E-01
MN-54	158.	834.83	2.6012E-02
CO-56	197.	846.76	2.9331E-02
CO-57	4243.	122.06	3.3036E-02
CO-58	144.	810.78	2.4376E-02
FE-59	140.	1099.25	5.5563E-02
CO-60	71.	1332.50	2.6601E-02
SE-75	3764.	264.66	7.4648E-02
SR-85	2139.	514.01	6.1698E-02
Y-88	26.	1836.06	2.1555E-02
NB-94	163.	871.09	2.7492E-02
ZRNB-95	219.	724.18	6.1220E-02
RU-103	2397.	497.08	6.6783E-02
RURH-106	783.	621.93	8.6968E-01
AG-108m	206.	722.94	2.8564E-02
CD-109	3925.	88.03	6.8305E-01
AG-110M	5238.	657.76	1.2267E-01
SN-113	3684.	391.69	9.4403E-02
TE-123m	4027.	159.00	3.7628E-02
SB-124	827.	602.73	4.4002E-02
SB-125	4185.	427.89	2.3707E-01
TE-125m	3949.	109.27	9.3015E+00
I-131	3413.	364.48	6.7471E-02
CS-134	824.	604.70	4.4128E-02
BA-140	1548.	537.31	2.1629E-01
LA-140	30.	1596.21	2.2090E-02
CEPR-144	4110.	133.51	5.2413E-01
EU-152	68.	1408.01	1.3019E-01
EU-154	107.	1274.51	9.0651E-02
EU-155	3877.	105.31	1.1775E-01
HG-203	3426.	279.20	5.3464E-02
TL-208	3536.	277.36	6.9673E-01
BI-212	260.	727.18	4.3842E-01
PB-212	4297.	238.63	9.8596E-02
BI-214	1236.	609.31	1.1814E-01
PB-214	3650.	351.92	6.0885E-01
RA-224	3986.	240.99	1.0617E+00
RA-226	5442.	186.10	1.1559E+00
AC-228	380.	911.21	1.6157E-01
TH-228	4060.	84.37	1.9659E+00
TH-229	3932.	88.47	1.0001E-01
PA-233	3401.	312.17	1.2347E-01
UTH-233	3962.	245.34	3.9423E+01
PA-234M	137.	1001.03	4.8397E-02
TH-234	3825.	63.29	5.3123E-01
U-235	5407.	185.71	7.0038E-02
NP-237	3960.	86.48	1.9905E-01

Sample ID : S98T000142-DUP

Acquisition date : 22-JAN-1998 14:41:02

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	3911.	106.12	1.1462E-01
PU-239	4141.	129.30	4.4860E+02
AM-241	3815.	59.54	6.6982E-02
AM-243	4062.	74.67	4.0945E-02

HNF-SD-WM-DP-292 REV. 0

LABCORE Completed RadChem Report for Worklist#: 21912

Analyst: krm

Instrument: AB10

Book# _____

Method: _____ Rev/Mod E-3

Worklist Comment: TX302C GRAB, @SR90-01 S.S. by Ludlum. STD = 1.0mL skw

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@SR90-01 SR90-01 LIQUID	1.65E-03	1.64E-3	93.394	% Recovery	
1 STD	0		@SR90-01 SR90-01C LIQUID	100	9.39E+01	93.900	% Recovery	
1 STD	0		@SR90-01 SR90-01E LIQUID	1.00	1.60E+00	1.600	% Ct. Error	
2 BLNK	0		@SR90-01 SR90-01 LIQUID	1	9.14E-5	91.400e-006	uCi/mL	
2 BLNK	0		@SR90-01 SR90-01C LIQUID	100	9.39E+01	93.900	% Recovery	
2 BLNK	0		@SR90-01 SR90-01E LIQUID	1.00	1.72E+01	17.200	uCi/mL	
3 BLNK/BKG	0		@SR90-01 SR90-01 LIQUID	1	4.25E+00	4.250	BLNK/BKG	
4 SAMPLE	S98T000140	0	@SR90-01 SR90-01 LIQUID	N/A	2.50E-02	137.0e-007	uCi/mL	
4 SAMPLE	S98T000140	0	@SR90-01 SR90-01C LIQUID	N/A	9.39E+01	0.0e+000	% Recovery	
4 SAMPLE	S98T000140	0	@SR90-01 SR90-01E LIQUID	N/A	8.15E-01	0.0e+000	% Ct. Error	
5 DUP	S98T000140	0	@SR90-01 SR90-01 LIQUID	2.50E-2	2.56E-2	2.372	RPD	
5 DUP	S98T000140	0	@SR90-01 SR90-01C LIQUID	100	9.38E+01	93.800	% Recovery	
5 DUP	S98T000140	0	@SR90-01 SR90-01E LIQUID	1.00	8.05E-01	0.805	% Ct. Err	
6 SAMPLE	S98T000141	0	@SR90-01 SR90-01 LIQUID	N/A	2.26E-02	139.0e-007	uCi/mL	
6 SAMPLE	S98T000141	0	@SR90-01 SR90-01C LIQUID	N/A	9.23E+01	0.0e+000	% Recovery	
6 SAMPLE	S98T000141	0	@SR90-01 SR90-01E LIQUID	N/A	8.64E-01	0.0e+000	% Ct. Error	
7 DUP	S98T000141	0	@SR90-01 SR90-01 LIQUID	2.26E-2	2.22E-2	1.786	RPD	
7 DUP	S98T000141	0	@SR90-01 SR90-01C LIQUID	100	9.35E+01	93.500	% Recovery	
7 DUP	S98T000141	0	@SR90-01 SR90-01E LIQUID	1.00	8.65E-01	0.865	% Ct. Err	
8 SAMPLE	S98T000142	0	@SR90-01 SR90-01 LIQUID	N/A	2.94E-02	138.0e-007	uCi/mL	
8 SAMPLE	S98T000142	0	@SR90-01 SR90-01C LIQUID	N/A	9.22E+01	0.0e+000	% Recovery	
8 SAMPLE	S98T000142	0	@SR90-01 SR90-01E LIQUID	N/A	7.56E-01	0.0e+000	% Ct. Error	
9 DUP	S98T000142	0	@SR90-01 SR90-01 LIQUID	2.94E-2	2.81E-2	4.522	RPD	
9 DUP	S98T000142	0	@SR90-01 SR90-01C LIQUID	100	9.35E+01	93.500	% Recovery	
9 DUP	S98T000142	0	@SR90-01 SR90-01E LIQUID	1.00	7.67E-01	0.767	% Ct. Err	

Final page for worklist# 21912

Analyst Signature

Date

Analyst Signature

Date


 Reviewer Signature
2/1 Jan 98
Date

LABCORE Data Entry Template for Worklist# 21912

Analyst: KRM Instrument: AB00 10 Book# 75B56

Method: LA-220-101 Rev/Mod E-3

Worklist Comment: TX302C GRAB, @SR90-01 S.S. by Ludlum. STD= 1.0mL skw

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@SR90-01	LIQUID		
2 BLNK			@SR90-01	LIQUID		
3 BLNK/BKG			@SR90-01	LIQUID		
4 SAMPLE	S98T000140 0		@SR90-01	LIQUID	97000887	TX-302C GRAB
Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
5 DUP	S98T000140 0		@SR90-01	LIQUID		
6 SAMPLE	S98T000141 0		@SR90-01	LIQUID	97000887	TX-302C GRAB
Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
7 DUP	S98T000141 0		@SR90-01	LIQUID		
8 SAMPLE	S98T000142 0		@SR90-01	LIQUID	97000887	TX-302C GRAB
Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
9 DUP	S98T000142 0		@SR90-01	LIQUID		

Final page for worklist # 21912

Analyst Signature

Date

1-20-98

Analyst Signature

Date

1/21/98
Joe Hogan 1-21-98

Data Entry Comments:

HNF-SD-WM-DP-292 REV. 0

WORKBOOK PAGE: STD1

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

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS					STANDARD
Type	DETECTOR NUMBER	10	CARRIER ADDED in mL (CVA)	1.000	
STD	TOTAL COUNTS (TC)	15207	GROSS WEIGHT (W2)	7.6177	
Work List	COUNT TIME in MINUTES (CT)	10	TARE WEIGHT (W1)	7.5238	
21912	BACKGROUND in cpm (BKG)	6.5	NET WEIGHT (W3)	0.0939	
Test Code	SAMPLE VOLUME in mL (SS)	1.000	DELTA TIME (HOURS) (DT)	7.93	
@SR90-01	DILUTION FACTOR (DF)	1			
Matrix	DIGEST DILUTION FACTOR DDF	1			
LIQUID	SAMPLE COUNT RATE (Rs)	1514.20	SR-90 EFFICIENCY FACTO (C1)	0.4051	
Batch Number	CRITICAL LEVEL (Lc)	1.54	Y-90 EFFICIENCY FACTOR (C2)	0.4503	
98000190	TIME OF SEPARATION (ST)	06:40	Rmax	N/A	
Rerun	DATE OF SEPARATION (SD)	01/20/98	DETECTION LIMIT (Ld)	3.16	
0	TIME OF COUNT (TOC)	14:36	Sr-89/90 CONC. in µCi/L	1.6432E+00	
Sample Prep	DATE OF COUNT (DOC)	01/20/98			
N/A	STANDARD BOOK #	75B56			
Sample #	STANDARD VALUE in µCi/mL	1.6457E-03			
WL 21912-STD					
Instrument Code					
WB26870	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)				
Prepared By	Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0				
MCB	RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT))))*SS*REC*2220000)				
Chemist	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))				
SAC	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)				
Analyst	Percent Carrier Recovery = (Net Weight / Expected weight) * 100				
KRM	NOTE: Expected weight = CVA * 0.1				
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.				
01/21/98	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100				
Analysis Date				DETECTION LEVEL 3.43E-06 µCi/L	
01/20/98	Sr-89/90 CONCENTRATION	1.64E-03	µCi/mL		
Analysis Time					
01:45 PM	RELATIVE COUNTING ERROR	1.6%			
Sample Point					
TX-302C GRAB	PERCENT CARRIER RECOVERY	93.9%			

Analyst:	KRM	Date:	21-Jan-98
Signature of Chemist:	<i>SAC Catha</i>	SAC	Date: <i>21 Jan 98</i>

STANDARD WB1 REV 2.0

22010NML

HNF-SD-WM-DP-292 REV. 0

WORKBOOK PAGE: BLANK2

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

				BLNK	
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA) 1.000
BLNK	TOTAL COUNTS (TC)	276	GROSS WEIGHT	(W2)	7.6793
Work List	COUNT TIME in MINUTES (CT)	10	TARE WEIGHT	(W1)	7.5854
21912	BACKGROUND in cpm (BKG)	6.5	NET WEIGHT	(W3)	0.0939
Test Code	SAMPLE VOLUME in mL (SS)	0.250	DELTA TIME (HOURS)	(DT)	8.13
@SR90-01	DILUTION FACTOR (DF)	1			
Matrix	DIGEST DILUTION FACTOR (DDF)	1			
LIQUID	SAMPLE COUNT RATE (Rs)	21.10	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL (Lc)	1.54	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
98000190	TIME OF SEPARATION (ST)	06:40	Rmax		N/A
Rerun	DATE OF SEPARATION (SD)	01/20/98	DETECTION LIMIT	(Ld)	3.16
0	TIME OF COUNT (TOC)	14:48	Sr-89/90 CONC in µCi/L		9.1404E-02
Sample Prep	DATE OF COUNT (DOC)	01/20/98			
N/A					
Sample #					
WL21912-BLNK					
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)				
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0				
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT))))*SS*REC*2220000)				
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))				
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96				
SAC	Percent Carrier Recovery = (Net Weight / Expected weight) * 100				
Analyst	NOTE: Expected weight = CVA * 0.1				
KRM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.				
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100				
01/21/98					
Analysis Date					
01/20/98	Sr-89/90 CONCENTRATION	9.14E-05	µCi/mL		
Analysis Time					
01:45 PM	RELATIVE COUNTING ERROR	17.2%			
Sample Point					
TX-302C GRAB	PERCENT CARRIER RECOVERY	93.9%			
				DETECTION LEVEL	
				1.37E-05 µCi/mL	

Analyst:	KRM	Date:	21-Jan-98
Signature of Chemist: <i>ora Carter</i>	SAC	Date:	<i>2/1/98</i>

BLANK.WB1 REV 2.0

22010NML

HNF-SD-WM-DP-292 REV. 0

WORKBOOK PAGE: SAM4

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

					SAMPLE	
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	57974	GROSS WEIGHT	(W2)	7.6354
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.5415
21912	BACKGROUND in cpm	(BKG)	6.5	NET WEIGHT	(W3)	0.0939
Test Code	SAMPLE VOLUME in mL	(SS)	0.250	DELTA TIME (HOURS)	(DT)	8.30
@SR90-01	DILUTION FACTOR	DF	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	5790.90	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.54	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
98000190	TIME OF SEPARATION	(ST)	06:40	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	01/20/98	DETECTION LIMIT	(Ld)	3.16
0	TIME OF COUNT	(TOC)	14:58	Sr-89/90 CONC in µCi/L		2.5044E+01
Sample Prep	DATE OF COUNT	(DOC)	01/20/98			
N/A						
Sample #						
S98T000140						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/(64.2*DT))))*SS*REC*2220000)					
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96					
SAC	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KRM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
01/21/98						
Analysis Date						
01/20/98	Sr-89/90 CONCENTRATION		2.50E-02		µCi/mL	
Analysis Time						
01:45 PM	RELATIVE COUNTING ERROR		0.8%		1.37E-05 µCi/mL	
Sample Point						
TX-302C GRAB	PERCENT CARRIER RECOVERY		93.9%			

Analyst:	KRM	Date:	21-Jan-98
Signature of Chemist:	SAC	Date:	21 Jan 98
SAMPLE.WB1 REV 2.0 22010NML			

HNF-SD-WM-DP-292 REV. 0

WORKBOOK PAGE: DUP5

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

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)						DUP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	59439	GROSS WEIGHT	(W2)	7.6110
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.5172
21912	BACKGROUND in cpm	(BKG)	6.5	NET WEIGHT	(W3)	0.0938
Test Code	SAMPLE VOLUME in mL	(SS)	0.250	DELTA TIME (HOURS)	(DT)	8.52
@SR90-01	DILUTION FACTOR	DF	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	5937.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.54	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
98000190	TIME OF SEPARATION	(ST)	06:40	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	01/20/98	DETECTION LIMIT	(Ld)	3.16
0	TIME OF COUNT	(TOC)	15:11	Sr-89/90 CONC in µCi/L		2.5649E+01
Sample Prep	DATE OF COUNT	(DOC)	01/20/98			
N/A						
Sample #						
S98T000140						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96					
SAC	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KRM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
01/21/98						
Analysis Date						
01/20/98	Sr-89/90 CONCENTRATION		2.56E-02	µCi/mL	DETECTION LEVEL	
Analysis Time						
01:45 PM	RELATIVE COUNTING ERROR		0.8%	1.37E-05		
Sample Point						
TX-302C GRAB	PERCENT CARRIER RECOVERY		93.8%	µCi/mL		

Analyst:	KRM	Date:	21-Jan-98
Signature of Chemist:	SAC	Date:	2/2/98
SAMPLE.WB1 REV 2.0	22010NML		

WORKBOOK PAGE: SAM6

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

				SAMPLE	
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA) 1.000
SAMPLE	TOTAL COUNTS	(TC)	51664	GROSS WEIGHT	(W2) 7.7213
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1) 7.6290
21912	BACKGROUND in cpm	(BKG)	6.5	NET WEIGHT	(W3) 0.0923
Test Code	SAMPLE VOLUME in mL	(SS)	0.250	DELTA TIME (HOURS)	(DT) 8.72
@SR90-01	DILUTION FACTOR	DF	1		
Matrix	DIGEST DILUTION FACTOR	(DDF)	1		
LIQUID	SAMPLE COUNT RATE	(Rs)	5159.90	SR-90 EFFICIENCY FACTOR	(C1) 0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.54	Y-90 EFFICIENCY FACTOR	(C2) 0.4503
98000190	TIME OF SEPARATION	(ST)	06:40	Rmax	N/A
Rerun	DATE OF SEPARATION	(SD)	01/20/98	DETECTION LIMIT	(Ld) 3.16
0	TIME OF COUNT	(TOC)	15:23	Sr-89/90 CONC in µCi/L	2.2608E+01
Sample Prep	DATE OF COUNT	(DOC)	01/20/98		
N/A					
Sample #					
S98T000141					
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)				
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<Lc and RS>=0 or Replace RS with Lc if RS<0				
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)				
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))				
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC + BKG * CT))*1.96				
SAC	Percent Carrier Recovery = (Net Weight / Expected weight) * 100				
Analyst	NOTE: Expected weight = CVA * 0.1				
KRM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.				
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100				
01/21/98					
Analysis Date					
01/20/98	Sr-89/90 CONCENTRATION		2.26E-02	µCi/mL	
Analysis Time					
01:45 PM	RELATIVE COUNTING ERROR		0.9%		
Sample Point					
TX-302C GRAB	PERCENT CARRIER RECOVERY		92.3%		
					DETECTION LEVEL
					1.39E-05 µCi/mL

Analyst:	KRM	Date:	21-Jan-98
Signature of Chemist:	SAC	Date:	2/1/98

SAMPLE.WB1 REV 2.0

22010NML

HNF-SD-WM-DP-292 REV. 0

WORKBOOK PAGE: DUP7

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

					DUP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA) 1.000
DUP	TOTAL COUNTS	(TC)	51541	GROSS WEIGHT	(W2) 7.6159
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1) 7.5224
21912	BACKGROUND in cpm	(BKG)	6.5	NET WEIGHT	(W3) 0.0935
Test Code	SAMPLE VOLUME in mL	(SS)	0.250	DELTA TIME (HOURS)	(DT) 8.92
@SR90-01	DILUTION FACTOR	DF	1		
Matrix	DIGEST DILUTION FACTOR	(DDF)	1		
LIQUID	SAMPLE COUNT RATE	(Rs)	5147.60	Sr-90 EFFICIENCY FACTOR	(C1) 0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.54	Y-90 EFFICIENCY FACTOR	(C2) 0.4503
98000190	TIME OF SEPARATION	(ST)	06:40	Rmax	N/A
Rerun	DATE OF SEPARATION	(SD)	01/20/98	DETECTION LIMIT	(Ld) 3.16
0	TIME OF COUNT	(TOC)	15:35	Sr-89/90 CONC in µCi/L	2.2220E+01
Sample Prep	DATE OF COUNT	(DOC)	01/20/98		
N/A					
Sample #					
S98T000141					
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)				
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0				
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT))))*SS*REC*2220000)				
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))				
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96				
SAC	Percent Carrier Recovery = (Net Weight / Expected weight) * 100				
Analyst	NOTE: Expected weight = CVA * 0.1				
KRM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.				
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100				
01/21/98					
Analysis Date					
01/20/98	Sr-89/90 CONCENTRATION		2.22E-02	µCi/mL	DETECTION LEVEL
Analysis Time					
01:45 PM	RELATIVE COUNTING ERROR		0.9%		1.37E-05
Sample Point					µCi/mL
TX-302C GRAB	PERCENT CARRIER RECOVERY		93.5%		

Analyst:	KRM	Date:	21-Jan-98
Signature of Chemist:	<i>SA Carter</i>	SAC	Date: <i>21 Jan 98</i>

SAMPLE WB1 REV 2.0

22010NML

WORKBOOK PAGE: SAM8

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

					SAMPLE	
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	67344	GROSS WEIGHT	(W2)	7.5966
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.5044
21912	BACKGROUND in cpm	(BKG)	6.5	NET WEIGHT	(W3)	0.0922
Test Code	SAMPLE VOLUME in mL	(SS)	0.250	DELTA TIME (HOURS)	(DT)	9.08
@SR90-01	DILUTION FACTOR	DF	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	6727.90	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.54	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
98000190	TIME OF SEPARATION	(ST)	06:40	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	01/20/98	DETECTION LIMIT	(Ld)	3.16
0	TIME OF COUNT	(TOC)	15:45	Sr-89/90 CONC in µCi/L 2.9403E+01		
Sample Prep	DATE OF COUNT	(DOC)	01/20/98			
N/A						
Sample #						
S98T000142						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*22200000)					
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96					
SAC	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KRM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
01/21/98						
Analysis Date						DETECTION LEVEL 1.38E-05 µCi/mL
01/20/98	Sr-89/90 CONCENTRATION		2.94E-02	µCi/mL		
Analysis Time						
01:45 PM	RELATIVE COUNTING ERROR		0.8%			
Sample Point						
TX-302C GRAB	PERCENT CARRIER RECOVERY		92.2%			

Analyst:	KRM	Date:	21-Jan-98
Signature of Chemist:	SAC	Date:	21 Jan 98

SAMPLE.WB1 REV 2.0

22010NML

HNF-SD-WM-DP-292 REV. 0

WORKBOOK PAGE: DUP9

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

					DUP	
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	65440	GROSS WEIGHT	(W2)	7.6667
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.5732
21912	BACKGROUND in cpm	(BKG)	6.5	NET WEIGHT	(W3)	0.0935
Test Code	SAMPLE VOLUME in mL	(SS)	0.250	DELTA TIME (HOURS)	(DT)	9.27
@SR90-01	DILUTION FACTOR	DF	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	6537.50	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.54	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
98000190	TIME OF SEPARATION	(ST)	06:40	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	01/20/98	DETECTION LIMIT	(Ld)	3.16
0	TIME OF COUNT	(TOC)	15:56	Sr-89/90 CONC in µCi/L		2.8123E+01
Sample Prep	DATE OF COUNT	(DOC)	01/20/98			
N/A						
Sample #						
S98T000142						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT))))*SS*REC*2220000)					
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96					
SAC	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KRM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
01/21/98						
Analysis Date						DETECTION LEVEL 1.36E-05 µCi/mL
01/20/98	Sr-89/90 CONCENTRATION		2.81E-02	µCi/mL		
Analysis Time						
01:45 PM	RELATIVE COUNTING ERROR		0.8%			
Sample Point						
TX-302C GRAB	PERCENT CARRIER RECOVERY		93.5%			

Analyst:	KRM	Date:	21-Jan-98
Signature of Chemist:	SAC	Date:	21 Jan 98
SAMPLE.WB1 REV 2.0		22010NML	

LABCORE Completed RadChem Report for Worklist#: 21908

Analyst: rwk

Instrument: AB16

Book# 75 B56Method: LA-953-104 Rev/Mod B-0

Worklist Comment: TX302C GRAB, @AM24101 S.S. by Ludlum. STD: 1.0mL skw

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	@AM24101 AM24101	LIQUID	1.03E-04	1.10E-4	106.796	% Recovery
1 STD	0	@AM24101 AM24101T	LIQUID	100.	8.48E+01	84.800	% Recovery
1 STD	0	@AM24101 AM24101E	LIQUID	1.0	1.89E+00	1.890	% Ct Error
2 BLNK	0	@AM24101 AM24101	LIQUID	1	<5.30E-6		uCi/mL
2 BLNK	0	@AM24101 AM24101T	LIQUID	100.0	8.79E+01	87.900	% Recovery
2 BLNK	0	@AM24101 AM24101E	LIQUID	1.0	1.00E+02	100.000	% Ct Error
3 SAMPLE	S98T000140 0	@AM24101 AM24101	LIQUID	N/A	6.53E-06	653.0e+008	uCi/mL
3 SAMPLE	S98T000140 0	@AM24101 AM24101E	LIQUID	N/A	1.00E+02	0.0e+000	% Ct. Error
3 SAMPLE	S98T000140 0	@AM24101 AM24101T	LIQUID	N/A	8.27E+01	0.0e+000	% Recovery
4 DUP	S98T000140 0	@AM24101 AM24101	LIQUID	<6.53E-6	<5.95E-6		RPD
4 DUP	S98T000140 0	@AM24101 AM24101T	LIQUID	100.0	8.72E+01	87.200	% Recovery
4 DUP	S98T000140 0	@AM24101 AM24101E	LIQUID	1.0	1.00E+02	100.000	% Ct Error
5 SAMPLE	S98T000141 0	@AM24101 AM24101	LIQUID	N/A	7.11E-06	711.0e+008	uCi/mL
5 SAMPLE	S98T000141 0	@AM24101 AM24101E	LIQUID	N/A	1.00E+02	0.0e+000	% Ct. Error
5 SAMPLE	S98T000141 0	@AM24101 AM24101T	LIQUID	N/A	7.67E+01	0.0e+000	% Recovery
6 DUP	S98T000141 0	@AM24101 AM24101	LIQUID	<7.11E-6	<9.19E-6		RPD
6 DUP	S98T000141 0	@AM24101 AM24101T	LIQUID	100.0	6.65E+01	66.500	% Recovery
6 DUP	S98T000141 0	@AM24101 AM24101E	LIQUID	1.0	1.00E+02	100.000	% Ct Error
7 SAMPLE	S98T000142 0	@AM24101 AM24101	LIQUID	N/A	9.76E-06	976.0e+008	uCi/mL
7 SAMPLE	S98T000142 0	@AM24101 AM24101E	LIQUID	N/A	1.00E+02	0.0e+000	% Ct. Error
7 SAMPLE	S98T000142 0	@AM24101 AM24101T	LIQUID	N/A	6.56E+01	0.0e+000	% Recovery
8 DUP	S98T000142 0	@AM24101 AM24101	LIQUID	<9.76E-6	<9.10E-6		RPD
8 DUP	S98T000142 0	@AM24101 AM24101T	LIQUID	100.0	6.83E+01	68.300	% Recovery
8 DUP	S98T000142 0	@AM24101 AM24101E	LIQUID	1.0	1.00E+02	100.000	% Ct Error

Final page for worklist# 21908

Analyst Signature

Date

Analyst Signature

Date

Keith Fuller 1/22/98
Reviewer Signature Date

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

LABCORE Data Entry Template for Worklist# 21908

Analyst: RLP Instrument: AM01 #16 Book# 75856

Method: LA-953-104 Rev/Mod B-0

Worklist Comment: TX302C GRAB, @AM24101 S.S. by Ludlum. STD: 1.0mL skw

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@AM24101	LIQUID		
2 BLNK			@AM24101	LIQUID		
3 SAMPLE	S98T000140 0		@AM24101	LIQUID	97000887	TX-302C GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T					
4 DUP	S98T000140 0		@AM24101	LIQUID		
5 SAMPLE	S98T000141 0		@AM24101	LIQUID	97000887	TX-302C GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T					
6 DUP	S98T000141 0		@AM24101	LIQUID		
7 SAMPLE	S98T000142 0		@AM24101	LIQUID	97000887	TX-302C GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T					
8 DUP	S98T000142 0		@AM24101	LIQUID		

Final page for worklist # 21908

RLP 1/20/98
Analyst Signature Date

RLP 1/21/98
Analyst Signature Date
RLP 1/21/98

Data Entry Comments:

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
 WL21908-STD
 File ID: 1a1091.CNF

Counted on: 1/20/98 @ 8:41
 Detector:
 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	784.6	784.6	302.067	302.067	14.000	6.101	7.000	0.943
2	693.7	693.7	256.256	256.145	12.000	4.137	6.000	0.642
3	23.6	23.6	139.543	139.179	172.000	1.000	86.000	0.100
4?	6.8	6.8	108.376	107.943	6.000	1.324	3.000	0.369
5?	9.0	9.0	70.786	70.614	12.000	14.887	6.000	1.648

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	Pu238 Am241	0.498	5.487	5.487	0.0000.03	48.73	1.3	276.3	0.124E-03	
			5.479	5.487	-.008			211.6	0.953E-04	
2	Am243	0.421	5.266	5.276	-.0100.02	41.21	1.5	169.9	0.765E-04	
3		0.019		4.738	0.00	1.86	7.1	7.6	0.342E-05	
4		????		4.594		0.22	43.9			
5		????		4.422		0.73	14.0			
Totals:			0.939	<--valid peaks only-->			91.81			

DETECTOR CALIBRATION

Energy (MeV) = 4.098 + (0.0046)*Channel
 Energy range (MeV): 4.098 TO 6.453
 Efficiency = 0.2450 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	46937.0	100.000
Smoothed	46940.9	100.008
Composite fit	44526.4	94.864
Residuals	2410.6	5.136

Analyzed by:

SEH

[illegible]

Raw Data Dump for AEA Spectrum: 1a1091.CNF

1	0.	0.	5.	8.	3.	6.	5.	3.	7.	11.
11	2.	6.	6.	2.	4.	9.	6.	6.	5.	6.
21	9.	9.	3.	8.	7.	2.	4.	5.	9.	6.
31	16.	3.	5.	3.	9.	5.	9.	7.	9.	4.
41	8.	9.	0.	4.	11.	14.	6.	11.	3.	7.
51	13.	4.	9.	10.	9.	10.	6.	8.	10.	11.
61	3.	6.	8.	12.	7.	14.	13.	5.	12.	18.
71	12.	15.	13.	7.	8.	6.	10.	5.	13.	11.
81	15.	13.	8.	10.	7.	13.	12.	9.	18.	8.
91	8.	10.	15.	15.	13.	5.	11.	16.	10.	16.
101	14.	8.	20.	17.	13.	17.	15.	18.	25.	17.
111	12.	13.	11.	13.	19.	11.	15.	19.	15.	17.
121	19.	16.	12.	16.	27.	9.	16.	14.	16.	20.
131	16.	19.	22.	22.	26.	24.	31.	23.	35.	26.
141	31.	25.	21.	22.	25.	34.	22.	44.	27.	22.
151	37.	42.	35.	30.	39.	40.	32.	25.	40.	39.
161	42.	38.	43.	36.	42.	41.	38.	45.	41.	31.
171	50.	45.	45.	59.	53.	50.	34.	44.	50.	64.
181	52.	62.	57.	76.	70.	75.	74.	69.	74.	80.
191	84.	92.	87.	97.	84.	73.	89.	94.	87.	95.
201	88.	136.	109.	122.	110.	111.	108.	124.	141.	121.
211	155.	145.	142.	164.	154.	178.	189.	180.	186.	192.
221	188.	231.	230.	242.	260.	275.	245.	265.	300.	276.
231	303.	316.	320.	334.	350.	343.	404.	366.	404.	422.
241	488.	478.	460.	518.	523.	543.	558.	585.	605.	611.
251	674.	660.	681.	705.	769.	895.	924.	851.	612.	413.
261	287.	226.	211.	220.	199.	183.	237.	210.	227.	206.
271	266.	242.	231.	244.	248.	259.	246.	302.	336.	280.
281	328.	378.	403.	384.	399.	454.	407.	466.	480.	490.
291	525.	556.	585.	580.	626.	644.	617.	683.	692.	754.
301	775.	840.	884.	809.	596.	431.	242.	193.	154.	120.
311	96.	83.	55.	59.	29.	33.	17.	6.	3.	0.
321	0.	0.	2.	0.	0.	3.	0.	0.	0.	0.
331	1.	0.	0.	0.	1.	1.	0.	1.	0.	2.
341	2.	2.	1.	0.	1.	2.	1.	2.	2.	1.
351	2.	1.	1.	3.	0.	1.	2.	2.	0.	0.
361	0.	2.	1.	0.	1.	0.	0.	0.	1.	0.
371	0.	0.	0.	1.	0.	1.	0.	0.	0.	0.
381	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	2.	0.	0.	0.	0.	0.	0.	0.	1.	0.
421	0.	0.	1.	0.	0.	1.	0.	0.	0.	1.
431	0.	2.	2.	1.	0.	0.	2.	0.	0.	1.
441	2.	0.	1.	0.	0.	0.	0.	1.	0.	0.
451	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	1.	1.	0.	0.	3.	0.
481	2.	2.	1.	1.	2.	0.	0.	1.	0.	0.
491	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

222-S Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
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DATA REDUCTION REPORT

SAMPLE
 WL21908-BLK
 File ID: 2a2093.CNF

Counted on: 1/20/98 @ 8:41
 Detector: AEA2
 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	629.5	629.5	255.267	255.267	12.000	6.567	6.000	1.251
2	14.3	14.3	87.965	87.957	296.000	1.000	148.000	0.100

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	Am243	0.764	5.266	5.261	0.005	0.03	33.77	1.5	143.2	0.645E-04	
2		0.024		4.492		0.00	1.05	8.8	4.4	0.198E-05	
Totals:		0.787	---valid peaks only---				34.82				

DETECTOR CALIBRATION

Energy(MEV) = $4.087 + (0.0046) \cdot \text{Channel}$
 Energy range (MeV): 4.087 TO 6.442
 Efficiency = 0.2382 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	21234.0	100.000
Smoothed	21239.8	100.027
Composite fit	16715.8	78.722
Residuals	4518.2	21.278

Analyzed by:

SEH

use 1.0 for
 the fraction.
 Peak fit didn't
 catch all the
 counts. JFD

2/Jan 98

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 4523.0

[illegible]

Raw	Data	Dump	for	AEA	Spectrum:	2a2093.CNF	HNF-SD-WM-DP-292	REV. 0	
1	0.	0.	7.	1.	8.	6.	4.	2.	4.
11	4.	4.	5.	4.	3.	6.	2.	6.	13.
21	9.	6.	7.	9.	5.	4.	8.	7.	4.
31	4.	8.	6.	5.	6.	9.	8.	5.	8.
41	6.	10.	10.	6.	6.	9.	9.	8.	5.
51	10.	11.	4.	7.	12.	12.	10.	11.	13.
61	12.	12.	9.	10.	16.	9.	13.	7.	9.
71	7.	8.	6.	12.	11.	9.	17.	13.	7.
81	13.	10.	11.	10.	7.	14.	20.	13.	15.
91	8.	13.	11.	8.	11.	17.	14.	20.	12.
101	12.	12.	15.	19.	12.	16.	21.	9.	19.
111	18.	5.	17.	18.	17.	19.	19.	15.	23.
121	17.	23.	21.	14.	20.	20.	25.	14.	24.
131	15.	19.	25.	17.	30.	22.	19.	15.	29.
141	32.	25.	26.	40.	28.	22.	28.	35.	28.
151	32.	34.	36.	22.	40.	26.	24.	29.	36.
161	36.	37.	40.	43.	41.	39.	46.	38.	38.
171	44.	39.	42.	38.	36.	53.	48.	59.	51.
181	48.	57.	59.	67.	53.	64.	67.	77.	43.
191	72.	71.	63.	58.	74.	70.	72.	69.	72.
201	94.	86.	93.	69.	84.	85.	104.	110.	94.
211	134.	101.	110.	109.	127.	100.	105.	114.	131.
221	133.	154.	153.	134.	144.	160.	178.	182.	185.
231	192.	214.	236.	225.	221.	267.	249.	248.	283.
241	334.	310.	372.	381.	379.	392.	413.	515.	513.
251	566.	566.	622.	652.	672.	675.	639.	604.	443.
261	172.	106.	80.	58.	44.	48.	35.	37.	33.
271	32.	22.	12.	11.	4.	6.	3.	3.	1.
281	5.	2.	0.	2.	4.	7.	4.	1.	5.
291	3.	5.	7.	5.	2.	4.	8.	7.	3.
301	5.	2.	4.	7.	3.	3.	2.	2.	0.
311	2.	0.	1.	1.	1.	0.	0.	1.	0.
321	0.	1.	0.	0.	0.	1.	0.	0.	0.
331	1.	0.	0.	1.	0.	0.	0.	1.	0.
341	0.	1.	1.	0.	1.	3.	1.	2.	1.
351	2.	2.	0.	1.	0.	0.	0.	0.	1.
361	0.	1.	2.	1.	1.	0.	1.	0.	0.
371	1.	1.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	1.	0.	1.	0.	0.
391	0.	1.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	1.	1.	0.	0.	1.
411	1.	0.	0.	0.	0.	0.	0.	0.	0.
421	1.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	1.	0.	1.	1.	0.	0.	0.	1.
441	0.	1.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	1.	0.	0.	0.	1.	0.
471	0.	0.	0.	0.	0.	1.	0.	2.	0.
481	1.	0.	0.	0.	0.	0.	1.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.							

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 GENERAL ALPHA ENERGY ANALYSIS
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DATA REDUCTION REPORT

SAMPLE
 S98T000140-SAM
 File ID: 3a3098.CNF

Counted on: 1/20/98 @ 8:42
 Detector: AEA3
 Geometry number: 1
 Count time: 28806. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	667.1	667.1	253.951	253.951	12.000	5.524	6.000	0.936
2	13.8	13.8	130.602	130.474	172.000	1.000	86.000	0.100
3?	2.4	2.4	109.618	109.360	4.000	0.381	2.000	3.286

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	Am243	0.862	5.266	5.257	0.009	0.03	38.13	1.4	167.0	0.752E-04
2		0.024		4.689		0.00	1.08	9.1	4.7	0.211E-05
3		????		4.592			0.01	508.		
Totals:		0.886	<--valid peaks only-->				39.21			

DETECTOR CALIBRATION

Energy(MEV) = 4.089 + (0.0046)*Channel
 Energy range (MeV): 4.089 TO 6.445
 Efficiency = 0.2306 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	21252.0	100.000
Smoothed	21256.4	100.021
Composite fit	18834.1	88.623
Residuals	2417.9	11.377

Analyzed by:

SEH

Raw	Data	Dump	for	AEA	Spectrum:	3a3098.CNF	HNF-SD-WM-DP-292	REV. 0		
1	0.	0.	4.	2.	5.	4.	1.	3.	2.	4.
11	4.	5.	6.	6.	2.	1.	3.	2.	6.	4.
21	3.	2.	2.	3.	2.	3.	1.	1.	7.	4.
31	3.	2.	5.	3.	3.	1.	1.	0.	5.	6.
41	3.	5.	2.	2.	5.	3.	8.	3.	4.	3.
51	5.	5.	2.	5.	4.	5.	5.	4.	3.	5.
61	4.	3.	4.	6.	7.	6.	8.	7.	2.	5.
71	12.	4.	6.	3.	9.	8.	7.	7.	2.	8.
81	12.	4.	6.	4.	10.	5.	8.	6.	6.	4.
91	11.	12.	6.	8.	11.	5.	3.	8.	6.	9.
101	9.	7.	11.	6.	6.	6.	8.	10.	11.	15.
111	12.	5.	9.	5.	9.	6.	9.	11.	15.	17.
121	12.	2.	12.	18.	17.	9.	13.	8.	19.	17.
131	16.	17.	15.	8.	13.	12.	13.	13.	20.	14.
141	27.	18.	16.	17.	14.	21.	20.	30.	24.	23.
151	24.	19.	34.	31.	19.	24.	22.	30.	25.	24.
161	31.	23.	27.	29.	30.	31.	32.	36.	29.	26.
171	33.	39.	31.	35.	46.	44.	47.	52.	45.	44.
181	44.	41.	49.	60.	48.	47.	45.	43.	47.	69.
191	73.	54.	61.	61.	84.	91.	66.	74.	69.	67.
201	87.	80.	70.	87.	95.	102.	92.	111.	91.	104.
211	140.	126.	94.	144.	148.	134.	148.	162.	154.	162.
221	177.	179.	165.	186.	187.	166.	203.	232.	242.	255.
231	262.	244.	288.	300.	268.	283.	328.	333.	332.	371.
241	381.	406.	387.	480.	466.	492.	516.	522.	512.	552.
251	610.	653.	678.	731.	721.	669.	523.	355.	201.	113.
261	86.	63.	47.	46.	46.	42.	38.	33.	29.	30.
271	25.	9.	5.	6.	1.	4.	4.	1.	3.	0.
281	0.	1.	1.	6.	1.	5.	1.	5.	2.	3.
291	3.	7.	1.	6.	2.	3.	4.	5.	6.	6.
301	3.	1.	4.	2.	4.	1.	1.	1.	2.	2.
311	1.	0.	0.	0.	1.	0.	0.	0.	0.	0.
321	0.	1.	1.	0.	0.	0.	0.	0.	1.	0.
331	0.	1.	0.	0.	0.	1.	0.	1.	1.	0.
341	0.	0.	1.	2.	1.	3.	1.	2.	1.	1.
351	0.	1.	0.	0.	1.	0.	1.	1.	1.	0.
361	0.	1.	1.	1.	0.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
381	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
411	0.	1.	1.	0.	1.	0.	0.	1.	0.	0.
421	0.	0.	0.	0.	1.	0.	0.	1.	1.	1.
431	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	1.	1.	0.	1.	3.	1.	2.	3.	0.	0.
481	1.	1.	1.	0.	1.	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
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DATA REDUCTION REPORT

SAMPLE
 S98T000140-DUP
 File ID: 4a4095.CNF

Counted on: 1/20/98 @ 8:42
 Detector: AEA4
 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	667.2	667.2	253.699	253.699	12.000	5.297	6.000	1.595
2	12.0	12.0	181.271	181.033	44.000	161.905	22.000	14.033

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid		Count	%err	Activity
		Exp.	Obs.	Diff.	Rate	c/m @95	d/m uCi/ea
1	Am243	0.898	5.266	5.249	0.0170.02	25.45 1.8	106.6 0.480E-04
2	Np237	0.069	4.769	4.914	-1.1450.74	1.95 21.6	9.3 0.419E-05
	Pu242		4.891	4.914	-0.023		8.1 0.364E-05

Totals:		0.967	<--valid peaks only-->			27.40	

DETECTOR CALIBRATION

Energy (MEV) = $4.082 + (0.0046) \cdot \text{Channel}$
 Energy range (MeV): 4.082 TO 6.437
 Efficiency = 0.2411 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	13606.0	100.000
Smoothed	13606.1	100.001
Composite fit	13152.8	96.669
Residuals	453.2	3.331

Analyzed by: SEH

[illegible]

Raw	Data	Dump	for	AEA	Spectrum:	4a4095.CNF						
1	0.	0.	0.	1.	1.	0.	0.	3.	1.	0.	0.	0.
11	1.	0.	0.	2.	3.	3.	0.	3.	1.	1.	2.	2.
21	2.	1.	2.	1.	2.	2.	0.	0.	0.	2.	1.	1.
31	3.	1.	3.	2.	1.	1.	1.	2.	1.	0.	2.	2.
41	0.	3.	2.	0.	2.	0.	0.	2.	4.	1.	0.	0.
51	2.	1.	4.	3.	2.	1.	1.	1.	1.	2.	1.	1.
61	2.	4.	2.	2.	4.	3.	1.	3.	2.	0.	0.	0.
71	1.	1.	2.	0.	1.	1.	2.	0.	1.	0.	0.	0.
81	2.	1.	2.	1.	3.	1.	1.	3.	1.	3.	1.	3.
91	5.	7.	3.	4.	3.	3.	0.	2.	2.	2.	4.	4.
101	4.	2.	5.	3.	3.	1.	4.	5.	5.	4.	4.	4.
111	4.	1.	6.	2.	5.	0.	1.	1.	8.	3.	3.	3.
121	3.	2.	6.	7.	2.	6.	2.	5.	8.	2.	2.	2.
131	10.	3.	5.	3.	2.	4.	8.	2.	6.	2.	2.	2.
141	5.	5.	8.	2.	7.	4.	1.	5.	4.	14.	14.	14.
151	3.	5.	4.	5.	9.	12.	3.	4.	6.	7.	7.	7.
161	5.	8.	12.	11.	10.	8.	8.	6.	9.	11.	11.	11.
171	7.	8.	13.	12.	9.	7.	10.	13.	11.	17.	17.	17.
181	14.	13.	16.	10.	10.	6.	15.	18.	10.	13.	13.	13.
191	21.	16.	11.	21.	14.	16.	18.	24.	23.	30.	30.	30.
201	16.	20.	26.	19.	31.	14.	22.	23.	32.	26.	26.	26.
211	39.	27.	23.	29.	37.	38.	38.	36.	45.	52.	52.	52.
221	51.	56.	48.	54.	59.	60.	86.	90.	86.	98.	98.	98.
231	105.	101.	101.	120.	156.	145.	179.	184.	195.	229.	229.	229.
241	259.	315.	319.	377.	386.	460.	487.	502.	551.	586.	586.	586.
251	652.	675.	655.	726.	739.	640.	475.	287.	167.	90.	90.	90.
261	57.	43.	38.	35.	33.	34.	28.	28.	19.	22.	22.	22.
271	11.	15.	3.	2.	4.	0.	1.	2.	1.	1.	1.	1.
281	1.	1.	0.	0.	1.	0.	2.	2.	1.	1.	1.	1.
291	7.	3.	0.	5.	3.	2.	6.	7.	7.	1.	1.	1.
301	4.	8.	1.	4.	1.	0.	0.	4.	1.	0.	0.	0.
311	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.	1.	1.
321	1.	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.	1.	1.
341	0.	1.	1.	1.	2.	1.	2.	5.	8.	0.	0.	0.
351	0.	1.	0.	1.	1.	1.	0.	0.	1.	0.	0.	0.
361	2.	0.	1.	2.	1.	0.	0.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
421	0.	2.	0.	2.	0.	1.	0.	0.	0.	1.	1.	1.
431	1.	0.	1.	0.	1.	1.	0.	0.	0.	1.	1.	1.
441	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.	0.
461	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.	1.	1.
471	0.	0.	0.	1.	1.	0.	1.	2.	2.	1.	1.	1.
481	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

HNF-SD-WM-DP-292 REV. 0

222-S Analytical Laboratory
GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
S98T000141-SAM
File ID: 5a5063.CNF

Counted on: 1/20/98 @ 8:43
Detector: AEA5
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	679.2	679.2	255.302	255.302	10.000	5.019	5.000	0.856
2	11.3	11.3	105.578	105.537	256.000	1.000	128.000	0.100

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	Am243	0.854	5.266	5.261	0.0050.02	38.22	1.4	158.3	0.713E-04
2		0.019		4.573	0.00	0.86	9.8	3.5	0.159E-05

Totals: 0.873 <--valid peaks only--> 39.08

DETECTOR CALIBRATION

Energy(MEV) = 4.087 + (0.0046)*Channel
Energy range (MeV): 4.087 TO 6.442
Efficiency = 0.2439 CPM/DEP
(Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	21491.0	100.000
Smoothed	21492.6	100.007
Composite fit	18760.0	87.292
Residuals	2731.0	12.708

Analyzed by:

SEH

[illegible]

1	0.	0.	2.	1.	3.	3.	3.	2.	1.
11	2.	5.	3.	3.	4.	1.	6.	4.	3.
21	7.	4.	3.	4.	2.	1.	4.	1.	5.
31	3.	3.	5.	3.	2.	1.	8.	7.	4.
41	5.	2.	5.	3.	2.	3.	1.	3.	2.
51	5.	5.	3.	3.	8.	1.	2.	2.	5.
61	5.	3.	7.	2.	11.	8.	3.	2.	5.
71	8.	6.	5.	6.	6.	10.	3.	5.	3.
81	9.	7.	8.	12.	5.	9.	7.	12.	7.
91	6.	9.	7.	5.	9.	7.	10.	3.	11.
101	9.	8.	6.	12.	15.	16.	8.	11.	8.
111	4.	12.	13.	11.	8.	8.	19.	14.	6.
121	8.	11.	13.	14.	15.	12.	18.	12.	13.
131	15.	7.	14.	18.	15.	16.	24.	21.	19.
141	17.	16.	21.	12.	21.	28.	22.	23.	27.
151	15.	19.	23.	26.	26.	20.	27.	24.	28.
161	27.	23.	26.	29.	23.	23.	29.	39.	12.
171	46.	38.	34.	33.	48.	33.	39.	32.	53.
181	48.	51.	43.	47.	49.	43.	59.	53.	65.
191	58.	54.	67.	64.	53.	66.	66.	72.	78.
201	81.	86.	88.	86.	96.	108.	106.	100.	111.
211	108.	100.	110.	115.	118.	118.	149.	143.	143.
221	148.	168.	195.	176.	178.	184.	196.	250.	229.
231	239.	251.	220.	246.	292.	294.	300.	338.	320.
241	336.	380.	409.	409.	467.	486.	473.	532.	557.
251	603.	574.	644.	677.	733.	720.	761.	598.	374.
261	111.	85.	58.	42.	55.	41.	35.	40.	32.
271	21.	16.	13.	11.	2.	1.	2.	2.	2.
281	2.	3.	1.	0.	2.	3.	2.	5.	2.
291	4.	5.	3.	1.	3.	4.	4.	7.	5.
301	6.	2.	6.	10.	3.	0.	1.	0.	0.
311	0.	2.	1.	0.	1.	0.	0.	1.	0.
321	0.	0.	1.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	2.	0.	0.	1.	0.	0.
341	1.	0.	0.	1.	0.	1.	1.	0.	0.
351	0.	3.	1.	0.	0.	0.	0.	1.	0.
361	0.	3.	1.	1.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	1.	0.	1.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	1.	0.	0.	0.	0.	0.	0.	0.
401	1.	0.	0.	1.	0.	0.	0.	0.	0.
411	0.	0.	0.	1.	0.	0.	0.	0.	0.
421	0.	0.	0.	1.	1.	0.	0.	0.	0.
431	0.	0.	0.	1.	1.	0.	2.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	1.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	1.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	1.	1.	1.	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.							

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
 S98T000141-DUP
 File ID: 6a6045.CNF

Counted on: 1/20/98 @ 8:43
 Detector: AEA6
 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	718.5	718.5	250.705	250.705	12.000	4.916	6.000	1.069
2	18.5	18.5	97.151	97.135	242.000	1.000	121.000	0.100
3?	4.2	4.2	74.735	73.861	8.000	0.794	4.000	0.698
4?	4.4	4.4	63.227	62.135	12.000	2.185	6.000	0.222

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid		FWHM	Count Rate	%err c/m @95	d/m	Activity uCi/ea
			Exp.	Obs. Diff.					
1	Am243	0.762	5.266	5.249	0.017	0.02	33.65	1.5	144.8
2		0.031		4.543		0.00	1.39	7.6	5.9
3		????		4.436			0.06	141.	
4		????		4.382			0.30	28.7	

Totals: 0.793 <--valid peaks only--> 35.04

DETECTOR CALIBRATION

Energy(MEV) = 4.096 + (0.0046)*Channel
 Energy range (MeV): 4.096 TO 6.451
 Efficiency = 0.2348 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	21214.0	100.000
Smoothed	21221.1	100.033
Composite fit	16994.0	80.107
Residuals	4220.0	19.893

Analyzed by:

SEH

[illegible]

Raw	Data	Dump	for	AEA	Spectrum:	6a6045.CNF	HNF-SD-WM-DP-292	REV. 0
1	0.	0.	8.	4.	9.	8.	5.	10.
11	2.	5.	12.	6.	5.	6.	4.	8.
21	7.	9.	10.	3.	7.	3.	8.	3.
31	4.	7.	5.	7.	8.	9.	7.	9.
41	7.	4.	7.	9.	9.	3.	6.	10.
51	8.	5.	7.	7.	6.	9.	13.	9.
61	15.	11.	10.	13.	13.	9.	10.	7.
71	10.	13.	13.	12.	15.	13.	15.	5.
81	7.	10.	10.	10.	13.	10.	15.	14.
91	13.	14.	16.	13.	17.	10.	23.	11.
101	17.	13.	12.	22.	21.	9.	19.	27.
111	16.	18.	12.	14.	20.	20.	19.	12.
121	17.	23.	21.	27.	17.	18.	12.	24.
131	18.	30.	21.	27.	19.	22.	26.	20.
141	24.	15.	34.	30.	36.	36.	26.	28.
151	26.	29.	37.	22.	46.	36.	39.	36.
161	29.	39.	36.	35.	24.	33.	39.	33.
171	41.	47.	29.	50.	51.	44.	36.	51.
181	57.	51.	48.	58.	43.	60.	46.	57.
191	68.	61.	80.	67.	90.	82.	71.	82.
201	80.	86.	93.	92.	95.	88.	101.	85.
211	117.	128.	124.	112.	134.	130.	123.	125.
221	137.	156.	168.	184.	203.	196.	177.	185.
231	236.	252.	264.	278.	315.	306.	292.	369.
241	428.	490.	490.	514.	546.	552.	639.	637.
251	799.	790.	685.	491.	248.	133.	96.	69.
261	52.	41.	33.	36.	23.	24.	24.	21.
271	4.	2.	1.	3.	1.	1.	1.	2.
281	1.	1.	1.	3.	2.	4.	3.	2.
291	1.	3.	2.	7.	9.	4.	6.	4.
301	3.	4.	0.	3.	3.	1.	0.	0.
311	0.	0.	1.	0.	0.	0.	0.	0.
321	1.	0.	0.	0.	2.	0.	0.	1.
331	0.	0.	0.	1.	0.	0.	0.	1.
341	1.	0.	0.	2.	2.	0.	1.	0.
351	0.	0.	1.	0.	0.	1.	1.	0.
361	0.	0.	0.	0.	0.	0.	0.	0.
371	0.	0.	1.	0.	0.	0.	0.	1.
381	0.	0.	1.	0.	0.	0.	0.	0.
391	1.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	2.	0.	0.	0.	0.	0.
421	0.	0.	1.	1.	1.	0.	0.	0.
431	1.	1.	0.	1.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	1.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	1.	1.	1.	0.	0.
481	0.	0.	0.	0.	0.	1.	0.	0.
491	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
 S98T000142-SAM
 File ID: 7a7082.CNF

Counted on: 1/20/98 @ 8:44
 Detector: AEA7
 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	641.0	641.0	254.515	254.515	12.000	5.387	6.000	1.118
2	22.6	22.6	129.873	129.831	190.000	1.000	95.000	0.100
3	7.6	7.6	87.157	87.157	18.000	43.726	9.000	15.490
4?	1.6	1.6	84.519	83.000	6.000	0.000	3.000	2.765
5?	5.4	5.4	75.207	75.207	14.000	0.045	7.000	4.868

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid		Count Rate	%err	d/m	Activity uCi/ea
		Exp.	Obs.	Diff.	c/m	@95		
1	Am243	0.727	5.266	5.271	-0.0050.02	31.46	1.6	129.7 0.584E-04
2		0.041		4.697	0.00	1.77	6.8	7.2 0.325E-05
3	U 235	0.012	4.386	4.501	-0.1150.20	0.52	24.6	3.7 0.168E-05
4		????		4.482		0.00	2207.	
5		????		4.446		0.01	544.	

Totals: 0.780 <--valid peaks only--> 33.74

DETECTOR CALIBRATION

Energy(MEV) = 4.100 + (0.0046)*Channel

Energy range (MeV): 4.100 TO 6.455

Efficiency = 0.2450 CPM/DPM

(Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	20766.0	100.000
Smoothed	20771.5	100.026
Composite fit	16206.3	78.042
Residuals	4559.7	21.958

Analyzed by: _____

SEH

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Raw	Data	Dump	for	AEA	Spectrum:	7a7082.CNF	HNF-SD-WM-DP-292	REV. 0	
1	0.	0.	4.	11.	5.	8.	8.	6.	3.
11	3.	10.	14.	9.	5.	5.	6.	7.	7.
21	2.	10.	6.	3.	5.	13.	9.	6.	7.
31	10.	2.	4.	12.	7.	8.	4.	9.	5.
41	7.	5.	13.	6.	12.	9.	8.	10.	7.
51	9.	8.	7.	11.	11.	6.	4.	12.	19.
61	3.	10.	11.	11.	12.	11.	11.	11.	13.
71	11.	7.	8.	11.	13.	13.	10.	8.	10.
81	11.	13.	17.	15.	14.	11.	15.	14.	13.
91	6.	10.	17.	9.	14.	16.	17.	16.	14.
101	8.	17.	25.	12.	12.	16.	13.	23.	25.
111	16.	18.	21.	19.	14.	23.	25.	25.	12.
121	17.	21.	21.	20.	24.	23.	16.	22.	26.
131	24.	23.	17.	12.	23.	20.	25.	18.	29.
141	23.	26.	23.	29.	20.	34.	28.	33.	36.
151	27.	36.	34.	27.	30.	42.	26.	31.	35.
161	21.	47.	39.	36.	37.	33.	36.	47.	37.
171	51.	43.	46.	50.	40.	47.	45.	55.	75.
181	47.	48.	49.	55.	64.	54.	60.	61.	64.
191	75.	56.	70.	85.	73.	74.	89.	71.	98.
201	83.	85.	93.	99.	101.	93.	107.	96.	108.
211	103.	127.	101.	119.	120.	116.	136.	120.	141.
221	145.	147.	152.	168.	139.	160.	167.	153.	188.
231	214.	194.	208.	216.	226.	219.	273.	242.	254.
241	293.	360.	346.	383.	378.	451.	434.	451.	475.
251	545.	584.	663.	704.	701.	660.	630.	443.	262.
261	72.	74.	60.	53.	52.	36.	36.	30.	37.
271	22.	19.	14.	7.	3.	2.	1.	3.	1.
281	4.	2.	3.	3.	4.	2.	1.	5.	1.
291	2.	3.	4.	4.	3.	2.	3.	2.	1.
301	8.	3.	2.	5.	2.	2.	3.	0.	1.
311	1.	0.	1.	0.	0.	0.	1.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	1.	0.	0.	0.	0.
351	2.	1.	0.	1.	0.	0.	1.	0.	0.
361	1.	1.	2.	1.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	1.	0.	0.	0.
391	0.	1.	0.	0.	0.	0.	0.	1.	1.
401	0.	0.	0.	0.	1.	1.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	1.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	1.
431	0.	0.	0.	1.	0.	0.	0.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	1.
451	0.	0.	1.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	1.	1.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	1.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	1.	1.	0.	0.	0.	0.	0.	0.
511	0.	0.							

222-S Analytical Laboratory
GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
S98T000142-DUP
File ID: 8a8079.CNF

Counted on: 1/20/98 @ 8:44
Detector: AEA8
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	646.1	646.1	255.184	255.184	10.000	5.052	5.000	0.966
2	49.9	49.9	185.995	185.027	100.000	438.238	50.000	142.939
3?	0.0	0.1	155.202	155.202	0.000	0.100	0.000	0.100
4?	5.1	5.1	132.019	131.269	8.000	0.539	4.000	0.534
5?	8.1	8.1	115.335	114.368	28.000	3.962	14.000	14.052
6?	9.0	9.0	103.835	103.215	12.000	3.723	6.000	0.862
7?	7.4	7.4	89.135	87.941	12.000	1.752	6.000	5.986
8?	8.9	8.9	79.603	78.818	26.000	9.852	13.000	13.112
9	9.5	9.5	54.423	54.349	24.000	23.704	12.000	4.307

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	Am243	0.749	5.266	5.259	0.007	0.02	33.36	1.5	148.0	0.667E-04
2	Np237	0.233	4.769	4.937	-1.682	0.02	10.38	5.7	52.4	0.236E-04
	Pu242		4.891	4.937	-.046				45.6	0.205E-04
3	????			4.799			0.00	*****		
4	????			4.689			0.06	167.		
5	????			4.611			0.16	53.9		
6	????			4.560			0.39	22.1		
7	????			4.490			0.10	60.9		
8	????			4.448			0.28	27.7		
9	U 238	0.014	4.184	4.335	-1.151	0.11	0.63	14.1	3.6	0.163E-05
	U 235		4.386	4.335	0.051				4.9	0.220E-05

Totals: 0.996 <--valid peaks only--> 44.37

DETECTOR CALIBRATION

Energy (MEV) = 4.085 + (0.0046)*Channel
Energy range (MeV): 4.085 TO 6.441
Efficiency = 0.2277 CPM/DPM
(Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	21394.0	100.000
Smoothed	21394.7	100.003
Composite fit	21775.5	101.783
Residuals	-381.5	-1.783

Analyzed by: _____

SEH

HNF-SD-WM-DP-292 REV. 0

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 4544.5

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2.....1
2.....1
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Raw	Data	Dump	for	AEA	Spectrum:	8a8079.CNF	HNF-SD-WM-DP-292 REV. 0			
1	0.	0.	4.	3.	1.	4.	1.	2.	4.	4.
11	2.	7.	2.	5.	7.	4.	3.	7.	5.	7.
21	5.	4.	6.	5.	7.	3.	4.	5.	2.	5.
31	1.	4.	9.	6.	2.	9.	6.	7.	4.	1.
41	4.	5.	2.	3.	3.	7.	7.	4.	7.	9.
51	9.	8.	8.	12.	13.	11.	4.	7.	8.	7.
61	8.	9.	11.	6.	5.	6.	2.	9.	7.	9.
71	18.	7.	12.	11.	5.	11.	7.	9.	13.	13.
81	8.	11.	8.	8.	5.	10.	13.	9.	17.	10.
91	11.	10.	10.	7.	12.	12.	11.	16.	9.	9.
101	9.	18.	19.	16.	16.	15.	12.	12.	17.	15.
111	13.	19.	16.	19.	20.	22.	18.	15.	16.	10.
121	16.	18.	13.	22.	18.	17.	21.	24.	20.	21.
131	32.	28.	28.	21.	24.	25.	16.	13.	34.	24.
141	20.	29.	19.	21.	28.	30.	32.	25.	30.	29.
151	33.	30.	31.	38.	39.	34.	29.	38.	35.	20.
161	38.	36.	42.	41.	52.	42.	47.	38.	39.	52.
171	45.	38.	51.	51.	53.	55.	62.	73.	55.	68.
181	63.	61.	55.	61.	64.	65.	69.	55.	68.	55.
191	56.	59.	69.	73.	81.	73.	81.	80.	91.	73.
201	90.	93.	87.	103.	93.	88.	103.	95.	103.	101.
211	107.	110.	122.	119.	113.	131.	132.	136.	164.	151.
221	154.	164.	158.	201.	181.	178.	180.	195.	180.	214.
231	220.	204.	223.	265.	234.	267.	283.	261.	262.	276.
241	321.	348.	382.	417.	424.	442.	424.	439.	503.	508.
251	580.	555.	589.	675.	687.	724.	678.	545.	323.	172.
261	105.	80.	52.	58.	50.	51.	45.	25.	41.	37.
271	23.	21.	18.	7.	4.	0.	2.	1.	2.	2.
281	2.	3.	4.	3.	2.	3.	5.	8.	0.	1.
291	4.	5.	1.	4.	3.	3.	4.	4.	4.	3.
301	6.	5.	5.	4.	4.	1.	1.	0.	0.	1.
311	0.	0.	1.	0.	1.	0.	0.	0.	1.	0.
321	0.	0.	0.	2.	1.	0.	0.	1.	0.	0.
331	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
341	0.	1.	0.	0.	1.	0.	1.	1.	1.	0.
351	0.	0.	1.	1.	0.	0.	0.	1.	1.	1.
361	1.	0.	1.	1.	0.	0.	0.	0.	1.	0.
371	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
381	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
411	1.	0.	1.	1.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
431	0.	0.	1.	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	1.	1.	0.	0.	0.	0.	0.	0.	1.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

HNF-SD-WM-DP-292 REV. 0

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	JAN-20-98	Am 241 AEA Frac. (C241)	0.498	
STD	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.421	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
21908	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	3399	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.13	
Matrix:	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	48.73	
LIQUID	Detector Number	16	Am 243 cpm	41.21	
Batch Number	Detector Efficiency (DetEff)	0.2717	Cm 243/244 cpm	0	
98000187	Standard Book No	75B56	AEA Count Time (min)	480	
Rerun	Standard Value in $\mu\text{Ci/mL}$	1.030E-04	Am 241 $\mu\text{Ci/L}$ =	1.1019E-01	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 1.3047E-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))				
WL#21908-STD	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100				
WB27806	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By					
NEW					
Chemist					
JFR	Am 241 $\mu\text{Ci/mL}$ =	1.10E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	1.9%			
RWK					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
01/21/98	Cm 243/244 $\mu\text{Ci/mL}$	< 1.30E-05	Am 241	1.30E-05	
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244		
01/20/98	Am 243 Tracer Recovery =	84.8%	1.30E-05		
Analysis Time					
02:35 AM					
Sample Point					
TX-302C GRAB					

Analyst:	RWK	Date:	01/21/98
Signature of Chemist:	JFR	Date:	1/22/98

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

Type	Date Counted	JAN-20-98	Am 241 AEA Frac. (C241)	0	
BLNK	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	1	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
21908	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	1486	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.13	
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	0	
LIQUID	Detector Number	16	Am 243 cpm	33.77	
Batch Number	Detector Efficiency (DetEff)	0.2717	Cm 243/244 cpm	0	
98000187			AEA Count Time (min)	480	
Rerun			Am 241 $\mu\text{Ci/L}$ =	< 5.2973E-03	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 5.2973E-03	
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))				
WL#21908-BLK	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100				
WB27806	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By					
NEW					
Chemist	NOTE: Am-241 Result is a LESS THAN Value.				
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 5.30E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	100.0%			
RWK					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
01/21/98	Cm 243/244 $\mu\text{Ci/mL}$	< 5.30E-06	Am 241		
Analysis Date	Relative Counting Error =	100.0%	5.30E-06		
01/20/98	Am 243 Tracer Recovery =	87.9%	Cm 243/244		
Analysis Time			5.30E-06		
02:35 AM					
Sample Point					
TX-302C GRAB					

Analyst:	RWK	Date:	01/21/98
Signature of Chemist:	JFR	Date:	1/22/98

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	JAN-20-98	Am 241 AEA Frac. (C241)	0	
SAMPLE	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.862	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
21908	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	1621	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.13	
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	0	
LIQUID	Detector Number	16	Am 243 cpm	38.13	
Batch Number	Detector Efficiency (DetEff)	0.2717	Cm 243/244 cpm	0	
98000187			AEA Count Time (min)	480	
Rerun			Am 241 $\mu\text{Ci/L}$ =	< 6.5340E-03	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 6.5340E-03	
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))				
S98T000140	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (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				
NEW					
Chemist	NOTE: Am-241 Result is a LESS THAN Value.				
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 6.53E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	100.0%			
RWK					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
01/21/98	Cm 243/244 $\mu\text{Ci/mL}$	< 6.53E-06	Am 241	6.53E-06	
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244	6.53E-06	
01/20/98	Am 243 Tracer Recovery =	82.7%			
Analysis Time					
02:35 AM					
Sample Point					
TX-302C GRAB					

Analyst:	RWK	Date:	01/21/98
Signature of Chemist:	<i>Keith Fullew</i>	JFR	Date: 1/22/98
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	JAN-20-98	Am 241 AEA Frac. (C241)	0
DUP	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.898
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0
21908	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	1641
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.13
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	0
LIQUID	Detector Number	16	Am 243 cpm	25.45
Batch Number	Detector Efficiency (DetEff)	0.2717	Cm 243/244 cpm	0
98000187			AEA Count Time (min)	480
Rerun			Am 241 $\mu\text{Ci/L}$ =	< 5.9470E-03
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 5.9470E-03
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))			
S98T000140	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100			
WB27806	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
Prepared By	NEW			
Chemist	NOTE: Am-241 Result is a LESS THAN Value.			
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 5.95E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$	
Analyst	Relative Counting Error =	100.0%		
RWK				
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			
01/21/98	Cm 243/244 $\mu\text{Ci/mL}$	< 5.95E-06	Am 241	5.95E-06
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244	5.95E-06
01/20/98	Am 243 Tracer Recovery =	87.2%		
Analysis Time				
02:35 AM				
Sample Point				
TX-302C GRAB				

Analyst:	RWK	Date:	01/21/98
Signature of Chemist:	JFR	Date:	1/22/98

SAMPLE.WB1 REV 1.2

953103ML

WORKBOOK PAGE: SAM5

Am 241 and Cm 243/244: LA-953-103 (B-0) or LA-953-104(B-0)

LIQUID / SOLI

SAMPLE

Type:	Date Counted	JAN-20-98	Am 241 AEA Frac. (C241)	0
SAMPLE	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.854
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0
21908	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	1517
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.13
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	0
LIQUID	Detector Number	16	Am 243 cpm	38.22
Batch Number	Detector Efficiency (DetEff)	0.2717	Cm 243/244 cpm	0
98000187			AEA Count Time (min)	480
Rerun			Am 241 $\mu\text{Ci/L}$ =	< 7.1145E-03
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 7.1145E-03
Sample Prep				
N/A				
Sample Number	Am-241 $\mu\text{Ci/L}$ = $(C241 * \text{Am-243 Tracer Value} * \text{SPKV} * \text{DF} * \text{DDF} * (1000\text{mL/L})) / (C243 * \text{SS} * (2220000\text{dpm}/\mu\text{Ci}))$			
S98T000141	Cm-243/244 $\mu\text{Ci/L}$ = $(\text{Cm} * \text{Am-243 Tracer Value} * \text{SPKV} * \text{DF} * \text{DDF} * (1000\text{mL/L})) / (C243 * \text{SS} * (2220000\text{dpm}/\mu\text{Ci}))$			
Instrument Code	Relative Counting Error = Square Root of $[(1/(\text{Am-243 cpm} * \text{min})) + (1/(\text{Am-241 or Cm-243/244 cpm} * \text{min}))] * 1.96 * 100$			
WB27806	Am 243 Tracer Recovery = $(\text{Total AT Counts} / \text{TC} - \text{Bkg}) * (1/\text{DetEff}) * C243 * 100 / \text{Am-243 Tracer Value} * \text{SPKV}$			
Prepared By				
NEW				
Chemist	NOTE: Am-241 Result is a LESS THAN Value.			
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 7.11E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$	
Analyst	Relative Counting Error =	100.0%		
RWK				
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241	
01/21/98	Cm 243/244 $\mu\text{Ci/mL}$	< 7.11E-06	7.11E-06	
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244	
01/20/98	Am 243 Tracer Recovery =	76.7%	7.11E-06	
Analysis Time				
02:35 AM				
Sample Point				
TX-302C GRAB				

Analyst:	RWK	Date:	01/21/98
Signature of Chemist:	JFR	Date:	1/22/98
SAMPLE.WB1 REV 1.2	953103ML		

WORKBOOK PAGE: DUP6

Am 241 and Cm 243/244: LA-953-103 (B-0) or LA-953-104(B-0)

LIQUID / SOLI

DUP

Type	Date Counted	JAN-20-98	Am 241 AEA Frac. (C241)	0
DUP	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.762
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0
21908	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	1476
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.13
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	0
LIQUID	Detector Number	16	Am 243 cpm	33.65
Batch Number	Detector Efficiency (DetEff)	0.2717	Cm 243/244 cpm	0
98000187			AEA Count Time (min)	480
Rerun:			Am 241 $\mu\text{Ci/L}$ =	< 9.1851E-03
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 9.1851E-03
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))			
S98T000141	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))]* 1.96 * 100			
WB27806	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
Prepared By	NEW			
Chemist	NOTE: Am-241 Result is a LESS THAN Value.			
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 9.19E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$	
Analyst	Relative Counting Error =	100.0%		
RWK				
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			
01/21/98	Cm 243/244 $\mu\text{Ci/mL}$	< 9.19E-06	Am 241	
Analysis Date	Relative Counting Error =	100.0%	9.19E-06	
01/20/98	Am 243 Tracer Recovery =	66.5%	Cm 243/244	
Analysis Time			9.19E-06	
02:35 AM				
Sample Point				
TX-302C GRAB				

Analyst:	RWK	Date:	01/21/98
Signature of Chemist:	<i>Keith Fuller</i>	JFR	Date: 1/22/98

SAMPLE.WB1 REV 1.2

953103ML

WORKBOOK PAGE: SAM7

Am 241 and Cm 243/244: LA-953-103 (B-0) or LA-953-104(B-0)

LIQUID / SOLI

SAMPLE

Type	Date Counted	JAN-20-98	Am 241 AEA Frac. (C241)	0	
SAMPLE	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.727	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
21908	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	1526	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.13	
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	0	
LIQUID	Detector Number	16	Am 243 cpm	31.46	
Batch Number	Detector Efficiency (DetEff)	0.2717	Cm 243/244 cpm	0	
98000187			AEA Count Time (min)	480	
Rerun			Am 241 $\mu\text{Ci/L}$ =	< 9.7593E-03	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 9.7593E-03	
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))				
S98T000142	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100				
WB27806	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By	NEW				
Chemist	NOTE: Am-241 Result is a LESS THAN Value.				
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 9.76E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	100.0%			
RWK					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241	
01/21/98	Cm 243/244 $\mu\text{Ci/mL}$	< 9.76E-06		9.76E-06	
Analysis Date	Relative Counting Error =	100.0%		Cm 243/244	
01/20/98	Am 243 Tracer Recovery =	65.6%		9.76E-06	
Analysis Time					
02:35 AM					
Sample Point					
TX-302C GRAB					

Analyst:	RWK	Date:	01/21/98
Signature of Chemist:	JFR	Date:	1/22/98
SAMPLE.WB1 REV 1.2	953103ML		

WORKBOOK PAGE: DUP8

Am 241 and Cm 243/244: LA-953-103 (B-0) or LA-953-104(B-0)

LIQUID / SOLI

DUP

Type	Date Counted	JAN-20-98	Am 241 AEA Frac. (C241)	0	
DUP	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.749	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
21908	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	1541	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.13	
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	0	
LIQUID	Detector Number	16	Am 243 cpm	33.36	
Batch Number	Detector Efficiency (DetEff)	0.2717	Cm 243/244 cpm	0	
98000187			AEA Count Time (min)	480	
Rerun			Am 241 $\mu\text{Ci/L}$ =	< 9.1046E-03	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 9.1046E-03	
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))				
S98T000142	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100				
WB27806	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By					
NEW					
Chemist	NOTE: Am-241 Result is a LESS THAN Value.				
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 9.10E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	100.0%			
RWK					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
01/21/98	Cm 243/244 $\mu\text{Ci/mL}$	< 9.10E-06	Am 241		
Analysis Date	Relative Counting Error =	100.0%	9.10E-06		
01/20/98	Am 243 Tracer Recovery =	68.3%	Cm 243/244		
Analysis Time			9.10E-06		
02:35 AM					
Sample Point					
TX-302C GRAB					

Analyst:	RWK	Date:	01/21/98
Signature of Chemist: <i>Keith Fuller</i>	JFR	Date:	1-22-98
SAMPLE.WB1 REV 1.2	953103ML		

LABCORE Completed RadChem Report for Worklist#: 21909

Analyst: rwk

Instrument: AB14

Book# 75856

Method: LA-953-104 Rev/Mod B-O

Worklist Comment: TX302C GRAB, @PU23901 S.S. by Ludlum. STD: 1.0mL skw

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	@PU23901	PU23901	LIQUID	1.09E-04	1.03E-4	94.495	% Recovery
1 STD	0	@PU23901	PU23901E	LIQUID	1.00	1.76E+00	1.760	% Ct Error
1 STD	0	@PU23901	PU23901T	LIQUID	100	9.86E+01	98.600	% Recovery
2 BLNK	0	@PU23901	PU23901	LIQUID	1	<2.67E-6		uCi/mL
2 BLNK	0	@PU23901	PU23901T	LIQUID	100	1.04E+02	104.000	% Recovery
2 BLNK	0	@PU23901	PU23901E	LIQUID	1.00	1.00E+02	100.000	uCi/mL
3 SAMPLE	S98T000140	0	@PU23901	PU23901	N/A	2.79E-06	279.0e-008	uCi/mL
3 SAMPLE	S98T000140	0	@PU23901	PU23901T	N/A	9.66E+01	0.0e+000	% Recovery
3 SAMPLE	S98T000140	0	@PU23901	PU23901E	N/A	1.00E+02	0.0e+000	% Ct Error
4 DUP	S98T000140	0	@PU23901	PU23901	<2.79E-6	<2.85E-6		RPD
4 DUP	S98T000140	0	@PU23901	PU23901T	100	9.64E+01	96.400	% Recovery
4 DUP	S98T000140	0	@PU23901	PU23901E	1.00	1.00E+02	100.000	% Ct Error
5 SAMPLE	S98T000141	0	@PU23901	PU23901	N/A	2.62E-06	262.0e-008	uCi/mL
5 SAMPLE	S98T000141	0	@PU23901	PU23901T	N/A	9.94E+01	0.0e+000	% Recovery
5 SAMPLE	S98T000141	0	@PU23901	PU23901E	N/A	1.00E+02	0.0e+000	% Ct Error
6 DUP	S98T000141	0	@PU23901	PU23901	<2.62E-6	<2.92E-6		RPD
6 DUP	S98T000141	0	@PU23901	PU23901T	100	9.44E+01	94.400	% Recovery
6 DUP	S98T000141	0	@PU23901	PU23901E	1.00	1.00E+02	100.000	% Ct Error
7 SAMPLE	S98T000142	0	@PU23901	PU23901	N/A	2.67E-06	267.0e-008	uCi/mL
7 SAMPLE	S98T000142	0	@PU23901	PU23901T	N/A	9.97E+01	0.0e+000	% Recovery
7 SAMPLE	S98T000142	0	@PU23901	PU23901E	N/A	1.00E+02	0.0e+000	% Ct Error
8 DUP	S98T000142	0	@PU23901	PU23901	<2.67E-6	<3.09E-6		RPD
8 DUP	S98T000142	0	@PU23901	PU23901T	100	9.06E+01	90.600	% Recovery
8 DUP	S98T000142	0	@PU23901	PU23901E	1.00	1.00E+02	100.000	% Ct Error

Final page for worklist# 21909

Analyst Signature

Date

Analyst Signature

Date

Keith Fuller 1-22-98
Reviewer Signature Date

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

LABCORE Data Entry Template for Worklist# 21909

Analyst: RK Instrument: PU01 #14 Book# 25856

Method: LA-953-104 Rev/Mod B-D

Worklist Comment: TX302C GRAB, @PU23901 S.S. by Ludlum. STD: 1.0mL skw

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@PU23901	LIQUID		
2 BLNK			@PU23901	LIQUID		
3 SAMPLE	S98T000140 0		@PU23901	LIQUID	97000887	TX-302C GRAB
Analytes Requested: PU23901 , PU23901E, PU23901T						
4 DUP	S98T000140 0		@PU23901	LIQUID		
5 SAMPLE	S98T000141 0		@PU23901	LIQUID	97000887	TX-302C GRAB
Analytes Requested: PU23901 , PU23901E, PU23901T						
6 DUP	S98T000141 0		@PU23901	LIQUID		
7 SAMPLE	S98T000142 0		@PU23901	LIQUID	97000887	TX-302C GRAB
Analytes Requested: PU23901 , PU23901E, PU23901T						
8 DUP	S98T000142 0		@PU23901	LIQUID		

Final page for worklist # 21909

McB 1/20/98
Analyst Signature Date

Lee Klogan 1-21-98
Analyst Signature Date
McB 1/21/98

Data Entry Comments:

222-S: Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 WL21909-STD
 File ID: 9a9060.CNF

Counted on: 1/20/98 @ 8:48
 Detector: AEA9
 Geometry number: 1
 Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1284.1	1284.1	360.813	360.813	10.000	3.754	5.000	1.071
2?	18.2	18.2	300.824	299.531	12.000	0.682	6.000	0.312
3	32.2	32.2	285.824	285.415	10.000	3.230	5.000	0.879
4	1784.1	1784.1	227.053	227.052	12.000	4.084	6.000	1.552

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid		FWHM	Count Rate	%err c/m @95	d/m	Activity uCi/ea
		Exp.	Obs.	Diff.					
1	Pu236	0.455	5.755	5.750	0.0050.02	47.76	1.3	205.6	0.926E-04
2		????		5.468		0.38	21.5		
3	Th228	0.012	5.400	5.403	-0.0030.01	1.21	9.5	7.2	0.324E-05
4	Pu239	0.535	5.147	5.135	0.0120.02	56.21	1.2	237.2	0.107E-03
	Pu240		5.144	5.135	0.009			237.2	0.107E-03

Totals: 1.001 <--valid peaks only--> 105.18

DETECTOR CALIBRATION

Energy(MEV) = 4.090 + (0.0046)*Channel
 Energy range (MeV): 4.090 TO 6.446
 Efficiency = 0.2370 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	50436.0	100.000
Smoothed	50438.2	100.004
Composite fit	50675.5	100.475
Residuals	-239.5	-0.475

Analyzed by:

SEH

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 11590.0

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Raw	Data	Dump	for	AEA	Spectrum:	9a9060.CNF						
1	0.	0.	1.	3.	2.	3.	0.	1.	1.	1.	1.	1.
11	1.	0.	2.	1.	1.	1.	0.	0.	2.	1.	1.	1.
21	1.	0.	1.	0.	0.	1.	1.	3.	2.	1.	1.	1.
31	1.	2.	2.	0.	0.	1.	3.	0.	1.	0.	0.	0.
41	2.	2.	4.	1.	1.	2.	4.	0.	2.	0.	0.	0.
51	6.	2.	1.	3.	1.	0.	5.	1.	2.	0.	0.	0.
61	2.	0.	1.	0.	1.	3.	1.	3.	4.	2.	2.	2.
71	2.	2.	1.	2.	3.	2.	4.	2.	1.	2.	2.	2.
81	1.	3.	2.	4.	1.	3.	3.	1.	2.	2.	2.	2.
91	3.	2.	2.	1.	5.	5.	6.	1.	1.	2.	2.	2.
101	2.	1.	2.	4.	4.	1.	1.	5.	3.	3.	3.	3.
111	4.	4.	2.	3.	3.	4.	2.	1.	4.	2.	2.	2.
121	4.	4.	3.	5.	4.	5.	8.	2.	4.	2.	2.	2.
131	4.	5.	2.	7.	8.	6.	8.	7.	8.	11.	11.	11.
141	3.	4.	3.	9.	0.	5.	4.	8.	11.	11.	11.	11.
151	5.	5.	4.	9.	12.	6.	9.	14.	10.	6.	6.	6.
161	5.	8.	15.	9.	8.	9.	9.	8.	12.	12.	12.	12.
171	9.	13.	23.	11.	17.	16.	23.	12.	22.	24.	24.	24.
181	25.	26.	30.	35.	32.	29.	27.	41.	42.	44.	44.	44.
191	46.	53.	61.	49.	77.	63.	65.	79.	90.	111.	111.	111.
201	107.	96.	149.	142.	187.	185.	219.	229.	265.	299.	299.	299.
211	344.	416.	440.	484.	662.	666.	724.	907.	985.	1032.	1032.	1032.
221	1152.	1261.	1362.	1617.	1788.	1902.	2000.	1955.	1803.	1440.	1440.	1440.
231	825.	313.	78.	10.	2.	6.	4.	2.	7.	3.	3.	3.
241	5.	4.	3.	5.	5.	7.	5.	3.	6.	5.	5.	5.
251	4.	12.	7.	6.	3.	14.	14.	9.	9.	12.	12.	12.
261	6.	9.	12.	14.	13.	13.	16.	13.	10.	12.	12.	12.
271	15.	12.	15.	12.	10.	24.	17.	20.	29.	27.	27.	27.
281	26.	36.	31.	44.	26.	51.	43.	28.	34.	18.	18.	18.
291	11.	11.	15.	23.	11.	13.	18.	17.	20.	21.	21.	21.
301	24.	24.	18.	12.	19.	23.	14.	6.	7.	12.	12.	12.
311	12.	12.	14.	22.	21.	20.	22.	24.	23.	25.	25.	25.
321	30.	29.	38.	32.	39.	38.	55.	37.	55.	62.	62.	62.
331	47.	73.	78.	82.	104.	131.	107.	135.	190.	183.	183.	183.
341	201.	234.	246.	294.	348.	397.	521.	547.	629.	697.	697.	697.
351	789.	885.	916.	939.	909.	904.	1030.	1133.	1206.	1419.	1419.	1419.
361	1394.	1456.	1285.	819.	408.	111.	30.	3.	1.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
421	1.	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	1.	0.	1.	1.	1.	1.	2.	4.	4.	4.
471	0.	1.	1.	1.	0.	1.	2.	1.	2.	2.	2.	2.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	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
 WL21909-BLK
 File ID: 10a1059.CNF

Counted on: 1/20/98 @ 8:48
 Detector: AEA10
 Geometry number: 1
 Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1237.6	1237.6	362.670	362.670	12.000	4.079	6.000	1.253
2?	8.0	8.0	305.438	303.612	26.000	4.210	13.000	13.127
3	34.3	34.3	286.821	286.744	12.000	4.615	6.000	1.444

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	Pu236	0.989	5.755	5.764 -0.009	0.02	44.44	1.3	189.2	
	Cm243		5.779	5.764 0.015				0.852E-04	
2		????		5.493		0.16	49.4	254.0	
3	Th228	0.028	5.400	5.415 -0.015	0.02	1.24	8.6	7.3	
		-----			-----				
Totals:		1.017	<--valid peaks only-->			45.68			

DETECTOR CALIBRATION

Energy(MEV) = 4.096 + (0.0046)*Channel
 Energy range (MeV): 4.096 TO 6.451
 Efficiency = 0.2397 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	21565.0	100.000
Smoothed	21564.5	99.998
Composite fit	22006.9	102.049
Residuals	-441.9	-2.049

Analyzed by:

SEH

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 7748.2

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Raw Data	Dump	for AEA	Spectrum:	10a1059.CNF					
1	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	1.	0.
21	0.	1.	1.	1.	0.	2.	0.	1.	0.
31	0.	1.	2.	0.	1.	0.	0.	0.	0.
41	0.	1.	1.	0.	2.	0.	0.	0.	0.
51	1.	1.	1.	1.	0.	1.	0.	0.	0.
61	0.	0.	0.	1.	0.	0.	0.	0.	1.
71	1.	0.	1.	0.	2.	0.	0.	1.	0.
81	0.	0.	0.	0.	0.	0.	1.	0.	0.
91	1.	0.	2.	0.	3.	1.	0.	1.	0.
101	3.	1.	0.	0.	1.	1.	0.	0.	1.
111	0.	1.	1.	0.	1.	0.	0.	3.	2.
121	1.	1.	0.	0.	1.	0.	0.	1.	0.
131	2.	0.	0.	0.	1.	1.	1.	1.	0.
141	0.	2.	0.	0.	0.	1.	0.	0.	2.
151	0.	1.	1.	0.	1.	0.	0.	0.	1.
161	0.	0.	0.	4.	0.	1.	1.	1.	2.
171	0.	0.	0.	1.	1.	0.	4.	1.	1.
181	2.	0.	3.	2.	0.	1.	2.	0.	2.
191	1.	0.	0.	2.	1.	0.	1.	0.	1.
201	0.	1.	2.	2.	1.	1.	1.	2.	0.
211	2.	0.	1.	2.	2.	1.	0.	2.	1.
221	2.	3.	3.	2.	3.	4.	3.	0.	1.
231	6.	0.	1.	3.	2.	1.	3.	3.	2.
241	1.	2.	5.	2.	2.	4.	8.	4.	5.
251	3.	5.	3.	8.	7.	9.	5.	3.	9.
261	5.	6.	12.	11.	18.	10.	8.	12.	14.
271	18.	11.	9.	8.	16.	9.	12.	12.	21.
281	15.	30.	19.	27.	36.	42.	45.	40.	30.
291	22.	12.	6.	9.	9.	11.	11.	7.	11.
301	7.	18.	9.	18.	16.	17.	16.	11.	13.
311	11.	13.	14.	9.	8.	15.	13.	18.	14.
321	19.	18.	15.	14.	23.	32.	29.	38.	30.
331	38.	62.	51.	70.	83.	87.	86.	86.	102.
341	139.	149.	177.	216.	224.	288.	311.	400.	425.
351	637.	730.	795.	832.	834.	858.	882.	889.	986.
361	1252.	1328.	1379.	1352.	1180.	809.	424.	150.	27.
371	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	1.	0.
421	0.	0.	1.	0.	0.	0.	0.	1.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	1.	1.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	1.	1.
471	0.	3.	2.	0.	2.	1.	2.	0.	0.
481	1.	2.	1.	0.	1.	0.	0.	1.	0.
491	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
S98T000140-SAM
File ID: 11a1162.CNF

Counted on: 1/20/98 @ 8:49
Detector: AEA11
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	1158.9	1158.9	363.219	363.219	10.000	3.166	5.000	0.851
2?	9.6	9.6	306.649	304.572	14.000	0.573	7.000	0.124
3	28.8	28.8	288.706	288.486	10.000	2.511	5.000	0.980
4	9.9	9.9	269.847	269.285	12.000	3.682	6.000	0.639

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	Pu236	0.977	5.755	5.764	-0.0090.01	43.80	1.4	185.5 0.836E-04
	Cm243		5.779	5.764	0.015			249.1 0.112E-03
2		????		5.494		0.37	23.9	
3	Th228	0.018	5.400	5.420	-0.0200.01	0.81	12.7	4.8 0.214E-05
4		0.012		5.332	0.02	0.53	16.6	2.2 0.990E-06

Totals: 1.007 <--valid peaks only--> 45.15

DETECTOR CALIBRATION

Energy(MEV) = 4.093 + (0.0046)*Channel
Energy range (MeV): 4.093 TO 6.448
Efficiency = 0.2409 CPM/DPM
(Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	21530.0	100.000
Smoothed	21530.0	100.000
Composite fit	21849.8	101.485
Residuals	-319.8	-1.485

Analyzed by: SEH

Spectrum 11a1162.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 7193.5

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Raw Data Dump for AEA Spectrum:	11a1162.CNF								
1	0.	0.	0.	2.	0.	1.	2.	3.	0.
11	0.	0.	0.	3.	4.	2.	1.	1.	2.
21	0.	3.	1.	0.	0.	1.	0.	0.	0.
31	0.	0.	0.	0.	0.	1.	0.	0.	1.
41	0.	1.	0.	0.	1.	0.	1.	0.	0.
51	0.	0.	1.	0.	0.	0.	1.	0.	2.
61	1.	1.	1.	1.	0.	0.	1.	0.	1.
71	0.	0.	0.	1.	0.	0.	0.	0.	1.
81	1.	0.	0.	0.	1.	1.	1.	2.	1.
91	0.	0.	0.	2.	2.	0.	0.	0.	2.
101	1.	0.	0.	0.	0.	0.	1.	0.	0.
111	1.	0.	1.	1.	1.	1.	1.	0.	0.
121	2.	1.	2.	0.	2.	0.	0.	2.	1.
131	2.	1.	3.	2.	3.	2.	2.	5.	0.
141	1.	2.	2.	1.	0.	4.	0.	0.	2.
151	0.	3.	0.	0.	0.	0.	0.	2.	0.
161	0.	0.	1.	0.	0.	2.	0.	0.	2.
171	1.	2.	0.	2.	3.	0.	0.	0.	0.
181	1.	0.	0.	2.	1.	2.	1.	1.	1.
191	0.	0.	1.	1.	1.	1.	1.	1.	1.
201	1.	2.	4.	1.	1.	0.	0.	0.	3.
211	2.	0.	1.	1.	4.	2.	2.	1.	3.
221	4.	3.	6.	4.	5.	4.	6.	4.	5.
231	8.	7.	3.	3.	1.	2.	5.	8.	1.
241	3.	3.	3.	3.	4.	5.	7.	8.	6.
251	5.	8.	8.	6.	5.	8.	5.	6.	8.
261	10.	7.	9.	18.	11.	15.	4.	15.	22.
271	17.	12.	14.	13.	17.	10.	11.	21.	13.
281	18.	20.	22.	30.	20.	29.	32.	46.	45.
291	30.	17.	18.	11.	7.	18.	19.	14.	21.
301	20.	14.	16.	20.	22.	26.	22.	25.	17.
311	18.	24.	28.	21.	32.	34.	32.	38.	37.
321	42.	64.	55.	54.	60.	59.	54.	66.	70.
331	78.	83.	96.	113.	117.	136.	148.	152.	177.
341	218.	234.	253.	243.	248.	279.	352.	400.	439.
351	560.	632.	758.	777.	809.	752.	735.	736.	801.
361	1048.	1152.	1291.	1395.	1258.	785.	375.	90.	8.
371	0.	0.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	1.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	1.	0.	0.
421	0.	0.	0.	0.	0.	0.	1.	0.	0.
431	1.	0.	1.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	1.	0.	0.	0.	1.	0.	2.
461	0.	0.	0.	0.	1.	0.	0.	0.	0.
471	1.	0.	2.	1.	1.	1.	1.	2.	2.
481	1.	0.	1.	1.	0.	1.	0.	0.	0.
491	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
 S98T000140-DUP
 File ID: 12a1249.CNF

Counted on: 1/20/98 @ 8:49
 Detector: AEA12
 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	1174.8	1174.8	362.051	362.051	10.000	2.944	5.000	0.817
2?	12.8	12.8	305.541	303.662	20.000	7.926	10.000	10.553
3	33.6	33.6	287.097	286.919	12.000	3.740	6.000	1.531
4	11.4	11.4	271.638	270.812	8.000	2.390	4.000	0.376

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid		FWHM	Count Rate	%err @95	d/m	Activity uCi/ea
			Exp.	Obs. Diff.					
1	Pu236	0.959	5.755	5.752	0.0030.01	42.96	1.4	185.8	0.837E-04
2		????		5.484		0.36	32.6		
3	Th228	0.022	5.400	5.407	0.0070.02	1.00	10.4	5.9	0.268E-05
4		0.014		5.332	0.01	0.64	14.2	2.7	0.122E-05
Totals:			0.996	<--valid peaks only-->		44.59			

DETECTOR CALIBRATION

Energy (MEV) = $4.087 + (0.0046) \times \text{Channel}$
 Energy range (MeV): 4.087 TO 6.442
 Efficiency = 0.2359 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	21494.0	100.000
Smoothed	21495.3	100.006
Composite fit	21579.0	100.396
Residuals	-85.0	-0.396

Analyzed by:

SEH

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 6275.4

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Raw Data Dump for AEA Spectrum: 12a1249.CNF									
1	0.	0.	0.	2.	1.	1.	1.	0.	2.
11	2.	1.	1.	1.	1.	1.	3.	3.	2.
21	4.	1.	3.	0.	1.	0.	1.	1.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	1.	1.	2.	0.	0.	0.	0.	0.	0.
51	0.	1.	0.	0.	0.	1.	1.	0.	0.
61	0.	1.	1.	1.	0.	1.	0.	0.	1.
71	0.	0.	0.	0.	0.	1.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	1.	1.	3.
91	0.	1.	0.	2.	0.	2.	0.	0.	0.
101	1.	0.	0.	0.	1.	0.	0.	0.	1.
111	1.	0.	2.	0.	0.	0.	1.	0.	1.
121	1.	0.	1.	2.	0.	0.	1.	2.	2.
131	1.	1.	3.	3.	2.	2.	1.	3.	3.
141	1.	4.	3.	6.	1.	3.	2.	3.	0.
151	0.	0.	1.	1.	1.	2.	0.	1.	0.
161	1.	0.	1.	2.	1.	2.	1.	1.	1.
171	2.	0.	0.	0.	0.	0.	0.	1.	1.
181	1.	2.	1.	2.	0.	2.	2.	0.	2.
191	2.	1.	2.	1.	0.	1.	3.	0.	2.
201	0.	3.	1.	1.	1.	1.	1.	3.	1.
211	1.	4.	3.	6.	2.	3.	5.	2.	4.
221	5.	4.	7.	3.	4.	9.	5.	8.	3.
231	3.	7.	1.	4.	3.	4.	5.	7.	3.
241	4.	7.	4.	5.	3.	4.	3.	9.	8.
251	2.	5.	8.	6.	6.	12.	8.	6.	9.
261	16.	9.	12.	16.	14.	12.	14.	12.	18.
271	20.	20.	26.	13.	11.	13.	13.	17.	17.
281	24.	12.	30.	36.	31.	51.	36.	41.	43.
291	13.	10.	11.	8.	16.	20.	20.	22.	27.
301	17.	23.	24.	25.	31.	24.	36.	15.	21.
311	26.	30.	29.	32.	39.	45.	34.	44.	48.
321	47.	65.	62.	57.	66.	70.	65.	90.	96.
331	113.	119.	102.	117.	135.	134.	153.	182.	187.
341	221.	250.	279.	305.	345.	337.	373.	426.	516.
351	591.	710.	823.	767.	732.	712.	691.	787.	868.
361	1213.	1405.	1375.	1160.	702.	249.	50.	2.	0.
371	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	1.
401	0.	0.	0.	0.	0.	0.	0.	0.	1.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	1.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	1.	0.	0.	0.	0.	0.
471	1.	0.	1.	0.	1.	4.	1.	1.	1.
481	1.	0.	0.	0.	0.	0.	0.	0.	0.
491	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
 S98T000141-SAM
 File ID: 13a1304.CNF

Counted on: 1/20/98 @ 8:49
 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	1356.3	1356.3	360.556	360.556	10.000	3.718	5.000	1.106
2?	10.9	10.9	302.834	298.704	10.000	1.093	5.000	4.988
3	35.1	35.1	286.198	286.092	12.000	4.037	6.000	1.159

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	Pu236	1.012	5.755	5.745	0.01	0.02	48.97	1.3	199.2	0.897E-04
2		????		5.461			0.11	56.3		
3	Th228	0.027	5.400	5.403	-0.03	0.02	1.32	8.6	7.4	0.333E-05
Totals:		1.040	<--valid peaks only-->				50.29			

DETECTOR CALIBRATION

Energy(MEV) = 4.087 + (0.0046)*Channel
 Energy range (MeV): 4.087 TO 6.442
 Efficiency = 0.2509 CPM/CPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	23223.0	100.000
Smoothed	23223.3	100.001
Composite fit	24195.5	104.188
Residuals	-972.5	-4.188

Analyzed by:

SEH

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 8456.9

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Raw Data Dump for AEA Spectrum: 13a1304.CNF										
1	0.	0.	3.	0.	0.	0.	1.	2.	0.	1.
11	0.	3.	5.	3.	2.	1.	3.	3.	2.	1.
21	0.	3.	4.	6.	1.	2.	0.	0.	1.	0.
31	0.	0.	0.	1.	0.	1.	1.	0.	0.	1.
41	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
51	1.	0.	0.	0.	1.	0.	0.	0.	1.	1.
61	0.	0.	1.	0.	2.	0.	1.	1.	0.	0.
71	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
81	0.	0.	0.	1.	0.	1.	0.	0.	2.	0.
91	3.	0.	0.	0.	1.	1.	0.	1.	0.	0.
101	1.	2.	0.	1.	0.	1.	0.	1.	0.	0.
111	0.	0.	0.	0.	0.	2.	1.	2.	0.	3.
121	0.	2.	0.	0.	0.	1.	0.	1.	1.	1.
131	2.	3.	4.	1.	2.	2.	0.	0.	6.	5.
141	1.	2.	4.	0.	2.	2.	1.	5.	2.	3.
151	1.	0.	1.	1.	0.	1.	1.	0.	1.	2.
161	1.	1.	0.	0.	0.	0.	2.	2.	4.	1.
171	0.	0.	0.	1.	0.	1.	1.	0.	1.	2.
181	1.	1.	2.	0.	2.	0.	0.	2.	1.	0.
191	2.	0.	0.	0.	0.	1.	1.	0.	0.	0.
201	2.	0.	0.	0.	1.	2.	0.	2.	0.	1.
211	0.	1.	2.	1.	1.	1.	5.	1.	2.	3.
221	7.	5.	6.	2.	2.	7.	4.	3.	6.	3.
231	8.	1.	4.	1.	3.	3.	5.	0.	1.	6.
241	2.	4.	3.	2.	8.	7.	3.	4.	7.	5.
251	5.	5.	6.	10.	12.	5.	7.	3.	4.	4.
261	10.	9.	7.	14.	11.	24.	3.	7.	12.	18.
271	14.	11.	9.	12.	22.	16.	14.	19.	22.	19.
281	23.	35.	33.	30.	45.	42.	46.	38.	29.	17.
291	14.	9.	8.	12.	10.	9.	16.	7.	18.	10.
301	15.	15.	15.	16.	14.	14.	6.	3.	10.	8.
311	15.	9.	12.	14.	13.	12.	20.	20.	13.	18.
321	10.	21.	28.	22.	31.	37.	46.	49.	49.	42.
331	68.	66.	80.	77.	103.	108.	113.	135.	146.	185.
341	214.	205.	297.	314.	357.	428.	475.	561.	653.	745.
351	836.	978.	929.	1016.	936.	1002.	1067.	1152.	1341.	1439.
361	1555.	1490.	1215.	741.	339.	98.	15.	0.	1.	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	2.	1.	0.	1.	0.	1.	0.	0.	1.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	1.	0.	0.	0.	0.	1.	0.
461	0.	1.	0.	0.	1.	3.	0.	1.	1.	0.
471	0.	2.	2.	2.	4.	3.	1.	1.	1.	1.
481	0.	0.	0.	2.	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
 S98T000141-DUP
 File ID: 14a1436.CNF

Counted on: 1/20/98 @ 8:50
 Detector: AEA14
 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	1133.7	1133.7	361.764	361.764	10.000	3.485	5.000	0.877
2	33.1	33.1	287.168	286.923	14.000	8.719	7.000	2.652
3	9.0	9.0	269.428	267.336	16.000	4.628	8.000	0.504

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	Pu236	0.958	5.755	5.754	0.001	0.02	45.58	1.3	187.6	0.845E-04
2	Th228	0.029	5.400	5.410	-0.010	0.04	1.40	9.3	7.9	0.357E-05
3		0.015		5.320		0.02	0.73	14.5	2.9	0.132E-05

Totals: 1.003 <--valid peaks only--> 47.70

DETECTOR CALIBRATION

Energy(MEV) = 4.090 + (0.0046)*Channel
 Energy range (MeV): 4.090 TO 6.445
 Efficiency = 0.2479 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	22834.0	100.000
Smoothed	22836.6	100.012
Composite fit	22895.2	100.268
Residuals	-61.2	-0.268

Analyzed by:

SEH

[illegible]

Raw Data Dump for AEA Spectrum: 14a1436.CNF

1	0.	0.	1.	2.	2.	0.	3.	0.	4.	0.
11	2.	2.	1.	3.	0.	3.	3.	1.	3.	3.
21	2.	4.	2.	2.	1.	2.	0.	2.	0.	0.
31	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
41	0.	1.	1.	1.	0.	0.	1.	1.	0.	0.
51	1.	0.	1.	0.	0.	2.	1.	0.	1.	1.
61	0.	0.	2.	1.	0.	0.	0.	0.	0.	0.
71	0.	0.	0.	1.	1.	1.	0.	1.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	1.	0.	1.	0.	0.	1.	0.	0.	1.	0.
101	2.	0.	0.	0.	2.	0.	2.	1.	1.	2.
111	1.	1.	0.	0.	3.	2.	0.	2.	0.	1.
121	5.	1.	1.	3.	1.	2.	2.	1.	4.	2.
131	4.	0.	1.	2.	1.	7.	4.	3.	2.	1.
141	2.	0.	1.	1.	0.	3.	8.	0.	2.	1.
151	0.	1.	0.	4.	0.	0.	1.	3.	0.	0.
161	1.	1.	0.	1.	1.	0.	2.	2.	3.	0.
171	1.	0.	0.	1.	0.	1.	0.	0.	1.	3.
181	3.	1.	0.	0.	2.	2.	2.	2.	1.	2.
191	3.	5.	0.	0.	2.	2.	1.	1.	3.	2.
201	2.	2.	0.	0.	2.	3.	1.	1.	1.	1.
211	5.	1.	5.	4.	7.	1.	1.	3.	3.	2.
221	1.	5.	4.	4.	8.	4.	7.	3.	3.	1.
231	4.	4.	1.	5.	3.	4.	4.	2.	5.	4.
241	2.	6.	5.	9.	9.	7.	5.	8.	6.	11.
251	12.	11.	11.	12.	5.	8.	14.	12.	13.	11.
261	12.	8.	11.	18.	12.	21.	20.	15.	22.	21.
271	14.	19.	17.	12.	27.	18.	15.	21.	23.	19.
281	31.	25.	26.	27.	30.	49.	51.	39.	33.	39.
291	23.	22.	22.	18.	16.	28.	27.	17.	22.	22.
301	25.	31.	25.	35.	30.	27.	27.	42.	32.	31.
311	30.	33.	36.	32.	51.	32.	55.	60.	69.	54.
321	52.	56.	86.	83.	72.	76.	98.	127.	92.	125.
331	131.	110.	152.	153.	195.	175.	192.	186.	189.	229.
341	233.	291.	287.	323.	324.	397.	406.	458.	532.	628.
351	641.	705.	822.	872.	774.	768.	824.	846.	949.	1056.
361	1228.	1279.	1276.	1100.	655.	288.	71.	13.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
461	0.	3.	0.	0.	0.	0.	0.	2.	0.	0.
471	1.	1.	1.	4.	2.	0.	2.	0.	1.	1.
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
 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
 S98T000142-SAM
 File ID: 15a1585.CNF

Counted on: 1/20/98 @ 8:50
 Detector: AEA15
 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	839.3	839.3	362.351	362.351	10.000	3.998	5.000	0.846
2	21.0	21.0	288.913	287.913	12.000	4.437	6.000	0.575

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	0.989	5.755	5.751	0.0040.02	39.02	1.4	163.2	0.735E-04
2	Th228	0.037	5.400	5.408	0.0080.02	1.45	9.4	8.4	0.378E-05

Totals: 1.025 <--valid peaks only--> 40.47

DETECTOR CALIBRATION

Energy(MEV) = 4.084 + (0.0046)*Channel
 Energy range (MeV): 4.084 TO 6.439
 Efficiency = 0.2440 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	18945.0	100.000
Smoothed	18944.3	99.996
Composite fit	19427.7	102.548
Residuals	-482.7	-2.548

Analyzed by:

SEH

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 5139.0

[illegible]

Raw	Data	Dump	for	AEA	Spectrum:	15a1585.CNF				
1	0.	0.	1.	1.	0.	2.	2.	1.	1.	1.
11	1.	0.	2.	1.	2.	1.	1.	3.	0.	4.
21	1.	0.	3.	1.	0.	0.	0.	1.	0.	0.
31	0.	0.	0.	0.	0.	0.	2.	2.	0.	1.
41	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
51	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
61	1.	0.	0.	0.	0.	0.	0.	2.	1.	0.
71	0.	0.	0.	1.	1.	0.	1.	0.	0.	0.
81	0.	0.	0.	1.	0.	1.	0.	0.	0.	0.
91	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
101	0.	0.	0.	0.	1.	1.	2.	0.	1.	1.
111	1.	1.	0.	2.	0.	2.	2.	0.	1.	0.
121	2.	2.	1.	1.	1.	0.	1.	0.	2.	0.
131	1.	4.	0.	1.	3.	2.	3.	0.	1.	2.
141	3.	2.	2.	0.	5.	2.	1.	1.	0.	1.
151	1.	0.	3.	0.	4.	1.	2.	1.	0.	2.
161	0.	1.	0.	0.	1.	0.	0.	4.	2.	1.
171	1.	1.	1.	2.	2.	1.	2.	2.	0.	0.
181	2.	0.	3.	1.	2.	2.	2.	0.	2.	1.
191	3.	2.	0.	0.	2.	5.	2.	1.	1.	2.
201	1.	5.	2.	7.	5.	2.	4.	1.	4.	2.
211	5.	3.	0.	4.	6.	3.	3.	1.	4.	5.
221	8.	5.	4.	4.	4.	4.	6.	1.	4.	8.
231	7.	2.	4.	2.	6.	1.	4.	2.	6.	3.
241	3.	2.	4.	5.	4.	5.	6.	10.	11.	6.
251	11.	12.	11.	5.	14.	9.	16.	10.	7.	14.
261	17.	13.	11.	16.	17.	10.	15.	23.	14.	20.
271	11.	11.	19.	16.	24.	16.	19.	18.	20.	19.
281	27.	27.	19.	29.	33.	30.	33.	35.	34.	32.
291	35.	31.	13.	15.	19.	19.	18.	36.	15.	16.
301	18.	27.	21.	24.	36.	24.	30.	41.	47.	37.
311	39.	24.	31.	37.	41.	46.	31.	53.	52.	63.
321	63.	56.	76.	62.	79.	99.	74.	91.	72.	108.
331	132.	115.	129.	105.	140.	142.	166.	169.	180.	206.
341	188.	226.	257.	254.	275.	311.	354.	384.	427.	454.
351	488.	599.	612.	630.	693.	674.	637.	672.	652.	778.
361	812.	913.	951.	883.	743.	453.	193.	67.	15.	4.
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.	1.	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.	1.	1.	1.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
461	1.	0.	1.	0.	0.	1.	0.	1.	0.	3.
471	0.	1.	0.	1.	1.	1.	0.	2.	1.	0.
481	0.	1.	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
 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
 S98T000142-DUP
 File ID: 16a1695.CNF

Counted on: 1/20/98 @ 8:50
 Detector: AEA16
 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	1190.9	1190.9	361.057	361.057	12.000	3.491	6.000	0.852
2	40.2	40.2	286.362	285.849	12.000	8.232	6.000	1.619

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	Pu236	0.942	5.755	5.744	0.011	0.02	48.93	1.3		180.2	0.812E-04
2	Th228	0.042	5.400	5.398	0.002	0.04	2.19	7.1		11.1	0.500E-05
Totals:		0.984	<--valid peaks only-->				51.11				

DETECTOR CALIBRATION

Energy(MEV) = $4.083 + (0.0046) \cdot \text{Channel}$
 Energy range (MeV): 4.083 TO 6.438
 Efficiency = 0.2770 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	24936.0	100.000
Smoothed	24935.4	99.998
Composite fit	24536.4	98.397
Residuals	399.6	1.603

Analyzed by:

SEH

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 7435.9

2
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Raw	Data	Dump	for	AEA	Spectrum:	16a1695.CNF	HNF-SD-WM-DP-292 REV. 0			
1	0.	0.	1.	0.	0.	1.	1.	2.	1.	
11	0.	4.	3.	2.	3.	1.	2.	0.	0.	0.
21	1.	4.	4.	2.	0.	1.	2.	0.	2.	0.
31	1.	2.	1.	1.	0.	0.	0.	0.	0.	0.
41	0.	1.	0.	0.	0.	1.	0.	0.	1.	1.
51	0.	0.	1.	1.	1.	1.	0.	2.	0.	0.
61	0.	1.	0.	1.	1.	0.	1.	0.	1.	0.
71	0.	0.	2.	0.	0.	1.	1.	1.	4.	0.
81	1.	0.	1.	2.	0.	1.	0.	0.	0.	0.
91	1.	0.	0.	0.	1.	2.	1.	2.	1.	2.
101	1.	1.	0.	1.	0.	2.	3.	0.	1.	0.
111	1.	0.	0.	0.	1.	1.	1.	1.	1.	1.
121	1.	2.	3.	1.	2.	2.	2.	1.	4.	3.
131	1.	1.	1.	2.	1.	4.	3.	6.	1.	3.
141	0.	2.	6.	5.	5.	4.	2.	1.	2.	2.
151	2.	3.	1.	2.	0.	1.	3.	0.	1.	1.
161	2.	0.	3.	2.	4.	0.	1.	1.	2.	3.
171	2.	2.	0.	0.	1.	3.	3.	3.	0.	3.
181	2.	5.	2.	2.	1.	2.	2.	3.	5.	3.
191	4.	5.	3.	2.	2.	2.	4.	1.	2.	2.
201	1.	8.	3.	1.	3.	7.	3.	3.	2.	2.
211	6.	2.	1.	4.	8.	6.	0.	3.	4.	4.
221	10.	7.	2.	6.	5.	3.	4.	8.	8.	10.
231	10.	6.	6.	3.	6.	4.	9.	9.	5.	10.
241	4.	6.	4.	9.	9.	7.	16.	12.	10.	8.
251	6.	14.	9.	14.	11.	13.	17.	16.	10.	10.
261	11.	17.	23.	26.	17.	18.	20.	27.	19.	23.
271	25.	22.	23.	20.	25.	32.	21.	19.	26.	27.
281	42.	34.	46.	51.	57.	45.	56.	45.	46.	46.
291	28.	20.	19.	17.	17.	24.	33.	26.	34.	27.
301	28.	33.	39.	33.	34.	38.	33.	40.	40.	45.
311	46.	32.	62.	44.	59.	59.	54.	76.	82.	83.
321	76.	82.	82.	87.	96.	105.	116.	91.	115.	134.
331	141.	154.	159.	160.	187.	185.	229.	217.	231.	290.
341	281.	319.	347.	367.	439.	420.	484.	512.	627.	715.
351	765.	867.	882.	885.	814.	895.	936.	1046.	1116.	1156.
361	1283.	1443.	1210.	804.	405.	120.	22.	5.	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.	1.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	1.	0.	0.	1.	2.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	1.	0.	0.	0.	1.	0.	0.	1.	1.	0.
461	0.	0.	2.	1.	2.	0.	1.	0.	2.	1.
471	1.	4.	1.	1.	1.	2.	1.	2.	2.	2.
481	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
511	0.	0.								

WORKBOOK PAGE: STD1

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0)**LIQUID**

				STD
Type	DATE COUNTED	JAN-20-98	Pu 236 AEA FRAC (C236)	0.455
STD	SAMPLE VOLUME in mL	SS	Pu 238 AEA FRAC (C238)	0.000
Worklist	SAMPLE DILUTION FACTOR	DF	Pu 239 AEA FRAC (C239)	0.535
21909	TRACER VOLUME in mL	SPKV	TOTAL AT COUNTS	3694
Test Code	DIGEST DILUTION FACTOR	DDF	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cpm (Bkg)	0.100
Matrix	DETECTOR NUMBER	14	Pu 236 cpm	47.760
LIQUID	EFFICIENCY FACTOR	EFF	Pu 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE	11/15/96	Pu 239 cpm	56.210
98000188	TRACER PREPARATION VALUE (dpm/mL)	2600.000	AEA COUNT TIME	480
ReRun	PU-236 DECAY CORR'D VALUE (dpm/mL)	1951.342	Pu 239/240 μ Ci/L	1.0335E-04
0	PU-238 TRACER VALUE (dpm/mL)	0.000		
Sample Rep	STANDARD BOOK NO	75B56		
N/A	STANDARD VALUE in μ Ci/mL	1.090E-04		

Sample #	WL21909
Instrument Code	WB27807
Prepared By	SEH
Chemist	JFR
Analyst	RWK
Date Complete	01/21/98
Analysis Date	01/20/98
Analysis Time	03:30 AM
Sample Point	TX-302C GRAB

Decay Time = Date Counted - Tracer Preparation Date	
Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]	
Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * 1/EFF * C236 * 100 / Pu-236 Decay Corr'd Value * SPKV	
Pu 239/240 μ Ci/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)/(1000mL/L)(DF)(DDF) / [(C236)(SS)(2220000 dpm/ μ Ci)]	
Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)	
Pu 238 μ Ci/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery / 100)(2220000 dpm/ μ Ci)(D g/L)(SS)]	
Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100	

Pu 239/240 μ Ci/mL	1.03E-04	DETECTION LEVELS in μ Ci/mL Pu 239/240 5.88E-06
Relative Counting Error	= 1.8%	
Pu 236 Tracer Recovery	= 98.6%	

Analyst:	RWK	Date:	21-Jan-98
Signature of Chemist:	JFR	Date:	1-22-98

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)

LIQU

BLNK

Type	DATE COUNTED		JAN-20-98	PU 236 AEA FRAC (C236)	0.989
BLNK	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
21909	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	1801
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO		128B43	BACKGROUND in cp (Bkg)	0.100
Matrix	DETECTOR NUMBER		14	PU 236 cpm	44.440
LIQUID	EFFICIENCY FACTOR	EFF	0.2910	PU 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE		11/15/96	PU 239 cpm	0.000
98000188	TRACER PREPARATION VALUE (dpm/mL)		2600.00	AEA COUNT TIME	480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)		1951.34	Pu 239/240 μ Ci/L =	< 2.666E-03
0	PU-238 TRACER VALUE (dpm/m		0.00		

Sample Prop

N/A

Sample #

Decay Time = Date Counted - Tracer Preparation Date

WL21909

Pu-236 Decay Cor'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 Cor'd Value * SPKV * EFF)

WB27807

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

Prepared By

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

SEH

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

Chemist

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

JFR

Analyst

RWK

Date Complete

01/21/98

Pu 239/240 μ Ci/mL < 2.67E-06

Analysis Date

Relative Counting Error = 100.0%

01/20/98

NOTE: Pu 238 Result is a LESS THAN Value.

Analysis Time

03:30 AM

Pu 238 μ Ci/mL < 2.67E-06

Sample Point

Relative Counting Error = 100.0%

TX-302C GRAB

Pu 236 Tracer Recovery = 104.4%

DETECTION

LEVELS
in μ Ci/mL

Pu 239/240

2.67E-06

Pu 238

2.67E-06

Analyst:

RWK

Date:

21-Jan-98

Signature of Chemist:

Keith Fuller

JFR

Date:

1-22-98

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 / SOLI

				SAMPLE
Type	DATE COUNTED	JAN-20-98	PU 236 AEA FRAC (C236)	0.977
SAMPLE	SAMPLE VOLUME in mL	SS	PU 238 AEA FRAC (C238)	0.000
Work List	SAMPLE DILUTION FACTOR	DF	PU 239 AEA FRAC (C239)	0.000
21909	TRACER VOLUME in mL	SPKV	TOTAL AT COUNTS	1687
Test Code	DIGEST DILUTION FACTOR	DDF	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cpm (Bkg)	0.100
Matrix	DETECTOR NUMBER	14	PU 236 cpm	43.800
LIQUID	EFFICIENCY FACTOR	EFF	PU 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE	11/15/96	PU 239 cpm	0.000
98000188	TRACER PREPARATION VALUE (dpm/mL)	2600.000	AEA COUNT TIME	480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	1951.342	Pu 239/240 μ Ci/L =	< 2.7946E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.000		

Sample Prep	
N/A	
Sample #	Decay Time = Date Counted - Tracer Preparation Date
S98T000140	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)
WB27807	Pu 239/240 μ Ci/L = (C239) (Pu 236 Decay Corr'd Value) (SPKV) (1000mL/L) (DF) (DDF) / [(C236) (SS) (D g/L) (2220000 dpm/ μ Ci)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)
SEH	Pu 238 μ Ci/L = [(Pu 238 dpm) (DF) (DDF) (1000mL/L)] / [(Pu-236 Tracer Recovery / 100) (2220000 dpm/ μ Ci) (D g/L) (SS)]
Chemist	Relative Counting Error = Square Root of [(1 / (Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
JFR	
Analyst	
RWK	
Date Complete	
01/21/98	Pu 239/240 μ Ci/mL < 2.79E-06
Analysis Date	Relative Counting Error = 100.0%
01/20/98	
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.
03:30 AM	Pu 238 μ Ci/mL < 2.79E-06
Sample Point	Relative Counting Error = 100.0%
TX-302C GRAB	Pu 236 Tracer Recovery = 96.6%

Analyst:	RWK	Date:	21-Jan-98
Signature of Chemist:	JFR	Date:	1-22-98
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 / SOLI

DUP

Type	DATE COUNTED		JAN-21-98	PU 236 AEA FRAC (C236)	0.959
DUP	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
21909	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	1715
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO		128B43	BACKGROUND in cpm (Bkg)	0.100
Matrix	DETECTOR NUMBER		14	PU 236 cpm	42.960
LIQUID	EFFICIENCY FACTOR	EFF	0.291	PU 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE		11/15/96	PU 239 cpm	0.000
98000188	TRACER PREPARATION VALUE (dpm/mL)		2600.000	AEA COUNT TIME	480
Results	PU-236 DECAY CORR'D VALUE (dpm/mL)		1950.043	Pu 239/240 μ Ci/L =	< 2.8492E-03
0	PU-238 TRACER VALUE (dpm/mL)		0.000		

Sample Prep					
N/A					
Sample #	Decay Time = Date Counted - Tracer Preparation Date				
S98T000140	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)				
WB27807	Pu 239/240 μ Ci/L = (C239) (Pu 236 Decay Corr'd Value) (SPKV) (1000mL/L) (DF) (DDF) / [(C236) (SS) (D g/L) (2220000 dpm/ μ Ci)]				
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)				
SEH	Pu 238 μ Ci/L = [(Pu 238 dpm) (DF) (DDF) (1000mL/L)] / [(Pu-236 Tracer Recovery / 100) (2220000 dpm/ μ Ci) (D g/L) (SS)]				
Chemist	Relative Counting Error = Square Root of [(1 / (Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100				
JFR					
Analyst					
RWK					
Date Complete					
01/21/98	Pu 239/240 μ Ci/mL	< 2.85E-06	DETECTION LEVELS in μ Ci/mL		
Analysis Date	Relative Counting Error	= 100.0%			
01/20/98			Pu 239/240		
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.		2.85E-06		
03:30 AM	Pu 238 μ Ci/mL	< 2.85E-06	Pu 238		
Sample Point	Relative Counting Error	= 100.0%	2.85E-06		
TX-302C GRAB	Pu 236 Tracer Recovery	= 96.4%			

Analyst:	RWK	Date:	21-Jan-98
Signature of Chemist:	JFR	Date:	1-22-98
SAMPLE.WB1 REV 1.0	943128ML		

WORKBOOK PAGE: SAM5

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0))

LIQUID / SOLI

			LIQUID / SOLI		SAMPLE
Type	DATE COUNTED		JAN-20-98	PU 236 AEA FRAC (C236)	1.012
SAMPLE	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
21909	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	1677
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO		128B43	BACKGROUND in cpm (Bkg)	0.100
Matrix	DETECTOR NUMBER		14	PU 236 cpm	48.970
LIQUID	EFFICIENCY FACTOR	EFF	0.291	PU 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE		11/15/96	PU 239 cpm	0.000
98000188	TRACER PREPARATION VALUE (dpm/mL)		2600.000	AEA COUNT TIME	480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)		1951.342	Pu 239/240 μ Ci/L =	< 2.6202E-03
0	PU-238 TRACER VALUE (dpm/mL)		0.000		
Sample Prep					
N/A					
Sample #	Decay Time = Date Counted - Tracer Preparation Date				
S98T000141	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)				
WB27807	Pu 239/240 μ Ci/L = (C239 / (Pu 236 Decay Corr'd Value) * (SPKV / (1000 mL/L) * (DF) * (DDF)) / [(C236) * (SS) * (D g/L) * (2220000 dpm/ μ Ci)])				
Prepared By	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/L = [(Pu 238 dpm) * (DF) * (DDF) * (1000 mL/L)] / [(Pu-236 Tracer Recovery / 100) * (2220000 dpm/ μ Ci) * (D g/L) * (SS)]				
Chemist	Relative Counting Error = Square Root of [(1 / (Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100				
JFR					
Analyst					
RWK					
Date Complete					
01/21/98	Pu 239/240 μ Ci/mL	< 2.62E-06	DETECTION LEVELS in μ Ci/mL		
Analysis Date	Relative Counting Error	= 100.0%			
01/20/98			Pu 239/240 2.62E-06		
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.				
03:30 AM	Pu 238 μ Ci/mL	< 2.62E-06	Pu 238		
Sample Point	Relative Counting Error	= 100.0%	2.62E-06		
TX-302C GRAB	Pu 236 Tracer Recovery	= 99.4%			

Analyst:	RWK	Date:	21-Jan-98
Signature of Chemist:	JFR	Date:	1-22-98
SAMPLE.VB1 REV 1.0		943128ML	

WORKBOOK PAGE: DUP6

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0))

LIQUID / SOLI

DUP

Type	DATE COUNTED		JAN-20-98	PU 236 AEA FRAC (C236)	0.958
DUP	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
21909	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	1682
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO		128B43	BACKGROUND in cpm (Bkg)	0.100
Matrix	DETECTOR NUMBER		14	PU 236 cpm	45.580
LIQUID	EFFICIENCY FACTOR	EFF	0.291	PU 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE		11/15/96	PU 239 cpm	0.000
98000188	TRACER PREPARATION VALUE (dpm/mL)		2600.000	AEA COUNT TIME	480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)		1951.342	Pu 239/240 μ Ci/L =	< 2.9152E-03
0	PU-238 TRACER VALUE (dpm/mL)		0.000		

Sample Prep			
N/A			
Sample #	Decay Time = Date Counted - Tracer Preparation Date		
S98T000141	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)		
WB27807	Pu 239/240 μ Ci/L = (C239)/(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/ μ Ci)]		
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)		
SEH	Pu 238 μ Ci/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery / 100)(2220000 dpm/ μ Ci)(D g/L)(SS)]		
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min)))] * 1.96 * 100		
JFR			
Analyst			
RWK			
Date Complete			
01/21/98	Pu 239/240 μ Ci/mL	< 2.92E-06	DETECTION LEVELS in μ Ci/mL
Analysis Date	Relative Counting Error	= 100.0%	
01/20/98			
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.		
03:30 AM	Pu 238 μ Ci/mL	< 2.92E-06	
Sample Point	Relative Counting Error	= 100.0%	Pu 238
TX-302C GRAB	Pu 236 Tracer Recovery	= 94.4%	2.92E-06

Analyst:	RWK	Date:	21-Jan-98
Signature of Chemist:	JFR	Date:	1-22-98
SAMPLE.WB1 REV 1.0	943128ML		

HNF-SD-WM-DP-292 REV. 0

WORKBOOK PAGE: SAM7

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0)

LIQUID / SOLI

				SAMPLE	
RTYPE	DATE COUNTED	JAN-20-98	PU 236 AEA FRAC (C236)		0.989
SAMPLE	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
21909	TRACER VOLUME in mL SPKV	0.100	TOTAL AT COUNTS		1721
Test Code	DIGEST DILUTION FACTOR DDF	1.0000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cpm (Bkg)		0.100
Matrix	DETECTOR NUMBER	14	PU 236 cpm		39.020
LIQUID	EFFICIENCY FACTOR EFF	0.291	PU 238 cpm		0.000
Batch Number	TRACER PREPARATION DATE	11/15/96	PU 239 cpm		0.000
98000188	TRACER PREPARATION VALUE (dpm/mL)	2600.000	AEA COUNT TIME		480
ReRun	PU-236 DECAY CORR'D VALUE (dpm/mL)	1951.342	Pu 239/240 μ Ci/L =	<	2.6732E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.000			
Sample Prep					
N/A					
S98T000142	Decay Time = Date Counted - Tracer Preparation Date				
Instrument Code	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]				
WB27807	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)				
Prepared By	Pu 239/240 μ Ci/L = (C239)/(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/ μ Ci)]				
SEH	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)				
Chemist	Pu 238 μ Ci/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery / 100)(2220000 dpm/ μ Ci)(D g/L)(SS)]				
JFR	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100				
Analyst					
RWK					
Date Complete					
01/21/98	Pu 239/240 μ Ci/mL	< 2.67E-06	DETECTION LEVELS in μ Ci/mL		
Analysis Date	Relative Counting Error =	100.0%			
01/20/98			Pu 239/240		
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.		2.67E-06		
03:30 AM	Pu 238 μ Ci/mL	< 2.67E-06	Pu 238		
Sample Point	Relative Counting Error =	100.0%	2.67E-06		
TX-302C GRAB	Pu 236 Tracer Recovery =	99.7%			

Analyst:	RWK	Date:	21-Jan-98
Signature of Chemist:	JFR	Date:	1-22-98
SAMPLE.WB1 REV 1.0 943128ML			

HNF-SD-WM-DP-292 REV. 0

WORKBOOK PAGE: DUP8

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(B-0)

LIQUID / SOLI

DUP

TYPE	DATE COUNTED	JAN-20-98	PU 236 AEA FRAC (C236)	0.942
DUP	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
21909	TRACER VOLUME in mL SPKV	0.100	TOTAL AT COUNTS	1641
Test Code	DIGEST DILUTION FACTOR DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cpm (Bkg)	0.100
Matrix	DETECTOR NUMBER	14	PU 236 cpm	48.930
LIQUID	EFFICIENCY FACTOR EFF	0.291	PU 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE	11/15/96	PU 239 cpm	0.000
98000188	TRACER PREPARATION VALUE (dpm/mL)	2600.000	AEA COUNT TIME	480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	1951.342	Pu 239/240 μ Ci/L =	< 3.0905E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.000		

Sample Prep	
N/A	
Sample #	Decay Time = Date Counted - Tracer Preparation Date
S98T000142	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)
WB27807	Pu 239/240 μ Ci/L = (C239)/(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/ μ Ci)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)
SEH	Pu 238 μ Ci/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery / 100)(2220000 dpm/ μ Ci)(D g/L)(SS)]
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
JFR	
Analyst	
RWK	
Date Complete	
01/21/98	Pu 239/240 μ Ci/mL < 3.09E-06
Analysis Date	Relative Counting Error = 100.0%
01/20/98	
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.
03:30 AM	Pu 238 μ Ci/mL < 3.09E-06
Sample Point	Relative Counting Error = 100.0%
TX-302C GRAB	Pu 236 Tracer Recovery = 90.6%

DETECTION
LEVELS
in μ Ci/mL
Pu 239/240
3.09E-06
Pu 238
3.09E-06

Analyst:	RWK	Date:	21-Jan-98
Signature of Chemist:	JFR	Date:	1-22-98
SAMPLE.WB1 REV 1.0	943128ML		

HNF-SD-WM-DP-292, REV. 0

APPENDIX A
OPPORTUNISTIC ANALYTE RESULTS

HNF-SD-WM-DP-292, REV. 0

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Appendix A: Opponenturic Analyte Results
TX-302C GRAB

RISER: Catch Tk. Level Gage Riser
SEGMENT #: 302C-TX-97-1A/B

SEGMENT PORTION: Supernate

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S98T000140		Ammonia by ISE-Std Additions	ug/ml	97.44	<2.00e-01	< 5.000		n/a	n/a	n/a	5.000	n/a
S98T000140		70C B7 peralutase/Coulometry	ug/ml	93.00	3.600	< 40.00	<4.00E+1	n/a	n/a	88.90	40.00	n/a
S98T000140		Silver-ICP-Acid Dil.	ug/ml	96.80	<1.00e-02	2.89e-02	2.79e-02	2.82e-02	2.13	51.00	1.00e-02	n/a
S98T000140		Arsenite-ICP-Acid Dil.	ug/ml	101.4	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	109.0	1.00e-01	n/a
S98T000140		Boron-ICP-Acid Dil.	ug/ml	100.8	<5.00e-02	5.47e-01	5.55e-01	5.51e-01	1.45	103.0	5.00e-02	n/a
S98T000140		Boron-ICP-Acid Dil.	ug/ml	99.20	<5.00e-02	<5.00e-02	<5.00e-2	n/a	n/a	100.0	5.00e-02	n/a
S98T000140		Beryllium-ICP-Acid Dil.	ug/ml	101.0	<5.00e-03	<5.00e-03	<5.00e-3	n/a	n/a	104.0	5.00e-03	n/a
S98T000140		Bismuth-ICP-Acid Dil.	ug/ml	98.60	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	99.60	1.00e-01	n/a
S98T000140		Calcium-ICP-Acid Dil.	ug/ml	100.2	<1.00e-01	4.750	4.680	4.615	2.82	113.0	1.00e-01	n/a
S98T000140		Cadmium-ICP-Acid Dil.	ug/ml	98.80	<5.00e-03	<5.00e-03	<5.00e-3	n/a	n/a	101.0	5.00e-03	n/a
S98T000140		Cesium-ICP-Acid Dil.	ug/ml	100.0	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	102.0	1.00e-01	n/a
S98T000140		Cobalt-ICP-Acid Dil.	ug/ml	100.0	<2.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	102.0	2.00e-02	n/a
S98T000140		Chromium-ICP-Acid Dil.	ug/ml	96.00	<1.00e-02	5.54e-02	5.46e-02	5.50e-02	1.45	97.70	1.00e-02	n/a
S98T000140		Copper-ICP-Acid Dil.	ug/ml	94.60	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	89.90	1.00e-02	n/a
S98T000140		Potassium-ICP-Acid Dil.	ug/ml	101.8	<5.00e-01	4.060	4.090	4.075	0.74	112.0	5.00e-01	n/a
S98T000140		Lanthanum-ICP-Acid Dil.	ug/ml	100.2	<5.00e-02	<5.00e-02	<5.00e-2	n/a	n/a	103.0	5.00e-02	n/a
S98T000140		Lithium-ICP-Acid Dil.	ug/ml	102.0	<1.00e-02	6.19e-01	6.50e-01	6.35e-01	4.89	108.0	1.00e-01	n/a
S98T000140		Magnesium-ICP-Acid Dil.	ug/ml	97.20	<1.00e-02	1.74e-02	2.02e-02	1.88e-02	14.9	97.50	1.00e-02	n/a
S98T000140		Manganese-ICP-Acid Dil.	ug/ml	100.0	<5.00e-02	<5.00e-02	<5.00e-2	n/a	n/a	102.0	5.00e-02	n/a
S98T000140		Molybdenum-ICP-Acid Dil.	ug/ml	97.20	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	98.80	1.00e-01	n/a
S98T000140		Nickel-ICP-Acid Dil.	ug/ml	96.80	<2.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	101.0	2.00e-02	n/a
S98T000140		Niobium-ICP-Acid Dil.	ug/ml	100.0	<2.00e-01	7.100	7.030	7.065	0.99	70.40	2.00e-01	n/a
S98T000140		Phosphorus-ICP-Acid Dil.	ug/ml	98.00	<1.00e-01	8.890	9.100	8.995	2.33	139.0	1.00e-01	n/a
S98T000140		Sulfur-ICP-Acid Dil.	ug/ml	95.00	<6.00e-02	<6.00e-02	<6.00e-2	n/a	n/a	99.70	6.00e-02	n/a
S98T000140		Antimony-ICP-Acid Dil.	ug/ml	93.80	<1.00e-01	2.22e-01	1.57e-01	1.90e-01	34.3	87.50	1.00e-01	n/a
S98T000140		Selenium-ICP-Acid Dil.	ug/ml	97.00	<5.00e-02	10.00	10.20	10.10	1.98	120.0	5.00e-02	n/a
S98T000140		Silicon-ICP-Acid Dil.	ug/ml	97.80	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	98.00	1.00e-01	n/a
S98T000140		Samarium-ICP-Acid Dil.	ug/ml	101.6	<1.00e-02	2.21e-02	2.29e-02	2.25e-02	3.56	104.0	1.00e-02	n/a
S98T000140		Strontium-ICP-Acid Dil.	ug/ml	98.60	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	101.0	1.00e-02	n/a
S98T000140		Titanium-ICP-Acid Dil.	ug/ml	95.00	<2.00e-01	<2.00e-01	<2.00e-1	n/a	n/a	96.10	2.00e-01	n/a
S98T000140		Uranium-ICP-Acid Dil.	ug/ml	96.80	<5.00e-01	36.10	35.90	36.00	0.56	77.50	5.00e-01	n/a
S98T000140		Vanadium-ICP-Acid Dil.	ug/ml	99.80	<5.00e-02	<5.00e-02	<5.00e-2	n/a	n/a	102.0	5.00e-02	n/a
S98T000140		Zinc-ICP-Acid Dil.	ug/ml	97.20	<1.00e-02	1.13e-02	1.26e-02	1.19e-02	10.9	101.0	1.00e-02	n/a
S98T000140		Zirconium-ICP-Acid Dil.	ug/ml	98.60	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	99.90	1.00e-02	n/a
S98T000140		Bromide by Ion Chromatograph	ug/ml	95.92	<1.25e-01	< 1.375	<1.3860	n/a	n/a	96.10	1.375	n/a
S98T000140		Oxalate-IC-Dionex 4000/450	ug/ml	97.56	<1.05e-01	< 1.155	<1.1660	n/a	n/a	98.87	1.155	n/a
S98T000140		Cobalt-60 by GEA	uCi/ml	105.0	<2.50e-05	<2.78e-05	<2.50e-5	n/a	n/a	n/a	2.78e-05	n/a

Appendix A: Opportunistic Analyte Results
TX-302C GRAB

RISE: Catch Tk. Level Gage Riser
SEGMENT #: 302C-TX-97-2A/B

SEGMENT PORTION: Supernate

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD	% Spk Rec	Det Limit	Count Err%
S98T000141		Ammonia by ISE-Strd Additions	ug/ml	97.44	<2.00e-01	< 1,000	<1.00	n/a	n/a	89.00	1,000	n/a
S98T000141		TOT by Persulfate/Coulometry	ug/ml	93.00	3.600	< 40.00	<4.00e-1	n/a	n/a	n/a	40.00	n/a
S98T000141		Silver-ICP-Acid Dil.	ug/ml	98.80	<1.00e-02	3.600e-02	3.28e-02	19.8	n/a	n/a	1.00e-02	n/a
S98T000141		Arsenic-ICP-Acid Dil.	ug/ml	101.4	<1.00e-01	1.60e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S98T000141		Boron-ICP-Acid Dil.	ug/ml	100.8	<5.00e-02	5.15e-01	5.20e-01	1.92	n/a	n/a	5.00e-02	n/a
S98T000141		Barium-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
S98T000141		Beryllium-ICP-Acid Dil.	ug/ml	101.0	<5.00e-03	5.00e-03	<5.00e-3	n/a	n/a	n/a	5.00e-03	n/a
S98T000141		Bismuth-ICP-Acid Dil.	ug/ml	98.60	<1.00e-01	<1.00e-1	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S98T000141		Calcium-ICP-Acid Dil.	ug/ml	100.2	<5.00e-03	4.400	4.580	4.490	4.01	n/a	1.00e-01	n/a
S98T000141		Cadmium-ICP-Acid Dil.	ug/ml	98.80	<5.00e-03	<5.00e-03	<5.00e-3	n/a	n/a	n/a	5.00e-03	n/a
S98T000141		Cerium-ICP-Acid Dil.	ug/ml	100.8	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S98T000141		Cobalt-ICP-Acid Dil.	ug/ml	100.0	<2.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	n/a	2.00e-02	n/a
S98T000141		Chromium-ICP-Acid Dil.	ug/ml	96.00	<1.00e-02	5.40e-02	5.11e-02	5.25e-02	5.52	n/a	1.00e-02	n/a
S98T000141		Copper-ICP-Acid Dil.	ug/ml	94.60	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S98T000141		Lanthanum-ICP-Acid Dil.	ug/ml	101.8	<5.00e-01	3.890	4.070	3.980	4.52	n/a	5.00e-01	n/a
S98T000141		Manganese-ICP-Acid Dil.	ug/ml	100.2	<5.00e-02	<5.00e-02	<5.00e-2	n/a	n/a	n/a	5.00e-02	n/a
S98T000141		Lithium-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
S98T000141		Magnesium-ICP-Acid Dil.	ug/ml	97.20	<1.00e-01	6.09e-01	6.32e-01	6.21e-01	3.71	n/a	1.00e-01	n/a
S98T000141		Molybdenum-ICP-Acid Dil.	ug/ml	100.0	<5.00e-02	<5.00e-02	<5.00e-2	n/a	n/a	n/a	5.00e-02	n/a
S98T000141		Neodymium-ICP-Acid Dil.	ug/ml	97.20	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S98T000141		Nickel-ICP-Acid Dil.	ug/ml	96.80	<2.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	n/a	2.00e-02	n/a
S98T000141		Phosphorus-ICP-Acid Dil.	ug/ml	100.0	<2.00e-01	6.850	6.710	6.780	2.05	n/a	2.00e-01	n/a
S98T000141		Lead-ICP-Acid Dil.	ug/ml	98.00	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S98T000141		Antimony-ICP-Acid Dil.	ug/ml	98.60	<1.00e-01	8.860	9.290	9.075	4.74	n/a	1.00e-01	n/a
S98T000141		Selenium-ICP-Acid Dil.	ug/ml	93.80	<1.00e-01	1.97e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S98T000141		Silicon-ICP-Acid Dil.	ug/ml	97.00	<5.00e-02	9.870	10.20	10.04	3.29	n/a	5.00e-02	n/a
S98T000141		Samarium-ICP-Acid Dil.	ug/ml	97.80	<1.00e-01	<1.00e-1	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S98T000141		Strontium-ICP-Acid Dil.	ug/ml	101.6	<1.00e-02	1.98e-02	2.06e-02	2.02e-02	-3.96	n/a	1.00e-02	n/a
S98T000141		Titanium-ICP-Acid Dil.	ug/ml	98.60	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S98T000141		Thallium-ICP-Acid Dil.	ug/ml	95.00	<2.00e-01	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S98T000141		Uranium-ICP-Acid Dil.	ug/ml	96.80	<5.00e-01	35.40	34.80	35.10	1.71	n/a	5.00e-01	n/a
S98T000141		Vanadium-ICP-Acid Dil.	ug/ml	99.80	<5.00e-02	<5.00e-02	<5.00e-2	n/a	n/a	n/a	5.00e-02	n/a
S98T000141		Zinc-ICP-Acid Dil.	ug/ml	97.20	<1.00e-02	1.30e-02	1.50e-02	1.40e-02	14.3	n/a	1.00e-02	n/a
S98T000141		Zirconium-ICP-Acid Dil.	ug/ml	98.60	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S98T000141		Bromide by Ion Chromatograph	ug/ml	95.92	<1.375	< 1.375	<1.3860	n/a	n/a	n/a	1.375	n/a
S98T000141		Oxalate-IC-Dioxex 4000/450	ug/ml	97.56	<1.05e-01	< 1.155	<1.1660	n/a	n/a	n/a	1.155	n/a
S98T000141		Cobalt-60 by GEA	uCi/ml	105.0	<2.50e-05	<2.78e-05	<2.88e-5	n/a	n/a	n/a	2.78e-05	n/a

Appendix A: Opportunistic Analyte Results
TX-302C GRAB

RISER: Catch Tk. Level Gage Riser
SEGMENT #: 302C-TX-97-3A/B

SEGMENT PORTION: Supernate

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD	% Spk Rec	Det Limit	Count Err%
S98T000142		Ammonia by ISE-Strd Additions	ug/ml	97.44	<2.00e-01	< 1,000	<1.00	n/a	n/a	n/a	1,000	n/a
S98T000142		TOC by Persulfate/Coulometry	ug/ml	92.00	4.700	< 40.00	<4.000E+1	n/a	n/a	n/a	40.00	n/a
S98T000142		Silver-ICP-Acid Dil.	ug/ml	98.80	<1.00e-02	2.85e-02	2.83e-02	2.84e-02	0.70	n/a	1.00e-02	n/a
S98T000142		Arsenic-ICP-Acid Dil.	ug/ml	101.4	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S98T000142		Boron-ICP-Acid Dil.	ug/ml	100.8	<5.00e-02	5.43e-01	5.52e-01	5.48e-01	1.64	n/a	5.00e-02	n/a
S98T000142		Barium-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
S98T000142		Beryllium-ICP-Acid Dil.	ug/ml	101.0	<5.00e-03	<5.00e-03	<5.00e-3	n/a	n/a	n/a	5.00e-03	n/a
S98T000142		Bismuth-ICP-Acid Dil.	ug/ml	98.60	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S98T000142		Calcium-ICP-Acid Dil.	ug/ml	100.2	<1.00e-01	4.460	4.600	4.530	3.09	n/a	1.00e-01	n/a
S98T000142		Cadmium-ICP-Acid Dil.	ug/ml	98.80	<5.00e-03	<5.00e-03	<5.00e-3	n/a	n/a	n/a	5.00e-03	n/a
S98T000142		Cerium-ICP-Acid Dil.	ug/ml	100.8	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S98T000142		Cobalt-ICP-Acid Dil.	ug/ml	100.0	<2.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	n/a	2.00e-02	n/a
S98T000142		Chromium-ICP-Acid Dil.	ug/ml	96.00	<1.00e-02	5.04e-02	5.33e-02	5.19e-02	5.59	n/a	1.00e-02	n/a
S98T000142		Copper-ICP-Acid Dil.	ug/ml	94.60	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S98T000142		Potassium-ICP-Acid Dil.	ug/ml	101.8	<5.00e-01	4.010	4.110	4.060	2.46	n/a	5.00e-01	n/a
S98T000142		Lanthanum-ICP-Acid Dil.	ug/ml	102.0	<5.00e-02	<5.00e-02	<5.00e-2	n/a	n/a	n/a	5.00e-02	n/a
S98T000142		Lithium-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
S98T000142		Magnesium-ICP-Acid Dil.	ug/ml	97.20	<1.00e-01	6.30e-01	6.53e-01	6.41e-01	3.59	n/a	1.00e-01	n/a
S98T000142		Molybdenum-ICP-Acid Dil.	ug/ml	100.0	<5.00e-02	1.56e-02	1.79e-02	1.68e-02	13.7	n/a	1.00e-02	n/a
S98T000142		Neodymium-ICP-Acid Dil.	ug/ml	97.20	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S98T000142		Nickel-ICP-Acid Dil.	ug/ml	96.80	<2.00e-02	2.11e-02	<2.00e-2	n/a	n/a	n/a	2.00e-02	n/a
S98T000142		Phosphorus-ICP-Acid Dil.	ug/ml	100.0	<2.00e-01	7.010	6.870	6.940	2.02	n/a	2.00e-01	n/a
S98T000142		Lead-ICP-Acid Dil.	ug/ml	98.00	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S98T000142		Sulfur-ICP-Acid Dil.	ug/ml	98.60	<5.00e-02	8.890	9.270	9.080	4.19	n/a	1.00e-01	n/a
S98T000142		Antimony-ICP-Acid Dil.	ug/ml	95.00	<6.00e-02	<6.00e-02	<6.00e-2	n/a	n/a	n/a	6.00e-02	n/a
S98T000142		Selenium-ICP-Acid Dil.	ug/ml	93.80	<1.00e-01	1.81e-01	1.07e-01	1.44e-01	51.4	n/a	1.00e-01	n/a
S98T000142		Silicon-ICP-Acid Dil.	ug/ml	97.00	<5.00e-02	9.970	10.20	10.09	2.28	n/a	5.00e-02	n/a
S98T000142		Samarium-ICP-Acid Dil.	ug/ml	97.80	<1.00e-01	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S98T000142		Strontium-ICP-Acid Dil.	ug/ml	101.6	<1.00e-02	2.44e-02	2.51e-02	2.48e-02	2.83	n/a	1.00e-02	n/a
S98T000142		Titanium-ICP-Acid Dil.	ug/ml	98.60	<1.00e-02	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S98T000142		Thallium-ICP-Acid Dil.	ug/ml	95.00	<2.00e-01	<2.00e-01	<2.00e-01	n/a	n/a	n/a	2.00e-01	n/a
S98T000142		Uranium-ICP-Acid Dil.	ug/ml	96.80	<5.00e-01	36.20	35.90	36.05	0.83	n/a	5.00e-01	n/a
S98T000142		Vanadium-ICP-Acid Dil.	ug/ml	99.80	<5.00e-02	<5.00e-02	<5.00e-2	n/a	n/a	n/a	5.00e-02	n/a
S98T000142		Zinc-ICP-Acid Dil.	ug/ml	97.60	<1.00e-02	1.17e-02	1.22e-02	1.20e-02	4.18	n/a	1.00e-02	n/a
S98T000142		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
S98T000142		Bromide by Ion Chromatograph	ug/ml	99.49	<1.25e-01	< 5.125	<5.125d	n/a	n/a	n/a	5.125	n/a
S98T000142		Oxalate-IC-D Ionex 4000/450	ug/ml	102.6	<1.05e-01	< 4.305	<4.306d	n/a	n/a	n/a	4.305	n/a
S98T000142		Cobalt-60 by BEA	uCi/ml	105.0	<2.50e-05	<2.65e-05	<2.66e-5	n/a	n/a	n/a	2.65e-05	n/a

Appendix A: Opportunistic Analyte Results
TX-302C GRAB

RISER: Catch Tk. Level Gage Riser
SEGMENT #: 1B

SEGMENT PORTION: Supernate

Sample#	R. A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S977002431		Bromide by Ion Chromatograph	ug/ml	98.30	<1.25e-01	< 1.375	<1.38e0	n/a	n/a	98.30	1.375	n/a
S977002431		Oxalate-IC-Dionex 4000/450	ug/ml	99.42	<1.05e-01	< 1.155	<1.16e0	n/a	n/a	97.18	1.155	n/a

Appendix A: Opportunistic Analyte Results
TX-302C GRAB

RISER: Catch Tk. Level Gage Riser
SEGMENT #: 2B

SEGMENT PORTION: Supernate

Sample #	R / A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S977002432		Bromide by Ion Chromatograph	ug/ml	98.30	<1.25e-01	< 1.375	<1.38e0	n/a	n/a	n/a	1.375		n/a
S977002432		Oxalate IC-Dionex 4000/450	ug/ml	99.42	<1.05e-01	< 1.155	<1.16e0	n/a	n/a	n/a	1.155		n/a

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