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Tank 241-AP-106, Grab Samples, 6AP-98-1, 6AP-98-2 and 6AP-98-3 Analytical Results for the Final Report

Keith Fuller

Waste Management Hanford, Inc., Richland, WA 99352
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HANFORD ANALYTICAL LABORATORY OPERATIONS

**TANK 241-AP-106 GRAB SAMPLES,
6AP-98-1, 6AP-98-2 AND 6AP-98-3
ANALYTICAL RESULTS FOR THE FINAL REPORT**

Project Coordinator: Keith Fuller

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

by

**222-S Laboratory
Waste Management of Hanford, Inc.
P.O. Box 700
Richland, Washington**

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NARRATIVE

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222-S ANALYTICAL SERVICES

**TANK 241-AP-106 GRAB SAMPLES,
6AP-98-1, 6AP-98-2, 6AP-98-3
ANALYTICAL RESULTS FOR THE FINAL REPORT**

This document is the final report for tank 241-AP-106 grab samples. Three grab samples 6AP-98-1, 6AP-98-2 and 6AP-98-3 were taken from riser 1 of tank 241-AP-106 on May 28, 1998 and received by the 222-S Laboratory on May 28, 1998. Analyses were performed in accordance with the *Compatibility Grab Sampling and Analysis Plan* (TSAP) (Sasaki, 1998) and the *Data Quality Objectives for Tank Farms Waste Compatibility Program* (DQO) (Mulkey and Miller, 1998). The analytical results are presented in the data summary report (Table 1). No notification limits were exceeded.

The request for sample analysis received for AP-106 indicated that the samples were polychlorinated biphenyl (PCB) suspects. The results of this analysis indicated that no PCBs were present at the Toxic Substance Control Act (TSCA) regulated limit of 50 ppm. The results and raw data for the PCB analysis are included in this document.

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-AP-106 Grab Samples

Sample Number	Date Sampled	Date Received	% Settled Solids	Sample Description
6AP-98-1	5/28/98	5/28/98	<1 %	Hazy, clear liquid; no organic layer was observed.
6AP-98-2	5/28/98	5/28/98	<1 %	Hazy, clear liquid; no organic layer was observed.
6AP-98-3	5/28/98	5/28/98	<1 %	Hazy, clear liquid; no organic layer was observed.

Analytical Results Summary

The data summary report (Table 1) included in this report compiles the analytical results that comply with the applicable DQO.

Compatibility Program Concerns

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. However, the RPDs were reported as "0" in Table 1 because of software limitations. 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

Nitrate (NO_3^-), Hydroxide (OH^-) and Nitrite (NO_2^-) - Corrosion Decision Rule

The results with respect to the waste compatibility corrosion rules are presented in Table 3. The NO_3^- , OH^- , and NO_2^- results are reported in $\mu\text{g/mL}$ and molarity (M) units. The spreadsheet compares the results to the concentration ranges specified in the waste compatibility DQO. A "YES" will appear in the appropriate space for the condition that is met. Only one of three sets of conditions must be met for OH^- and NO_2^- based on the range that the NO_3^- concentration falls in. If "NO" appears in the space under a condition, that condition is not met and a notification is required. The hydroxide results for the three samples analyzed were within the acceptable concentration ranges required for corrosion control.

^{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 required limits. The highest reported result was $3.12\text{e-}04 \mu\text{Ci/mL}$, 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).

Uranium (U) – Criticality Decision Rule

U analysis was performed in duplicate on direct subsamples to evaluate criticality safety for waste transfers. No attempt was made to reconcile the U concentration with the ^{239}Pu equivalents.

Inorganic Analyses

TGA - Thermogravimetric Analysis

The TGA analysis was performed on direct sample aliquots. Standard recoveries and RPDs were within the required limits. Typically the TGA results are determined by summing the weight loss steps which occur below 250°C. More information may be obtained by examining the thermograms. The results ranged from 73.02 to 95.90% moisture.

pH

The pH analysis was performed on direct sample aliquots. The results ranged from 12.53 to 13.49. Results for pH that are greater than 12.5 are suspect and should be considered estimates because the highest calibration buffer available is 12.5 and pH electrode performance degrades at high pH. The standard value measured and RPDs for this analysis were within the required limits.

Specific Gravity (Sp.G.)

Specific gravity analysis was performed in duplicate on direct liquid subsamples. The results ranged from 1.019 g/mL to 1.218 g/mL. The standard recoveries and RPDs were within the control limits of the laboratory.

Hydroxide – OH

The OH⁻ analysis was performed on direct sample aliquots. The standard recoveries and RPDs were within in the required limits for this analysis.

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

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sulfate (SO_4^{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.

ICP - Inductively Coupled Plasma Spectrophotometry

The liquid subsamples were prepared for analysis by an acid adjustment of the direct subsample. This is indicated by a "D" in the A# column in Table 1. The results for the ICP analytes are included in Table 1. However, the QC review discussed in this report is limited to Aluminum (Al), Chromium (Cr), Iron (Fe), Manganese (Mn), Sodium (Na), and Zirconium (Zr). All other analyte results are presented in Appendix A. 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 93.5%. 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 $\pm 10\%$ of the undiluted sample result and, therefore, are acceptable. Table 3 presents the results 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-AP-106

Sample ID	Analyte	Undiluted Sample Result ($\mu\text{g/mL}$)	Serial Dilution Result ($\mu\text{g/mL}$)	Percent Difference (%)
S98T002050 (6AP-98-1)	Na	29624	30818	4.03

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

Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

Uranium by ICP-MS was performed on each sample. The liquid subsamples were prepared for analysis by an acid adjustment of the direct subsamples as indicated by an "A" in the A# column in Table 1. The results for the ICP/MS isotopic uranium are included in Table 1. The RPDs were less than 20%, the standard recoveries for U238 were within the required limits of 80%-120% and the spike recoveries were within the required limits of 75%-125%.

TIC/TOC - Total Inorganic/Organic Carbon

The TIC/TOC analysis was performed on direct sample aliquots using the persulfate oxidation method. None of the subsamples submitted for TOC analysis exceeded the notification limit.

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.

The blank is considered a reagent blank. The value was within the acceptance limits and all results were corrected for the concentration found in the blank. The standard recoveries, spike recoveries and RPD criteria were met for this analysis.

Polychlorinated Biphenyls (PCB)

A PCB screening analysis was performed on sample 6AP-98-3. The sample was extracted and then analyzed by gas chromatography/mass spectroscopy. The results of this analysis indicated that no PCBs were present at the TSCA regulated limit of 50 ppm. All QC parameters were within the specifications for the method. Results for PCB analysis can be found in Appendix A.

Radionuclide Analyses

GEA - Gamma Energy Analysis

GEA analysis was performed for ^{137}Cs on direct sample aliquots. The standard recoveries and RPDs for ^{137}Cs were within the required limits.

^{90}Sr - Strontium-90

^{90}Sr analysis was performed on direct sample aliquots. The standard recoveries and RPDs were within the required limits. ^{90}Sr 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.

^{241}Am - Americium-241

^{241}Am analysis was performed on direct sample aliquots. The standard recovery was within the required limits. There was no ^{241}Am detected in samples 6AP-98-1 and 6AP-98-2, so the RPD calculation was not applicable. ^{241}Am was detected in sample 6AP-98-3 at level of $1.50\text{e-}04$ $\mu\text{Ci/mL}$.

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-1
OH ⁻	Direct Analysis	LA-211-102 Rev. D-0
IC	Direct Analysis	LA-533-105 Rev. E-0
ICP	Acid Dilution	LA-505-161 Rev. C-2
ICP-MS	Direct Analysis	LA-506-101 Rev. A-0
TIC/TOC	Direct Analysis	LA-342-100 Rev. F-1
PCB Analysis	LA-523-115 Rev. B-0	LA-523-136 Rev. A-1
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
 ICP-MS = inductively coupled plasma-mass spectrometer
 PCB = polychlorinated biphenyl

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

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- 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., 1998, *Compatibility Grab Sampling and Analysis Plan*, HNF-SD-WM-TSAP-150, Rev. 1, Lockheed Martin Hanford Corporation, Richland, WA 99352.
- Markel, L. P., 1997, *Quality Assurance Plan for the 222-S Laboratories*, HNF-SD-CP-QAPP-016, Rev. 2, Rust Federal Services of Hanford, Inc., Richland, WA 99352

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**AP-106 SAMPLE BREAKDOWN
(ATTACHMENT 1)**

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AP-106 Grab Samples

6AP-98-1
S98T001737

DIR1

S98T002050

pH
DSC
TGA
Sp.G.
OH
IC: Anions
ICP: Al, Cr, Fe,
Na, Mn, Ni, Zr
TIC/TOC: Persulfate

DIR2

S98T002055

Sr-90
Am-241
U by ICP/MS
Pu-239/240
GEA: Cs-137

6AP-98-2
S98T001738

DIR1

S98T002053

pH
DSC
TGA
Sp.G.
OH
IC: Anions
ICP: Al, Cr, Fe,
Na, Mn, Ni, Zr
TIC/TOC: Persulfate

DIR2

S98T002056

Sr-90
Am-241
U by ICP/MS
Pu-239/240
GEA: Cs-137

6AP-98-3
S98T001739

DIR1

S98T002054

pH
DSC
TGA
Sp.G.
OH
IC: Anions
ICP: Al, Cr, Fe,
Na, Mn, Ni, Zr
TIC/TOC: Persulfate

DIR2

S98T002057

Sr-90
Am-241
U by ICP/MS
Pu-239/240
GEA: Cs-137

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WASTE COMPATIBILITY CORROSION RULES

TABLE 3

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Waste Compatibility Corrosion Rules for 241-AP-106 Grab2

Sample ID	Analyte	Result (ug/mL)	Result (M)	$[NO_3]$	$[OH]$	$[NO_2]$	$[OH] + [NO_2]$
S98T002050 Sample 6AP-98-1	NO ₃	2.21E+04	0.356	$\leq 1.0 \text{ M?}$	$0.010 \text{ M} \leq [OH] \leq 8.0 \text{ M?}$	$0.011 \text{ M} \leq [NO_2] \leq 5.5 \text{ M}$	$[NO_3]/([OH] + [NO_2]) < 2.5?$
	OH	6.81E+03	0.401	YES	YES	YES	YES = 0.56
	NO ₂	1.08E+04	0.235	$1.0 \text{ M} < [NO_3] \leq 3.0 \text{ M?}$	$0.1 \text{ M} * [NO_3] < [OH] < 10 \text{ M?}$		$\geq 0.4 * [NO_3]?$
				$3.0 \text{ M} < [NO_3] \leq 5.5 \text{ M?}$	$0.3 < [OH] < 10 \text{ M?}$		$\geq 1.2 \text{ M?}$

Sample ID	Analyte	Result (ug/mL)	Result (M)	$[NO_3]$	$[OH]$	$[NO_2]$	$[OH] + [NO_2]$
S98T002050 Duplicate 6AP-98-1	NO ₃	2.21E+04	0.356	$\leq 1.0 \text{ M?}$	$0.010 \text{ M} \leq [OH] \leq 8.0 \text{ M?}$	$0.011 \text{ M} \leq [NO_2] \leq 5.5 \text{ M}$	$[NO_3]/([OH] + [NO_2]) < 2.5?$
	OH	6.94E+03	0.408	YES	YES	YES	YES = 0.56
	NO ₂	1.07E+04	0.233	$1.0 \text{ M} < [NO_3] \leq 3.0 \text{ M?}$	$0.1 \text{ M} * [NO_3] < [OH] < 10 \text{ M?}$		$\geq 0.4 * [NO_3]?$
				$3.0 \text{ M} < [NO_3] \leq 5.5 \text{ M?}$	$0.3 < [OH] < 10 \text{ M?}$		$\geq 1.2 \text{ M?}$

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Waste Compatibility Corrosion Rules for 241-AP-106 Grab2

Sample ID	Analyte	Result (ug/mL)	Result (M)	$[NO_3] \leq 1.0 \text{ M?}$	$0.010 \text{ M} \leq [OH] \leq 8.0 \text{ M?}$	$0.011 \text{ M} \leq [NO_3] \leq 5.5 \text{ M}$	$[NO_3]/([OH] + [NO_3]) < 2.5?$
S98T002053 Sample 6AP-98-2	NO ₃	7.72E+03	0.125	YES	YES	YES	YES = 0.92
	OH	7.36E+02	0.043				
	NO ₃	4.26E+03	0.093	$1.0 \text{ M} < [NO_3] \leq 3.0 \text{ M?}$	$0.1 \text{ M} * [NO_3] \leq [OH] \leq 10 \text{ M?}$		$>= 0.4 * [NO_3]?$
				$3.0 \text{ M} < [NO_3] \leq 5.5 \text{ M?}$	$0.3 \leq [OH] < 10 \text{ M?}$		$>= 1.2 \text{ M?}$

Sample ID	Analyte	Result (ug/mL)	Result (M)	$[NO_3] \leq 1.0 \text{ M?}$	$0.010 \text{ M} \leq [OH] \leq 8.0 \text{ M?}$	$0.011 \text{ M} \leq [NO_3] \leq 5.5 \text{ M}$	$[NO_3]/([OH] + [NO_3]) < 2.5?$
S98T002053 Duplicate 6AP-98-2	NO ₃	7.72E+03	0.125	YES	YES	YES	YES = 0.92
	OH	7.20E+02	0.042				
	NO ₃	4.29E+03	0.093	$1.0 \text{ M} < [NO_3] \leq 3.0 \text{ M?}$	$0.1 \text{ M} * [NO_3] \leq [OH] \leq 10 \text{ M?}$		$>= 0.4 * [NO_3]?$
				$3.0 \text{ M} < [NO_3] \leq 5.5 \text{ M?}$	$0.3 \leq [OH] < 10 \text{ M?}$		$>= 1.2 \text{ M?}$

Waste Compatibility Corrosion Rules for 241-AP-106 Grab2

Sample ID	Analyte	Result (ug/mL)	Result (M)	[NO ₃]	[OH]	[NO ₃]	[OH] + [NO ₃]
				$\leq 1.0 \text{ M?}$	$0.010 \text{ M} \leq [\text{OH}] \leq 8.0 \text{ M?}$	$0.011 \text{ M} \leq [\text{NO}_3] \leq 5.5 \text{ M}$	$[\text{NO}_3]/([\text{OH}] + [\text{NO}_3]) < 2.5?$
S98T002054 Sample 6AP-98-3	NO ₃	9.84E+04	1.587				
	OH	2.63E+04	1.547				
	NO ₂	2.75E+04	0.598	$1.0 \text{ M} < [\text{NO}_3] \leq 3.0 \text{ M?}$	$0.1 \text{ M} * [\text{NO}_3] \leq [\text{OH}] < 10 \text{ M?}$		$\geq 0.4 * [\text{NO}_3]?$
				YES	YES		YES
				$3.0 \text{ M} < [\text{NO}_3] \leq 5.5 \text{ M?}$	$0.3 \leq [\text{OH}] < 10 \text{ M?}$		$\geq 1.2 \text{ M?}$

Sample ID	Analyte	Result (ug/mL)	Result (M)	[NO ₃]	[OH]	[NO ₃]	[OH] + [NO ₃]
				$\leq 1.0 \text{ M?}$	$0.010 \text{ M} \leq [\text{OH}] \leq 8.0 \text{ M?}$	$0.011 \text{ M} \leq [\text{NO}_3] \leq 5.5 \text{ M}$	$[\text{NO}_3]/([\text{OH}] + [\text{NO}_3]) < 2.5?$
S98T002054 Duplicate 6AP-98-3	NO ₃	9.76E+04	1.574				
	OH	2.58E+04	1.518				
	NO ₂	2.72E+04	0.591	$1.0 \text{ M} < [\text{NO}_3] \leq 3.0 \text{ M?}$	$0.1 \text{ M} * [\text{NO}_3] \leq [\text{OH}] < 10 \text{ M?}$		$\geq 0.4 * [\text{NO}_3]?$
				YES	YES		YES
				$3.0 \text{ M} < [\text{NO}_3] \leq 5.5 \text{ M?}$	$0.3 \leq [\text{OH}] < 10 \text{ M?}$		$\geq 1.2 \text{ M?}$

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SAMPLE DATA SUMMARY

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Final Report for AP-106 Grab2 Samples
AP-106 GRAB2

CORE NUMBER: n/a
SEGMENT #: 6AP-98-1

SEGMENT PORTION: Supernate

Sample#	R A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S98T002050		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
S98T002050		DSC Exotherm on Perkin Elmer	Joules/g	103.5	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S98T002050		OH- by Pot. Titration	ug/mL	100.0	n/a	6.81e+03	6.94e+03	6.88e+03	1.89	n/a	1.25e+03	n/a
S98T002050		pH Direct	pH	100.1	n/a	13.17	13.18	13.18	0.08	n/a	1.00e-02	n/a
S98T002050		Specific Gravity	Sp.G.	99.72	n/a	1.074	1.061	1.067	1.22	n/a	1.00e-03	n/a
S98T002050		% Water by TGA on Perkin Elmer	%	99.23	n/a	90.88	90.55	90.72	0.36	n/a	n/a	n/a
S98T002050		TIC by Acid/Coulometry	ug/mL	100.8	1.00e-01	1.16e+03	1.14e+03	1.15e+03	1.74	101.0	5.000	n/a
S98T002050		TOC by Persulfate/Coulometry	ug/mL	94.33	6.100	4.11e+02	399.0	405.0	2.96	94.70	40.00	n/a
S98T002050	D	Aluminium-ICP-Acid Dil.	ug/mL	99.80	<5.00e-02	4.44e+03	4.46e+03	4.45e+03	0.45	47.30	5.050	n/a
S98T002050	D	Chromium-ICP-Acid Dil.	ug/mL	99.00	<1.00e-02	36.00	36.00	36.00	0.00	97.60	1.010	n/a
S98T002050	D	Iron-ICP-Acid Dil.	ug/mL	98.60	<5.00e-02	< 5.050	<5.05e0	n/a	n/a	98.40	5.050	n/a
S98T002050	D	Manganese-ICP-Acid Dil.	ug/mL	98.40	<1.00e-02	< 1.010	<1.01e0	n/a	n/a	95.50	1.010	n/a
S98T002050	D	Sodium-ICP-Acid Dil.	ug/mL	105.0	<1.00e-01	2.96e+04	2.98e+04	2.97e+04	0.67	-4.080e2	10.10	n/a
S98T002050	D	Nickel-ICP-Acid Dil.	ug/mL	98.80	<2.00e-02	< 2.020	<2.02e0	n/a	n/a	98.50	2.020	n/a
S98T002050	D	Zirconium-ICP-Acid Dil.	ug/mL	100.0	<1.00e-02	< 1.010	<1.01e0	n/a	n/a	100.0	1.010	n/a
S98T002050		Fluoride-IC-Dionex 4000/4500	ug/mL	92.50	<1.20e-02	1.72e+02	168.0	170.2	2.35	111.7	13.33	n/a
S98T002050		Chloride-IC-Dionex 4000/4500	ug/mL	99.89	<1.70e-02	6.54e+02	637.0	645.4	2.63	93.00	18.89	n/a
S98T002050		Nitrite-IC - Dionex 4000/4500	ug/mL	99.82	<1.08e-01	1.08e+04	1.07e+04	1.07e+04	0.93	96.31	120.0	n/a
S98T002050		Nitrate by IC-Dionex 4000/4500	ug/mL	101.0	1.52e-01	2.21e+04	2.21e+04	2.21e+04	0.00	94.43	154.4	n/a
S98T002050		Phosphate-IC-Dionex 4000/4500	ug/mL	96.20	<1.20e-01	6.20e+02	625.0	622.4	0.80	92.32	133.3	n/a
S98T002050		Sulfate by IC-Dionex 4000/4500	ug/mL	96.57	<1.38e-01	2.79e+02	277.0	277.9	0.72	97.34	153.3	n/a
S98T002055		Strontium-89/90 High Level	uCi/mL	102.9	1.40e-05	6.84e-03	6.36e-03	6.60e-03	7.27	n/a	1.37e-05	2.30e+00
S98T002055		Pu-239/240 by TRU-SPEC Resin	uCi/mL	103.6	<3.26e-06	6.06e-05	6.19e-05	6.12e-05	2.12	n/a	6.58e-06	2.36e+00
S98T002055	A	Uranium-233 by ICP/MS AcidD159	ug/mL	n/a	<7.43e-06	<3.08e-02	<3.08e-2	n/a	n/a	n/a	3.10e-02	n/a
S98T002055	A	Uranium-234 by ICP/MS AcidD159	ug/mL	n/a	<6.68e-06	<2.76e-02	<2.76e-2	n/a	n/a	n/a	2.80e-02	n/a
S98T002055	A	Uranium-235 by ICP/MS AcidD159	ug/mL	n/a	<6.74e-06	<2.86e-02	<2.79e-2	n/a	n/a	n/a	2.80e-02	n/a
S98T002055	A	Uranium-236 by ICP/MS AcidD159	ug/mL	n/a	<1.18e-05	<4.89e-02	<4.89e-2	n/a	n/a	n/a	4.90e-02	n/a
S98T002055	A	Uranium-238 by ICP/MS AcidD159	ug/mL	103.0	<9.82e-06	4.282	4.480	4.381	4.57	96.00	4.10e-02	n/a
S98T002055		Cesium-137 by GEA	uCi/mL	100.3	<3.75e-02	67.10	70.30	68.70	4.66	n/a	n/a	0.490
S98T002055		Am-241 by Extraction	uCi/mL	89.43	<4.03e-06	<2.71e-06	<2.76e-6	n/a	n/a	n/a	2.71e-06	1.00e+02

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Final Report for AP-106 Grab2 Samples
AP-106 GRAB2

CORE NUMBER: n/a
SEGMENT #: GAP-98-2

SEGMENT PORTION: Supernate

Sample#	R A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S98T002053		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
S98T002053		DSC Exotherm on Perkin Elmer	Joules/g	103.5	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S98T002053		OH- by Pot. Titration	ug/mL	100.0	n/a	7.36e+02	720.0	728.0	2.20	n/a	125.0	n/a
S98T002053		pH Direct	pH	100.1	n/a	12.55	12.53	12.54	0.16	n/a	1.00e-02	n/a
S98T002053		Specific Gravity	Sp.G.	99.72	n/a	1.031	1.019	1.025	1.17	n/a	1.00e-03	n/a
S98T002053		% Water by IGA on Perkin Elmer	%	99.23	n/a	95.75	95.90	95.83	0.16	n/a	n/a	n/a
S98T002053		TIC by Acid/Coulometry	ug/mL	100.8	1.00e-01	1.24e+03	1.40e+03	1.32e+03	12.1	n/a	5.000	n/a
S98T002053		TOC by Persulfate/Coulometry	ug/mL	94.33	6.100	2.36e+02	192.0	214.0	20.6	n/a	40.00	n/a
S98T002053	D	Aluminium-ICP-Acid Dil.	ug/mL	99.80	<5.00e-02	1.42e+03	1.42e+03	1.42e+03	0.00	n/a	2.050	n/a
S98T002053	D	Chromium-ICP-Acid Dil.	ug/mL	99.00	<1.00e-02	11.40	11.50	11.45	0.87	n/a	4.10e-01	n/a
S98T002053	D	Iron-ICP-Acid Dil.	ug/mL	98.60	<5.00e-02	< 2.050	<2.05e0	n/a	n/a	n/a	2.050	n/a
S98T002053	D	Manganese-ICP-Acid Dil.	ug/mL	98.40	<1.00e-02	<4.10e-01	<4.10e-1	n/a	n/a	n/a	4.10e-01	n/a
S98T002053	D	Sodium-ICP-Acid Dil.	ug/mL	105.0	<1.00e-01	1.13e+04	1.14e+04	1.14e+04	0.88	n/a	4.100	n/a
S98T002053	D	Nickel-ICP-Acid Dil.	ug/mL	98.80	<2.00e-02	<8.20e-01	<8.20e-1	n/a	n/a	n/a	8.20e-01	n/a
S98T002053	D	Zirconium-ICP-Acid Dil.	ug/mL	100.0	<1.00e-02	<4.10e-01	<4.10e-1	n/a	n/a	n/a	4.10e-01	n/a
S98T002053		Fluoride-IC-Dionex 4000/4500	ug/mL	92.50	<1.20e-02	54.98	56.70	55.84	3.04	n/a	3.636	n/a
S98T002053		Chloride-IC-Dionex 4000/4500	ug/mL	99.89	<1.70e-02	2.28e+02	233.0	230.7	2.17	n/a	5.151	n/a
S98T002053		Nitrite-IC - Dionex 4000/4500	ug/mL	99.82	<1.08e-01	4.26e+03	4.29e+03	4.27e+03	0.70	n/a	32.72	n/a
S98T002053		Nitrate by IC-Dionex 4000/4500	ug/mL	101.0	1.52e-01	7.72e+03	7.72e+03	7.72e+03	0.00	n/a	42.12	n/a
S98T002053		Phosphate-IC-Dionex 4000/4500	ug/mL	96.20	<1.20e-01	5.48e+02	546.0	547.0	0.37	n/a	36.36	n/a
S98T002053		Sulfate by IC-Dionex 4000/4500	ug/mL	96.57	<1.38e-01	1.05e+02	105.0	105.2	0.00	n/a	41.81	n/a
S98T002056		Strontium-89/90 High Level	uCi/mL	104.8	2.00e-03	5.99e-02	5.17e-02	5.58e-02	14.7	n/a	4.00e-03	1.01E+01
S98T002056		Pu-239/240 by TRU-SPEC Resin	uCi/mL	103.6	<3.26e-06	8.28e-06	8.50e-06	8.39e-06	2.62	n/a	6.32e-06	6.33E+00
S98T002056	A	Uranium-233 by ICP/MS Acid159	ug/mL	n/a	<7.43e-06	<3.08e-02	<3.08e-2	n/a	n/a	n/a	3.10e-02	n/a
S98T002056	A	Uranium-234 by ICP/MS Acid159	ug/mL	n/a	<6.68e-06	<2.76e-02	<2.76e-2	n/a	n/a	n/a	2.80e-02	n/a
S98T002056	A	Uranium-235 by ICP/MS Acid159	ug/mL	n/a	<6.74e-06	<2.79e-02	<2.79e-2	n/a	n/a	n/a	2.80e-02	n/a
S98T002056	A	Uranium-236 by ICP/MS Acid159	ug/mL	n/a	<1.18e-05	<4.89e-02	<4.89e-2	n/a	n/a	n/a	4.90e-02	n/a
S98T002056	A	Uranium-238 by ICP/MS Acid159	ug/mL	103.0	<9.82e-06	1.535	1.520	1.527	0.66	n/a	4.10e-02	n/a
S98T002056		Cesium-137 by GEA	uCi/mL	100.3	<3.75e-02	48.10	47.30	47.70	1.68	n/a	n/a	0.580
S98T002056		Am-241 by Extraction	uCi/mL	89.43	<4.03e-06	<2.45e-06	<3.15E-6	n/a	n/a	n/a	2.45e-06	1.07E+01

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Final Report for AP-106 Grab2 Samples
 AP-106 GRAB2

CORE NUMBER: n/a
 SEGMENT #: 6AP-98-3

SEGMENT PORTION: Supernate

Sample#	R A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S98T002054		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
S98T002054		DSC Exotherm on Perkin Elmer	Joules/g	103.5	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S98T002054		OH- by Pot. Titration	ug/mL	100.0	n/a	2.63e+04	2.58e+04	2.60e+04	1.92	n/a	5.00e+03	n/a
S98T002054		pH Direct	pH	100.1	n/a	13.45	13.49	13.47	0.30	n/a	1.00e-02	n/a
S98T002054		Specific Gravity	Sp.G.	99.72	n/a	1.204	1.218	1.211	1.16	n/a	1.00e-03	n/a
S98T002054		% Water by IGA on Perkin Elmer	%	99.23	n/a	73.59	73.02	73.31	0.78	n/a	n/a	n/a
S98T002054		TIC by Acid/Coulometry	ug/mL	100.8	1.00e-01	3.79e+03	3.88e+03	3.84e+03	2.35	n/a	5.000	n/a
S98T002054		TOC by Persulfate/Coulometry	ug/mL	94.33	6.100	1.23e+03	1.41e+03	1.32e+03	13.6	n/a	40.00	n/a
S98T002054	D	Aluminium-ICP-Acid Dil.	ug/mL	99.80	<5.00e-02	7.67e+03	7.56e+03	7.62e+03	1.44	n/a	10.10	n/a
S98T002054	D	Chromium-ICP-Acid Dil.	ug/mL	99.00	<1.00e-02	1.39e+02	137.0	138.0	1.45	n/a	2.010	n/a
S98T002054	D	Iron-ICP-Acid Dil.	ug/mL	98.60	<5.00e-02	< 10.10	<1.01e1	n/a	n/a	n/a	10.10	n/a
S98T002054	D	Manganese-ICP-Acid Dil.	ug/mL	98.40	<1.00e-02	< 2.010	<2.01e0	n/a	n/a	n/a	2.010	n/a
S98T002054	D	Sodium-ICP-Acid Dil.	ug/mL	105.0	<1.00e-01	9.25e+04	9.09e+04	9.17e+04	1.74	n/a	20.10	n/a
S98T002054	D	Nickel-ICP-Acid Dil.	ug/mL	98.80	<2.00e-02	< 4.020	<4.02e0	n/a	n/a	n/a	4.020	n/a
S98T002054	D	Zirconium-ICP-Acid Dil.	ug/mL	100.0	<1.00e-02	2.370	2.340	2.355	1.27	n/a	2.010	n/a
S98T002054		Fluoride-IC-Dionex 4000/4500	ug/mL	92.50	<1.20e-02	2.07e+03	2.12e+03	2.09e+03	2.39	n/a	25.45	n/a
S98T002054		Chloride-IC-Dionex 4000/4500	ug/mL	99.89	<1.70e-02	1.26e+03	1.25e+03	1.25e+03	0.80	n/a	36.06	n/a
S98T002054		Nitrite-IC - Dionex 4000/4500	ug/mL	99.82	<1.08e-01	2.75e+04	2.72e+04	2.74e+04	1.10	n/a	229.1	n/a
S98T002054		Nitrate by IC-Dionex 4000/4500	ug/mL	101.0	1.52e-01	9.84e+04	9.76e+04	9.80e+04	0.82	n/a	294.8	n/a
S98T002054		Phosphate-IC-Dionex 4000/4500	ug/mL	96.20	<1.20e-01	6.96e+02	706.0	701.2	1.43	n/a	254.5	n/a
S98T002054		Sulfate by IC-Dionex 4000/4500	ug/mL	96.57	<1.38e-01	2.52e+03	2.63e+03	2.58e+03	4.27	n/a	292.7	n/a
S98T002057		Strontium-89/90 High Level	uCi/mL	104.8	2.00e-03	9.81e-01	1.090	1.036	10.5	n/a	4.00e-03	2.18E+00
S98T002057		Pu-239/240 by TRU-SPEC Resin	uCi/mL	103.6	<3.26e-06	2.83e-04	3.12e-04	2.98e-04	9.75	n/a	1.68e-05	1.62E+00
S98T002057	A	Uranium-233 by ICP/MS AcidD159	ug/mL	n/a	<7.43e-06	<3.08e-02	<3.08e-2	n/a	n/a	n/a	3.10e-02	n/a
S98T002057	A	Uranium-234 by ICP/MS AcidD159	ug/mL	n/a	<6.68e-06	<2.76e-02	<2.76e-2	n/a	n/a	n/a	2.80e-02	n/a
S98T002057	A	Uranium-235 by ICP/MS AcidD159	ug/mL	n/a	<6.74e-06	3.32e-01	3.18e-01	3.25e-01	4.31	n/a	2.80e-02	n/a
S98T002057	A	Uranium-236 by ICP/MS AcidD159	ug/mL	n/a	<1.18e-05	<4.89e-02	<4.89e-2	n/a	n/a	n/a	4.90e-02	n/a
S98T002057	A	Uranium-238 by ICP/MS AcidD159	ug/mL	103.0	<9.82e-06	40.55	40.90	40.72	0.98	n/a	4.10e-02	n/a
S98T002057		Cesium-137 by GEA	uCi/mL	100.3	<3.75e-02	1.14e+02	117.0	115.5	2.60	n/a	n/a	0.370
S98T002057		Am-241 by Extraction	uCi/mL	100.9	<8.96e-06	1.50e-04	1.49e-04	1.50e-04	0.67	n/a	1.71e-05	3.35E+00

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CHAIN OF CUSTODY

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CHAIN-OF-CUSTODY RECORD FOR CPO

Sample Number 6AP-98-1		(2) Supervisor/Sampler JAMES SICKELS James Sickels		(9) Seal Intact Upon Release? ☒ Yes ☐ No	
Tank AP-106		(4) Riser 001		(5) Cask/Pig Serial No. B-10	
Shipment Description:		(7) Sampling Data		(10) Seal Intact Upon Receipt? ☒ Yes ☐ No	
(A) Work Package Number ES-98-00041 (B) Cask/Pig Seal Number 11903 (C) Date Sample Collected 5-28-98 (D) Time Sample Collected 1016		(7) Sampling Data - Lithium Bromide ☐ Y ☐ N Amount N Concentration 2B 5-28-98 - X-Ray ☒ ☐ - Partial Sample ☐ ☐ - Retrieved Partial Sample Stroke Length _____		(11) Seal Number AND Cask/Pig SERIAL Number consistent with this record? (Block 5 & 6b) ☒ Yes ☐ No	
Field Comments:		(12) Laboratory Comments:			
(3) Relinquished By (Sign and PRINT) James Sickels		(14) Received By (Sign and PRINT) Kristen Self		(15) Date/Time 1147 hrs 5-28-98	
(7) Relinquished By (Sign and PRINT) James Sickels		(18) Received By (Sign and PRINT) Jim Knight Jr		(19) Date/Time 13100 5-28-98	
(11) Relinquished By (Sign and PRINT)		(22) Received By (Sign and PRINT)		(23) Date/Time	
(15) Relinquished By (Sign and PRINT)		(26) Received By (Sign and PRINT)		(27) Date/Time	
				(28) Receiver Comments	

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CHAIN-OF-CUSTODY RECORD FOR CPO

(1) Sample Number 6AP-98-2	(2) Supervisor/Sampler James Sickels	(3) Tank AP-106	(4) Riser 001	(5) Seal Intact Upon Release? ☒ Yes ☐ No
(6) Shipment Description: ES-98-00041	(7) Sampling Data Y N Amount ☐ ☐ Concentration 14 85-28-98 - X-Ray A ☐ ☐ - Partial Sample ☐ ☐ - Retrieved Partial Sample Stroke Length _____	(8) Seal Intact Upon Receipt? ☒ Yes ☐ No	(9) Seal Number AND Case/Pig SERIAL Number consistent with this record? (Block 5 & 6) ☒ Yes ☐ No	(10) Laboratory Comments:
(11) Work Package Number 11904	(12) Date Sample Collected 5-28-98	(13) Time Sample Collected 1020	(14) Relinquished By (Sign and PRINT) James Sickels	(15) Date/Time 1147 hrs
(16) Relinquished By (Sign and PRINT) James Sickels	(17) Relinquished By (Sign and PRINT) James Sickels	(18) Relinquished By (Sign and PRINT) James Sickels	(19) Received By (Sign and PRINT) James Sickels	(20) Date/Time 5-28-98
(21) Relinquished By (Sign and PRINT) James Sickels	(22) Relinquished By (Sign and PRINT) James Sickels	(23) Relinquished By (Sign and PRINT) James Sickels	(24) Received By (Sign and PRINT) James Sickels	(25) Date/Time 5-28-98
(26) Relinquished By (Sign and PRINT) James Sickels	(27) Relinquished By (Sign and PRINT) James Sickels	(28) Relinquished By (Sign and PRINT) James Sickels	(29) Received By (Sign and PRINT) James Sickels	(30) Date/Time 5-28-98

HNF-1642 REV, 0

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BC-6001-328 (07/97)

REQUEST FOR SAMPLE ANALYSIS (RSA)

Group ID No. (For Lab Use Only)

98000335

1. Sample Origin

241-AP-106

2. Date Sampled

05/98

4. Requestor's Name

Leela M. Sasaki

6. TPCN

1MDR62

7. Org. Code

7A120

Customer/Project Code

241-AP-106 GRA62

3. Submitted By

CPO

5. Requestor's Phone/MSIN/FAX

373-1027 R2-12 373-6955

8. Customer ID No.

6AP98-1

9. Laboratory Sample No.

598T001137

10. Volume of Sample

125

11. Matrix of Sample

Liquid

12. Requested Analyses

See TSAP HNF-SD-WM-TSAP-150, Rev. 1

13. Expected Range

6AP98-2

598T001138

125

Liquid

6AP98-3

598T001139

125

Liquid

e BRKDOWN w/ 2450 y

14. Does sample have a MSDS?

☐ Yes HEHF assigned MSDS No. _____☒ No Description of process that produced waste/sample:

See TSAP

15. Is this sample RCRA listed? ☒ Yes ☐ No

Applicable Listed Waste Codes:

☐ Yes ☐ No P Codes: (list) RCRA Permit
☐ Yes ☐ No U Codes: (list) DOE/RL-88-21
☐ Yes ☐ No K Codes: (list) _____
☐ Yes ☐ No F Codes: (list) _____

Applicable Characteristic Codes:

☐ Yes ☐ No D001: (how determined) _____ Ignitable
☐ Yes ☐ No D002: (how determined) _____ Corrosive
☐ Yes ☐ No D003: (how determined) _____ Reactive
☐ Yes ☐ No Toxic: (list codes) _____

PCB: Does this waste/sample contain PCBs?

☐ Yes Over 500 ppm
☐ Yes Over 50 ppm
☒ Yes PCBs are suspected
☐ No PCBs are suspected

If YES, what is the source of the PCBs?
☐ Transformer, capacitor, or ballast
☐ Other, specify _____
☐ Unknown

16. Sample Disposition

☒ Return to Customer
☐ Samples found to contain PCBs will be returned to the customer
☐ Dispose of per facility procedures with applied charges for analyses and disposal

Sample(s) Date Rec'd at Contact

HPI Signature

17. QC Required ☐ Per 222-S Laboratory Quality Assurance Plan (HNF-SD-CP-QAPP-010)☒ Other (list reference document or attach) See TSAP

18. Special Instructions (Special Storage Requirements, Reporting format, holding times, etc.)

See TSAP

19. Requested Turnaround Time

☐ 2 Weeks ☐ 4 Weeks
☐ Other _____

20. Sample Received By

21. Chain of Custody

☐ No ☒ Yes 29
 Number: _____

HNF-1642 REV. 0

SAMPLE HANDLING

HNF-1642 REV. 0

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HNF-1642 REV, 0

worklist Version 2.1 05/15/95
06/09/98 11:21

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LABCORE Data Entry Template for Worklist# 24504

Analyst: RLC Instrument: NONE Book # _____Method: LA-519-151 Rev/Mod E-0

Worklist Comment: @BRKDWN1 FOR AP-106 (HANDLE AS PCB SUPECT) RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
98000335	AP-106 GRAB2	1 SAMPLE	S98T001738	0	@BRKDWN1 DOSERATE	LIQUID	N/A	1200		mrad/hour
98000335	AP-106 GRAB2	1 SAMPLE	S98T001738	0	@BRKDWN1 SEALNUM	LIQUID	N/A	11904		
98000335	AP-106 GRAB2	1 SAMPLE	S98T001738	0	@BRKDWN1 APPEAR02	LIQUID	N/A	clear/yellow		
98000335	AP-106 GRAB2	1 SAMPLE	S98T001738	0	@BRKDWN1 SAMPANT2	LIQUID	N/A	100ml		ml
98000335	AP-106 GRAB2	1 SAMPLE	S98T001738	0	@BRKDWN1 STLSD01	LIQUID	N/A	10		%
98000335	AP-106 GRAB2	1 SAMPLE	S98T001738	0	@BRKDWN1 COLOR-01	LIQUID	N/A	yellow		
98000335	AP-106 GRAB2	1 SAMPLE	S98T001738	0	@BRKDWN1 ORGVOL02	LIQUID	N/A	0		ml
98000335	AP-106 GRAB2	2 SAMPLE	S98T001737	0	@BRKDWN1 DOSERATE	LIQUID	N/A	1200		mrad/hour
98000335	AP-106 GRAB2	2 SAMPLE	S98T001737	0	@BRKDWN1 SEALNUM	LIQUID	N/A	11903		
98000335	AP-106 GRAB2	2 SAMPLE	S98T001737	0	@BRKDWN1 APPEAR02	LIQUID	N/A	HAZY		
98000335	AP-106 GRAB2	2 SAMPLE	S98T001737	0	@BRKDWN1 SAMPANT2	LIQUID	N/A	100ml		ml
98000335	AP-106 GRAB2	2 SAMPLE	S98T001737	0	@BRKDWN1 STLSD01	LIQUID	N/A	1%		%
98000335	AP-106 GRAB2	2 SAMPLE	S98T001737	0	@BRKDWN1 COLOR-01	LIQUID	N/A	clear		
98000335	AP-106 GRAB2	2 SAMPLE	S98T001737	0	@BRKDWN1 ORGVOL02	LIQUID	N/A	0		ml
98000335	AP-106 GRAB2	3 SAMPLE	S98T001739	0	@BRKDWN1 DOSERATE	LIQUID	N/A	3600 1200 x 3 sec		mrad/hour
98000335	AP-106 GRAB2	3 SAMPLE	S98T001739	0	@BRKDWN1 SEALNUM	LIQUID	N/A	11905		
98000335	AP-106 GRAB2	3 SAMPLE	S98T001739	0	@BRKDWN1 APPEAR02	LIQUID	N/A	clear		
98000335	AP-106 GRAB2	3 SAMPLE	S98T001739	0	@BRKDWN1 SAMPANT2	LIQUID	N/A	100ml		ml

Data Entry Comments:

S98T001737 1200 mrad/hr 450 ml/hr 50% 6/15/98
 S98T001738 1200 mrad/hr 450 ml/hr 50% 6/15/98
 S98T001739 3600 mrad/hr 1100 ml/hr 50% 6/15/98

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-1642 REV, 0

worklist rpt Version 2.1 05/15/95
06/09/98 11:21

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LABCORE Data Entry Template for Worklist# 24504

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
98000335	AP-106 GRAB2	3	SAMPLE	S98T001739	0		GBRKDN1 STLSD01	LIQUID	N/A	0		%
98000335	AP-106 GRAB2	3	SAMPLE	S98T001739	0		GBRKDN1 COLOR-01	LIQUID	N/A	yellow		
98000335	AP-106 GRAB2	3	SAMPLE	S98T001739	0		GBRKDN1 ORGVOL02	LIQUID	N/A	0		mL

Final page for worklist # 24504

P.L. Chavira 6-15-98
Analyst Signature DateP.L. Chavira 6-15-98
Analyst Signature Date
R. Fuller 6/16/98Validated
6/17/98
R.K. Fuller

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# 24862

Analyst: RLC Instrument: NONE Book # _____

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

Worklist: Comment: DOSERATE FOR AP-106 GRAB2 (HANDLE AS PCB SUSPECT) RTS

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
98000335	AP-106 GRAB2	1	SAMPLE	S98T002050	0		DOSERATE	LIQUID	N/A	<u>255</u>		mrads/hour
98000335	AP-106 GRAB2	2	SAMPLE	S98T002055	0		DOSERATE	LIQUID	N/A	<u>255</u>		mrads/hour
98000335	AP-106 GRAB2	3	SAMPLE	S98T002053	0		DOSERATE	LIQUID	N/A	<u>255</u>		mrads/hour
98000335	AP-106 GRAB2	4	SAMPLE	S98T002054	0		DOSERATE	LIQUID	N/A	<u>345</u>		mrads/hour
98000335	AP-106 GRAB2	5	SAMPLE	S98T002056	0		DOSERATE	LIQUID	N/A	<u>203</u>		mrads/hour
98000335	AP-106 GRAB2	6	SAMPLE	S98T002057	0		DOSERATE	LIQUID	N/A	<u>315</u>		mrads/hour

Final page for worklist # 24862

RLC 7-20-98
Analyst Signature Date

RLC 7/20/98
Analyst Signature Date

Validated
7/20/98
RLC

Data Entry Comments: RLC 7/20/98

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-1642 REV. 0

SAMPLE PREPARATION

HNF-1642 REV. 0

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LABCORE Completed Worklist Report for Worklist# 25165

Analyst: cjo

Instrument: NONE

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: PCBPREP1 FOR AP-106 & tk102 USE PARENT S98T001739 FOR PREP

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLANK	0		PCBPREP1	LIQ	1	done		Ratio
2 LCS	0		PCBPREP1	LIQ	1	done		% Recovery
3 SAMPLE	S98T002253	0	PCBPREP1	LIQ	N/A	done	1.000	
4 DUP	S98T002253	0	PCBPREP1	LIQ	1	done		RPD
5 MS	S98T002253	0	PCBPREP1	LIQ	1	done		% Recovery
6 MSD	S98T002253	0	PCBPREP1	LIQ	1	done		% Recovery
7 SAMPLE	S98M000238	0	PCBPREP1	LIQ	N/A	done	1.000	
8 DUP	S98M000238	0	PCBPREP1	LIQ	1	done		RPD

Final page for worklist# 25165

C.J. Quinn 8/4/98
Analyst Signature Date

C.J. Quinn 8/5/98
Analyst Signature Date

Reviewer Signature Date

HNF-1642 REV, 0

worklistrpt Version 2.1 05/15/95
07/28/98 09:50

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LABCORE Data Entry Template for Worklist# 25165

Analyst: _____ Instrument: NONE _____ Book # _____

Method: LA-523-115 Rev/Mod B-D

Worklist Comment: PCBPREP1 FOR AP-106(6AP-98-3) USE PARENT S98T001739 FOR PREP

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLANK			PCBPREP1	LIQ	_____	<u>DONE</u>	<u>N/A</u>	
		2 LCS			PCBPREP1	LIQ	_____	<u>DONE</u>	<u>N/A</u>	
98000335	AP-106 GRAB2	3 SAMPLE	S98T002253	0	PCBPREP1	LIQ	<u>N/A</u>	<u>DONE</u>		
98000335	AP-106 GRAB2	4 DUP	S98T002253	0	PCBPREP1	LIQ	_____	<u>DONE</u>	<u>N/A</u>	
98000335	AP-106 GRAB2	5 MS	S98T002253	0	PCBPREP1	LIQ	_____	<u>DONE</u>	<u>N/A</u>	
98000335	AP-106 GRAB2	6 MSD	S98T002253	0	PCBPREP1	LIQ	_____	<u>DONE</u>	<u>N/A</u>	
	TK-102 7/98	SAM DUP	S98M000238							

Final page for worklist # 25165

CJ. Orsini 8/4/98
Analyst Signature Date

Analyst Signature Date

PARENT S98T001739 → S98T002253

Report answers on S98T002253

Data Entry Comments:

Bates 3684

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-1642 REV. 0

INORGANIC ANALYSIS

HNF-1642 REV. 0

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HNF-1642 REV, 0

Page: 1

LABCORE Data Entry Template for Worklist# 24871

Analyst: RK Instrument: DSC0 3 Book # 12714-8

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

Worklist Comment: DSC-03 FOR AP-106 ~~HANDLE AS PCB SPECIMENS~~

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	LIQUID	<u>28.45</u>	<u>29.46</u>	<u>N/A</u>	Joules/g
98000335	AP-106 GRAB2	2 SAMPLE	S98T002050	0	DSC-03	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g
98000335	AP-106 GRAB2	3 DUP	S98T002050	0	DSC-03	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
98000335	AP-106 GRAB2	4 SAMPLE	S98T002053	0	DSC-03	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g
98000335	AP-106 GRAB2	5 DUP	S98T002053	0	DSC-03	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
98000335	AP-106 GRAB2	6 SAMPLE	S98T002054	0	DSC-03	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g
98000335	AP-106 GRAB2	7 DUP	S98T002054	0	DSC-03	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 24871

Analyst Signature M. L. King Date 7/22/98

Analyst Signature C. J. Quinn Date 7/24/98

Analyst Signature Validated Date 7/27/98 B. Nichols

Data Entry Comments:

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

Curve 1: DSC

File info: IND072201 Wed Jul 22 08:54:08 1998

Sample Weight: 12.770 mg

STD 12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 42 TO 48.

N2, EXOTHERM DOWN

TEMP: 160.3 °C TIME: 9.0 min RATE: 10.0 °C/min

Temperature (°C)

RW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Jul 22 08:54:59 1998

HNF-1642 REV.0

07/23/98 15:51 FAX 3721143

2B HALL

②022-036

Curve 1: DSC
File info: SAM072203 Wed Jul 22 14: 41: 41 1998
Sample Weight: 14.550 mg
S98T002050

N2 10C/min

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

Temperature (°C)

RW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Jul 22 14: 44: 01 1998

HNF-1642 REV.0

HNF-1642 REV, 0

Curve 1: DSC
 File Info: SAM072204 Wed Jul 22 15:38:01 1998
 Sample Weight: 10.920 mg
 S98T002050 DUP

N2 100/min
 Temp: 500.0 °C
 TIME: 0.0
 RW KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Wed Jul 22 15:51:18 1998

Curve 1: DSC

File info: SAM072201 Wed Jul 22 11:12:22 1998

Sample Weight: 10.790 mg

S98T002053

N2 10C/min

TEMP: 50.0 °C

TIME: 0.0 min

RATE: 10.0 C/min

Temperature (°C)

RW KING

PERKIN-ELMER

7 Series Thermal Analysis System

Wed Jul 22 14:47:22 1998

45

HNF-1642 REV.0

025/036

2B HALL

07/23/98 15:52 FAX 3721143

Curve 1: DSC

File info: SAM072202 Wed Jul 22 13: 41: 06 1998

Sample Weight: 11.410 mg

S98T002053 DUP

N2 10C/min

TEMP: 25.0 °C

TIME: 0.0 min RATE: 10.0 °C/min

Temperature (°C)

RW KING

PERKIN-ELMER

7 Series Thermal Analysis System

Wed Jul 22 13: 48: 45 1998

HNF-1642 REV.0

026/036

2B HALL

07/23/98 15:53 FAX 3721143

HNF-1642 REV.0

Curve 1: DSC

File info: SAM072205 Wed Jul 22 16:42:36 1998

Sample Weight: 13.690 mg

S98T002054

N2 10C/min

TEMP 35.8 °C

TIME: 5

0.0 min RATE: 40.0 C/min

Temperature (°C)

RW KING

PERKIN-ELMER

7 Series Thermal Analysis System

Wed Jul 22 16:52:46 1998

Curve 1: DSC
 File info: SAM072206 Wed Jul 22 17:46:00 1998
 Sample Weight: 13.370 mg
 S98T002054 DUP

N2 10C/min
 TEMPERATURE 30.0 °C
 TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

RW KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Wed Jul 22 20:36:55 1998

HNF-1642 REV.0

02/28/036

28 HALL

07/23/98 15:54 FAX 3721143

LABCORE Data Entry Template for Worklist# 25659

Analyst: _____ Instrument: DSC0 _____ Book # _____

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

Worklist Comment: dsc-02 ap106 liquid jro

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
98000335	AP-106 GRAB2	1	SAMPLE	S98T002050	0		DSC-02	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g Dry
98000335	AP-106 GRAB2	2	DUP	S98T002050	0		DSC-02	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
98000335	AP-106 GRAB2	3	SAMPLE	S98T002053	0		DSC-02	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g Dry
98000335	AP-106 GRAB2	4	DUP	S98T002053	0		DSC-02	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
98000335	AP-106 GRAB2	5	SAMPLE	S98T002054	0		DSC-02	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g Dry
98000335	AP-106 GRAB2	6	DUP	S98T002054	0		DSC-02	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry

Final page for worklist # 25659

Analyst Signature

Date

Analyst Signature

Date

<u>8-18-98</u>
REVIEWER 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.

AP-106

Sample #	DSC Result (J/g)	TGA Result (% water)	TGA ave	Dry DSC result	Matrix
S98T002050	0.00	90.88	90.72	0.00	I
S98T002050D	0.00	90.55	90.72	0.00	I
S98T002053	0.00	95.75	95.83	0.00	I
S98T002053D	0.00	95.90	95.83	0.00	I
S98T002054	0.00	73.59	73.31	0.00	I
S98T002054D	0.00	73.02	73.31	0.00	I
S98T00			0.00	0.00	
S98T00D			0.00	0.00	

HNF-1642 REV, 0

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07/09/98 11:24

Page: 1

LABCORE Data Entry Template for Worklist# 24872

Analyst: WV Instrument: TGA0 3 Book # 10308-AMethod: LA-514-114 Rev/Mod D-1

Worklist Comment: TGA-03 FOR AP-106 (HANDLE AS PCB SUSPECT) RTS

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-03	LIQUID	<u>59.4</u>	<u>58.94</u>	<u>N/A</u>	%
98000335	AP-106 GRAB2	2	SAMPLE	S98T002050	0		TGA-03	LIQUID	<u>N/A</u>	<u>90.88</u>		%
98000335	AP-106 GRAB2	3	DUP	S98T002050	0		TGA-03	LIQUID	<u>90.88</u>	<u>90.55</u>	<u>N/A</u>	%
98000335	AP-106 GRAB2	4	SAMPLE	S98T002053	0		TGA-03	LIQUID	<u>N/A</u>	<u>95.75</u>		%
98000335	AP-106 GRAB2	5	DUP	S98T002053	0		TGA-03	LIQUID	<u>95.75</u>	<u>95.90</u>	<u>N/A</u>	%
98000335	AP-106 GRAB2	6	SAMPLE	S98T002054	0		TGA-03	LIQUID	<u>N/A</u>	<u>93.59</u>		%
98000335	AP-106 GRAB2	7	DUP	S98T002054	0		TGA-03	LIQUID	<u>93.59</u>	<u>93.02</u>	<u>N/A</u>	%

Final page for worklist # 24872

Analyst Signature

Date

Analyst Signature

Date

Data Entry Comments:

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

Curve 1: T6A

File info: TER072201 Wed Jul 22 09:12:07 1998

Sample Weight: 16.548 mg

103NB-A STD

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 52 TO 58.

10C/MIN N2

TEMP: 30.0 °C
START: 300.0 °C

TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

RW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Jul 22 10:06:38 1998

HN-1642 REV.0

HNF-1642 REV,0

Curve 1: TGA
 File info: SAM072201 Wed Jul 22 11:07:47 1998
 Sample Weight: 11.379 mg
 S98T002050

HNF-1642 REV, 0

Curve 1: TGA
 File Info: SAH072202 Wed Jul 22 13:36:56 1998
 Sample Weight: 11.243 mg
 S98T002050 DUP

PERKIN-ELMER
 7 Series Thermal Analysis System
 Wed Jul 22 13:50:29 1998

Curve 1: TGA

File info: SAM072203 Wed Jul 22 14:44:45 1998

Sample Weight: 11.623 mg

S98T002053

10C/MIN N2

TEMPERATURE 550.0 °C

TIME: 0.0 min

RATE: 10.0 °C/min

Temperature (°C)

RW KING

PERKIN-ELMER

7 Series Thermal Analysis System

Wed Jul 22 14:53:19 1998

HNF-1642 REV.0

HNF-1642 REV, 0

Curve 1: TGA
 File info: SAM072204 Wed Jul 22 15:51:23 1998
 Sample Weight: 10.015 mg
 S98T002053 DLP

100/MIN N2
 35.0 g
 500.0 g
 0.0 min RATE: 10.0 C/min
 TIME: 22 15:56:24 1998
 RW KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Wed Jul 22 15:56:24 1998

Curve 1: TGA
 File info: SAM072205 Wed Jul 22 17:00:45 1998
 Sample Weight: 14.177 mg
 S98T002054

10C/MIN N2
 Temp: 25.0 °C
 Time: 500.0 s
 TIMES: 0.0 min RATES: 10.0 °C/min

RW KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Wed Jul 22 17:01:04 1998

HNF-1642 REV. 0

Curve 1: TGA
 File info: SAM072206 Wed Jul 22 18:05:27 1998
 Sample Weight: 14.876 mg
 S98T002054 DUP

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

Temperature (°C)

RW KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Wed Jul 22 20:35:17 1998

85

HNF-1642 REV.0

LABCORE Data Entry Template for Worklist# 24873

Analyst: TRO Instrument: BA001 Book # 134N16C

Method: LA-510-112 Rev/Mod D1

Worklist Comment: SPG-01 FOR AP-106 (HANDLE AS PCB SUSPECT) RT\$

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				SPG-01	LIQUID	<u>1.3179</u>	<u>1.374</u>	<u>N/A</u>	Sp.G.
98000335	AP-106 GRAB2	2	SAMPLE	S98T002050	0		SPG-01	LIQUID	<u>N/A</u>	<u>1.074</u>		Sp.G.
98000335	AP-106 GRAB2	3	DUP	S98T002050	0		SPG-01	LIQUID	<u>1.074</u>	<u>1.061</u>	<u>N/A</u>	Sp.G.
98000335	AP-106 GRAB2	4	SAMPLE	S98T002053	0		SPG-01	LIQUID	<u>N/A</u>	<u>1.031</u>		Sp.G.
98000335	AP-106 GRAB2	5	DUP	S98T002053	0		SPG-01	LIQUID	<u>1.031</u>	<u>1.019</u>	<u>N/A</u>	Sp.G.
98000335	AP-106 GRAB2	6	SAMPLE	S98T002054	0		SPG-01	LIQUID	<u>N/A</u>	<u>1.204</u>		Sp.G.
98000335	AP-106 GRAB2	7	DUP	S98T002054	0		SPG-01	LIQUID	<u>1.204</u>	<u>1.218</u>	<u>N/A</u>	Sp.G.

Final page for worklist # 24873

Analyst Signature

Date

Analyst Signature

Date

<u>9/12/98</u>	<u>8/12/98</u>
REVIEWER SIGNATURE	DATE

Data Entry Comments:

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

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		STD	REPLICATE
STD	Gross Weight (W2)	1.4866	1.4881
Work List	Tare Weight (W1)	1.3488	1.3511
24873	Weight of Solution (W2-W1)	0.1378	0.137
Test Code	Volume of Solution μ L	100.0000	100.0000
SPG-01	Specific Gravity	1.3780	1.3700
Matrix	Specific Gravity (Average)	1.3740	
LIQUID			
Sample #			
134N16C			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
JRO	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
08/04/98	v RESULT v		
Time	Specific Gravity Average =	1.374	
10:30 AM			

Data Entry by:	Date: 08/12/98
Approved by: <i>Teresa Day for MSE</i>	Date: <i>9/6/98</i>
Form 510112L1 Rev. 1.1	Page 1 of 1

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 60 TO 66.

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		SAM	REPLICATE
SAM	Gross Weight (W2)	1.4796	0.0000
Work List	Tare Weight (W1)	1.3722	0.0000
24873	Weight of Solution (W2-W1)	0.1074	0
Test Code	Volume of Solution μL	100.0000	0.0000
SPG-01	Specific Gravity	1.0740	NA
Matrix			
LIQUID			
Sample #			
S98T002050			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
JRO	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
08/04/98	ν RESULT ν		
Time	Specific Gravity =	1.074	
10:30 AM			

Data Entry by:	Date:	08/12/98
Approved by:	Date:	

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		DUP	REPLICATE
DUP	Gross Weight (W2)	1.4808	0.0000
Work List	Tare Weight (W1)	1.3747	0.0000
24873	Weight of Solution (W2-W1)	0.1061	0
Test Code	Volume of Solution μ L	100.0000	0.0000
SPG-01	Specific Gravity	1.0610	NA
Matrix			
LIQUID			
Sample #			
S98T002050			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
JRO	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
08/04/98	∇ RESULT ∇		
Time	Specific Gravity =	1.061	
10:30 AM			

Data Entry by:	Date:	08/12/98
Approved by:	Date:	

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		SAM	REPLICATE
SAM	Gross Weight (W2)	1.3975	0.0000
Work List	Tare Weight (W1)	1.2944	0.0000
24873	Weight of Solution (W2-W1)	0.1031	0
Test Code	Volume of Solution μL	100.0000	0.0000
SPG-01	Specific Gravity	1.0310	NA
Matrix			
LIQUID			
Sample #			
S98T002053			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
JRO	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L}/\text{mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g}/\text{mL}]$		
Date			
08/04/98	ν RESULT ν		
Time	Specific Gravity =	1.031	
10:30 AM			

Data Entry by:	Date:	08/12/98
Approved by:	Date:	

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		DUP	REPLICATE
DUP	Gross Weight (W2)	1.4732	0.0000
Work List	Tare Weight (W1)	1.3713	0.0000
24873	Weight of Solution (W2-W1)	0.1019	0
Test Code	Volume of Solution μ L	100.0000	0.0000
SPG-01	Specific Gravity	1.0190	NA
Matrix			
LIQUID			
Sample #			
S98T002053			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
JRO	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date	v RESULT v		
08/04/98			
Time	Specific Gravity =	1.019	
10:30 AM			

Data Entry by: _____ Date: 08/12/98

Approved by: _____ Date: _____

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		SAM	REPLICATE
SAM	Gross Weight (W2)	1.4368	0.0000
Work List	Tare Weight (W1)	1.3164	0.0000
24873	Weight of Solution (W2-W1)	0.1204	0
Test Code	Volume of Solution μ L	100.0000	0.0000
SPG-01	Specific Gravity	1.2040	NA
Matrix			
LIQUID			
Sample #			
S98T002054			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
JRO	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date	$\sqrt{\text{RESULT}}$		
08/04/98			
Time	Specific Gravity =	1.204	
10:30 AM			

Data Entry by:	Date:	08/12/98
Approved by:	Date:	

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		DUP	REPLICATE
DUP	Gross Weight (W2)	1.4804	0.0000
Work List	Tare Weight (W1)	1.3586	0.0000
24873	Weight of Solution (W2-W1)	0.1218	0
Test Code	Volume of Solution μ L	100.0000	0.0000
SPG-01	Specific Gravity	1.2180	NA
Matrix			
LIQUID			
Sample #			
S98T002054			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
JRO	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
08/04/98	v RESULT v		
Time	Specific Gravity =	1.218	
10:30 AM			

Data Entry by:	Date:	08/12/98
Approved by:	Date:	

worklistrpt Version 2.1 05/15/95
07/09/98 11:21

Page: 1

LABCORE Data Entry Template for Worklist# 24867

Analyst: MF Instrument: PH01 >7 Book # 18N19-GMethod: LA-212-106 Rev/Mod C-1Worklist Comment: PH-01 FOR AP-106 ~~ANALYST AS PCB SUSPECT~~

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STDPH			PH-01	LIQUID	<u>8.00</u>	<u>8.01</u>	<u>N/A</u>	pH
98000335	AP-106 GRAB2	2 SAMPLE	S98T002050	0	PH-01	LIQUID	<u>N/A</u>	<u>13.17</u>		pH
98000335	AP-106 GRAB2	3 DUP	S98T002050	0	PH-01	LIQUID	<u>13.17</u>	<u>13.18</u>	<u>N/A</u>	pH
98000335	AP-106 GRAB2	4 SAMPLE	S98T002053	0	PH-01	LIQUID	<u>N/A</u>	<u>12.55</u>		pH
98000335	AP-106 GRAB2	5 DUP	S98T002053	0	PH-01	LIQUID	<u>12.55</u>	<u>12.53</u>	<u>N/A</u>	pH
98000335	AP-106 GRAB2	6 SAMPLE	S98T002054	0	PH-01	LIQUID	<u>N/A</u>	<u>13.45</u>		pH
98000335	AP-106 GRAB2	7 DUP	S98T002054	0	PH-01	LIQUID	<u>13.45</u>	<u>13.49</u>	<u>N/A</u>	pH

Final page for worklist # 24867

Mary Frank 7-24-98/1400
Analyst Signature Date

C. J. Quinn 7/24/98
Analyst Signature Date

JML 7/27/98
REVIEWER SIGNATURE DATE

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 24868

Analyst: RL Instrument: PH01 Book # 11118

Method: LA-211-102 Rev/Mod DO

Worklist Comment: OH-01 FOR AP-106 (HANDLE AS PCB SUSPECT) RTS

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				OH-01	LIQUID	<u>1.72^{E4}</u>	<u>1.72^{E4}</u>	<u>N/A</u>	ug/mL
98000335	AP-106 GRAB2	2	SAMPLE	S98T002050	0		OH-01	LIQUID	<u>N/A</u>	<u>6.81^{E3}</u>		ug/mL
98000335	AP-106 GRAB2	3	DUP	S98T002050	0		OH-01	LIQUID	<u>6.81^{E3}</u>	<u>6.94^{E3}</u>	<u>N/A</u>	ug/mL
98000335	AP-106 GRAB2	4	SAMPLE	S98T002053	0		OH-01	LIQUID	<u>N/A</u>	<u>7.30^{E2}</u>		ug/mL
98000335	AP-106 GRAB2	5	DUP	S98T002053	0		OH-01	LIQUID	<u>7.36^{E2}</u>	<u>7.20^{E2}</u>	<u>N/A</u>	ug/mL
98000335	AP-106 GRAB2	6	SAMPLE	S98T002054	0		OH-01	LIQUID	<u>N/A</u>	<u>2.63^{E4}</u>		ug/mL
98000335	AP-106 GRAB2	7	DUP	S98T002054	0		OH-01	LIQUID	<u>2.63^{E4}</u>	<u>2.58^{E4}</u>	<u>N/A</u>	ug/mL

Final page for worklist # 24868

Analyst Signature Rob King Date 8/13/98

Analyst Signature [Signature] Date 8-12-98

REVIEWER SIGNATURE [Signature] DATE 8/13/98

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.

date 98-08-03 time 23:30
 GET pH 12 # 295
 ID #1 2054-2
 ID #2 1934
 pH (init) 11.11
 /ml
 EPI 1.96 pH
 E2 .220 9.33
 stop volt. reached

date 98-08-03 time 23:31
 GET pH 12 # 295
 ID #1 2054-2
 ID #2 1934
 pH (init) 11.11
 /ml
 EPI 1.96 pH
 E2 .220 9.33
 stop volt. reached

Id #1 2054-2
 C00= 0.25 ml
 date 98-08-03 time 23:08
 GET pH 12 # 293
 ID #1 2054-2
 ID #2 1934
 pH (init) 11.11
 /ml
 EPI 1.96 pH
 E2 .220 9.52
 stop volt. reached

date 98-08-03 time 23:08
 GET pH 12 # 293
 ID #1 2054-2
 ID #2 1934
 pH (init) 11.11
 /ml
 EPI 1.96 pH
 E2 .220 9.52
 stop volt. reached

Id #1 2053-2
 C00= 1 ml
 date 98-08-03 time 20:59
 GET pH 12 # 289
 ID #1 2053-2
 ID #2 1934
 pH (init) 11.15
 /ml
 EPI 1.96 pH
 manual stop 10.13

date 98-08-03 time 20:59
 GET pH 12 # 289
 ID #1 2053-2
 ID #2 1934
 pH (init) 11.15
 /ml
 EPI 1.96 pH
 manual stop 10.13

Id #1 2053-1
 C00= 1 ml
 date 98-08-03 time 20:50
 GET pH 12 # 288
 ID #1 2053-1
 ID #2 1934
 pH (init) 11.19
 /ml
 EPI 1.96 pH
 manual stop 10.13

date 98-08-03 time 20:50
 GET pH 12 # 288
 ID #1 2053-1
 ID #2 1934
 pH (init) 11.19
 /ml
 EPI 1.96 pH
 manual stop 10.13

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		std
Type	Sample Size (mL) SS	0.050
std	Concentration of HNO3 (Molarity)	0.1934
Work List	HNO3 Titrant at OH end-point in mL	0.261
24868	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.01E+00
OH-01	OH in Sample in µg/mL (PPM)	1.72E+04
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
111N8		
Instrument Code	Detection Limit (µg/mL)	2.50E+03
PH01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
RWK		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
08/03/98		
Time		std
09:23 AM	Concentration of OH in Sample (Molarity)	1.01E+00
	OH in Sample in µg/mL (PPM)	1.72E+04

Data Entry by:	Date: 08/12/98
Approved by:	Date:

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		BLK
Type	Sample Size (mL) SS	0.100
BLK	Concentration of HNO3 (Molarity)	0.1934
Work List	HNO3 Titrant at OH end-point in mL	0.008
24868	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.55E-02
OH-01	OH in Sample in µg/mL (PPM)	2.63E+02
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
BLK		
Instrument Code	Detection Limit (µg/mL)	1.25E+03
PH01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
RWK		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
08/03/98		
Time		
09:23 AM	Concentration of OH in Sample (Molarity)	1.55E-02
	OH in Sample in µg/mL (PPM)	<1250

The Result is < Detection Limit

Data Entry by:	Date:	08/12/98
Approved by:	Date:	

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		SAM
Type	Sample Size (mL) SS	0.100
SAM	Concentration of HNO3 (Molarity)	0.1934
Work List	HNO3 Titrant at OH end-point in mL	0.207
24868	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	4.00E-01
OH-01	OH in Sample in µg/mL (PPM)	6.81E+03
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S98T002050		
Instrument Code	Detection Limit (µg/mL)	1.25E+03
PH01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
RWK		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
08/03/98		
Time		SAM
09:23 AM	Concentration of OH in Sample (Molarity)	4.00E-01
	OH in Sample in µg/mL (PPM)	6.81E+03

Data Entry by:	Date: 08/12/98
Approved by:	Date:

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		DUP
Type	Sample Size (mL) SS	0.100
DUP	Concentration of HNO3 (Molarity)	0.1934
Work List	HNO3 Titrant at OH end-point in mL	0.211
24868	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	4.08E-01
OH-01	OH in Sample in µg/mL (PPM)	6.94E+03
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S98T002050		
Instrument Code	Detection Limit (µg/mL)	1.25E+03
PH01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
RWK		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
08/03/98		
Time		DUP
09:23 AM	Concentration of OH in Sample (Molarity)	4.08E-01
	OH in Sample in µg/mL (PPM)	6.94E+03

Data Entry by:	Date: 08/12/98
Approved by:	Date:

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		SAM
Type	Sample Size (mL) SS	1.000
SAM	Concentration of HNO3 (Molarity)	0.1934
Work List	HNO3 Titrant at OH end-point in mL	0.224
24868	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	4.33E-02
OH-01	OH in Sample in µg/mL (PPM)	7.36E+02
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S98T002053		
Instrument Code	Detection Limit (µg/mL)	1.25E+02
PH01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
RWK		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
08/03/98		
Time		SAM
09:23 AM	Concentration of OH in Sample (Molarity)	4.33E-02
	OH in Sample in µg/mL (PPM)	7.36E+02

Data Entry by:	Date: 08/12/98
Approved by:	Date:

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		DUP
Type	Sample Size (mL) SS	1.000
DUP	Concentration of HNO3 (Molarity)	0.1934
Work List	HNO3 Titrant at OH end-point in mL	0.219
24868	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	4.24E-02
OH-01	OH in Sample in µg/mL (PPM)	7.20E+02
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S98T002053		
Instrument Code	Detection Limit (µg/mL)	1.25E+02
PH01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
RWK		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
08/03/98		
Time		DUP
09:23 AM	Concentration of OH in Sample (Molarity)	4.24E-02
	OH in Sample in µg/mL (PPM)	7.20E+02

Data Entry by:	Date: 08/12/98
Approved by:	Date:

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		SAM
Type	Sample Size (mL) SS	0.025
SAM	Concentration of HNO3 (Molarity)	0.1934
Work List	HNO3 Titrant at OH end-point in mL	0.200
24868	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.55E+00
OH-01	OH in Sample in µg/mL (PPM)	2.63E+04
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S98T002054		
Instrument Code	Detection Limit (µg/mL)	5.00E+03
PH01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
RWK		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
08/03/98		
Time		SAM
09:23 AM	Concentration of OH in Sample (Molarity)	1.55E+00
	OH in Sample in µg/mL (PPM)	2.63E+04

Data Entry by:	Date: 08/12/98
Approved by:	Date:

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		DUP
Type	Sample Size (mL) SS	0.025
DUP	Concentration of HNO3 (Molarity)	0.1934
Work List	HNO3 Titrant at OH end-point in mL	0.196
24868	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.52E+00
OH-01	OH in Sample in µg/mL (PPM)	2.58E+04
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S98T002054		
Instrument Code	Detection Limit (µg/mL)	5.00E+03
PH01		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
RWK		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
08/03/98		
Time		DUP
09:23 AM	Concentration of OH in Sample (Molarity)	1.52E+00
	OH in Sample in µg/mL (PPM)	2.58E+04

Data Entry by:	Date: 08/12/98
Approved by:	Date:

LABCORE Completed Worklist Report for Worklist# 24870

Analyst: kjt

Instrument: IC40S1

Book# 149N20C

Method: AS33105 Rev/Mod E-D

Worklist Comment: @IC-01 FOR AP-106 (HANDLE AS PCB SUSPECT) RTS

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	1.52e-01	0.152	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 ICV	0	@IC-QC F	QC	5.90e1	5.81e+01	98.475 % Recovery	
2 ICV	0	@IC-QC CL	QC	8.00e1	7.99e+01	99.875 % Recovery	
2 ICV	0	@IC-QC NO2	QC	5.42e2	5.59e+02	103.137 % Recovery	
2 ICV	0	@IC-QC BR	QC	5.86e2	5.95e+02	101.536 % Recovery	
2 ICV	0	@IC-QC NO3	QC	5.92e2	5.86e+02	98.986 % Recovery	
2 ICV	0	@IC-QC P04	QC	5.47e2	5.22e+02	95.430 % Recovery	
2 ICV	0	@IC-QC S04	QC	6.38e2	6.22e+02	97.492 % Recovery	
2 ICV	0	@IC-QC OXALATE2	QC	5.29e2	5.15e+02	97.353 % Recovery	
3 CCV	0	@IC-QC F	QC	6.40e1	5.92e+01	92.500 % Recovery	
3 CCV	0	@IC-QC CL	QC	9.00e1	8.99e+01	99.889 % Recovery	
3 CCV	0	@IC-QC NO2	QC	5.43e2	5.42e+02	99.816 % Recovery	
3 CCV	0	@IC-QC BR	QC	6.30e2	6.23e+02	98.889 % Recovery	
3 CCV	0	@IC-QC NO3	QC	6.98e2	7.05e+02	101.003 % Recovery	
3 CCV	0	@IC-QC P04	QC	6.32e2	6.08e+02	96.203 % Recovery	
3 CCV	0	@IC-QC S04	QC	6.99e2	6.75e+02	96.567 % Recovery	
3 CCV	0	@IC-QC OXALATE2	QC	5.30e2	5.15e+02	97.170 % Recovery	
4 SAMPLE	S98T002050	@IC-01 F-02	LIQUID	N/A	1.724e+02	13.330	ug/mL
4 SAMPLE	S98T002050	@IC-01 CL-02	LIQUID	N/A	6.538e+02	18.890	ug/mL
4 SAMPLE	S98T002050	@IC-01 NO2-02	LIQUID	N/A	1.078e+04	120.000	ug/mL
4 SAMPLE	S98T002050	@IC-01 BR-02	LIQUID	N/A	1.389e+02	138.900	ug/mL
4 SAMPLE	S98T002050	@IC-01 NO3-02	LIQUID	N/A	2.214e+04	154.400	ug/mL
4 SAMPLE	S98T002050	@IC-01 P04-02	LIQUID	N/A	6.197e+02	133.300	ug/mL
4 SAMPLE	S98T002050	@IC-01 S04-02	LIQUID	N/A	2.789e+02	153.300	ug/mL
4 SAMPLE	S98T002050	@IC-01 OXALATE2	LIQUID	N/A	1.309e+02	116.700	ug/mL
5 DUP	S98T002050	@IC-01 F-02	LIQUID	1.72e+02	1.68e+02	2.353	RPD
5 DUP	S98T002050	@IC-01 CL-02	LIQUID	6.54e+02	6.37e+02	2.634	RPD
5 DUP	S98T002050	@IC-01 NO2-02	LIQUID	1.08e+04	1.07e+04	0.930	RPD
5 DUP	S98T002050	@IC-01 BR-02	LIQUID	<1.39e2	<1.39e2		RPD
5 DUP	S98T002050	@IC-01 NO3-02	LIQUID	2.21e+04	2.21e+04	0.000	RPD
5 DUP	S98T002050	@IC-01 P04-02	LIQUID	6.20e+02	6.25e+02	0.803	RPD
5 DUP	S98T002050	@IC-01 S04-02	LIQUID	2.79e+02	2.77e+02	0.719	RPD
5 DUP	S98T002050	@IC-01 OXALATE2	LIQUID	1.31e+02	<1.17e2		RPD
6 SPK	S98T002050	@IC-01 F-02	LIQUID	5.90e1	6.59e+01	111.695 % Recovery	

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

LABCORE Completed Worklist Report for Worklist# 24870

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
6 SPK	S98T002050	0	•IC-01	CL-02	LIQUID	8.00e1	7.44e+01	93.000 % Recovery
6 SPK	S98T002050	0	•IC-01	NO2-02	LIQUID	5.42e2	5.22e+02	96.310 % Recovery
6 SPK	S98T002050	0	•IC-01	BR-02	LIQUID	5.86e2	5.64e+02	96.246 % Recovery
6 SPK	S98T002050	0	•IC-01	NO3-02	LIQUID	5.92e2	5.59e+02	94.426 % Recovery
6 SPK	S98T002050	0	•IC-01	PO4-02	LIQUID	5.47e2	5.05e+02	92.322 % Recovery
6 SPK	S98T002050	0	•IC-01	SO4-02	LIQUID	6.38e2	6.21e+02	97.335 % Recovery
6 SPK	S98T002050	0	•IC-01	OXALATE2	LIQUID	5.29e2	5.00e+02	94.518 % Recovery
7 SAMPLE	S98T002053	0	•IC-01	F-02	LIQUID	N/A	5.498e+01	3.636 ug/mL
7 SAMPLE	S98T002053	0	•IC-01	CL-02	LIQUID	N/A	2.283e+02	5.151 ug/mL
7 SAMPLE	S98T002053	0	•IC-01	NO2-02	LIQUID	N/A	4.257e+03	32.720 ug/mL
7 SAMPLE	S98T002053	0	•IC-01	BR-02	LIQUID	N/A	3.788e+01	37.880 ug/mL
7 SAMPLE	S98T002053	0	•IC-01	NO3-02	LIQUID	N/A	7.723e+03	42.120 ug/mL
7 SAMPLE	S98T002053	0	•IC-01	PO4-02	LIQUID	N/A	5.479e+02	36.360 ug/mL
7 SAMPLE	S98T002053	0	•IC-01	SO4-02	LIQUID	N/A	1.054e+02	41.810 ug/mL
7 SAMPLE	S98T002053	0	•IC-01	OXALATE2	LIQUID	N/A	5.102e+01	31.810 ug/mL
8 DUP	S98T002053	0	•IC-01	F-02	LIQUID	5.50e+01	5.67e+01	3.044 RPD
8 DUP	S98T002053	0	•IC-01	CL-02	LIQUID	2.28e+02	2.33e+02	2.169 RPD
8 DUP	S98T002053	0	•IC-01	NO2-02	LIQUID	4.26e+03	4.29e+03	0.702 RPD
8 DUP	S98T002053	0	•IC-01	BR-02	LIQUID	<3.79e1	<3.79e1	RPD
8 DUP	S98T002053	0	•IC-01	NO3-02	LIQUID	7.72e+03	7.72e+03	0.000 RPD
8 DUP	S98T002053	0	•IC-01	PO4-02	LIQUID	5.48e+02	5.46e+02	0.366 RPD
8 DUP	S98T002053	0	•IC-01	SO4-02	LIQUID	1.05e+02	1.05e+02	0.000 RPD
8 DUP	S98T002053	0	•IC-01	OXALATE2	LIQUID	5.10e+01	5.47e+01	7.001 RPD
9 SAMPLE	S98T002054	0	•IC-01	F-02	LIQUID	N/A	2.066e+03	25.450 ug/mL
9 SAMPLE	S98T002054	0	•IC-01	CL-02	LIQUID	N/A	1.259e+03	36.060 ug/mL
9 SAMPLE	S98T002054	0	•IC-01	NO2-02	LIQUID	N/A	2.752e+04	229.100 ug/mL
9 SAMPLE	S98T002054	0	•IC-01	BR-02	LIQUID	N/A	2.651e+02	265.100 ug/mL
9 SAMPLE	S98T002054	0	•IC-01	NO3-02	LIQUID	N/A	9.839e+04	294.800 ug/mL
9 SAMPLE	S98T002054	0	•IC-01	PO4-02	LIQUID	N/A	6.965e+02	254.500 ug/mL
9 SAMPLE	S98T002054	0	•IC-01	SO4-02	LIQUID	N/A	2.520e+03	292.700 ug/mL
9 SAMPLE	S98T002054	0	•IC-01	OXALATE2	LIQUID	N/A	8.640e+02	222.700 ug/mL
10 DUP	S98T002054	0	•IC-01	F-02	LIQUID	2.07e+03	2.12e+03	2.387 RPD
10 DUP	S98T002054	0	•IC-01	CL-02	LIQUID	1.26e+03	1.25e+03	0.797 RPD
10 DUP	S98T002054	0	•IC-01	NO2-02	LIQUID	2.75e+04	2.72e+04	1.097 RPD
10 DUP	S98T002054	0	•IC-01	BR-02	LIQUID	<2.65e2	<2.65e2	RPD
10 DUP	S98T002054	0	•IC-01	NO3-02	LIQUID	9.84e+04	9.76e+04	0.816 RPD
10 DUP	S98T002054	0	•IC-01	PO4-02	LIQUID	6.96e+02	7.06e+02	1.427 RPD
10 DUP	S98T002054	0	•IC-01	SO4-02	LIQUID	2.52e+03	2.63e+03	4.272 RPD
10 DUP	S98T002054	0	•IC-01	OXALATE2	LIQUID	8.64e+02	8.36e+02	3.294 RPD

Final page for worklist# 24870

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

A. Anasta 8/7/98
Reviewer Signature Date

HNF-1642 REV, 0

07/09/98 11:23

Page: 1

A-0004-1

LABCORE Data Entry Template for Worklist# 24870Analyst: KST Instrument: IC (400) Book# 149A200Method: LA-533-105 Rev/Mod E-0Worklist Comment: @IC-01 FOR AP-106 ~~XXXXXXXXXXXXXXXXXXXX~~

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 CCB			@IC-QC	QC		
2 ICV			@IC-QC	QC		
3 CCV			@IC-QC	QC		
4 SAMPLE	S98T002050 0		@IC-01	LIQUID	98000335 AP-106 GRAB2	
	Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02					
5 DUP	S98T002050 0		@IC-01	LIQUID		
6 SPK	S98T002050 0		@IC-01	LIQUID		
7 SAMPLE	S98T002053 0		@IC-01	LIQUID	98000335 AP-106 GRAB2	
	Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02					
8 DUP	S98T002053 0		@IC-01	LIQUID		
9 SAMPLE	S98T002054 0		@IC-01	LIQUID	98000335 AP-106 GRAB2	
	Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02					
10 DUP	S98T002054 0		@IC-01	LIQUID		

Final page for worklist # 24870

Analyst Signature

Date

Analyst Signature

Date

Data Entry Comments:

uploaded 8-6-98
J. Howell
24870AUG-CEV

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

HNF-1642 REV, 0

=====

Sample Name: CCB	Date: 08/05/1998 09:44:51
Data File : C:\DX\DATA\98080511.D30	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 30	Detector: CDM-1
Analyst : <i>Ks Thomas</i>	Column: AG4A/AS4A anion column

=====

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

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	14	47	1	
2	1.38		0.000	23	110	1	
3	3.11	nitrate	0.152	19	109	1	-1.16
Totals			0.152	56	266

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 82 TO 91.

Sample Name: 149N20C 1CV Date: 08/05/1998 11:33:35
 Data File : C:\DX\DATA\98080511.D33
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 33 Detector: CDM-1
 Analyst : *Ks Thomas* 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	123	532	2	
2	1.01	fluoride	58.092	2670	12040	2	-0.33
3	1.51	chloride	79.920	2363	10811	1	-1.74
4	1.80	nitrite	558.970	9406	49875	1	-2.17
5	2.68	bromide	594.698	6045	36898	1	-3.25
6	3.04	nitrate	586.383	6537	47873	1	-3.49
7	4.43	phosphate	521.707	1681	20776	1	-3.56
8	5.76	sulfate	621.932	5045	66338	1	-4.48
9	7.52	oxalate	514.635	2260	40646	1	-4.69
Totals			3536.337	36130	285788		

File: 98080511.D33 Sample: 149N20C

Data Reprocessed On 08/06/1998 08:38:10

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=====
Sample Name: 148N20C      CV      Date: 08/05/1998 10:09:47
Data File  : F:\DATA\98080511.D32
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 32      Detector: CDM-1
Analyst    :      Column: AG4A/AS4A anion column
=====

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

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	120	497	2	
2	1.00	fluoride	59.244	2848	12286	2	-0.99
3	1.51	chloride	89.932	2854	12181	1	-1.74
4	1.80	nitrite	542.130	9474	48347	1	-2.17
5	2.67	bromide	622.999	6490	38712	1	-3.49
6	3.02	nitrate	705.128	8107	57918	1	0.00
7	4.43	phosphate	608.478	1981	24357	1	-3.56
8	5.76	sulfate	674.547	5623	71968	1	-4.48
9	7.52	oxalate	515.030	2308	40677	1	-4.69
Totals			3817.489	39805	306942		

File: 98080511.D32 Sample: 148N20C

Data Reprocessed On 08/06/1998 08:39:48

~~g-KIT 9498~~

Sample Name: S98T002250 Date: 08/05/1998 12:00:35
 Data File : F:\DATA\98080511.D35
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 35 Detector: CDM-1
 Analyst : Column: AG4A/AS4A anion column

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

External	1	1111	3000	5Hz	0.00	10.00		30
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***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	269	1381	2	
2	1.02	fluoride	172.425	653	3028	2	0.99
3	1.13		0.000	282	1909	2	
4	1.52	chloride	653.824	1608	8020	1	-0.87
5	1.82	nitrite	10780.165	16029	88193	1	-1.09
6	3.01	nitrate	22144.244	21541	171303	1	0.11
7	4.48	phosphate	619.714	157	1845	1	-2.40
8	5.81	sulfate	278.882	244	3479	1	-3.59
9	7.63	oxalate	130.905	42	720	1	-3.34
Totals			34780.159	40824	279877		

File: 98080511.D35 Sample: S98T002250

Data Reprocessed On 08/06/1998 08:41:01

o-KIT 8.4.4

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=====
Sample Name: S98T002250 DUP                               Date: 08/05/1998 13:39:35
Data File  : F:\DATA\98080511.D36
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 36                      Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

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=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          1111    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	286	1436	2	
2	1.01	fluoride	168.262	650	2948	2	0.33
3	1.11		0.000	282	1886	2	
4	1.50	chloride	636.681	1566	7808	1	-2.17
5	1.79	nitrite	10716.039	15889	87661	1	-2.54
6	2.99	nitrate	22136.246	21483	171238	1	-0.11
7	4.45	phosphate	625.024	156	1864	1	-2.98
8	5.81	sulfate	276.977	268	3461	1	-3.59
9	7.57	oxalate	113.091	38	592	1	-4.01
Totals			34672.320	40616	278894		

File: 98080511.D36 Sample: S98T002250 DUP

Data Reprocessed On 08/06/1998 08:42:20

~~RT 0.85~~

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=====
Sample Name: S98T002250 SPIKE                               Date: 08/05/1998 13:50:45
Data File  : F:\DATA\98080511.D37
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 37                        Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

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

External	1	1111	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	414	2081	2	
2	1.01	fluoride	838.265	3065	15900	2	-0.33
3	1.50	chloride	1404.923	3675	17382	1	-2.17
4	1.79	nitrite	16057.017	24921	132096	1	-2.54
5	2.66	bromide	5701.939	5533	32015	1	-3.97
6	2.96	nitrate	27788.252	27522	217251	1	0.00
7	4.43	phosphate	5722.886	1675	20716	1	-3.56
8	5.76	sulfate	6555.771	4883	63567	1	-4.48
9	7.52	oxalate	5185.541	2115	37198	1	-4.69
Totals			69254.595	73803	538207		

File: 98080511.D37 Sample: S98T002250 SPIKE

Data Reprocessed On 08/06/1998 08:51:05

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=====
Sample Name: S98T002053                      Date: 08/05/1998 14:18:57
Data File  : F:\DATA\98080511.D39
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 39          Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

Calibration Volume Dilution Points Rate Start Stop Area Reject

External 1 303 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	394	2069	2	
2	1.01	fluoride	54.981	797	3591	2	0.33
3	1.11		0.000	464	3068	2	
4	1.50	chloride	228.251	2116	10287	1	-2.17
5	1.79	nitrite	4256.913	23714	128356	1	-2.54
6	2.95	nitrate	7722.717	27536	221598	1	-0.11
7	3.93		0.000	13	89	1	
8	4.45	phosphate	547.893	575	6937	1	-2.98
9	5.81	sulfate	105.364	348	4494	1	-3.59
10	7.57	oxalate	51.016	64	1124	1	-4.01
Totals			12967.135	56020	381612		

File: 98080511.D39 Sample: S98T002053

Data Reprocessed On 08/06/1998 08:52:46

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=====
Sample Name: S98T002053 DUP                      Date: 08/05/1998 14:30:29
Data File  : F:\DATA\98080511.D40
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 40              Detector: CDM-1
Analyst    :                      Column: AG4A/AS4A anion column
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          303    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	0.86		0.000	384	1951	2	
2	1.02	fluoride	56.693	811	3712	2	0.99
3	1.13		0.000	481	3153	2	
4	1.50	chloride	233.151	2075	10510	1	-2.17
5	1.80	nitrite	4293.597	23520	129478	1	-2.17
6	2.96	nitrate	7719.663	27599	221505	1	0.00
7	4.48	phosphate	546.439	576	6917	1	-2.40
8	5.81	sulfate	105.098	332	4485	1	-3.59
9	7.57	oxalate	54.674	62	1220	1	-4.01
Totals			13009.316	55840	382932		

File: 98080511.D40 Sample: S98T002053 DUP

Data Reprocessed On 08/06/1998 08:54:23

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=====
Sample Name: S98T002054                      Date: 08/05/1998 15:05:58
Data File  : F:\DATA\98080511.D43
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 43          Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

```

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

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	414	1920	2	
2	1.01	fluoride	2065.924	3543	20635	2	-0.33
3	1.47	chloride	1259.101	1629	8090	1	-3.91
4	1.78	nitrite	27515.448	21189	118388	1	-3.26
5	2.89	nitrate	98386.603	47718	421148	1	-0.12
6	3.93		0.000	41	330	1	
7	4.45	phosphate	696.498	80	914	1	-2.98
8	5.76	sulfate	2520.079	921	13336	1	-4.48
9	7.57	oxalate	864.011	172	3032	1	-4.01
Totals			133307.665	75708	587794		

File: 98080511.D43 Sample: S98T002054

Data Reprocessed On 08/06/1998 08:56:27

```

=====
Sample Name: S98T002054 DUP                      Date: 08/05/1998 15:16:45
Data File  : F:\DATA\98080511.D44
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 44              Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

```

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

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.85		0.000	436	2065	2	
2	1.00	fluoride	2115.599	3514	21140	2	-0.99
3	1.47	chloride	1253.972	1634	8057	1	-3.91
4	1.77	nitrite	27174.621	21052	116901	1	-3.62
5	2.88	nitrate	97642.330	47577	417647	1	0.00
6	3.92		0.000	45	404	1	
7	4.43	phosphate	705.654	81	932	1	-3.56
8	5.76	sulfate	2632.344	973	13894	1	-4.48
9	7.57	oxalate	836.288	170	2928	1	-4.01
Totals			132360.808	75481	583969		

File: 98080511.D44 Sample: S98T002054 DUP

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07/21/98 15:32

A-0004-1

File #: 980728G.TXT

Page: 1

LABCORE Data Entry Template for Worklist# 24993

Analyst: JK 5/6 Instrument: ICP01 7-28-98 Book# 72848BMethod: LA-505-151/161 Rev/Mod C-2Worklist Comment: ICP AP-106 (DIRECT) PCB Suspect

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	S98T002050	0 D	@ICP-D01	LIQUID		
7 SAMPLE	S98T002050	0 D	@ICP-D01	LIQUID	98000335	AP-106 GRAB2
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	S98T002050	0 D	@ICP-D01	LIQUID		
9 SPK (1ppm)	S98T002050	0 D	@ICP-D01	LIQUID		
10 SAMPLE	S98T002053	0 D	@ICP-D01	LIQUID	98000335	AP-106 GRAB2
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						
11 DUP	S98T002053	0 D	@ICP-D01	LIQUID		
12 SAMPLE	S98T002054	0 D	@ICP-D01	LIQUID	98000335	AP-106 GRAB2

Data Entry Comments:

uploaded 7-29-98
John WavellValidated by:
Sal M. Parag
7/30/98

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

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LABCORE Data Entry Template for Worklist# 24993

S Type	Sample#	R A	Test	Matrix	Group#	Project
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						

13 DUP S98T002054 0 D @ICP-D01 LIQUID

14 ICSA @ICP-QC QC

15 ICSAB @ICP-QC QC

16 CCV @ICP-QC QC

17 CCB @ICP-QC QC

Final page for worklist # 24993

JK *[Signature]* 07-28-98

Analyst Signature	Date
5987001050-L	1-10-28
5987001050	1-10
5987001050-D	1-10
5987001050-G	1-10
5987001050-X	1-10-1-9
5987001050-QX	1-10-1-9
5987001053	1-25-10
5987001053-D	1-25-10
5987001054	0-25-10
5987001054-D	0-25-10

Analyst Signature Date

Data Entry Comments:

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

HNF-1642 REV, 0

Analysis Report

Summary

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#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	980728A	ICP2	07/28/98	09:03	DKS	Q	CONC
2	ICB	980728A	ICP2	07/28/98	09:06	DKS	Q	CONC
3	LLS	980728A	ICP2	07/28/98	09:14	DKS	Q	CONC
4	ICSA	980728A	ICP2	07/28/98	09:17	DKS	Q	CONC
5	ICCSAB	980728A	ICP2	07/28/98	09:21	DKS	Q	CONC
6	S98T002050 L	980728A	ICP2	07/28/98	09:32	DKS	S	CONC
7	S98T002050X <i>7-18-98</i>	980728A	ICP2	07/28/98	09:35	DKS	S	CONC
8	S98T002050 <i>7-18-98</i>	980728A	ICP2	07/28/98	09:38	DKS	S	CONC
9	S98T002050 A	980728A	ICP2	07/28/98	09:43	DKS	S	CONC
10	S98T002050 X	980728A	ICP2	07/28/98	09:48	DKS	S	CONC
11	S98T002050 AX	980728A	ICP2	07/28/98	09:52	DKS	S	CONC
12	CCV	980728A	ICP2	07/28/98	10:02	DKS	Q	CONC
13	CCB	980728A	ICP2	07/28/98	10:06	DKS	Q	CONC
14	S98T002053	980728A	ICP2	07/28/98	10:13	DKS	S	CONC
15	S98T002053_D	980728A	ICP2	07/28/98	10:16	DKS	S	CONC
16	S98T002054	980728A	ICP2	07/28/98	10:19	DKS	S	CONC
17	S98T002054_D	980728A	ICP2	07/28/98	10:23	DKS	S	CONC
18	ICSA	980728A	ICP2	07/28/98	10:31	DKS	Q	CONC
19	ICCSAB	980728A	ICP2	07/28/98	10:34	DKS	Q	CONC
20	CCV 1	980728A	ICP2	07/28/98	10:37	DKS	Q	CONC
21	CCB 2	980728A	ICP2	07/28/98	10:41	DKS	Q	CONC

KLD

07-18-98

Worklist # 24993

Op. 106

5987002050

5987002053

5987002054

598T002050

$$C_2 = \frac{\left(\frac{134.57}{101}\right) - \left(\frac{35.985}{101}\right)}{1} \times 100 = 97.6\%$$

Post Op. 106:

$$R_2 = \frac{\left(\frac{14406}{1010}\right) - \left(\frac{4579.9}{1010}\right)}{10} \times 100 = 97.3\%$$

$$Na = \frac{\left(\frac{40735}{1010}\right) - \left(\frac{31296}{1010}\right)}{10} \times 100 = 93.5\%$$

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 94 TO 98.

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Analysis Report

Averages

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#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	4.9911	4.9866	5.1732	4.9883	5.0142	5.1147
2	ICB	- .00126	.00633	.00632	.00176	- .00005	.00021
3	LLS	.02252	.11776	.20148	.10781	.10169	.01098
4	ICSA	.00282	249.49	.01339	- .00517	.00225	.00044
5	ICGSAB	.95854	246.01	.02747	- .00808	.47746	.49309
6	S98T002050_L	2.5694	4504.6	-1.8759	4.8858	.06077	.24277
7	S98T002050T	2.1532	4442.2	.41670	4.6650	.03436	.14135
8	S98T002050_L	2.0737	4459.1	- .87323	4.6655	.02799	.13702
9	S98T002050_A	97.809	4490.0	106.46	103.80	98.034	103.16
10	S98T002050_X	1.9727	4579.9	-2.0641	5.3341	.06977	.39796
11	S98T002050_AX	9878.6	14406.	10319.	10160.	10268.	10204.
12	CCV	4.9419	5.0043	5.2416	5.0218	5.0926	5.1801
13	CCB	- .00012	.00220	.00525	.00703	.00000	.00021
14	S98T002053	.86429	1420.3	- .00872	2.5795	.01298	.02875
15	S98T002053_D	.85023	1423.8	.13240	2.5254	.00619	.02874
16	S98T002054	6.6018	7670.6	- .96975	8.4942	.34137	1.0783
17	S98T002054_D	6.5143	7557.9	- .89497	8.2297	.34214	1.0693
18	ICSA	.00191	249.83	.05371	- .00588	.00226	.00049
19	ICGSAB	.97059	246.33	.04274	- .00942	.47565	.49686
20	CCV_1	5.0437	5.0001	5.2573	5.0497	5.0460	5.2122
21	CCB_2	.00000	.00937	.01884	.00176	.00003	.00039

#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	5.0183	4.9956	5.0786	5.0951	4.9355	4.9482
2	ICB	.00834	.00043	.00028	- .00218	.00012	.00079
3	LLS	.22281	.22903	.01118	.21500	.04068	.02129
4	ICSA	- .00435	255.06	.00475	- .00106	.00148	- .00262
5	ICGSAB	.00969	255.37	.96129	.00363	.46618	.47033
6	S98T002050_L	- .93315	4.0163	.08627	1.5693	.77187	36.896
7	S98T002050T	.63188	3.4861	.11271	.12687	.52443	35.985
8	S98T002050_D	- .99110	1.2507	.02225	- .37878	.15499	36.001
9	S98T002050_A	99.360	103.53	101.93	102.24	98.833	134.57
10	S98T002050_X	-5.8814	1.9739	.45732	-4.3918	.00660	37.131
11	S98T002050_AX	10310.	10222.	10100.	10273.	10002.	10174.
12	CCV	5.0189	4.9495	5.0627	5.1668	4.9293	4.9254
13	CCB	- .01273	.00193	- .00043	- .00561	.00012	- .00041
14	S98T002053	- .34719	.62658	.02414	.27125	.08285	11.436
15	S98T002053_D	.42684	.42316	.04412	.12989	.05840	11.488
16	S98T002054	-1.9664	17.511	1.7099	.09205	.74116	138.65
17	S98T002054_D	-5.8689	17.561	1.6917	1.5372	.57624	137.31
18	ICSA	- .00090	265.13	.00701	.00112	- .00028	- .00378
19	ICGSAB	- .02954	262.80	.97461	.00035	.47656	.48247
20	CCV_1	5.0604	5.1371	5.1631	5.1312	5.0322	5.0415
21	CCB_2	- .00520	.00248	.00106	.00127	- .00011	.00063

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Analysis Report

Averages

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#	Sample Name	Cu	Eu	Fe	K	La	Li
1	ICV	4.7932	.00860	4.9257	5.2561	5.0609	5.1600
2	ICB	.00013	.00024	-.00071	-.15353	-.00091	.00009
3	LLS	.01796	.00003	.10006	.55620	.10521	.02241
4	ICSA	.00453	.01990	93.162	.04206	-.00481	.00191
5	IC SAB	.48435	.01845	92.357	.19214	-.00412	1.0165
6	S98T002050_L	.7937	-.00697	1.7421	2446.8	.02002	.09647
7	S98T002050_X 7-18-98	.42860	.00559	1.7422	2355.0	-.04660	.22162
8	S98T002050_D 7-18-98	.41221	-.01359	1.6646	2382.0	-.12204	.20238
9	S98T002050_A	95.680	.20606	99.335	2427.6	101.58	100.52
10	S98T002050_X	-.26651	.35267	1.5038	2530.2	-.11562	.28857
11	S98T002050_AX	5998.5	16.823	9714.7	12749	10248	10305
12	CCV	4.8716	.00786	4.9197	5.0551	5.1350	5.2774
13	CCB	-.00039	.00031	-.00056	-.19054	-.00130	.00009
14	S98T002053	.17875	.01489	.52314	891.62	.01827	.10551
15	S98T002053_D	.18228	.00243	.51968	901.95	-.02853	.09771
16	S98T002054	2.5982	.14423	3.1411	18748.	-.00024	.15144
17	S98T002054_D	2.5218	.16554	3.1656	18357.	.13748	.17052
18	ICSA	.00399	.00274	94.781	.05822	-.00546	.00258
19	IC SAB	.47941	.00625	93.541	.02513	-.00397	1.0014
20	CCV_1	4.8118	.00981	4.9784	4.9528	5.0990	5.1353
21	CCB_2	.00082	.00063	.00014	.04532	-.00095	.00009

#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	5.1446	4.9247	4.9586	5.2521	4.9664	4.9383
2	ICB	-.00315	.00032	.00364	.00563	-.00167	-.00483
3	LLS	.21781	.01956	.09928	.22056	.20674	.03654
4	ICSA	255.23	-.00650	-.01980	198.14	.00055	-.01134
5	IC SAB	250.95	-.44762	-.01987	195.92	-.00145	.92861
6	S98T002050_L	2.3191	-.00259	8.0423	30818.	.23992	1.5324
7	S98T002050_X 7-18-98	.33929	.00657	7.9222	29624.	.03229	-.14814
8	S98T002050_D 7-18-98	.06314	.00350	7.8148	29772.	-.13347	.08975
9	S98T002050_A	101.20	96.412	108.01	29213.	99.102	99.482
10	S98T002050_X	-2.4532	.15633	7.8207	31296.	-.21736	1.0134
11	S98T002050_AX	10487.	10075.	10038.	40735.	9997.4	10087.
12	CCV	5.1349	4.9158	4.9505	5.3205	5.0423	4.9420
13	CCB	.00007	.00023	.00197	.02225	-.00132	-.00224
14	S98T002053	.36898	.01343	6.0841	11295.	-.00941	.08253
15	S98T002053_D	.26730	.00870	6.0153	11401.	.04450	-.07936
16	S98T002054	.78176	.06416	14.626	92488.	.16091	2.3833
17	S98T002054_D	1.5634	.07180	14.108	90875.	.38614	2.2501
18	ICSA	255.23	-.00587	-.02072	193.54	-.00430	.00172
19	IC SAB	251.40	.45527	-.01898	193.14	-.00289	.93510
20	CCV_1	5.1203	5.0087	5.0484	5.1945	4.9757	5.0686
21	CCB_2	-.00019	.00032	.00137	.02157	.00129	-.00562

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#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	4.8799	4.9472	4.9288	4.9615	4.8045	4.9469
2	ICB	.00370	-.01270	.00938	-.00152	-.00003	.00082
3	LLS	.38676	.21304	.19641	.10542	.20672	Q.13718
4	ICSA	.01257	.00974	.03038	.00389	.02259	-.01683
5	ICSAB	.01942	.97072	.04908	.00664	.06180	-.01476
6	S98T002050 L	222.50	8.7353	143.10	-2.4468	11.157	37.680
7	S98T002050E <i>W 7-18-98</i>	223.31	10.236	146.04	-.22188	5.6819	37.057
8	S98T002050 <i>D 7-18-98</i>	223.79	9.4877	146.51	-.04803	6.7864	38.354
9	S98T002050 A	323.25	107.84	245.07	100.46	110.85	139.73
10	S98T002050 X	225.07	.65632	142.16	-2.0663	21.901	39.189
11	S98T002050 AX	10172.	10202.	9968.3	10182.	9953.9	10141.
12	CCV	4.8826	4.9019	4.8748	4.9587	4.8449	4.9122
13	CCB	.01384	-.00948	.00511	-.00322	.02212	-.00014
14	S98T002053	216.14	1.6198	52.743	.40250	4.3780	17.070
15	S98T002053 D	216.21	1.4653	52.111	-.04530	4.4247	16.986
16	S98T002054	360.46	13.195	1006.4	.54495	16.727	71.551
17	S98T002054 D	355.91	12.714	995.55	.65951	17.340	70.938
18	ICSA	.02982	.01846	.00574	.00791	.05695	-.00985
19	ICSAB	.03665	1.0001	.02616	-.00003	.06646	-.01125
20	CCV 1	4.9579	5.0023	4.9854	5.0223	4.8638	5.0055
21	CCB 2	.00974	-.00431	.00238	-.00175	.03213	-.00003

#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	4.9761	5.0756	Q.28181	4.5237	4.8105	9.7642
2	ICB	.00268	.00004	.00095	-.00021	.00263	.00807
3	LLS	.20486	.02068	Q.01802	.02037	.41619	.48710
4	ICSA	-.02124	-.00288	.00729	.00158	.01269	-.14831
5	ICSAB	-.01689	-.00294	Q.01428	.00117	-.03053	-.13955
6	S98T002050 L	-1.7477	-.00007	2.0127	-.10336	-.01137	-.73262
7	S98T002050E <i>W 7-18-98</i>	-.32386	.01199	.65414	-.02149	-.34561	3.3974
8	S98T002050 <i>D 7-18-98</i>	-.34893	.00386	.55121	-.04328	.59619	2.6130
9	S98T002050 A	99.474	101.50	5.6475	90.533	92.602	198.54
10	S98T002050 X	9981.8	10162.	9.98963	-.22205	6.6857	13.792
11	S98T002050 AX	5.0656	5.1394	558.90	10085.	9921.1	19406.
12	CCV	.00137	.00000	Q.28239	4.5656	4.8642	9.9472
13	CCB	.08345	.00302	.00552	-.00021	-.00527	.00916
14	S98T002053	-.16094	.00140	-.08434	.00731	-.69765	3.5387
15	S98T002053 D	.66014	.13601	.50305	.01558	.37487	2.9757
16	S98T002054	1.1790	.14406	1.6807	.11298	1.9521	38.707
17	S98T002054 D	-.01325	-.00307	.00940	.00117	-2.0403	40.784
18	ICSA	-.01140	-.00311	Q.01537	.00141	-.03172	-.16707
19	ICSAB	5.0149	5.1104	Q.28404	4.5871	4.8609	9.8057
20	CCV 1	.00328	.00003	.00240	.00022	.00032	.01458
21	CCB 2						

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Analysis Report

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#	Sample Name	V	Y	Zn	Zr
1	ICV	5.0804	Q.00815	4.8886	5.0010
2	ICB	.00099	.00007	.00040	.00083
3	ILS	.09990	Q.00010	.01988	.01874
4	ICSA	- .00003	.00719	- .00360	- .00416
5	ICSAB	.47008	Q.00742	.91753	- .00385
6	S98T002050 L	- .27165	- .11839	.45318	- .15301
7	S98T002050 AX 7-18-98	- .05280	- .04892	.29959	.03582
8	S98T002050 D 7-18-98	- .08512	- .04859	.23598	.04459
9	S98T002050 A	101.58	.15303	99.009	100.95
10	S98T002050 X	.99563	- .00586	.01384	.66757
11	S98T002050 AX	9989.3	16.918	9395.0	9969.2
12	CCV	5.0920	Q.00760	4.8255	5.0390
13	CCB	.00048	- .00008	.00031	.00056
14	S98T002053	.03404	- .00471	.10470	.01456
15	S98T002053 D	- .01316	- .02053	.08672	.01244
16	S98T002054	.24945	.01504	3.1689	2.3657
17	S98T002054 D	.31158	.04566	3.1826	2.3371
18	ICSA	.00317	.00806	- .00262	- .00239
19	ICSAB	.47834	Q.00814	.93869	- .00225
20	CCV 1	5.1601	Q.00852	4.9756	5.0609
21	CCB 2	.00115	.00015	.00053	.00071

JK *[Signature]*
07-28-98

LABCORE Completed Worklist Report for Worklist# 24991

Analyst: bjg

Instrument: ICPMS1

Book# 7/11/0-P

Method: LA-506-101 Rev/Mod AO

Worklist Comment: ICP/MS AP-106 GRAB2 (DIRECT)

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	ICV	0	OMSU238	U238	QC	0.020	2.06e-02	103.000 % Recovery
2	ICB	0	OMSU-A1	U233-A1	LIQUID	?	<7.43e-6	Ratio
2	ICB	0	OMSU-A1	U234-A1	LIQUID	?	<6.68e-6	Ratio
2	ICB	0	OMSU-A1	U235-A1	LIQUID	?	<6.74e-6	Ratio
2	ICB	0	OMSU-A1	U236-A1	LIQUID	?	<1.18e-5	Ratio
2	ICB	0	OMSU-A1	U238-A1	LIQUID	?	<9.82e-6	Ratio
3	SAMPLE	S98T002055	0 A	OMSU-A1	U233-A1	LIQUID	N/A	3.076e-02 ug/mL
3	SAMPLE	S98T002055	0 A	OMSU-A1	U234-A1	LIQUID	N/A	2.764e-02 ug/mL
3	SAMPLE	S98T002055	0 A	OMSU-A1	U235-A1	LIQUID	N/A	2.792e-02 ug/mL
3	SAMPLE	S98T002055	0 A	OMSU-A1	U236-A1	LIQUID	N/A	4.890e-02 ug/mL
3	SAMPLE	S98T002055	0 A	OMSU-A1	U238-A1	LIQUID	N/A	4.282e+00 ug/mL
4	DUP	S98T002055	0 A	OMSU-A1	U233-A1	LIQUID	<3.08e-2	RPD
4	DUP	S98T002055	0 A	OMSU-A1	U234-A1	LIQUID	<2.76e-2	RPD
4	DUP	S98T002055	0 A	OMSU-A1	U235-A1	LIQUID	2.86e-02	RPD
4	DUP	S98T002055	0 A	OMSU-A1	U236-A1	LIQUID	<4.89e-2	RPD
4	DUP	S98T002055	0 A	OMSU-A1	U238-A1	LIQUID	4.28e+00	4.566 RPD
5	SPK	S98T002055	0 A	OMSU-A1	U233-A1	LIQUID	?	4.58e-07 % Recovery
5	SPK	S98T002055	0 A	OMSU-A1	U234-A1	LIQUID	?	2.83e-07 % Recovery
5	SPK	S98T002055	0 A	OMSU-A1	U235-A1	LIQUID	?	1.34e-04 % Recovery
5	SPK	S98T002055	0 A	OMSU-A1	U236-A1	LIQUID	?	4.71e-05 % Recovery
5	SPK	S98T002055	0 A	OMSU-A1	U238-A1	LIQUID	0.02	1.92e-02 96.000 % Recovery
6	SAMPLE	S98T002056	0 A	OMSU-A1	U233-A1	LIQUID	N/A	3.076e-02 ug/mL
6	SAMPLE	S98T002056	0 A	OMSU-A1	U234-A1	LIQUID	N/A	2.764e-02 ug/mL
6	SAMPLE	S98T002056	0 A	OMSU-A1	U235-A1	LIQUID	N/A	2.792e-02 ug/mL
6	SAMPLE	S98T002056	0 A	OMSU-A1	U236-A1	LIQUID	N/A	4.890e-02 ug/mL
6	SAMPLE	S98T002056	0 A	OMSU-A1	U238-A1	LIQUID	N/A	1.535e+00 ug/mL
7	DUP	S98T002056	0 A	OMSU-A1	U233-A1	LIQUID	<3.08e-2	RPD
7	DUP	S98T002056	0 A	OMSU-A1	U234-A1	LIQUID	<2.76e-2	RPD
7	DUP	S98T002056	0 A	OMSU-A1	U235-A1	LIQUID	<2.79e-2	RPD
7	DUP	S98T002056	0 A	OMSU-A1	U236-A1	LIQUID	<4.89e-2	RPD
7	DUP	S98T002056	0 A	OMSU-A1	U238-A1	LIQUID	1.53e+00	1.52e+00 0.656 RPD
8	SAMPLE	S98T002057	0 A	OMSU-A1	U233-A1	LIQUID	N/A	3.076e-02 ug/mL
8	SAMPLE	S98T002057	0 A	OMSU-A1	U234-A1	LIQUID	N/A	2.764e-02 ug/mL
8	SAMPLE	S98T002057	0 A	OMSU-A1	U235-A1	LIQUID	N/A	3.317e-01 ug/mL
8	SAMPLE	S98T002057	0 A	OMSU-A1	U236-A1	LIQUID	N/A	4.890e-02 ug/mL
8	SAMPLE	S98T002057	0 A	OMSU-A1	U238-A1	LIQUID	N/A	4.055e-01 ug/mL
9	DUP	S98T002057	0 A	OMSU-A1	U233-A1	LIQUID	<3.08e-2	RPD
9	DUP	S98T002057	0 A	OMSU-A1	U234-A1	LIQUID	<2.76e-2	RPD
9	DUP	S98T002057	0 A	OMSU-A1	U235-A1	LIQUID	3.32e-01	3.18e-01 4.308 RPD
9	DUP	S98T002057	0 A	OMSU-A1	U236-A1	LIQUID	<4.89e-2	RPD
9	DUP	S98T002057	0 A	OMSU-A1	U238-A1	LIQUID	4.05e-01	4.09e+01 0.983 RPD

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

LABCORE Completed Worklist Report for Worklist# 24991

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
10 CCV	0		QMSU238 U238	QC	0.020	2.01e-02	100.500 %	Recovery
11 CCB	0		QMSU-A1 U233-A1	LIQUID	?	NaNQ		Ratio
11 CCB	0		QMSU-A1 U234-A1	LIQUID	?	NaNQ		Ratio
11 CCB	0		QMSU-A1 U235-A1	LIQUID	?	<6.74e-6		Ratio
11 CCB	0		QMSU-A1 U236-A1	LIQUID	?	NaNQ		Ratio
11 CCB	0		QMSU-A1 U238-A1	LIQUID	?	<9.82e-6		Ratio

Final page for worklist# 24991

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Sam M. Pung 8/11/98
Reviewer Signature _____ Date _____

ISO_U Method -Definitions and Calculations**Data file requirements:**

The method in each section is identified by the line:

Method=ISO_U

The background is identified by the line:

Comment=background

or

Comment=BACKGROUND

The first two sections of the file will contain the background information.

If Mode=IR then the avg column in the Results section contains isotope ratio values. If Mode=CONC, then the avg column contains concentration values for U235 and U238 in ppb; the rest are IR values.

Dilution factors (if not equal to 1.0) are on the comment line for each tray slot.

Comment= x df(or DF) where x is the dilution factor

If the comment is blank, the dilution factor is 1.0.

Concentration calculation:

If the analyte is not U235 or U238, then the calculation for each analyte is as follows:

$$\text{concentration(analyte)} = \frac{\text{concentration (U235)} * [\text{IR(analyte)} - \text{BackgroundIR(analyte)}]}{[\text{IR(U235)} - \text{BackgroundIR(U235)}] * 1000}$$

U235 and U238 results are divided by 1000 to convert the units to ppm.

Detection Limit calculation :

If the result is less than the detection limit, then the result is replaced by the detection limit and the range field is set to '<'.

The detection limit for all analytes is:

$$\text{Detection Limit} = \frac{15 * \text{Background stddev(analyte x)} * [\text{ICV Concentration(U235)}]}{(\text{analyte x}) ([\text{ICV IR(U235)}] - [\text{BackgroundIR(U235)}]) * 1000}$$

In addition, all calculations are corrected for digest and dilution factors.

Spikes:

Spike results will only be calculated for U238.

The sample contribution to the spike is calculated by the same method used for the Actinide method.

LABCORE Data Entry Template for Worklist# 24991

Analyst: S. Godek Instrument: ICPMS1 _____ Book# 71110-P

Method: LA-506-101 Rev/Mod A-0

Worklist Comment: ICP/MS AP-106 GRAB2 (DIRECT) 130-U

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 ICV			@MSU238	QC		
2 ICB			@MSU-A1	LIQUID		
3 SAMPLE	S98T002055 0 A	@MSU-A1	LIQUID		98000335	AP-106 GRAB2
	Analytes Requested: U233-A1, U234-A1, U235-A1, U236-A1, U238-A1					
4 DUP	S98T002055 0 A	@MSU-A1	LIQUID			
5 SPK	S98T002055 0 A	@MSU-A1	LIQUID			
6 SAMPLE	S98T002056 0 A	@MSU-A1	LIQUID		98000335	AP-106 GRAB2
	Analytes Requested: U233-A1, U234-A1, U235-A1, U236-A1, U238-A1					
7 DUP	S98T002056 0 A	@MSU-A1	LIQUID			
8 SAMPLE	S98T002057 0 A	@MSU-A1	LIQUID		98000335	AP-106 GRAB2
	Analytes Requested: U233-A1, U234-A1, U235-A1, U236-A1, U238-A1					
9 DUP	S98T002057 0 A	@MSU-A1	LIQUID			
10 CCV			@MSU238	QC		
11 CCB			@MSU-A1	LIQUID		

Final page for worklist # 24991

Analyst Signature S. Godek Date 8-6-98

Analyst Signature _____ Date _____

S98T002055 - 57

.25 - 10~1 - .1 - 10~1 DF 4/1/1

.02~1 (10pp U) is spike

Data Entry Comments:

Validated by:

Sam M. Pung

8/11/98

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

Analysis Report

08/06/98 21:16:56

page 1

Method: MS_TUNE Sample Name: ms-tune

Operator: bjg

Comment:

Run Time: 08/06/98 21:16 Type: Unk

Mode: INT

Corr.Fact: 1.000000

Elem	In[115]
Line	115/pulse
Units	Cts/S
Avg	99460.
Stddev	905.
%RSD	.9097

#1	99320.
#2	99570.
#3	100400.
#4	100300.
#5	98780.
#6	100700.
#7	99850.
#8	98270.
#9	99440.
#10	97980.

8-6-98

AP-106

5887002055-57

.25-10-1-10

File # 008066.TXT

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 103 TO 105.

Analysis Report

Method: ISO_U Sample Name: icv

Operator: bjg

Comment: sst-6

Run Time: 08/06/98 21:18 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.737	1.640	29.07	4.568	8204.
Stddev	.545	.439	1.97	.378	74.
%RSD	19.93	26.74	6.763	8.271	.9006

#1	2.964	1.455	29.53	4.903	8140.
#2	2.155	1.758	28.36	4.084	8187.
#3	2.264	2.321	27.80	4.246	8284.
#4	3.493	1.521	27.38	4.733	8277.
#5	2.809	1.147	32.27	4.873	8129.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.9047
Stddev	.2168
%RSD	2.4346

#1	9.2795
#2	8.8159
#3	8.8320
#4	8.8743
#5	8.7219

Method: ISO_U Sample Name: icv

Operator: bjg

Comment: sst-6

Run Time: 08/06/98 21:18 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	2.737	1.640	.0633	4.568	20.64
Stddev	.545	.439	.0046	.378	.19
%RSD	19.93	26.74	7.203	8.271	.9008

#1	2.964	1.455	.0643	4.903	20.48
#2	2.155	1.758	.0616	4.084	20.60
#3	2.264	2.321	.0603	4.246	20.84
#4	3.493	1.521	.0594	4.733	20.82
#5	2.809	1.147	.0707	4.873	20.45

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.9047
Stddev	.2168
%RSD	2.4346

#1	9.2795
#2	8.8159
#3	8.8320
#4	8.8743
#5	8.7219

Analysis Report

08/06/98 21:25:43

page 1

Method: ISO_U Sample Name: icb

Operator: bjg

Comment: 2% hno3

Run Time: 08/06/98 21:24 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.084	1.229	1.252	1.242	1.993
Stddev	.291	.223	.208	.386	.246
%RSD	26.86	18.16	16.63	31.08	12.36

#1	.6128	1.226	1.281	1.059	1.616
#2	1.137	1.080	1.080	1.080	2.103
#3	1.322	1.035	1.552	1.897	1.954
#4	1.317	1.203	1.031	1.260	2.005
#5	1.029	1.601	1.315	.9149	2.287

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.7892
Stddev	.1099
%RSD	1.2498

#1	8.9748
#2	8.7981
#3	8.6987
#4	8.7297
#5	8.7445

Analysis Report

08/06/98 21:25:49

page 1

Method: ISO_U Sample Name: ich

Operator: bjg

Comment: 2% hno3

Run Time: 08/06/98 21:24 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.084	1.229	-.0012	1.242	-.0004
Stddev	.291	.223	.0005	.386	.0006
%RSD	26.86	18.16	39.75	31.08	169.7

#1	.6128	1.226	-.0011	1.059	-.0013
#2	1.137	1.080	-.0016	1.080	-.0001
#3	1.322	1.035	-.0005	1.897	-.0005
#4	1.317	1.203	-.0017	1.260	-.0003
#5	1.029	1.601	-.0011	.9149	.0004

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.7892
Stddev	.1099
%RSD	1.2498

#1	8.9748
#2	8.7981
#3	8.6987
#4	8.7297
#5	8.7445

Method: ISO_U Sample Name: s98t002055

Operator: bjg

Comment: 4141 df

Run Time: 08/06/98 21:26 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.194	1.628	4.748	1.511	413.0
Stddev	.187	.239	.199	.316	5.7
%RSD	15.67	14.66	4.191	20.95	1.388

#1	.9741	1.623	4.600	1.786	404.5
#2	1.331	2.026	5.094	.9841	417.6
#3	1.427	1.484	4.679	1.484	410.0
#4	1.182	1.595	4.727	1.714	418.2
#5	1.058	1.410	4.642	1.586	414.4

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.7223
Stddev	.3120
%RSD	3.5771

#1	9.2397
#2	8.6371
#3	8.7625
#4	8.4622
#5	8.5099

Analysis Report

08/06/98 21:28:18

page 1

Method: ISO_U Sample Name: s98t002055 Operator: bjg
 Comment: 4141 df
 Run Time: 08/06/98 21:26 Type: Unk Mode: CONC Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.194	1.628	.0069	1.511	1.034
Stddev	.187	.239	.0005	.316	.014
%RSD	15.67	14.66	6.694	20.95	1.395

#1	.9741	1.623	.0065	1.786	1.013
#2	1.331	2.026	.0077	.9841	1.046
#3	1.427	1.484	.0067	1.484	1.026
#4	1.182	1.595	.0068	1.714	1.047
#5	1.058	1.410	.0066	1.586	1.037

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.7223
Stddev	.3120
%RSD	3.5771

#1	9.2397
#2	8.6371
#3	8.7625
#4	8.4622
#5	8.5099

Analysis Report

08/06/98 21:30:24

page 1

Method: ISO_U Sample Name: s98t002055_d Operator: bjg
 Comment: 4141 df
 Run Time: 08/06/98 21:28 Type: Unk Mode: IR Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.436	1.343	4.452	1.585	431.6
Stddev	.408	.162	.330	.282	10.5
%RSD	28.41	12.08	7.402	17.80	2.435
#1	2.011	1.436	4.768	1.838	447.1
#2	1.336	1.503	4.064	1.225	419.6
#3	.9655	1.136	4.600	1.420	429.2
#4	1.661	1.203	4.696	1.546	425.9
#5	1.205	1.435	4.132	1.894	436.0

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.7862
Stddev	.1161
%RSD	1.3210

#1	8.7041
#2	8.9816
#3	8.8034
#4	8.7301
#5	8.7118

Method: ISO_U Sample Name: s98t002055_d Operator: bjg
 Comment: 4141 df
 Run Time: 08/06/98 21:28 Type: Unk Mode: CONC Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.436	1.343	.0062	1.585	1.081
Stddev	.408	.162	.0008	.282	.026
%RSD	28.41	12.08	12.31	17.80	2.447

#1	2.011	1.436	.0069	1.838	1.120
#2	1.336	1.503	.0053	1.225	1.051
#3	.9655	1.136	.0065	1.420	1.075
#4	1.661	1.203	.0068	1.546	1.066
#5	1.205	1.435	.0055	1.894	1.092

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.7862
Stddev	.1161
%RSD	1.3210

#1	8.7041
#2	8.9816
#3	8.8034
#4	8.7301
#5	8.7118

Analysis Report

08/06/98 21:33:36

page 1

Method: ISO_U Sample Name: s98t002055_a Operator: bjg
 Comment: 4141 df
 Run Time: 08/06/98 21:32 Type: Unk Mode: IR Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.331	1.645	62.68	3.403	8029.
Stddev	.423	.314	3.67	.249	346.
%RSD	31.76	19.08	5.858	7.331	4.316
#1	.8236	1.493	57.60	3.191	7460.
#2	1.840	1.265	63.36	3.680	8049.
#3	1.322	2.012	62.21	3.622	8196.
#4	1.020	1.926	62.31	3.399	8053.
#5	1.649	1.531	67.90	3.121	8387.

Int. Std. Ir[193]
 Line 193/pulse
 Units Cts/S
 Avg 8.8845
 Stddev .4789
 %RSD 5.3901

#1 9.7135
 #2 8.6957
 #3 8.6962
 #4 8.8271
 #5 8.4899

Method: ISO_U Sample Name: s98t002055_a Operator: bjg
Comment: 4141 df
Run Time: 08/06/98 21:32 Type: Unk Mode: CONC Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.331	1.645	.1412	3.403	20.20
Stddev	.423	.314	.0085	.249	.87
%RSD	31.76	19.08	6.029	7.331	4.317
#1	.8236	1.493	.1294	3.191	18.77
#2	1.840	1.265	.1428	3.680	20.25
#3	1.322	2.012	.1401	3.622	20.62
#4	1.020	1.926	.1403	3.399	20.26
#5	1.649	1.531	.1533	3.121	21.10

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.8845
Stddev	.4789
%RSD	5.3901

#1	9.7135
#2	8.6957
#3	8.6962
#4	8.8271
#5	8.4899

$$\text{Spike } U_{238} = \frac{20.20 - 1.034}{20} \times 100 = 95.8\%$$

SP
8/1/98

Analysis Report

08/06/98 21:40:34

page 1

Method: ISO_U Sample Name: s98t002056 Operator: bjg
 Comment: 4141 df
 Run Time: 08/06/98 21:38 Type: Unk Mode: IR Corr.Fact: 1.000000

Elem	U [233]	U [234]	U [235]	U [236]	U [238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.345	1.359	2.370	1.451	149.4
Stddev	.348	.304	.285	.286	3.2
%RSD	25.89	22.35	12.01	19.70	2.159
#1	1.460	1.011	2.190	1.292	149.3
#2	1.869	1.810	2.861	1.343	150.8
#3	.9361	1.170	2.223	1.521	149.3
#4	1.185	1.354	2.200	1.185	144.5
#5	1.276	1.450	2.377	1.914	153.3

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.6997
Stddev	.1708
%RSD	1.9638

#1	8.9043
#2	8.5624
#3	8.5465
#4	8.8628
#5	8.6226

Analysis Report

08/06/98 21:40:43

page 1

Method: ISO_U Sample Name: s98t002056 Operator: bjg
 Comment: 4141 df
 Run Time: 08/06/98 21:38 Type: Unk Mode: CONC Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.345	1.359	.0014	1.451	.3707
Stddev	.348	.304	.0007	.286	.0081
%RSD	25.89	22.35	47.87	19.70	2.190
#1	1.460	1.011	.0010	1.292	.3702
#2	1.869	1.810	.0025	1.343	.3742
#3	.9361	1.170	.0010	1.521	.3703
#4	1.185	1.354	.0010	1.185	.3582
#5	1.276	1.450	.0014	1.914	.3804

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.6997
Stddev	.1708
%RSD	1.9638

#1	8.9043
#2	8.5624
#3	8.5465
#4	8.8628
#5	8.6226

Analysis Report

08/06/98 21:42:54

page 1

Method: ISO_U Sample Name: s98t002056_d

Operator: bjg

Comment: 4141 df

Run Time: 08/06/98 21:41 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.050	1.210	2.929	1.341	148.0
Stddev	.196	.222	.511	.220	4.3
%RSD	18.64	18.31	17.45	16.39	2.919
#1	1.033	1.094	2.917	1.216	146.5
#2	1.352	1.290	2.950	1.229	155.7
#3	1.039	1.270	3.521	1.732	145.4
#4	1.024	.9037	3.133	1.265	147.1
#5	.8029	1.491	2.122	1.262	145.4

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.4084
Stddev	.2641
%RSD	3.1408

#1	8.2266
#2	8.1368
#3	8.6611
#4	8.2988
#5	8.7186

Method: ISO_U Sample Name: s98t002056_d Operator: bjg
 Comment: 4141 df
 Run Time: 08/06/98 21:41 Type: Unk Mode: CONC Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.050	1.210	.0027	1.341	.3671
Stddev	.196	.222	.0012	.220	.0109
%RSD	18.64	18.31	44.32	16.39	2.961
#1	1.033	1.094	.0026	1.216	.3634
#2	1.352	1.290	.0027	1.229	.3863
#3	1.039	1.270	.0040	1.732	.3606
#4	1.024	.9037	.0031	1.265	.3649
#5	.8029	1.491	.0008	1.262	.3606

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.4084
Stddev	.2641
%RSD	3.1408

#1	8.2266
#2	8.1368
#3	8.6611
#4	8.2988
#5	8.7186

Analysis Report

08/06/98 21:45:31

page 1

Method: ISO_U Sample Name: s98t002057

Operator: bjg

Comment: 4141 df

Run Time: 08/06/98 21:43 Type: Unk Mode: IR Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.427	2.090	36.33	4.514	3894.
Stddev	.303	.487	1.25	.645	108.
%RSD	21.25	23.31	3.455	14.30	2.766
#1	1.214	2.811	38.33	3.769	3913.
#2	1.363	1.817	36.21	4.153	3898.
#3	1.838	1.970	36.57	5.384	3764.
#4	1.096	1.547	35.40	4.320	3840.
#5	1.626	2.304	35.16	4.946	4056.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	7.6565
Stddev	.1728
%RSD	2.2568

#1	7.8267
#2	7.7061
#3	7.6150
#4	7.7548
#5	7.3797

Analysis Report

08/06/98 21:45:37

page 1

Method: ISO_U Sample Name: s98t002057

Operator: bjg

Comment: 4141 df

Run Time: 08/06/98 21:43 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.427	2.090	.0801	4.514	9.793
Stddev	.303	.487	.0029	.645	.271
%RSD	21.25	23.31	3.633	14.30	2.767

#1	1.214	2.811	.0847	3.769	9.840
#2	1.363	1.817	.0798	4.153	9.803
#3	1.838	1.970	.0807	5.384	9.465
#4	1.096	1.547	.0779	4.320	9.657
#5	1.626	2.304	.0774	4.946	10.20

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	7.6565
Stddev	.1728
%RSD	2.2568

#1	7.8267
#2	7.7061
#3	7.6150
#4	7.7548
#5	7.3797

Analysis Report

08/06/98 21:48:33

page 1

Method: ISO_U Sample Name: s98t002057_d Operator: bjg
 Comment: 4141 df
 Run Time: 08/06/98 21:47 Type: Unk Mode: IR Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.383	1.736	34.85	4.577	3926.
Stddev	.274	.356	1.80	.285	101.
%RSD	19.79	20.53	5.164	6.236	2.565
#1	1.588	1.522	35.53	4.433	3869.
#2	1.614	1.543	36.55	4.841	4071.
#3	1.406	2.109	36.00	4.289	3973.
#4	.9316	2.129	32.07	4.924	3808.
#5	1.375	1.375	34.09	4.399	3907.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	7.3170
Stddev	.2102
%RSD	2.8723

#1	7.5575
#2	7.1270
#3	7.1115
#4	7.5138
#5	7.2751

Analysis Report

08/06/98 21:48:40

page 1

Method: ISO_U Sample Name: s98t002057_d Operator: bjg
 Comment: 4141 df
 Run Time: 08/06/98 21:47 Type: Unk Mode: CONC Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.383	1.736	.0767	4.577	9.873
Stddev	.274	.356	.0042	.285	.253
%RSD	19.79	20.53	5.442	6.236	2.566

#1	1.588	1.522	.0782	4.433	9.730
#2	1.614	1.543	.0806	4.841	10.24
#3	1.406	2.109	.0793	4.289	9.992
#4	.9316	2.129	.0702	4.924	9.578
#5	1.375	1.375	.0749	4.399	9.826

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	7.3170
Stddev	.2102
%RSD	2.8723

#1	7.5575
#2	7.1270
#3	7.1115
#4	7.5138
#5	7.2751

Analysis Report

08/06/98 21:58:32

page 1

Method: ISO_U Sample Name: ccv

Operator: bjg

Comment: sst-6

Run Time: 08/06/98 21:53 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.721	1.530	27.50	4.242	7984.
Stdddev	.503	.389	1.22	.498	232.
%RSD	18.49	25.42	4.444	11.73	2.903

#1	2.951	1.475	25.73	3.659	7978.
#2	3.441	2.002	27.34	4.629	8277.
#3	2.336	1.377	27.79	3.893	7763.
#4	2.696	1.798	27.50	4.854	7753.
#5	2.180	.9968	29.16	4.174	8148.

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.2367
Stdddev	.2142
%RSD	2.6009

#1	8.4721
#2	7.9924
#3	8.3488
#4	8.3443
#5	8.0260

Analysis Report

08/06/98 21:58:42

page 1

Method: ISO_U Sample Name: ccv

Operator: bjg

Comment: sst-6

Run Time: 08/06/98 21:53 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	2.721	1.530	.0596	4.242	20.08
Stddev	.503	.389	.0028	.498	.58
%RSD	18.49	25.42	4.751	11.73	2.904

#1	2.951	1.475	.0555	3.659	20.07
#2	3.441	2.002	.0593	4.629	20.82
#3	2.336	1.377	.0603	3.893	19.53
#4	2.696	1.798	.0596	4.854	19.50
#5	2.180	.9968	.0635	4.174	20.50

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.2367
Stddev	.2142
%RSD	2.6009

#1	8.4721
#2	7.9924
#3	8.3488
#4	8.3443
#5	8.0260

Analysis Report

08/06/98 22:02:36

page 1

Method: ISO_U Sample Name: ccb

Operator: bjg

Comment: 2% hno3

Run Time: 08/06/98 21:59 Type: Unk

Mode: IR

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.132	1.522	1.332	1.356	2.236
Stddev	.217	.195	.197	.345	.287
%RSD	19.14	12.78	14.80	25.44	12.86
#1	.7595	1.344	1.636	1.168	2.571
#2	1.133	1.431	1.252	1.252	2.027
#3	1.213	1.819	1.395	1.395	1.880
#4	1.286	1.403	1.111	1.929	2.455
#5	1.270	1.616	1.270	1.039	2.250

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.4823
Stddev	.1653
%RSD	1.9481

#1	8.5585
#2	8.3881
#3	8.2456
#4	8.5545
#5	8.6648

Analysis Report

08/06/98 22:02:41

page 1

Method: ISO_U Sample Name: ccb

Operator: bjg

Comment: 2% hno3

Run Time: 08/06/98 21:59 Type: Unk

Mode: CONC

Corr.Fact: 1.000000

Elem	U_[233]	U_[234]	U_[235]	U_[236]	U_[238]
Line	233/pulse	234/pulse	235/pulse	236/pulse	238/pulse
Units	ppb	ppb	ppb	ppb	ppb
Avg	1.132	1.522	-.0010	1.356	.0002
Stddev	.217	.195	.0005	.345	.0007
%RSD	19.14	12.78	44.51	25.44	292.1
#1	.7595	1.344	-.0003	1.168	.0011
#2	1.133	1.431	-.0012	1.252	-.0003
#3	1.213	1.819	-.0009	1.395	-.0006
#4	1.286	1.403	-.0015	1.929	.0008
#5	1.270	1.616	-.0012	1.039	.0003

Int. Std.	Ir[193]
Line	193/pulse
Units	Cts/S
Avg	8.4823
Stddev	.1653
%RSD	1.9481

#1	8.5585
#2	8.3881
#3	8.2456
#4	8.5545
#5	8.6648

LABCORE Completed Worklist Report for Worklist# 24869

Analyst: jmv

Instrument: CARB1

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: @TICTOC1 FOR AP-106 (HANDLE AS PCB SUSPECT) RTS

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLNK	0	0	@TICTOC1 TIC-02	LIQUID	1	1.00E-1	0.100	ug/mL
1 BLNK	0	0	@TICTOC1 TOC-02	LIQUID	1	6.10E+0	6.100	ug/mL
2 STD	0	0	@TICTOC1 TIC-02	LIQUID	6.02E+02	6.07E+2	100.831 % Recovery	
2 STD	0	0	@TICTOC1 TOC-02	LIQUID	3.00E+03	2.83E+3	94.333 % Recovery	
3 SAMPLE	S98T002050	0	@TICTOC1 TIC-02	LIQUID	N/A	1.16E+03	5.000	ug/mL
3 SAMPLE	S98T002050	0	@TICTOC1 TOC-02	LIQUID	N/A	4.11E+02	40.000	ug/mL
4 DUP	S98T002050	0	@TICTOC1 TIC-02	LIQUID	1.16E+3	1.14E+3	1.739	RPD
4 DUP	S98T002050	0	@TICTOC1 TOC-02	LIQUID	4.11E+2	3.99E+2	2.963	RPD
5 SPK	S98T002050	0	@TICTOC1 TIC-02	LIQUID	1.00E+02	1.01E+02	101.000 % Recovery	
5 SPK	S98T002050	0	@TICTOC1 TOC-02	LIQUID	1.00E+02	9.47E+01	94.700 % Recovery	
6 SAMPLE	S98T002053	0	@TICTOC1 TIC-02	LIQUID	N/A	1.24E+03	5.000	ug/mL
6 SAMPLE	S98T002053	0	@TICTOC1 TOC-02	LIQUID	N/A	2.36E+02	40.000	ug/mL
7 DUP	S98T002053	0	@TICTOC1 TIC-02	LIQUID	1.24E+3	1.40E+3	12.121	RPD
7 DUP	S98T002053	0	@TICTOC1 TOC-02	LIQUID	2.36E+2	1.92E+2	20.561	RPD
8 SAMPLE	S98T002054	0	@TICTOC1 TIC-02	LIQUID	N/A	3.79E+03	5.000	ug/mL
8 SAMPLE	S98T002054	0	@TICTOC1 TOC-02	LIQUID	N/A	1.23E+03	40.000	ug/mL
9 DUP	S98T002054	0	@TICTOC1 TIC-02	LIQUID	3.79E+3	3.88E+3	2.347	RPD
9 DUP	S98T002054	0	@TICTOC1 TOC-02	LIQUID	1.23E+3	1.41E+3	13.636	RPD

Final page for worklist# 24869

Analyst Signature

Date

Analyst Signature

Date

Reviewer Signature

Date

HNF-1642 REV. 0

Page: 1

07/09/98 11:22
A-0004-1

LABCORE Data Entry Template for Worklist# 24869

Analyst: JAN Instrument: CARB2 Book# 21
Method: LA-342-100 Rev/Mod F-1
Worklist Comment: @TICTOC1 FOR AP-106 ~~SEND TO EAST FOR INSPEC~~ ~~LRG~~

S Type	Sample#	R A Test	Matrix	Group#	Project
1 BLNK		@TICTOC1	LIQUID		
2 STD		@TICTOC1	LIQUID		
3 SAMPLE	S98T002050 0	@TICTOC1	LIQUID	98000335	AP-116 GRAB2
	Analytes Requested: TIC-02 , TOC-02				
4 DUP	S98T002050 0	@TICTOC1	LIQUID		
5 SPK	S98T002050 0	@TICTOC1	LIQUID		
6 SAMPLE	S98T002053 0	@TICTOC1	LIQUID	98000335	AP-106 GRAB2
	Analytes Requested: TIC-02 , TOC-02				
7 DUP	S98T002053 0	@TICTOC1	LIQUID		
8 SAMPLE	S98T002054 0	@TICTOC1	LIQUID	98000335	AP-106 GRAB2
	Analytes Requested: TIC-02 , TOC-02				
9 DUP	S98T002054 0	@TICTOC1	LIQUID		

Final page for worklist # 24869

JAN 8-13-98
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

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

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)	7.6	16
24869	µg of Carbon from Baseline	(C2)	7.5	22.1

Test Code	µg of Carbon = C1-C2
@TICTOC1	
Matrix	
LIQUID	
Batch Number	
98003368	
Rerun	
0	
Sample Prep	
N/A	
Sample #	
BLK	
Instrument Code	
CARB1	
Prepared By	
JRO	
Chemist	
MJL	
Analyst	
JMV	
Date Complete	
08/14/98	
Analysis Date	
08/13/98	
Analysis Time	Method Detection Limit in µg/mL
04:00 AM	
Sample Point	µg of Carbon
AP106	

TIC	TOC
5	40
1.00E-01	6.10E+00

Data Entered By:	JRO	Date:	08/14/98
Signature of Chemist:	<i>John J. O'Neil</i>	Date:	9/16/98
BLANK.WB1 REV 1.0	342100ML		

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 128 TO 150.

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)	614.2	588.8
24869	µg of Carbon from Baseline (C2)	7.5	22.1
Test Code	Standard Book Number	25N12D	26N12E
@TICTOC1	Standard Value (µg/ml)	602	3000
Matrix			
LIQUID			
Batch Number			
98003368			
Rerun			
0	QC Actual in µg/mL = Standard Value (µg/mL)		
Sample Prep	QC Found in µg/mL = (C1 - C2) * DF / SS		
N/A	QC Found in µg/mL for TIC = 5 if C1 < C2		
Sample #	QC Found in µg/mL for TOC = 40 if C1 < C2		
Instrument Code	% Recovery = QC Found / QC Actual * 100		
CARB1			
Prepared By			
JRO			
Chemist			
MJL			
Analyst			
JMV			
Date Complete			
08/14/98			
Analysis Date			
08/13/98			
Analysis Time	Method Detection Limit in µg/mL	TIC	TOC
04:00 AM	QC Actual in µg/mL	5	40
Sample Point	QC Found in µg/mL	6.02E+02	3.00E+03
AP106	Percent Standard Recovery	6.07E+02	2.83E+03
		100.8	94.5

Data Entered By:	JRO	Date:	08/14/98
Signature of Chemist:		Date:	

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)	0.1000	0.1000
SAMPLE	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	123.1	63.2
24869	µg of Carbon from Baseline (C2)	7.5	22.1
Test Code			
@TICTOC1			
Matrix			
LIQUID			
Batch Number			
98003368			
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 #			
S98T002050			
Instrument Code			
CARB1			
Prepared By			
JRO			
Chemist			
MJL			
Analyst			
JMV			
Date Complete			
08/14/98			
Analysis Date			
08/13/98			
Analysis Time	Method Detection Limit in µg/mL	TIC	TOC
04:00 AM		5	40
Sample Point	µg of Carbon/mL	1.16E+03	4.11E+02
AP106			

Data Entered By:	JRO	Date:	08/14/98
Signature of Chemist:		Date:	

WORKBOOK PAGE: DUP4

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

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	0.1000	0.1000
DUP	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	121.9	62
24869	µg of Carbon from Baseline (C2)	7.5	22.1
Test Code	Known µg of C from Original Sample	1.16E+3	4.11E+2
@TICTOC1			
Matrix			
LIQUID			
Batch Number			
98003368			
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 #			
S98T002050			
Instrument Code			
CARB1			
Prepared By			
JRO			
Chemist			
MJL			
Analyst			
JMV			
Date Complete			
08/14/98			
Analysis Date			
08/13/98			
Analysis Time	Method Detection Limit in µg/mL	5	40
04:00 AM			
Sample Point	µg of Carbon/mL	1.14E+03	3.99E+02
AP106			

Data Entered By:	JRO	Date:	08/14/98
Signature of Chemist:		Date:	

WORKBOOK PAGE: SPIKE5

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

LIQUIDS

Type	Sample Vial Data	TIC	TOC
SPK	Sample Volume in mL (SS)	0.1000	0.1000
Work List	Final Coulometer Reading in μg (C1)	123.1	63.2
24869	Spiked Vial Data		
Test Code	Sample Volume in mL (SPK SS)	0.1000	0.1000
@TIC/TOC1	Amount of Spike Std. in mL (SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in μg (C2)	427.3	347.2
LIQUID	Spike Book Number	25N12D	26N12E
Batch Number	Spike Standard Value in $\mu\text{g/mL}$ (SPK CONC)	602	3000
98003368	$\mu\text{g C}$ in baseline (BL)	7.6	22.1
Rerun			
0			
Sample Prep			
N/A			
Sample #	Percent Spike Recovery = $((C2-BL) - (C1-BL)) * (SPK SS) / SS / ((SPK CONC) * (SPK VOL)) * 100$		
S98T002050			
Instrument Code	QC Actual in $\mu\text{g/mL}$ = Spike Value ($\mu\text{g/mL}$)		
CARB1	QC Found in $\mu\text{g/mL}$ = (Percent Spike Recovery) * (QC Actual) / 100		
Prepared By			
JRO			
Chemist			
MJL			
Analyst			
JMV			
Date Complete			
08/14/98			
Analysis Date			
08/13/98			
Analysis Time		TIC	TOC
04:00 AM	QC Actual in $\mu\text{g/mL}$	6.02E+02	3.00E+03
Sample Point	QC Found in $\mu\text{g/mL}$	6.08E+02	2.84E+03
AP106	Percent Spike Recovery	101.1	94.7

Data Entered By:	JRO	Date:	08/14/98
Signature of Chemist:		Date:	

SPIKE.WB1 REV 1.3

342100ML

WORKBOOK PAGE: SAM6

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

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	0.1000	0.1000
SAMPLE	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	131	45.7
24869	µg of Carbon from Baseline (C2)	7.5	22.1
Test Code			
@TICTOC1			
Matrix			
LIQUID			
Batch Number			
98003368			
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 #			
S98T002053			
Instrument Code			
CARB1			
Prepared By			
JRO			
Chemist			
M.J.L			
Analyst			
JMV			
Date Complete			
08/14/98			
Analysis Date			
08/13/98			
Analysis Time	Method Detection Limit in µg/mL	TIC	TOC
04:00 AM		5	40
Sample Point	µg of Carbon/mL	1.24E+03	2.36E+02
AP106			

Data Entered By:	JRO	Date:	08/14/98
Signature of Chemist:		Date:	

WORKBOOK PAGE: DUP7

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

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	0.1000	0.1000
DUP	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	147	41.3
24869	µg of Carbon from Baseline (C2)	7.5	22.1
Test Code	Known µg of C from Original Sample	1.24E+3	2.36E+2
@TICTOC1			
Matrix			
LIQUID			
Batch Number			
98003368			
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 #			
S98T002053			
Instrument Code			
CARB1			
Prepared By			
JRO			
Chemist			
MJL			
Analyst			
JMV			
Date Complete			
08/14/98			
Analysis Date			
08/13/98			
Analysis Time	Method Detection Limit in µg/mL	TIC	TOC
04:00 AM		5	40
Sample Point	µg of Carbon/mL	1.40E+03	1.92E+02
AP106			

Data Entered By:	JRO	Date:	08/14/98
Signature of Chemist:		Date:	

SAMPLE.WB1 REV 1.0

342100ML

WORKBOOK PAGE: SAM8

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

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	0.1000	0.1000
SAMPLE	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	386.8	145
24869	µg of Carbon from Baseline (C2)	7.5	22.1
Test Code			
@TICTOC1			
Matrix			
LIQUID			
Batch Number			
98003368			
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 #			
S98T002054			
Instrument Code			
CARB1			
Prepared By			
JRO			
Chemist			
MJL			
Analyst			
JMV			
Date Complete			
08/14/98			
Analysis Date			
08/13/98			
Analysis Time	Method Detection Limit in µg/mL	TIC	TOC
04:00 AM		5	40
Sample Point	µg of Carbon/mL	3.79E+03	1.23E+03
AP106			

Data Entered By:	JRO	Date:	08/14/98
Signature of Chemist:		Date:	

WORKBOOK PAGE: DUP9

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

LIQUIDS

		TIC	TOC
Type	Sample Size in mL (SS)	0.1000	0.1000
DUP	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	395.9	163.3
24869	µg of Carbon from Baseline (C2)	7.5	22.1
Test Code	Known µg of C from Original Sample	3.79E+3	1.23E+3
@TICTOC1			

Matrix
LIQUID

Batch Number
98003368

Rerun
0

Sample Prep
N/A

Sample #
S98T002054

Instrument Code
CARB1

Prepared By
JRO

Chemist
M.J.L

Analyst
JMV

Date Complete
08/14/98

Analysis Date
08/13/98

Analysis Time
04:00 AM

Sample Point
AP106

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

		TIC	TOC
Analysis Time	Method Detection Limit in µg/mL	5	40
Sample Point	µg of Carbon/mL	3.88E+03	1.41E+03

Data Entered By:	JRO	Date:	08/14/98
Signature of Chemist:		Date:	

HNF-1642 REV,0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT

TIC/OC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BASE

Date: 08/12/98

Time: 19:54:21

Sample Size = 1 uL

Dil Factor = 1

Blank ID # = BASE

Blank Value = N/A

Analyst : JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

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

1	0.51	0.20	0.00
2	1.01	0.60	66.67
3	1.51	0.90	33.33
4	2.00	1.20	25.00
5	2.50	1.50	20.00
6	3.00	2.00	25.00
7	3.50	2.50	20.00
8	4.00	2.80	10.71
9	4.50	3.20	12.50
10	5.00	3.60	11.11
11	5.50	4.00	10.00
12	6.00	4.30	6.98
13	6.50	4.60	6.52
14	7.00	5.00	8.00
15	7.50	5.20	3.85
16	8.00	5.60	7.14
17	8.50	6.00	6.67
18	9.00	6.20	3.23
19	9.50	6.60	6.06
20	10.00	6.80	2.94
21	10.50	7.20	5.56
22	11.00	7.50	4.00

BLANK VALUE = 7.5 micrograms carbon

BLANK FACTOR = 7.5 / 10.99878 =

+6.8E-01

ug/min Carbon

Sample Run By:

JM VANSANT

00001

HNF-1642 REV,0

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

Sample: BASE

Date: 08/12/98

Time: 20:07:28

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE
Blank Value = N/A

Analyst : JM VANSANT
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==	== Analysis Time ==	== Coulometer ==	== % Difference ==
1	0.51	0.30	0.00
2	1.01	0.70	57.14
3	1.50	1.20	41.67
4	2.00	3.20	62.50
5	2.50	6.70	52.24
6	3.00	10.50	36.19
7	3.50	13.20	20.45
8	4.00	15.10	12.58
9	4.50	16.30	7.36
10	5.00	17.30	5.78
11	5.50	18.10	4.42
12	6.00	18.60	2.69
13	6.50	19.00	2.11
14	7.00	19.40	2.06
15	7.50	19.80	2.02
16	8.00	20.20	1.98
17	8.50	20.60	1.94
18	9.00	20.90	1.44
19	9.50	21.20	1.42
20	10.00	21.50	1.40
21	10.50	21.80	1.38
22	11.00	22.10	1.36

BLANK VALUE = 22.1 micrograms carbon

BLANK FACTOR = 22.1 / 10.99707 = +2.01E+00 ug/min Carbon

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

Sample Run By:

JM VANSANT

00001

HNF-1642 REV, 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD

Date: 08/12/98

Time: 21:27:17

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .68 ug/minute C

Analyst : JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

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

1	0.51	0.00	0.00
2	1.01	0.30	100.00
3	1.50	0.60	50.00
4	2.00	2.50	76.00
5	2.50	25.10	90.04
6	3.00	96.10	73.88
7	3.50	214.10	55.11
8	4.00	341.00	37.21
9	4.50	446.40	23.61
10	5.00	518.00	13.82
11	5.50	559.60	7.43
12	6.00	585.20	4.37
13	6.50	598.00	2.14
14	7.00	604.40	1.06
15	7.50	607.60	0.53
16	8.00	609.50	0.31
17	8.50	610.80	0.21
18	9.00	611.80	0.16
19	9.50	612.40	0.10
20	10.00	613.10	0.11
21	10.50	613.70	0.10
22	11.00	614.20	0.08

USER INPUT BLANK VALUE

BLANK VALUE = 7.478506 micrograms carbon

BLANK FACTOR = 7.478506 / 10.9978 = +6.8E-01 ug/min Carbon

SAMPLE RESULTS:

(614.2 - 7.478506) (1) / (1) = +6.067E+02 g/L Carbon
 (614.2 - 7.478506) (1) / (1) (12) = +5.056E+01 Molar Carbon

Sample Run By:

JM VANSANT

00001

HNF-1642 REV, 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD

Date: 08/12/98

Time: 21:44:29

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.01 ug/minute.C

Analyst : JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.40	0.00
2	1.01	0.70	42.86
3	1.50	3.10	77.42
4	2.00	41.80	92.58
5	2.50	160.80	74.00
6	3.00	313.40	48.69
7	3.50	430.80	27.25
8	4.00	498.70	13.62
9	4.50	539.50	7.56
10	5.00	562.10	4.02
11	5.50	572.50	1.82
12	6.00	578.10	0.97
13	6.50	580.90	0.48
14	7.00	582.80	0.33
15	7.50	584.20	0.24
16	8.00	585.10	0.15
17	8.50	585.90	0.14
18	9.00	586.70	0.14
19	9.50	587.30	0.10
20	10.00	587.80	0.09
21	10.50	588.30	0.08
22	11.00	588.80	0.08

USER INPUT BLANK VALUE

BLANK VALUE = 22.10558 micrograms carbon

BLANK FACTOR = 22.10558 / 10.9978 =

+2.0E+10

ug/min Carbon

SAMPLE RESULTS:

(588.8 - 22.10926) (1)/(1) =

+5.667E+02

g/L Carbon

(588.8 - 22.10926) (1)/(1) (12) =

+4.722E+01

Molar Carbon

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

Sample Run By:

JM VANSANT

00001

HNF-1642 REV, 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BLANK

Date: 08/12/98

Time: 20:19:44

Sample Size = 1 uL

Dil Factor = 1

Blank ID # = BLANK

Blank Value = N/A

Analyst : JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

-- Reading	==== Analysis Time	==== Coulometer	==== % Difference
1	0.51	0.10	0.00
2	1.01	0.50	80.00
3	1.50	0.80	37.50
4	2.00	1.10	27.27
5	2.50	1.70	35.29
6	3.00	2.30	26.09
7	3.50	2.90	20.69
8	4.00	3.40	14.71
9	4.50	3.80	10.53
10	5.00	4.20	9.52
11	5.50	4.50	6.67
12	6.00	4.80	6.25
13	6.50	5.10	5.88
14	7.00	5.40	5.56
15	7.50	5.70	5.26
16	8.00	6.00	5.00
17	8.50	6.30	4.76
18	9.00	6.50	3.08
19	9.50	6.80	4.41
20	10.00	7.10	4.23
21	10.50	7.30	2.74
22	11.00	7.60	3.95

BLANK VALUE = 7.6 micrograms carbon

BLANK FACTOR = 7.6 / 10.99805 =

+6.9E-01

ug/min Carbon

Sample Run By:

JM VANSANT

00001

HNF-1642 REV, 0

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

Sample: BLANK

Date: 08/12/98

Time: 21:11:51

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BLANK
Blank Value = N/A

Analyst : JM VANSANT
Min Readings = 22
Max Readings = 22
% Difference = 10

-- Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.30	100.00
3	1.50	0.60	50.00
4	2.00	0.80	25.00
5	2.50	1.40	42.86
6	3.00	3.50	60.00
7	3.50	6.30	44.44
8	4.00	8.80	28.41
9	4.50	10.50	16.19
10	5.00	11.60	9.48
11	5.50	12.30	5.69
12	6.00	12.80	3.91
13	6.50	13.30	3.76
14	7.00	13.60	2.21
15	7.50	14.00	2.86
16	8.00	14.30	2.10
17	8.50	14.60	2.05
18	9.00	14.90	2.01
19	9.50	15.10	1.32
20	10.00	15.40	1.95
21	10.50	15.70	1.91
22	11.00	16.00	1.88

BLANK VALUE = 16 micrograms carbon

BLANK FACTOR = 16 / 10.9978 =

+1.45E+00 ug/min Carbon

Sample Run By:

JM VANSANT

00001

HNF-1642 REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T002050

Date: 08/12/98

Time: 22:00:45

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .68 ug/minute C

Analyst : JM VANSANT

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	1.50	0.70	42.86
4	2.00	1.40	50.00
5	2.50	5.70	75.44
6	3.00	19.50	70.77
7	3.50	43.00	54.65
8	4.00	68.50	37.23
9	4.50	89.20	23.21
10	5.00	102.80	13.23
11	5.50	111.10	7.47
12	6.00	115.30	3.64
13	6.50	117.60	1.96
14	7.00	118.90	1.09
15	7.50	119.80	0.75
16	8.00	120.50	0.58
17	8.50	121.10	0.50
18	9.00	121.50	0.33
19	9.50	122.00	0.41
20	10.00	122.30	0.25
21	10.50	122.70	0.33
22	11.00	123.10	0.32

USER INPUT BLANK VALUE

BLANK VALUE = 7.478506 micrograms carbon

BLANK FACTOR = 7.478506 / 10.9978 =

+6.8E-11

ug/min Carbon

SAMPLE RESULTS:

(123.1 - 7.478589) (1)/(1) =

+1.156E+02 g/L Carbon

(123.1 - 7.478589) (1)/(1) (12) =

+9.635E+00 Molar Carbon

Sample Run By:

JM VANSANT

00001

HNF-1642 REV, 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T002050

Date: 08/12/98

Time: 22:12:50

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.01 ug/minute C

Analyst : JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.40	0.00
2	1.01	0.80	50.00
3	1.51	2.10	61.90
4	2.00	9.90	78.79
5	2.50	23.50	57.87
6	3.00	36.10	34.90
7	3.50	45.40	20.48
8	4.00	51.00	10.98
9	4.50	54.40	6.25
10	5.00	56.50	3.72
11	5.50	57.90	2.42
12	6.00	59.00	1.86
13	6.50	59.70	1.17
14	7.00	60.20	0.83
15	7.50	60.80	0.99
16	8.00	61.20	0.65
17	8.50	61.50	0.49
18	9.00	61.90	0.65
19	9.50	62.20	0.48
20	10.00	62.60	0.64
21	10.50	62.80	0.32
22	11.00	63.20	0.63

USER INPUT BLANK VALUE

BLANK VALUE = 22.10558 micrograms carbon

BLANK FACTOR = 22.10558 / 10.9978 = +2.0E+00 ug/min Carbon

SAMPLE RESULTS:

(63.2 - 22.10558) (1)/(1) = -4.11E+01 g/L Carbon
(63.2 - 22.10558) (1)/(1) (12) = +3.42E+00 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

JM VANSANT

00001

HNF-1642 REV,0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV-2.0

Sample: S98T002050DUP

Date: 08/12/98

Time: 22:28:24

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .68 ug/minute C

Analyst : JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	== Analysis Time ==	== Coulometer ==	== % Difference ==
1	0.51	0.60	0.00
2	1.01	1.00	40.00
3	1.50	1.40	28.57
4	2.00	2.30	39.13
5	2.50	7.90	70.89
6	3.00	23.10	65.80
7	3.50	47.00	50.85
8	4.00	72.60	35.26
9	4.50	92.00	21.09
10	5.00	104.50	11.96
11	5.50	111.30	6.11
12	6.00	114.90	3.13
13	6.50	116.90	1.71
14	7.00	118.10	1.02
15	7.50	118.80	0.59
16	8.00	119.40	0.50
17	8.50	119.90	0.42
18	9.00	120.40	0.42
19	9.50	120.70	0.25
20	10.00	121.10	0.33
21	10.50	121.50	0.33
22	11.00	121.90	0.33

USER INPUT BLANK VALUE

BLANK VALUE = 7.478506 micrograms carbon

BLANK FACTOR = 7.478506 / 10.9978

+6.8E-11

ug/min Carbon

SAMPLE RESULTS:

(121.9 - 7.47917) (1)/(1) =

+1.144E+02 g/L Carbon

(121.9 - 7.47917) (1)/(1) (12) =

+9.535E+00 Molar Carbon

Sample Run By:

JM VANSANT

00001

HNF-1642 REV, 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: S98T002050DUP

Date: 08/12/98

Time: 22:41:08

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.01 ug/minute C

Analyst : JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.20	0.00
2	1.01	0.60	66.67
3	1.50	1.50	60.00
4	2.00	7.70	80.52
5	2.50	20.30	62.07
6	3.00	33.20	38.86
7	3.50	42.50	21.88
8	4.00	48.80	12.91
9	4.50	52.70	7.40
10	5.00	55.20	4.53
11	5.50	56.70	2.65
12	6.00	57.80	1.90
13	6.50	58.60	1.37
14	7.00	59.20	1.01
15	7.50	59.70	0.84
16	8.00	60.00	0.50
17	8.50	60.50	0.83
18	9.00	60.80	0.49
19	9.50	61.10	0.49
20	10.00	61.50	0.65
21	10.50	61.70	0.32
22	11.00	62.00	0.48

USER INPUT BLANK VALUE

BLANK VALUE = 22.10558 micrograms carbon

BLANK FACTOR = 22.10558 / 10.9978 = +2.0E+10 ug/min Carbon

SAMPLE RESULTS:

(62 - 22.10583) (1)/(1) = +3.99E+01 g/L Carbon
 (62 - 22.10583) (1)/(1) (12) = +3.32E+00 Molar Carbon

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

Sample Run By:

JM VANSANT

00001

HNF-1642 REV.0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T002050SPK

Date: 08/12/98

Time: 22:56:31

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .68 ug/minute C

Analyst : JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference ==
1	0.51	0.00	0.00
2	1.01	0.30	100.00
3	1.50	0.60	50.00
4	2.00	1.40	57.14
5	2.50	14.40	90.28
6	3.00	57.80	75.09
7	3.50	138.70	58.33
8	4.00	229.60	39.59
9	4.50	303.20	24.27
10	5.00	354.70	14.52
11	5.50	387.70	8.51
12	6.00	405.10	4.30
13	6.50	414.40	2.24
14	7.00	419.00	1.10
15	7.50	421.50	0.59
16	8.00	423.00	0.35
17	8.50	424.10	0.26
18	9.00	424.90	0.19
19	9.50	425.60	0.16
20	10.00	426.20	0.14
21	10.50	426.70	0.12
22	11.00	427.30	0.14

USER INPUT BLANK VALUE

BLANK VALUE = 7.478506 micrograms carbon

BLANK FACTOR = 7.478506 / 10.9978 =

+6.8E-11

ug/min Carbon

SAMPLE RESULTS:

(427.3 - 7.47917) (1)/(1) =

4.198E+02 g/L Carbon

(427.3 - 7.47917) (1)/(1) (12) =

3.499E+01 Molar Carbon

Sample Run By:

JM VANSANT

00001

HNF-1642 REV.0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T002050SPK

Date: 08/12/98

Time: 23:08:33

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.01 ug/minute C

Analyst : JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.40	0.00
2	1.01	0.90	55.56
3	1.51	4.00	77.50
4	2.00	33.70	88.13
5	2.50	100.90	66.60
6	3.00	183.00	44.86
7	3.50	249.60	26.68
8	4.04	291.80	14.46
9	4.54	315.70	7.57
10	5.04	328.40	3.87
11	5.54	335.20	2.03
12	6.04	338.90	1.09
13	6.54	341.00	0.62
14	7.04	342.30	0.38
15	7.53	343.40	0.32
16	8.03	344.20	0.23
17	8.53	344.90	0.20
18	9.03	345.40	0.14
19	9.53	345.90	0.14
20	10.03	346.40	0.14
21	10.53	346.80	0.12
22	11.03	347.20	0.12

USER INPUT BLANK VALUE

BLANK VALUE = 22.10558 micrograms carbon

BLANK FACTOR = 22.10558 / 10.9978 = +2.0E+10 ug/min Carbon

SAMPLE RESULTS:

(347.2 - 22.17576) (1)/(1) = +3.250E+02 g/L Carbon
 (347.2 - 22.17576) (1)/(1) (12) = +2.709E+01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

JM VANSANT

00001

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T002053

Date: 08/12/98

Time: 23:24:22

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .68 ug/minute C

Analyst : JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference ==
1	0.51	0.30	0.00
2	1.01	0.60	50.00
3	1.51	2.50	76.00
4	2.00	12.30	79.67
5	2.50	31.10	60.45
6	3.00	56.10	44.56
7	3.50	80.70	30.48
8	4.00	100.30	19.54
9	4.50	112.30	10.69
10	5.00	119.60	6.10
11	5.50	123.30	3.00
12	6.00	125.50	1.75
13	6.50	126.70	0.95
14	7.00	127.40	0.55
15	7.50	128.10	0.55
16	8.00	128.70	0.47
17	8.50	129.10	0.31
18	9.00	129.50	0.31
19	9.50	129.90	0.31
20	10.00	130.30	0.31
21	10.50	130.60	0.23
22	11.00	131.00	0.31

USER INPUT BLANK VALUE

BLANK VALUE = 7.478506 micrograms carbon

BLANK FACTOR = 7.478506 / 10.9978 =

+6.8E-11

ug/min Carbon

SAMPLE RESULTS:

(131 - 7.478589) (1)/(1) =

-1.235E+02 g/L Carbon

(131 - 7.478589) (1)/(1) (12) =

-1.029E+01 Molar Carbon

Sample Run By:

JM VANSANT

00001

HNF-1642 REV,0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T002053

Date: 08/12/98

Time: 23:36:43

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.01 ug/minute C

Analyst : JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference ==
1	0.51	0.20	0.00
2	1.01	0.60	66.67
3	1.51	1.50	60.00
4	2.00	6.30	76.19
5	2.50	16.00	60.63
6	3.00	24.80	35.48
7	3.50	31.20	20.51
8	4.00	35.70	12.61
9	4.50	38.20	6.54
10	5.00	39.90	4.26
11	5.50	41.10	2.92
12	6.00	41.90	1.91
13	6.50	42.50	1.41
14	7.00	43.00	1.16
15	7.50	43.50	1.15
16	8.00	43.90	0.91
17	8.50	44.30	0.90
18	9.00	44.50	0.45
19	9.50	44.80	0.67
20	10.00	45.20	0.88
21	10.50	45.50	0.66
22	11.00	45.70	0.44

USER INPUT BLANK VALUE

BLANK VALUE = 22.10558 micrograms carbon

BLANK FACTOR = 22.10558 / 10.9978 = +2.0E+00 ug/min Carbon

SAMPLE RESULTS:

(45.7 - 22.10607) (1)/(1) = -2.36E+01 g/L Carbon
 (45.7 - 22.10607) (1)/(1) (12) = -1.97E+00 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

JM VANSANT

00001

HNF-1642 REV, 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T002053DUP

Date: 08/13/98

Time: 00:21:02

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .68 ug/minute C

Analyst : JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	2.30	0.00
2	1.01	6.30	63.49
3	1.51	12.20	48.36
4	2.00	18.00	32.22
5	2.50	25.10	28.29
6	3.00	34.60	27.46
7	3.50	50.60	31.62
8	4.00	71.70	29.43
9	4.50	93.80	23.56
10	5.00	112.90	16.92
11	5.50	126.60	10.82
12	6.00	134.60	5.94
13	6.50	138.90	3.10
14	7.00	141.40	1.77
15	7.50	143.00	1.12
16	8.00	144.00	0.69
17	8.50	144.70	0.48
18	9.00	145.30	0.41
19	9.50	145.70	0.27
20	10.00	146.20	0.34
21	10.50	146.60	0.27
22	11.00	147.00	0.27

USER INPUT BLANK VALUE

BLANK VALUE = 7.478506 micrograms carbon

BLANK FACTOR = 7.478506 / 10.9978

+6.8E-11 ug/min Carbon

SAMPLE RESULTS:

(147 - 7.478527) (1)/(1) =
 (147 - 7.478527) (1)/(1) (12) =

+1.395E+02 g/L Carbon

+1.163E+01 Molar Carbon

Sample Run By:

JM VANSANT

00001

HNF-1642 REV, 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: S98T002053DUP

Date: 08/13/98

Time: 01:06:08

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.01 ug/minute.C

Analyst : JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.10	0.00
2	1.01	0.60	83.33
3	1.51	1.10	45.45
4	2.00	4.10	73.17
5	2.50	11.40	64.04
6	3.00	19.00	40.00
7	3.50	25.80	26.36
8	4.00	30.40	15.13
9	4.50	33.20	8.43
10	5.00	35.20	5.68
11	5.50	36.50	3.56
12	6.00	37.50	2.67
13	6.50	38.10	1.57
14	7.00	38.70	1.55
15	7.50	39.10	1.02
16	8.00	39.50	1.01
17	8.50	39.90	1.00
18	9.00	40.20	0.75
19	9.50	40.50	0.74
20	10.00	40.80	0.74
21	10.50	41.00	0.49
22	11.00	41.30	0.73

USER INPUT BLANK VALUE

BLANK VALUE = 22.10558 micrograms carbon

BLANK FACTOR = 22.10558 / 10.9978 = +2.0E+00 ug/min Carbon

SAMPLE RESULTS:

(41.3 - 22.10765) (1)/(1) = +1.92E+01 g/L Carbon
 (41.3 - 22.10765) (1)/(1) (12) = +1.60E+00 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

JM VANSANT

00001

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T002054

Date: 08/13/98

Time: 01:28:01

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .68 ug/minute C

Analyst: JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

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

1	0.51	0.00	0.00
2	1.01	0.30	100.00
3	1.50	0.60	50.00
4	2.00	1.20	50.00
5	2.50	9.00	86.67
6	3.00	33.30	72.97
7	3.50	83.40	60.07
8	4.00	150.00	44.40
9	4.50	217.80	31.13
10	5.00	276.40	21.20
11	5.50	317.90	13.05
12	6.00	345.20	7.91
13	6.50	363.00	4.90
14	7.00	372.30	2.50
15	7.50	377.40	1.35
16	8.00	380.50	0.81
17	8.50	382.60	0.55
18	9.00	383.90	0.34
19	9.50	384.80	0.23
20	10.00	385.60	0.21
21	10.50	386.30	0.18
22	11.00	386.80	0.13

USER INPUT BLANK VALUE

BLANK VALUE = 7.478506 micrograms carbon

BLANK FACTOR = 7.478506 / 10.9978 = +6.8E-01 ug/min Carbon

SAMPLE RESULTS:

(386.8 - 7.478641) (1) / (1) = -3.793E+02 g/L Carbon
 (386.8 - 7.478641) (2) / (1) (12) = -3.161E+01 Molar Carbon

Sample Run By:

JM VANSANT

00001

HNF-1642 REV,0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT TICTOC REV 2.0

Sample: S98T002054

Date: 08/13/98

Time: 01:42:12

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.01 ug/minute C

Analyst : JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.40	0.00
2	1.01	0.80	50.00
3	1.50	1.30	38.46
4	2.00	6.70	80.60
5	2.50	26.70	74.91
6	3.00	56.50	52.74
7	3.50	86.80	34.91
8	4.00	109.30	20.59
9	4.50	123.40	11.43
10	5.00	131.20	5.95
11	5.50	135.60	3.24
12	6.00	138.30	1.95
13	6.50	140.00	1.21
14	7.00	141.20	0.85
15	7.50	142.10	0.63
16	8.00	142.70	0.42
17	8.50	143.40	0.49
18	9.00	143.80	0.28
19	9.50	144.30	0.35
20	10.00	144.70	0.28
21	10.50	145.10	0.28
22	11.00	145.50	0.27

USER INPUT BLANK VALUE

BLANK VALUE = 22.10558 micrograms Carbon

BLANK FACTOR = 22.10558 / 10.9978 = +2.0E+00 ug/min Carbon

SAMPLE RESULTS:

(145.5 - 22.10564) (1)/(1) = +1.234E+02 g/L Carbon
 (145.5 - 22.10564) (1)/(1) (12) = +1.028E+01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

JM VANSANT

00001

HNF-1642 REV, 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T002054DUP

Date: 08/13/98

Time: 02:00:51

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .68 ug/minute C

Analyst : JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.40	0.00
2	1.01	0.70	42.86
3	1.50	1.10	36.36
4	2.00	1.80	38.89
5	2.50	10.00	82.00
6	3.00	37.90	73.61
7	3.50	95.90	60.48
8	4.00	171.50	44.08
9	4.50	246.40	30.40
10	5.00	303.70	18.87
11	5.50	341.30	11.02
12	6.00	364.80	6.44
13	6.50	378.30	3.57
14	7.00	385.10	1.77
15	7.50	388.70	0.93
16	8.00	390.80	0.54
17	8.50	392.10	0.33
18	9.00	393.20	0.28
19	9.50	393.90	0.18
20	10.00	394.70	0.20
21	10.50	395.40	0.18
22	11.00	395.90	0.13

USER INPUT. BLANK VALUE

BLANK VALUE = 7.478506 micrograms carbon

BLANK FACTOR = 7.478506 / 10.9978 = +6.8E-11 ug/min Carbon

SAMPLE RESULTS:

(395.9 - 7.479886) (1)/(1) = +3.884E+02 g/L Carbon
 (395.9 - 7.479886) (1)/(1) (12) = +3.237E+01 Molar Carbon

Sample Run By:

JM VANSANT

00001

HNF-1642 REV, 0

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S98T002054DUP

Date: 08/13/98

Time: 08:15:54

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 2.01 ug/minute C

Analyst: JM VANSANT

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	== Analysis Time ==	== Coulometer ==	== % Difference ==
1	0.51	0.40	0.00
2	1.04	1.00	60.00
3	1.54	1.80	44.44
4	2.04	11.40	84.21
5	2.54	38.70	70.54
6	3.04	76.10	49.15
7	3.54	108.70	29.99
8	4.04	129.20	15.87
9	4.54	142.90	9.59
10	5.04	149.80	4.61
11	5.54	153.90	2.66
12	6.04	156.40	1.60
13	6.54	158.00	1.01
14	7.03	159.10	0.69
15	7.53	160.00	0.56
16	8.03	160.60	0.37
17	8.53	161.20	0.37
18	9.03	161.60	0.25
19	9.53	162.10	0.31
20	10.03	162.50	0.25
21	10.53	162.90	0.25
22	11.03	163.30	0.24

USER INPUT BLANK VALUE

BLANK VALUE = 22.10558 micrograms carbon.

BLANK FACTOR = 22.10558 / 10.9978 = +2.0E+00 ug/min Carbon

SAMPLE RESULTS:

(163.3 - 22.17396) (1)/(1) = +1.411E+02 g/L Carbon
 (163.3 - 22.17396) (1)/(1) (12) = +1.176E+01 Molar Carbon
 <<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>

Sample Run By:

JM VANSANT

00001

HNF-1642 REV. 0

RADIOCHEMICAL ANALYSIS

HNF-1642 REV. 0

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LABCORE Completed Worklist Report for Worklist# 24874

Analyst: ak1

Instrument: GEA03

Book# 28857

Method: LA-546-121 Rev/Mod F-0

Worklist Comment: @GEA-01 FOR AP-106 (HANDLE AS PCB SUSPECT) RTS

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@GEA-01 CO60-02 LIQUID		4.721e-03	4.94e-03	104.639 % Recovery	
1 STD	0		@GEA-01 CO60-02E LIQUID		1	2.77	2.770 % Ct Error	
1 STD	0		@GEA-01 CS13702 LIQUID		7.507e-03	7.53e-03	100.306 % Recovery	
1 STD	0		@GEA-01 CS13702E LIQUID		1	2.68	2.680 % Ct Error	
2 BLNK	0		@GEA-01 CO60-02 LIQUID		1	<1.52e-2		uCi/mL
2 BLNK	0		@GEA-01 CS13702 LIQUID		1	<3.75e-2		uCi/mL
3 SAMPLE	S98T002055	0	@GEA-01 CS13702 LIQUID		N/A	6.710e+01		uCi/mL
3 SAMPLE	S98T002055	0	@GEA-01 CS13702E LIQUID		N/A	0.490		% Ct. Error
4 DUP	S98T002055	0	@GEA-01 CS13702 LIQUID		6.71e+01	7.03e+01	4.658 RPD	
4 DUP	S98T002055	0	@GEA-01 CS13702E LIQUID		1	0.480	0.480 % Ct Error	
5 SAMPLE	S98T002056	0	@GEA-01 CS13702 LIQUID		N/A	4.810e+01		uCi/mL
5 SAMPLE	S98T002056	0	@GEA-01 CS13702E LIQUID		N/A	0.580		% Ct. Error
6 DUP	S98T002056	0	@GEA-01 CS13702 LIQUID		4.81e+01	4.73e+01	1.677 RPD	
6 DUP	S98T002056	0	@GEA-01 CS13702E LIQUID		1	0.580	0.580 % Ct Error	
7 SAMPLE	S98T002057	0	@GEA-01 CS13702 LIQUID		N/A	1.140e+02		uCi/mL
7 SAMPLE	S98T002057	0	@GEA-01 CS13702E LIQUID		N/A	0.370		% Ct. Error
8 DUP	S98T002057	0	@GEA-01 CS13702 LIQUID		1.14e+02	1.17e+02	2.597 RPD	
8 DUP	S98T002057	0	@GEA-01 CS13702E LIQUID		1	0.370	0.370 % Ct Error	

Comments Section:

Comments for sample# S98T002055 and test @GEA-01 .
DL=0 => n/a.

Comments for sample# S98T002056 and test @GEA-01 .
DL=0 => n/a.

Comments for sample# S98T002057 and test @GEA-01 .
DL=0 => n/a.

Final page for worklist# 24874

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Reviewer Signature

7-22-98
Date

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

LABCORE Completed Worklist Report for Worklist# 24874

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

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

LABCORE Data Entry Template for Worklist# 24874

Analyst: AVL Instrument: GEA00 3 Book# 24852

Method: LA-548-121 Rev/Mod FO

Worklist Comment: @GEA-01 FOR AP-106 (HANDLE AS PCB SUSPECT) RTS

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S98T002055 0			@GEA-01	LIQUID	98000335	AP-106 GRAB2
		Analytes Requested: CS13702 , CS13702E						
4	DUP	S98T002055 0			@GEA-01	LIQUID		
5	SAMPLE	S98T002056 0			@GEA-01	LIQUID	98000335	AP-106 GRAB2
		Analytes Requested: CS13702 , CS13702E						
6	DUP	S98T002056 0			@GEA-01	LIQUID		
7	SAMPLE	S98T002057 0			@GEA-01	LIQUID	98000335	AP-106 GRAB2
		Analytes Requested: CS13702 , CS13702E						
8	DUP	S98T002057 0			@GEA-01	LIQUID		

Final page for worklist # 24874

Alita Hudson 7/20/98
Analyst Signature Date

AVL 7/22/98
Analyst Signature Date

Data Entry Comments:

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

 * 222-S Laboratory Counting Room 21-JUL-1998 00:57:07.11 *

>>>>>>> SAMPLE INFORMATION <<<<<<<<<

Worklist #: 24874
 Sample ID: WL24874-STD
 Sample Size: 1.00000E-03 L
 Dilution Factor: 1.00000E+00

Removed by:

SLH

>>>>>>> COUNT INFORMATION <<<<<<<<<

Detector ID: GEA3
 File Number: dka300:[spec.GEA3]3g3156.cnf
 Geometry: 42
 Count Time: 0 00:50:00.00 sec
 Real Time: 0 00:50:02.73 sec
 Dead Time: 0.1%

Verified by:

RA Jones 7-22-98

>>>>>>> ANALYSIS INFORMATION <<<<<<<<<

Sample Count Time: 21-JUL-1998 00:06:33.13
 Decayed to: 21-JUL-1998 00:06:33.13
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: SLH2
 Background Subtract: DKA300:[SPEC.GEA3]3GBACK

>>>>>>> CALIBRATION INFORMATION <<<<<<<<<

Date of last energy calibration: 6-JAN-1998 15:35:32.20
 Date of last efficiency calibration: 15-MAR-1994 10:28:40.20

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.35*	6663	1.62	1323.60	1316	15	2.7		CS-137	7.53
0	1173.21	3141	1.87	2346.90	2337	20	4.0		CO-60	4.95
0	1332.52	2817	2.07	2665.39	2655	20	3.9		CO-60	4.93
0	1764.90*	14	0.80	3529.88	3524	11	71.8			

Summary of Nuclide Activity

Page : 2

Sample ID : WL24874-STD

Acquisition date : 21-JUL-1998 00:06:33

Total number of lines in spectrum	4	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	4	100.00%

Nuclide Type :

Nuclide	Hlfe	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	4.941E+00	4.941E+00	0.137E+00	2.77	
CS-137	30.00Y	1.00	7.531E+00	7.531E+00	0.202E+00	2.68	
Total Activity :			1.247E+01	1.247E+01			

Grand Total Activity :	1.247E+01	1.247E+01
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Flags: "K" = Keyline not found

"M" = Manually accepted

"E" = Manually edited

"A" = Nuclide specific abn. limit

Minimum Detectable Activity Report

Sample ID : WL24874-STD

Acquisition date : 21-JUL-1998 00:06:33

Nuclide	Bkgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	352.	477.59	6.3696E-01
NA-22	35.	1274.53	5.0912E-02
NA-24	9.	1368.55	3.0326E-02
K-40	133.	1460.75	9.9272E-01
AR-41	36.	1293.60	6.1572E-02
SC-46	187.	889.28	8.2283E-02
CR-51	339.	320.08	4.7064E-01
MN-54	137.	834.83	6.7263E-02
CO-56	169.	846.76	7.5278E-02
CO-57	426.	122.06	3.6719E-02
CO-58	136.	810.78	6.5736E-02
FE-59	32.	1291.60	1.1478E-01
ZN-65	138.	1115.55	1.7057E-01
SE-75	441.	136.00	5.3718E-02
KR-85	240.	514.00	1.3376E+01
SR-85	239.	514.01	6.0450E-02
Y-88	6.	1836.06	3.1798E-02
Y-91	57.	1204.67	2.0267E+01
NB-94	135.	702.62	5.8691E-02
NB-95	147.	765.78	6.4688E-02
ZR-95	154.	756.73	1.1992E-01
RU-103	254.	497.08	6.3952E-02
RURH-106	186.	621.93	1.2174E+00
AG-108m	166.	614.28	6.3046E-02
CD-109	400.	88.03	1.1795E+00
AG-110M	172.	884.68	1.0823E-01
SN-113	326.	391.69	8.4675E-02
TE-123m	445.	159.00	3.8598E-02
SB-124	191.	602.73	6.1008E-02
SB-125	358.	427.89	2.0688E-01
TE-125m	383.	109.27	1.1357E+01
I-131	335.	364.48	6.4209E-02
XE-131m	426.	163.93	1.6440E+00
BA-133	319.	356.02	8.0546E-02
CS-134	186.	604.70	6.0506E-02
CS-136	175.	818.51	7.4452E-02
CS-138	13.	1435.86	7.7814E-02
CE-139	439.	165.85	4.1108E-02
BA-140	182.	537.31	2.1654E-01
LA-140	6.	1596.21	2.9942E-02
CE-141	416.	145.44	6.3378E-02
CE-144	426.	133.51	2.7804E-01
CEPR-144	426.	133.51	5.5573E-01
EU-152	423.	121.78	1.1086E-01
EU-154	428.	123.07	7.8023E-02
EU-155	395.	86.54	1.3292E-01
HF-181	433.	133.02	7.1838E-02
TA-182	34.	1221.41	1.7893E-01
HG-203	373.	279.20	5.5118E-02
BI-207	186.	569.70	5.7349E-02
TL-208	154.	583.19	6.1862E-02

Minimum Detectable Activity Report (continued)

Page : 4

Sample ID : WL24874-STD

Acquisition date : 21-JUL-1998 00:06:33

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-212	129.	727.18	8.7079E-01
PB-212	546.	238.63	1.1063E-01
BI-214	197.	609.31	1.3618E-01
PB-214	369.	351.92	2.6452E-01
RA-224	544.	240.99	1.2259E+00
RA-226	502.	186.10	1.0765E+00
AC-228	213.	911.21	3.3646E-01
TH-228	387.	84.37	3.5759E+00
TH-229	399.	88.47	1.7072E-01
U-232	356.	57.78	9.1017E+01
PA-233	333.	312.17	1.1951E-01
PA-234M	144.	1001.03	9.6046E+00
TH-234	343.	92.60	6.5186E-01
U-235	490.	185.71	6.4662E-02
NP-237	394.	86.48	3.5143E-01
U-237	369.	101.07	1.3341E-01
NP-238	189.	984.45	3.2687E-01
NP-239	407.	106.12	1.4835E-01
PU-239	394.	129.30	4.6516E+02
AM-241	369.	59.54	4.1537E-01
AM-243	383.	74.67	9.9316E-02

 * 222-S Laboratory Counting Room 21-JUL-1998 03:32:49.76 *

>>>>>>> SAMPLE INFORMATION <<<<<<<<<

Worklist #: 24874
 Sample ID: WL24874-BLNK
 Sample Size: 1.00000E-04 L
 Dilution Factor: 1.01000E+02

Removed by:

SLH

>>>>>>> COUNT INFORMATION <<<<<<<<<

Detector ID: GEA3
 File Number: dka300:[spec.GEA3]3g3157.cnf
 Geometry: 42
 Count Time: 0 02:30:00.00 sec
 Real Time: 0 02:30:01.97 sec
 Dead Time: 0.0%

Verified by:

RA Jones 7-22-98

>>>>>>> ANALYSIS INFORMATION <<<<<<<<<

Sample Count Time: 21-JUL-1998 01:02:18.82
 Decayed to: 21-JUL-1998 01:02:18.82
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: SLH2
 Background Subtract: DKA300:[SPEC.GEA3]3GBACK

>>>>>>> CALIBRATION INFORMATION <<<<<<<<<

Date of last energy calibration: 6-JAN-1998 15:35:32.20
 Date of last efficiency calibration: 15-MAR-1994 10:28:40.20

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw %Err	Fit	Nuclides	Activity uci/L
0	83.98	44	1.27	169.45	166	7108.6		TH-228	564.
0	351.51*	109	1.59	704.22	697	15 59.9		PB-214	236.
0	911.72*	44	2.28	1824.13	1817	17 78.4			

Summary of Nuclide Activity

Page : 2

Sample ID : WL24874-BLNK

Acquisition date : 21-JUL-1998 01:02:18

Total number of lines in spectrum	3
Number of unidentified lines	0
Number of lines tentatively identified by NID	3 100.00%

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					
PB-214	26.80M	3.96	5.944E+01	2.355E+02	1.411E+02	59.91	215		
TH-228	1.91Y	1.00	5.635E+02	5.635E+02	6.122E+02	108.64	RB		
Total Activity :			6.230E+02	7.991E+02					

Grand Total Activity :	6.230E+02	7.991E+02
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Flags: "K" = Keyline not found
 "E" = Manually edited

"M" = Manually accepted
 "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : WL24874-BLNK

Acquisition date : 21-JUL-1998 01:02:18

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	131.	477.59	1.3345E+02
NA-22	29.	1274.53	1.5769E+01
NA-24	20.	1368.55	1.4826E+01
K-40	395.	1460.75	5.6387E+02
AR-41	36.	1293.60	2.7434E+01
SC-46	50.	889.28	1.4920E+01
CR-51	159.	320.08	1.1031E+02
MN-54	49.	834.83	1.3947E+01
CO-56	55.	846.76	1.4972E+01
CO-57	245.	122.06	9.4607E+00
CO-58	50.	810.78	1.3863E+01
FE-59	40.	1099.25	2.8521E+01
CO-60	25.	1332.50	1.5171E+01
ZN-65	33.	1115.55	2.9528E+01
SE-75	233.	136.00	1.3266E+01
KR-85	97.	514.00	2.9238E+03
SR-85	96.	514.01	1.3178E+01
Y-88	11.	1836.06	1.4015E+01
Y-91	39.	1204.67	5.7615E+03
NB-94	55.	702.62	1.3005E+01
NB-95	58.	765.78	1.4020E+01
ZR-95	66.	756.73	2.7015E+01
RU-103	95.	497.08	1.3468E+01
RURH-106	61.	621.93	2.4271E+02
AG-108m	114.	433.94	1.3244E+01
CD-109	254.	88.03	3.1844E+02
AG-110M	77.	657.76	1.4847E+01
SN-113	122.	391.69	1.7824E+01
TE-123m	282.	159.00	1.0414E+01
SB-124	73.	602.73	1.2992E+01
SB-125	126.	427.89	4.2136E+01
TE-125m	221.	109.27	2.9277E+03
I-131	140.	364.48	1.9267E+01
XE-131m	223.	163.93	4.0548E+02
BA-133	121.	356.02	1.7029E+01
CS-134	83.	604.70	1.3855E+01
CS-136	48.	818.51	1.3692E+01
CS-137	425.	661.66	3.7523E+01
CS-138	21.	1435.86	6.6650E+01
CE-139	277.	165.85	1.1067E+01
BA-140	80.	537.31	4.9444E+01
LA-140	12.	1596.21	1.3785E+01
CE-141	256.	145.44	1.6889E+01
CE-144	230.	133.51	6.9416E+01
CEPR-144	230.	133.51	1.3872E+02
EU-152	244.	121.78	2.8603E+01
EU-154	259.	123.07	2.0587E+01
EU-155	235.	86.54	3.4797E+01
HF-181	87.	482.18	1.4267E+01
TA-182	208.	67.75	4.9360E+01
HG-203	181.	279.20	1.3083E+01

Minimum Detectable Activity Report (continued)

Page : 4

Sample ID : WL24874-BLNK

Acquisition date : 21-JUL-1998 01:02:18

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	65.	569.70	1.1733E+01
TL-208	115.	583.19	1.8089E+01
BI-212	70.	727.18	2.2008E+02
PB-212	275.	238.63	2.6701E+01
BI-214	165.	609.31	4.2143E+01
RA-224	243.	240.99	2.8087E+02
RA-226	275.	186.10	2.7042E+02
AC-228	93.	911.21	7.6231E+01
TH-229	243.	88.47	4.5171E+01
U-232	202.	57.78	2.3326E+04
PA-233	183.	312.17	3.0186E+01
PA-234M	46.	1001.03	1.8973E+03
TH-234	246.	92.60	1.8698E+02
U-235	271.	185.71	1.6336E+01
NP-237	233.	86.48	9.1764E+01
U-237	227.	101.07	3.5658E+01
NP-238	42.	984.45	5.4807E+01
NP-239	212.	106.12	3.6835E+01
PU-239	264.	129.30	1.2895E+05
AM-241	197.	59.54	1.0327E+02
AM-243	250.	74.67	2.7213E+01

 * 222-S Laboratory Counting Room 21-JUL-1998 06:17:37.43 *

>>>>>>>> SAMPLE INFORMATION <<<<<<<<<

Worklist #: 24874
 Sample ID: S98T2055-SAM
 Sample Size: 1.00000E-04 L
 Dilution Factor: 1.01000E+02

Removed by:

Kaymond

>>>>>>>> COUNT INFORMATION <<<<<<<<<

Detector ID: GEA3
 File Number: dka300:[spec.GEA3]3g3158.cnf
 Geometry: 42
 Count Time: 0 02:30:00.00 sec
 Real Time: 0 02:30:23.67 sec
 Dead Time: 0.3%

Verified by:

RA Jones 7-22-98

>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<

Sample Count Time: 21-JUL-1998 03:46:45.72
 Decayed to: 21-JUL-1998 03:46:45.72
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: SLH2
 Background Subtract: DKA300:[SPEC.GEA3]3GBACK

>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<

Date of last energy calibration: 6-JAN-1998 15:35:32.20
 Date of last efficiency calibration: 15-MAR-1994 10:28:40.20

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.28*	176333	1.60	1323.46	1314	18	0.5		CS-137	6.710E+04

Summary of Nuclide Activity

Page : 2

Sample ID : S98T2055-SAM

Acquisition date : 21-JUL-1998 03:46:45

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

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
CS-137	30.00Y	1.00	6.710E+04	6.710E+04	0.033E+04	0.49	
Total Activity :			6.710E+04	6.710E+04			

Grand Total Activity :	6.710E+04	6.710E+04
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Flags: "K" = Keyline not found

"M" = Manually accepted

"E" = Manually edited

"A" = Nuclide specific abn. limit

Minimum Detectable Activity Report

Sample ID : S98T2055-SAM

Acquisition date : 21-JUL-1998 03:46:45

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5591.	477.59	8.3612E+02
NA-22	23.	1274.53	1.4290E+01
NA-24	27.	1368.55	1.7127E+01
K-40	358.	1460.75	5.3729E+02
AR-41	29.	1293.60	2.4998E+01
SC-46	51.	889.28	1.4988E+01
CR-51	4619.	320.08	5.7259E+02
MN-54	59.	834.83	1.5209E+01
CO-56	52.	846.76	1.4467E+01
CO-57	4967.	122.06	4.1403E+01
CO-58	55.	810.78	1.4403E+01
FE-59	48.	1099.25	3.1122E+01
CO-60	29.	1332.50	1.6423E+01
ZN-65	41.	1115.55	3.2489E+01
SE-75	5145.	136.00	6.0593E+01
KR-85	2887.	514.00	1.5232E+04
SR-85	2886.	514.01	6.8882E+01
Y-88	11.	1836.06	1.3614E+01
Y-91	41.	1204.67	5.8967E+03
NB-94	53.	871.09	1.5027E+01
NB-95	55.	765.78	1.3767E+01
ZR-95	55.	756.73	2.4761E+01
RU-103	3281.	497.08	7.5405E+01
RURH-106	1034.	621.93	9.4446E+02
AG-108m	65.	722.94	1.5495E+01
CD-109	4416.	88.03	1.2934E+03
AG-110M	49.	884.68	2.0089E+01
SN-113	5095.	391.69	1.1017E+02
TE-123m	5162.	159.00	4.3423E+01
SB-124	8.	1690.98	2.3724E+01
SB-125	1132.	600.56	2.6742E+02
TE-125m	4616.	109.27	1.2999E+04
I-131	4718.	364.48	7.9508E+01
XE-131m	5084.	163.93	1.8778E+03
BA-133	4669.	356.02	1.0126E+02
CS-134	81.	795.84	1.9863E+01
CS-136	65.	818.51	1.5701E+01
CS-138	23.	1435.86	6.9494E+01
CE-139	5119.	165.85	4.6370E+01
BA-140	1968.	537.31	2.3337E+02
LA-140	13.	1596.21	1.4134E+01
CE-141	5180.	145.44	7.3897E+01
CE-144	5111.	133.51	3.1788E+02
CEPR-144	5111.	133.51	6.3516E+02
EU-152	30.	1408.01	8.2834E+01
EU-154	23.	1274.51	4.1545E+01
EU-155	4376.	86.54	1.4598E+02
HF-181	5093.	133.02	8.1369E+01
TA-182	73.	1121.30	6.2037E+01
HG-203	4842.	279.20	6.5462E+01
BI-207	59.	1063.66	2.5302E+01

Minimum Detectable Activity Report (continued)

Page : 4

Sample ID : S98T2055-SAM

Acquisition date : 21-JUL-1998 03:46:45

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	1250.	583.19	5.7610E+01
BI-212	73.	727.18	2.2381E+02
PB-212	5983.	238.63	1.2120E+02
BI-214	1227.	609.31	1.1176E+02
PB-214	4648.	351.92	6.8936E+02
RA-224	5776.	240.99	1.3311E+03
RA-226	6726.	186.10	1.3020E+03
AC-228	90.	911.21	7.4906E+01
TH-228	4390.	84.37	3.9716E+03
TH-229	4415.	88.47	1.8741E+02
U-232	4048.	57.78	1.0118E+05
PA-233	4640.	312.17	1.4702E+02
PA-234M	40.	1001.03	1.7688E+03
TH-234	4565.	92.60	7.8260E+02
U-235	6686.	185.71	7.8899E+01
NP-237	4379.	86.48	3.8682E+02
U-237	4558.	101.07	1.5515E+02
NP-238	46.	984.45	5.7090E+01
NP-239	4524.	106.12	1.6498E+02
PU-239	5153.	129.30	5.5497E+05
AM-241	4138.	59.54	4.5843E+02
AM-243	4369.	74.67	1.1068E+02

* 222-S Laboratory Counting Room 21-JUL-1998 09:09:46.90 *

>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<

Worklist #: 24874
Sample ID: S98T002055-DUP
Sample Size: 1.00000E-04 L
Dilution Factor: 1.01000E+02

Removed by:

Sydney Z. Chiu

>>>>>>>> COUNT INFORMATION <<<<<<<<<<

Detector ID: GEA3
File Number: dka300:[spec.GEA3]3g3159.cnf
Geometry: 42
Count Time: 0 02:30:00.00 sec
Real Time: 0 02:30:24.67 sec
Dead Time: 0.3%

Verified by:

RA Jones 7-22-98

>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<

Sample Count Time: 21-JUL-1998 06:38:53.65
Decayed to: 21-JUL-1998 06:38:53.65
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: VR
Background Subtract: DKA300:[SPEC.GEA3]3GBACK

>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<

Date of last energy calibration: 6-JAN-1998 15:35:32.20
Date of last efficiency calibration: 15-MAR-1994 10:28:40.20

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.24*	184752	1.61	1323.39	1315	17	0.5		CS-137	7.030E+04
0	1764.86*	25	1.83	3529.80	3523	12	71.2			

Summary of Nuclide Activity
 Sample ID : S98T002055-DUP

Acquisition date : 21-JUL-1998 06:38:53

Total number of lines in spectrum	2	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	2	100.00%

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
CS-137	30.00Y	1.00	7.030E+04	7.030E+04	0.033E+04	0.48	
Total Activity :			7.030E+04	7.030E+04			

Grand Total Activity : 7.030E+04 7.030E+04

Flags: "K" = Keyline not found
 "E" = Manually edited

"M" = Manually accepted
 "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
 Sample ID : S98T002055-DUP

Page : 3
 Acquisition date : 21-JUL-1998 06:38:53

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5712.	477.59	8.4511E+02
NA-22	25.	1274.53	1.4637E+01
NA-24	29.	1368.55	1.7775E+01
K-40	371.	1460.75	5.4674E+02
AR-41	35.	1293.60	2.7096E+01
SC-46	56.	889.28	1.5725E+01
CR-51	4664.	320.08	5.7537E+02
MN-54	67.	834.83	1.6177E+01
CO-56	46.	846.76	1.3757E+01
CO-57	5463.	122.06	4.3408E+01
CO-58	50.	810.78	1.3855E+01
FE-59	37.	1099.25	2.7596E+01
CO-60	27.	1332.50	1.5822E+01
ZN-65	49.	1115.55	3.5162E+01
SE-75	5534.	136.00	6.2824E+01
KR-85	2969.	514.00	1.5444E+04
SR-85	2968.	514.01	6.9846E+01
Y-88	13.	1836.06	1.4816E+01
Y-91	41.	1204.67	5.8453E+03
NB-94	65.	702.62	1.4016E+01
NB-95	55.	765.78	1.3690E+01
ZR-95	64.	756.73	2.6731E+01
RU-103	3609.	497.08	7.9039E+01
RURH-106	1112.	621.93	9.7879E+02
AG-108m	73.	722.94	1.6358E+01
CD-109	4579.	88.03	1.3167E+03
AG-110M	58.	884.68	2.1752E+01
SN-113	5127.	391.69	1.1050E+02
TE-123m	5366.	159.00	4.4267E+01
SB-124	13.	1690.98	2.9218E+01
SB-125	1119.	600.56	2.6585E+02
TE-125m	4915.	109.27	1.3410E+04
I-131	4824.	364.48	8.0386E+01
XE-131m	5423.	163.93	1.9389E+03
BA-133	4812.	356.02	1.0278E+02
CS-134	102.	795.84	2.2131E+01
CS-136	54.	818.51	1.4480E+01
CS-138	10.	1435.86	4.8649E+01
CE-139	5403.	165.85	4.7629E+01
BA-140	2093.	537.31	2.4056E+02
LA-140	16.	1596.21	1.5239E+01
CE-141	5397.	145.44	7.5411E+01
CE-144	5503.	133.51	3.2975E+02
CEPR-144	5503.	133.51	6.5890E+02
EU-152	20.	1408.01	6.9509E+01
EU-154	25.	1274.51	4.2585E+01
EU-155	4534.	86.54	1.4858E+02
HF-181	5506.	133.02	8.4577E+01
TA-182	61.	1121.30	5.6867E+01
HG-203	5240.	279.20	6.8078E+01
BI-207	31.	1063.66	1.8933E+01

Minimum Detectable Activity Report (continued)

Page : 4

Sample ID : S98T002055-DUP

Acquisition date : 21-JUL-1998 06:38:53

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	1243.	583.19	5.7446E+01
BI-212	71.	727.18	2.2184E+02
PB-212	6056.	238.63	1.2193E+02
BI-214	1229.	609.31	1.1187E+02
PB-214	4892.	351.92	7.0716E+02
RA-224	5984.	240.99	1.3547E+03
RA-226	7256.	186.10	1.3519E+03
AC-228	83.	911.21	7.2125E+01
TH-228	4460.	84.37	4.0027E+03
TH-229	4586.	88.47	1.9098E+02
U-232	4392.	57.78	1.0536E+05
PA-233	4825.	312.17	1.4990E+02
PA-234M	40.	1001.03	1.7666E+03
TH-234	4649.	92.60	7.8971E+02
U-235	7176.	185.71	8.1719E+01
NP-237	4537.	86.48	3.9369E+02
U-237	4606.	101.07	1.5596E+02
NP-238	50.	984.45	5.9382E+01
NP-239	4678.	106.12	1.6773E+02
PU-239	5310.	129.30	5.6331E+05
AM-241	4327.	59.54	4.6869E+02
AM-243	4323.	74.67	1.1011E+02

 * 222-S Laboratory Counting Room 22-JUL-1998 00:17:25.23 *

>>>>>>>> SAMPLE INFORMATION <<<<<<<<<

Worklist #: 24874
 Sample ID: S98T002056-SAM
 Sample Size: 1.00000E-04 L
 Dilution Factor: 1.01000E+02

Removed by:

A. J. Platt

>>>>>>>> COUNT INFORMATION <<<<<<<<<

Detector ID: GEA3
 File Number: dka300:[spec.GEA3]3g3165.cnf
 Geometry: 42
 Count Time: 0 02:30:00.00 sec
 Real Time: 0 02:30:17.47 sec
 Dead Time: 0.2%

Verified by:

R. Jones 7-22-98

>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<

Sample Count Time: 21-JUL-1998 21:46:38.40
 Decayed to: 21-JUL-1998 21:46:38.40
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: GL
 Background Subtract: DKA300:[SPEC.GEA3]3GBACK

>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<

Date of last energy calibration: 6-JAN-1998 15:35:32.20
 Date of last efficiency calibration: 15-MAR-1994 10:28:40.20

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.33*	126427	1.59	1323.56	1315	18	0.6		CS-137	4.811E+04

Summary of Nuclide Activity
 Sample ID : S98T002056-SAM

Acquisition date : 21-JUL-1998 21:46:38

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

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
CS-137	30.00Y	1.00	4.811E+04	4.811E+04	0.028E+04	0.58	
Total Activity :			4.811E+04	4.811E+04			

Grand Total Activity : 4.811E+04 4.811E+04

Flags: "K" = Keyline not found
 "E" = Manually edited

"M" = Manually accepted
 "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report

Sample ID : S98T002056-SAM

Acquisition date : 21-JUL-1998 21:46:38

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4049.	477.59	7.1252E+02
NA-22	25.	1274.53	1.4824E+01
NA-24	20.	1368.55	1.5050E+01
K-40	388.	1460.75	5.5879E+02
AR-41	37.	1293.60	2.7911E+01
SC-46	45.	889.28	1.4152E+01
CR-51	3344.	320.08	4.8791E+02
MN-54	53.	834.83	1.4485E+01
CO-56	47.	846.76	1.3921E+01
CO-57	3648.	122.06	3.5534E+01
CO-58	49.	810.78	1.3720E+01
FE-59	47.	1099.25	3.0744E+01
CO-60	24.	1332.50	1.5107E+01
ZN-65	34.	1115.55	3.0043E+01
SE-75	3835.	136.00	5.2376E+01
KR-85	1979.	514.00	1.2639E+04
SR-85	1979.	514.01	5.7165E+01
Y-88	7.	1836.06	1.1434E+01
Y-91	46.	1204.67	6.2075E+03
NB-94	63.	702.62	1.3858E+01
NB-95	69.	765.78	1.5282E+01
ZR-95	54.	756.73	2.4582E+01
RU-103	2542.	497.08	6.6457E+01
RURH-106	764.	621.93	8.1438E+02
AG-108m	63.	722.94	1.5298E+01
CD-109	3241.	88.03	1.1096E+03
AG-110M	47.	884.68	1.9823E+01
SN-113	3627.	391.69	9.3084E+01
TE-123m	3671.	159.00	3.6673E+01
SB-124	9.	1690.98	2.4807E+01
SB-125	772.	600.56	2.2159E+02
TE-125m	3329.	109.27	1.1056E+04
I-131	3423.	364.48	6.7825E+01
XE-131m	3790.	163.93	1.6235E+03
BA-133	3304.	356.02	8.5318E+01
CS-134	62.	795.84	1.7464E+01
CS-136	58.	818.51	1.4884E+01
CS-138	26.	1435.86	7.2589E+01
CE-139	3760.	165.85	3.9797E+01
BA-140	1476.	537.31	2.0249E+02
LA-140	18.	1596.21	1.6452E+01
CE-141	3775.	145.44	6.3169E+01
CE-144	3806.	133.51	2.7468E+02
CEPR-144	3806.	133.51	5.4883E+02
EU-152	15.	1408.01	6.0533E+01
EU-154	25.	1274.51	4.2883E+01
EU-155	3192.	86.54	1.2487E+02
HF-181	3834.	133.02	7.0688E+01
TA-182	73.	1121.30	6.2089E+01
HG-203	3517.	279.20	5.5870E+01
BI-207	41.	1063.66	2.1401E+01

Minimum Detectable Activity Report (continued)

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Sample ID : S98T002056-SAM

Acquisition date : 21-JUL-1998 21:46:38

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	924.	583.19	4.9666E+01
BI-212	72.	727.18	2.2262E+02
PB-212	4220.	238.63	1.0193E+02
BI-214	831.	609.31	9.2303E+01
PB-214	3438.	351.92	5.9330E+02
RA-224	4136.	240.99	1.1280E+03
RA-226	5013.	186.10	1.1252E+03
AC-228	103.	911.21	7.9962E+01
TH-228	3184.	84.37	3.3872E+03
TH-229	3265.	88.47	1.6140E+02
U-232	3020.	57.78	8.7516E+04
PA-233	3352.	312.17	1.2514E+02
PA-234M	33.	1001.03	1.6242E+03
TH-234	3351.	92.60	6.7152E+02
U-235	4994.	185.71	6.8261E+01
NP-237	3188.	86.48	3.3056E+02
U-237	3295.	101.07	1.3212E+02
NP-238	43.	984.45	5.5471E+01
NP-239	3349.	106.12	1.4215E+02
PU-239	3751.	129.30	4.7415E+05
AM-241	3044.	59.54	3.9374E+02
AM-243	3179.	74.67	9.4563E+01

 * 222-S Laboratory Counting Room 21-JUL-1998 21:41:10.81 *

>>>>>>> SAMPLE INFORMATION <<<<<<<<<

Worklist #: 24874
 Sample ID: S98T002056-DUP
 Sample Size: 1.00000E-04 L
 Dilution Factor: 1.01000E+02

Removed by:

A. L. L.

>>>>>>> COUNT INFORMATION <<<<<<<<<

Detector ID: GEA3
 File Number: NI3AC:1.cnf
 Geometry: 42
 Count Time: 0 02:30:00.00 sec
 Real Time: 0 02:30:17.22 sec
 Dead Time: 0.2%

Verified by:

RA Jones 7-22-98

>>>>>>> ANALYSIS INFORMATION <<<<<<<<<

Sample Count Time: 21-JUL-1998 13:34:01.85
 Decayed to: 21-JUL-1998 13:34:01.85
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: GL
 Background Subtract: DKA300:[SPEC.GEA3]3GBACK

>>>>>>> CALIBRATION INFORMATION <<<<<<<<<

Date of last energy calibration: 6-JAN-1998 15:35:32.20
 Date of last efficiency calibration: 15-MAR-1994 10:28:40.20

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw %Err	Fit	Nuclides	Activity uCi/L
0	661.27*	124284	1.61	1323.44	1314	18 0.6		CS-137	4.729E+04
0	1120.27*	42	3.74	2241.07	2234	14 55.8		SC-46	21.6
0	1460.84*	24	2.05	2921.96	2911	22 <u>191.4</u>		K-40	140.

Summary of Nuclide Activity

Sample ID : S98T002056-DUP

Acquisition date : 21-JUL-1998 13:34:01

Total number of lines in spectrum 3
 Number of unidentified lines 0
 Number of lines tentatively identified by NID 3 100.00%

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	1.26E+09Y	1.00	1.402E+02	1.402E+02	2.684E+02	191.42	118
SC-46	83.81D	1.00	2.156E+01	2.157E+01	1.204E+01	55.82	118
CS-137	30.00Y	1.00	4.729E+04	4.729E+04	0.027E+04	0.58	
Total Activity :			4.745E+04	4.746E+04			

Grand Total Activity : 4.745E+04 4.746E+04

Flags: "K" = Keyline not found

"M" = Manually accepted

"E" = Manually edited

"A" = Nuclide specific abn. limit

Minimum Detectable Activity Report

Sample ID : S98T002056-DUP

Acquisition date : 21-JUL-1998 13:34:01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3900.	477.59	6.9942E+02
NA-22	33.	1274.53	1.6768E+01
NA-24	21.	1368.55	1.5204E+01
AR-41	27.	1293.60	2.4025E+01
CR-51	3146.	320.08	4.7344E+02
MN-54	52.	834.83	1.4343E+01
CO-56	59.	846.76	1.5406E+01
CO-57	3616.	122.06	3.5376E+01
CO-58	57.	810.78	1.4660E+01
FE-59	39.	1099.25	2.8248E+01
CO-60	32.	1332.50	1.7008E+01
ZN-65	32.	1115.55	2.8940E+01
SE-75	3696.	136.00	5.1432E+01
KR-85	2036.	514.00	1.2816E+04
SR-85	2035.	514.01	5.7961E+01
Y-88	8.	1836.06	1.2301E+01
Y-91	26.	1204.67	4.7414E+03
NB-94	50.	871.09	1.4598E+01
NB-95	70.	765.78	1.5354E+01
ZR-95	60.	756.73	2.5904E+01
RU-103	2488.	497.08	6.5764E+01
RURH-106	745.	621.93	8.0406E+02
AG-108m	61.	722.94	1.5030E+01
CD-109	3167.	88.03	1.0970E+03
AG-110M	40.	884.68	1.8410E+01
SN-113	3525.	391.69	9.1787E+01
TE-123m	3728.	159.00	3.6954E+01
SB-124	14.	1690.98	3.0162E+01
SB-125	785.	600.56	2.2345E+02
TE-125m	3369.	109.27	1.1121E+04
I-131	3302.	364.48	6.6626E+01
XE-131m	3650.	163.93	1.5935E+03
BA-133	3205.	356.02	8.4034E+01
CS-134	62.	795.84	1.7489E+01
CS-136	34.	818.51	1.1686E+01
CS-138	14.	1435.86	5.5928E+01
CE-139	3701.	165.85	3.9486E+01
BA-140	1442.	537.31	2.0019E+02
LA-140	18.	1596.21	1.6368E+01
CE-141	3669.	145.44	6.2280E+01
CE-144	3643.	133.51	2.6875E+02
CEPR-144	3642.	133.51	5.3700E+02
EU-152	19.	1408.01	6.7739E+01
EU-154	33.	1274.51	4.8686E+01
EU-155	3184.	86.54	1.2471E+02
HF-181	3647.	133.02	6.8950E+01
TA-182	67.	1121.30	5.9627E+01
HG-203	3603.	279.20	5.6545E+01
BI-207	43.	1063.66	2.1748E+01
TL-208	926.	583.19	4.9723E+01
BI-212	76.	727.18	2.2839E+02

Minimum Detectable Activity Report (continued)

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Sample ID : S98T002056-DUP

Acquisition date : 21-JUL-1998 13:34:01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PB-212	4205.	238.63	1.0176E+02
BI-214	832.	609.31	9.2387E+01
PB-214	3384.	351.92	5.8869E+02
RA-224	4129.	240.99	1.1270E+03
RA-226	4970.	186.10	1.1205E+03
AC-228	87.	911.21	7.3707E+01
TH-228	3220.	84.37	3.4064E+03
TH-229	3157.	88.47	1.5873E+02
U-232	2967.	57.78	8.6759E+04
PA-233	3314.	312.17	1.2443E+02
PA-234M	52.	1001.03	2.0080E+03
TH-234	3066.	92.60	6.4262E+02
U-235	4879.	185.71	6.7476E+01
NP-237	3192.	86.48	3.3076E+02
U-237	3224.	101.07	1.3071E+02
NP-238	46.	984.45	5.7061E+01
NP-239	3281.	106.12	1.4069E+02
PU-239	3656.	129.30	4.6814E+05
AM-241	2962.	59.54	3.8848E+02
AM-243	3154.	74.67	9.4193E+01

 * 222-S Laboratory Counting Room 21-JUL-1998 18:39:31.43 *

>>>>>>> SAMPLE INFORMATION <<<<<<<<<

Worklist #: 24874
 Sample ID: S98T002057-SAM
 Sample Size: 1.00000E-04 L
 Dilution Factor: 1.01000E+02

Removed by:

A. J. L. P. H. T.

>>>>>>> COUNT INFORMATION <<<<<<<<<

Detector ID: GEA3
 File Number: dka300:[spec.GEA3]3g3163.cnf
 Geometry: 42
 Count Time: 0 02:30:00.00 sec
 Real Time: 0 02:30:38.63 sec
 Dead Time: 0.4%

Verified by:

LA Jones 7-22-98

>>>>>>> ANALYSIS INFORMATION <<<<<<<<<

Sample Count Time: 21-JUL-1998 16:08:21.69
 Decayed to: 21-JUL-1998 16:08:21.69
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: VR
 Background Subtract: DKA300:[SPEC.GEA3]3GBACK

>>>>>>> CALIBRATION INFORMATION <<<<<<<<<

Date of last energy calibration: 6-JAN-1998 15:35:32.20
 Date of last efficiency calibration: 15-MAR-1994 10:28:40.20

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.26*	298290	1.59	1323.42	1314	18	0.4		CS-137	1.135E+05
0	795.85	108	1.68	1592.49	1586	11	39.8			

Summary of Nuclide Activity

Sample ID : S98T002057-SAM

Acquisition date : 21-JUL-1998 16:08:21

Total number of lines in spectrum	2	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	2	100.00%

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
CS-137	30.00Y	1.00	1.135E+05	1.135E+05	0.004E+05	0.37	
Total Activity :			1.135E+05	1.135E+05			

Grand Total Activity :	1.135E+05	1.135E+05
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Flags: "K" = Keyline not found

"E" = Manually edited

"M" = Manually accepted

"A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
 Sample ID : S98T002057-SAM

Page : 3
 Acquisition date : 21-JUL-1998 16:08:21

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	9231.	477.59	1.0725E+03
NA-22	40.	1274.53	1.8162E+01
NA-24	22.	1368.55	1.5650E+01
K-40	388.	1460.75	5.5849E+02
AR-41	33.	1293.60	2.6525E+01
SC-46	64.	889.28	1.6718E+01
CR-51	7587.	320.08	7.3251E+02
MN-54	78.	834.83	1.7320E+01
CO-56	60.	846.76	1.5480E+01
CO-57	8335.	122.06	5.3538E+01
CO-58	68.	810.78	1.5892E+01
FE-59	47.	1099.25	3.0800E+01
CO-60	26.	1332.50	1.5493E+01
ZN-65	37.	1115.55	3.1021E+01
SE-75	8442.	136.00	7.7479E+01
KR-85	4503.	514.00	1.8982E+04
SR-85	4502.	514.01	8.5850E+01
Y-88	6.	1836.06	1.0743E+01
Y-91	47.	1204.67	6.2495E+03
NB-94	59.	871.09	1.5768E+01
NB-95	77.	765.78	1.6064E+01
ZR-95	66.	756.73	2.7053E+01
RU-103	5782.	497.08	9.9849E+01
RURH-106	1742.	621.93	1.2211E+03
AG-108m	82.	722.94	1.7287E+01
CD-109	7222.	88.03	1.6508E+03
AG-110M	55.	884.68	2.1316E+01
SN-113	8263.	391.69	1.4005E+02
TE-123m	8614.	159.00	5.5992E+01
SB-124	10.	1690.98	2.5645E+01
SB-125	1854.	600.56	3.4097E+02
TE-125m	7773.	109.27	1.6835E+04
I-131	7772.	364.48	1.0186E+02
XE-131m	8506.	163.93	2.4246E+03
BA-133	7676.	356.02	1.2959E+02
CS-134	195.	795.84	3.0093E+01
CS-136	78.	818.51	1.7171E+01
CS-138	18.	1435.86	6.1516E+01
CE-139	8646.	165.85	6.0153E+01
BA-140	3239.	537.31	2.9851E+02
LA-140	23.	1596.21	1.8122E+01
CE-141	8564.	145.44	9.4843E+01
CE-144	8395.	133.51	4.0666E+02
CEPR-144	8394.	133.51	8.1258E+02
EU-152	30.	1408.01	8.2634E+01
EU-154	40.	1274.51	5.2812E+01
EU-155	7114.	86.54	1.8579E+02
HF-181	8396.	133.02	1.0428E+02
TA-182	35.	1221.41	6.1581E+01
HG-203	8058.	279.20	8.4289E+01
BI-207	36.	1063.66	2.0155E+01

Minimum Detectable Activity Report (continued)

Page : 4

Sample ID : S98T002057-SAM

Acquisition date : 21-JUL-1998 16:08:21

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	1983.	583.19	7.2312E+01
BI-212	79.	727.18	2.3268E+02
PB-212	9728.	238.63	1.5430E+02
BI-214	1884.	609.31	1.3808E+02
PB-214	7857.	351.92	8.9590E+02
RA-224	9541.	240.99	1.7079E+03
RA-226	11277.	186.10	1.6832E+03
AC-228	108.	911.21	8.1965E+01
TH-228	7329.	84.37	5.1216E+03
TH-229	7254.	88.47	2.3978E+02
U-232	6838.	57.78	1.3123E+05
PA-233	7695.	312.17	1.8897E+02
PA-234M	51.	1001.03	1.9875E+03
TH-234	7402.	92.60	9.9477E+02
U-235	11110.	185.71	1.0154E+02
NP-237	7104.	86.48	4.9177E+02
U-237	7296.	101.07	1.9595E+02
NP-238	60.	984.45	6.4554E+01
NP-239	7664.	106.12	2.1431E+02
PU-239	8536.	129.30	7.1300E+05
AM-241	6719.	59.54	5.8299E+02
AM-243	7164.	74.67	1.4146E+02

 * 222-S Laboratory Counting Room 21-JUL-1998 21:33:03.28 *

>>>>>>> SAMPLE INFORMATION <<<<<<<<<

Worklist #: 24874
 Sample ID: S98T002057-DUP
 Sample Size: 1.00000E-04 L
 Dilution Factor: 1.01000E+02

Removed by:

>>>>>>> COUNT INFORMATION <<<<<<<<<

Detector ID: GEA3
 File Number: dka300:[spec.GEA3]3g3164.cnf
 Geometry: 42
 Count Time: 0 02:30:00.00 sec
 Real Time: 0 02:30:40.02 sec
 Dead Time: 0.4%

Verified by:

7-22-98

>>>>>>> ANALYSIS INFORMATION <<<<<<<<<

Sample Count Time: 21-JUL-1998 19:01:54.58
 Decayed to: 21-JUL-1998 19:01:54.58
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: GL
 Background Subtract: DKA300:[SPEC.GEA3]3GBACK

>>>>>>> CALIBRATION INFORMATION <<<<<<<<<

Date of last energy calibration: 6-JAN-1998 15:35:32.20
 Date of last efficiency calibration: 15-MAR-1994 10:28:40.20

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw %Err	Fit	Nuclides	Activity uCi/L
0	604.21	147	1.13	1209.37	1206	9103.9		SB-124	45.2
								CS-134	45.4
0	661.28*	308303	1.59	1323.46	1315	17 0.4		CS-137	1.173E+05
0	795.63	121	2.01	1592.05	1584	19 47.0		CS-134	53.8

Summary of Nuclide Activity

Page : 2

Sample ID : S98T002057-DUP

Acquisition date : 21-JUL-1998 19:01:54

Total number of lines in spectrum	3	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	3	100.00%

Nuclide Type :

Nuclide	Hliffe	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
SB-124	60.20D	1.00	4.518E+01	4.521E+01	4.695E+01	103.87	219
CS-134	2.06Y	1.00	5.377E+01	5.377E+01	2.529E+01	47.03	
CS-137	30.00Y	1.00	1.173E+05	1.173E+05	0.004E+05	0.37	
Total Activity :			1.174E+05	1.174E+05			

Grand Total Activity :	1.174E+05	1.174E+05
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Flags: "K" = Keyline not found

"M" = Manually accepted

"E" = Manually edited

"A" = Nuclide specific abn. limit

Minimum Detectable Activity Report

Page : 3

Sample ID : S98T002057-DUP

Acquisition date : 21-JUL-1998 19:01:54

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	9602.	477.59	1.0938E+03
NA-22	30.	1274.53	1.6031E+01
NA-24	18.	1368.55	1.4193E+01
K-40	398.	1460.75	5.6561E+02
AR-41	28.	1293.60	2.4642E+01
SC-46	50.	889.28	1.4867E+01
CR-51	7896.	320.08	7.4719E+02
MN-54	56.	834.83	1.4821E+01
CO-56	67.	846.76	1.6317E+01
CO-57	8550.	122.06	5.4217E+01
CO-58	79.	810.78	1.7140E+01
FE-59	48.	1099.25	3.1082E+01
CO-60	35.	1332.50	1.7776E+01
ZN-65	46.	1115.55	3.4330E+01
SE-75	8862.	136.00	7.9368E+01
KR-85	4959.	514.00	1.9912E+04
SR-85	4958.	514.01	9.0057E+01
Y-88	12.	1836.06	1.4293E+01
Y-91	37.	1204.67	5.6314E+03
NB-94	91.	702.62	1.6373E+01
NB-95	84.	765.78	1.6669E+01
ZR-95	73.	756.73	2.8291E+01
RU-103	6029.	497.08	1.0194E+02
RURH-106	1770.	621.93	1.2307E+03
AG-108m	90.	722.94	1.8000E+01
CD-109	7466.	88.03	1.6784E+03
AG-110M	57.	884.68	2.1666E+01
SN-113	8514.	391.69	1.4215E+02
TE-123m	8994.	159.00	5.7205E+01
SB-125	1865.	600.56	3.4191E+02
TE-125m	7956.	109.27	1.7031E+04
I-131	8074.	364.48	1.0381E+02
XE-131m	8769.	163.93	2.4615E+03
BA-133	7960.	356.02	1.3195E+02
CS-136	60.	818.51	1.5212E+01
CS-138	28.	1435.86	7.5109E+01
CE-139	8992.	165.85	6.1339E+01
BA-140	3451.	537.31	3.0804E+02
LA-140	12.	1596.21	1.3753E+01
CE-141	8940.	145.44	9.6892E+01
CE-144	8880.	133.51	4.1818E+02
CEPR-144	8879.	133.51	8.3558E+02
EU-152	22.	1408.01	7.1923E+01
EU-154	30.	1274.51	4.6627E+01
EU-155	7448.	86.54	1.9007E+02
HF-181	8877.	133.02	1.0721E+02
TA-182	64.	1121.30	5.8386E+01
HG-203	8435.	279.20	8.6227E+01
BI-207	41.	1063.66	2.1364E+01
TL-208	2095.	583.19	7.4307E+01
BI-212	92.	727.18	2.5018E+02

Minimum Detectable Activity Report (continued)

Page : 4

Sample ID : S98T002057-DUP

Acquisition date : 21-JUL-1998 19:01:54

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PB-212	9908.	238.63	1.5571E+02
BI-214	61.	1120.29	1.3489E+02
PB-214	7962.	351.92	9.0198E+02
RA-224	9712.	240.99	1.7231E+03
RA-226	11810.	186.10	1.7222E+03
AC-228	115.	911.21	8.4183E+01
TH-228	7536.	84.37	5.1930E+03
TH-229	7463.	88.47	2.4319E+02
U-232	7144.	57.78	1.3411E+05
PA-233	7914.	312.17	1.9163E+02
PA-234M	62.	1001.03	2.1687E+03
TH-234	7519.	92.60	1.0026E+03
U-235	11711.	185.71	1.0424E+02
NP-237	7455.	86.48	5.0368E+02
U-237	7866.	101.07	2.0340E+02
NP-238	50.	984.45	5.9222E+01
NP-239	7776.	106.12	2.1585E+02
PU-239	8921.	129.30	7.2879E+05
AM-241	7172.	59.54	6.0219E+02
AM-243	7217.	74.67	1.4198E+02

LABCORE Completed Worklist Report for Worklist# 24865

Analyst: akl

Instrument: AB10

Book#

Method: Rev/Mod

Worklist Comment: @SR90-01 FOR AP-106 (HANDLE AS PCB SUPSECT) RTS

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	@SR90-01 SR90-01 LIQUID		1.05E-03	1.10E-3	104.762 % Recovery	
1 STD	0	@SR90-01 SR90-01C LIQUID		100	9.00E+01	90.000 % Recovery	
1 STD	0	@SR90-01 SR90-01E LIQUID		1.00	2.03E+00	2.030 % Ct. Err	
2 BLNK	0	@SR90-01 SR90-01E LIQUID		1	2.36E-3	0.002 uCi/mL	
2 BLNK	0	@SR90-01 SR90-01C LIQUID		100	8.99E+01	89.900 % Recovery	
2 BLNK	0	@SR90-01 SR90-01E LIQUID		1.00	1.40E+02	140.000 uCi/mL	
3 BLNK/BKG	0	@SR90-01 SR90-01 LIQUID		1	1.22E+00	1.220 BLNK/BKG	
4 SAMPLE	S98T002055 0	@SR90-01 SR90-01 LIQUID	N/A		1.22E-02	4.41e-003 uCi/mL	
4 SAMPLE	S98T002055 0	@SR90-01 SR90-01C LIQUID	N/A		8.96E+01	% Recovery	
4 SAMPLE	S98T002055 0	@SR90-01 SR90-01E LIQUID	N/A		3.20E+01	% Ct. Error	
5 DUP	S98T002055 0	@SR90-01 SR90-01 LIQUID		1.22E-2	1.56E-2	24.460 RPD	
5 DUP	S98T002055 0	@SR90-01 SR90-01C LIQUID		100	8.96E+01	89.600 % Recovery	
5 DUP	S98T002055 0	@SR90-01 SR90-01E LIQUID		1.00	2.62E+01	26.200 % Cnt Err	
6 SAMPLE	S98T002056 0	@SR90-01 SR90-01 LIQUID	N/A		5.99E-02	4.40e-003 uCi/mL	
6 SAMPLE	S98T002056 0	@SR90-01 SR90-01C LIQUID	N/A		8.97E+01	% Recovery	
6 SAMPLE	S98T002056 0	@SR90-01 SR90-01E LIQUID	N/A		1.01E+01	% Ct. Error	
7 DUP	S98T002056 0	@SR90-01 SR90-01 LIQUID		5.99E-2	5.17E-2	14.695 RPD	
7 DUP	S98T002056 0	@SR90-01 SR90-01C LIQUID		100	8.89E+01	88.900 % Recovery	
7 DUP	S98T002056 0	@SR90-01 SR90-01E LIQUID		1.00	1.12E+01	11.200 % Cnt Err	
8 SAMPLE	S98T002057 0	@SR90-01 SR90-01 LIQUID	N/A		9.81E-01	4.45e-003 uCi/mL	
8 SAMPLE	S98T002057 0	@SR90-01 SR90-01C LIQUID	N/A		8.83E+01	% Recovery	
8 SAMPLE	S98T002057 0	@SR90-01 SR90-01E LIQUID	N/A		2.18E+00	% Ct. Error	
9 DUP	S98T002057 0	@SR90-01 SR90-01 LIQUID		9.81E-1	1.09E+0	10.526 RPD	
9 DUP	S98T002057 0	@SR90-01 SR90-01C LIQUID		100	8.89E+01	88.900 % Recovery	
9 DUP	S98T002057 0	@SR90-01 SR90-01E LIQUID		1.00	2.06E+00	2.060 % Cnt Err	

Final page for worklist# 24865

Analyst Signature

Date

Analyst Signature

Date

Reviewer Signature

Date

Sample S98T002055 will be rerun with a larger sample size to improve the RPD. sm

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

LABCORE Data Entry Template for Worklist# 24865

Analyst: ALL Instrument: AB00 10 Book# 28857

Method: LA-220-101 Rev/Mod E3

Worklist Comment: @SR90-01 FOR AP-106 (HANDLE AS PCB SUSPECT) RTS

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	S98T002055 0		@SR90-01	LIQUID	98000335	AP-106 GRAB2
Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
5 DUP	S98T002055 0		@SR90-01	LIQUID		
6 SAMPLE	S98T002056 0		@SR90-01	LIQUID	98000335	AP-106 GRAB2
Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
7 DUP	S98T002056 0		@SR90-01	LIQUID		
8 SAMPLE	S98T002057 0		@SR90-01	LIQUID	98000335	AP-106 GRAB2
Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
9 DUP	S98T002057 0		@SR90-01	LIQUID		

Final page for worklist # 24865

Alita Hansen 7/27/98
Analyst Signature Date

M. B. Brown 7/28/98
Analyst Signature Date
Sylvia E. Brown 7/28/98

Data Entry Comments:

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

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (E-3), 102 (INACTIVE), 104 (E-5) LIQUIDS

				STANDARD	
Type	DETECTOR NUMBER	10	CARRIER ADDED in mL (CVA)	1.000	
STD	TOTAL COUNTS (TC)	9549	GROSS WEIGHT (W2)	7.7606	
Work List	COUNT TIME in MINUTES (CT)	10	TARE WEIGHT (W1)	7.6706	
24865	BACKGROUND in cpm (BKG)	9.2	NET WEIGHT (W3)	0.0900	
Test Code	SAMPLE VOLUME in mL (SS)	1.000	DELTA TIME (HOURS) (DT)	4.92	
@SR90-01	DILUTION FACTOR (DF)	1			
Matrix	DIGEST DILUTION FACTOR DDF	1			
LIQUID	SAMPLE COUNT RATE (Rs)	945.70	Sr-90 EFFICIENCY FACTO (C1)	0.4051	
Batch Number	CRITICAL LEVEL (Lc)	1.83	Y-90 EFFICIENCY FACTOR (C2)	0.4503	
98003364	TIME OF SEPARATION (ST)	10:25	Rmax	N/A	
Rerun	DATE OF SEPARATION (SD)	07/27/98	DETECTION LIMIT (Ld)	3.75	
0	TIME OF COUNT (TOC)	15:20	Sr-89/90 CONC. in $\mu\text{Ci/L}$	1.1049E+00	
Sample Prep	DATE OF COUNT (DOC)	07/27/98			
N/A	STANDARD BOOK #	28B57			
Sample #	STANDARD VALUE in $\mu\text{Ci/mL}$	1.0505E-03			
WL24865-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 $\mu\text{Ci/mL}$ REPLACE RS WITH RMAX IF RS<Lc AND 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				
AKL	NOTE: Expected weight = CVA * 0.1				
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.				
07/28/98	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100				
Analysis Date					
07/27/98	Sr-89/90 CONCENTRATION	1.10E-03	$\mu\text{Ci/mL}$		DETECTION LEVEL
Analysis Time					
03:00 PM	RELATIVE COUNTING ERROR	2.0%			4.38E-06
Sample Point					$\mu\text{Ci/L}$
AP-106 GRAB2	PERCENT CARRIER RECOVERY	90.0%			

Analyst:	AKL	Date:	28-Jul-98
Signature of Chemist:	SAC	Date:	28 Jul 98

STANDARD.WB1 REV 2.0

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WORKBOOK PAGE: BLANK2

LA-220-101 / E-3 Sr-89/90 : LA-220-101 (E-3), 102 (INACTIVE), 104 (E-5)

				BLNK	
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA) 1.000
BLNK	TOTAL COUNTS (TC)	112	GROSS WEIGHT	(W2)	7.7567
Work List	COUNT TIME in MINUTES (CT)	10	TARE WEIGHT	(W1)	7.6668
24865	BACKGROUND in cpm (BKG)	9.2	NET WEIGHT	(W3)	0.0899
Test Code	SAMPLE VOLUME in mL (SS)	0.100	DELTA TIME (HOURS)	(DT)	5.13
@SR90-01	DILUTION FACTOR (DF)	101			
Matrix	DIGEST DILUTION FACTOR (DDF)	1			
LIQUID	SAMPLE COUNT RATE (Rs)	2.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL (Lc)	1.83	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
98003364	TIME OF SEPARATION (ST)	10:25	Rmax		N/A
Rerun	DATE OF SEPARATION (SD)	07/27/98	DETECTION LIMIT	(Ld)	3.75
0	TIME OF COUNT (TOC)	15:33	Sr-89/90 CONC in µCi/L		2.3572E+00
Sample Prep	DATE OF COUNT (DOC)	07/27/98			
N/A					
Sample #					
WL24865-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				
AKL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.				
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100				
07/28/98					
Analysis Date					
07/27/98	Sr-89/90 CONCENTRATION	2.36E-03	µCi/mL	DETECTION LEVEL	
Analysis Time					
03:00 PM	RELATIVE COUNTING ERROR	140.0%	4.41E-03 µCi/mL		
Sample Point					
AP-106 GRAB2	PERCENT CARRIER RECOVERY	89.9%			

Analyst:	AKL	Date:	28-Jul-98
Signature of Chemist:	SAC	Date:	28-Jul-98

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WORKBOOK PAGE: SAM6

Sr-89/90 : LA-220-101 (E-3), 102 (INACTIVE), 104 (E-5)

Sr-89/90 : LA-220-101 (E-3), 102 (INACTIVE), 104 (E-5)						SAMPLE		
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000		
SAMPLE	TOTAL COUNTS	(TC)	602	GROSS WEIGHT	(W2)	7.7101		
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.6204		
24865	BACKGROUND in cpm	(BKG)	9.2	NET WEIGHT	(W3)	0.0897		
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	5.72		
@SR90-01	DILUTION FACTOR	DF	101					
Matrix	DIGEST DILUTION FACTOR	(DDF)	1					
LIQUID	SAMPLE COUNT RATE	(Rs)	51.00	Sr-90 EFFICIENCY FACTOR	(C1)	0.4051		
Batch Number	CRITICAL LEVEL	(Lc)	1.83	Y-90 EFFICIENCY FACTOR	(C2)	0.4503		
98003364	TIME OF SEPARATION	(ST)	10:45	Rmax		N/A		
Rerun	DATE OF SEPARATION	(SD)	07/27/98	DETECTION LIMIT	(Ld)	3.75		
0	TIME OF COUNT	(TOC)	16:28	Sr-89/90 CONC in µCi/L		5.9870E+01		
Sample Prep	DATE OF COUNT	(DOC)	07/27/98					
N/A								
Sample #								
S98T002056								
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							
AKL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.							
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100							
07/28/98								
Analysis Date								
07/27/98	Sr-89/90 CONCENTRATION		5.99E-02	µCi/mL	DETECTION LEVEL 4.40E-03 µCi/mL			
Analysis Time								
03:00 PM	RELATIVE COUNTING ERROR		10.1%					
Sample Point								
AP-106 GRAB2	PERCENT CARRIER RECOVERY		89.7%					

Analyst:	AKL	Date:	28-Jul-98
Signature of Chemist:	SAC	Date:	28 Jul 98

SAMPLE.WB1 REV 2.0

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WORKBOOK PAGE: DUP7

Sr-89/90 : LA-220-101 (E-3), 102 (INACTIVE), 104 (E-5)

				DUP	
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA) 1.000
DUP	TOTAL COUNTS	(TC)	529	GROSS WEIGHT	(W2) 7.7438
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1) 7.6549
24865	BACKGROUND in cpm	(BKG)	9.2	NET WEIGHT	(W3) 0.0889
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT) 5.92
@SR90-01	DILUTION FACTOR	DF	101		
Matrix	DIGEST DILUTION FACTOR	(DDF)	1		
LIQUID	SAMPLE COUNT RATE	(Rs)	43.70	SR-90 EFFICIENCY FACTOR	(C1) 0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.83	Y-90 EFFICIENCY FACTOR	(C2) 0.4503
98003364	TIME OF SEPARATION	(ST)	10:45	Rmax	N/A
Rerun	DATE OF SEPARATION	(SD)	07/27/98	DETECTION LIMIT	(Ld) 3.75
0	TIME OF COUNT	(TOC)	16:40	Sr-89/90 CONC in $\mu\text{Ci/L}$	5.1653E+01
Sample Prep	DATE OF COUNT	(DOC)	07/27/98		
N/A					
Sample #					
S98T002056					
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)				
WB26870	Sr-89/90 CONC in $\mu\text{Ci/L}$ Replace RS with RMAX if $RS \leq Lc$ and $RS \geq 0$ or Replace RS with Lc if $RS < 0$				
Prepared By	$RS * DF * DDF / ((C1 + C2 * (1 - e \text{ to the power of } ((-\text{natural log } 2) / 64.2 * DT)))) * SS * REC * 2220000$				
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 = $CVA * 0.1$				
AKL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.				
Date Complete	Delta Time (hours) = $((DOC - SD) * 24) + (TOC - ST) / 100$				
07/28/98					
Analysis Date					
07/27/98	Sr-89/90 CONCENTRATION		5.17E-02	$\mu\text{Ci/mL}$	DETECTION LEVEL
Analysis Time					
03:00 PM	RELATIVE COUNTING ERROR		11.2%		4.43E-03
Sample Point					$\mu\text{Ci/mL}$
AP-106 GRAB2	PERCENT CARRIER RECOVERY		88.9%		

Analyst:	AKL	Date:	28-Jul-98
Signature of Chemist:	SAC	Date:	28 Jul 98

SAMPLE.WB1 REV 2.0

22010NML

WORKBOOK PAGE: SAM8

Sr-89/90 : LA-220-101 (E-3), 102 (INACTIVE), 104 (E-5)

					SAMPLE	
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	8356	GROSS WEIGHT	(W2)	7.7388
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.6505
24865	BACKGROUND in cpm	(BKG)	9.2	NET WEIGHT	(W3)	0.0883
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	6.12
@SR90-01	DILUTION FACTOR	DF	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	826.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.83	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
98003364	TIME OF SEPARATION	(ST)	10:45	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	07/27/98	DETECTION LIMIT	(Ld)	3.75
0	TIME OF COUNT	(TOC)	16:52	Sr-89/90 CONC in µCi/L		9.8137E+02
Sample Prep	DATE OF COUNT	(DOC)	07/27/98			
N/A						
Sample #						
S98T002057						
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					
AKL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
07/28/98						
Analysis Date						DETECTION LEVEL 4.45E-03 µCi/mL
07/27/98	Sr-89/90 CONCENTRATION	9.81E-01			µCi/mL	
Analysis Time						
03:00 PM	RELATIVE COUNTING ERROR	2.2%				
Sample Point						
AP-106 GRAB2	PERCENT CARRIER RECOVERY	88.3%				

Analyst:	AKL	Date:	28-Jul-98
Signature of Chemist:	SAC	Date:	28 Jul 98

SAMPLE.WB1 REV 2.0

22010NML

WORKBOOK PAGE: DUP9

Sr-89/90 : LA-220-101 (E-3), 102 (INACTIVE), 104 (E-5)

Sr-89/90 : LA-220-101 (E-3), 102 (INACTIVE), 104 (E-5)						DUP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	9338	GROSS WEIGHT	(W2)	7.7215
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.6326
24865	BACKGROUND in cpm	(BKG)	9.2	NET WEIGHT	(W3)	0.0889
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	6.30
@SR90-01	DILUTION FACTOR	DF	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	924.60	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.83	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
98003364	TIME OF SEPARATION	(ST)	10:45	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	07/27/98	DETECTION LIMIT	(Ld)	3.75
0	TIME OF COUNT	(TOC)	17:03	Sr-89/90 CONC in µCi/L		1.0885E+03
Sample Prep	DATE OF COUNT	(DOC)	07/27/98			
N/A						
Sample #						
S98T002057						
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					
AKL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
07/28/98						
Analysis Date						
07/27/98	Sr-89/90 CONCENTRATION			1.09E+00		µCi/mL
Analysis Time						
03:00 PM	RELATIVE COUNTING ERROR			2.1%		
Sample Point						
AP-106 GRAB2	PERCENT CARRIER RECOVERY			88.9%		
						DETECTION LEVEL
						4.41E-03 µCi/mL

Analyst:	AKL	Date:	28-Jul-98
Signature of Chemist:	SAC	Date:	28 Jul 98

SAMPLE.WB1 REV 2.0

22010NML

LABCORE Completed Worklist Report for Worklist# 25169

Analyst: crj

Instrument: AB12

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: Rerun of WL 24865, AP-106, Handle as Suspect PCB mcb

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	@SR90-01 SR90-01	LIQUID	1.05E-03	1.08E-3	102.857	% Recovery
1 STD	0	@SR90-01 SR90-01C	LIQUID	100	9.26E+01	92.600	% Recovery
1 STD	0	@SR90-01 SR90-01E	LIQUID	1.00	1.82E+00	1.820	% Ct. Erro
2 BLNK-PREP	0	@SR90-01 SR90-01	LIQUID	1	1.40E-5	1.400e-005	uCi/mL
2 BLNK-PREP	0	@SR90-01 SR90-01C	LIQUID	100	9.19E+01	91.900	% Recovery
2 BLNK-PREP	0	@SR90-01 SR90-01E	LIQUID	1.00	8.37E+01	83.700	uCi/mL
3 BLNK/BKG	0	@SR90-01 SR90-01	LIQUID	1	2.15E+00	2.150	BLNK/BKG
4 SAMPLE	S98T002055 0	@SR90-01 SR90-01	LIQUID	N/A	6.84E-03	1.37e-005	uCi/mL
4 SAMPLE	S98T002055 0	@SR90-01 SR90-01C	LIQUID	N/A	9.15E+01		% Recovery
4 SAMPLE	S98T002055 0	@SR90-01 SR90-01E	LIQUID	N/A	2.30E+00		% Ct. Error
5 DUP	S98T002055 0	@SR90-01 SR90-01	LIQUID	6.84E-3	6.36E-3	7.273	RPD
5 DUP	S98T002055 0	@SR90-01 SR90-01C	LIQUID	100	9.16E+01	91.600	% Recovery
5 DUP	S98T002055 0	@SR90-01 SR90-01E	LIQUID	1.00	2.38E+00	2.380	% Ct. Err

Final page for worklist# 25169

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

13 Aug 98
Reviewer Signature _____ Date _____

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

LABCORE Data Entry Template for Worklist# 25169

Analyst: CRJ Instrument: AB00 12 Book# 28857

Method: LA-220-101 Rev/Mod E-3

Worklist Comment: Rerun of WL 24865, AP-106, Handle as Suspect PCB/ mcb

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@SR90-01	LIQUID		
2 BLNK-PREP			@SR90-01	LIQUID		
3 BLNK/BKG			@SR90-01	LIQUID		
4 SAMPLE	S98T002055 0		@SR90-01	LIQUID	98000335	AP-106 GRAB2
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E					
5 DUP	S98T002055 0		@SR90-01	LIQUID		

Final page for worklist # 25169

[Signature] 8/11/98
Analyst Signature Date

[Signature] 8/12/98
Analyst Signature Date
[Signature] 8/12/98

Data Entry Comments:

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

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (E-3), 102 (INACTIVE), 104 (E-5) LIQUIDS

				STANDARD
Type	DETECTOR NUMBER	12	CARRIER ADDED in mL (CVA)	1.000
STD	TOTAL COUNTS (TC)	11631	GROSS WEIGHT (W2)	7.1468
Work List	COUNT TIME in MINUTES (CT)	10	TARE WEIGHT (W1)	7.0542
25169	BACKGROUND in cpm (BKG)	1.3	NET WEIGHT (W3)	0.0926
Test Code	SAMPLE VOLUME in mL (SS)	1.000	DELTA TIME (HOURS) (DT)	23.63
@SR90-01	DILUTION FACTOR (DF)	1		
Matrix	DIGEST DILUTION FACTOR DDF	1		
LIQUID	SAMPLE COUNT RATE (Rs)	1161.80	SR-90 EFFICIENCY FACTO (C1)	0.4180
Batch Number	CRITICAL LEVEL (Lc)	0.69	Y-90 EFFICIENCY FACTOR (C2)	0.4660
98003695	TIME OF SEPARATION (ST)	12:27	Rmax	N/A
Rerun	DATE OF SEPARATION (SD)	08/11/98	DETECTION LIMIT (Ld)	1.46
0	TIME OF COUNT (TOC)	12:05	Sr-89/90 CONC. in $\mu\text{Ci/L}$	1.0807E+00
Sample Prep	DATE OF COUNT (DOC)	08/12/98		
N/A	STANDARD BOOK #	28B57		
Sample #	STANDARD VALUE in $\mu\text{Ci/mL}$	1.0494E-03		
WL25169				
Instrument Code				
WB27811	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)			
Prepared By	Sr-89/90 CONC in $\mu\text{Ci/mL}$ REPLACE RS WITH RMAX IF RS<=Lc AND RS>=0 OR REPLACE RS WITH Lc IF RS<0			
SZC	$RS * DF * DDF * 1000 / ((C1 + C2 * (1 - e \text{ to the power of } ((-\text{natural log } 2) / (64.2 * DT)))) * SS * REC * 2220000)$			
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			
CRJ	NOTE: Expected weight = CVA * 0.1			
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
08/12/98	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100			
Analysis Date				DETECTION LEVEL 1.36E-06 $\mu\text{Ci/L}$
08/12/98	Sr-89/90 CONCENTRATION	1.08E-03	$\mu\text{Ci/mL}$	
Analysis Time				
08:55 AM	RELATIVE COUNTING ERROR	1.8%		
Sample Point				
AP-106 GRAB	PERCENT CARRIER RECOVERY	92.6%		

Analyst:	CRJ	Date:	12-Aug-98
Signature of Chemist:	SAC	Date:	13 Aug 98

STANDARD.WB1 REV 2.0

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WORKBOOK PAGE: BLANK2

LA-220-101 / E-3 Sr-89/90 : LA-220-101 (E-3), 102 (INACTIVE), 104 (E-5)

BLNK-PREP

Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK-PREP	TOTAL COUNTS	(TC)	28	GROSS WEIGHT	(W2)	7.1516
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.0597
25169	BACKGROUND in cpm	(BKG)	1.3	NET WEIGHT	(W3)	0.0919
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	23.80
@SR90-01	DILUTION FACTOR	DF	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1.50	Sr-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.69	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
98003695	TIME OF SEPARATION	(ST)	12:27	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	08/11/98	DETECTION LIMIT	(Ld)	1.46
0	TIME OF COUNT	(TOC)	12:15	Sr-89/90 CONC in $\mu\text{Ci/L}$		1.4042E-02
Sample Prep	DATE OF COUNT	(DOC)	08/12/98			
N/A						
Sample #						
WL25169						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in $\mu\text{Ci/L}$ Replace RS with RMAX if $RS \leq Lc$ and $RS \geq 0$ or Replace RS with Lc if $RS < 0$					
Prepared By	$RS * DF * DDF / ((C1 + C2 * (1 - e \text{ to the power of } ((- \text{natural log } 2) / 64.2 * DT))) * SS * REC * 2220000)$					
SZC	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					
CRJ	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
08/12/98						
Analysis Date						
08/12/98	Sr-89/90 CONCENTRATION		1.40E-05	$\mu\text{Ci/mL}$		DETECTION LEVEL
Analysis Time						
08:55 AM	RELATIVE COUNTING ERROR		83.7%			1.37E-05
Sample Point						$\mu\text{Ci/mL}$
AP-106 GRAB	PERCENT CARRIER RECOVERY		91.9%			

Analyst:	CRJ	Date:	12-Aug-98
Signature of Chemist:	<i>SA Carter</i>	Date:	12 Aug 98

BLANK.WB1 REV 2.0

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WORKBOOK PAGE: SAM4

Sr-89/90 : LA-220-101 (E-3), 102 (INACTIVE), 104 (E-5)

					SAMPLE	
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	7306	GROSS WEIGHT	(W2)	7.1583
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.0668
25169	BACKGROUND in cpm	(BKG)	1.3	NET WEIGHT	(W3)	0.0915
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	24.05
@SR90-01	DILUTION FACTOR	DF	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	729.30	Sr-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.69	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
98003695	TIME OF SEPARATION	(ST)	12:27	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	08/11/98	DETECTION LIMIT	(Ld)	1.46
0	TIME OF COUNT	(TOC)	12:30	Sr-89/90 CONC in $\mu\text{Ci/L}$		6.8443E+00
Sample Prep	DATE OF COUNT	(DOC)	08/12/98			
N/A						
Sample #						
S98T002055						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in $\mu\text{Ci/L}$ Replace RS with RMAX if $RS \leq Lc$ and $RS \geq 0$ 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)					
SZC	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					
CRJ	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
08/12/98						
Analysis Date						DETECTION LEVEL 1.37E-05 $\mu\text{Ci/mL}$
08/12/98	Sr-89/90 CONCENTRATION		6.84E-03	$\mu\text{Ci/mL}$		
Analysis Time						
08:55 AM	RELATIVE COUNTING ERROR		2.3%			
Sample Point						
AP-106 GRAB	PERCENT CARRIER RECOVERY		91.5%			

Analyst:	CRJ	Date:	12-Aug-98
Signature of Chemist:	SAC	Date:	13 Aug 98

SAMPLE.WB1 REV 2.0

22010NML

WORKBOOK PAGE: DUP5

Sr-89/90 : LA-220-101 (E-3), 102 (INACTIVE), 104 (E-5)

Sr-89/90 : LA-220-101 (E-3), 102 (INACTIVE), 104 (E-5)						DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	6821	GROSS WEIGHT	(W2)	7.1279
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.0363
25169	BACKGROUND in cpm	(BKG)	1.3	NET WEIGHT	(W3)	0.0916
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	24.47
@SR90-01	DILUTION FACTOR	DF	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	680.80	Sr-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.69	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
98003695	TIME OF SEPARATION	(ST)	12:27	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	08/11/98	DETECTION LIMIT	(Ld)	1.46
0	TIME OF COUNT	(TOC)	12:55	Sr-89/90 CONC in µCi/L		6.3626E+00
Sample Prep	DATE OF COUNT	(DOC)	08/12/98			
N/A						
Sample #						
S98T002055						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	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)					
SZC	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					
CRJ	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
08/12/98						
Analysis Date						
08/12/98	Sr-89/90 CONCENTRATION		6.36E-03	µCi/mL	DETECTION LEVEL	
Analysis Time						
08:55 AM	RELATIVE COUNTING ERROR		2.4%	1.37E-05		
Sample Point						
AP-106 GRAB	PERCENT CARRIER RECOVERY		91.6%	µCi/mL		

Analyst:	CRJ	Date:	12-Aug-98
Signature of Chemist:	SAC	Date:	13 Aug 98

SAMPLE.WB1 REV 2.0

22010NML

LABCORE Completed Worklist Report for Worklist# 24861

Analyst: aki

Instrument: AB18

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: @AM24101 FOR AP106 GRAB RTS (HANDLE AS PCB SUSPECT)

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@AM24101 AM24101 LIQUID		2.27E-04	2.03E-4	89.427 % Recovery	
1 STD	0		@AM24101 AM24101T LIQUID		100.	1.01E+02	101.000 % Recovery	
1 STD	0		@AM24101 AM24101E LIQUID		1.0	1.59E+00	1.590 % Ct Error	
2 BLNK	0		@AM24101 AM24101 LIQUID		1	<4.03E-6	uCi/mL	
2 BLNK	0		@AM24101 AM24101T LIQUID		100.0	7.69E+01	76.900 % Recovery	
2 BLNK	0		@AM24101 AM24101E LIQUID		1.0	1.00E+02	100.000 % Ct Error	
3 SAMPLE	S98T002055	0	@AM24101 AM24101 LIQUID		N/A	2.71E-06	2.71e-006 uCi/mL	
3 SAMPLE	S98T002055	0	@AM24101 AM24101E LIQUID		N/A	1.00E+02	% Ct. Error	
3 SAMPLE	S98T002055	0	@AM24101 AM24101T LIQUID		N/A	9.17E+01	% Recovery	
4 DUP	S98T002055	0	@AM24101 AM24101 LIQUID		<2.71E-6	<2.76E-6	RPD	
4 DUP	S98T002055	0	@AM24101 AM24101T LIQUID		100.0	9.09E+01	90.900 % Recovery	
4 DUP	S98T002055	0	@AM24101 AM24101E LIQUID		1.0	1.00E+02	100.000 % Ct Error	
5 SAMPLE	S98T002056	0	@AM24101 AM24101 LIQUID		N/A	2.45E-06	2.45e-006 uCi/mL	
5 SAMPLE	S98T002056	0	@AM24101 AM24101E LIQUID		N/A	1.07E+01	% Ct. Error	
5 SAMPLE	S98T002056	0	@AM24101 AM24101T LIQUID		N/A	1.01E+02	% Recovery	
6 DUP	S98T002056	0	@AM24101 AM24101 LIQUID		<2.45E-6	<3.15E-6	RPD	
6 DUP	S98T002056	0	@AM24101 AM24101T LIQUID		100.0	8.78E+01	87.800 % Recovery	
6 DUP	S98T002056	0	@AM24101 AM24101E LIQUID		1.0	1.17E+01	11.700 % Ct Error	
7 SAMPLE	S98T002057	0	@AM24101 AM24101 LIQUID		N/A	1.88E-04	1.29e-005 uCi/mL	
7 SAMPLE	S98T002057	0	@AM24101 AM24101E LIQUID		N/A	2.00E+00	% Ct. Error	
7 SAMPLE	S98T002057	0	@AM24101 AM24101T LIQUID		N/A	1.09E+02	% Recovery	
8 DUP	S98T002057	0	@AM24101 AM24101 LIQUID		1.88E-4	1.40E-4	29.268 RPD	
8 DUP	S98T002057	0	@AM24101 AM24101T LIQUID		100.0	1.25E+02	125.000 % Recovery	
8 DUP	S98T002057	0	@AM24101 AM24101E LIQUID		1.0	1.98E+00	1.980 % Ct Error	

Final page for worklist# 24861

Analyst Signature

Date

Analyst Signature

Date

John Relyea 23 July 98
Reviewer Signature Date

Reject S98T002057
High RPD - Aerun 0.300 ml
Sample Size

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

LABCORE Data Entry Template for Worklist# 24861

Analyst: ALL Instrument: AM01 _____ Book# 28657
 Method: LA-953-104 Rev/Mod 60
 Worklist Comment: @AM24101 FOR AP106 GRAB RTS (HANDLE AS PCB SUSPECT)

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@AM24101	LIQUID		
2 BLNK			@AM24101	LIQUID		
3 SAMPLE	S98T002055 0		@AM24101	LIQUID	98000335	AP-106 GRAB2
Analytes Requested: AM24101 , AM24101E, AM24101T						
4 DUP	S98T002055 0		@AM24101	LIQUID		
5 SAMPLE	S98T002056 0		@AM24101	LIQUID	98000335	AP-106 GRAB2
Analytes Requested: AM24101 , AM24101E, AM24101T						
6 DUP	S98T002056 0		@AM24101	LIQUID		
7 SAMPLE	S98T002057 0		@AM24101	LIQUID	98000335	AP-106 GRAB2
Analytes Requested: AM24101 , AM24101E, AM24101T						
8 DUP	S98T002057 0		@AM24101	LIQUID		

Final page for worklist # 24861

Alita Hansen 2/22/98
 Analyst Signature Date

M. C. Hansen 2/23/98
 Analyst Signature Date

Data Entry Comments:

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

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (VOID) or LA-953-104(B-0))

LIQUID

STD

Type	Date Counted	JUL-23-98	Am 241 AEA Frac. (C241)	0.641	
STD	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.294	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
24861	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	5729	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.07	
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	100.88	
LIQUID	Detector Number	18	Am 243 cpm	46.17	
Batch Number	Detector Efficiency (DetEff)	0.2686	Cm 243/244 cpm	0	
98003362	Standard Book No	28B57	AEA Count Time (min)	480	
Rerun	Standard Value in $\mu\text{Ci/mL}$	2.270E-04	Am 241 $\mu\text{Ci/L}$ =	2.0310E-01	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 1.5842E-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))				
WL24861-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				
WB27809	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By					
MCB					
Chemist					
JFR	Am 241 $\mu\text{Ci/mL}$ =	2.03E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	1.6%			
AKL					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
07/23/98	Cm 243/244 $\mu\text{Ci/mL}$	< 1.58E-05	Am 241	1.58E-05	
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244	1.58E-05	
07/22/98	Am 243 Tracer Recovery =	101.0%			
Analysis Time					
03:30 PM					
Sample Point					
AP-106 GRAB2					

Analyst:	AKL	Date:	07/23/98
Signature of Chemist:	JFR	Date:	23 July 98

STANDARD.WB1 REV 1.2

953103ML

WORKBOOK PAGE: BLANK2

Am 241 and Cm 243/244: LA-953-103 (VOID) or LA-953-104(B-0))

LIQUID / SO

BLNK

Type	Date Counted	JUL-23-98	Am 241 AEA Frac. (C241)	0	
BLNK	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.752	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
24861	Tracer Volume in mL (SPKV)	0.100	Total AT Counts	854	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.07	
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	0	
LIQUID	Detector Number	18	Am 243 cpm	16.8	
Batch Number	Detector Efficiency (DetEff)	0.2686	Cm 243/244 cpm	0	
98003362			AEA Count Time (min)	480	
Rerun			Am 241 $\mu\text{Ci/L}$ =	< 4.0277E-03	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 4.0277E-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))				
WL24861-BLNK	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				
WB27809	Am 243 Tracer Recovery = (Total AT Counts / TC * Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By	NOTE: Am-241 Result is a LESS THAN Value.				
MCB					
Chemist					
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 4.03E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	100.0%			
AKL					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
07/23/98	Cm 243/244 $\mu\text{Ci/mL}$	< 4.03E-06	Am 241		
Analysis Date	Relative Counting Error =	100.0%	4.03E-06		
07/22/98	Am 243 Tracer Recovery =	76.9%	Cm 243/244		
Analysis Time	4.03E-06				
03:30 PM					
Sample Point					
AP-106 GRAB2					

Analyst:	AKL	Date:	07/23/98
Signature of Chemist:	JFR	Date:	23 July 98

BLANK.WB1 REV 1.2

953103ML

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (VOID) or LA-953-104(B-0))

LIQUID / SO

SAMPLE

Type	Date Counted	JUL-23-98	Am 241 AEA Frac. (C241)	0	
SAMPLE	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.938	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
24861	Tracer Volume in mL (SPKV)	0.100	Total AT Counts	817	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.07	
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	0	
LIQUID	Detector Number	18	Am 243 cpm	21.05	
Batch Number	Detector Efficiency (DetEff)	0.2686	Cm 243/244 cpm	0	
98003362			AEA Count Time (min)	480	
Rerun			Am 241 $\mu\text{Ci/L}$ =	< 2.7063E-03	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 2.7063E-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))				
S98T002055	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				
WB27809	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By					
MCB					
Chemist	NOTE: Am-241 Result is a LESS THAN Value.				
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 2.71E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$ Am 241 2.71E-06 Cm 243/244 2.71E-06		
Analyst	Relative Counting Error =	100.0%			
AKL					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
07/23/98	Cm 243/244 $\mu\text{Ci/mL}$	< 2.71E-06			
Analysis Date	Relative Counting Error =	100.0%			
07/22/98	Am 243 Tracer Recovery =	91.7%			
Analysis Time					
03:30 PM					
Sample Point					
AP-106 GRAB2					

Analyst:	AKL	Date:	07/23/98
Signature of Chemist:	JFR	Date:	23 July 98
SAMPLE WB1 REV 1.2	953103ML		

WORKBOOK PAGE: DUP4

Am 241 and Cm 243/244: LA-953-103 (VOID) or LA-953-104(B-0)

LIQUID / SO

DUP

Type	Date Counted	JUL-23-98	Am 241 AEA Frac. (C241)	0	
DUP	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.927	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
24861	Tracer Volume in mL (SPKV)	0.100	Total AT Counts	819	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.07	
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	0	
LIQUID	Detector Number	18	Am 243 cpm	20.83	
Batch Number	Detector Efficiency (DetEff)	0.2686	Cm 243/244 cpm	0	
98003362			AEA Count Time (min)	480	
Rerun			Am 241 $\mu\text{Ci/L}$ =	< 2.7641E-03	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 2.7641E-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))				
S98T002055	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				
WB27809	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By	NOTE: Am-241 Result is a LESS THAN Value.				
MCB					
Chemist					
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 2.76E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	100.0%			
AKL					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
07/23/98	Cm 243/244 $\mu\text{Ci/mL}$	< 2.76E-06	Am 241		
Analysis Date	Relative Counting Error =	100.0%	2.76E-06		
07/22/98	Am 243 Tracer Recovery =	90.9%	Cm 243/244		
			2.76E-06		
Analysis Time					
03:30 PM					
Sample Point					
AP-106 GRAB2					

Analyst:	AKL	Date:	07/23/98
Signature of Chemist:	<i>John Relyea</i>	JFR	Date: 23 July 98
SAMPLE.WB1 REV 1.2	953103ML		

WORKBOOK PAGE: SAM5

Am 241 and Cm 243/244: LA-953-103 (VOID) or LA-953-104(B-0))

LIQUID / SO

SAMPLE

Type	Date Counted	JUL-23-98	Am 241 AEA Frac. (C241)	0.03	
SAMPLE	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.95	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
24861	Tracer Volume in mL (SPKV)	0.100	Total AT Counts	884	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.07	
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	0.72	
LIQUID	Detector Number	18	Am 243 cpm	22.76	
Batch Number	Detector Efficiency (DetEff)	0.2686	Cm 243/244 cpm	0	
98003362			AEA Count Time (min)	480	
Rerun			Am 241 $\mu\text{Ci/L}$ =	< 2.4514E-03	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 2.4514E-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))				
S98T002056	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				
WB27809	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By					
MCB					
Chemist	NOTE: Am-241 Result is a LESS THAN Value.				
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 2.45E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	10.7%			
AKL					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
07/23/98	Cm 243/244 $\mu\text{Ci/mL}$	< 2.45E-06	Am 241		
Analysis Date	Relative Counting Error =	100.0%	2.45E-06		
07/22/98	Am 243 Tracer Recovery =	100.6%	Cm 243/244		
			2.45E-06		
Analysis Time					
03:30 PM					
Sample Point					
AP-106 GRAB2					

Analyst:	AKL	Date:	07/23/98
Signature of Chemist:	JFR	Date:	23 July 98
SAMPLE.WB1 REV 1.2	953103ML		

WORKBOOK PAGE: DUP6

Am 241 and Cm 243/244: LA-953-103 (VOID) or LA-953-104(B-0))

LIQUID / SO

DUP

Type	Date Counted	JUL-23-98	Am 241 AEA Frac. (C241)	0.026	
DUP	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.842	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
24861	Tracer Volume in mL (SPKV)	0.100	Total AT Counts	871	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.07	
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	0.6	
LIQUID	Detector Number	18	Am 243 cpm	19.65	
Batch Number	Detector Efficiency (DetEff)	0.2686	Cm 243/244 cpm	0	
98003362			AEA Count Time (min)	480	
Rerun			Am 241 $\mu\text{Ci/L}$ =	< 3.1499E-03	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 3.1499E-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))				
S98T002056	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				
WB27809	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By	NOTE: Am-241 Result is a LESS THAN Value.				
MCB	Am 241 $\mu\text{Ci/mL}$ =	< 3.15E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Chemist	Relative Counting Error =	11.7%			
JFR	NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241	
Analyst	Cm 243/244 $\mu\text{Ci/mL}$	< 3.15E-06		3.15E-06	
AKL	Relative Counting Error =	100.0%	Cm 243/244		
Date Complete	Am 243 Tracer Recovery =	87.8%		3.15E-06	
07/23/98					
Analysis Date					
07/22/98					
Analysis Time					
03:30 PM					
Sample Point					
AP-106 GRAB2					

Analyst:	AKL	Date:	07/23/98
Signature of Chemist:	JFR	Date:	23 July 98

SAMPLE.WB1 REV 1.2

953103ML

222-S Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 WL24861-STD
 File ID: 1a1037.CNF

Counted on: 7/23/98 @ 2:24
 Detector: AEA1
 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	2457.5	2457.5	298.232	298.232	14.000	7.080	7.000	2.080
2	1073.2	1073.2	253.019	252.835	12.000	6.260	6.000	1.635
3	24.7	24.7	154.371	154.314	128.000	1.000	64.000	0.100
4?	3.7	3.7	123.379	122.508	6.000	0.399	3.000	0.120
5?	6.8	6.8	95.301	94.758	12.000	7.963	6.000	0.939

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	Am241	0.641	5.479	5.463	0.0160.03	100.88	0.9	441.6	0.199E-03
	Pu238		5.487	5.463	0.024			576.6	0.260E-03
2	Am243	0.294	5.266	5.254	0.0120.03	46.17	1.4	191.9	0.864E-04
3	Np237	0.012	4.769	4.801	-0.0320.00	1.96	6.5	9.3	0.418E-05
4	????			4.655		0.11	83.6		
5	????			4.527		0.51	18.4		

Totals: 0.947 <--valid peaks only--> 149.00

DETECTOR CALIBRATION

Energy(MEV) = 4.091 + (0.0046)*Channel
 Energy range (MeV): 4.091 TO 6.447
 Efficiency = 0.2430 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	75500.0	100.000
Smoothed	75496.4	99.995
Composite fit	71831.4	95.141
Residuals	3668.6	4.859

Analyzed by:

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 15944.2

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Raw Data Dump for AEA Spectrum: 1a1037.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	1.	5.	4.
21	3.	4.	6.	8.	4.	5.	5.	8.	4.
31	6.	5.	6.	4.	3.	4.	6.	3.	2.
41	6.	6.	9.	7.	1.	3.	4.	8.	9.
51	8.	8.	8.	6.	8.	5.	12.	8.	6.
61	5.	6.	9.	8.	8.	7.	6.	4.	8.
71	11.	5.	5.	8.	7.	7.	7.	5.	7.
81	10.	9.	8.	8.	6.	8.	8.	6.	11.
91	4.	9.	12.	7.	18.	12.	6.	13.	9.
101	6.	9.	6.	12.	5.	17.	10.	7.	9.
111	5.	8.	15.	15.	5.	8.	14.	11.	9.
121	8.	9.	19.	15.	9.	11.	11.	16.	9.
131	7.	12.	12.	15.	12.	12.	20.	13.	16.
141	14.	16.	15.	12.	14.	17.	20.	19.	21.
151	19.	13.	27.	25.	26.	24.	14.	17.	24.
161	35.	29.	19.	29.	29.	22.	30.	25.	37.
171	25.	25.	38.	29.	38.	37.	32.	38.	42.
181	42.	43.	51.	30.	53.	49.	48.	41.	57.
191	44.	47.	57.	70.	55.	60.	54.	72.	79.
201	69.	70.	67.	60.	77.	96.	77.	84.	91.
211	98.	89.	123.	115.	120.	113.	126.	122.	120.
221	147.	152.	162.	171.	164.	175.	206.	200.	212.
231	241.	274.	303.	299.	319.	345.	342.	383.	453.
241	583.	575.	653.	740.	763.	859.	825.	958.	1063.
251	1107.	1174.	1196.	1260.	1158.	960.	626.	388.	301.
261	289.	290.	272.	294.	295.	282.	304.	290.	302.
271	326.	343.	356.	383.	408.	472.	450.	499.	553.
281	633.	683.	730.	795.	951.	1090.	1145.	1244.	1429.
291	1678.	1860.	2033.	2086.	2267.	2379.	2550.	2659.	2673.
301	2139.	1618.	1021.	686.	562.	458.	391.	322.	254.
311	144.	98.	54.	28.	14.	3.	3.	0.	5.
321	3.	1.	2.	2.	2.	2.	1.	3.	1.
331	1.	1.	2.	2.	2.	2.	1.	4.	3.
341	3.	1.	3.	0.	2.	4.	5.	3.	1.
351	1.	1.	0.	0.	0.	1.	1.	3.	1.
361	3.	4.	2.	0.	1.	0.	0.	2.	2.
371	3.	1.	0.	0.	0.	0.	0.	0.	1.
381	0.	0.	0.	0.	0.	3.	1.	1.	0.
391	2.	0.	0.	0.	1.	0.	0.	1.	0.
401	0.	0.	0.	0.	0.	1.	0.	0.	0.
411	0.	1.	0.	1.	0.	2.	1.	0.	0.
421	1.	0.	1.	0.	1.	1.	1.	0.	0.
431	2.	1.	0.	0.	1.	0.	0.	2.	1.
441	0.	0.	1.	1.	1.	3.	1.	0.	1.
451	3.	0.	2.	0.	2.	1.	0.	0.	3.
461	0.	2.	0.	1.	0.	1.	1.	1.	4.
471	2.	0.	0.	3.	4.	2.	4.	3.	4.
481	3.	1.	0.	2.	1.	2.	1.	0.	1.
491	2.	0.	0.	2.	0.	1.	4.	0.	1.
511	7.	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
 WL24861-BLK
 File ID: 2a2031.CNF

Counted on: 7/23/98 @ 2:25
 Detector: AEA2
 Geometry number: 1
 Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	477.1	477.1	256.312	256.312	12.000	5.173	6.000	1.768

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	0.752	5.266	5.250	0.0160	0.02	16.80	2.2	73.2	0.330E-04
Totals:		0.752	<--valid peaks only-->			16.80			

DETECTOR CALIBRATION

Energy(MEV) = 4.071 + (0.0046)*Channel
 Energy range (MeV): 4.071 TO 6.426
 Efficiency = 0.2318 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	10729.0	100.000
Smoothed	10729.0	100.000
Composite fit	8064.1	75.162
Residuals	2664.9	24.838

Analyzed by: _____

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Raw Data Dump for AEA Spectrum: 2a2031.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	4.	2.	2.
21	4.	2.	2.	5.	0.	1.	2.	1.	3.	4.
31	4.	3.	2.	1.	2.	2.	1.	7.	3.	1.
41	6.	2.	1.	2.	3.	4.	0.	2.	5.	2.
51	3.	5.	1.	4.	5.	4.	1.	1.	3.	6.
61	4.	2.	0.	1.	2.	5.	2.	1.	5.	1.
71	6.	6.	7.	6.	4.	5.	1.	4.	6.	6.
81	4.	4.	5.	5.	0.	4.	6.	6.	5.	2.
91	9.	3.	7.	6.	4.	3.	3.	2.	4.	3.
101	10.	8.	4.	6.	4.	11.	5.	4.	7.	3.
111	6.	7.	2.	4.	3.	8.	6.	7.	3.	10.
121	8.	3.	7.	7.	6.	7.	6.	13.	8.	12.
131	9.	8.	8.	6.	6.	5.	8.	11.	3.	6.
141	8.	13.	6.	8.	11.	6.	8.	10.	11.	8.
151	3.	5.	7.	10.	7.	12.	9.	14.	14.	6.
161	15.	11.	11.	13.	8.	13.	13.	14.	12.	13.
171	14.	10.	18.	18.	8.	20.	23.	15.	14.	21.
181	17.	18.	19.	19.	15.	20.	21.	18.	22.	24.
191	23.	16.	36.	12.	24.	28.	14.	27.	26.	29.
201	28.	28.	37.	26.	40.	40.	32.	30.	36.	24.
211	35.	37.	43.	46.	42.	37.	44.	43.	56.	51.
221	55.	39.	55.	50.	44.	47.	57.	72.	68.	75.
231	75.	68.	95.	94.	84.	102.	81.	92.	112.	120.
241	131.	131.	153.	161.	185.	185.	207.	262.	265.	292.
251	327.	341.	406.	474.	523.	541.	500.	540.	409.	252.
261	140.	91.	63.	49.	39.	48.	34.	26.	30.	23.
271	27.	18.	8.	6.	5.	3.	3.	0.	4.	1.
281	0.	0.	0.	0.	1.	2.	2.	0.	1.	2.
291	2.	1.	1.	1.	2.	2.	4.	3.	1.	8.
301	2.	1.	2.	4.	2.	7.	2.	2.	0.	2.
311	0.	1.	0.	1.	1.	0.	0.	1.	1.	0.
321	0.	1.	0.	1.	0.	1.	0.	0.	0.	0.
331	1.	0.	0.	1.	1.	1.	2.	1.	0.	1.
341	3.	0.	1.	1.	4.	1.	4.	0.	0.	2.
351	2.	1.	1.	1.	0.	0.	0.	1.	0.	2.
361	0.	1.	0.	3.	0.	0.	0.	1.	0.	1.
371	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
381	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	1.	0.	0.	0.	1.	0.	2.	0.	0.	0.
431	0.	0.	1.	1.	2.	1.	1.	3.	0.	1.
441	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.
461	0.	0.	0.	1.	1.	0.	1.	1.	2.	0.
471	1.	0.	0.	3.	1.	6.	0.	1.	4.	4.
481	0.	2.	2.	1.	0.	0.	0.	1.	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
 S98T002055-SAM
 File ID: 3a3223.CNF

Counted on: 7/23/98 @ 2:26
 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	518.9	518.9	250.664	250.664	16.000	7.580	8.000	2.335
2	8.0	8.0	189.192	188.570	18.000	27.967	9.000	7.993

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count	%err		Activity	
		Exp.	Obs.	Diff.	FWHM	Rate	c/m	@95	d/m	uCi/ea
1	Am243	0.938	5.266	5.250	0.0160	0.03	21.05	1.9	90.1	0.406E-04
2	Np237	0.022	4.769	4.964	-.1950	0.13	0.48	23.1	2.4	0.106E-05
	Pu242		4.891	4.964	-.073				2.1	0.924E-06

Totals: 0.959 <--valid peaks only--> 21.54

DETECTOR CALIBRATION

Energy(MEV) = 4.096 + (0.0046)*Channel
 Energy range (MeV): 4.096 TO 6.452
 Efficiency = 0.2361 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	10777.0	100.000
Smoothed	10777.0	100.000
Composite fit	10339.9	95.944
Residuals	437.1	4.056

Analyzed by: _____

GL

Spectrum 3a3223.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 3592.7

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Raw Data Dump for AEA Spectrum: 3a3223.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
31	2.	0.	1.	0.	0.	1.	0.	0.	0.	1.
41	0.	1.	0.	0.	0.	0.	1.	0.	1.	0.
51	1.	0.	1.	1.	1.	0.	0.	1.	0.	1.
61	0.	0.	0.	0.	1.	1.	0.	1.	1.	0.
71	1.	3.	0.	0.	1.	1.	0.	1.	2.	1.
81	0.	1.	0.	0.	1.	1.	1.	2.	0.	0.
91	0.	1.	1.	0.	1.	1.	0.	3.	1.	0.
101	0.	1.	1.	2.	1.	0.	1.	1.	1.	0.
111	0.	0.	2.	2.	0.	1.	1.	1.	0.	1.
121	1.	0.	1.	0.	1.	0.	4.	1.	1.	2.
131	2.	1.	0.	1.	0.	1.	0.	4.	2.	1.
141	2.	1.	1.	2.	1.	4.	3.	1.	1.	0.
151	2.	0.	1.	2.	0.	1.	1.	3.	3.	1.
161	2.	1.	1.	4.	1.	5.	2.	2.	7.	2.
171	5.	2.	4.	3.	4.	6.	3.	3.	5.	3.
181	4.	11.	8.	7.	6.	10.	8.	10.	16.	11.
191	5.	14.	6.	8.	11.	13.	6.	9.	14.	18.
201	10.	10.	10.	18.	25.	22.	17.	12.	18.	28.
211	24.	27.	30.	27.	32.	26.	25.	32.	39.	39.
221	49.	43.	60.	60.	71.	57.	75.	62.	85.	88.
231	115.	119.	130.	126.	152.	172.	181.	219.	221.	261.
241	269.	343.	351.	427.	371.	447.	441.	501.	516.	594.
251	547.	520.	504.	441.	346.	218.	152.	80.	61.	48.
261	43.	37.	31.	34.	20.	26.	15.	19.	11.	8.
271	4.	3.	0.	1.	2.	4.	1.	1.	0.	0.
281	2.	1.	2.	1.	1.	3.	0.	5.	1.	3.
291	7.	7.	6.	5.	5.	8.	7.	10.	3.	4.
301	0.	0.	2.	1.	1.	2.	1.	0.	1.	1.
311	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	1.	1.	0.	0.	0.	0.	1.	3.
341	3.	0.	1.	0.	2.	1.	2.	0.	1.	0.
351	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
361	0.	1.	0.	0.	0.	0.	0.	0.	1.	0.
371	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
391	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.
401	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
421	1.	0.	0.	0.	1.	0.	0.	0.	0.	1.
431	0.	0.	0.	1.	0.	1.	1.	0.	0.	0.
441	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
451	2.	3.	0.	3.	0.	0.	1.	1.	0.	2.
461	0.	0.	0.	0.	1.	1.	1.	0.	0.	0.
471	0.	1.	1.	3.	0.	1.	0.	0.	0.	2.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

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
 S98T002055-DUP
 File ID: 4a4224.CNF

Counted on: 7/23/98 @ 2:27
 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	517.4	517.4	251.200	251.200	12.000	6.180	6.000	1.789

PEAK RESULTS

Peak Error Limit: 30%

Peak ID Isotope	AEA Frac	Peak Centroid			Count	%err		Activity
	Exp.	Obs.	Diff.	FWHM	Rate c/m	@95	d/m	uCi/ea
1 Am243	0.927	5.266	5.246	0.0200.03	20.83	2.0	90.5	0.408E-04

Totals:	0.927	<--valid peaks only-->				20.83		

DETECTOR CALIBRATION

Energy (MEV) = 4.090 + (0.0046)*Channel
 Energy range (MeV): 4.090 TO 6.445
 Efficiency = 0.2325 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	10785.0	100.000
Smoothed	10785.0	100.000
Composite fit	10002.4	92.744
Residuals	782.6	7.256

Analyzed by: _____

GL

Spectrum 4a4224.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 3590.5

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Raw Data Dump for AEA Spectrum: 4a4224.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.
21	2.	2.	1.	0.	0.	0.	2.	0.	0.	1.
31	2.	0.	0.	0.	0.	0.	1.	1.	0.	0.
41	0.	1.	0.	0.	1.	1.	0.	2.	0.	1.
51	0.	2.	1.	0.	1.	2.	1.	2.	1.	0.
61	0.	0.	2.	0.	1.	0.	1.	0.	2.	0.
71	0.	0.	1.	2.	0.	0.	1.	0.	1.	1.
81	0.	1.	3.	1.	3.	0.	0.	1.	1.	1.
91	0.	1.	1.	1.	1.	1.	1.	1.	1.	2.
101	1.	2.	1.	0.	1.	1.	2.	2.	2.	4.
111	2.	1.	1.	1.	1.	1.	1.	1.	2.	3.
121	3.	2.	2.	3.	0.	4.	1.	1.	6.	2.
131	3.	2.	1.	2.	1.	2.	3.	3.	3.	4.
141	1.	0.	2.	0.	1.	3.	0.	3.	4.	1.
151	4.	3.	5.	4.	4.	2.	3.	5.	3.	2.
161	3.	1.	7.	3.	3.	4.	6.	9.	6.	3.
171	4.	5.	4.	5.	4.	8.	2.	5.	9.	3.
181	8.	6.	5.	3.	6.	12.	7.	6.	8.	6.
191	9.	12.	15.	15.	12.	15.	17.	16.	19.	14.
201	15.	20.	20.	8.	17.	20.	21.	15.	25.	10.
211	16.	33.	25.	23.	35.	39.	33.	35.	39.	39.
221	44.	48.	50.	61.	83.	65.	79.	87.	66.	87.
231	98.	84.	119.	137.	136.	183.	167.	217.	220.	250.
241	289.	308.	317.	403.	397.	455.	467.	495.	519.	527.
251	533.	556.	556.	438.	373.	188.	103.	79.	45.	44.
261	46.	43.	42.	27.	24.	26.	24.	5.	7.	11.
271	5.	2.	0.	0.	0.	1.	0.	0.	3.	0.
281	2.	1.	1.	3.	4.	1.	2.	2.	5.	5.
291	3.	4.	6.	7.	6.	8.	4.	8.	5.	0.
301	2.	1.	5.	0.	2.	1.	1.	0.	0.	0.
311	0.	1.	0.	0.	0.	1.	0.	0.	0.	1.
321	0.	0.	1.	0.	0.	0.	0.	0.	2.	0.
331	0.	1.	0.	0.	1.	0.	0.	0.	0.	0.
341	3.	0.	1.	1.	0.	1.	0.	2.	0.	0.
351	0.	2.	2.	0.	1.	1.	2.	1.	2.	0.
361	0.	1.	1.	0.	0.	1.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	1.	0.	1.	0.	0.	1.	0.	0.	0.	0.
411	0.	1.	2.	1.	1.	0.	0.	1.	1.	1.
421	0.	1.	0.	2.	1.	0.	0.	0.	0.	1.
431	0.	1.	0.	0.	1.	1.	0.	0.	0.	0.
441	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
451	0.	0.	1.	0.	0.	0.	1.	0.	1.	0.
461	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	1.	1.	5.	2.	2.	1.	1.	2.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

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
 S98T002056-SAM
 File ID: 5a5174.CNF

Counted on: 7/23/98 @ 2:28
 Detector: AEA5
 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	18.8	18.8	300.087	300.087	12.000	5.181	6.000	1.536
2	564.1	564.1	254.176	254.173	14.000	7.503	7.000	2.326

PEAK RESULTS

Peak Error Limit: 30%

Peak ID Isotope	AEA Frac	Peak Centroid			Count	%err	d/m	Activity uCi/ea
	Exp.	Obs.	Diff.	FWHM	Rate	c/m		
1 Pu238	0.030	5.487	5.465	0.022	0.02	0.72	10.5	4.1 0.186E-05
Am241		5.479	5.465	0.014				3.2 0.142E-05
2 Am243	0.950	5.266	5.254	0.012	0.03	22.76	1.9	94.8 0.427E-04

Totals:	0.980	<--invalid peaks only-->				23.48		

DETECTOR CALIBRATION

Energy(MEV) = 4.085 + (0.0046)*Channel
 Energy range (MeV): 4.085 TO 6.440
 Efficiency = 0.2425 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	11499.0	100.000
Smoothed	11499.0	100.000
Composite fit	11270.5	98.013
Residuals	228.5	1.987

Analyzed by: _____

GL

4187.0

229

Raw Data Dump for AEA Spectrum: 5a5174.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	2.	0.	0.	0.	0.	0.	1.	0.
31	0.	0.	0.	0.	1.	1.	1.	0.	1.
41	1.	0.	0.	0.	1.	0.	0.	0.	1.
51	0.	0.	1.	0.	0.	1.	0.	0.	0.
61	0.	1.	0.	0.	1.	0.	1.	0.	2.
71	2.	0.	1.	0.	0.	0.	0.	1.	1.
81	1.	0.	0.	0.	0.	2.	1.	2.	1.
91	1.	0.	0.	1.	0.	3.	1.	0.	0.
101	1.	0.	0.	0.	2.	0.	0.	0.	0.
111	1.	0.	0.	1.	0.	0.	0.	0.	2.
121	0.	1.	1.	2.	1.	0.	0.	2.	2.
131	1.	1.	2.	0.	0.	1.	1.	1.	1.
141	2.	1.	0.	0.	0.	2.	2.	0.	0.
151	2.	1.	0.	2.	2.	3.	0.	1.	1.
161	0.	0.	2.	3.	2.	1.	2.	3.	2.
171	3.	0.	4.	1.	2.	1.	1.	3.	2.
181	2.	0.	3.	2.	2.	2.	1.	4.	6.
191	6.	4.	10.	5.	2.	5.	4.	1.	7.
201	7.	3.	9.	6.	14.	6.	8.	10.	6.
211	11.	5.	11.	17.	18.	10.	23.	14.	23.
221	17.	25.	33.	26.	39.	32.	33.	53.	60.
231	60.	74.	84.	111.	99.	115.	118.	152.	170.
241	242.	237.	301.	300.	336.	378.	438.	493.	465.
251	539.	551.	590.	612.	578.	583.	518.	409.	308.
261	109.	63.	69.	60.	43.	49.	31.	21.	36.
271	19.	18.	12.	4.	4.	6.	4.	1.	4.
281	3.	6.	4.	2.	6.	5.	2.	7.	8.
291	9.	10.	15.	9.	24.	7.	17.	18.	14.
301	17.	23.	7.	7.	5.	5.	3.	3.	3.
311	5.	0.	2.	1.	2.	2.	0.	0.	1.
321	0.	0.	0.	0.	0.	0.	0.	1.	1.
331	0.	0.	1.	0.	0.	0.	1.	0.	3.
341	0.	0.	0.	0.	0.	1.	0.	0.	1.
351	2.	2.	1.	1.	2.	0.	0.	1.	1.
361	3.	2.	0.	0.	1.	2.	0.	1.	0.
371	0.	1.	1.	1.	0.	0.	0.	0.	0.
381	0.	1.	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	1.	0.	0.	0.	0.	0.	1.	0.	2.
421	0.	0.	1.	0.	0.	0.	1.	2.	0.
431	0.	0.	0.	0.	1.	0.	1.	0.	3.
441	0.	0.	1.	1.	2.	0.	1.	1.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	1.	0.	0.	0.	0.	0.	0.	1.	0.
471	0.	1.	0.	0.	0.	0.	0.	0.	1.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	1.	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
S98T002056-DUP
File ID: 6a6156.CNF

Counted on: 7/23/98 @ 2:29
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	15.0	15.0	298.120	298.120	12.000	6.507	6.000	1.915
2	558.0	558.0	252.484	252.482	10.000	4.782	5.000	1.588

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	0.026	5.487	5.460	0.027	0.03	0.60 11.5	3.6	0.162E-05
	Am241		5.479	5.460	0.019			2.7	0.124E-05
2	Am243	0.842	5.266	5.251	0.015	0.02	19.65 2.0	84.9	0.383E-04
-----			-----			-----			
Totals:		0.868	<--invalid peaks only-->				20.26		

DETECTOR CALIBRATION

Energy(MEV) = 4.089 + (0.0046)*Channel
Energy range (MeV): 4.089 TO 6.444
Efficiency = 0.2337 CPM/DPM
(Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	11209.0	100.000
Smoothed	11209.0	100.000
Composite fit	9725.4	86.764
Residuals	1483.6	13.236

Analyzed by: _____

GL

Spectrum 6a6156.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 3916.0

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Raw Data Dump for AEA Spectrum: 6a6156.CNF										
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
21	0.	1.	1.	0.	1.	0.	1.	1.	0.	0.
31	2.	1.	1.	0.	0.	0.	0.	1.	0.	3.
41	1.	2.	0.	0.	0.	0.	1.	1.	2.	0.
51	0.	0.	1.	2.	2.	1.	1.	0.	2.	0.
61	1.	0.	0.	2.	0.	1.	1.	2.	0.	1.
71	2.	0.	0.	0.	2.	0.	0.	2.	3.	2.
81	2.	3.	0.	1.	2.	1.	0.	0.	3.	4.
91	3.	3.	4.	0.	1.	1.	2.	3.	1.	1.
101	1.	4.	3.	0.	2.	2.	0.	2.	1.	2.
111	7.	5.	7.	1.	3.	2.	4.	2.	2.	2.
121	3.	1.	2.	2.	5.	6.	5.	1.	2.	4.
131	2.	5.	2.	4.	3.	4.	4.	6.	4.	4.
141	3.	2.	6.	3.	5.	1.	7.	3.	3.	9.
151	5.	7.	5.	3.	7.	4.	7.	6.	6.	5.
161	4.	9.	9.	10.	9.	6.	11.	11.	9.	6.
171	9.	16.	5.	11.	12.	15.	13.	13.	15.	7.
181	12.	13.	8.	13.	22.	16.	14.	17.	15.	11.
191	16.	18.	16.	17.	17.	15.	21.	15.	26.	22.
201	30.	17.	28.	28.	23.	17.	22.	23.	32.	33.
211	29.	34.	43.	25.	34.	44.	43.	46.	40.	41.
221	47.	54.	52.	62.	58.	61.	67.	73.	67.	72.
231	89.	91.	104.	101.	121.	117.	139.	165.	171.	200.
241	207.	241.	296.	323.	345.	383.	402.	459.	473.	537.
251	552.	584.	620.	624.	496.	314.	159.	86.	71.	52.
261	49.	36.	45.	33.	32.	23.	19.	11.	19.	10.
271	13.	5.	1.	2.	3.	1.	2.	1.	4.	1.
281	3.	2.	5.	5.	5.	6.	9.	9.	9.	11.
291	5.	13.	13.	15.	14.	14.	14.	19.	12.	16.
301	15.	7.	5.	2.	3.	4.	2.	2.	2.	2.
311	0.	1.	1.	0.	0.	0.	0.	0.	1.	0.
321	1.	0.	0.	0.	0.	0.	1.	1.	1.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.
341	0.	0.	1.	1.	1.	1.	0.	0.	2.	2.
351	1.	1.	2.	2.	0.	3.	3.	4.	1.	3.
361	0.	0.	0.	0.	0.	1.	1.	0.	1.	0.
371	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
381	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	2.	0.	1.
411	0.	0.	1.	0.	0.	0.	0.	0.	1.	1.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	2.	0.	1.	1.	1.	1.	3.	0.	0.	1.
441	0.	0.	1.	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.	1.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

LABCORE Completed RadChem Report for Worklist#: 25045

Analyst: ak1 Instrument: AB13 Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: Rerun of WL 24861, AP 106 GRAB, Handle as PCB Suspect mcb

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	@AM24101 AM24101 LIQUID		2.27E-04	2.29E-4	100.881	% Recovery
1 STD	0	@AM24101 AM24101T LIQUID		100.	9.04E+01	90.400	% Recovery
1 STD	0	@AM24101 AM24101E LIQUID		1.0	1.63E+00	1.630	% Ct Error
2 BLNK	0	@AM24101 AM24101 LIQUID		1	<8.96E-6		uCi/mL
2 BLNK	0	@AM24101 AM24101T LIQUID		100.0	9.15E+01	91.500	% Recovery
2 BLNK	0	@AM24101 AM24101E LIQUID		1.0	1.00E+02	100.000	% Ct Error
3 SAMPLE	S98T002057 0	@AM24101 AM24101 LIQUID		N/A	1.50E-04	171.0e-007	uCi/mL
3 SAMPLE	S98T002057 0	@AM24101 AM24101E LIQUID		N/A	3.35E+00	0.0e+000	% Ct Error
3 SAMPLE	S98T002057 0	@AM24101 AM24101T LIQUID		N/A	9.33E+01	0.0e+000	% Recovery
4 DUP	S98T002057 0	@AM24101 AM24101 LIQUID		1.50E-4	1.49E-4	0.669	RPD
4 DUP	S98T002057 0	@AM24101 AM24101T LIQUID		100.0	8.67E+01	86.700	% Recovery
4 DUP	S98T002057 0	@AM24101 AM24101E LIQUID		1.0	2.77E+00	2.770	% Ct Error

Final page for worklist# 25045

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

John Relyea
Reviewer Signature _____ Date *5 Aug 98*
Validated

LABCORE Data Entry Template for Worklist# 25045

Analyst: AKL Instrument: AM01 #13 Book# 28667

Method: LA-953-104 Rev/Mod B0

Worklist Comment: Rerun of WL 24861, AP 106 GRAB; Handle as PCB Suspect mcb

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@AM24101	LIQUID		
2 BLNK			@AM24101	LIQUID		
3 SAMPLE	S98T002057 0		@AM24101	LIQUID	98000335	AP-106 GRAB2
	Analytes Requested: AM24101 , AM24101E, AM24101T					
4 DUP	S98T002057 0		@AM24101	LIQUID		

Final page for worklist # 25045

Alita Hansen 8/13/98
Analyst Signature Date

Sharon L. Lohle 8-4-98
Analyst Signature Date

Data Entry Comments:

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

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (VOID) or LA-953-104(B-0)

LIQUID

STD

Type	Date Counted	AUG-03-98	Am 241 AEA Frac. (C241)	0.684
STD	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.278
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0
25045	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	6390
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.07
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	103.79
LIQUID	Detector Number	13	Am 243 cpm	42.24
Batch Number	Detector Efficiency (DetEff)	0.3166	Cm 243/244 cpm	0
98003570	Standard Book No	28B57	AEA Count Time (min)	480
Rerun	Standard Value in $\mu\text{Ci/mL}$	2.270E-04	Am 241 $\mu\text{Ci/L}$ =	2.2920E-01
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 1.8531E-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))			
WL25045	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			
WB27810	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
Prepared By				
SZC				
Chemist				
JFR	Am 241 $\mu\text{Ci/mL}$ =	2.29E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$	
Analyst	Relative Counting Error =	1.6%		
AKL				
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
08/04/98	Cm 243/244 $\mu\text{Ci/mL}$	< 1.85E-05	1.85E-05	
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244	
08/03/98	Am 243 Tracer Recovery =	90.4%	1.85E-05	
Analysis Time				
03:00 PM				
Sample Point				
AP-106 GRAB2				

Analyst:	AKL	Date:	08/04/98
Signature of Chemist:	JFR	Date:	5 Aug 98

STANDARD.WB1 REV 1.2

953103ML

WORKBOOK PAGE: BLANK2

Am 241 and Cm 243/244: LA-953-103 (VOID) or LA-953-104(B-0)

LIQUID / SO

BLNK

Type	Date Counted	AUG-03-98	Am 241 AEA Frac. (C241)	0	
BLNK	Sample Volume in mL (SS)	0.300	Am 243 AEA Frac. (C243)	0.947	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
25045	Tracer Volume in mL (SPKV)	0.100	Total AT Counts	951	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.07	
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	0	
LIQUID	Detector Number	13	Am 243 cpm	15.46	
Batch Number	Detector Efficiency (DetEff)	0.3166	Cm 243/244 cpm	0	
98003570			AEA Count Time (min)	480	
Rerun			Am 241 $\mu\text{Ci/L}$ =	< 8.9588E-03	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 8.9588E-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))				
WL25045	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				
WB27810	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By	NOTE: Am-241 Result is a LESS THAN Value.				
SZC					
Chemist					
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 8.96E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	100.0%			
AKL					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
08/04/98	Cm 243/244 $\mu\text{Ci/mL}$	< 8.96E-06	Am 241		
Analysis Date	Relative Counting Error =	100.0%	8.96E-06		
08/03/98	Am 243 Tracer Recovery =	91.5%	Cm 243/244		
Analysis Time			8.96E-06		
03:00 PM					
Sample Point					
AP-106 GRAB2					

Analyst:	AKL	Date:	08/04/98
Signature of Chemist:	<i>John Relyea</i>	Date:	5 Aug 98

BLANK.WB1 REV 1.2

953103ML

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (VOID) or LA-953-104(B-0)

LIQUID / SO

SAMPLE

Type	Date Counted	AUG-03-98	Am 241 AEA Frac. (C241)	0.468	
SAMPLE	Sample Volume in mL (SS)	0.300	Am 243 AEA Frac. (C243)	0.485	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
25045	Tracer Volume in mL (SPKV)	0.100	Total AT Counts	1892	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.07	
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	14	
LIQUID	Detector Number	13	Am 243 cpm	14.51	
Batch Number	Detector Efficiency (DetEff)	0.3166	Cm 243/244 cpm	0	
98003570			AEA Count Time (min)	480	
Rerun			Am 241 $\mu\text{Ci/L}$ =	1.4981E-01	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 1.7149E-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))				
S98T002057	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				
WB27810	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By					
SZC					
Chemist					
JFR	Am 241 $\mu\text{Ci/mL}$ =	1.50E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	3.4%			
AKL					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
08/04/98	Cm 243/244 $\mu\text{Ci/mL}$	< 1.71E-05	Am 241		
Analysis Date	Relative Counting Error =	100.0%	1.71E-05		
08/03/98	Am 243 Tracer Recovery =	93.3%	Cm 243/244		
Analysis Time					
03:00 PM					
Sample Point					
AP-106 GRAB2					

Analyst:	AKL	Date:	08/04/98
Signature of Chemist:	JFR	Date:	5 Aug 98
SAMPLE.WB1 REV 1.2	953103ML		

WORKBOOK PAGE: DUP4

Am 241 and Cm 243/244: LA-953-103 (VOID) or LA-953-104(B-0))

LIQUID / SO

DUP

Type	Date Counted	AUG-03-98	Am 241 AEA Frac. (C241)	0.463	
DUP	Sample Volume in mL (SS)	0.300	Am 243 AEA Frac. (C243)	0.482	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
25045	Tracer Volume in mL (SPKV)	0.100	Total AT Counts	1768	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	140B43	Background in cpm (Bkg)	0.07	
Matrix	Am-243 Tracer Value (dpm/mL)	1034	Am 241 cpm	20.51	
LIQUID	Detector Number	13	Am 243 cpm	21.35	
Batch Number	Detector Efficiency (DetEff)	0.3166	Cm 243/244 cpm	0	
98003570			AEA Count Time (min)	480	
Rerun			Am 241 $\mu\text{Ci/L}$ =	1.4914E-01	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 1.8583E-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))				
S98T002057	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				
WB27810	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By					
SCZ					
Chemist					
JFR	Am 241 $\mu\text{Ci/mL}$ =	1.49E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	2.8%			
AKL					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
08/04/98	Cm 243/244 $\mu\text{Ci/mL}$	< 1.86E-05	Am 241		
Analysis Date	Relative Counting Error =	100.0%	1.86E-05		
08/03/98	Am 243 Tracer Recovery =	86.7%	Cm 243/244		
Analysis Time					
03:00 PM					
Sample Point					
AP-106 GRAB2					

Analyst:	AKL	Date:	08/04/98
Signature of Chemist:	JFR	Date:	5 Aug 98
SAMPLE.WB1 REV 1.2	953103ML		

222-S Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 WL25045-STD-AM
 File ID: 1a1049.CNF

Counted on: 8/ 3/98 @18:52
 Detector: AEA1
 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	2487.9	2487.9	298.767	298.767	14.000	7.047	7.000	2.010
2	1029.5	1029.5	253.219	253.073	12.000	5.661	6.000	1.548
3?	17.0	17.0	166.690	166.459	90.000	1.000	45.000	0.100
4?	2.3	2.3	148.778	147.744	4.000	0.753	2.000	5.717

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid		FWHM	Count Rate	%err c/m	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.		@95		
1	Pu238 Am241	0.684	5.487	5.466	0.021	103.79	0.9	590.5	0.266E-03
2	Am243	0.278	5.266	5.256	0.010	42.24	1.5	452.3	0.204E-03
3	????			4.858		1.36	7.9		
4	????			4.771		0.02	434.		
Totals:			0.962	<--valid peaks only-->			146.03		

DETECTOR CALIBRATION

Energy (MEV) = $4.092 + (0.0046) \cdot \text{Channel}$
 Energy range (MeV): 4.092 TO 6.447
 Efficiency = 0.2441 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	72829.0	100.000
Smoothed	72829.0	100.000
Composite fit	70756.9	97.155
Residuals	2072.1	2.845

Analyzed by:

VR

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 16693.6

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Raw Data Dump for AEA Spectrum: 1a1049.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.
21	1.	1.	0.	1.	3.	1.	0.	1.	2.	6.
31	1.	2.	1.	0.	1.	0.	4.	1.	3.	2.
41	2.	0.	2.	2.	1.	4.	5.	4.	2.	3.
51	1.	1.	1.	4.	0.	1.	2.	2.	2.	0.
61	4.	2.	4.	3.	3.	2.	2.	6.	2.	2.
71	5.	3.	1.	5.	6.	3.	1.	2.	1.	3.
81	2.	2.	1.	1.	2.	0.	2.	6.	0.	4.
91	4.	5.	3.	4.	5.	3.	1.	3.	8.	3.
101	3.	6.	5.	9.	4.	8.	6.	5.	7.	7.
111	4.	2.	3.	8.	6.	3.	6.	10.	6.	3.
121	5.	6.	10.	5.	3.	6.	10.	7.	6.	7.
131	8.	2.	6.	6.	5.	9.	8.	4.	5.	12.
141	1.	5.	12.	14.	5.	16.	15.	8.	17.	13.
151	14.	5.	9.	7.	10.	13.	16.	14.	16.	15.
161	24.	12.	16.	16.	14.	21.	21.	18.	15.	13.
171	21.	13.	20.	15.	16.	24.	21.	27.	18.	23.
181	29.	30.	26.	24.	29.	23.	32.	26.	34.	27.
191	24.	24.	32.	36.	46.	37.	40.	46.	38.	37.
201	49.	41.	37.	53.	52.	45.	62.	62.	62.	68.
211	46.	73.	80.	80.	73.	92.	92.	89.	108.	105.
221	103.	127.	124.	139.	121.	148.	147.	144.	173.	200.
231	219.	215.	249.	278.	298.	326.	362.	363.	430.	406.
241	513.	548.	631.	686.	722.	774.	810.	892.	873.	994.
251	1158.	1086.	1220.	1164.	1151.	1005.	667.	424.	354.	248.
261	240.	227.	272.	240.	264.	248.	268.	255.	285.	280.
271	309.	327.	347.	364.	415.	425.	508.	507.	507.	602.
281	657.	635.	766.	823.	936.	1038.	1109.	1286.	1400.	1626.
291	1696.	1918.	1970.	2013.	2295.	2359.	2446.	2579.	2685.	2685.
301	2446.	1888.	1259.	873.	654.	506.	417.	366.	317.	205.
311	164.	132.	81.	31.	20.	8.	3.	2.	3.	0.
321	2.	3.	1.	1.	3.	0.	2.	0.	0.	0.
331	0.	1.	1.	0.	3.	1.	0.	1.	3.	1.
341	2.	1.	0.	1.	1.	4.	1.	1.	0.	2.
351	0.	0.	2.	0.	1.	1.	1.	0.	2.	2.
361	0.	2.	0.	3.	1.	0.	0.	0.	1.	1.
371	1.	0.	0.	0.	0.	1.	1.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
391	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
401	1.	0.	0.	1.	0.	0.	0.	2.	0.	0.
411	2.	0.	3.	1.	0.	1.	0.	1.	0.	0.
421	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.
431	1.	0.	0.	0.	0.	1.	1.	1.	3.	0.
441	0.	0.	1.	1.	0.	1.	0.	1.	0.	0.
451	2.	0.	1.	1.	0.	1.	0.	0.	1.	0.
461	1.	0.	0.	0.	0.	1.	0.	0.	0.	2.
471	1.	1.	3.	1.	0.	0.	1.	2.	1.	0.
481	1.	0.	0.	2.	0.	3.	0.	0.	2.	1.
491	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

HNF-1642 REV.0

222-S Analytical Laboratory
GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
WL25045-BLK-AM
File ID: 2a2043.CNF

Counted on: 8/ 3/98 @18:51
Detector: AEA2
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	357.6	357.6	251.641	251.641	14.000	7.192	7.000	1.945

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	Am243	0.947	5.266	5.246	0.0200	0.03	15.46	2.3	66.3	0.299E-04
Totals:			0.947	<--valid peaks only-->			15.46			

DETECTOR CALIBRATION

Energy(MEV) = 4.088 + (0.0046)*Channel
Energy range (MeV): 4.088 TO 6.444
Efficiency = 0.2355 CPM/DPM
(Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	7836.0	100.000
Smoothed	7836.0	100.000
Composite fit	7422.7	94.725
Residuals	413.3	5.275

Analyzed by: _____
VR

[illegible]

Raw Data Dump for AEA Spectrum: 2a2043.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	1.	1.	0.	0.	0.	1.	0.
31	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.
41	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
51	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	1.	1.	1.	1.	0.	0.
71	0.	0.	1.	1.	0.	0.	0.	2.	0.	0.
81	1.	1.	1.	0.	0.	0.	2.	2.	1.	0.
91	0.	0.	0.	0.	0.	0.	1.	1.	1.	0.
101	3.	1.	1.	1.	0.	0.	0.	0.	0.	2.
111	0.	0.	0.	0.	3.	0.	2.	4.	1.	2.
121	0.	5.	0.	0.	0.	0.	2.	0.	0.	2.
131	2.	0.	2.	2.	1.	2.	0.	2.	1.	0.
141	3.	0.	2.	4.	0.	1.	3.	2.	3.	1.
151	3.	0.	1.	0.	3.	0.	4.	1.	3.	1.
161	4.	1.	2.	2.	1.	2.	3.	5.	7.	1.
171	10.	4.	4.	2.	5.	2.	2.	6.	6.	2.
181	1.	8.	3.	4.	3.	3.	7.	6.	10.	10.
191	6.	6.	5.	11.	6.	8.	8.	10.	9.	6.
201	7.	13.	6.	14.	13.	11.	18.	12.	16.	15.
211	21.	19.	19.	29.	17.	30.	26.	23.	30.	32.
221	34.	46.	43.	39.	48.	48.	57.	42.	54.	55.
231	85.	86.	86.	86.	115.	115.	152.	149.	184.	184.
241	178.	217.	247.	258.	290.	302.	348.	320.	336.	347.
251	377.	401.	342.	359.	296.	216.	144.	84.	54.	33.
261	30.	26.	26.	27.	24.	25.	15.	9.	11.	4.
271	4.	4.	3.	1.	0.	2.	2.	0.	0.	0.
281	4.	0.	0.	0.	2.	0.	2.	2.	1.	3.
291	2.	1.	5.	2.	7.	1.	2.	1.	1.	2.
301	3.	0.	3.	1.	2.	1.	2.	0.	0.	0.
311	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
321	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	1.	0.	0.	0.	0.	4.	1.	1.
341	1.	1.	1.	2.	2.	0.	2.	1.	0.	0.
351	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
361	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
371	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
421	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
431	0.	0.	0.	1.	0.	1.	0.	0.	0.	1.
441	0.	0.	0.	0.	1.	1.	0.	0.	1.	1.
451	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
471	0.	2.	2.	0.	1.	0.	0.	1.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

222-S Analytical Laboratory
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
S98T2057-SAM-AM
File ID: 3a3235.CNF

Counted on: 8/ 3/98 @18:51
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	319.3	319.3	298.208	298.208	14.000	7.666	7.000	2.069
2	350.6	350.6	252.320	252.258	14.000	5.575	7.000	1.497
3?	6.0	6.0	204.140	200.444	12.000	3.331	6.000	0.764

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate c/m	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Am241	0.468	5.479	5.463	0.0160.04	14.00	2.4	62.7	0.282E-04
	Pu238		5.487	5.463	0.024			81.8	0.369E-04
2	Am243	0.485	5.266	5.252	0.0140.03	14.51	2.4	61.7	0.278E-04
3		????		5.013		0.26	30.8		
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Totals:			0.953	<--valid peaks only-->			28.51		

DETECTOR CALIBRATION

Energy(MEV) = 4.091 + (0.0046)*Channel
Energy range (MeV): 4.091 TO 6.447
Efficiency = 0.2377 CPM/DPM
(Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	14365.0	100.000
Smoothed	14365.0	100.000
Composite fit	13811.2	96.145
Residuals	553.8	3.855

Analyzed by: _____

VR

Spectrum 3a3235.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 2639.4

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Raw Data Dump for AEA Spectrum: 3a3235.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
31	1.	0.	2.	0.	0.	1.	1.	0.	1.	1.
41	0.	1.	0.	0.	0.	0.	0.	0.	2.	1.
51	1.	1.	0.	1.	0.	0.	0.	1.	0.	1.
61	0.	1.	2.	0.	0.	0.	0.	0.	0.	1.
71	0.	1.	1.	0.	1.	0.	1.	2.	0.	1.
81	3.	1.	0.	1.	0.	0.	1.	2.	0.	0.
91	0.	2.	0.	2.	2.	1.	0.	0.	0.	0.
101	0.	2.	2.	1.	1.	0.	0.	2.	0.	1.
111	1.	0.	1.	2.	0.	1.	2.	4.	2.	2.
121	1.	1.	3.	2.	1.	2.	1.	0.	2.	2.
131	2.	2.	2.	1.	3.	2.	3.	1.	2.	3.
141	1.	2.	2.	1.	3.	3.	1.	4.	3.	2.
151	2.	2.	3.	3.	2.	2.	5.	5.	2.	2.
161	4.	4.	5.	1.	5.	1.	5.	4.	1.	5.
171	3.	5.	4.	8.	1.	1.	5.	3.	3.	1.
181	3.	7.	4.	4.	14.	11.	3.	8.	7.	4.
191	1.	3.	12.	7.	7.	14.	13.	16.	10.	13.
201	19.	14.	12.	17.	17.	17.	6.	14.	11.	21.
211	16.	24.	25.	25.	16.	19.	29.	31.	27.	28.
221	41.	44.	50.	43.	55.	50.	48.	66.	86.	52.
231	63.	85.	86.	93.	95.	112.	126.	125.	158.	162.
241	172.	201.	220.	231.	263.	284.	326.	345.	359.	357.
251	334.	394.	372.	408.	310.	239.	145.	97.	57.	50.
261	41.	40.	49.	31.	43.	46.	44.	43.	37.	51.
271	50.	42.	40.	46.	56.	60.	80.	71.	77.	89.
281	91.	93.	103.	130.	149.	147.	156.	179.	192.	235.
291	244.	234.	275.	316.	300.	322.	309.	338.	351.	322.
301	289.	217.	172.	133.	67.	57.	38.	26.	26.	25.
311	23.	9.	11.	2.	2.	0.	0.	1.	1.	1.
321	0.	0.	1.	0.	0.	0.	1.	1.	0.	4.
331	1.	0.	1.	1.	0.	0.	2.	0.	0.	1.
341	0.	4.	1.	3.	3.	1.	2.	3.	1.	1.
351	3.	0.	2.	3.	1.	4.	4.	4.	6.	5.
361	7.	5.	3.	6.	7.	7.	5.	9.	4.	5.
371	5.	2.	0.	2.	0.	1.	0.	1.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
411	0.	1.	0.	0.	0.	0.	0.	1.	1.	0.
421	0.	0.	0.	0.	1.	1.	0.	0.	1.	0.
431	1.	1.	0.	1.	3.	2.	0.	0.	0.	0.
441	0.	0.	1.	0.	1.	0.	0.	0.	0.	1.
451	1.	0.	0.	0.	0.	1.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	1.	2.	1.
471	0.	1.	0.	2.	0.	0.	0.	2.	2.	0.
481	1.	0.	1.	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
 S98T2057-DUP-AM
 File ID: 4a4236.CNF

Counted on: 8/ 3/98 @18:50
 Detector: AEA4
 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	441.4	441.4	297.265	297.265	14.000	8.388	7.000	2.118
2	501.6	501.6	251.275	251.187	12.000	6.539	6.000	1.760

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	Am241	0.463	5.479	5.458	0.0210.04	20.51	2.0	94.4	0.425E-04
	Pu238		5.487	5.458	0.029			123.2	0.555E-04
2	Am243	0.482	5.266	5.246	0.0200.03	21.35	2.0	93.3	0.420E-04

Totals: 0.945 <--valid peaks only--> 41.86

DETECTOR CALIBRATION

Energy (MEV) = 4.091 + (0.0046)*Channel
 Energy range (MeV): 4.091 TO 6.446
 Efficiency = 0.2311 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	21252.0	100.000
Smoothed	21252.0	100.000
Composite fit	20090.6	94.535
Residuals	1161.4	5.465

Analyzed by: _____

VR

Spectrum 4a4236.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.:

3726.4

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Raw Data Dump for AEA Spectrum: 4a4236.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	1.	0.	1.	0.	0.	0.	2.	1.
31	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	1.	0.	2.
51	1.	1.	1.	1.	2.	2.	0.	0.	1.	1.
61	1.	1.	2.	0.	1.	0.	0.	1.	1.	0.
71	3.	0.	0.	1.	2.	1.	0.	0.	0.	2.
81	1.	0.	1.	1.	1.	2.	1.	2.	1.	0.
91	0.	1.	0.	1.	0.	1.	3.	2.	0.	0.
101	1.	4.	5.	1.	3.	3.	2.	1.	1.	2.
111	0.	0.	1.	1.	1.	1.	3.	2.	2.	0.
121	4.	2.	0.	2.	0.	2.	3.	4.	1.	3.
131	4.	0.	1.	4.	2.	4.	2.	4.	0.	4.
141	3.	1.	2.	4.	1.	5.	5.	4.	3.	5.
151	1.	7.	2.	8.	4.	5.	3.	6.	3.	5.
161	9.	8.	7.	7.	5.	6.	3.	4.	7.	7.
171	16.	7.	2.	6.	9.	12.	10.	4.	9.	12.
181	9.	8.	8.	11.	14.	17.	12.	12.	10.	15.
191	11.	19.	21.	11.	20.	24.	13.	25.	23.	21.
201	15.	27.	35.	27.	27.	27.	29.	39.	26.	19.
211	41.	34.	29.	48.	53.	44.	42.	48.	63.	49.
221	54.	66.	75.	78.	73.	102.	89.	113.	113.	123.
231	130.	134.	143.	168.	162.	181.	179.	205.	250.	247.
241	273.	295.	323.	361.	416.	427.	478.	496.	515.	563.
251	548.	549.	539.	509.	365.	276.	150.	101.	97.	86.
261	77.	64.	76.	71.	55.	76.	72.	56.	74.	73.
271	58.	66.	76.	89.	103.	120.	117.	116.	128.	162.
281	153.	162.	181.	198.	215.	223.	249.	282.	295.	318.
291	357.	410.	406.	419.	451.	478.	443.	455.	462.	437.
301	339.	246.	136.	120.	93.	80.	72.	43.	45.	31.
311	19.	16.	17.	3.	2.	1.	0.	0.	2.	1.
321	2.	1.	2.	0.	0.	1.	2.	0.	0.	0.
331	2.	1.	1.	2.	1.	0.	0.	1.	2.	2.
341	3.	2.	4.	2.	4.	3.	4.	5.	4.	2.
351	5.	2.	5.	7.	7.	9.	8.	3.	12.	8.
361	5.	6.	7.	11.	9.	3.	2.	8.	5.	6.
371	0.	0.	0.	1.	1.	1.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
401	0.	1.	0.	0.	0.	0.	0.	1.	1.	0.
411	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
421	0.	0.	0.	1.	1.	0.	0.	1.	0.	1.
431	1.	3.	2.	3.	0.	2.	1.	0.	1.	0.
441	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
451	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	2.	0.	1.
471	0.	0.	0.	1.	1.	3.	3.	1.	1.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

LABCORE Completed Worklist Report for Worklist# 24864

Analyst: ak1

Instrument: AB13

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: @PU23901 FOR AP-106 (HANDLE AS PCB SUSPECT) RTS

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@PU23901 PU23901 LIQUID		1.12E-04	1.16E-4	103.571 % Recovery	
1 STD	0		@PU23901 PU23901E LIQUID		1.00	1.91E+00	1.910 % Ct Error	
1 STD	0		@PU23901 PU23901T LIQUID		100	9.35E+01	93.500 % Recovery	
2 BLNK	0		@PU23901 PU23901 LIQUID		1	<3.26E-6	uCi/mL	
2 BLNK	0		@PU23901 PU23901T LIQUID		100	9.08E+01	90.800 % Recovery	
2 BLNK	0		@PU23901 PU23901E LIQUID		1.00	1.00E+02	100.000 uCi/mL	
3 SAMPLE	S98T002055	0	@PU23901 PU23901 LIQUID		N/A	6.06E-05	6.58E-006 uCi/mL	
3 SAMPLE	S98T002055	0	@PU23901 PU23901T LIQUID		N/A	7.80E-01	% Recovery	
3 SAMPLE	S98T002055	0	@PU23901 PU23901E LIQUID		N/A	2.36E+00	% Ct. Error	
4 DUP	S98T002055	0	@PU23901 PU23901 LIQUID		6.06E-5	6.19E-5	2.122 RPD	
4 DUP	S98T002055	0	@PU23901 PU23901T LIQUID		100	7.63E+01	76.300 % Recovery	
4 DUP	S98T002055	0	@PU23901 PU23901E LIQUID		1.00	2.40E+00	2.400 % Ct Error	
5 SAMPLE	S98T002056	0	@PU23901 PU23901 LIQUID		N/A	8.28E-06	6.32E-006 uCi/mL	
5 SAMPLE	S98T002056	0	@PU23901 PU23901T LIQUID		N/A	4.98E+01	% Recovery	
5 SAMPLE	S98T002056	0	@PU23901 PU23901E LIQUID		N/A	6.33E+00	% Ct. Error	
6 DUP	S98T002056	0	@PU23901 PU23901 LIQUID		8.28E-6	8.50E-6	2.622 RPD	
6 DUP	S98T002056	0	@PU23901 PU23901T LIQUID		100	4.10E+01	41.000 % Recovery	
6 DUP	S98T002056	0	@PU23901 PU23901E LIQUID		1.00	6.90E+00	6.900 % Ct Error	
7 SAMPLE	S98T002057	0	@PU23901 PU23901 LIQUID		N/A	2.83E-04	1.68E-005 uCi/mL	
7 SAMPLE	S98T002057	0	@PU23901 PU23901T LIQUID		N/A	8.32E+01	% Recovery	
7 SAMPLE	S98T002057	0	@PU23901 PU23901E LIQUID		N/A	1.62E+00	% Ct. Error	
8 DUP	S98T002057	0	@PU23901 PU23901 LIQUID		2.83E-4	3.12E-4	9.748 RPD	
8 DUP	S98T002057	0	@PU23901 PU23901T LIQUID		100	7.69E+01	76.900 % Recovery	
8 DUP	S98T002057	0	@PU23901 PU23901E LIQUID		1.00	1.60E+00	1.600 % Ct Error	

Final page for worklist# 24864

Analyst Signature

Date

Analyst Signature

Date

Reviewer Signature *John Relyea* Date *23 July 98*

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

LABCORE Data Entry Template for Worklist# 24864

Analyst: AKL Instrument: PU01 _____ Book# 24657

Method: LA-953-104 Rev/Mod BD

Worklist Comment: @PU23901 FOR AP-106 (HANDLE AS PCB SUSPECT) RTS

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@PU23901	LIQUID		
2 BLNK			@PU23901	LIQUID		
3 SAMPLE	S98T002055 0		@PU23901	LIQUID	98000335	AP-106 GRAB2
	Analytes Requested: PU23901 , PU23901E, PU23901T					
4 DUP	S98T002055 0		@PU23901	LIQUID		
5 SAMPLE	S98T002056 0		@PU23901	LIQUID	98000335	AP-106 GRAB2
	Analytes Requested: PU23901 , PU23901E, PU23901T					
6 DUP	S98T002056 0		@PU23901	LIQUID		
7 SAMPLE	S98T002057 0		@PU23901	LIQUID	98000335	AP-106 GRAB2
	Analytes Requested: PU23901 , PU23901E, PU23901T					
8 DUP	S98T002057 0		@PU23901	LIQUID		

Final page for worklist # 24864

Alita Huron 7/22/98
Analyst Signature Date

APC B... 7/23/98
Analyst Signature Date
Sydney E. Chuan 7/23/98

Data Entry Comments:

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

WORKBOOK PAGE: STD1

Pu 238 and 239/240 : LA-943-128 (VOID) or LA-953-104(B-0))

LIQUID

				STD
Type	DATE COUNTED	JUL-23-98	Pu 238 AEA FRAC (C236)	0.405
STD	SAMPLE VOLUME in mL	SS 1.000	Pu 238 AEA FRAC (C238)	0.000
Work List	SAMPLE DILUTION FACTOR	DF 1.000	Pu 239 AEA FRAC (C239)	0.519
24864	TRACER VOLUME in mL	SPKV 0.100	TOTAL AT COUNTS	4401
Test Code	DIGEST DILUTION FACTOR	DDF 1.000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	145B43	BACKGROUND in cpm (Bkg)	0.030
Matrix	DETECTOR NUMBER	13	Pu 236 cpm	39.150
LIQUID	EFFICIENCY FACTOR	EFF 0.317	Pu 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE	01/19/98	Pu 239 cpm	50.180
98003363	TRACER PREPARATION VALUE (dpm/mL)	2270.000	AEA COUNT TIME	480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2006.902	Pu 239/240 µCi/L	1.1585E-01
0	PU-238 TRACER VALUE (dpm/mL)	0.000		
Sample Prep	STANDARD BOOK NO	28B57		
N/A	STANDARD VALUE in µCi/mL	1.120E-04		
Sample #				
WL24864-STD				
Instrument Code	Decay Time = Date Counted - Tracer Preparation Date			
WB27810	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]			
Prepared By	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) * 1/EFF * C236*100/Pu-236 Decay Corr'd Value * SPKV			
MCB	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(2220000 dpm/µCi)]			
Chemist	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)			
JFR	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery / 100)(2220000 dpm/µCi)(D g/L)(SS)]			
Analyst	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100			
AKL				
Date Complete				
07/23/98	Pu 239/240 µCi/mL	1.16E-04	DETECTION LEVELS in µCi/mL	
Analysis Date	Relative Counting Error	= 1.9%		
07/07/22				
Analysis Time				
03:30 PM			Pu 239/240	7.16E-06
Sample Point				
AP-106 GRAB2	Pu 236 Tracer Recovery	= 93.5%		

Analyst:	AKL	Date:	23-Jul-98
Signature of Chemist:	JFR	Date:	23 July 98

STANDARD.WB1 REV 1.0

943128ML

WORKBOOK PAGE: BLANK2

Pu 238 and 239/240 : LA-943-128 (VOID) or LA-953-104(B-0)**L BLNK**

Type	DATE COUNTED		JUL-23-98	PU 236 AEA FRAC (C236)	0.915
BLNK	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC (C238)	0.018
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC (C239)	0.000
24864	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	1893
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO		145B43	BACKGROUND in cp (Bkg)	0.030
Matrix	DETECTOR NUMBER		13	PU 236 cpm	37.750
LIQUID	EFFICIENCY FACTOR	EFF	0.3166	PU 238 cpm	0.740
Batch Number	TRACER PREPARATION DATE		01/19/98	PU 239 cpm	0.000
98003363	TRACER PREPARATION VALUE (dpm/mL)		2270.00	AEA COUNT TIME	480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)		2006.90	PU 239/240 μ Ci/L =	< 3.263E-03
0	PU-238 TRACER VALUE (dpm/mL)		0.00		
Sample Prep					
N/A					
Sample #	Decay Time = Date Counted - Tracer Preparation Date				
WL24864-BLNK	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)				
WB27810	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)				
MCB	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					
AKL					
Date Complete					
07/23/98	Pu 239/240 μ Ci/mL	< 3.26E-06	DETECTION LEVELS in μ Ci/mL		
Analysis Date	Relative Counting Error	= 100.0%			
07/07/22					
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.				
03:30 PM	Pu 238 μ Ci/mL	< 3.26E-06			
Sample Point	Relative Counting Error	= 10.5%	Pu 238		
AP-106 GRAB2	Pu 236 Tracer Recovery	= 90.8%	3.26E-06		

Analyst:	AKL	Date:	23-Jul-98
Signature of Chemist:	<i>John Rabyea</i>	Date:	23 July 98

BLANK.WB1 REV 1.0

943128M

WORKBOOK PAGE: SAM3

Pu 238 and 239/240 : LA-943-128 (VOID) or LA-953-104(B-0))

LIQUID /

				SAMPLE	
Type	DATE COUNTED	JUL-23-98	Pu 236 AEA FRAC (C236)	0.528	
SAMPLE	SAMPLE VOLUME in mL	SS 1.000	Pu 238 AEA FRAC (C238)	0.083	
Work List	SAMPLE DILUTION FACTOR	DF 1.000	Pu 239 AEA FRAC (C239)	0.354	
24864	TRACER VOLUME in mL	SPKV 0.100	TOTAL AT COUNTS	2817	
Test Code	DIGEST DILUTION FACTOR	DDF 1.0000	AT COUNT TIME (MIN)	30	
@PU23901	TRACER BOOK NO	145B43	BACKGROUND in cpm (Bkg)	0.030	
Matrix	DETECTOR NUMBER	13	Pu 236 cpm	35.780	
LIQUID	EFFICIENCY FACTOR	EFF 0.317	Pu 238 cpm	5.630	
Batch Number	TRACER PREPARATION DATE	01/19/98	Pu 239 cpm	24.030	
98003363	TRACER PREPARATION VALUE (dpm/mL)	2270.000	AEA COUNT TIME	480	
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2006.902	Pu 239/240 µCi/L	6.0610E-02	
0	PU-238 TRACER VALUE (dpm/mL)	0.000			
Sample Prep					
N/A					
Sample #	Decay Time = Date Counted - Tracer Preparation Date				
S98T002055	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)				
WB27810	Pu 239/240 µCi/L = (C239)/(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]				
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 238 Tracer Recovery / 100)				
MCB	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery / 100)(2220000 dpm/µCi)(D g/L)(SS)]				
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100				
JFR					
Analyst					
AKL					
Date Complete					
07/23/98	Pu 239/240 µCi/mL	6.06E-05	DETECTION LEVELS in µCi/mL		
Analysis Date	Relative Counting Error =	2.4%			
07/07/22			Pu 239/240		
Analysis Time					
03:30 PM	Pu 238 µCi/mL	1.42E-05	6.58E-06		
Sample Point	Relative Counting Error =	4.1%	Pu 238		
AP-106 GRAB2	Pu 236 Tracer Recovery =	78.0%	6.58E-06		

Analyst:	AKL	Date:	23-Jul-98
Signature of Chemist:	JFR	Date:	23 July 98

SAMPLE.WB1 REV 1.0

943128ML

WORKBOOK PAGE: DUP4

Pu 238 and 239/240 : LA-943-128 (VOID) or LA-953-104(B-0))

LIQUID /

DUP

Type	DATE COUNTED	JUL-23-98	PU 236 AEA FRAC (C236)	0.521
DUP	SAMPLE VOLUME in mL SS	1.000	PU 238 AEA FRAC (C238)	0.076
Work List	SAMPLE DILUTION FACTOR DF	1.000	PU 239 AEA FRAC (C239)	0.357
24864	TRACER VOLUME in mL SPKV	0.100	TOTAL AT COUNTS	2793
Test Code	DIGEST DILUTION FACTOR DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	145B43	BACKGROUND in cpm (Bkg)	0.030
Matrix	DETECTOR NUMBER	13	PU 236 cpm	34.090
LIQUID	EFFICIENCY FACTOR EFF	0.317	PU 238 cpm	4.950
Batch Number	TRACER PREPARATION DATE	01/19/98	PU 239 cpm	23.340
98003363	TRACER PREPARATION VALUE (dpm/mL)	2270.000	AEA COUNT TIME	480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2006.902	Pu 239/240 μ Ci/L	6.1945E-02
0	PU-238 TRACER VALUE (dpm/mL)	0.000		
Sample Prep				
N/A				
Sample #	Decay Time = Date Counted - Tracer Preparation Date			
S98T002055	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)			
WB27810	Pu 239/240 μ Ci/L = (C239) * (Pu 236 Decay Corr'd Value) * (SPKV) * (1000 mL/L) * (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)			
MCB	Pu 238 μ Ci/L = [(Pu 238 dpm) * (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				
AKL				
Date Complete				
07/23/98	Pu 239/240 μ Ci/mL	6.19E-05	DETECTION LEVELS in μ Ci/mL	
Analysis Date	Relative Counting Error =	2.4%		
07/07/22			Pu 239/240	
Analysis Time			6.82E-06	
03:30 PM	Pu 238 μ Ci/mL	1.32E-05	Pu 238	
Sample Point	Relative Counting Error =	4.3%	6.82E-06	
AP-106 GRAB2	Pu 236 Tracer Recovery =	76.3%		

Analyst:	AKL	Date:	23-Jul-98
Signature of Chemist:	JFR	Date:	23 July 98
SAMPLE.WB1 REV 1.0	943128ML		

WORKBOOK PAGE: SAM5

Pu 238 and 239/240 : LA-943-128 (VOID) or LA-953-104(B-0)**LIQUID /**

				LIQUID /	SAMPLE
Type	DATE COUNTED	JUL-23-98	PU 236 AEA FRAC (C236)		0.863
SAMPLE	SAMPLE VOLUME in mL	SS 1.000	PU 238 AEA FRAC (C238)		0.028
Work List	SAMPLE DILUTION FACTOR	DF 1.000	PU 239 AEA FRAC (C239)		0.079
24864	TRACER VOLUME in mL	SPKV 0.100	TOTAL AT COUNTS		1100
Test Code	DIGEST DILUTION FACTOR	DDF 1.0000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO	145B43	BACKGROUND in cpm (Bkg)		0.030
Matrix	DETECTOR NUMBER	13	PU 236 cpm		23.810
LIQUID	EFFICIENCY FACTOR	EFF 0.317	PU 238 cpm		0.760
Batch Number	TRACER PREPARATION DATE	01/19/98	PU 239 cpm		2.180
98003363	TRACER PREPARATION VALUE (dpm/mL)	2270.000	AEA COUNT TIME		480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2006.902	Pu 239/240 μ Ci/L		8.2754E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.000			
Sample Prep					
N/A					
Sample #	Decay Time = Date Counted - Tracer Preparation Date				
S98T002056	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)				
WB27810	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)				
MCB	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					
AKL					
Date Complete					
07/23/98	Pu 239/240 μ Ci/mL	8.28E-06	DETECTION LEVELS in μ Ci/mL		
Analysis Date	Relative Counting Error =	6.3%			
07/07/22					
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.		Pu 239/240		
03:30 PM	Pu 238 μ Ci/mL	< 6.32E-06	6.32E-06		
Sample Point	Relative Counting Error =	10.4%	Pu 238		
AP-105 GRAB2	Pu 236 Tracer Recovery =	49.8%	6.32E-06		

Analyst:	AKL	Date:	23-Jul-98
Signature of Chemist:	JFR	Date:	23 July 98
SAMPLE.WB1 REV 1.0	943128ML		

WORKBOOK PAGE: DUP6

Pu 238 and 239/240 : LA-943-128 (VOID) or LA-953-104(B-0)

LIQUID /

DUP

Type	DATE COUNTED	JUL-23-98	PU 236 AEA FRAC (C236)	0.861
DUP	SAMPLE VOLUME in mL SS	1.000	PU 238 AEA FRAC (C238)	0.044
Work List	SAMPLE DILUTION FACTOR DF	1.000	PU 239 AEA FRAC (C239)	0.081
24864	TRACER VOLUME in mL SPKV	0.100	TOTAL AT COUNTS	909
Test Code	DIGEST DILUTION FACTOR DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	145B43	BACKGROUND in cpm (Bkg)	0.030
Matrix	DETECTOR NUMBER	13	PU 236 cpm	19.480
LIQUID	EFFICIENCY FACTOR EFF	0.317	PU 238 cpm	0.990
Batch Number	TRACER PREPARATION DATE	01/19/98	PU 239 cpm	1.840
98003363	TRACER PREPARATION VALUE (dpm/mL)	2270.000	AEA COUNT TIME	480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2006.902	Pu 239/240 μ Ci/L	8.5046E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.000		

Sample Prep

N/A

Sample #

S98T002056

Instrument Code

WB27810

Prepared By

MCB

Chemist

JFR

Analyst

AKL

Date Complete

07/23/98

Analysis Date

07/07/22

Analysis Time

03:30 PM

Sample Point

AP-106 GRAB2

Decay Time = Date Counted - Tracer Preparation Date

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of $\{-\ln 2 * \text{Decay Time} / 1040.95\}$]

Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)

Pu 239/240 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)]

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) / (1000 mL/L)] / [(Pu-236 Tracer Recovery / 100) * (2220000 dpm/ μ Ci) * (D g/L) * (SS)]Relative Counting Error = Square Root of $\{[1 / (\text{Pu 236 cpm} * \text{min})] + [1 / (\text{Pu 238 or 239/240 cpm} * \text{min})]\} * 1.96 * 100$ Pu 239/240 μ Ci/mL 8.50E-06

Relative Counting Error = 6.9%

DETECTION

LEVELS

in μ Ci/mL

NOTE: Pu 238 Result is a LESS THAN Value.

Pu 238 μ Ci/mL < 7.68E-06

Relative Counting Error = 9.2%

Pu 238 7.68E-06

Pu 236 7.68E-06

Analyst:

AKL

Date:

23-Jul-98

Signature of Chemist:

SAMPLE.WB1 REV 1.0

943128ML

JFR

Date:

23 July 98

WORKBOOK PAGE: SAM7

Pu 238 and 239/240 : LA-943-128 (VOID) or LA-953-104(B-0))**LIQUID /**

				LIQUID /	SAMPLE
Type	DATE COUNTED	JUL-23-98	PU 236 AEA FRAC (C236)	0.194	
SAMPLE	SAMPLE VOLUME in mL	SS 1.000	PU 238 AEA FRAC (C238)	0.166	
Work List	SAMPLE DILUTION FACTOR	DF 1.000	PU 239 AEA FRAC (C239)	0.608	
24864	TRACER VOLUME in mL	SPKV 0.100	TOTAL AT COUNTS	8176	
Test Code	DIGEST DILUTION FACTOR	DDF 1.0000	AT COUNT TIME (MIN)	30	
@PU23901	TRACER BOOK NO	145B43	BACKGROUND in cpm (Bkg)	0.030	
Matrix	DETECTOR NUMBER	13	PU 236 cpm	40.430	
LIQUID	EFFICIENCY FACTOR	EFF 0.317	PU 238 cpm	34.670	
Batch Number	TRACER PREPARATION DATE	01/19/98	PU 239 cpm	126.640	
98003363	TRACER PREPARATION VALUE (dpm/mL)	2270.000	AEA COUNT TIME	480	
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2006.902	Pu 239/240 μ Ci/L	2.8332E-01	
0	PU-238 TRACER VALUE (dpm/mL)	0.000			
Sample Prep					
N/A					
Sample #	Decay Time = Date Counted - Tracer Preparation Date				
S98702057	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)				
WB27810	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)				
MCB	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					
AKL					
Date Complete					
07/23/98	Pu 239/240 μ Ci/mL	2.83E-04	DETECTION LEVELS in μ Ci/mL		
Analysis Date	Relative Counting Error =	1.6%			
07/07/22			Pu 239/240		
Analysis Time					
03:30 PM	Pu 238 μ Ci/mL	7.74E-05	1.68E-05		
Sample Point	Relative Counting Error =	2.1%	Pu 238		
AP-106 GRAB2	Pu 236 Tracer Recovery =	83.2%	1.68E-05		

Analyst:	AKL	Date:	23-Jul-98
Signature of Chemist:	JFR	Date:	23 July 98
SAMPLE.WB1 REV 1.0			

943128ML

WORKBOOK PAGE: DUP8

Pu 238 and 239/240 : LA-943-128 (VOID) or LA-953-104(B-0))**LIQUID /****DUP**

Type	DATE COUNTED	JUL-23-98	PU 236 AEA FRAC (C236)	0.180
DUP	SAMPLE VOLUME in mL	SS 1.000	PU 238 AEA FRAC (C238)	0.172
Work List	SAMPLE DILUTION FACTOR	DF 1.000	PU 239 AEA FRAC (C239)	0.621
24864	TRACER VOLUME in mL	SPKV 0.100	TOTAL AT COUNTS	8141
Test Code	DIGEST DILUTION FACTOR	DDF 1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	145B43	BACKGROUND in cpm (Bkg)	0.030
Matrix	DETECTOR NUMBER	13	PU 236 cpm	40.510
LIQUID	EFFICIENCY FACTOR	EFF 0.317	PU 238 cpm	38.550
Batch Number	TRACER PREPARATION DATE	01/19/98	PU 239 cpm	139.550
98003363	TRACER PREPARATION VALUE (dpm/mL)	2270.000	AEA COUNT TIME	480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2006.902	Pu 239/240 μ Ci/L	3.1188E-01
0	PU-238 TRACER VALUE (dpm/mL)	0.000		
Sample Prep				
N/A				
Sample #	Decay Time = Date Counted - Tracer Preparation Date			
S98T002057	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) * C238 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)			
WB27810	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)			
MCB	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				
AKL				
Date Complete				
07/23/98	Pu 239/240 μ Ci/mL	3.12E-04	DETECTION LEVELS in μ Ci/mL	
Analysis Date	Relative Counting Error	= 1.6%		
07/07/22			Pu 239/240	
Analysis Time				
03:30 PM	Pu 238 μ Ci/mL	8.64E-05	1.96E-05	
Sample Point	Relative Counting Error	= 2.0%	Pu 238	
AP-106 GRAB2	Pu 236 Tracer Recovery	= 76.9%	1.96E-05	

Analyst:	AKL	Date:	23-Jul-98
Signature of Chemist:	JFR	Date:	23 July 98
SAMPLE.WB1 REV 1.0	943128ML		

222-S Analytical Laboratory
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
 WL24864-STD
 File ID: 9a9163.CNF

Counted on: 7/23/98 @ 2:33
 Detector: AEA9
 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	1715.3	1715.3	360.203	360.203	10.000	2.364	5.000	1.288
2	38.5	38.5	299.778	299.747	32.000	6.011	16.000	16.011
3	82.8	82.8	285.254	285.224	8.000	2.631	4.000	2.469
4?	26.6	26.6	267.464	267.328	10.000	3.610	5.000	3.169
5?	14.9	14.9	253.399	252.758	10.000	2.273	5.000	5.734
6	2585.0	2585.0	226.605	226.605	8.000	2.586	4.000	2.095

PEAK RESULTS

Peak Error Limit: 30%

Peak ID Isotope	AEA Frac	Peak Exp.	Centroid Obs. Diff.	Count Rate	%err c/m @95	d/m	Activity uCi/ea
1 Pu236	0.405	5.755	5.755 0.0000.01	39.15	1.4	172.0	0.775E-04
2	????		5.477	0.94	9.4		
3 Th228	0.016	5.400	5.410 -.0100.01	1.54	7.6	9.3	0.420E-05
4	????		5.328	0.56	13.9		
5	????		5.261	0.22	22.9		
6 Pu239	0.519	5.147	5.140 0.0070.01	50.18	1.3	216.1	0.973E-04
Pu240		5.144	5.140 0.004			216.1	0.973E-04

Totals:	0.940	<--valid peaks only-->			90.86		

DETECTOR CALIBRATION

Energy(MEV) = 4.098 + (0.0046)*Channel

Energy range (MeV): 4.098 TO 6.453

Efficiency = 0.2322 CPM/DPM

(Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	46411.0	100.000
Smoothed	46411.0	100.000
Composite fit	44443.1	95.760
Residuals	1967.9	4.240

Spectrum 9a9163.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 14271.1

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Raw Data Dump for AEA Spectrum: 9a9163.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	3.	1.	1.	0.	1.	0.
21	2.	3.	1.	0.	3.	3.	2.	3.	3.	0.
31	1.	0.	4.	3.	1.	1.	0.	1.	2.	2.
41	2.	3.	1.	2.	1.	4.	3.	6.	1.	2.
51	2.	0.	0.	6.	2.	1.	1.	1.	1.	1.
61	2.	1.	1.	2.	3.	0.	1.	2.	2.	3.
71	1.	1.	0.	1.	2.	0.	3.	2.	2.	0.
81	3.	3.	1.	3.	2.	3.	1.	0.	3.	2.
91	1.	2.	3.	1.	2.	3.	1.	1.	1.	3.
101	4.	1.	2.	0.	2.	2.	5.	1.	2.	2.
111	1.	1.	3.	5.	2.	2.	3.	2.	1.	3.
121	1.	3.	3.	3.	1.	3.	2.	3.	4.	3.
131	0.	4.	5.	3.	2.	5.	2.	7.	2.	5.
141	3.	3.	4.	2.	1.	1.	4.	3.	4.	4.
151	7.	2.	4.	3.	4.	7.	3.	3.	6.	4.
161	3.	6.	6.	11.	4.	5.	9.	5.	7.	4.
171	6.	5.	3.	5.	11.	11.	9.	7.	12.	3.
181	6.	9.	6.	12.	6.	10.	10.	4.	17.	18.
191	18.	16.	14.	26.	20.	29.	23.	21.	26.	27.
201	29.	29.	36.	58.	50.	50.	76.	81.	95.	114.
211	145.	197.	230.	305.	406.	471.	513.	576.	553.	648.
221	819.	1112.	1499.	2012.	2537.	3200.	3352.	2894.	1920.	762.
231	227.	36.	3.	1.	4.	3.	2.	4.	3.	4.
241	6.	3.	3.	8.	4.	5.	3.	6.	6.	11.
251	13.	14.	13.	15.	12.	11.	11.	3.	4.	6.
261	6.	8.	18.	16.	23.	29.	31.	40.	26.	17.
271	13.	12.	7.	11.	19.	10.	12.	13.	22.	40.
281	37.	42.	69.	104.	99.	112.	84.	47.	16.	7.
291	16.	11.	13.	15.	24.	19.	30.	25.	34.	43.
301	24.	28.	27.	18.	8.	8.	8.	5.	9.	7.
311	5.	5.	6.	2.	7.	7.	10.	6.	6.	7.
321	8.	10.	11.	13.	14.	9.	26.	16.	14.	22.
331	21.	16.	16.	31.	30.	36.	39.	36.	42.	55.
341	60.	99.	107.	120.	166.	253.	349.	479.	593.	696.
351	765.	737.	611.	599.	614.	766.	1045.	1354.	1798.	2201.
361	2218.	1710.	758.	257.	56.	3.	0.	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.	1.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
421	1.	0.	1.	1.	0.	0.	1.	3.	2.	0.
431	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
461	0.	1.	2.	2.	2.	1.	3.	5.	4.	5.
471	7.	12.	14.	8.	9.	9.	15.	3.	2.	0.
481	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

222-S Analytical Laboratory
 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
 WL24864-BLK
 File ID: 10a1060.CNF

Counted on: 7/23/98 @ 2:33
 Detector: AEA10
 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	1513.9	1513.9	359.336	359.336	10.000	2.673	5.000	1.304
2	21.1	21.1	301.230	301.054	30.000	12.322	15.000	15.787
3	69.6	69.6	284.862	284.799	10.000	2.875	5.000	2.124
4	16.4	16.4	267.803	266.987	12.000	4.545	6.000	1.179

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	0.915	5.755	5.744	0.011	0.01	37.75	1.5	162.2	0.731E-04
2	Am241	0.018	5.479	5.476	0.003	0.06	0.74	11.6	3.3	0.149E-05
	Pu238		5.487	5.476	0.011				4.3	0.194E-05
3	Th228	0.035	5.400	5.401	-0.001	0.01	1.45	7.8	8.6	0.387E-05
4		0.016		5.319		0.02	0.67	13.6	2.8	0.127E-05
Totals:			0.984	<--valid peaks only-->			40.60			

DETECTOR CALIBRATION
 Energy (MEV) = 4.091 + (0.0046)*Channel
 Energy range (MeV): 4.091 TO 6.446
 Efficiency = 0.2375 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	19797.0	100.000
Smoothed	19797.0	100.000
Composite fit	19490.1	98.450
Residuals	306.9	1.550

Analyzed by:

GL

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.:

8602.5

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Raw Data Dump for AEA Spectrum: 10a1060.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.
21	1.	0.	0.	0.	1.	2.	0.	0.	0.	0.
31	1.	0.	1.	3.	0.	0.	0.	0.	1.	1.
41	1.	0.	1.	1.	1.	1.	0.	0.	0.	1.
51	0.	1.	0.	1.	0.	1.	0.	0.	1.	1.
61	0.	1.	0.	0.	1.	0.	0.	1.	0.	0.
71	2.	0.	1.	2.	3.	0.	1.	1.	0.	2.
81	2.	2.	0.	0.	1.	1.	3.	1.	2.	3.
91	3.	3.	0.	0.	1.	0.	1.	1.	0.	0.
101	1.	1.	1.	2.	1.	0.	0.	0.	1.	0.
111	0.	1.	0.	0.	1.	0.	3.	1.	0.	2.
121	0.	0.	1.	0.	1.	1.	0.	0.	0.	2.
131	0.	1.	0.	0.	1.	1.	1.	3.	0.	3.
141	0.	1.	0.	1.	0.	0.	1.	1.	1.	0.
151	0.	1.	0.	3.	1.	1.	1.	1.	3.	2.
161	2.	0.	0.	2.	4.	2.	1.	2.	1.	4.
171	1.	0.	0.	1.	1.	1.	0.	5.	2.	1.
181	3.	0.	3.	2.	1.	0.	2.	0.	1.	2.
191	1.	2.	0.	1.	1.	0.	0.	3.	0.	1.
201	1.	4.	0.	0.	0.	1.	4.	1.	1.	0.
211	3.	3.	1.	6.	5.	3.	6.	1.	2.	0.
221	5.	1.	2.	1.	3.	2.	2.	5.	1.	5.
231	4.	2.	3.	0.	5.	3.	2.	3.	0.	2.
241	4.	4.	2.	4.	2.	4.	5.	4.	3.	7.
251	11.	7.	14.	9.	8.	5.	4.	12.	9.	6.
261	13.	9.	16.	12.	22.	19.	24.	14.	25.	18.
271	13.	10.	11.	14.	13.	18.	14.	19.	28.	32.
281	38.	41.	70.	90.	85.	92.	53.	36.	22.	8.
291	8.	14.	12.	12.	8.	9.	10.	11.	18.	16.
301	15.	20.	15.	15.	8.	9.	8.	8.	8.	11.
311	8.	10.	11.	7.	8.	5.	13.	14.	13.	10.
321	11.	18.	16.	16.	17.	25.	29.	31.	20.	25.
331	29.	40.	35.	35.	40.	47.	51.	82.	60.	86.
341	119.	123.	141.	183.	265.	311.	375.	514.	662.	728.
351	734.	630.	664.	623.	802.	926.	1242.	1523.	1888.	1920.
361	1607.	934.	353.	93.	13.	1.	1.	0.	0.	0.
371	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	1.	0.	1.	0.	0.	1.	1.	2.
421	1.	0.	1.	0.	1.	0.	0.	0.	0.	3.
431	0.	1.	1.	0.	0.	0.	0.	0.	2.	1.
441	0.	0.	1.	0.	0.	0.	0.	1.	1.	0.
451	0.	0.	0.	0.	0.	1.	0.	2.	2.	1.
461	0.	0.	1.	1.	1.	1.	3.	7.	6.	6.
471	9.	7.	13.	13.	6.	3.	3.	2.	2.	2.
481	0.	0.	0.	1.	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
Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
S98T002055-SAM
File ID: 11a1159.CNF

Counted on: 7/23/98 @ 2:34
Detector: AEA11
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1571.1	1571.1	361.259	361.259	10.000	2.320	5.000	1.258
2?	50.1	50.1	318.567	317.908	8.000	0.000	4.000	3.686
3	201.6	201.6	302.787	302.785	10.000	2.429	5.000	0.957
4?	10.9	10.9	268.408	267.913	8.000	2.151	4.000	0.678
5	1074.4	1074.4	228.085	228.084	10.000	3.207	5.000	2.141

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	0.528	5.755	5.762	-.0070.01	35.78	1.5	153.2	0.690E-04
	Cm243		5.779	5.762	0.017			205.7	0.926E-04
2		????		5.562		0.00	1000.		
3	Pu238	0.083	5.487	5.493	-.0060.01	5.63	3.8	32.8	0.148E-04
	Am241		5.479	5.493	-.014			25.1	0.113E-04
4		????		5.332		0.35	20.1		
5	Pu239	0.354	5.147	5.149	-.0020.01	24.03	1.8	100.8	0.454E-04
	Pu240		5.144	5.149	-.005			100.8	0.454E-04
-----			-----						
Totals:			0.965	<--valid peaks only-->			65.43		

DETECTOR CALIBRATION

Energy (MEV) = 4.100 + (0.0046)*Channel
 Energy range (MeV): 4.100 TO 6.455
 Efficiency = 0.2383 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	32550.0	100.000
Smoothed	32550.0	100.000
Composite fit	31579.7	97.019
Residuals	970.3	2.981

Spectrum 11a1159.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 6909.2

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Raw Data Dump for AEA Spectrum: 11a1159.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	2.	0.	0.	1.	0.
21	1.	0.	0.	1.	1.	1.	0.	1.	1.	0.
31	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
41	1.	2.	2.	1.	0.	0.	0.	2.	0.	0.
51	0.	0.	2.	1.	0.	0.	0.	0.	0.	1.
61	0.	0.	1.	0.	1.	0.	0.	0.	1.	0.
71	0.	1.	1.	1.	2.	2.	0.	0.	0.	0.
81	0.	0.	1.	1.	1.	0.	0.	2.	0.	1.
91	0.	0.	2.	1.	1.	1.	2.	0.	0.	0.
101	2.	0.	1.	1.	1.	0.	0.	0.	1.	0.
111	0.	1.	1.	1.	0.	2.	0.	0.	0.	1.
121	2.	0.	0.	0.	2.	0.	1.	2.	2.	0.
131	1.	3.	0.	0.	3.	2.	0.	0.	1.	4.
141	3.	5.	1.	0.	3.	3.	1.	3.	3.	3.
151	2.	0.	1.	0.	2.	1.	3.	2.	1.	1.
161	1.	5.	1.	2.	2.	2.	1.	1.	8.	2.
171	1.	2.	4.	4.	5.	3.	4.	3.	6.	2.
181	4.	2.	7.	6.	9.	5.	6.	6.	5.	5.
191	14.	6.	4.	8.	16.	7.	15.	14.	14.	10.
201	16.	29.	26.	26.	36.	23.	43.	48.	48.	48.
211	76.	74.	91.	119.	138.	203.	257.	262.	303.	294.
221	315.	431.	472.	602.	799.	1014.	1185.	1321.	1309.	1006.
231	606.	340.	165.	53.	11.	2.	0.	0.	1.	2.
241	2.	2.	0.	3.	1.	4.	2.	1.	3.	4.
251	4.	6.	4.	10.	7.	11.	7.	10.	2.	5.
261	4.	7.	6.	10.	9.	12.	16.	22.	17.	15.
271	11.	8.	9.	12.	10.	15.	11.	14.	20.	24.
281	29.	24.	35.	43.	59.	72.	82.	78.	46.	50.
291	52.	59.	84.	95.	75.	92.	102.	83.	105.	130.
301	167.	234.	268.	237.	155.	67.	19.	5.	3.	4.
311	2.	2.	8.	2.	11.	5.	4.	14.	15.	9.
321	9.	5.	4.	8.	7.	16.	21.	15.	21.	22.
331	16.	27.	12.	31.	34.	31.	57.	50.	58.	58.
341	60.	72.	99.	108.	142.	180.	199.	284.	374.	475.
351	678.	758.	679.	585.	503.	593.	709.	895.	1211.	1582.
361	2068.	2002.	1580.	785.	220.	32.	2.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
411	0.	0.	0.	0.	0.	0.	2.	0.	0.	1.
421	2.	0.	0.	0.	0.	0.	0.	0.	1.	0.
431	1.	0.	0.	0.	0.	1.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	1.	0.	0.	0.	0.	1.	0.
461	0.	0.	0.	1.	1.	1.	2.	1.	1.	0.
471	2.	8.	1.	5.	4.	6.	15.	2.	5.	2.
481	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

222-S Analytical Laboratory
GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
S98T002055-DUP
File ID: 12a1247.CNF

Counted on: 7/23/98 @ 2:35
Detector: AEA12
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1513.5	1513.5	358.412	358.412	8.000	2.297	4.000	1.266
2	210.4	210.4	300.575	300.573	8.000	2.393	4.000	1.240
3?	35.1	35.1	284.853	284.131	8.000	1.700	4.000	2.507
4?	16.0	16.0	267.251	267.057	10.000	3.261	5.000	0.870
5	1085.1	1085.1	226.853	226.852	10.000	3.081	5.000	2.200

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Exp.	Obs.	Diff.	FWHM	Count Rate	%err c/m @95	d/m	Activity uCi/ea	
1	Pu236	0.521	5.755	5.770	-.0150	0.01	34.09	1.5	151.5	0.682E-04	
	Cm243		5.779	5.770	0.009				203.4	0.916E-04	
2	Pu238	0.076	5.487	5.498	-.0110	0.01	4.95	4.0	29.9	0.135E-04	
	Am241		5.479	5.498	-.019				22.9	0.103E-04	
3		????		5.421			0.49	22.6			
4		????		5.340			0.61	13.0			
5	Pu239	0.357	5.147	5.151	-.0040	0.01	23.34	1.9	101.6	0.458E-04	
	Pu240		5.144	5.151	-.007				101.6	0.458E-04	

Totals:			0.953	<--valid peaks only-->				62.37			

DETECTOR CALIBRATION

Energy (MEV) = 4.085 + (0.0047)*Channel
Energy range (MeV): 4.085 TO 6.492
Efficiency = 0.2296 CPM/DPM
(Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	31419.0	100.000
Smoothed	31419.0	100.000
Composite fit	30470.9	96.982
Residuals	948.1	3.018

Spectrum 12a1247.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 8774.8

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Raw Data Dump for AEA Spectrum: 12a1247.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	1.	0.	0.	0.	1.	2.
21	1.	0.	0.	1.	0.	0.	1.	0.	0.
31	0.	0.	0.	1.	0.	0.	0.	0.	0.
41	1.	0.	0.	1.	0.	1.	0.	0.	1.
51	1.	1.	0.	0.	0.	0.	2.	1.	1.
61	0.	0.	2.	0.	1.	0.	0.	2.	0.
71	2.	0.	1.	0.	1.	0.	4.	1.	0.
81	0.	2.	1.	1.	1.	0.	3.	2.	0.
91	2.	2.	2.	0.	0.	0.	1.	1.	0.
101	3.	0.	3.	1.	1.	4.	2.	1.	5.
111	1.	3.	2.	1.	0.	3.	0.	1.	2.
121	3.	1.	1.	0.	0.	0.	0.	0.	2.
131	0.	1.	2.	0.	2.	1.	1.	2.	2.
141	2.	2.	2.	5.	2.	3.	4.	3.	6.
151	6.	3.	1.	3.	4.	1.	2.	7.	3.
161	1.	1.	2.	7.	3.	3.	1.	9.	6.
171	5.	2.	6.	5.	7.	2.	3.	4.	4.
181	6.	7.	5.	3.	6.	6.	10.	8.	13.
191	17.	10.	10.	10.	12.	14.	15.	15.	19.
201	20.	22.	22.	26.	35.	31.	33.	43.	54.
211	56.	81.	96.	142.	179.	226.	264.	264.	322.
221	363.	519.	638.	843.	1016.	1221.	1377.	1291.	882.
231	319.	127.	25.	8.	0.	2.	3.	3.	2.
241	3.	2.	1.	3.	4.	6.	1.	3.	6.
251	4.	14.	13.	9.	10.	6.	4.	7.	5.
261	9.	10.	9.	8.	13.	18.	23.	25.	15.
271	10.	7.	8.	9.	9.	14.	7.	21.	19.
281	21.	33.	67.	79.	69.	59.	49.	32.	49.
291	77.	98.	97.	103.	88.	67.	124.	147.	204.
301	281.	258.	117.	56.	9.	3.	7.	10.	7.
311	6.	6.	10.	10.	4.	4.	8.	4.	14.
321	8.	8.	12.	21.	17.	20.	24.	15.	24.
331	19.	28.	31.	32.	36.	44.	53.	51.	68.
341	81.	104.	145.	203.	244.	344.	440.	551.	731.
351	587.	488.	519.	658.	832.	1085.	1502.	1868.	2074.
361	822.	262.	39.	3.	0.	0.	0.	0.	0.
371	0.	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.	0.	0.
421	0.	0.	0.	1.	0.	0.	1.	1.	1.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	1.	0.	0.	0.	0.	0.	0.
461	2.	0.	0.	3.	4.	3.	2.	2.	7.
471	5.	7.	7.	0.	1.	1.	1.	1.	1.
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
 S98T002056-SAM
 File ID: 13a1395.CNF

Counted on: 7/23/98 @ 2:36
 Detector: AEA13
 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	976.5	976.5	361.706	361.706	10.000	2.532	5.000	1.259
2	28.2	28.2	303.593	303.570	8.000	2.946	4.000	1.300
3	18.0	18.0	287.212	286.827	10.000	2.381	5.000	1.126
4	89.8	89.8	229.203	229.203	12.000	3.591	6.000	2.133

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	0.863	5.755	5.752	0.0030.01	23.81	1.8	96.9	0.436E-04
2	Pu238	0.028	5.487	5.485	0.0020.01	0.76	10.4	4.2	0.190E-05
	Am241		5.479	5.485	-0.006			3.2	0.145E-05
3	Th228	0.016	5.400	5.408	-0.0080.01	0.45	16.4	2.5	0.113E-05
4	Pu239	0.079	5.147	5.142	0.0050.02	2.18	6.1	8.7	0.392E-05
	Pu240		5.144	5.142	0.002			8.7	0.392E-05

Totals:		0.986	<---valid peaks only-->				27.20		

DETECTOR CALIBRATION

Energy(MEV) = 4.088 + (0.0046)*Channel
 Energy range (MeV): 4.088 TO 6.443
 Efficiency = 0.2508 CPM/DPM
 (Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	13240.0	100.000
Smoothed	13240.1	100.001
Composite fit	13054.4	98.598
Residuals	185.6	1.402

Analyzed by: _____

GL

Spectrum 13a1395.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 4737.0

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Raw Data Dump for AEA Spectrum: 13a1395.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
21	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
31	0.	0.	0.	0.	1.	1.	0.	1.	0.	0.
41	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	2.	0.	0.	1.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	1.	0.	0.	1.	0.	0.	0.	0.	1.	0.
101	0.	2.	0.	1.	0.	0.	0.	0.	1.	0.
111	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
121	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
131	0.	0.	0.	1.	0.	0.	1.	1.	1.	1.
141	0.	0.	1.	0.	0.	1.	1.	0.	2.	0.
151	1.	0.	0.	0.	2.	1.	2.	1.	0.	2.
161	0.	0.	1.	0.	0.	1.	0.	1.	0.	0.
171	1.	0.	0.	0.	0.	1.	0.	2.	0.	0.
181	1.	1.	2.	0.	0.	0.	2.	1.	0.	0.
191	1.	1.	0.	3.	1.	2.	0.	0.	1.	2.
201	1.	1.	2.	2.	3.	1.	1.	8.	4.	6.
211	6.	9.	10.	10.	9.	14.	24.	23.	23.	26.
221	33.	27.	30.	48.	57.	70.	82.	99.	111.	100.
231	96.	56.	35.	19.	9.	1.	3.	0.	0.	1.
241	0.	1.	2.	1.	3.	2.	4.	6.	4.	3.
251	4.	7.	8.	6.	8.	7.	5.	6.	5.	3.
261	2.	3.	4.	6.	5.	7.	10.	7.	9.	4.
271	10.	5.	5.	2.	5.	0.	4.	6.	8.	7.
281	4.	13.	9.	27.	21.	26.	23.	28.	24.	14.
291	9.	7.	5.	8.	10.	18.	14.	14.	14.	19.
301	25.	22.	30.	40.	29.	22.	6.	4.	7.	3.
311	3.	1.	2.	0.	8.	4.	1.	5.	5.	3.
321	4.	6.	6.	4.	7.	11.	5.	12.	7.	12.
331	10.	18.	14.	13.	21.	22.	22.	24.	31.	37.
341	36.	52.	58.	73.	100.	102.	148.	144.	232.	369.
351	396.	442.	453.	408.	369.	401.	447.	608.	675.	899.
361	1078.	1270.	1152.	718.	349.	78.	13.	1.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
431	3.	1.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	1.	1.	0.	0.	0.	0.	1.	2.	2.	1.
471	1.	1.	2.	2.	1.	3.	2.	1.	0.	0.
481	3.	0.	1.	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
S98T002056-DUP
File ID: 14a1484.CNF

Counted on: 7/23/98 @ 2:37
Detector: AEA14
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	743.9	743.9	369.934	369.934	10.000	3.132	5.000	1.489
2	21.2	21.2	311.321	311.286	12.000	3.864	6.000	0.812
3?	10.7	10.7	295.254	294.919	8.000	1.114	4.000	7.623
4	72.3	72.3	236.184	236.180	12.000	4.240	6.000	2.525

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid				Count Rate	%err c/m	Activity d/m	uCi/ea
			Exp.	Obs.	Diff.	FWHM		@95		
1	Am244	0.861	5.795	5.779	0.016	0.01	19.48	2.0	78.6	0.354E-04
	Am243		5.779	5.779	0.000				107.6	0.485E-04
2	Pu238	0.044	5.487	5.510	-0.023	0.02	0.99	9.1	5.5	0.249E-05
	Am241		5.479	5.510	-0.031				4.2	0.191E-05
3		????		5.434			0.11	60.8		
4	Pu239	0.081	5.147	5.164	-0.017	0.02	1.84	6.6	7.4	0.334E-05
	Pu240		5.144	5.164	-0.020				7.4	0.334E-05

Totals: 0.986 <--valid peaks only--> 22.31

DETECTOR CALIBRATION

Energy(MEV) = 4.078 + (0.0046)*Channel

Energy range (MeV): 4.078 TO 6.433

Efficiency = 0.2480 CPM/DPM

(Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	10863.0	100.000
Smoothed	10863.0	100.000
Composite fit	10765.6	99.104
Residuals	97.4	0.896

Analyzed by:

GL

Spectrum 14a1484.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 3966.6

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Raw Data Dump for AEA Spectrum: 14a1484.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
21	0.	1.	1.	1.	0.	1.	0.	0.	0.	0.
31	0.	1.	0.	1.	0.	0.	1.	1.	0.	2.
41	0.	1.	1.	1.	0.	1.	1.	0.	0.	0.
51	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.
61	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
71	1.	0.	0.	0.	1.	1.	0.	0.	1.	0.
81	0.	0.	1.	0.	0.	1.	1.	0.	0.	0.
91	2.	1.	0.	0.	0.	0.	0.	1.	0.	0.
101	0.	1.	0.	0.	1.	0.	0.	0.	1.	0.
111	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
121	0.	0.	0.	0.	2.	0.	2.	0.	0.	0.
131	0.	0.	1.	1.	1.	1.	1.	1.	2.	2.
141	1.	1.	0.	0.	0.	2.	0.	0.	0.	0.
151	1.	1.	3.	1.	1.	2.	2.	3.	2.	1.
161	0.	0.	2.	1.	0.	0.	0.	0.	1.	1.
171	1.	1.	0.	1.	2.	0.	1.	0.	0.	0.
181	1.	0.	0.	1.	0.	1.	1.	0.	2.	1.
191	0.	4.	0.	1.	2.	2.	1.	1.	0.	2.
201	0.	0.	1.	1.	3.	2.	3.	3.	1.	3.
211	1.	1.	6.	4.	4.	2.	3.	6.	6.	2.
221	4.	9.	9.	12.	23.	19.	26.	27.	26.	27.
231	55.	38.	59.	81.	81.	83.	79.	83.	51.	33.
241	23.	7.	1.	2.	1.	2.	2.	1.	4.	0.
251	2.	5.	2.	0.	1.	3.	4.	5.	4.	8.
261	6.	5.	10.	10.	9.	7.	3.	3.	0.	5.
271	4.	3.	3.	4.	5.	6.	5.	5.	6.	3.
281	5.	4.	3.	1.	5.	3.	2.	5.	2.	10.
291	8.	11.	12.	23.	29.	20.	15.	13.	10.	11.
301	12.	10.	21.	13.	15.	17.	14.	13.	13.	22.
311	31.	19.	21.	20.	6.	9.	5.	1.	1.	1.
321	2.	1.	2.	0.	2.	6.	2.	6.	3.	2.
331	5.	5.	3.	4.	7.	3.	3.	5.	8.	6.
341	12.	13.	12.	16.	22.	16.	27.	23.	22.	35.
351	48.	46.	63.	96.	109.	146.	173.	201.	286.	331.
361	374.	381.	338.	345.	334.	446.	578.	712.	805.	896.
371	903.	650.	418.	203.	52.	12.	1.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
431	0.	1.	0.	0.	0.	0.	0.	0.	2.	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.	1.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
481	1.	3.	4.	3.	2.	2.	3.	0.	3.	1.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

222-S Analytical Laboratory
GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.10

DATA REDUCTION REPORT

SAMPLE
S98T002057-SAM
File ID: 15a1570.CNF

Counted on: 7/23/98 @ 2:38
Detector: AEA15
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1606.8	1606.8	360.989	360.989	10.000	2.785	5.000	1.359
2	1321.7	1321.7	302.466	302.465	10.000	2.988	5.000	1.391
3	5216.2	5216.2	228.161	228.161	12.000	3.745	6.000	2.289
4?	17.7	17.7	164.136	164.087	106.000	1.000	53.000	0.100
5?	12.2	12.2	156.683	155.915	10.000	0.000	5.000	4.608
6?	12.2	12.2	146.411	146.162	10.000	1.516	5.000	2.752

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	Pu236	0.194	5.755	5.748	0.0070.01	40.43	1.4	167.6	0.755E-04
2	Pu238	0.166	5.487	5.479	0.0080.01	34.67	1.5	195.6	0.881E-04
	Am241		5.479	5.479	0.000			149.8	0.675E-04
3	Pu239	0.608	5.147	5.137	0.0100.02	126.64	0.8	514.4	0.232E-03
	Pu240		5.144	5.137	0.007			514.4	0.232E-03
4		????		4.843		1.41	7.6		
5		????		4.805		0.00	1000.		
6		????		4.760		0.16	61.5		
Totals:			0.968	<--valid peaks only-->			201.74		

DETECTOR CALIBRATION

Energy(MEV) = 4.088 + (0.0046)*Channel
Energy range (MeV): 4.088 TO 6.443
Efficiency = 0.2462 CPM/DPM
(Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	100061.0	100.000
Smoothed	100061.0	100.000
Composite fit	97589.6	97.530
Residuals	2471.4	2.470

Spectrum 15a1570.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 34438.4

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Raw Data Dump for AEA Spectrum: 15a1570.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	5.	3.	6.	2.	5.	1.
21	7.	7.	2.	1.	0.	2.	1.	1.	4.
31	1.	2.	4.	2.	2.	0.	1.	1.	5.
41	2.	1.	0.	1.	3.	1.	3.	4.	2.
51	3.	3.	2.	1.	2.	3.	0.	2.	2.
61	3.	2.	3.	1.	0.	3.	3.	5.	5.
71	3.	0.	2.	2.	0.	1.	5.	1.	1.
81	4.	4.	2.	5.	0.	3.	1.	0.	3.
91	4.	3.	2.	5.	2.	4.	7.	7.	4.
101	8.	3.	2.	3.	8.	2.	3.	2.	3.
111	3.	4.	2.	8.	1.	7.	2.	6.	3.
121	9.	5.	8.	7.	4.	11.	7.	9.	16.
131	3.	13.	7.	9.	9.	10.	11.	5.	9.
141	13.	14.	14.	21.	18.	36.	19.	22.	18.
151	13.	10.	7.	19.	20.	15.	19.	23.	10.
161	14.	14.	11.	21.	13.	18.	11.	12.	14.
171	13.	21.	13.	19.	22.	14.	24.	19.	26.
181	23.	25.	30.	27.	41.	28.	29.	37.	41.
191	42.	49.	37.	48.	66.	76.	82.	74.	83.
201	125.	125.	121.	134.	154.	192.	238.	238.	260.
211	395.	415.	493.	712.	822.	954.	1192.	1331.	1524.
221	1913.	2302.	2673.	3256.	4165.	4947.	5678.	6238.	6219.
231	3449.	2221.	1165.	495.	140.	29.	2.	7.	6.
241	6.	4.	5.	5.	6.	9.	5.	4.	10.
251	8.	5.	5.	18.	11.	14.	10.	16.	16.
261	13.	24.	24.	20.	18.	26.	19.	34.	48.
271	42.	26.	40.	38.	35.	46.	46.	40.	58.
281	77.	77.	103.	135.	153.	176.	236.	243.	261.
291	373.	488.	565.	660.	672.	658.	668.	740.	808.
301	1366.	1580.	1674.	1383.	1015.	470.	156.	32.	9.
311	6.	8.	6.	3.	4.	2.	8.	10.	13.
321	6.	9.	18.	9.	20.	11.	22.	22.	16.
331	35.	23.	42.	35.	44.	39.	47.	58.	70.
341	94.	103.	123.	147.	206.	231.	284.	350.	504.
351	686.	761.	748.	662.	664.	742.	904.	1100.	1458.
361	2019.	1871.	1502.	849.	272.	67.	15.	1.	1.
371	2.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	1.	0.	1.	0.	1.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	1.	0.
421	1.	0.	0.	1.	1.	0.	0.	0.	3.
431	0.	3.	0.	1.	0.	1.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	1.
451	0.	0.	1.	0.	0.	1.	2.	0.	0.
461	1.	0.	0.	2.	2.	1.	1.	2.	3.
471	5.	6.	5.	9.	3.	16.	9.	2.	2.
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
S98T002057-DUP
File ID: 16a1683.CNF

Counted on: 7/23/98 @ 2:39
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	1510.4	1510.4	360.566	360.566	10.000	2.884	5.000	1.275
2	1440.4	1440.4	302.289	302.288	8.000	2.885	4.000	1.280
3	5519.0	5519.0	227.864	227.863	12.000	3.879	6.000	2.208
4?	27.7	27.7	153.140	153.127	118.000	1.000	59.000	0.100
5?	5.2	5.2	145.258	144.882	6.000	0.430	3.000	3.988

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	0.180	5.755	5.748	0.0070.01	40.51	1.4	153.1 0.689E-04	
2	Pu238	0.172	5.487	5.480	0.0070.01	38.55	1.4	198.3 0.893E-04	
	Am241		5.479	5.480	-0.001			151.9 0.684E-04	
3	Pu239	0.621	5.147	5.137	0.0100.02	139.55	0.8	516.7 0.233E-03	
	Pu240		5.144	5.137	0.007			516.7 0.233E-03	
4	????			4.793		2.20	6.0		
5	????			4.755		0.03	363.		
Totals:			0.973	<--valid peaks only-->			218.62		

DETECTOR CALIBRATION

Energy(MEV) = 4.089 + (0.0046)*Channel
Energy range (MeV): 4.089 TO 6.444
Efficiency = 0.2701 CPM/DPM
(Data reduction compression factor: 1.)

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	107896.0	100.000
Smoothed	107896.0	100.000
Composite fit	106013.1	98.255
Residuals	1882.9	1.745

Spectrum 16a1683.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 36395.7

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Raw Data Dump for AEA Spectrum: 16a1683.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	5.	6.	7.	6.	9.	7.
21	8.	2.	8.	4.	3.	1.	1.	5.	2.
31	3.	4.	5.	2.	1.	4.	1.	2.	1.
41	1.	3.	1.	6.	4.	5.	6.	2.	0.
51	0.	2.	4.	3.	4.	1.	0.	3.	3.
61	5.	2.	6.	6.	1.	5.	7.	3.	3.
71	2.	9.	6.	4.	3.	3.	2.	3.	6.
81	5.	7.	8.	4.	3.	3.	5.	3.	1.
91	1.	8.	5.	4.	4.	1.	6.	5.	5.
101	2.	5.	4.	1.	7.	3.	6.	4.	4.
111	5.	4.	8.	4.	3.	10.	2.	2.	10.
121	6.	4.	2.	4.	5.	8.	5.	16.	7.
131	11.	10.	13.	9.	8.	9.	8.	13.	18.
141	11.	23.	22.	34.	30.	38.	22.	20.	16.
151	13.	19.	21.	26.	16.	18.	16.	12.	16.
161	11.	14.	22.	13.	17.	14.	17.	22.	20.
171	12.	12.	26.	26.	32.	23.	22.	26.	18.
181	35.	19.	37.	31.	28.	39.	52.	46.	54.
191	56.	60.	66.	91.	59.	71.	94.	105.	106.
201	133.	139.	163.	176.	189.	232.	242.	261.	342.
211	450.	536.	649.	781.	952.	1216.	1417.	1625.	1861.
221	2272.	2757.	3310.	3860.	4552.	5561.	6174.	6571.	6192.
231	3406.	1998.	1064.	389.	86.	18.	3.	7.	5.
241	3.	4.	4.	6.	12.	6.	10.	5.	11.
251	8.	15.	16.	16.	10.	18.	18.	11.	21.
261	15.	20.	13.	30.	28.	30.	21.	30.	43.
271	31.	44.	42.	45.	51.	54.	51.	52.	80.
281	81.	105.	133.	147.	204.	213.	235.	287.	327.
291	449.	510.	632.	729.	677.	774.	814.	865.	1017.
301	1473.	1633.	1861.	1484.	960.	385.	90.	21.	11.
311	6.	14.	9.	15.	14.	15.	8.	15.	11.
321	13.	14.	11.	14.	12.	18.	23.	27.	34.
331	30.	42.	37.	38.	44.	67.	57.	51.	82.
341	109.	132.	164.	196.	224.	276.	329.	420.	516.
351	750.	773.	694.	701.	677.	853.	1061.	1220.	1498.
361	1857.	1728.	1166.	590.	136.	25.	3.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	1.	0.	1.	0.	0.	0.	0.
391	0.	0.	0.	0.	1.	0.	0.	0.	0.
401	0.	0.	0.	0.	1.	1.	0.	0.	0.
411	0.	0.	0.	0.	2.	1.	0.	0.	1.
421	0.	1.	1.	1.	0.	1.	1.	0.	0.
431	0.	1.	2.	1.	0.	0.	0.	1.	1.
441	0.	0.	0.	0.	0.	1.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	1.	0.	1.	1.	0.	1.	2.	2.	3.
471	11.	5.	7.	11.	13.	10.	5.	2.	1.
481	3.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.							

LABCORE Completed Worklist Report for Worklist# 25166

Analyst: gar Instrument: NONE Book#

Method: LAS-136 Rev/Mod A-1

Worklist Comment: @PCBS FOR AP-106 (6AP-98-3) and TK-102 RTS

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLANK	0	0	@PCBS AR1016	LIQ	1	<.6		ug/L
1 BLANK	0	0	@PCBS AR1221	LIQ	1	<.6		ug/L
1 BLANK	0	0	@PCBS AR1232	LIQ	1	<.6		ug/L
1 BLANK	0	0	@PCBS AR1242	LIQ	1	<.6		ug/L
1 BLANK	0	0	@PCBS AR1248	LIQ	1	<.6		ug/L
1 BLANK	0	0	@PCBS AR1254	LIQ	1	<.6		ug/L
1 BLANK	0	0	@PCBS AR1260	LIQ	1	<.6		ug/L
1 BLANK	0	0	@PCBS TCX-01	LIQ	100	87.08	87.080 %	Recovery
1 BLANK	0	0	@PCBS DCB-01	LIQ	100	92.80	92.800 %	Recovery
2 LCS	0	0	@PCBS AR1016	LIQ	100	n/a		% Recovery
2 LCS	0	0	@PCBS AR1221	LIQ	100	n/a		% Recovery
2 LCS	0	0	@PCBS AR1232	LIQ	100	n/a		% Recovery
2 LCS	0	0	@PCBS AR1242	LIQ	100	n/a		% Recovery
2 LCS	0	0	@PCBS AR1248	LIQ	100	n/a		% Recovery
2 LCS	0	0	@PCBS AR1254	LIQ	100	97.75	97.750 %	Recovery
2 LCS	0	0	@PCBS AR1260	LIQ	100	n/a		% Recovery
2 LCS	0	0	@PCBS TCX-01	LIQ	100	91.70	91.700 %	Recovery
2 LCS	0	0	@PCBS DCB-01	LIQ	100	101.1	101.100 %	Recovery
3 SAMPLE	S98T002253	0	@PCBS AR1016	LIQ	N/A	< 12.0	12.000	ug/L
3 SAMPLE	S98T002253	0	@PCBS AR1221	LIQ	N/A	< 12.0	12.000	ug/L
3 SAMPLE	S98T002253	0	@PCBS AR1232	LIQ	N/A	< 12.0	12.000	ug/L
3 SAMPLE	S98T002253	0	@PCBS AR1242	LIQ	N/A	< 12.0	12.000	ug/L
3 SAMPLE	S98T002253	0	@PCBS AR1248	LIQ	N/A	< 12.0	12.000	ug/L
3 SAMPLE	S98T002253	0	@PCBS AR1254	LIQ	N/A	< 12.0	12.000	ug/L
3 SAMPLE	S98T002253	0	@PCBS AR1260	LIQ	N/A	< 12.0	12.000	ug/L
3 SAMPLE	S98T002253	0	@PCBS TCX-01	LIQ	N/A	94.53	1.000	% Recovery
3 SAMPLE	S98T002253	0	@PCBS DCB-01	LIQ	N/A	76.86	1.000	% Recovery
4 SURR	S98T002253	0	@PCBS TCX-01	LIQ	100	94.53	94.530 %	Recovery
4 SURR	S98T002253	0	@PCBS DCB-01	LIQ	100	76.86	76.860 %	Recovery
5 DUF	S98T002253	0	@PCBS AR1016	LIQ	<12.0	<12.0		RPD
5 DUF	S98T002253	0	@PCBS AR1221	LIQ	<12.0	<12.0		RPD
5 DUF	S98T002253	0	@PCBS AR1232	LIQ	<12.0	<12.0		RPD
5 DUF	S98T002253	0	@PCBS AR1242	LIQ	<12.0	<12.0		RPD
5 DUF	S98T002253	0	@PCBS AR1248	LIQ	<12.0	<12.0		RPD
5 DUF	S98T002253	0	@PCBS AR1254	LIQ	<12.0	<12.0		RPD
5 DUF	S98T002253	0	@PCBS AR1260	LIQ	<12.0	<12.0		RPD
5 DUF	S98T002253	0	@PCBS TCX-01	LIQ	100	95.75	95.750 %	Recovery
5 DUF	S98T002253	0	@PCBS DCB-01	LIQ	100	82.71	82.710 %	Recovery
6 MS	S98T002253	0	@PCBS AR1016	LIQ	<12.0	<12.0		% Recovery
6 MS	S98T002253	0	@PCBS AR1221	LIQ	<12.0	<12.0		% Recovery
6 MS	S98T002253	0	@PCBS AR1232	LIQ	<12.0	<12.0		% Recovery

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

LABCORE Completed Worklist Report for Worklist# 25166

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
6 MS	S98T002253	0	®PCBS	AR1242	LIQ	<12.0	<12.0	% Recovery
6 MS	S98T002253	0	®PCBS	AR1248	LIQ	<12.0	<12.0	% Recovery
6 MS	S98T002253	0	®PCBS	AR1254	LIQ	100	97.04	97.040 % Recovery
6 MS	S98T002253	0	®PCBS	AR1260	LIQ	<12.0	<12.0	% Recovery
6 MS	S98T002253	0	®PCBS	TCX-01	LIQ	100	83.32	83.320 % Recovery
6 MS	S98T002253	0	®PCBS	DCB-01	LIQ	100	78.26	78.260 % Recovery
7 MSD	S98T002253	0	®PCBS	AR1016	LIQ	<12.0	<12.0	% Recovery
7 MSD	S98T002253	0	®PCBS	AR1221	LIQ	<12.0	<12.0	% Recovery
7 MSD	S98T002253	0	®PCBS	AR1232	LIQ	<12.0	<12.0	% Recovery
7 MSD	S98T002253	0	®PCBS	AR1242	LIQ	<12.0	<12.0	% Recovery
7 MSD	S98T002253	0	®PCBS	AR1248	LIQ	<12.0	<12.0	% Recovery
7 MSD	S98T002253	0	®PCBS	AR1254	LIQ	100	108.2	108.200 % Recovery
7 MSD	S98T002253	0	®PCBS	AR1260	LIQ	<12.0	<12.0	% Recovery
7 MSD	S98T002253	0	®PCBS	TCX-01	LIQ	100	97.62	97.620 % Recovery
7 MSD	S98T002253	0	®PCBS	DCB-01	LIQ	100	99.94	99.940 % Recovery
8 SPK-DUP	S98T002253	0	®PCBS	AR1016	LIQ	<12.0	<12.0	RPD
8 SPK-DUP	S98T002253	0	®PCBS	AR1221	LIQ	<12.0	<12.0	RPD
8 SPK-DUP	S98T002253	0	®PCBS	AR1232	LIQ	<12.0	<12.0	RPD
8 SPK-DUP	S98T002253	0	®PCBS	AR1242	LIQ	<12.0	<12.0	RPD
8 SPK-DUP	S98T002253	0	®PCBS	AR1248	LIQ	<12.0	<12.0	RPD
8 SPK-DUP	S98T002253	0	®PCBS	AR1254	LIQ	97.04	108.2	10.875 RPD
8 SPK-DUP	S98T002253	0	®PCBS	AR1260	LIQ	<12.0	<12.0	RPD
9 SAMPLE	S98M000238	0	®PCBS	AR1016	LIQ	N/A	6.0	6.000 ug/L
9 SAMPLE	S98M000238	0	®PCBS	AR1221	LIQ	N/A	6.0	6.000 ug/L
9 SAMPLE	S98M000238	0	®PCBS	AR1232	LIQ	N/A	6.0	6.000 ug/L
9 SAMPLE	S98M000238	0	®PCBS	AR1242	LIQ	N/A	6.0	6.000 ug/L
9 SAMPLE	S98M000238	0	®PCBS	AR1248	LIQ	N/A	6.0	6.000 ug/L
9 SAMPLE	S98M000238	0	®PCBS	AR1254	LIQ	N/A	1.72	1.000 ug/L
9 SAMPLE	S98M000238	0	®PCBS	AR1260	LIQ	N/A	6.0	6.000 ug/L
9 SAMPLE	S98M000238	0	®PCBS	TCX-01	LIQ	N/A	28.97	1.000 % Recovery
9 SAMPLE	S98M000238	0	®PCBS	DCB-01	LIQ	N/A	66.09	1.000 % Recovery
10 SURR	S98M000238	0	®PCBS	TCX-01	LIQ	100	28.97	28.970 % Recovery
10 SURR	S98M000238	0	®PCBS	DCB-01	LIQ	100	66.09	66.090 % Recovery
11 DUP	S98M000238	0	®PCBS	AR1016	LIQ	<6.0	<6.0	RPD
11 DUP	S98M000238	0	®PCBS	AR1221	LIQ	<6.0	<6.0	RPD
11 DUP	S98M000238	0	®PCBS	AR1232	LIQ	<6.0	<6.0	RPD
11 DUP	S98M000238	0	®PCBS	AR1242	LIQ	<6.0	<6.0	RPD
11 DUP	S98M000238	0	®PCBS	AR1248	LIQ	<6.0	<6.0	RPD
11 DUP	S98M000238	0	®PCBS	AR1254	LIQ	1.72	1.37	22.654 RPD
11 DUP	S98M000238	0	®PCBS	AR1260	LIQ	<6.0	<6.0	RPD
11 DUP	S98M000238	0	®PCBS	TCX-01	LIQ	100	23.73	23.730 % Recovery
11 DUP	S98M000238	0	®PCBS	DCB-01	LIQ	100	70.31	70.310 % Recovery

Final page for worklist# 25166

Analyst Signature *DARON* 8-12-98 Date

Analyst Signature *Leslie Day* 8/12/98 Date

Starting CCV = 113.7%
Ending CCV = 93.3%

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

LABCORE Completed Worklist Report for Worklist# 25166

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

				Reviewer Signature		Date			

LABCORE Data Entry Template for Worklist# 25166

Analyst: _____ Instrument: NONE _____ Book # _____

Method: LA-523-136 Rev/Mod _____

Worklist Comment: @PCBS FOR AP-106 (6AP-98-3) and TK-102 RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLANK		@PCBS	AR1016	LIQ	_____	5.6	N/A	ug/L
		1 BLANK		@PCBS	AR1221	LIQ	_____	1	N/A	ug/L
		1 BLANK		@PCBS	AR1232	LIQ	_____	1	N/A	ug/L
		1 BLANK		@PCBS	AR1242	LIQ	_____	1	N/A	ug/L
		1 BLANK		@PCBS	AR1248	LIQ	_____	1	N/A	ug/L
		1 BLANK		@PCBS	AR1254	LIQ	_____	1	N/A	ug/L
		1 BLANK		@PCBS	AR1260	LIQ	_____	✓	N/A	ug/L
		1 BLANK		@PCBS	TCX-01	LIQ	100	87.08	N/A	% Recovery
		1 BLANK		@PCBS	DCB-01	LIQ	100	92.80	N/A	% Recovery
		2 LCS		@PCBS	AR1016	LIQ	_____	N/A	N/A	ug/L
		2 LCS		@PCBS	AR1221	LIQ	_____	N/A	N/A	ug/L
		2 LCS		@PCBS	AR1232	LIQ	_____	N/A	N/A	ug/L
		2 LCS		@PCBS	AR1242	LIQ	_____	N/A	N/A	ug/L
		2 LCS		@PCBS	AR1248	LIQ	_____	N/A	N/A	ug/L
		2 LCS		@PCBS	AR1254	LIQ	100	97.75	N/A	ug/L
		2 LCS		@PCBS	AR1260	LIQ	_____	N/A	N/A	ug/L
		2 LCS		@PCBS	TCX-01	LIQ	100	91.70	N/A	% Recovery
		2 LCS		@PCBS	DCB-01	LIQ	100	101.1	N/A	% Recovery

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# 25166

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
98000335	AP-106 GRAB2	3	SAMPLE	S98T002253	0	@PCBS	AR1016	LIQ	N/A	<12.0	12.0	ug/L
98000335	AP-106 GRAB2	3	SAMPLE	S98T002253	0	@PCBS	AR1221	LIQ	N/A			ug/L
98000335	AP-106 GRAB2	3	SAMPLE	S98T002253	0	@PCBS	AR1232	LIQ	N/A			ug/L
98000335	AP-106 GRAB2	3	SAMPLE	S98T002253	0	@PCBS	AR1242	LIQ	N/A			ug/L
98000335	AP-106 GRAB2	3	SAMPLE	S98T002253	0	@PCBS	AR1248	LIQ	N/A			ug/L
98000335	AP-106 GRAB2	3	SAMPLE	S98T002253	0	@PCBS	AR1254	LIQ	N/A			ug/L
98000335	AP-106 GRAB2	3	SAMPLE	S98T002253	0	@PCBS	AR1260	LIQ	N/A			ug/L
98000335	AP-106 GRAB2	3	SAMPLE	S98T002253	0	@PCBS	TCX-01	LIQ	N/A	94.53 75.93/81.2/95		% Recovery
98000335	AP-106 GRAB2	3	SAMPLE	S98T002253	0	@PCBS	DCB-01	LIQ	N/A	76.86		% Recovery
98000335	AP-106 GRAB2	4	SURR	S98T002253	0	@PCBS	TCX-01	LIQ	100	94.53	N/A	% Recovery
98000335	AP-106 GRAB2	4	SURR	S98T002253	0	@PCBS	DCB-01	LIQ	100	76.86	N/A	% Recovery
98000335	AP-106 GRAB2	5	DUP	S98T002253	0	@PCBS	AR1016	LIQ	<12.0	<12.0	N/A	ug/L
98000335	AP-106 GRAB2	5	DUP	S98T002253	0	@PCBS	AR1221	LIQ			N/A	ug/L
98000335	AP-106 GRAB2	5	DUP	S98T002253	0	@PCBS	AR1232	LIQ			N/A	ug/L
98000335	AP-106 GRAB2	5	DUP	S98T002253	0	@PCBS	AR1242	LIQ			N/A	ug/L
98000335	AP-106 GRAB2	5	DUP	S98T002253	0	@PCBS	AR1248	LIQ			N/A	ug/L
98000335	AP-106 GRAB2	5	DUP	S98T002253	0	@PCBS	AR1254	LIQ			N/A	ug/L
98000335	AP-106 GRAB2	5	DUP	S98T002253	0	@PCBS	AR1260	LIQ			N/A	ug/L
98000335	AP-106 GRAB2	5	DUP	S98T002253	0	@PCBS	TCX-01	LIQ	100	95.75	N/A	% Recovery
98000335	AP-106 GRAB2	5	DUP	S98T002253	0	@PCBS	DCB-01	LIQ	100	82.71	N/A	% Recovery
98000335	AP-106 GRAB2	6	MS	S98T002253	0	@PCBS	AR1016	LIQ	<12.0	<12.0	N/A	ug/L

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# 25166

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
98000335	AP-106 GRAB2	6 MS	S98T002253	0	@PCBS AR1221	LIQ	<12.0	<12.0	N/A	ug/L
98000335	AP-106 GRAB2	6 MS	S98T002253	0	@PCBS AR1232	LIQ			N/A	ug/L
98000335	AP-106 GRAB2	6 MS	S98T002253	0	@PCBS AR1242	LIQ			N/A	ug/L
98000335	AP-106 GRAB2	6 MS	S98T002253	0	@PCBS AR1248	LIQ	↓	↓	N/A	ug/L
98000335	AP-106 GRAB2	6 MS	S98T002253	0	@PCBS AR1254	LIQ	100	97.04	N/A	ug/L
98000335	AP-106 GRAB2	6 MS	S98T002253	0	@PCBS AR1260	LIQ	<12.0	<12.0	N/A	ug/L
98000335	AP-106 GRAB2	6 MS	S98T002253	0	@PCBS TCX-01	LIQ	100	83.32	N/A	% Recovery
98000335	AP-106 GRAB2	6 MS	S98T002253	0	@PCBS DCB-01	LIQ	100	78.26	N/A	% Recovery
98000335	AP-106 GRAB2	7 MSD	S98T002253	0	@PCBS AR1016	LIQ	<12.0	<12.0	N/A	ug/L
98000335	AP-106 GRAB2	7 MSD	S98T002253	0	@PCBS AR1221	LIQ			N/A	ug/L
98000335	AP-106 GRAB2	7 MSD	S98T002253	0	@PCBS AR1232	LIQ			N/A	ug/L
98000335	AP-106 GRAB2	7 MSD	S98T002253	0	@PCBS AR1242	LIQ			N/A	ug/L
98000335	AP-106 GRAB2	7 MSD	S98T002253	0	@PCBS AR1248	LIQ	↓	↓	N/A	ug/L
98000335	AP-106 GRAB2	7 MSD	S98T002253	0	@PCBS AR1254	LIQ	100	108.2	N/A	ug/L
98000335	AP-106 GRAB2	7 MSD	S98T002253	0	@PCBS AR1260	LIQ	<12.0	<12.0	N/A	ug/L
98000335	AP-106 GRAB2	7 MSD	S98T002253	0	@PCBS TCX-01	LIQ	100	97.62	N/A	% Recovery
98000335	AP-106 GRAB2	7 MSD	S98T002253	0	@PCBS DCB-01	LIQ	100	99.94	N/A	% Recovery
98000335	AP-106 GRAB2	8 SPK-DUP	S98T002253	0	@PCBS AR1016	LIQ	<12.0	<12.0	N/A	ug/L
98000335	AP-106 GRAB2	8 SPK-DUP	S98T002253	0	@PCBS AR1221	LIQ			N/A	ug/L
98000335	AP-106 GRAB2	8 SPK-DUP	S98T002253	0	@PCBS AR1232	LIQ			N/A	ug/L
98000335	AP-106 GRAB2	8 SPK-DUP	S98T002253	0	@PCBS AR1242	LIQ			N/A	ug/L
98000335	AP-106 GRAB2	8 SPK-DUP	S98T002253	0	@PCBS AR1248	LIQ	↓	↓	N/A	ug/L

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# 25166

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT	
98000335	AP-106 GRAB2	8 SPK-DUP	S98T002253	0	@PCBS	AR1254	LIQ	<u>97.04</u>	<u>108.2</u>	<u>N/A</u>	ug/L
98000335	AP-106 GRAB2	8 SPK-DUP	S98T002253	0	@PCBS	AR1260	LIQ	<u><12.0</u>	<u><12.0</u>	<u>N/A</u>	ug/L
98000434	TK-102 7/98	9 SAMPLE	S98M000238	0	@PCBS	AR1016	LIQ	<u>N/A</u>	<u><6.0</u>	<u>6.0</u>	ug/L
98000434	TK-102 7/98	9 SAMPLE	S98M000238	0	@PCBS	AR1221	LIQ	<u>N/A</u>	<u> </u>	<u> </u>	ug/L
98000434	TK-102 7/98	9 SAMPLE	S98M000238	0	@PCBS	AR1232	LIQ	<u>N/A</u>	<u> </u>	<u> </u>	ug/L
98000434	TK-102 7/98	9 SAMPLE	S98M000238	0	@PCBS	AR1242	LIQ	<u>N/A</u>	<u> </u>	<u> </u>	ug/L
98000434	TK-102 7/98	9 SAMPLE	S98M000238	0	@PCBS	AR1248	LIQ	<u>N/A</u>	<u>↓</u>	<u>↓</u>	ug/L
98000434	TK-102 7/98	9 SAMPLE	S98M000238	0	@PCBS	AR1254	LIQ	<u>N/A</u>	<u>1.72</u>	<u> </u>	ug/L
98000434	TK-102 7/98	9 SAMPLE	S98M000238	0	@PCBS	AR1260	LIQ	<u>N/A</u>	<u><6.0</u>	<u>6.0</u>	ug/L
98000434	TK-102 7/98	9 SAMPLE	S98M000238	0	@PCBS	TCX-01	LIQ	<u>N/A</u>	<u>28.97</u>	<u> </u>	% Recovery
98000434	TK-102 7/98	9 SAMPLE	S98M000238	0	@PCBS	DCB-01	LIQ	<u>N/A</u>	<u>66.09</u>	<u> </u>	% Recovery
98000434	TK-102 7/98	10 SURR	S98M000238	0	@PCBS	TCX-01	LIQ	<u>100</u>	<u>28.97</u>	<u>N/A</u>	% Recovery
98000434	TK-102 7/98	10 SURR	S98M000238	0	@PCBS	DCB-01	LIQ	<u>100</u>	<u>66.09</u>	<u>N/A</u>	% Recovery
98000434	TK-102 7/98	11 DUP	S98M000238	0	@PCBS	AR1016	LIQ	<u><6.0</u>	<u><6.0</u>	<u>N/A</u>	ug/L
98000434	TK-102 7/98	11 DUP	S98M000238	0	@PCBS	AR1221	LIQ	<u> </u>	<u> </u>	<u>N/A</u>	ug/L
98000434	TK-102 7/98	11 DUP	S98M000238	0	@PCBS	AR1232	LIQ	<u> </u>	<u> </u>	<u>N/A</u>	ug/L
98000434	TK-102 7/98	11 DUP	S98M000238	0	@PCBS	AR1242	LIQ	<u> </u>	<u> </u>	<u>N/A</u>	ug/L
98000434	TK-102 7/98	11 DUP	S98M000238	0	@PCBS	AR1248	LIQ	<u>↓</u>	<u>↓</u>	<u>N/A</u>	ug/L
98000434	TK-102 7/98	11 DUP	S98M000238	0	@PCBS	AR1254	LIQ	<u>1.72</u>	<u>1.37</u>	<u>N/A</u>	ug/L
98000434	TK-102 7/98	11 DUP	S98M000238	0	@PCBS	AR1260	LIQ	<u><6.0</u>	<u><6.0</u>	<u>N/A</u>	ug/L
98000434	TK-102 7/98	11 DUP	S98M000238	0	@PCBS	TCX-01	LIQ	<u>100</u>	<u>23.73</u>	<u>N/A</u>	% Recovery

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# 25166

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
98000434	TK-102 7/98	11 DUP	S98M000238	0	@PCBS DCB-01	LIQ	<u>100</u>	<u>70.31</u>	<u>N/A</u>	% Recovery

Final page for worklist # 25166

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.

Report 596M00237(7K-102) PROJECT: AP 106 (GARB 2)

FILE LOCATION:	EXTRACTION 4A-223-115	ANALYSIS PROCEDURE:
	PROCEDURE: 412/412	
WORK PKG. /R NUMBER	EXTRACTION ANALYST: CJO	INSTRUMENTAL ANALYST:
MATRIX:	DATE/SYSTEM: 8/3/98	DATE/SYSTEM:

SAMPLE NUMBER	WEIGHT VOLUME	BAR CODE #	FINAL SOLVENT	FINAL VOLUME
Blank	175/176		Hexane	2 mL
2.65	177/178			
3.88T002235	5 mL	179/180		
4.20	5 mL	181/182		
5.15	5 mL	183/184		
6.15	5 mL	185/186		
7.59M0002328	5 mL	187/188		
8.20	5 mL	189/190		

SUBR. NAME	VOLUME (uL)	ID NUMBER	CONC.	MATRIX SPIKE NAME	VOLUME (uL)	ID NUMBER	CONC.
DEB TX	10.1	8010570	40 ppm	Ar-125	20.1	8010455	40 ppm

ANALYSIS VOLUME OF EXTRACT USED	INTERNAL STANDARD SUPPLIER	VOLUME ADDED (uL)	ID NUMBER LOT NUMBER	CONC. INITIAL	CONC. FINAL
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05 Aug 98 10:26 AM

page 2

Sequence: C:\HPCHEM\2\SEQUENCE\080598A.SEQ

HNF-1642 REV,0

Sample Table

Vial Num.	Sample Name	Sample Amount	Multiplier	ISTD Amount
34	50ng/ml A1660		1	
35	200ng/ml A1254		1	
36	iblnk		1	
37	0156 m Blnk		1	
38	0158 LLS		1	
39	0160 5987002206 A102 (IRV)		1	
40	0162 " " by		1	
41	0164 " " MS		1	
42	0166 " " MSD		1	
43	0168 5987002202		1	
44	0170 " " Sup		1	
45	0172 5987002204		1	
46	0174 " " Sup		1	
47	200ng/ml A1254		1	
51	400ng/ml A1254		1	
52	200ng/ml A1254		1	
53	100ng/ml A1254		1	
60	200ng/ml A1254		1	
61	200ng/ml A1254		1	
62	00175 0124		1	
63	00177 0124		1	
64	00179 0124 AP106 (mbl)		1	
65	00181 " " Sup		1	
66	00183 " " MS		1	
67	00185 " " MSD		1	
68	00187 0124 (IRV)		1	
69	00189 " " MSD		1	
70	200ng/ml A1254		1	

HNF-1642 REV, 0

Sample Table

Vial Num.	Sample Name	Sample Amount	Multiplier	ISTD Amount
34	50ng/ml A1660		1	
35	200ng/ml A1254		1	
36	iblnk		1	
37	0156 <i>m Blnk</i>		1	
38	0158 <i>LCS</i>		1	
39	0160 <i>sqg7002206 AN102 (PRV)</i>		1	
40	0162 <i>" " by</i>		1	
41	0164 <i>" " ms</i>		1	
42	0166 <i>" " msd</i>		1	
43	0168 <i>sqg7002207</i>		1	
44	0170 <i>" " dup</i>		1	
45	0172 <i>sqg7002208</i>		1	
46	0174 <i>" " dup</i>		1	
47	200ng/ml A1254		1	
51	400ng/ml A1254		1	
52	200ng/ml A1254		1	
53	100ng/ml A1254		1	
60	200ng/ml A1254		1	
61	200ng/ml A1254		1	
62	00175 <i>blnk</i>		1	
63	00177 <i>blnk</i>		1	
64	00179 <i>sqg7002209 AP106 (emb2)</i>		1	
65	00181 <i>" " dup</i>		1	
66	00183 <i>" " ms</i>		1	
67	00185 <i>" " msd</i>		1	
68	00187 <i>sqg7002210 (PRV)</i>		1	
69	00189 <i>" " msd</i>		1	
70	200ng/ml A1254		1	

HNF-1642 REV,0

222-S Laboratory

Data file : /chem/gc2.i/980805.b/060f0501.d

Lab Smp Id: 200ng/ml A1254

Client Smp ID: 200ng/ml A1254

Inj Date : 06-AUG-98 15:11

Operator : Gerald Ross

Inst ID: gc2.i

Smp Info : 200ng/ml A1254

Misc Info : 200ng/ml A1254

Comment :

Method : /chem/gc2.i/980805.b/rcrapcb.m

Meth Date : 06-Aug-1998 12:20 gar

Quant Type: ESTD

Cal Date : 05-AUG-1998 11:13

Cal File: 020f0201.d

Als bottle: 1

QC Sample: METHSPIKE

Dil Factor: 1.000

Integrator: HP Genie

Compound Sublist: AR1254.sub

Target Version: 3.10

Sample Matrix: WATER

CONCENTRATIONS								
			ON-COL		FINAL			
RT	EXP RT	DLT RT	RT	RESPONSE (	ng)	(ug/L)	TARGET RANGE	RATIO
==	=====	=====		=====	=====	=====	=====	=====
27 Aroclor-1254						CAS #:	11097-69-1	
22.967	22.969	-0.002		167073	0.201	4.01		100.00
24.087	24.089	-0.002		217266	0.198	3.95	112.00- 152.00	130.04
26.069	26.072	-0.003		203423	0.194	3.88	120.00- 140.00	121.76
27.427	27.430	-0.003		221135	0.187	3.74	136.00- 156.00	132.36
28.907	28.912	-0.005		114125	0.186	3.72	68.00- 88.00	68.31
Average of Peak Concentrations =						3.86		

\$ 29 Tetrachloro-m-xylene						CAS #:	877-09-8	
13.404	13.416	-0.012		1539462	0.114	2.28		100.00

\$ 30 Decachlorobiphenyl						CAS #:	2051-24-3	
44.721	44.735	-0.014		661262	0.119	2.39		100.00

HNF-1642 REV, 0

222-S Laboratory

RECOVERY REPORT

Client Name: Client SDG: 980805
Sample Matrix: LIQUID Fraction: PEST
Lab Smp Id: 200ng/ml A1254 Client Smp ID: 200ng/ml A1254
Level: LOW Operator: Gerald Ross
Data Type: GC MULTI COMP SampleType: METHSPIKE
SpikeList File: Aroclor-1254.spk Quant Type: ESTD
Method File: /chem/gc2.i/980805.b/rcrapcb.m
Misc Info: 200ng/ml A1254

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
27 Aroclor-1254	4.00	3.86	96.53	50-150

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
\$ 29 Tetrachloro-m-xyle	2.00	2.28	114.14	50-150
\$ 30 Decachlorobiphenyl	2.00	2.39	119.48	50-150

222-S Laboratory

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 200ng/ml A1254
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: PEST
Data Type: GC MULTI COMP
Misc Info: 200ng/ml A1254

Client SDG: 980805
Client Smp ID: 200ng/ml A1254
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: Gerald Ross

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
11097-69-1-----Aroclor-1254		3.86	
877-09-8-----Tetrachloro-m-xylene		2.28	
2051-24-3-----Decachlorobiphenyl		2.39	

Date : 06-AUG-98 15:11

Client ID: 200ng/ml A1254

Sample Info: 200ng/ml A1254

Volume Injected (uL): 1.0

Column phase: Xti-5

Instrument: gc2.i

Operator: Gerald Ross

Column diameter: 0.25

/chem/gc2.i/980805.b/060F0501.d (Part 1 of 2)

HNF-1642 REV.0

Date : 06-AUG-98 15:11

Client ID: 200ng/ml A1254

Sample Info: 200ng/ml A1254

Volume Injected (uL): 1.0

Column phase: Xti-5

Instrument: gc2.i

Operator: Gerald Ross

Column diameter: 0.25

Data File: /chem/gc2.i/980805.b/061f0501.d

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Report Date: 10-Aug-1998 13:17

222-S Laboratory

Data file : /chem/gc2.i/980805.b/061f0501.d

Lab Smp Id: 200ng/ml A1254

Client Smp ID: 200ng/ml A1254

Inj Date : 06-AUG-98 16:09

Operator : Gerald Ross

Inst ID: gc2.i

Smp Info : 200ng/ml A1254

Misc Info : 200ng/ml A1254

Comment :

Method : /chem/gc2.i/980805.b/rcrapcb.m

Meth Date : 06-Aug-1998 12:20 gar

Quant Type: ESTD

Cal Date : 05-AUG-1998 11:13

Cal File: 020f0201.d

Als bottle: 1

QC Sample: METHSPIKE

Dil Factor: 1.000

Integrator: HP Genie

Compound Sublist: AR1254.sub

Target Version: 3.10

Sample Matrix: WATER

CONCENTRATIONS

			ON-COL		FINAL			
RT	EXP RT	DLT RT	RESPONSE	(ng)	(ug/L)	TARGET RANGE	RATIO	
==	=====	=====	=====	=====	=====	=====	=====	
27 Aroclor-1254					CAS #: 11097-69-1			
22.966	22.969	-0.003	189341	0.233	4.66		100.00	
24.086	24.089	-0.003	245446	0.230	4.59	112.00- 152.00	129.63	
26.068	26.072	-0.004	233462	0.229	4.57	120.00- 140.00	123.30	
27.427	27.430	-0.003	256521	0.218	4.37	136.00- 156.00	135.48	
28.908	28.912	-0.004	134306	0.227	4.54	68.00- 88.00	70.93	
Average of Peak Concentrations =					4.55			

\$ 29 Tetrachloro-m-xylene					CAS #: 877-09-8			
13.404	13.416	-0.012	1724001	0.129	2.58		100.00	

\$ 30 Decachlorobiphenyl					CAS #: 2051-24-3			
44.719	44.735	-0.016	819837	0.142	2.85		100.00	

222-S Laboratory

RECOVERY REPORT

Client Name: Client SDG: 980805
Sample Matrix: LIQUID Fraction: PEST
Lab Smp Id: 200ng/ml A1254 Client Smp ID: 200ng/ml A1254
Level: LOW Operator: Gerald Ross
Data Type: GC MULTI COMP SampleType: METHSPIKE
SpikeList File: Aroclor-1254.spk Quant Type: ESTD
Method File: /chem/gc2.i/980805.b/rcrapcb.m
Misc Info: 200ng/ml A1254

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
27 Aroclor-1254	4.00	4.55	113.69	50-150

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
\$ 29 Tetrachloro-m-xyle	2.00	2.58	128.82	50-150
\$ 30 Decachlorobiphenyl	2.00	2.85	142.59	50-150

Data File: /chem/gc2.i/980805.b/061f0501.d
Report Date: 10-Aug-1998 13:17

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222-S Laboratory

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 200ng/ml A1254
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: PEST
Data Type: GC MULTI COMP
Misc Info: 200ng/ml A1254

Client SDG: 980805
Client Smp ID: 200ng/ml A1254
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: Gerald Ross

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/KG)	ug/L
11097-69-1-----	Aroclor-1254	4.55	
877-09-8-----	Tetrachloro-m-xylene	2.58	
2051-24-3-----	Decachlorobiphenyl	2.85	

Date : 06-AUG-98 16:09

Client ID: 200ng/ml A1254

Sample Info: 200ng/ml A1254

Volume Injected (uL): 1.0

Column phase: Xti-5

Instrument: gc2.i

Operator: Gerald Ross

Column diameter: 0.25

/chem/gc2.i/980805.b/061f0501.d (Part 1 of 2)

Date : 06-AUG-98 16:09

Client ID: 200ng/ml A1254

Sample Info: 200ng/ml A1254

Volume Injected (ul): 1.0

Column phase: Xti-5

Instrument: gc2.i

Operator: Gerald Ross

Column diameter: 0.25

/chem/gc2.i/980805.b/061f0501.d (Part 2 of 2)

Data File: /chem/gc2.i/980805.b/062f0501.d
Report Date: 10-Aug-1998 13:17

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				CONCENTRATIONS		TARGET RANGE	RATIO				
RT	EXP RT	DLT RT		ON-COL	FINAL						
				RESPONSE (ng)	(ug/L)						
==	=====	=====		=====	=====	=====	=====				
28 Aroclor-1260				CAS #: 11096-82-5							
Peaks not detected for Quant. or Qual. signal(s).											

\$ 29	Tetrachloro-m-xylene			CAS #: 877-09-8							
13.404	13.416	-0.012		2285346	0.174	3.48	100.00				

\$ 30	Decachlorobiphenyl			CAS #: 2051-24-3							
44.718	44.735	-0.017		1177736	0.186	3.71	100.00				

Data File: /chem/gc2.i/980805.b/062f0501.d
Report Date: 10-Aug-1998 13:17

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222-S Laboratory

RECOVERY REPORT

Client Name: Client SDG: 980805
Sample Matrix: LIQUID Fraction: PEST
Lab Smp Id: Blank Client Smp ID: 00175
Level: LOW Operator: Gerald Ross
Data Type: GC MULTI COMP SampleType: SAMPLE
SpikeList File: RESOLUTION.spk Quant Type: ESTD
Method File: /chem/gc2.i/980805.b/rcrapcb.m
Misc Info: 00175

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
\$ 29 Tetrachloro-m-xyle	4.00	3.48	87.08	50-150
\$ 30 Decachlorobiphenyl	4.00	3.71	92.80	50-150

Data File: /chem/gc2.i/980805.b/062f0501.d
 Report Date: 10-Aug-1998 13:17

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222-S Laboratory

TARGET COMPOUNDS

Client Name:
 Lab Smp Id: Blank
 Sample Location:
 Sample Date:
 Sample Matrix: WATER
 Analysis Type: PEST
 Data Type: GC MULTI COMP
 Misc Info: 00175

Client SDG: 980805
 Client Smp ID: 00175
 Sample Point:
 Date Received:
 Quant Type: ESTD
 Level: LOW
 Operator: Gerald Ross

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/KG)	ug/L
			Q
12674-11-2-----	Aroclor-1016	0.600	U
11104-28-2-----	Aroclor-1221	0.600	U
1114-16-5-----	Aroclor-1232	0.600	U
53469-21-9-----	Aroclor-1242	0.600	U
12672-29-6-----	Aroclor-1248	0.600	U
11097-69-1-----	Aroclor-1254	0.600	U
11096-82-5-----	Aroclor-1260	0.600	U
=====		=====	=====
877-09-8-----	Tetrachloro-m-xylene	3.48	
2051-24-3-----	Decachlorobiphenyl	3.71	

Data File: /chem/gc2.i/980805.b/062F0501.d
Date : 06-AUG-98 17:07
Client ID: 00175
Sample Info: 00175
Volume Injected (uL): 1.0
Column phase: Xti-5

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Instrument: gc2.i

Operator: Gerald Ross
Column diameter: 0.25

HNF-1642 REV.0

Data File: /chem/gc2.i/980805.b/062f0501.d
Date : 06-AUG-98 17:07
Client ID: 00175
Sample Info: 00175
Volume Injected (uL): 1.0
Column phase: Xti-5

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Instrument: gc2.i

Operator: Gerald Ross

Column diameter: 0.25

/chem/gc2.i/980805.b/062f0501.d (Part 2 of 2)

HNF-1642 REV, 0

Data File: /chem/gc2.i/980805.b/063f0501.d

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Report Date: 10-Aug-1998 13:18

222-S Laboratory

Data file : /chem/gc2.i/980805.b/063f0501.d

Lab Smp Id: 00177/LCS

Client Smp ID: 00177

Inj Date : 06-AUG-98 18:05

Operator : Gerald Ross

Inst ID: gc2.i

Smp Info : 00177

Misc Info : 00177

Comment :

Method : /chem/gc2.i/980805.b/rcrapcb.m

Meth Date : 06-Aug-1998 12:20 gar

Quant Type: ESTD

Cal Date : 05-AUG-1998 11:13

Cal File: 020f0201.d

Als bottle: 1

QC Sample: METHSPIKE

Dil Factor: 1.000

Integrator: HP Genie

Compound Sublist: AR1254.sub

Target Version: 3.10

Sample Matrix: WATER

CONCENTRATIONS									
			ON-COL		FINAL				
RT	EXP RT	DLT RT	RESPONSE	(ng)	(ug/L)	TARGET	RANGE	RATIO	
==	=====	=====	=====	=====	=====	=====	=====	=====	
27 Aroclor-1254					CAS #: 11097-69-1				
22.965	22.969	-0.004	290308	0.399	7.98			100.00	
24.085	24.089	-0.004	375501	0.400	8.00	112.00-	152.00	129.35	
26.067	26.072	-0.005	368371	0.406	8.13	120.00-	140.00	126.89	
27.425	27.430	-0.005	386196	0.336	6.72	136.00-	156.00	133.03	
28.910	28.912	-0.002	212130	0.414	8.28	68.00-	88.00	73.07	
Average of Peak Concentrations =					7.82				

\$ 29 Tetrachloro-m-xylene					CAS #: 877-09-8				
13.403	13.416	-0.013	2398017	0.183	3.67			100.00	

\$ 30 Decachlorobiphenyl					CAS #: 2051-24-3				
44.717	44.735	-0.018	1354914	0.202	4.04			100.00	

Data File: /chem/gc2.i/980805.b/063f0501.d
Report Date: 10-Aug-1998 13:18

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222-S Laboratory

RECOVERY REPORT

Client Name: Client SDG: 980805
Sample Matrix: LIQUID Fraction: PEST
Lab Smp Id: 00177/LCS Client Smp ID: 00177
Level: LOW Operator: Gerald Ross
Data Type: GC MULTI COMP SampleType: METHSPIKE
SpikeList File: Aroclor-1254.spk Quant Type: ESTD
Method File: /chem/gc2.i/980805.b/rcrapcb.m
Misc Info: 00177

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
27 Aroclor-1254	8.00	7.82	97.75	50-150

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
\$ 29 Tetrachloro-m-xyle	4.00	3.67	91.70	50-150
\$ 30 Decachlorobiphenyl	4.00	4.04	101.11	50-150

222-S Laboratory

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 00177/LCS
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: PEST
Data Type: GC MULTI COMP
Misc Info: 00177

Client SDG: 980805
Client Smp ID: 00177
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: Gerald Ross

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/KG)	ug/L Q
11097-69-1-----	Aroclor-1254	7.82	
877-09-8-----	Tetrachloro-m-xylene	3.67	
2051-24-3-----	Decachlorobiphenyl	4.04	

Data File: /chem/gc2.i/980805.b/063f0501.d
Date : 06-AUG-98 18:05
Client ID: 00177
Sample Info: 00177
Volume Injected (uL): 1.0
Column phase: Xti-5

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Instrument: gc2.i

Operator: Gerald Ross
Column diameter: 0.25

/chem/gc2.i/980805.b/063f0501.d (Part 1 of 2)

HNF-1642 REV.0

Date : 06-AUG-98 18:05

Client ID: 00177

Sample Info: 00177

Volume Injected (uL): 1.0

Column phase: Xti-5

Instrument: gc2.i

Operator: Gerald Ross

Column diameter: 0.25

Data File: /chem/gc2.i/980805.b/064f0501.d

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Report Date: 10-Aug-1998 13:18

222-S Laboratory

Data file : /chem/gc2.i/980805.b/064f0501.d
 Lab Smp Id: S98T002253 Client Smp ID: 00179
 Inj Date : 06-AUG-1998 19:02
 Operator : Gerald Ross Inst ID: gc2.i
 Smp Info : 00179
 Misc Info : 00179
 Comment :
 Method : /chem/gc2.i/980805.b/rcrapcb.m
 Meth Date : 06-Aug-1998 12:20 gar Quant Type: ESTD
 Cal Date : 05-AUG-1998 11:13 Cal File: 020f0201.d
 Als bottle: 1
 Dil Factor: 1.000
 Integrator: HP Genie Compound Sublist: AroclorS.sub
 Target Version: 3.10 Sample Matrix: WATER

CONCENTRATIONS							
			ON-COL	FINAL			
RT	EXP RT	DLT RT	RT	RESPONSE (ng)	(ug/L)	TARGET RANGE	RATIO
==	=====	=====		=====	=====	=====	=====
22	Aroclor-1016					CAS #: 12674-11-2	
Peaks not detected for Quant. or Qual. signal(s).							

23	Aroclor-1221					CAS #: 11104-28-2	
Peaks not detected for Quant. or Qual. signal(s).							

24	Aroclor-1232					CAS #: 1114-16-5	
Peaks not detected for Quant. or Qual. signal(s).							

25	Aroclor-1242					CAS #: 53469-21-9	
Peaks not detected for Quant. or Qual. signal(s).							

26	Aroclor-1248					CAS #: 12672-29-6	
Peaks not detected for Quant. or Qual. signal(s).							

27	Aroclor-1254					CAS #: 11097-69-1	
Peaks not detected for Quant. or Qual. signal(s).							

Data File: /chem/gc2.i/980805.b/064f0501.d
 Report Date: 10-Aug-1998 13:18

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RT	EXP RT	DLT RT	CONCENTRATIONS		RESPONSE (ng)	(ug/L)	TARGET RANGE	RATIO
			ON-COL	FINAL				
==	=====	=====	=====	=====	=====	=====	=====	=====

28 Aroclor-1260

CAS #: 11096-82-5

Peaks not detected for Quant. or Qual. signal(s).

\$	29	Tetrachloro-m-xylene				CAS #:	877-09-8	
13.402	13.416	-0.014	2466899	0.189	75.6		100.00	
\$	30	Decachlorobiphenyl				CAS #:	2051-24-3	
44.717	44.735	-0.018	903072	0.154	61.5		100.00	

Data File: /chem/gc2.i/980805.b/064f0501.d
Report Date: 10-Aug-1998 13:18

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222-S Laboratory

RECOVERY REPORT

Client Name: Client SDG: 980805
Sample Matrix: LIQUID Fraction: PEST
Lab Smp Id: S98T002253 Client Smp ID: 00179
Level: LOW Operator: Gerald Ross
Data Type: GC MULTI COMP SampleType: SAMPLE
SpikeList File: RESOLUTION.spk Quant Type: ESTD
Method File: /chem/gc2.i/980805.b/rcrapcb.m
Misc Info: 00179

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
\$ 29 Tetrachloro-m-xyle	80.0	75.6	94.53	50-150
\$ 30 Decachlorobiphenyl	80.0	61.5	76.86	50-150

222-S Laboratory

TARGET COMPOUNDS

Client Name:
 Lab Smp Id: S98T002253
 Sample Location:
 Sample Date:
 Sample Matrix: WATER
 Analysis Type: PEST
 Data Type: GC MULTI COMP
 Misc Info: 00179

Client SDG: 980805
 Client Smp ID: 00179
 Sample Point:
 Date Received:
 Quant Type: ESTD
 Level: LOW
 Operator: Gerald Ross

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/KG)	ug/L
12674-11-2-----	Aroclor-1016	12.0	U
11104-28-2-----	Aroclor-1221	12.0	U
1114-16-5-----	Aroclor-1232	12.0	U
53469-21-9-----	Aroclor-1242	12.0	U
12672-29-6-----	Aroclor-1248	12.0	U
11097-69-1-----	Aroclor-1254	12.0	U
11096-82-5-----	Aroclor-1260	12.0	U
=====		=====	=====
877-09-8-----	Tetrachloro-m-xylene	75.6	
2051-24-3-----	Decachlorobiphenyl	61.5	

Date : 06-AUG-1998 19:02

Client ID: 00179

Sample Info: 00179

Volume Injected (uL): 1.0

Column phase: Xti-5

Instrument: gc2.i

Operator: Gerald Ross

Column diameter: 0.25

HNF-1642 REV. 0

Data File: /chem/gc2.i/980805.b/064f0501.d
Date : 06-AUG-1998 19:02
Client ID: 00179
Sample Info: 00179
Volume Injected (uL): 1.0
Column phase: Xti-5

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Instrument: gc2.i

Operator: Gerald Ross
Column diameter: 0.25

/chem/gc2.i/980805.b/064f0501.d (Part 2 of 2)

HMF-1042 REV. 0

Data File: /chem/gc2.i/980805.b/065f0501.d
 Report Date: 10-Aug-1998 13:18

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222-S Laboratory

Data file : /chem/gc2.i/980805.b/065f0501.d
 Lab Smp Id: S98T002253D Client Smp ID: 00181
 Inj Date : 06-AUG-1998 20:00
 Operator : Gerald Ross Inst ID: gc2.i
 Smp Info : 00181
 Misc Info : 00181
 Comment :
 Method : /chem/gc2.i/980805.b/rcrapcb.m
 Meth Date : 06-Aug-1998 12:20 gar Quant Type: ESTD
 Cal Date : 05-AUG-1998 11:13 Cal File: 020f0201.d
 Als bottle: 1
 Dil Factor: 1.000
 Integrator: HP Genie Compound Sublist: AroclorS.sub
 Target Version: 3.10 Sample Matrix: WATER

CONCENTRATIONS

RT	EXP RT	DLT RT	ON-COL	FINAL	RESPONSE (ng)	(ug/L)	TARGET RANGE	RATIO
==	=====	=====	=====	=====	=====	=====	=====	=====

22 Aroclor-1016

CAS #: 12674-11-2

Peaks not detected for Quant. or Qual. signal(s).

23 Aroclor-1221

CAS #: 11104-28-2

Peaks not detected for Quant. or Qual. signal(s).

24 Aroclor-1232

CAS #: 1114-16-5

Peaks not detected for Quant. or Qual. signal(s).

25 Aroclor-1242

CAS #: 53469-21-9

Peaks not detected for Quant. or Qual. signal(s).

26 Aroclor-1248

CAS #: 12672-29-6

Peaks not detected for Quant. or Qual. signal(s).

27 Aroclor-1254

CAS #: 11097-69-1

Peaks not detected for Quant. or Qual. signal(s).

Data File: /chem/gc2.i/980805.b/065f0501.d
 Report Date: 10-Aug-1998 13:18

RT	EXP RT	DLT RT	CONCENTRATIONS		TARGET RANGE	RATIO
			ON-COL	FINAL		
==	=====	=====	RESPONSE (	ng)	(ug/L)	=====

28 Aroclor-1260

CAS #: 11096-82-5

Peaks not detected for Quant. or Qual. signal(s).

\$	29	Tetrachloro-m-xylene		CAS #: 877-09-8		
	13.402	13.416	-0.014	2496596	0.192	76.6
						100.00
\$	30	Decachlorobiphenyl		CAS #: 2051-24-3		
	44.716	44.735	-0.019	996541	0.165	66.2
						100.00

Data File: /chem/gc2.i/980805.b/065f0501.d
Report Date: 10-Aug-1998 13:18

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222-S Laboratory

RECOVERY REPORT

Client Name: Client SDG: 980805
Sample Matrix: LIQUID Fraction: PEST
Lab Smp Id: S98T002253D Client Smp ID: 00181
Level: LOW Operator: Gerald Ross
Data Type: GC MULTI COMP SampleType: SAMPLE
SpikeList File: RESOLUTION.spk Quant Type: ESTD
Method File: /chem/gc2.i/980805.b/rcrapcb.m
Misc Info: 00181

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
\$ 29 Tetrachloro-m-xyle	80.0	76.6	95.75	50-150
\$ 30 Decachlorobiphenyl	80.0	66.2	82.71	50-150

Data File: /chem/gc2.i/980805.b/065f0501.d
 Report Date: 10-Aug-1998 13:18

222-S Laboratory

TARGET COMPOUNDS

Client Name:
 Lab Smp Id: S98T002253D
 Sample Location:
 Sample Date:
 Sample Matrix: WATER
 Analysis Type: PEST
 Data Type: GC MULTI COMP
 Misc Info: 00181

Client SDG: 980805
 Client Smp ID: 00181
 Sample Point:
 Date Received:
 Quant Type: ESTD
 Level: LOW
 Operator: Gerald Ross

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/KG)	ug/L
12674-11-2-----	Aroclor-1016	12.0	U
11104-28-2-----	Aroclor-1221	12.0	U
1114-16-5-----	Aroclor-1232	12.0	U
53469-21-9-----	Aroclor-1242	12.0	U
12672-29-6-----	Aroclor-1248	12.0	U
11097-69-1-----	Aroclor-1254	12.0	U
11096-82-5-----	Aroclor-1260	12.0	U
=====		=====	=====
877-09-8-----	Tetrachloro-m-xylene	76.6	
2051-24-3-----	Decachlorobiphenyl	66.2	

Data File: /chem/gc2.i/980805.b/065f0501.d
Date : 06-AUG-1998 20:00
Client ID: 00181
Sample Info: 00181
Volume Injected (uL): 1.0
Column phase: Xti-5

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Instrument: gc2.i

Operator: Gerald Ross

Column diameter: 0.25

/chem/gc2.i/980805.b/065f0501.d (Part 1 of 2)

HNF-1642 REV. 0

Data File: /chem/gc2.i/980805.b/065F0501.d
Date : 06-AUG-1998 20:00
Client ID: 00181
Sample Info: 00181
Volume Injected (uL): 1.0
Column phase: Xti-5

Instrument: gc2.i
Operator: Gerald Ross
Column diameter: 0.25

/chem/gc2.i/980805.b/065F0501.d (Part 2 of 2)

Data File: /chem/gc2.i/980805.b/066f0501.d
Report Date: 11-Aug-1998 13:19

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222-S Laboratory

Data file : /chem/gc2.i/980805.b/066f0501.d
Lab Smp Id: S98T002253MS Client Smp ID: 00183
Inj Date : 06-AUG-1998 20:58
Operator : Gerald Ross Inst ID: gc2.i
Smp Info : 00183
Misc Info : 00183
Comment :
Method : /chem/gc2.i/980805.b/rcrapcb.m
Meth Date : 06-Aug-1998 12:20 gar Quant Type: ESTD
Cal Date : 05-AUG-1998 11:13 Cal File: 020f0201.d
Als bottle: 1 QC Sample: MS
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: AroclorS.sub
Target Version: 3.10 Sample Matrix: WATER

		CONCENTRATIONS							
		ON-COL	FINAL						
RT	EXP RT	DLT RT	RESPONSE (ng)	(ug/L)	TARGET RANGE	RATIO			
==	=====	=====	=====	=====	=====	=====			
22			Aroclor-1016		CAS #: 12674-11-2				
Peaks not detected for Quant. or Qual. signal(s).									
23			Aroclor-1221		CAS #: 11104-28-2				
Peaks not detected for Quant. or Qual. signal(s).									
24			Aroclor-1232		CAS #: 1114-16-5				
Peaks not detected for Quant. or Qual. signal(s).									
25			Aroclor-1242		CAS #: 53469-21-9				
Peaks not detected for Quant. or Qual. signal(s).									
26			Aroclor-1248		CAS #: 12672-29-6				
Operator disabled compound identification.									
27			Aroclor-1254		CAS #: 11097-69-1				
22.962	22.969	-0.007	283507	0.387	155	100.00			
24.083	24.089	-0.006	365921	0.386	154	112.00- 152.00	129.07		
26.064	26.072	-0.008	371418	0.411	164	120.00- 140.00	131.01		
27.423	27.430	-0.007	387475	0.337	135	136.00- 156.00	136.67		
28.906	28.912	-0.006	214392	0.420	168	68.00- 88.00	75.62		
Average of Peak Concentrations =				155					

Data File: /chem/gc2.i/980805.b/066f0501.d
Report Date: 11-Aug-1998 13:19

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			CONCENTRATIONS			
RT	EXP RT	DLT RT	ON-COL	FINAL		
==	=====	=====	RESPONSE (	ng)	(ug/L)	TARGET RANGE
==	=====	=====	=====	=====	=====	=====

28 Aroclor-1260

CAS #: 11096-82-5

Peaks not detected for Quant. or Qual. signal(s).

\$ 29	Tetrachloro-m-xylene				CAS #: 877-09-8	
13.401	13.416	-0.015	2193049	0.167	66.6	100.00
\$ 30	Decachlorobiphenyl				CAS #: 2051-24-3	
44.715	44.735	-0.020	924844	0.156	62.6	100.00

Data File: /chem/gc2.i/980805.b/066f0501.d
Report Date: 11-Aug-1998 13:19

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222-S Laboratory

RECOVERY REPORT

Client Name: Client SDG: 980805
Sample Matrix: LIQUID Fraction: PEST
Lab Smp Id: S98T002253MS Client Smp ID: 00183
Level: LOW Operator: Gerald Ross
Data Type: GC MULTI COMP SampleType: MS
SpikeList File: Aroclor-1254.spk Quant Type: ESTD
Method File: /chem/gc2.i/980805.b/rcrapcb.m
Misc Info: 00183

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
27 Aroclor-1254	160	155	97.04	50-150

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
\$ 29 Tetrachloro-m-xyle	80.0	66.6	83.32	50-150
\$ 30 Decachlorobiphenyl	80.0	62.6	78.26	50-150

222-S Laboratory

TARGET COMPOUNDS

Client Name:
Lab Smp Id: S98T002253MS
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: PEST
Data Type: GC MULTI COMP
Misc Info: 00183

Client SDG: 980805
Client Smp ID: 00183
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: Gerald Ross

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/KG) ug/L	Q
12674-11-2-----	Aroclor-1016	12.0	U
11104-28-2-----	Aroclor-1221	12.0	U
1114-16-5-----	Aroclor-1232	12.0	U
53469-21-9-----	Aroclor-1242	12.0	U
12672-29-6-----	Aroclor-1248	12.0	U
11097-69-1-----	Aroclor-1254	155	
11096-82-5-----	Aroclor-1260	12.0	U
=====		=====	=====
877-09-8-----	Tetrachloro-m-xylene	66.6	
2051-24-3-----	Decachlorobiphenyl	62.6	

Data File: /chem/gc2.i/980805.b/066f0501.d
Date : 06-AUG-1998 20:58
Client ID: 00183
Sample Info: 00183
Volume Injected (uL): 1.0
Column phase: Xti-5

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Instrument: gc2.i

Operator: Gerald Ross
Column diameter: 0.25

HNF-1642 REV. 0

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Data File: /chem/gc2.i/980805.b/066f0501.d
Date : 06-AUG-1998 20:58
Client ID: 00183
Sample Info: 00183
Volume Injected (uL): 1.0
Column phase: Xti-5

Instrument: gc2.i
Operator: Gerald Ross
Column diameter: 0.25

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/chem/gc2.i/980805.b/066f0501.d (Part 2 of 2)

HNF-1642 REV. 0

Data File: /chem/gc2.i/980805.b/067f0501.d
 Report Date: 11-Aug-1998 13:19

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222-S Laboratory

Data file : /chem/gc2.i/980805.b/067f0501.d
 Lab Smp Id: S98T002253MSD Client Smp ID: 00185
 Inj Date : 06-AUG-1998 21:56
 Operator : Gerald Ross Inst ID: gc2.i
 Smp Info : 00185
 Misc Info : 00185
 Comment :
 Method : /chem/gc2.i/980805.b/rcrapcb.m
 Meth Date : 06-Aug-1998 12:20 gar Quant Type: ESTD
 Cal Date : 05-AUG-1998 11:13 Cal File: 020f0201.d
 Als bottle: 1 QC Sample: MSD
 Dil Factor: 1.000
 Integrator: HP Genie Compound Sublist: Aroclors.sub
 Target Version: 3.10 Sample Matrix: WATER

CONCENTRATIONS
 ON-COL FINAL

RT	EXP RT	DLT RT	RESPONSE (ng)	(ug/L)	TARGET RANGE	RATIO
==	=====	=====	=====	=====	=====	=====

22 Aroclor-1016 CAS #: 12674-11-2

Peaks not detected for Quant. or Qual. signal(s).

23 Aroclor-1221 CAS #: 11104-28-2

Peaks not detected for Quant. or Qual. signal(s).

24 Aroclor-1232 CAS #: 1114-16-5

Peaks not detected for Quant. or Qual. signal(s).

25 Aroclor-1242 CAS #: 53469-21-9

Peaks not detected for Quant. or Qual. signal(s).

26 Aroclor-1248 CAS #: 12672-29-6

Operator disabled compound identification.

RT	EXP RT	DLT RT	RESPONSE (ng)	(ug/L)	TARGET RANGE	RATIO
27	Aroclor-1254				CAS #: 11097-69-1	
22.962	22.969	-0.007	308882	0.433	173	100.00
24.082	24.089	-0.007	396279	0.430	172 112.00- 152.00	128.29
26.063	26.072	-0.009	403937	0.459	184 120.00- 140.00	130.77
27.422	27.430	-0.008	418869	0.366	146 136.00- 156.00	135.61
28.908	28.912	-0.004	234262	0.476	190 68.00- 88.00	75.84
Average of Peak Concentrations =					173	

Data File: /chem/gc2.i/980805.b/067f0501.d
Report Date: 11-Aug-1998 13:19

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			CONCENTRATIONS				
RT	EXP RT	DLT RT	ON-COL	FINAL	TARGET RANGE	RATIO	
==	=====	=====	RESPONSE (	ng)	(ug/L)	=====	
			=====	=====	=====	=====	

28 Aroclor-1260

CAS #: 11096-82-5

Peaks not detected for Quant. or Qual. signal(s).

\$ 29 Tetrachloro-m-xylene CAS #: 877-09-8
13.400 13.416 -0.016 2541875 0.195 78.1 100.00

\$ 30 Decachlorobiphenyl CAS #: 2051-24-3
44.714 44.735 -0.021 1327916 0.200 80.0 100.00

Data File: /chem/gc2.i/980805.b/067f0501.d
Report Date: 11-Aug-1998 13:19

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222-S Laboratory

RECOVERY REPORT

Client Name: Client SDG: 980805
Sample Matrix: LIQUID Fraction: PEST
Lab Smp Id: S98T002253MSD Client Smp ID: 00185
Level: LOW Operator: Gerald Ross
Data Type: GC MULTI COMP SampleType: MSD
SpikeList File: Aroclor-1254.spk Quant Type: ESTD
Method File: /chem/gc2.i/980805.b/rcrapcb.m
Misc Info: 00185

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
27 Aroclor-1254	160	173	108.20	50-150

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
\$ 29 Tetrachloro-m-xyle	80.0	78.1	97.62	50-150
\$ 30 Decachlorobiphenyl	80.0	80.0	99.94	50-150

Data File: /chem/gc2.i/980805.b/067f0501.d
 Report Date: 11-Aug-1998 13:19

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222-S Laboratory

TARGET COMPOUNDS

Client Name:
 Lab Smp Id: S98T002253MSD
 Sample Location:
 Sample Date:
 Sample Matrix: WATER
 Analysis Type: PEST
 Data Type: GC MULTI COMP
 Misc Info: 00185

Client SDG: 980805
 Client Smp ID: 00185
 Sample Point:
 Date Received:
 Quant Type: ESTD
 Level: LOW
 Operator: Gerald Ross

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L		Q
12674-11-2-----	Aroclor-1016	12.0	U	
11104-28-2-----	Aroclor-1221	12.0	U	
1114-16-5-----	Aroclor-1232	12.0	U	
53469-21-9-----	Aroclor-1242	12.0	U	
12672-29-6-----	Aroclor-1248	12.0	U	
11097-69-1-----	Aroclor-1254	173		
11096-82-5-----	Aroclor-1260	12.0	U	
=====				
877-09-8-----	Tetrachloro-m-xylene	78.1		
2051-24-3-----	Decachlorobiphenyl	80.0		

Data File: /chem/gc2.i/980805.b/067f0501.d
Date : 06-AUG-1998 21:56
Client ID: 00185
Sample Info: 00185
Volume Injected (uL): 1.0
Column phase: Xti-5

Instrument: gc2.i

Operator: Gerald Ross
Column diameter: 0.25

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HNF-1642 REV. 0

Date : 06-AUG-1998 21:56

Client ID: 00185

Sample Info: 00185

Volume Injected (uL): 1.0

Column phase: Xti-5

Instrument: gc2.i

Operator: Gerald Ross

Column diameter: 0.25

Data File: /chem/gc2.i/980805.b/068f0501.d

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Report Date: 11-Aug-1998 12:12

222-S Laboratory

Data file : /chem/gc2.i/980805.b/068f0501.d

Lab Smp Id: S98M00238

Client Smp ID: 00187

Inj Date : 06-AUG-98 22:54

Operator : Gerald Ross

Inst ID: gc2.i

Smp Info : 00187

Misc Info : 00187

Comment :

Method : /chem/gc2.i/980805.b/rcrapcb.m

Meth Date : 06-Aug-1998 12:20 gar

Quant Type: ESTD

Cal Date : 05-AUG-1998 11:13

Cal File: 020f0201.d

Als bottle: 1

Dil Factor: 1.000

Integrator: HP Genie

Compound Sublist: AroclorS.sub

Target Version: 3.10

Sample Matrix: WATER

CONCENTRATIONS

ON-COL FINAL

RT	EXP RT	DLT RT	RESPONSE (ng)	(ug/L)	TARGET RANGE	RATIO
==	=====	=====	=====	=====	=====	=====

22 Aroclor-1016

CAS #: 12674-11-2

Peaks not detected for Quant. or Qual. signal(s).

23 Aroclor-1221

CAS #: 11104-28-2

Peaks not detected for Quant. or Qual. signal(s).

24 Aroclor-1232

CAS #: 1114-16-5

Peaks not detected for Quant. or Qual. signal(s).

25 Aroclor-1242

CAS #: 53469-21-9

Peaks not detected for Quant. or Qual. signal(s).

26 Aroclor-1248

CAS #: 12672-29-6

Peaks not detected for Quant. or Qual. signal(s).

27 Aroclor-1254

CAS #: 11097-69-1

22.957	22.969	-0.012	2179	0.00696	1.39	100.00(am)
24.087	24.089	-0.002	3217	0.00822	1.64	112.00- 152.00 147.66
26.067	26.072	-0.005	3503	0.00970	1.94	120.00- 140.00 160.78
27.420	27.430	-0.010	4953	0.00397	0.795	136.00- 156.00 227.33
28.897	28.912	-0.015	3004	0.0141	2.82	68.00- 88.00 137.88

Average of Peak Concentrations = 1.72

Data File: /chem/gc2.i/980805.b/068f0501.d
 Report Date: 11-Aug-1998 12:12

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		CONCENTRATIONS							
		ON-COL	FINAL						
RT	EXP RT	DLT RT	RESPONSE (	ng)	(ug/L)	TARGET RANGE	RATIO		
==	=====	=====	=====	=====	=====	=====	=====		
28 Aroclor-1260			CAS #: 11096-82-5						
Peaks not detected for Quant. or Qual. signal(s).									

\$	29	Tetrachloro-m-xylene		CAS #: 877-09-8					
13.402	13.416	-0.014	818588	0.0579	11.6	100.00(R)			

\$	30	Decachlorobiphenyl		CAS #: 2051-24-3					
44.716	44.735	-0.019	746324	0.132	26.4	100.00			

QC Flag Legend

- a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

Data File: /chem/gc2.i/980805.b/068f0501.d
Report Date: 11-Aug-1998 12:12

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222-S Laboratory

RECOVERY REPORT

Client Name: Client SDG: 980805
Sample Matrix: LIQUID Fraction: PEST
Lab Smp Id: S98M00238 Client Smp ID: 00187
Level: LOW Operator: Gerald Ross
Data Type: GC MULTI COMP SampleType: SAMPLE
SpikeList File: RESOLUTION.spk Quant Type: ESTD
Method File: /chem/gc2.i/980805.b/rcrapcb.m
Misc Info: 00187

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
\$ 29 Tetrachloro-m-xyle	40.0	11.6	28.97*	50-150
\$ 30 Decachlorobiphenyl	40.0	26.4	66.09	50-150

Data File: /chem/gc2.i/980805.b/068f0501.d
 Report Date: 11-Aug-1998 12:12

222-S Laboratory

TARGET COMPOUNDS

Client Name:
 Lab Smp Id: S98M00238
 Sample Location:
 Sample Date:
 Sample Matrix: WATER
 Analysis Type: PEST
 Data Type: GC MULTI COMP
 Misc Info: 00187

Client SDG: 980805
 Client Smp ID: 00187
 Sample Point:
 Date Received:
 Quant Type: ESTD
 Level: LOW
 Operator: Gerald Ross

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/KG)	ug/L
12674-11-2-----	Aroclor-1016	6.00	U
11104-28-2-----	Aroclor-1221	6.00	U
1114-16-5-----	Aroclor-1232	6.00	U
53469-21-9-----	Aroclor-1242	6.00	U
12672-29-6-----	Aroclor-1248	6.00	U
11097-69-1-----	Aroclor-1254	1.72	J
11096-82-5-----	Aroclor-1260	6.00	U
=====			
877-09-8-----	Tetrachloro-m-xylene	11.6	
2051-24-3-----	Decachlorobiphenyl	26.4	

Data File: /chem/gc2.i/980805.b/068F0501.d
Date : 06-AUG-98 22:54
Client ID: 00187
Sample Info: 00187
Volume Injected (uL): 1.0
Column phase: Xti-5

Instrument: gc2.i

Operator: Gerald Ross
Column diameter: 0.25

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HNF-1642 REV.0

Date : 06-AUG-98 22:54

Client ID: 00187

Sample Info: 00187

Volume Injected (uL): 1.0

Column phase: Xti-5

Instrument: gc2.i

Operator: Gerald Ross

Column diameter: 0.25

/chem/gc2.i/980805.b/068f0501.d (Part 2 of 2)

HNF-1642 REV.0

Data File: /chem/gc2.i/980805.b/069f0501.d
Report Date: 11-Aug-1998 12:12

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222-S Laboratory

Data file : /chem/gc2.i/980805.b/069f0501.d
Lab Smp Id: S98M00238D Client Smp ID: 00189
Inj Date : 06-AUG-98 23:52
Operator : Gerald Ross Inst ID: gc2.i
Smp Info : 00189
Misc Info : 00189
Comment :
Method : /chem/gc2.i/980805.b/rcrapcb.m
Meth Date : 06-Aug-1998 12:20 gar Quant Type: ESTD
Cal Date : 05-AUG-1998 11:13 Cal File: 020f0201.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie
Target Version: 3.10
Compound Sublist: AroclorS.sub
Sample Matrix: WATER

CONCENTRATIONS

RT	EXP RT	DLT RT	ON-COL	FINAL	RESPONSE (ng)	(ug/L)	TARGET RANGE	RATIO
==	=====	=====	=====	=====	=====	=====	=====	=====

22 Aroclor-1016

CAS #: 12674-11-2

Peaks not detected for Quant. or Qual. signal(s).

23 Aroclor-1221

CAS #: 11104-28-2

Peaks not detected for Quant. or Qual. signal(s).

24 Aroclor-1232

CAS #: 1114-16-5

Peaks not detected for Quant. or Qual. signal(s).

25 Aroclor-1242

CAS #: 53469-21-9

Peaks not detected for Quant. or Qual. signal(s).

26 Aroclor-1248

CAS #: 12672-29-6

Peaks not detected for Quant. or Qual. signal(s).

27 Aroclor-1254

CAS #: 11097-69-1

22.967	22.969	-0.002	1012	0.00588	1.18	100.00(aM)
24.090	24.089	0.001	1258	0.00693	1.39	112.00- 152.00 124.31
26.067	26.072	-0.005	1082	0.00796	1.59	120.00- 140.00 106.92
27.333	27.430	-0.097	1963	0.00153	0.307	136.00- 156.00 194.02
28.887	28.912	-0.025	1009	0.0119	2.38	68.00- 88.00 99.70
Average of Peak Concentrations =					1.37	

				CONCENTRATIONS			
RT	EXP RT	DLT RT		ON-COL	FINAL	TARGET RANGE	RATIO
==	=====	=====		RESPONSE	(ng)	(ug/L)	=====
28 Aroclor-1260				CAS #: 11096-82-5			
Peaks not detected for Quant. or Qual. signal(s).							

\$ 29	Tetrachloro-m-xylene			CAS #:		877-09-8	
13.403	13.416	-0.013		681617	0.0475	9.49	100.00(R)

\$ 30	Decachlorobiphenyl			CAS #:		2051-24-3	
44.717	44.735	-0.018		805668	0.141	28.1	100.00

QC Flag Legend

- a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

Data File: /chem/gc2.i/980805.b/069f0501.d
Report Date: 11-Aug-1998 12:12

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222-S Laboratory

RECOVERY REPORT

Client Name: Client SDG: 980805
Sample Matrix: LIQUID Fraction: PEST
Lab Smp Id: S98M00238D Client Smp ID: 00189
Level: LOW Operator: Gerald Ross
Data Type: GC MULTI COMP SampleType: SAMPLE
SpikeList File: RESOLUTION.spk Quant Type: ESTD
Method File: /chem/gc2.i/980805.b/rcrapcb.m
Misc Info: 00189

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
\$ 29 Tetrachloro-m-xyle	40.0	9.49	23.73*	50-150
\$ 30 Decachlorobiphenyl	40.0	28.1	70.31	50-150

Data File: /chem/gc2.i/980805.b/069f0501.d
 Report Date: 11-Aug-1998 12:12

222-S Laboratory

TARGET COMPOUNDS

Client Name:
 Lab Smp Id: S98M00238D
 Sample Location:
 Sample Date:
 Sample Matrix: WATER
 Analysis Type: PEST
 Data Type: GC MULTI COMP
 Misc Info: 00189

Client SDG: 980805
 Client Smp ID: 00189
 Sample Point:
 Date Received:
 Quant Type: ESTD
 Level: LOW
 Operator: Gerald Ross

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
12674-11-2-----	Aroclor-1016	6.00	U
11104-28-2-----	Aroclor-1221	6.00	U
1114-16-5-----	Aroclor-1232	6.00	U
53469-21-9-----	Aroclor-1242	6.00	U
12672-29-6-----	Aroclor-1248	6.00	U
11097-69-1-----	Aroclor-1254	1.37	J
11096-82-5-----	Aroclor-1260	6.00	U
=====		=====	=====
877-09-8-----	Tetrachloro-m-xylene	9.49	
2051-24-3-----	Decachlorobiphenyl	28.1	

Data File: /chem/gc2.i/980805.b/069f0501.d
Date : 06-AUG-98 23:52
Client ID: 00189
Sample Info: 00189
Volume Injected (uL): 1.0
Column phase: Xti-5

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Instrument: gc2.i

Operator: Gerald Ross
Column diameter: 0.25

/chem/gc2.i/980805.b/069f0501.d (Part 1 of 2)

HNF-1642 REV. 0

Data File: /chem/gc2.i/980805.b/069f0501.d
Date : 06-AUG-98 23:52
Client ID: 00189
Sample Info: 00189
Volume Injected (uL): 1.0
Column phase: Xti-5

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Instrument: gc2.i

Operator: Gerald Ross
Column diameter: 0.25

/chem/gc2.i/980805.b/069f0501.d (Part 2 of 2)

HNF-1642 REV.0

Data File: /chem/gc2.i/980805.b/070f0501.d
 Report Date: 10-Aug-1998 13:19

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Data file : /chem/gc2.i/980805.b/070f0501.d
 Lab Smp Id: 200ng/ml A1254 Client Smp ID: 200ng/ml A1254
 Inj Date : 07-AUG-98 00:49
 Operator : Gerald Ross Inst ID: gc2.i
 Smp Info : 200ng/ml A1254
 Misc Info : 200ng/ml A1254
 Comment :
 Method : /chem/gc2.i/980805.b/rcrapcb.m
 Meth Date : 06-Aug-1998 12:20 gar Quant Type: ESTD
 Cal Date : 05-AUG-1998 11:13 Cal File: 020f0201.d
 Als bottle: 1 QC Sample: METHSPIKE
 Dil Factor: 1.000
 Integrator: HP Genie Compound Sublist: AR1254.sub
 Target Version: 3.10 Sample Matrix: WATER

CONCENTRATIONS						
			ON-COL	FINAL		
RT	EXP RT	DLT RT	RESPONSE (	ng)	(ug/L)	TARGET RANGE RATIO
==	=====	=====	=====	=====	=====	=====
27 Aroclor-1254			CAS #: 11097-69-1			
22.964	22.969	-0.005	169861	0.205	4.09	100.00
24.083	24.089	-0.006	211244	0.191	3.82 112.00- 152.00	124.36
26.066	26.072	-0.006	196040	0.186	3.72 120.00- 140.00	115.41
27.424	27.430	-0.006	210160	0.177	3.55 136.00- 156.00	123.72
28.902	28.912	-0.010	107973	0.174	3.48 68.00- 88.00	63.57
Average of Peak Concentrations =					3.73	

\$ 29 Ietrachloro-m-xylene			CAS #: 877-09-8			
13.401	13.416	-0.015	1533636	0.114	2.27	100.00

\$ 30 Decachlorobiphenyl			CAS #: 2051-24-3			
44.715	44.735	-0.020	571110	0.105	2.10	100.00

Data File: /chem/gc2.i/980805.b/070f0501.d
Report Date: 10-Aug-1998 13:19

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RECOVERY REPORT

Client Name: Client SDG: 980805
Sample Matrix: LIQUID Fraction: PEST
Lab Smp Id: 200ng/ml A1254 Client Smp ID: 200ng/ml A1254
Level: LOW Operator: Gerald Ross
Data Type: GC MULTI COMP SampleType: METHSPIKE
SpikeList File: Aroclor-1254.spk Quant Type: ESTD
Method File: /chem/gc2.i/980805.b/rcrapcb.m
Misc Info: 200ng/ml A1254

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
27 Aroclor-1254	4.00	3.73	93.29	50-150

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
\$ 29 Tetrachloro-m-xyle	2.00	2.27	113.68	50-150
\$ 30 Decachlorobiphenyl	2.00	2.10	105.23	50-150

Data File: /chem/gc2.i/980805.b/070f0501.d
Report Date: 10-Aug-1998 13:19

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TARGET COMPOUNDS

Client Name:
Lab Smp Id: 200ng/ml A1254
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: PEST
Data Type: GC MULTI COMP
Misc Info: 200ng/ml A1254

Client SDG: 980805
Client Smp ID: 200ng/ml A1254
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: Gerald Ross

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
---------	----------	--	---

11097-69-1-----Aroclor-1254	3.73	
877-09-8-----Tetrachloro-m-xylene	2.27	
2051-24-3-----Decachlorobiphenyl	2.10	

Data File: /chem/gc2.i/980805.b/070f0501.d
Date : 07-AUG-98 00:49
Client ID: 200ng/ml A1254
Sample Info: 200ng/ml A1254
Volume Injected (uL): 1.0
Column phase: Xti-5

Instrument: gc2.i

Operator: Gerald Ross
Column diameter: 0.25

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/chem/gc2.i/980805.b/070f0501.d (Part 1 of 2)

HNF-1642 REV. 0

Data File: /chem/gc2.i/980805.b/070f0501.d
Date : 07-AUG-98 00:49
Client ID: 200ng/ml A1254
Sample Info: 200ng/ml A1254
Volume Injected (uL): 1.0
Column phase: Xti-5

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Instrument: gc2.i

Operator: Gerald Ross
Column diameter: 0.25

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OPPORTUNISTIC ANALYTES

APPENDIX A

HNF-1642 REV. 0

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Opportunistic Analytes for AP-106 Grab2
AP-106 GRAB2

CORE NUMBER: n/a
SEGMENT #: 6AP-98-1

SEGMENT PORTION: Supernate

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S98T002050	D	Silver-ICP-Acid Dil.	ug/ml	99.80	<1.00e-02	2.150	2.070	2.110	3.79	94.70	1.010	n/a
S98T002050	D	Arsenic-ICP-Acid Dil.	ug/ml	103.4	<1.00e-01	< 10.10	<1.01e1	n/a	n/a	105.0	10.10	n/a
S98T002050	D	Boron-ICP-Acid Dil.	ug/ml	99.80	<5.00e-02	< 5.050	<5.05e0	n/a	n/a	103.0	5.050	n/a
S98T002050	D	Barium-ICP-Acid Dil.	ug/ml	100.2	<5.00e-02	< 5.050	<5.05e0	n/a	n/a	97.10	5.050	n/a
S98T002050	D	Beryllium-ICP-Acid Dil.	ug/ml	102.2	<5.00e-03	<5.05e-01	<5.05e-1	n/a	n/a	102.0	5.05e-01	n/a
S98T002050	D	Bismuth-ICP-Acid Dil.	ug/ml	100.4	<1.00e-01	< 10.10	<1.01e1	n/a	n/a	98.40	10.10	n/a
S98T002050	D	Calcium-ICP-Acid Dil.	ug/ml	100.0	<1.00e-01	< 10.10	<1.01e1	n/a	n/a	103.0	10.10	n/a
S98T002050	D	Cadmium-ICP-Acid Dil.	ug/ml	101.6	<5.00e-03	<5.05e-01	<5.05e-1	n/a	n/a	101.0	5.05e-01	n/a
S98T002050	D	Cerium-ICP-Acid Dil.	ug/ml	102.0	<1.00e-01	< 10.10	<1.01e1	n/a	n/a	101.0	10.10	n/a
S98T002050	D	Cobalt-ICP-Acid Dil.	ug/ml	98.80	<2.00e-02	< 2.020	<2.02e0	n/a	n/a	97.90	2.020	n/a
S98T002050	D	Copper-ICP-Acid Dil.	ug/ml	95.80	<1.00e-02	< 1.010	<1.01e0	n/a	n/a	94.70	1.010	n/a
S98T002050	D	Potassium-ICP-Acid Dil.	ug/ml	105.2	<5.00e-01	2.36e+03	2.38e+03	2.37e+03	0.84	71.80	50.50	n/a
S98T002050	D	Lanthanum-ICP-Acid Dil.	ug/ml	101.2	<5.00e-02	< 5.050	<5.05e0	n/a	n/a	101.0	5.050	n/a
S98T002050	D	Lithium-ICP-Acid Dil.	ug/ml	103.2	<1.00e-02	< 1.010	<1.01e0	n/a	n/a	99.50	1.010	n/a
S98T002050	D	Magnesium-ICP-Acid Dil.	ug/ml	102.8	<1.00e-01	< 10.10	<1.01e1	n/a	n/a	100.0	10.10	n/a
S98T002050	D	Molybdenum-ICP-Acid Dil.	ug/ml	99.20	<5.00e-02	7.920	7.810	7.865	1.40	99.10	5.050	n/a
S98T002050	D	Neodymium-ICP-Acid Dil.	ug/ml	99.40	<1.00e-01	< 10.10	<1.01e1	n/a	n/a	98.10	10.10	n/a
S98T002050	D	Phosphorus-ICP-Acid Dil.	ug/ml	97.60	<2.00e-01	2.23e+02	224.0	223.5	0.45	99.00	20.20	n/a
S98T002050	D	Lead-ICP-Acid Dil.	ug/ml	99.00	<1.00e-01	10.20	<1.01e1	n/a	n/a	96.60	10.10	n/a
S98T002050	D	Sulfur-ICP-Acid Dil.	ug/ml	98.60	<1.00e-01	1.46e+02	147.0	146.5	0.68	98.00	10.10	n/a
S98T002050	D	Antimony-ICP-Acid Dil.	ug/ml	99.20	<6.00e-02	< 6.060	<6.06e0	n/a	n/a	99.50	6.060	n/a
S98T002050	D	Selenium-ICP-Acid Dil.	ug/ml	96.00	<1.00e-01	< 10.10	<1.01e1	n/a	n/a	110.0	10.10	n/a
S98T002050	D	Silicon-ICP-Acid Dil.	ug/ml	99.00	<5.00e-02	39.10	39.40	39.25	0.76	99.70	5.050	n/a
S98T002050	D	Samarium-ICP-Acid Dil.	ug/ml	99.60	<1.00e-01	< 10.10	<1.01e1	n/a	n/a	98.50	10.10	n/a
S98T002050	D	Strontium-ICP-Acid Dil.	ug/ml	101.6	<1.00e-02	< 1.010	<1.01e0	n/a	n/a	100.0	1.010	n/a
S98T002050	D	Titanium-ICP-Acid Dil.	ug/ml	90.40	<1.00e-02	< 1.010	<1.01e0	n/a	n/a	n/a	1.010	n/a
S98T002050	D	Thallium-ICP-Acid Dil.	ug/ml	96.20	<2.00e-01	< 20.20	<2.02e1	n/a	n/a	91.70	20.20	n/a
S98T002050	D	Uranium-ICP-Acid Dil.	ug/ml	97.60	<5.00e-01	< 50.50	<5.05e1	n/a	n/a	98.50	50.50	n/a
S98T002050	D	Vanadium-ICP-Acid Dil.	ug/ml	101.6	<5.00e-02	< 5.050	<5.05e0	n/a	n/a	101.0	5.050	n/a
S98T002050	D	Zinc-ICP-Acid Dil.	ug/ml	97.80	<1.00e-02	< 1.010	<1.01e0	n/a	n/a	98.00	1.010	n/a
S98T002050		Bromide by Ion Chromatograph	ug/ml	98.89	<1.25e-01	<1.39e+02	<1.39e2	n/a	n/a	96.25	138.9	n/a
S98T002050		Oxalate-IC-Dionex 4000/450	ug/ml	97.17	<1.05e-01	1.31e+02	<1.17e2	n/a	n/a	94.52	116.7	n/a

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Opportunistic Analytes for AP-106 Grab2
AP-106 GRAB2

CORE NUMBER: n/a
SEGMENT #: 6AP-98-2

SEGMENT PORTION: Supernate

Sample#	R A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S98T002053	D	Silver-ICP-Acid Dil.	ug/mL	99.80	<1.00e-02	8.64e-01	8.50e-01	8.57e-01	1.63	n/a	4.10e-01	n/a
S98T002053	D	Arsenic-ICP-Acid Dil.	ug/mL	103.4	<1.00e-01	< 4.100	<4.10e0	n/a	n/a	n/a	4.100	n/a
S98T002053	D	Boron-ICP-Acid Dil.	ug/mL	99.80	<5.00e-02	2.580	2.530	2.555	1.96	n/a	2.050	n/a
S98T002053	D	Barium-ICP-Acid Dil.	ug/mL	100.2	<5.00e-02	< 2.050	<2.05e0	n/a	n/a	n/a	2.050	n/a
S98T002053	D	Beryllium-ICP-Acid Dil.	ug/mL	102.2	<5.00e-03	<2.05e-01	<2.05e-1	n/a	n/a	n/a	2.05e-01	n/a
S98T002053	D	Bismuth-ICP-Acid Dil.	ug/mL	100.4	<1.00e-01	< 4.100	<4.10e0	n/a	n/a	n/a	4.100	n/a
S98T002053	D	Calcium-ICP-Acid Dil.	ug/mL	100.0	<1.00e-01	< 4.100	<4.10e0	n/a	n/a	n/a	4.100	n/a
S98T002053	D	Cadmium-ICP-Acid Dil.	ug/mL	101.6	<5.00e-03	<2.05e-01	<2.05e-1	n/a	n/a	n/a	2.05e-01	n/a
S98T002053	D	Cerium-ICP-Acid Dil.	ug/mL	102.0	<1.00e-01	< 4.100	<4.10e0	n/a	n/a	n/a	4.100	n/a
S98T002053	D	Cobalt-ICP-Acid Dil.	ug/mL	98.80	<2.00e-02	<8.20e-01	<8.20e-1	n/a	n/a	n/a	8.20e-01	n/a
S98T002053	D	Copper-ICP-Acid Dil.	ug/mL	95.80	<1.00e-02	<4.10e-01	<4.10e-1	n/a	n/a	n/a	4.10e-01	n/a
S98T002053	D	Potassium-ICP-Acid Dil.	ug/mL	105.2	<5.00e-01	8.92e+02	902.0	897.0	1.11	n/a	20.50	n/a
S98T002053	D	Lanthanum-ICP-Acid Dil.	ug/mL	101.2	<5.00e-02	< 2.050	<2.05e0	n/a	n/a	n/a	2.050	n/a
S98T002053	D	Lithium-ICP-Acid Dil.	ug/mL	103.2	<1.00e-02	<4.10e-01	<4.10e-1	n/a	n/a	n/a	4.10e-01	n/a
S98T002053	D	Magnesium-ICP-Acid Dil.	ug/mL	102.8	<1.00e-01	< 4.100	<4.10e0	n/a	n/a	n/a	4.100	n/a
S98T002053	D	Molybdenum-ICP-Acid Dil.	ug/mL	99.20	<5.00e-02	6.080	6.020	6.050	0.99	n/a	2.050	n/a
S98T002053	D	Neodymium-ICP-Acid Dil.	ug/mL	99.40	<1.00e-01	< 4.100	<4.10e0	n/a	n/a	n/a	4.100	n/a
S98T002053	D	Phosphorus-ICP-Acid Dil.	ug/mL	97.60	<2.00e-01	2.16e+02	216.0	216.0	0.00	n/a	8.200	n/a
S98T002053	D	Lead-ICP-Acid Dil.	ug/mL	99.00	<1.00e-01	< 4.100	<4.10e0	n/a	n/a	n/a	4.100	n/a
S98T002053	D	Sulfur-ICP-Acid Dil.	ug/mL	98.60	<1.00e-02	52.70	52.10	52.40	1.15	n/a	4.100	n/a
S98T002053	D	Antimony-ICP-Acid Dil.	ug/mL	99.20	<6.00e-02	< 2.460	<2.46e0	n/a	n/a	n/a	2.460	n/a
S98T002053	D	Selenium-ICP-Acid Dil.	ug/mL	96.00	<1.00e-01	4.380	4.420	4.400	0.91	n/a	4.100	n/a
S98T002053	D	Silicon-ICP-Acid Dil.	ug/mL	99.00	<5.00e-02	17.10	17.00	17.05	0.59	n/a	2.050	n/a
S98T002053	D	Samarium-ICP-Acid Dil.	ug/mL	99.60	<1.00e-01	< 4.100	<4.10e0	n/a	n/a	n/a	4.100	n/a
S98T002053	D	Strontium-ICP-Acid Dil.	ug/mL	101.6	<1.00e-02	<4.10e-01	<4.10e-1	n/a	n/a	n/a	4.10e-01	n/a
S98T002053	D	Titanium-ICP-Acid Dil.	ug/mL	90.40	<1.00e-02	<4.10e-01	<4.10e-1	n/a	n/a	n/a	4.10e-01	n/a
S98T002053	D	Thallium-ICP-Acid Dil.	ug/mL	96.20	<2.00e-01	< 8.200	<8.20e0	n/a	n/a	n/a	8.200	n/a
S98T002053	D	Uranium-ICP-Acid Dil.	ug/mL	97.60	<5.00e-01	< 20.50	<2.05e1	n/a	n/a	n/a	20.50	n/a
S98T002053	D	Vanadium-ICP-Acid Dil.	ug/mL	101.6	<5.00e-02	< 2.050	<2.05e0	n/a	n/a	n/a	2.050	n/a
S98T002053	D	Zinc-ICP-Acid Dil.	ug/mL	97.80	<1.00e-02	<4.10e-01	<4.10e-1	n/a	n/a	n/a	4.10e-01	n/a
S98T002053		Bromide by Ion Chromatograph	ug/mL	98.89	<1.25e-01	< 37.88	<3.79e1	n/a	n/a	n/a	37.88	n/a
S98T002053		Oxalate-IC-Dionex 4000/450	ug/mL	97.17	<1.05e-01	51.02	54.70	52.86	7.00	n/a	31.81	n/a

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Opportunistic Analytes for AP-106 Grab2
AP-106 GRAB2CORE NUMBER: n/a
SEGMENT #: 6AP-98-3

SEGMENT PORTION: Supernate

Sample#	R A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%	
S98T002054	D	Silver-ICP-Acid Dil.	ug/mL	99.80	<1.00e-02	6.600	6.510	6.555	1.37	n/a	2.010	n/a	
S98T002054	D	Arsenic-ICP-Acid Dil.	ug/mL	103.4	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a	
S98T002054	D	Boron-ICP-Acid Dil.	ug/mL	99.80	<5.00e-02	< 10.10	<1.01e1	n/a	n/a	n/a	10.10	n/a	
S98T002054	D	Barium-ICP-Acid Dil.	ug/mL	100.2	<5.00e-02	< 10.10	<1.01e1	n/a	n/a	n/a	10.10	n/a	
S98T002054	D	Beryllium-ICP-Acid Dil.	ug/mL	102.2	<5.00e-03	1.080	1.070	1.075	0.93	n/a	1.010	n/a	
S98T002054	D	Bismuth-ICP-Acid Dil.	ug/mL	100.4	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a	
S98T002054	D	Calcium-ICP-Acid Dil.	ug/mL	100.0	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a	
S98T002054	D	Cadmium-ICP-Acid Dil.	ug/mL	101.6	<5.00e-03	1.710	1.690	1.700	1.18	n/a	1.010	n/a	
S98T002054	D	Cerium-ICP-Acid Dil.	ug/mL	102.0	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a	
S98T002054	D	Cobalt-ICP-Acid Dil.	ug/mL	98.80	<2.00e-02	< 4.020	<4.02e0	n/a	n/a	n/a	4.020	n/a	
S98T002054	D	Copper-ICP-Acid Dil.	ug/mL	95.80	<1.00e-02	2.600	2.520	2.560	3.13	n/a	2.010	n/a	
S98T002054	D	Potassium-ICP-Acid Dil.	ug/mL	105.2	<5.00e-01	1.87e+04	1.84e+04	1.86e+04	1.62	n/a	100.0	n/a	
S98T002054	D	Lanthanum-ICP-Acid Dil.	ug/mL	101.2	<5.00e-02	< 10.10	<1.01e1	n/a	n/a	n/a	10.10	n/a	
S98T002054	D	Lithium-ICP-Acid Dil.	ug/mL	103.2	<1.00e-02	< 2.010	<2.01e0	n/a	n/a	n/a	2.010	n/a	
S98T002054	D	Magnesium-ICP-Acid Dil.	ug/mL	102.8	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a	
S98T002054	D	Molybdenum-ICP-Acid Dil.	ug/mL	99.20	<5.00e-02	14.60	14.10	14.35	3.48	n/a	10.10	n/a	
S98T002054	D	Neodymium-ICP-Acid Dil.	ug/mL	99.40	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a	
S98T002054	D	Phosphorus-ICP-Acid Dil.	ug/mL	97.60	<2.00e-01	3.60e+02	356.0	358.0	1.12	n/a	40.20	n/a	
S98T002054	D	Lead-ICP-Acid Dil.	ug/mL	99.00	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a	
S98T002054	D	Sulfur-ICP-Acid Dil.	ug/mL	98.60	<1.00e-01	1.01e+03	996.0	1.00e+03	1.40	n/a	20.10	n/a	
S98T002054	D	Antimony-ICP-Acid Dil.	ug/mL	99.20	<6.00e-02	< 12.10	<1.21e1	n/a	n/a	n/a	12.10	n/a	
S98T002054	D	Selenium-ICP-Acid Dil.	ug/mL	96.00	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a	
S98T002054	D	Silicon-ICP-Acid Dil.	ug/mL	99.00	<5.00e-02	71.60	70.90	71.25	0.98	n/a	10.10	n/a	
S98T002054	D	Samarium-ICP-Acid Dil.	ug/mL	99.60	<1.00e-01	< 20.10	<2.01e1	n/a	n/a	n/a	20.10	n/a	
S98T002054	D	Strontium-ICP-Acid Dil.	ug/mL	101.6	<1.00e-02	< 2.010	<2.01e0	n/a	n/a	n/a	2.010	n/a	
S98T002054	D	Titanium-ICP-Acid Dil.	ug/mL	90.40	<1.00e-02	< 2.010	<2.01e0	n/a	n/a	n/a	2.010	n/a	
S98T002054	D	Thallium-ICP-Acid Dil.	ug/mL	96.20	<2.00e-01	< 40.20	<4.02e1	n/a	n/a	n/a	40.20	n/a	
S98T002054	D	Uranium-ICP-Acid Dil.	ug/mL	97.60	<5.00e-01	<1.00e+02	<1.00e2	n/a	n/a	n/a	100.0	n/a	
S98T002054	D	Vanadium-ICP-Acid Dil.	ug/mL	101.6	<5.00e-02	< 10.10	<1.01e1	n/a	n/a	n/a	10.10	n/a	
S98T002054	D	Zinc-ICP-Acid Dil.	ug/mL	97.80	<1.00e-02	3.170	3.180	3.175	0.31	n/a	2.010	n/a	
S98T002054		Bromide by Ion Chromatograph	ug/mL	98.89	<1.25e-01	<2.65e+02	<2.65e2	n/a	n/a	n/a	265.1	n/a	
S98T002054		Oxalate-IC-Dionex 4000/450	ug/mL	97.17	<1.05e-01	8.64e+02	836.0	850.0	3.29	n/a	222.7	n/a	
S98T002253		Aroclor-1016	ug/L	n/a	<6.00e-01	< 12.00	<12.0	n/a	n/a	n/a	12.00	n/a	
S98T002253		Aroclor-1221	ug/L	n/a	<6.00e-01	< 12.00	<12.0	n/a	n/a	n/a	12.00	n/a	
S98T002253		Aroclor-1232	ug/L	n/a	<6.00e-01	< 12.00	<12.0	n/a	n/a	n/a	12.00	n/a	
S98T002253		Aroclor-1242	ug/L	n/a	<6.00e-01	< 12.00	<12.0	n/a	n/a	n/a	12.00	n/a	
S98T002253		Aroclor-1248	ug/L	n/a	<6.00e-01	< 12.00	<12.0	n/a	n/a	n/a	12.00	n/a	
S98T002253		Aroclor-1254	ug/L	97.75	<6.00e-01	< 12.00	<12.0	n/a	n/a	97.04	12.00	n/a	
S98T002253		Aroclor-1260	ug/L	n/a	<6.00e-01	< 12.00	<12.0	n/a	n/a	n/a	12.00	n/a	
S98T002253		Tetrachloro-m-xylene	Surr	% Recovery	91.70	87.08	94.53	95.75	95.14	95.8	83.32	1.000	n/a
S98T002253		Decachlorobiphenyl	Surr	% Recovery	101.1	92.80	76.86	82.71	79.78	82.7	78.26	1.000	n/a

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