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ENGINEERING DATA TRANSMITTAL

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Tank 241-AP-106, Grab Samples, 6AP-96-1 Through 6AP-96-3 Analytical Results for the Final Report

Ruth A. Esch

Rust Federal Services of Hanford, Inc., Richland, WA 99352
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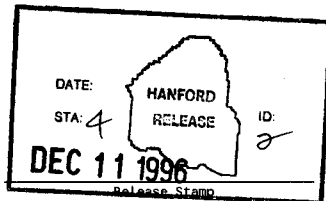
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ANALYTICAL SERVICES

**TANK 241-AP-106, GRAB SAMPLES,
6AP-96-1 THROUGH 6AP-96-3
ANALYTICAL RESULTS FOR THE FINAL REPORT**

Project Coordinator: RUTH A. ESCH

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

by

**222-S Laboratory
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NARRATIVE

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222-S ANALYTICAL SERVICES

**TANK 241-AP-106, GRAB SAMPLES,
6AP-96-1 THROUGH 6AP-96-3
ANALYTICAL RESULTS FOR THE FINAL REPORT**

This document is the final report for tank 241-AP-106 grab samples. This document presents the analytical results for three samples (6AP-96-1, 6AP-96-2 and 6AP-96-3) taken from riser 1@150° of tank 241-AP-106 on September 12, 1996. Analyses were performed in accordance with the *Compatibility Grab Sampling and Analysis Plan* (TSAP) (Sasaki, 1996) and the *Data Quality Objectives for Tank Farms Waste Compatibility Program* (DQO) (Fowler, 1995).

No notifications were required for this project.

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.

Attachment 2 is provided as additional documentation of changes made to the chain of custody (COC) forms after the samples were recieved and subsampled at the 222-S Laboratory. The sample dose rates and the sample number etched on the original sample bottles did not match the information provided on the COCs for samples 6AP-96-2 and 6AP-96-3. After reviewing the dose rate and appearance information from the laboratory and the field work package (#ES-96-00754) the COCs were changed by a tank farm representative.

Table 1 provides the appearance information for the three samples.

Table 1: Appearance Information for Tank 241-AP-106 Grab Samples

Sample Number	Date Collected	Date Analyzed	Sample Depth (cm)	Color	Appearance
6AP-96-1	9/12/96	9/13/96	580	Trace	Clear yellow liquid; no organic layer; trace amount of solids
6AP-96-2	9/12/96	9/13/96	610	None	Clear pale yellow; no organic layer; no solids
6AP-96-3	9/12/96	9/13/96	640	Trace	Clear yellow liquid; no organic layer; trace amount of solids

* Sample depth is measured from the top of the riser to the mouth of the sample bottle

Analytical Results Summary

The data summary table (Table 2) included in this report compiles all of the analytical results associated with each sample.

Compatibility Program Concerns

DSC - Differential Scanning Calorimetry - Energetics Decision Rule

The DSC analyses were performed in duplicate on direct subsamples. There was no exothermic energy observed in any of the samples, thus the dry weight basis calculations were not applicable. The standard recovery and relative percent difference (RPD) for this analysis were within the required limits.

For waste compatibility energetics decision concerns, since there was no exothermic energy observed the exotherm/endotherm ratio calculation is not applicable.

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. This table presents the NO_3^- , OH^- , and NO_2^- results 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. No notifications were required.

The standard recoveries, appropriate spike recoveries and RPDs for these analyses were all within the required limits.

Sp.G. - Specific Gravity - Flammable Gas Accumulation Decision Rule

The Sp.G. of the waste is currently used for determination of the potential to cause an accumulation of flammable gases. The flammable gas decision rule requires that the weighted mean Sp.G. not exceed 1.41. The results ranged from 0.987 to 1.207. The weighted mean Sp.G. = 1.07. This result does not exceed the 1.41 limit to allow waste transfer. The standard recovery and RPDs for this analysis were within the required limits.

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

^{239/240}Pu concentration is used to evaluate criticality safety for waste transfers. The results ranged from $<5.89\text{e-}6$ to $1.17\text{e-}4$ $\mu\text{Ci/mL}$. These results are well below the criticality prevention limit of

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0.80 $\mu\text{Ci/mL}$ stated in the compatibility DQO. The standard recovery and RPDs for this analysis were within the required limits.

²⁴¹Am - Americium 241 - Criticality Decision Rule

²⁴¹Am analysis is also used to evaluate criticality safety for waste transfers. The results ranged from $<9.37\text{e-}6$ to $8.76\text{e-}4$ $\mu\text{Ci/mL}$. The standard recovery and RPDs for this analysis were within the required limits.

Inorganic Analyses

pH

The pH analysis was performed in duplicate with results that ranged from 13.21 to 13.72. 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. Standard and relative percent difference (RPD) criteria were met for all three subsamples.

IC - Ion Chromatography

The ion chromatography (IC) analysis was performed in duplicate on direct samples. Bromide and oxalate results were included for informational purposes only as part of the method of analysis. Since these analytes were not requested in the TSAP, the QC results for these analytes were not reviewed. The standard recovery, spike recovery and RPDs for this analysis were all within the required limits.

ICP - Inductively Coupled Plasma Spectrophotometry

The ICP analysis was performed in duplicate on acid diluted aliquots. This dilution is indicated by an "D" in the aliquot class (#A) column in Table 1. Aluminum (Al), iron (Fe) and sodium (Na) were the only analytes requested in the TSAP. Numerous other analyte results were provided as additional information as part of the method of analysis. Since these analytes were not requested in the TSAP, the QC results for these analytes were not reviewed. The standard recoveries, spike recoveries and RPDs for the analytes of interest were all within the required limits.

TOC - Total Organic Carbon

TOC analysis was performed by the furnace oxidation method on duplicate aliquots. None of the results exceeded the notification limit of $30,000$ $\mu\text{gC/mL}$ (dry weight basis). The standard recoveries, spike recoveries and RPDs for this analysis were within the required limits.

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TIC - Total Inorganic Carbon

TIC analysis was performed on duplicate aliquots. The standard recoveries, spike recoveries and RPDs were within the required limits.

Radionuclide Analyses

⁹⁰Sr - Strontium 90

⁹⁰Sr analysis was performed in duplicate on direct aliquots. The standard recovery and RPDs for this analysis were within the required limits.

GEA - Gamma Energy Analysis

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

Procedures

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

Table 4: Analytical Procedures

Inorganic Analyses		
DSC	Direct Analysis	LA-514-113 Rev. C-1 LA-514-114 Rev. D-0
TGA	Direct Analysis	LA-514-114 Rev. D-0 LA-560-112 Rev. C-0
pH	Direct Analysis	LA-212-106 Rev. B-0
Sp.G.	Direct Analyses	LA-510-112 Rev. C-3
OH ⁻	Direct Analysis	LA-211-102 Rev. C-0
IC	Direct Analysis	LA-533-105 Rev. D-1
ICP	Acid Dilution	LA-505-161 Rev. B-1
TOC	Direct Analysis	LA-344-105 Rev. D-1

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Table 4: Analytical Procedures

Analysis	Procedure	Analysis Procedure
TIC	Direct Analysis	LA-342-100 Rev. E-0 *
Radionuclide Analyses		
GEA	Direct Analysis	LA-548-121 Rev. E-0
⁹⁰ Sr	Direct Analysis	LA-220-101 Rev. D-1
²⁴¹ Am	Direct Analysis	LA-953-103 Rev. B-0
^{239/240} Pu	Direct Analysis	LA-943-128 Rev. B-0

Notes: * - The TIC analysis was performed by LA-342-100 rather than LA-622-102, as requested in the TSAP, because the instrumentation was unavailable to perform the requested procedure.

Abbreviations:

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

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

References

- Fowler, K.D., 1995, *Data Quality Objectives for Tank Farms Waste Compatibility Program*, WHC-SD-WM-DQO-001, Rev. 1, Westinghouse Hanford Company, Richland, WA 99352.
- Sasaki, L. M., 1996, *Compatibility Grab Sampling and Analysis Plan*, WHC-SD-TSAP-037, Rev. 2E, Westinghouse Hanford Company, Richland, WA 99352

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ATTACHMENT 1

AP-106 GRAB SAMPLE BREAKDOWN

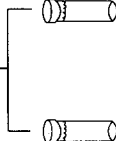
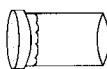
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Attachment 1 AP-106 GRAB SAMPLE BREAKDOWN Riser 1@150°

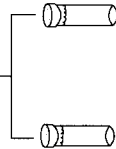
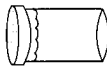
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580 in.
6AP-96-1
S96T005178



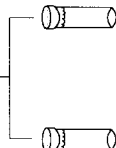
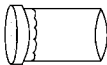
S96T005181 S96T005184
GEA: G4-137
PU-238/240
SI-30
Am-241
DSC
TGA
TOC
TIC
ICP: Al, Fe, Na
IC: anions
pH
OH
Sp.G

610 in.
6AP-96-2
S96T005180



S96T005183 S96T005186
GEA: G4-137
PU-238/240
SI-30
Am-241
DSC
TGA
TOC
TIC
ICP: Al, Fe, Na
IC: anions
pH
OH
Sp.G

640 in.
6AP-96-3
S96T005179



S96T005182 S96T005185
GEA: G4-137
PU-238/240
SI-30
Am-241
DSC
TGA
TOC
TIC
ICP: Al, Fe, Na
IC: anions
pH
OH
Sp.G

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SAMPLE DATA SUMMARY

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Table 2: Data Summary Report
AP-106 GRAB

RIser: 18150

SEGMENT #: 6AP-96-1

SEGMENT PORTION: Supernate

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005181		DSC Exotherm on Perkin Elmer	Joules/g	96.73	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T005181		OH- by Pot. Titration	ug/mL	100.4	<3.00	2.56e-03	2.83e-03	2.70e-03	10.0	n/a	1.25e-03	n/a
S96T005181		pH Direct	pH	100.4	n/a	13.21	13.27	13.24	0.45	n/a	1.00e-02	n/a
S96T005181		Specific Gravity	Sp.G.	99.39	n/a	9.87e-01	9.94e-01	9.90e-01	0.69	n/a	1.00e-03	n/a
S96T005181		% Water by TGA on Perkin Elmer	%	99.12	n/a	96.05	95.24	95.64	0.85	n/a	n/a	n/a
S96T005181		TIC by Acid/Coulometry	ug/mL	97.51	4.00e-01	5.61e-02	560.0	560.5	0.18	100.0	5.000	n/a
S96T005181		Tot. Organic Carbon by Coul.	ug/mL	97.67	4.00e-01	7.34e-02	685.0	709.5	6.91	80.40	21.70	n/a
S96T005181		D Silver-ICP-Acid Dil.	ug/mL	100.0	<1.00e-02	6.06e-01	6.06e-01	6.06e-01	1.98	91.20	2.10e-01	n/a
S96T005181		D Aluminum-ICP-Acid Dil.	ug/mL	98.40	<5.00e-02	3.51e-02	354.0	352.5	0.85	96.70	1.050	n/a
S96T005181		D Arsenic-ICP-Acid Dil.	ug/mL	104.4	<1.00e-01	< 2.100	<2.10e0	n/a	n/a	107.0	2.100	n/a
S96T005181		D Boron-ICP-Acid Dil.	ug/mL	101.4	<5.00e-02	< 1.050	<1.05e0	1.480	1.35	101.0	1.050	n/a
S96T005181		D Barium-ICP-Acid Dil.	ug/mL	99.60	<5.00e-02	< 1.050	<1.05e0	n/a	n/a	98.70	1.050	n/a
S96T005181		D Beryllium-ICP-Acid Dil.	ug/mL	104.0	<1.00e-03	< 2.100	<2.10e0	n/a	n/a	104.0	1.05e-01	n/a
S96T005181		D Bismuth-ICP-Acid Dil.	ug/mL	102.0	<1.00e-01	< 2.100	<2.10e0	n/a	n/a	103.0	2.100	n/a
S96T005181		D Calcium-ICP-Acid Dil.	ug/mL	101.6	<1.00e-03	< 2.100	<2.10e0	n/a	n/a	108.0	2.100	n/a
S96T005181		D Cadmium-ICP-Acid Dil.	ug/mL	100.8	<5.00e-03	< 2.100	<2.10e0	n/a	n/a	100.0	1.05e-01	n/a
S96T005181		D Cerium-ICP-Acid Dil.	ug/mL	99.80	<1.00e-01	< 2.100	<2.10e0	n/a	n/a	99.00	2.100	n/a
S96T005181		D Cobalt-ICP-Acid Dil.	ug/mL	101.8	<2.00e-02	<4.20e-01	<4.20e-1	n/a	n/a	100.0	4.20e-01	n/a
S96T005181		D Chromium-ICP-Acid Dil.	ug/mL	104.4	<1.00e-02	12.90	12.90	12.90	10.3	105.0	2.10e-01	n/a
S96T005181		D Copper-ICP-Acid Dil.	ug/mL	101.4	<5.00e-02	2.45e-01	2.21e-01	2.33e-01	10.3	102.0	2.10e-01	n/a
S96T005181		D Iron-ICP-Acid Dil.	ug/mL	93.00	<5.00e-02	< 1.050	<1.05e0	n/a	n/a	102.0	1.050	n/a
S96T005181		D Potassium-ICP-Acid Dil.	ug/mL	101.4	<5.00e-02	< 1.050	<1.05e0	1.19e+03	0.00	73.80	10.50	n/a
S96T005181		D Lanthanum-ICP-Acid Dil.	ug/mL	101.2	<5.00e-02	< 1.050	<1.05e0	3.20e-01	4.07	104.0	2.10e-01	n/a
S96T005181		D Lithium-ICP-Acid Dil.	ug/mL	97.60	<1.00e-01	< 2.100	<2.10e0	n/a	n/a	95.70	2.10e-01	n/a
S96T005181		D Magnesium-ICP-Acid Dil.	ug/mL	98.40	<1.00e-02	<2.10e-01	<2.10e-1	1.825	3.84	97.30	2.10e-01	n/a
S96T005181		D Molybdenum-ICP-Acid Dil.	ug/mL	101.4	<5.00e-02	1.860	1.790	1.825	0.83	97.30	2.10e-01	n/a
S96T005181		D Sodium-ICP-Acid Dil.	ug/mL	98.80	<1.00e-01	8.42e+03	8.49e+03	8.46e+03	0.83	97.30	2.10e-01	n/a
S96T005181		D Neodymium-ICP-Acid Dil.	ug/mL	101.6	<1.00e-01	< 2.100	<2.10e0	n/a	n/a	102.0	2.100	n/a
S96T005181		D Nickel-ICP-Acid Dil.	ug/mL	100.8	<2.00e-02	<4.20e-01	<4.20e-1	n/a	n/a	102.0	4.20e-01	n/a
S96T005181		D Phosphorus-ICP-Acid Dil.	ug/mL	103.4	<2.00e-01	2.38e-02	240.0	239.0	0.84	131.0	4.200	n/a
S96T005181		D Lead-ICP-Acid Dil.	ug/mL	100.4	<1.00e-01	< 2.100	<2.10e0	n/a	n/a	105.0	2.100	n/a
S96T005181		D Sulfur-ICP-Acid Dil.	ug/mL	97.00	<1.00e-01	88.40	88.60	88.50	0.23	95.90	1.260	n/a
S96T005181		D Antimony-ICP-Acid Dil.	ug/mL	98.40	<1.00e-02	< 2.600	<1.26e0	n/a	n/a	98.40	2.100	n/a
S96T005181		D Selenium-ICP-Acid Dil.	ug/mL	101.0	<1.00e-01	< 2.100	<2.10e0	113.0	0.00	102.0	2.100	n/a
S96T005181		D Silicon-ICP-Acid Dil.	ug/mL	100.4	<5.00e-02	< 15.00	15.00	15.00	0.00	102.0	1.050	n/a
S96T005181		D Samarium-ICP-Acid Dil.	ug/mL	98.00	<1.00e-02	< 2.100	<2.10e0	n/a	n/a	97.20	2.100	n/a
S96T005181		D Strontium-ICP-Acid Dil.	ug/mL	99.00	<1.00e-01	<2.10e-01	<2.10e-1	n/a	n/a	99.40	2.10e-01	n/a
S96T005181		D Tantalum-ICP-Acid Dil.	ug/mL	97.80	<2.00e-02	<2.10e-01	<2.10e-1	n/a	n/a	97.90	2.10e-01	n/a
S96T005181		D Thallium-ICP-Acid Dil.	ug/mL	97.80	<2.00e-01	< 4.200	<4.20e0	n/a	n/a	98.40	4.200	n/a
S96T005181		D Uranium-ICP-Acid Dil.	ug/mL	96.40	<5.00e-01	< 10.50	<1.05e1	n/a	n/a	109.0	10.50	n/a
S96T005181		D Vanadium-ICP-Acid Dil.	ug/mL	101.4	<5.00e-02	< 1.050	<1.05e0	n/a	n/a	101.0	1.050	n/a
S96T005181		D Zinc-ICP-Acid Dil.	ug/mL	102.0	<1.00e-02	5.41e-01	5.38e-01	5.40e-01	0.56	101.0	2.10e-01	n/a

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005181	D	Zirconium-ICP-Acid Dil.	ug/mL	99.00	<1.00e-02	<2.10e-01	<2.10e-1	n/a	n/a	96.70	2.10e-01	n/a
S96T005181		Fluoride-IC-Dionex 4000/4500	ug/mL	92.37	<1.20e-02	1.29e+02	128.0	128.3	0.78	87.46	2.412	n/a
S96T005181		Chloride-IC-Dionex 4000/4500	ug/mL	93.04	<1.70e-02	1.73e+02	180.0	176.6	3.97	87.47	3.417	n/a
S96T005181		Nitrite-IC - Dionex 4000/4500	ug/mL	93.15	<1.08e-01	1.86e+03	1.89e+03	1.87e+03	1.60	95.74	21.71	n/a
S96T005181		Bromide by Ion Chromatograph	ug/mL	95.08	<1.25e-01	<2.51e1	<2.51e1	n/a	n/a	92.53	25.12	n/a
S96T005181		Nitrate by IC-Dionex 4000/4500	ug/mL	99.33	<1.39e-01	5.95e+03	5.92e+03	5.94e+03	0.51	98.15	27.94	n/a
S96T005181		Phosphate-IC-Dionex 4000/4500	ug/mL	95.41	<1.20e-01	6.70e+02	675.0	672.5	0.74	99.08	24.12	n/a
S96T005181		Sulfate by IC-Dionex 4000/4500	ug/mL	101.3	<1.38e-01	2.79e+02	291.0	285.1	4.21	101.7	27.74	n/a
S96T005181		Oxalate by IC-Dionex 4000/4500	ug/mL	99.81	<1.05e-01	59.62	64.70	62.16	8.21	100.9	21.11	n/a
S96T005184		Strontium-89/90 High Level	uCi/mL	102.9	2.29e-05	2.77e-02	2.76e-02	2.77e-02	0.36	n/a	2.80e-05	1.23E+00
S96T005184		Pu-239/240 by TRU-SPEC Resin	uCi/mL	90.60	<3.68e-06	<5.89e-06	<5.39E-6	n/a	n/a	n/a	5.89e-06	7.35E+00
S96T005184		Cobalt-60 by GEA	uCi/mL	98.98	<2.25e-04	<3.71e-04	<3.87e-4	n/a	n/a	n/a	3.71e-04	n/a
S96T005184		Cesium-137 by GEA	uCi/mL	99.55	<6.43e-04	10.20	9.360	9.780	8.59	n/a	n/a	0.220
S96T005184		Am-241 by Extraction	uCi/mL	86.56	<6.13e-06	<6.15e-06	<7.06E-6	n/a	n/a	n/a	6.15e-06	1.04E+01

Table 2: Data Summary Report
AP-106 GRAB

RISER: 10/15/96

SEGMENT #: GAP-96-2

SEGMENT PORTION: Supernate

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec.	Det Limit	Count Err%
S96T005183	D	DSC Exotherm using Mettler	Joules/g	95.25	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T005183	DH-	by Pot. Titration	ug/mL	100.4	<3.00	6.07e+03	6.41e+03	6.24e+03	5.45	n/a	2.50e-03	n/a
S96T005183	D	pH Direct	pH	100.4	n/a	13.59	13.56	13.57	0.22	n/a	1.00e-02	n/a
S96T005183	D	Specific Gravity	Sp.-G.	98.39	n/a	1.009	1.016	1.012	0.71	n/a	1.00e-03	n/a
S96T005183	D	% Water by TGA using Mettler	%	101.1	n/a	94.31	94.33	94.32	0.02	n/a	n/a	n/a
S96T005183	D	TIC by Acid/Coulometry	ug/mL	97.51	4.00e-01	8.04e+02	772.0	788.0	4.06	n/a	5.000	n/a
S96T005183	D	Tot. Organic Carbon by Coul.	ug/mL	97.67	4.00e-01	9.14e+02	834.0	874.0	9.15	n/a	4.10e-01	n/a
S96T005183	D	Silver-ICP-Acid Dil.	ug/mL	100.0	<1.00e-02	1.220	1.180	1.200	3.33	n/a	2.050	n/a
S96T005183	D	Aluminum-ICP-Acid Dil.	ug/mL	98.40	<5.00e-02	9.52e+02	947.0	949.5	0.53	n/a	4.10e-01	n/a
S96T005183	D	Boron-ICP-Acid Dil.	ug/mL	104.4	<1.00e-01	< 4.100	<4.100	n/a	n/a	n/a	4.100	n/a
S96T005183	D	Arsenic-ICP-Acid Dil.	ug/mL	101.4	<5.00e-02	< 2.180	<2.240	n/a	n/a	n/a	2.050	n/a
S96T005183	D	Barium-ICP-Acid Dil.	ug/mL	99.60	<5.00e-02	< 2.050	<2.050	n/a	n/a	n/a	2.050	n/a
S96T005183	D	Beryllium-ICP-Acid Dil.	ug/mL	104.0	<5.00e-03	<2.05e-01	<2.09e-01	n/a	n/a	n/a	2.05e-01	n/a
S96T005183	D	Bismuth-ICP-Acid Dil.	ug/mL	102.0	<1.00e-01	< 4.100	<4.100	n/a	n/a	n/a	4.100	n/a
S96T005183	D	Calcium-ICP-Acid Dil.	ug/mL	101.6	<1.00e-01	< 4.100	<4.100	n/a	n/a	n/a	4.100	n/a
S96T005183	D	Cadmium-ICP-Acid Dil.	ug/mL	100.8	<5.00e-03	<2.05e-01	<2.09e-01	n/a	n/a	n/a	2.05e-01	n/a
S96T005183	D	Cerium-ICP-Acid Dil.	ug/mL	99.80	<1.00e-01	< 4.100	<4.100	n/a	n/a	n/a	4.100	n/a
S96T005183	D	Cobalt-ICP-Acid Dil.	ug/mL	101.8	<2.00e-02	<8.20e-01	<8.20e-01	n/a	n/a	n/a	8.20e-01	n/a
S96T005183	D	Chromium-ICP-Acid Dil.	ug/mL	104.4	<1.00e-02	24.30	24.30	24.30	0.00	n/a	4.10e-01	n/a
S96T005183	D	Copper-ICP-Acid Dil.	ug/mL	101.4	<5.00e-02	<4.10e-01	<4.10e-01	n/a	n/a	n/a	4.10e-01	n/a
S96T005183	D	Iron-ICP-Acid Dil.	ug/mL	93.00	<5.00e-02	< 2.050	<2.050	n/a	n/a	n/a	2.050	n/a
S96T005183	D	Potassium-ICP-Acid Dil.	ug/mL	101.2	<5.00e-02	3.47e+03	3.45e+03	3.46e+03	0.58	n/a	2.050	n/a
S96T005183	D	Lanthanum-ICP-Acid Dil.	ug/mL	101.4	<5.00e-02	< 2.050	<2.050	n/a	n/a	n/a	2.050	n/a
S96T005183	D	Lithium-ICP-Acid Dil.	ug/mL	101.2	<1.00e-02	<4.10e-01	<4.10e-01	n/a	n/a	n/a	4.10e-01	n/a
S96T005183	D	Magnesium-ICP-Acid Dil.	ug/mL	97.60	<1.00e-01	< 4.100	<4.100	n/a	n/a	n/a	4.100	n/a
S96T005183	D	Manganese-ICP-Acid Dil.	ug/mL	98.40	<1.00e-02	<4.10e-01	<4.10e-01	n/a	n/a	n/a	4.10e-01	n/a
S96T005183	D	Molybdenum-ICP-Acid Dil.	ug/mL	101.4	<5.00e-02	2.080	2.130	2.105	2.38	n/a	2.050	n/a
S96T005183	D	Sodium-ICP-Acid Dil.	ug/mL	98.80	<1.00e-01	1.74e+04	1.71e+04	1.72e+04	1.16	n/a	4.100	n/a
S96T005183	D	Neodymium-ICP-Acid Dil.	ug/mL	101.6	<1.00e-01	< 4.100	<4.100	n/a	n/a	n/a	4.100	n/a
S96T005183	D	Nickel-ICP-Acid Dil.	ug/mL	100.8	<2.00e-02	<8.20e-01	<8.20e-01	n/a	n/a	n/a	8.20e-01	n/a
S96T005183	D	Phosphorus-ICP-Acid Dil.	ug/mL	103.4	<2.00e-01	3.26e+02	323.0	324.5	0.92	n/a	8.200	n/a
S96T005183	D	Lead-ICP-Acid Dil.	ug/mL	100.4	<1.00e-01	< 4.100	<4.100	n/a	n/a	n/a	4.100	n/a
S96T005183	D	Sulfur-ICP-Acid Dil.	ug/mL	97.00	<5.00e-02	1.83e+02	181.0	182.0	1.10	n/a	4.100	n/a
S96T005183	D	Antimony-ICP-Acid Dil.	ug/mL	101.0	<2.00e-02	< 2.460	<2.460	n/a	n/a	n/a	2.460	n/a
S96T005183	D	Selenium-ICP-Acid Dil.	ug/mL	98.40	<1.00e-01	< 4.100	<4.100	n/a	n/a	n/a	4.100	n/a
S96T005183	D	Silicon-ICP-Acid Dil.	ug/mL	100.4	<5.00e-02	18.90	19.00	18.95	0.53	n/a	2.050	n/a
S96T005183	D	Samarium-ICP-Acid Dil.	ug/mL	98.00	<1.00e-02	< 4.100	<4.100	n/a	n/a	n/a	4.100	n/a
S96T005183	D	Strontium-ICP-Acid Dil.	ug/mL	99.00	<1.00e-02	<4.10e-01	<4.10e-01	n/a	n/a	n/a	4.10e-01	n/a
S96T005183	D	Tantalum-ICP-Acid Dil.	ug/mL	97.80	<2.00e-02	<4.10e-01	<4.10e-01	n/a	n/a	n/a	4.10e-01	n/a
S96T005183	D	Thallium-ICP-Acid Dil.	ug/mL	97.80	<2.00e-02	< 8.200	<8.200	n/a	n/a	n/a	8.200	n/a
S96T005183	D	Uranium-ICP-Acid Dil.	ug/mL	96.40	<5.00e-02	< 20.50	<2.05e1	n/a	n/a	n/a	20.50	n/a
S96T005183	D	Vanadium-ICP-Acid Dil.	ug/mL	101.4	<5.00e-02	< 2.050	<2.050	n/a	n/a	n/a	2.050	n/a
S96T005183	D	Zinc-ICP-Acid Dil.	ug/mL	102.0	<1.00e-02	6.00e-01	5.92e-01	5.96e-01	1.34	n/a	4.10e-01	n/a

Sample#	R.#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005183	D	Zirconium-10P-Acid Dil.	ug/mL	99.00	<1.00e-02	<4.10e-01	<4.10e-1	n/a	n/a	n/a	4.10e-01	n/a
S96T005183		Fluoride-IC-Dionex 4000/4500	ug/mL	90.68	<1.20e-02	6.56e+02	606.0	631.2	7.92	84.24	49.69	n/a
S96T005183		Chloride-IC-Dionex 4000/4500	ug/mL	92.91	<1.70e-02	6.38e+02	615.0	626.4	3.67	82.78	70.40	n/a
S96T005183		Nitrite-IC - Dionex 4000/4500	ug/mL	92.78	<1.08e-01	7.73e+03	7.58e+03	7.66e+03	1.96	85.74	447.2	n/a
S96T005183		Bromide by Ion Chromatograph	ug/mL	96.44	<1.25e-01	<5.18e+02	<5.18e2	n/a	n/a	89.81	517.6	n/a
S96T005183		Nitrate by IC-Dionex 4000/4500	ug/mL	103.2	<1.39e-01	2.77e+04	2.85e+04	2.81e+04	2.85	96.13	575.6	n/a
S96T005183		Phosphate-IC-Dionex 4000/4500	ug/mL	97.25	<1.20e-01	1.87e+03	1.65e+03	1.76e+03	12.5	89.72	496.9	n/a
S96T005183		Sulfate by IC-Dionex 4000/4500	ug/mL	102.5	<1.38e-01	1.29e+03	1.31e+03	1.30e+03	1.54	94.29	571.5	n/a
S96T005183		Oxalate by IC-Dionex 4000/4500	ug/mL	100.9	<1.05e-01	<4.35e+02	<4.35e2	n/a	n/a	95.26	434.8	n/a
S96T005186		Strontium-89/90 High Level	uCi/mL	102.9	2.29e-05	4.51e-03	4.62e-03	4.56e-03	2.41	n/a	2.94e-05	3.14E+00
S96T005186		Pu-239/240 by TRU-SPEC Resin	uCi/mL	90.60	<3.68e-06	1.84e-05	2.00e-05	1.92e-05	8.33	n/a	4.31e-06	2.73E+00
S96T005186		Cobalt-60 by GEA	uCi/mL	98.98	<2.25e-04	<7.58e-04	<7.59e-4	n/a	n/a	n/a	1.00e-03	n/a
S96T005186		Cesium-137 by GEA	uCi/mL	99.55	<6.43e-04	25.00	24.30	24.65	2.84	n/a	n/a	0.140
S96T005186		Am-241 by Extraction	uCi/mL	86.56	<6.13e-06	<6.72e-06	<9.37E-6	n/a	n/a	n/a	6.72e-06	1.00E+02

Table 2: Data Summary Report
AP-106 GRAB

RISER: 18150

SEGMENT #: 6AP-96-3

SEGMENT PORTION: Supernate

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S96T005182		DSC Exotherm on Perkin Elmer	Joules/g	96.73	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a		n/a
S96T005182		OH- by Pot. Titration	ug/mL	100.4	<3.0	2.78e+04	2.79e+04	2.78e+04	0.36	n/a	1.25e+03		n/a
S96T005182		pH Direct	pH	100.4	n/a	13.70	13.72	13.71	0.15	n/a	1.00e-02		n/a
S96T005182		Specific Gravity	Sp-G.	99.39	n/a	1.205	1.207	1.206	0.13	n/a	1.00e-03		n/a
S96T005182		% Water by TGA on Perkin Elmer	%	99.12	n/a	70.14	69.67	69.91	0.67	n/a	n/a		n/a
S96T005182		TIC by Acid/Coulometry	ug/mL	97.51	4.00e-01	4.06e+03	4.09e+03	4.08e+03	0.74	n/a	5.000		n/a
S96T005182		Tot. Organic Carbon by Coul.	ug/mL	97.67	4.00e-01	3.40e+03	3.10e+03	3.25e+03	9.52	n/a	25.00		n/a
S96T005182		D Silver-ICP-Acid Dil.	ug/mL	100.0	<1.00e-02	7.800	8.340	8.070	6.69	n/a	3.010		n/a
S96T005182		D Aluminum-ICP-Acid Dil.	ug/mL	98.40	<1.00e-02	8.78e+03	9.00e+03	8.89e+03	2.47	n/a	15.10		n/a
S96T005182		D Boron-ICP-Acid Dil.	ug/mL	104.4	<1.00e-02	< 30.10	<3.01e1	n/a	n/a	n/a	30.10		n/a
S96T005182		D Barium-ICP-Acid Dil.	ug/mL	101.4	<1.00e-02	< 15.10	<1.51e1	n/a	n/a	n/a	15.10		n/a
S96T005182		D Beryllium-ICP-Acid Dil.	ug/mL	99.60	<1.00e-02	< 1.510	<1.51e1	n/a	n/a	n/a	1.510		n/a
S96T005182		D Bismuth-ICP-Acid Dil.	ug/mL	102.0	<1.00e-01	< 30.10	<3.01e1	n/a	n/a	n/a	30.10		n/a
S96T005182		D Cadmium-ICP-Acid Dil.	ug/mL	101.6	<1.00e-01	< 30.10	<3.01e1	n/a	n/a	n/a	30.10		n/a
S96T005182		D Calcium-ICP-Acid Dil.	ug/mL	100.8	<1.00e-03	2.060	2.160	2.110	4.74	n/a	1.510		n/a
S96T005182		D Cerium-ICP-Acid Dil.	ug/mL	99.80	<1.00e-01	< 30.10	<3.01e1	n/a	n/a	n/a	30.10		n/a
S96T005182		D Cobalt-ICP-Acid Dil.	ug/mL	101.8	<1.00e-02	< 6.020	<6.02e0	n/a	n/a	n/a	6.020		n/a
S96T005182		D Chromium-ICP-Acid Dil.	ug/mL	101.6	<1.00e-02	1.59e+02	163.0	161.0	2.48	n/a	3.010		n/a
S96T005182		D Copper-ICP-Acid Dil.	ug/mL	104.4	<1.00e-02	< 3.010	<3.01e0	n/a	n/a	n/a	3.010		n/a
S96T005182		D Iron-ICP-Acid Dil.	ug/mL	101.4	<1.00e-02	< 15.10	<1.51e1	n/a	n/a	n/a	15.10		n/a
S96T005182		D Potassium-ICP-Acid Dil.	ug/mL	93.00	<1.00e-01	2.23e+04	2.28e+04	2.26e+04	2.22	n/a	150.0		n/a
S96T005182		D Lanthanum-ICP-Acid Dil.	ug/mL	101.2	<1.00e-02	< 15.10	<1.51e1	n/a	n/a	n/a	15.10		n/a
S96T005182		D Lithium-ICP-Acid Dil.	ug/mL	101.4	<1.00e-02	< 3.010	<3.01e0	n/a	n/a	n/a	3.010		n/a
S96T005182		D Magnesium-ICP-Acid Dil.	ug/mL	97.60	<1.00e-01	< 30.10	<3.01e1	n/a	n/a	n/a	30.10		n/a
S96T005182		D Manganese-ICP-Acid Dil.	ug/mL	98.40	<1.00e-02	< 3.010	<3.01e0	n/a	n/a	n/a	3.010		n/a
S96T005182		D Molybdenum-ICP-Acid Dil.	ug/mL	101.4	<1.00e-02	17.10	17.70	17.40	3.45	n/a	15.10		n/a
S96T005182		D Sodium-ICP-Acid Dil.	ug/mL	98.80	<1.00e-01	1.10e+05	1.13e+05	1.12e+05	2.69	n/a	30.10		n/a
S96T005182		D Neodymium-ICP-Acid Dil.	ug/mL	101.6	<1.00e-01	< 30.10	<3.01e1	n/a	n/a	n/a	30.10		n/a
S96T005182		D Nickel-ICP-Acid Dil.	ug/mL	100.8	<1.00e-02	6.690	7.260	6.970	8.03	n/a	6.020		n/a
S96T005182		D Phosphorus-ICP-Acid Dil.	ug/mL	103.4	<1.00e-01	4.55e+02	468.0	461.5	2.82	n/a	60.20		n/a
S96T005182		D Lead-ICP-Acid Dil.	ug/mL	100.4	<1.00e-01	< 30.10	<3.01e1	n/a	n/a	n/a	30.10		n/a
S96T005182		D Sulphur-ICP-Acid Dil.	ug/mL	97.00	<1.00e-01	1.15e+03	1.19e+03	1.17e+03	3.42	n/a	30.10		n/a
S96T005182		D Antimony-ICP-Acid Dil.	ug/mL	101.0	<1.00e-02	< 18.10	<1.81e1	n/a	n/a	n/a	18.10		n/a
S96T005182		D Selenium-ICP-Acid Dil.	ug/mL	98.40	<1.00e-02	< 30.10	<3.01e1	n/a	n/a	n/a	30.10		n/a
S96T005182		D Silicon-ICP-Acid Dil.	ug/mL	100.4	<1.00e-01	40.20	42.30	41.25	5.09	n/a	15.10		n/a
S96T005182		D Samarium-ICP-Acid Dil.	ug/mL	98.00	<1.00e-02	< 30.10	<3.01e1	n/a	n/a	n/a	30.10		n/a
S96T005182		D Strontium-ICP-Acid Dil.	ug/mL	99.00	<1.00e-02	< 3.010	<3.01e0	n/a	n/a	n/a	3.010		n/a
S96T005182		D Tantalum-ICP-Acid Dil.	ug/mL	97.80	<1.00e-02	< 3.010	<3.01e0	n/a	n/a	n/a	3.010		n/a
S96T005182		D Thallium-ICP-Acid Dil.	ug/mL	97.80	<1.00e-01	< 60.20	<6.02e1	n/a	n/a	n/a	60.20		n/a
S96T005182		D Vanadium-ICP-Acid Dil.	ug/mL	101.4	<1.00e-02	<1.50e+02	<1.50e2	n/a	n/a	n/a	150.0		n/a
S96T005182		D Zirconium-ICP-Acid Dil.	ug/mL	101.4	<1.00e-02	< 15.10	<1.51e1	n/a	n/a	n/a	15.10		n/a
S96T005182		D Zinc-ICP-Acid Dil.	ug/mL	102.0	<1.00e-02	4.860	4.870	4.865	0.21	n/a	3.010		n/a

Sample#	R.#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S961005182	D	Zirconium-ICP-Acid Dil.	ug/mL	99.00	<1.00e-02	< 3.010	3.170	n/a	n/a	n/a	3.010	n/a
S961005182		Fluoride-IC-Dionex 4000/4500	ug/mL	92.37	<1.20e-02	2.47e+03	2.43e+03	2.45e+03	1.63	n/a	49.69	n/a
S961005182		Chloride-IC-Dionex 4000/4500	ug/mL	93.04	<1.70e-02	1.62e+03	1.61e+03	1.61e+03	0.62	n/a	70.40	n/a
S961005182		Nitrite-IC - Dionex 4000/4500	ug/mL	93.15	<1.08e-01	3.06e+04	3.10e+04	3.08e+04	1.30	n/a	447.2	n/a
S961005182		Bromide by Ion Chromatograph	ug/mL	95.08	<1.25e-01	<5.18e+02	<5.18e+02	n/a	n/a	n/a	517.6	n/a
S961005182		Nitrate by IC-Dionex 4000/4500	ug/mL	99.33	<1.39e-01	1.29e+05	1.29e+05	1.29e+05	0.00	n/a	575.6	n/a
S961005182		Phosphate-IC-Dionex 4000/4500	ug/mL	95.41	<1.20e-01	8.21e+02	699.0	760.0	16.1	n/a	496.9	n/a
S961005182		Sulfate by IC-Dionex 4000/4500	ug/mL	101.3	<1.38e-01	3.60e+03	3.64e+03	3.62e+03	1.10	n/a	571.5	n/a
S961005182		Oxalate by IC-Dionex 4000/4500	ug/mL	99.81	<1.05e-01	1.01e+03	976.0	991.0	3.42	n/a	434.8	n/a
S961005185		Strontium-89/90 High Level	uCi/mL	102.9	2.29e-05	4.96e-01	5.28e-01	5.12e-01	6.25	n/a	3.00e-03	2.94e+00
S961005185		Pu-239/240 by TRU-SPEC Resin	uCi/mL	90.60	<3.68e-06	1.17e-04	1.17e-04	1.17e-04	0.00	n/a	3.84e-05	3.31e+00
S961005185		Cobalt-60 by GEA	uCi/mL	98.98	<2.25e-04	<3.06e-02	<2.60e-2	n/a	n/a	n/a	3.10e-02	n/a
S961005185		Cesium-137 by GEA	uCi/mL	99.55	<6.43e-04	1.39e+02	139.0	139.0	0.00	n/a	n/a	0.580
S961005185		Am-241 by Extraction	uCi/mL	91.60	<4.02e-05	8.76e-04	9.00e-04	8.88e-04	2.70	n/a	1.55e-04	1.95e+00

WHC-SD-WM-DP-217, REV. 0

WASTE COMPATIBILITY CORROSION RULES

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Table 3 (1 of 3)

WASTE COMPATIBILITY CORROSION RULES

Sample ID	Analyte	Result (ug/mL)	Result (M)	[OH] [NO3] <= 1.0 M? [OH] <= 5.0 M? 0.010 M <= [OH] <= 5.0 M? 0.011 M <= [NO2] <= 5.5 M [NO3]/([OH] + [NO2]) < 2.5? YES YES YES YES YES		
6AP-96-1 Supernate	NO3	5.95E+03	0.096			
	OH	2.56E+03	0.151			
	NO2	1.86E+03	0.040			
3.0 M < [NO3] <= 5.5 M? 0.3 <= [OH] < 10 M?				[OH] + [NO2] >= 0.4 * [NO3]? [OH] + [NO2] >= 1.2 M?		

WHC-SD-WM-DP-217, REV. 0

Sample ID	Analyte	Result (ug/mL)	Result (M)	[OH] [NO3] <= 1.0 M? [OH] <= 5.0 M? 0.010 M <= [OH] <= 5.0 M? 0.011 M <= [NO2] <= 5.5 M [NO3]/([OH] + [NO2]) < 2.5? YES YES YES YES YES		
6AP-96-1 Supernate DUP	NO3	5.92E+03	0.095			
	OH	2.83E+03	0.166			
	NO2	1.89E+03	0.041			
3.0 M < [NO3] <= 5.5 M? 0.3 <= [OH] < 10 M?				[OH] + [NO2] >= 0.4 * [NO3]? [OH] + [NO2] >= 1.2 M?		

Table 3 (2 of 3)

WASTE COMPATIBILITY CORROSION RULES

Sample ID	Analyte	Result (ug/mL)	Result (M)						
6AP-96-2 Supernate	NO3	2.77E+04	0.447						
	OH	6.07E+03	0.357						
	NO2	7.73E+03	0.168						
				3.0 M < [NO3] <= 5.5 M?		0.3 <= [OH] < 10 M?			[OH] + [NO2] >= 1.2 M?

Sample ID	Analyte	Result (ug/mL)	Result (M)							
6AP-96-2 Supernate DUP	NO3	2.85E+04	0.460	<= 1.0 M? YES	0.010 M <= [OH] <= 5.0 M? YES	0.011 M <= [NO2] <= 5.5 M YES	[NO3]/([OH] + [NO2]) < 2.5? YES			
	OH	6.41E+03	0.377							
	NO2	7.58E+03	0.165	1.0 M < [NO3] <= 3.0 M? 0.1 M * [NO3] <= [OH] < 10 M? [OH] + [NO2] >= 0.4 * [NO3]? [OH] + [NO2] >= 1.2 M?						
				3.0 M < [NO3] <= 5.5 M? 0.3 <= [OH] < 10 M? [OH] + [NO2] >= 1.2 M?						

Table 3 (3 of 3)

WASTE COMPATIBILITY CORROSION RULES

Sample ID	Analyte	Result (ug/mL)	Result (M)			
6AP-96-3 Supernate				$\leq 1.0 \text{ M?}$	$0.010 \text{ M} \leq [\text{OH}] \leq 5.0 \text{ M?}$	$0.011 \text{ M} \leq [\text{NO}_2] \leq 5.5 \text{ M}$
	NO3	1.29E+05	2.081			$[\text{NO}_3]/([\text{OH}] + [\text{NO}_2]) < 2.5?$
	OH	2.78E+04	1.635			
	NO2	3.06E+04	0.665			
				$1.0 \text{ M} < [\text{NO}_3] \leq 3.0 \text{ M?}$	$0.1 \text{ M} * [\text{NO}_3] \leq [\text{OH}] < 10 \text{ M?}$	$[\text{OH}] + [\text{NO}_2] \geq 0.4 * [\text{NO}_3]?$
				YES	YES	YES
				$3.0 \text{ M} < [\text{NO}_3] \leq 5.5 \text{ M?}$	$0.3 \leq [\text{OH}] < 10 \text{ M?}$	$[\text{OH}] + [\text{NO}_2] \geq 1.2 \text{ M?}$

Sample ID	Analyte	Result (ug/mL)	Result (M)			
6AP-96-3 Supernate DUP				$\leq 1.0 \text{ M?}$	$0.010 \text{ M} \leq [\text{OH}] \leq 5.0 \text{ M?}$	$0.011 \text{ M} \leq [\text{NO}_2] \leq 5.5 \text{ M}$
	NO3	1.29E+05	2.081			$[\text{NO}_3]/([\text{OH}] + [\text{NO}_2]) < 2.5?$
	OH	2.79E+04	1.641			
	NO2	3.10E+04	0.674			
				$1.0 \text{ M} < [\text{NO}_3] \leq 3.0 \text{ M?}$	$0.1 \text{ M} * [\text{NO}_3] \leq [\text{OH}] < 10 \text{ M?}$	$[\text{OH}] + [\text{NO}_2] \geq 0.4 * [\text{NO}_3]?$
				YES	YES	YES
				$3.0 \text{ M} < [\text{NO}_3] \leq 5.5 \text{ M?}$	$0.3 \leq [\text{OH}] < 10 \text{ M?}$	$[\text{OH}] + [\text{NO}_2] \geq 1.2 \text{ M?}$

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**ATTACHMENT 2
CORRESPONDENCE**

WHC-SD-WM-DP-217, REV. 0

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Author: Roland G Brown at WHC128
 Date: 10/11/96 11:49 AM
 Priority: Normal
 TO: Ruth A Esch at HANFORD03A
 CC: Roland G Brown
 Subject: AP-106 Miss- Match Samples

----- Message Contents -----

Based on observation on 10/4/96, dose rate measurements, field process memo, and J-5 in work package ES-96-00754, the COC sample number and dose rate were changed on the Chain of Custody. Please analyzed the samples according to the changes made to the Chain of Custody on 10/11/96.

The following is what was noted:

COC Sample #	Seal # COC/PIG	Bottle etched #	Dose Rate COC/Process*
-----	-----	-----	-----
6AP-96-1	1996/1996	6AP-96-1	24/24
6AP-96-2	1998/1998	6AP-96-3	150/700
6AP-96-3	1999/1999	6AP-96-2	700/150

Process* dose rate is based on the etched bottle sample number and dose rate measured in the field recorded on the field process memo. The Lab confirmed the dose rate of the Process*.

After the Chain of Custody changes on 10/11/96, the information on the COC, seal #, etched sample bottles, and dose rate are summarized below:

COC Sample #	Seal # COC/PIG	Bottle etched #	Dose Rate COC/Process*
-----	-----	-----	-----
6AP-96-1	1996/1996	6AP-96-1	24/24
6AP-96-2	1999/1999	6AP-96-2	150/150
6AP-96-3	1998/1998	6AP-96-3	700/700

Thanks,
 Roland Brown
 373-5694

WHC-SD-WM-DP-217, REV. 0

CHAIN OF CUSTODY FORMS

WHC-SD-WM-DP-217, REV. 0

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CHAIN-OF-CUSTODY RECORD FOR AUGER/GRAB SAMPLING

Shipment Number 200E-08-77	(2) Sample Number 6AP-96-1	(3) Supervisor R.J. Benznik
Tank API06	(5) Riser 1 @ 150"	(6) Cask/PIG Shipping Container Serial Number 6053A 16-6
(8) Shipment Description		
A. Work Package Number ES-96-00754/0		
B. Cask/PIG Seal Number 1996		
C. Date and Time Sample 9-12-96 10:26 am		
D. Expected Liquid Content 100%		
E. Expected Solid Content 0%		
F. Dose Rate Through Drill String (Auger/On Contact) (dR/hr)		
G. Expected Sample Length (Auger)/Volume (Gallon) 24 mph 15 ml		

WHC-SD-WM-DP-217, REV. 0

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

29

(31) LABORATORY		(32) Laboratory Comments	
(17) FIELD	(18) Destination	(19) Sender Name (Sign and PRINT)	(20) Receiver Name (Sign and PRINT)
Over Top Dose Rate 20.5 mR	222-S	James Sickels	James Sickels
Side Dose Rate 20.5 mR			
Bottom Dose Rate 20.5 mR			
Shearable Contamination 220 d/m			
1000 d/m			
(16) Seal Intact Upon Release?	(23) Seal Intact Upon Receipt?	(24) Date/Time	(25) Date/Time
☒ Yes ☐ No	☐ Yes ☐ No	9-15-96	9-15-96
(15) Seal Intact Upon Receipt?	(26) Seal Data Consistent with this Record?	(27) Date/Time	(28) Date/Time
☐ Yes ☐ No	☐ Yes ☐ No	9-15-96	9-15-96
Shipment No. ☐ Yes ☐ No		Seal No. ☐ Yes ☐ No	
Pink - Waste Tank Sampling		Yellow - Recipient of Sample	
White - Office of Sample Management		Goldens - Tank Farm Operations.	

CHAIN-OF-CUSTODY RECORD FOR AUGER/GRAB SAMPLING

Dec. 6, 1996 2:24PM WHC 2225 LAB ROOM 2F BACKSIDE No. 7675 P. 2/2

Shipment Number 200E-08-TF (2) Sample Number 6AP-96-3-2 (3) Supervisor R.J. RAZNIK
 Tank AP106 (5) Riser 10.150 (6) Cask/PIG Shipping Container Serial Number 6003E/18-2

Shipment Survey Data For Cask/PIG:		(7) FIELD	(31) LABORATORY	(8) Shipment Description
Over Top Dose Rate	<u>20.5 m/s</u>	<u>20.5 m/s</u>	<u>20.5 m/s</u>	A. Work Package Number <u>ES-96-007546</u>
Side Dose Rate	<u>20.5 m/s</u>	<u>20.5 m/s</u>	<u>20.5 m/s</u>	B. Cask/PIG Seal Number <u>1999</u>
Bottom Dose Rate	<u>20.5 m/s</u>	<u>20.5 m/s</u>	<u>20.5 m/s</u>	C. Date and Time Sample <u>9.12.96/1044L</u>
Smearable Contamination	<u>20.5 m/s</u>	<u>20.5 m/s</u>	<u>20.5 m/s</u>	D. Removed from Tank <u>100g</u>
	<u>20.5 m/s</u>	<u>20.5 m/s</u>	<u>20.5 m/s</u>	E. Expected Liquid Content <u>0g</u>
	<u>20.5 m/s</u>	<u>20.5 m/s</u>	<u>20.5 m/s</u>	F. Dose Rate Through Drill String (Expected/On Contact (GRAB)) <u>150 400 m/s</u>
	<u>20.5 m/s</u>	<u>20.5 m/s</u>	<u>20.5 m/s</u>	G. Volume (GRAB) <u>12.5 ml</u>

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

WHC-SD-WM-DP-217, REV. 0

Field Comments		(32) Laboratory Comments	
The above changes were made due to a field error - the wrong sample bottle was placed in the sample pig. recal - 12/10/96			

(1) Point of Origin <u>AP106 10.150</u>	(12) Destination <u>222-5</u>	(23) Sender Name (Sign and PRINT) <u>James Sicks</u>	(14) Date/Time <u>9-13-96</u>	(15) Sender Comments
(2) Relinquished By (Sign and PRINT) <u>James Sicks</u>	(13) Received By (Sign and PRINT) <u>James Sicks</u>	(24) Receiver Name <u>James Sicks</u>	(16) Date/Time <u>9-13-96</u>	(20) Receiver Comments
(3) Relinquished By (Sign and PRINT) <u>James Sicks</u>	(14) Received By (Sign and PRINT) <u>James Sicks</u>	(25) Date/Time <u>9-13-96</u>	(17) Date/Time <u>9-13-96</u>	(24) Receiver Comments
(4) Relinquished By (Sign and PRINT) <u>James Sicks</u>	(15) Received By (Sign and PRINT) <u>James Sicks</u>	(26) Date/Time <u>9-13-96</u>	(18) Date/Time <u>9-13-96</u>	(28) Receiver Comments

(18) Seal Intact Upon Release? ☒ Yes ☐ No	(29) Seal Intact Upon Receipt? ☒ Yes ☐ No	(30) Seal Data Consistent with this Record? ☒ Yes ☐ No	Sample No. ☒ Yes ☐ No
---	---	--	---

3TRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Waste Tank Sampling Goldstream - Tank Farm Operations. BC-6001-328 (01/96)

CHAIN-OF-CUSTODY RECORD FOR AUGER/GRAB SAMPLING

Dec. 6, 1996 2:24PM WHC 222S LAB ROOM 2F BACKSIDE No. 7675 P. 1/2

1 Shipment Number 200E-08-TF (2) Sample Number 6AP-90-23 (3) Supervisor R.J. Penznik
 1 Tank AP106 (5) Riser 10150° (6) Cask/PIG Shipping Container Serial Number 60038

(7) FIELD		(31) LABORATORY		(8) Shipment Description	
Isolation Survey Data For Cask/PIG:				A. Work Package Number	<u>ES-96-007546</u>
Over Top Dose Rate	<u>2.5 mR/hr</u>			B. Cask/PIG Seal Number	<u>1998</u>
Side Dose Rate	<u>0.6 mR/hr</u>			C. Date and Time Sample	<u>9-12-96/1038h</u>
Bottom Dose Rate	<u>2.5 mR/hr</u>			D. Expected Liquid Content	<u>100%</u>
Shearable Contamination	<u>220 dpm</u>			E. Expected Solid Content	<u>0%</u>
	<u>500 dpm</u>			F. Dose Rate Through Drill String (Auger/On Contact) (GRAB)	<u>700 ± 50 mR/h</u>
				G. Expected Sample Length (Auger)/Volume (GRAB)	<u>125 ml</u>
PCT: <u>ALL</u>		ACT: <u>[Signature]</u>			

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

31

3) Field Comments

(32) Laboratory Comments

Shipment # added to seal at time delivery.
 The above changes were made to correct an error with field. The wrong sample bottle was placed in the sample pg. sent 12/6/96

(1) Point of Origin	(12) Destination	(13) Sender Name (Sign and Print)	(14) Date/Time	(15) Receiver Comments
AP106/10150°	222-S	James Nichols	9-13-96	
Relinquished By (Sign and Print)	James Nichols	Relinquished By (Sign and Print)	9-13-96	
Relinquished By (Sign and Print)	James Nichols	Relinquished By (Sign and Print)	9-13-96	
Relinquished By (Sign and Print)	James Nichols	Relinquished By (Sign and Print)	9-13-96	
Relinquished By (Sign and Print)	James Nichols	Relinquished By (Sign and Print)	9-13-96	

(16) Seal Intact Upon Release?	(29) Seal Intact Upon Receipt?	(30) Seal Data Consistent with this Record?	Seal No.	Sample No.
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

1) DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Waste Tank Sampling Goldenrod - Tank Farm Operations. BC-8001-326 (01/96)

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SAMPLE HANDLING

WHC-SD-WM-DP-217, REV. 0

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LABCORE Data Entry Template for Worklist# 13687

Analyst: my JHW Instrument: NONE N/A Book # N/A

Method: LA-519-151 Rev/Mod E-2

Worklist Comment: AP-106 @BRKDWN - rae

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
96001337	AP-106 GRAB	1 SAMPLE	S96T005178	0	@BRKDWN1 DOSERATE	LIQUID	N/A	250		10/4/96 mod/hour slight stiff solids of on bottom
96001337	AP-106 GRAB	1 SAMPLE	S96T005178	0	@BRKDWN1 APPEAR02	LIQUID	N/A	Clear yellow 125		10/4/96 slight dusting of solids on bottom
96001337	AP-106 GRAB	1 SAMPLE	S96T005178	0	@BRKDWN1 SAMPANT2	LIQUID	N/A	200		10/4/96 ml
96001337	AP-106 GRAB	2 SAMPLE	S96T005179	0	@BRKDWN1 DOSERATE	LIQUID	N/A	5000		10/4/96 mrads/hour
96001337	AP-106 GRAB	2 SAMPLE	S96T005179	0	@BRKDWN1 APPEAR02	LIQUID	N/A	Clear yellow 125		10/4/96 slight dusting of solids on bottom
96001337	AP-106 GRAB	2 SAMPLE	S96T005179	0	@BRKDWN1 SAMPANT2	LIQUID	N/A	200		10/4/96 ml
96001337	AP-106 GRAB	3 SAMPLE	S96T005180	0	@BRKDWN1 DOSERATE	LIQUID	N/A	750		10/4/96 mrads/hour
96001337	AP-106 GRAB	3 SAMPLE	S96T005180	0	@BRKDWN1 APPEAR02	LIQUID	N/A	Clear no solids		10/4/96 pale yellow
96001337	AP-106 GRAB	3 SAMPLE	S96T005180	0	@BRKDWN1 SAMPANT2	LIQUID	N/A	125		10/4/96 ml

Final page for worklist # 13687

John W. Russell 10-4-96
Analyst Signature Date

John W. Russell 10-8-96
Analyst Signature Date

Data Entry Comments:

Sample S96T005179 tag and seal on pig labelled 6AP-96-2,
bottle was etched as 6AP-96-3

Sample S96T005180 tag and seal on pig labelled 6AP-96-3, bottle etched as
6AP-96-2

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.

WHC-SD-WM-DP-217, REV. 0

INORGANIC ANALYSIS

WHC-SD-WM-DP-217, REV. 0

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LABCORE Data Entry Template for Worklist# 13982

Analyst: EAL Instrument: DSC0 3 Book # 12N148

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

Worklist Comment: AP-106 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	LIQUID	<u>28.45</u>	<u>27.52 *</u>	<u>N/A</u>	Joules/g
96001337	AP-106 GRAB	2 SAMPLE	S96T005181 0		DSC-03	LIQUID	<u>N/A</u>	<u>Ø</u>		Joules/g
96001337	AP-106 GRAB	3 DUP	S96T005181 0		DSC-03	LIQUID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g
96001337	AP-106 GRAB	4 SAMPLE	S96T005182 0		DSC-03	LIQUID	<u>N/A</u>	<u>Ø</u>		Joules/g
96001337	AP-106 GRAB	5 DUP	S96T005182 0		DSC-03	LIQUID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g

Final page for worklist # 13982

See attached for signatures 10-22-96
Analyst Signature Date BOY

Frank March 10-24-96
Analyst Signature Date

Verified/Validated by
Blandina Valenzuela
10-30-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 13982

Analyst: ELC Instrument: DSC0 Book # 12N14B

Method: LA-514-113 Rev/Mod _____

Worklist Comment: AP-106 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	LIQUID			N/A	Joules/g
96001337	AP-106 GRAB	2 SAMPLE	S96T005181	0	DSC-01	LIQUID	N/A			Joules/g
96001337	AP-106 GRAB	3 DUP	S96T005181	0	DSC-01	LIQUID			N/A	Joules/g
96001337	AP-106 GRAB	4 SAMPLE	S96T005182	0	DSC-01	LIQUID	N/A			Joules/g
96001337	AP-106 GRAB	5 DUP	S96T005182	0	DSC-01	LIQUID			N/A	Joules/g

Final page for worklist # 13982

A. Lambel 10-21-96
Analyst Signature Date

Analyst Signature Date

DSC-03 instrument
was used.

10-22-96

Blandina
Valenzuela

Data Entry Comments:

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

Curve 1: DSC

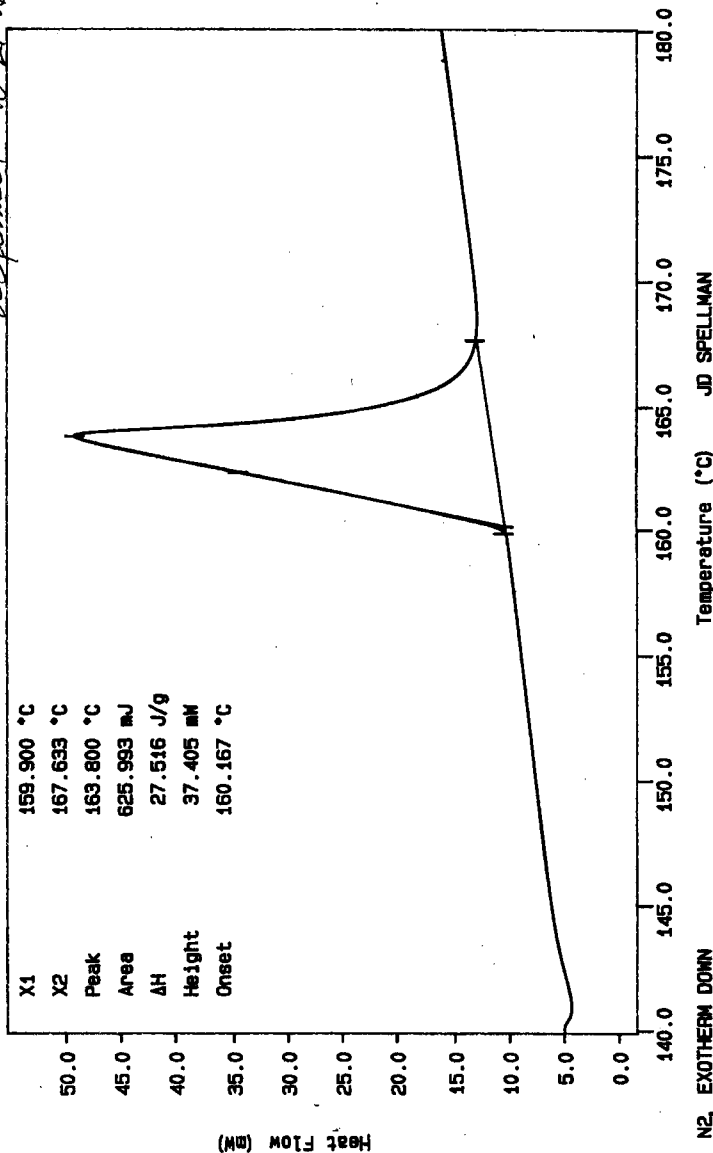
File Info: IND102101 Mon Oct 21 05:43:49 1996

Sample Weight: 22.750 mg

12N14-B INDIUM AT 10C/MIN

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 39 TO 42.

Signature 10-21-96



N2, EXOTHERM DOWN

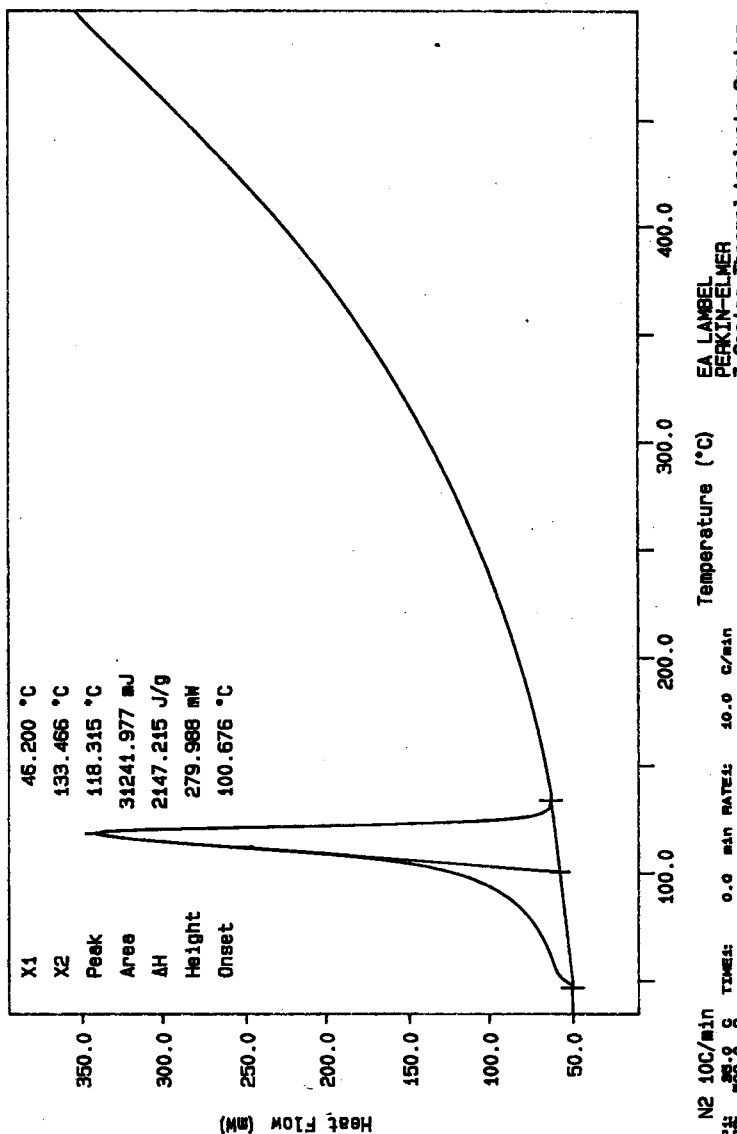
TEMP: 140.0 °C TIME: 0.0 min RATE: 10.0 °C/min

Temperature (°C)

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System

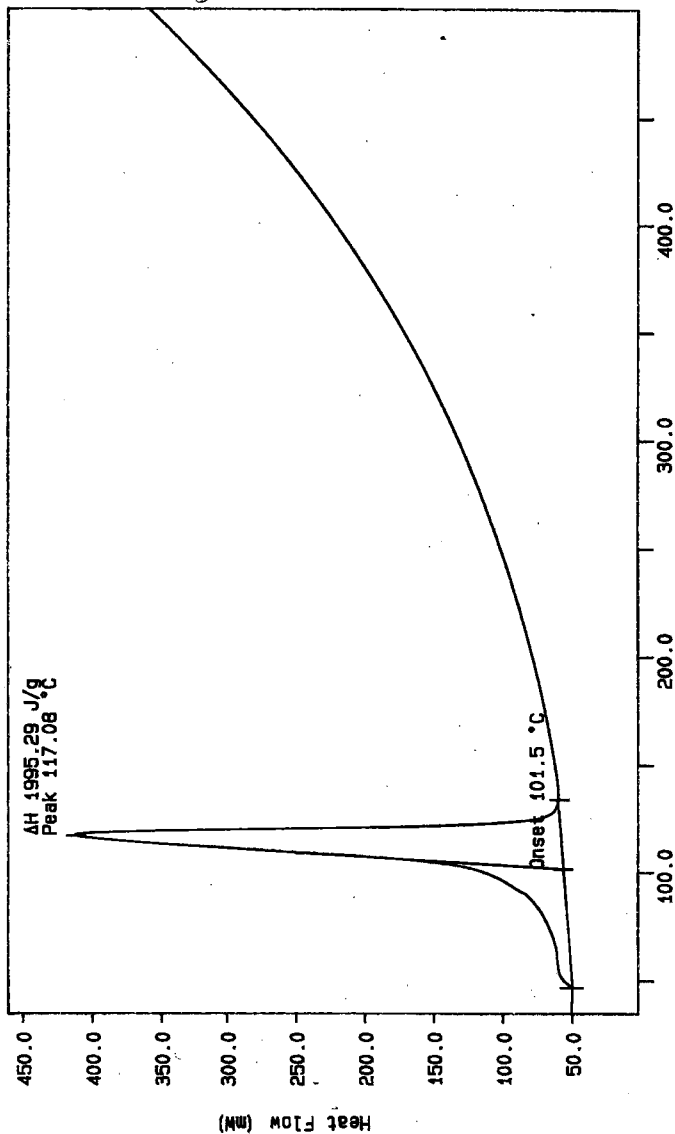
Tue Oct 22 02:51:27 1996

Curve 1: DSC
 File Info: SAMI02105 Mon Oct 21 18:21:45 1996
 Sample Weight: 14.550 mg
 S96T005181



N2 100/min
 TEMP: 28.8 °C
 TIME: 0.0 min RATE: 10.0 °C/min

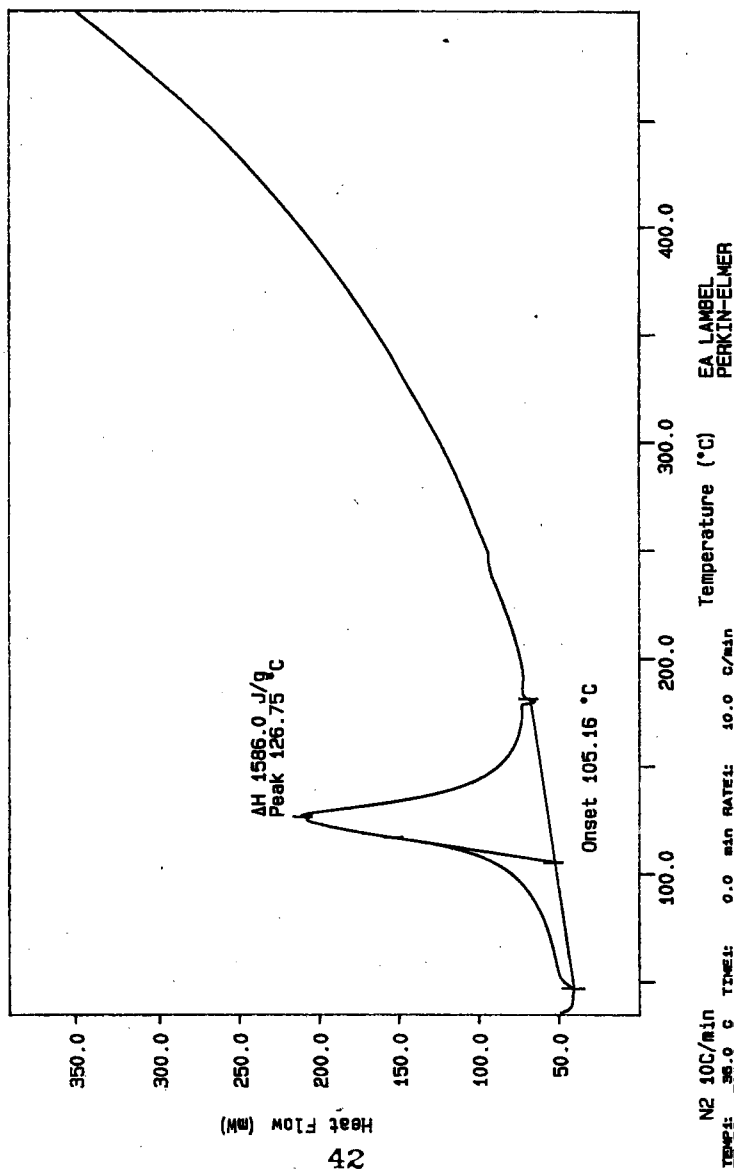
Curve 1: DSC
 File Info: SAM1021006 Mon Oct 21 19:55:51 1996
 Sample Weight: 16.710 mg
 S96T005181 DUP



EA LAMBEL
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Mon Oct 21 20:44:01 1996

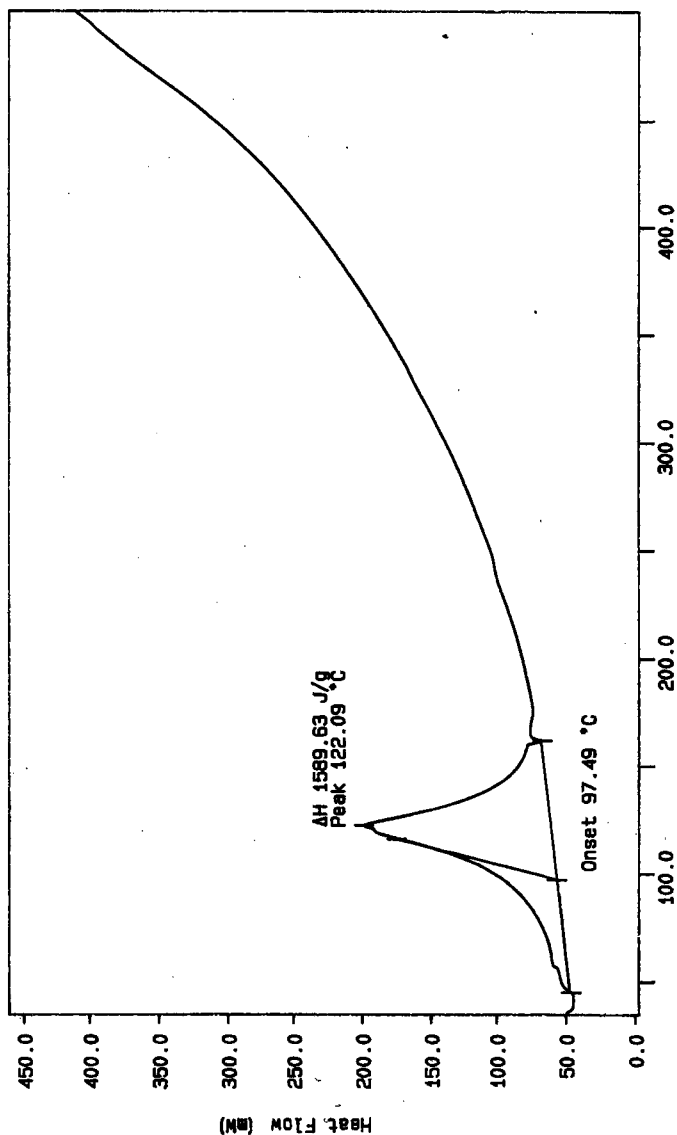
N2 10C/min
 TEMP 35.0 °C
 TIME: 0.0 min RATE: 10.0 C/min

Curve 1: DSC
 File Info: SAM102107 Mon Oct 21 21:44:33 1996
 Sample Weight: 18.310 mg
 996T005182 SAM



EA LABEL
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Mon Oct 21 22:06:49 1996

Curve 1: DSC
 File Info: SAM102108 Mon Oct 21 23:01:37 1996
 Sample Weight: 18.500 mg
 S96T005182 DUP



EA LABEL
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Tue Oct 22 00:14:04 1996

worklistrpt Version 2.1 05/15/95
10/14/96 11:38

Page: 1

LABCORE Data Entry Template for Worklist# 13983Analyst: ELM Instrument: DSC0 1 Book # 12N14BMethod: LA-514-113 Rev/Mod C-1

Worklist Comment: AP-106 DSC, RUN UNDER N2. RCI

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	LIQUID	<u>28.45</u>	<u>27.1*</u>	<u>N/A</u>	Joules/g
96001337	AP-106 GRAB	2 SAMPLE	S96T005183	0	DSC-01	LIQUID	<u>N/A</u>	<u>Ø</u>		Joules/g
96001337	AP-106 GRAB	3 DUP	S96T005183	0	DSC-01	LIQUID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g

Final page for worklist # 13983

A. Lambel 10-21-96
 Analyst Signature Date

Frank Mack 10-24-96
 Analyst Signature Date

Verified/Validated by
Blandina
Valenzuela 10-30-96

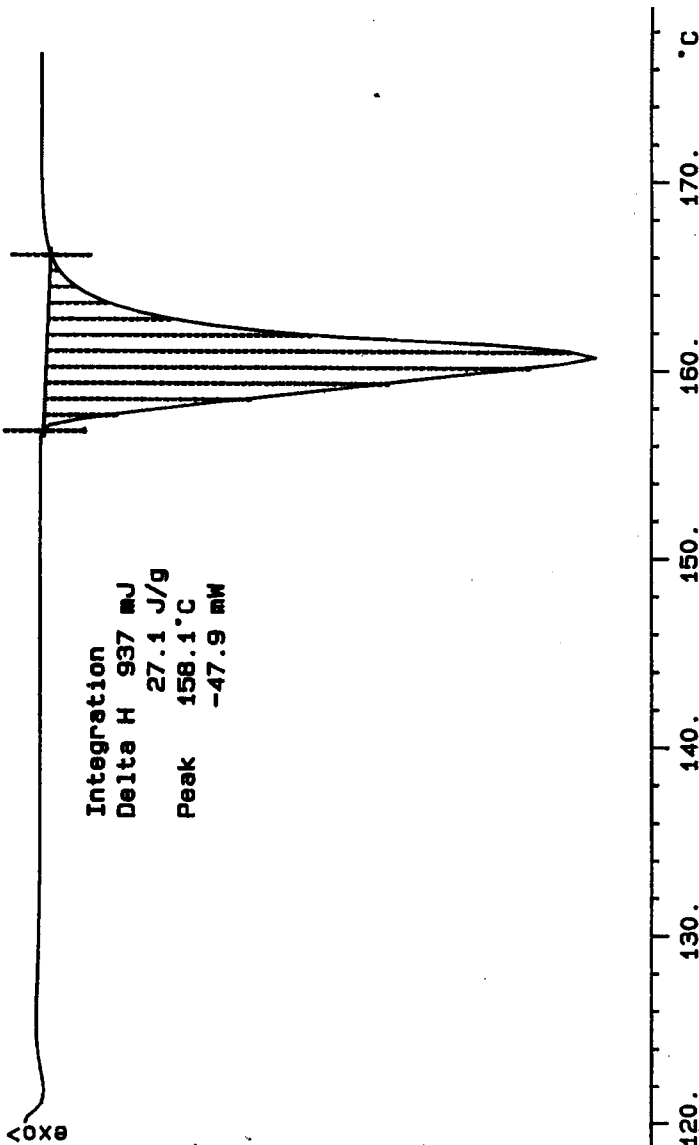
Data Entry Comments:

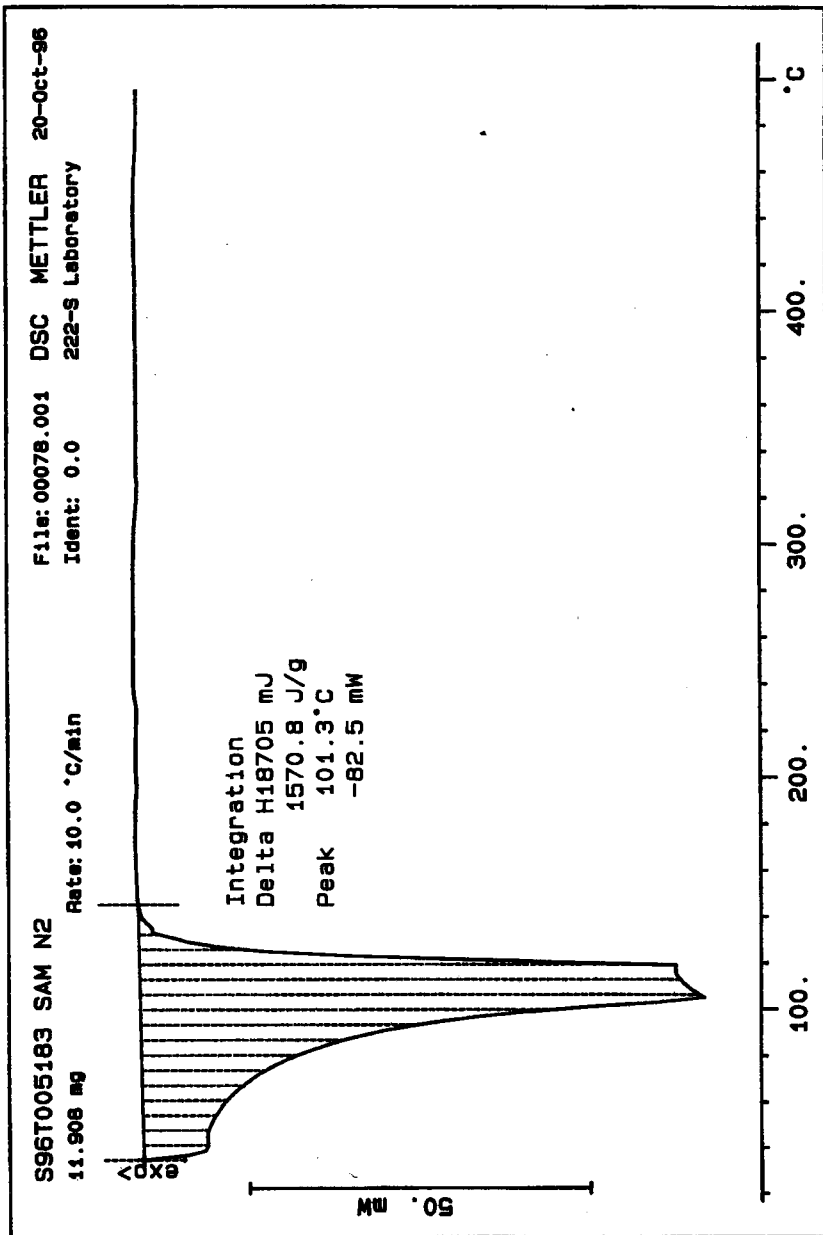
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number,
 R = Replicate Number, A = Aliquot Code.

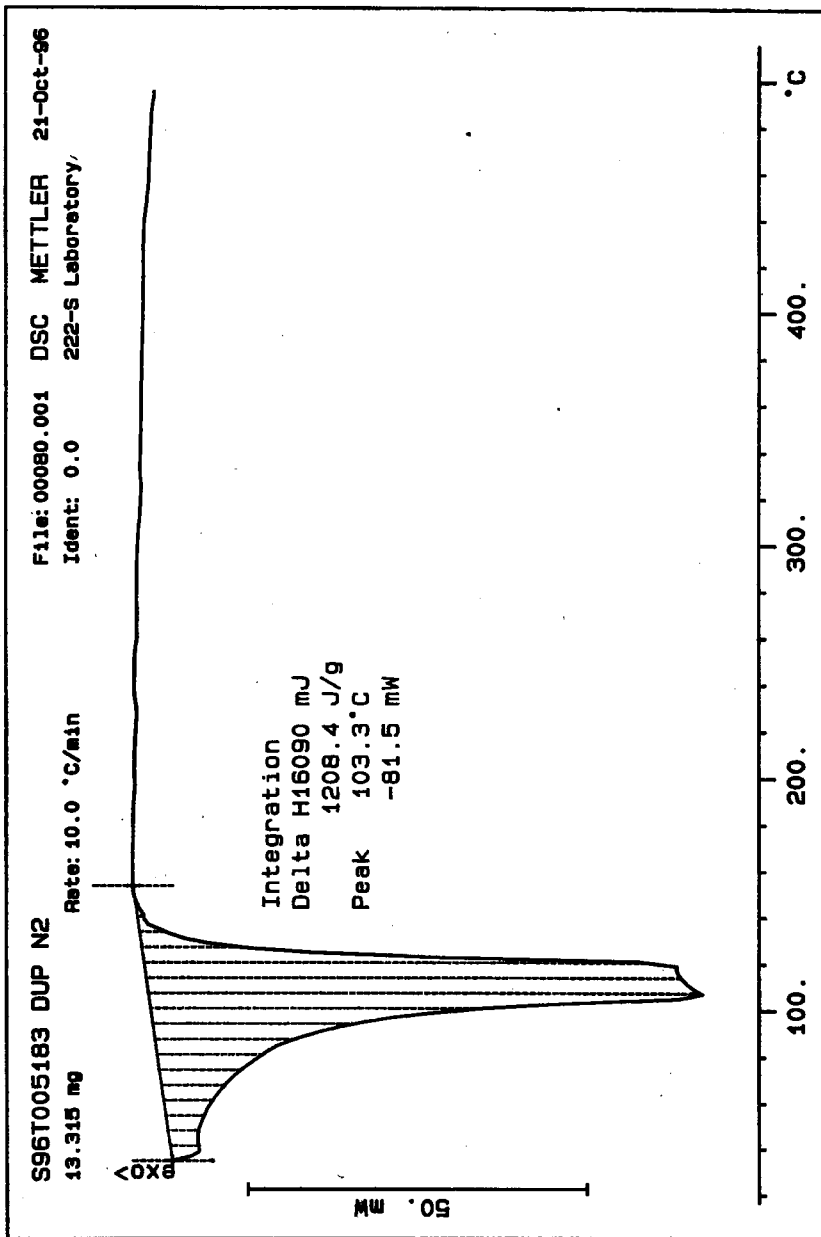
Ident: 0.0 222-S Laboratory

-47.9 MW

20. MW







LABCORE Data Entry Template for Worklist# 13980

Analyst: EAL Instrument: TGA0 3 Book # 82N8A

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

Worklist Comment: AP-106 TGA, RUN UNDER N2. RCI

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	LIQUID	<u>59.2</u>	<u>58.68*</u>	<u>N/A</u>	%
								<u>96.05</u>		
96001337	AP-106 GRAB	2 SAMPLE	S96T005181	0	TGA-03	LIQUID	<u>N/A</u>	<u>95.24</u>	<u>10-22-96</u>	%
96001337	AP-106 GRAB	3 DUP	S96T005181	0	TGA-03	LIQUID	<u>96.05</u>	<u>95.24</u>	<u>N/A</u>	%
96001337	AP-106 GRAB	4 SAMPLE	S96T005182	0	TGA-03	LIQUID	<u>N/A</u>	<u>70.14</u>		%
96001337	AP-106 GRAB	5 DUP	S96T005182	0	TGA-03	LIQUID	<u>70.14</u>	<u>69.67</u>	<u>N/A</u>	%

Final page for worklist # 13980

See attached for signatures
Analyst Signature 10-22-96
Date BOB

10-24-96
10-25-96
Analyst Signature 10-25-96
Date

Verified/Validated by
Blandina
Valenzuela
10-30-96

Data Entry Comments: S96T005181 sample + duplicate results are the sum of
several weight loss steps.

S96T005182 sample + duplicate results are the sum of several
weight loss steps.

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

LABCORE Data Entry Template for Worklist# 13980

Analyst: KLL Instrument: TGA0 Book # 82A84

Method: LA-560-112 Rev/Mod _____

Worklist Comment: AP-106 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	LIQUID	_____	_____	N/A	%
96001337	AP-106 GRAB	2 SAMPLE	S96T005181	0	TGA-01	LIQUID	N/A	_____	_____	%
96001337	AP-106 GRAB	3 DUP	S96T005181	0	TGA-01	LIQUID	_____	_____	N/A	%
96001337	AP-106 GRAB	4 SAMPLE	S96T005182	0	TGA-01	LIQUID	N/A	_____	_____	%
96001337	AP-106 GRAB	5 DUP	S96T005182	0	TGA-01	LIQUID	_____	_____	N/A	%

Final page for worklist # 13980

J. Lambert 10.21.96
Analyst Signature Date

Analyst Signature Date

TGA-03 instrument
was used.

10-22-96

Blandina
Valenzuela

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 50 TO 54.

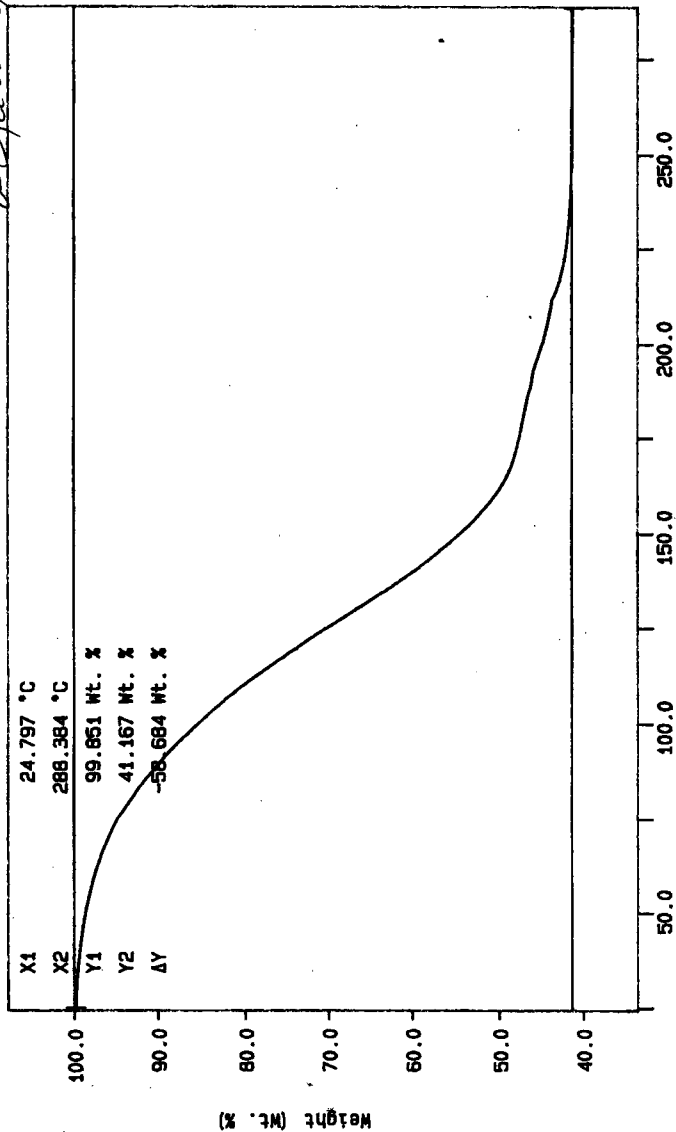
10/21/96
[Signature]

Curve 1: TGA

File Info: TER102101 Mon Oct 21 06:06:07 1996

Sample Weight: 18.778 mg

TGA STD 82N8-A



N2 10C/MIN

TEMP: 50.0 °C

TIME: 5.00

RATE: 0.0 min RATE: 10.0 C/min

Temperature (°C)

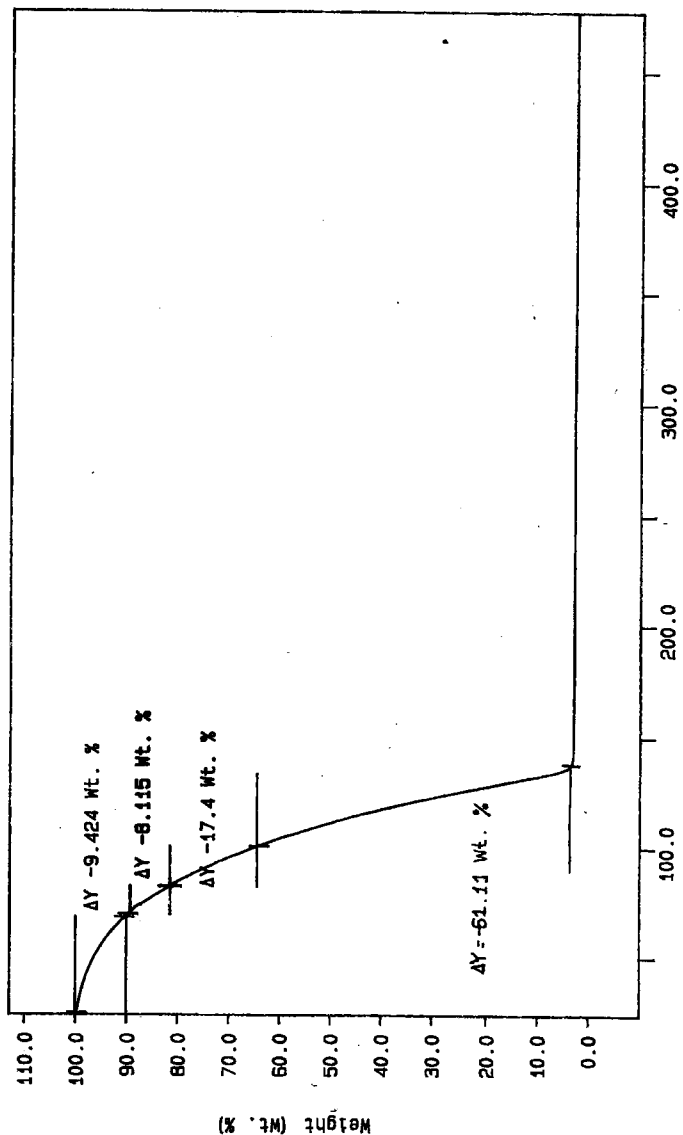
JD SPELLMAN

PERKIN-ELMER

7 Series Thermal Analysis System

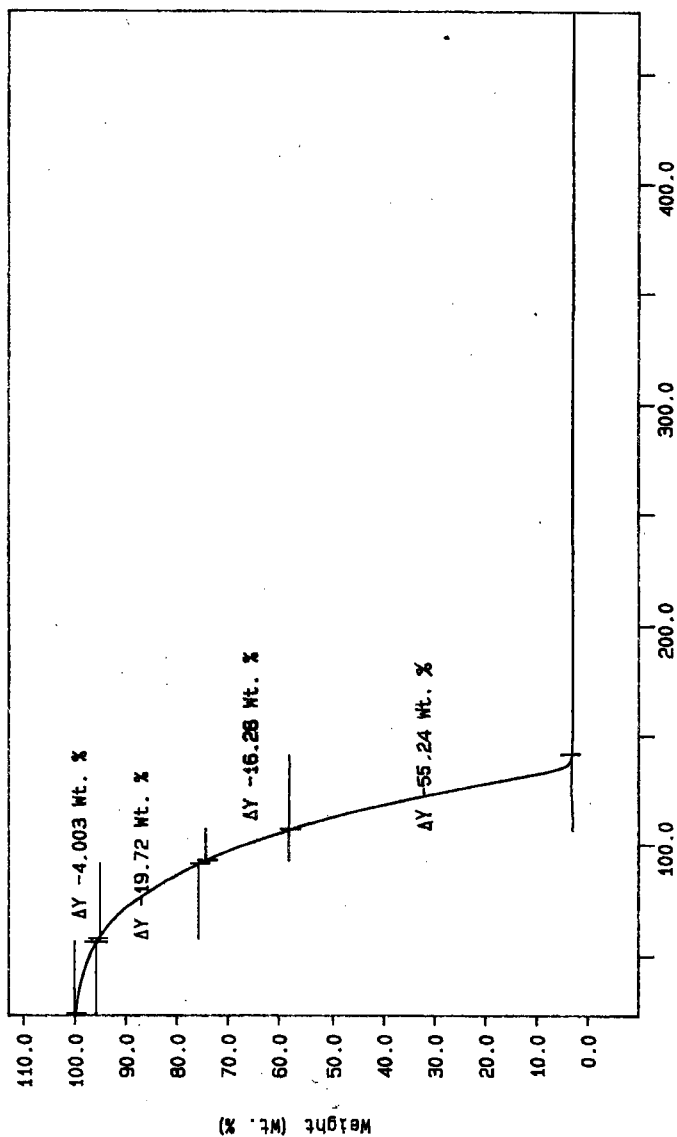
Tue Oct 22 02:14:34 1996

Curve 1: T6A
 File info: qsav1 Mon Oct 21 18:26:33 1996
 Sample Weight: 13.770 mg
 S96T005181 SAM



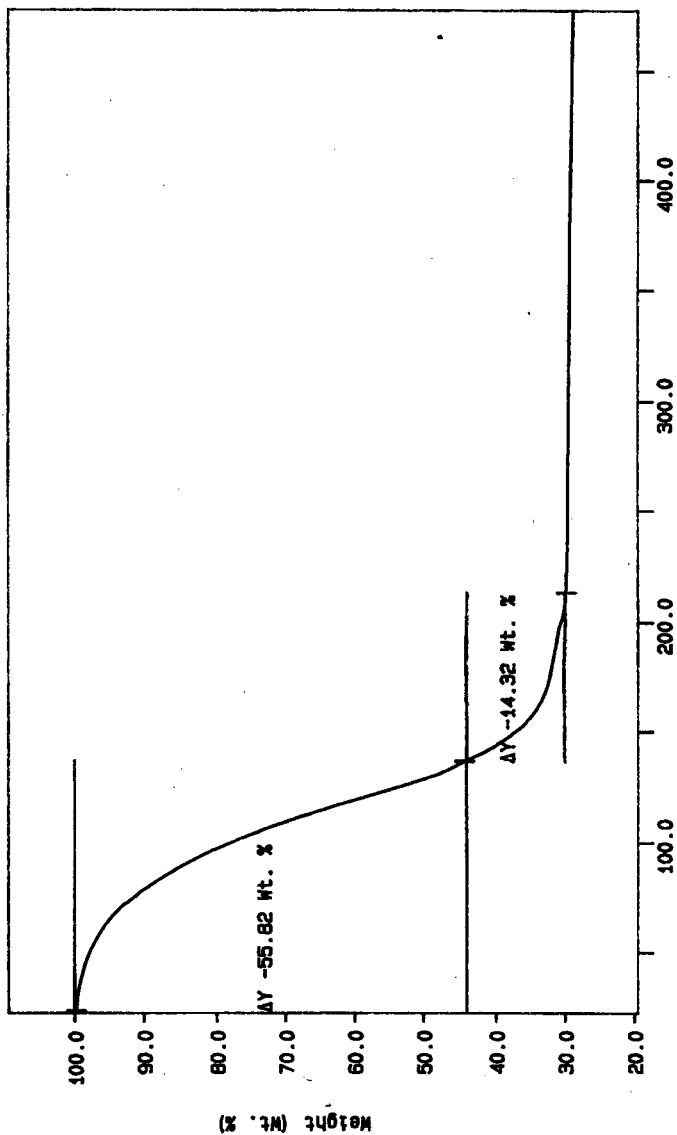
100/MIN N2
 TEMPE 35.0 C
 TIME: 0.0 min RATE: 10.0 C/min
 EA LABEL
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Mon Oct 21 19:14:21 1996

Curve 1: TGA
 File Info: SAM102105 Mon Oct 21 20:08:59 1996
 Sample Weight: 13.062 mg
 S96T005181 DUP



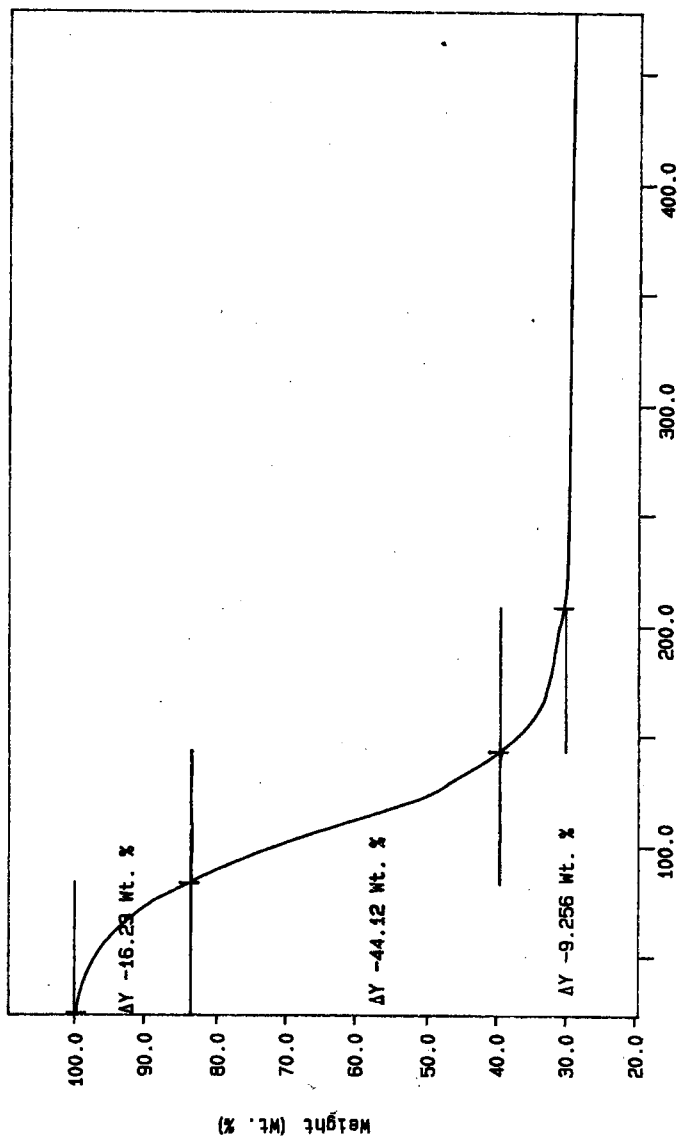
100/MIN N2
 TEMPERATURE: 25.0 °C
 TIME: 000.0 s
 0.0 min RATE: 10.0 °C/min
 EA LABEL
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Mon Oct 21 20:27:52 1996

Curve 1: TGA
 File Info: SAM102107 Mon Oct 21 21: 27: 23 1996
 Sample Weight: 15.931 mg
 S96T005282 SAM
 102107



10C/MIN N2
 THERM 255.8 g
 TIME: 0.0 min RATE: 10.0 C/min
 EA LABEL
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Tue Oct 22 12: 49: 36 1996

Curve 1: TGA
 File info: SAM102108 Mon Oct 21 23:11:57 1996
 Sample Weight: 14.748 mg
 S96T005/82 DUP
 71 10-22-96



10C/MIN N2
 TEMP: 88.8 C
 TIME: 00.0 S
 10C/MIN RATE: 10.0 C/min
 Temperature (°C)
 EA LABEL
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Tue Oct 22 00:06:22 1996

LABCORE Data Entry Template for Worklist# 13981

Analyst: EL

Instrument: TGA0 1

Book # 82N8H

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

Worklist Comment: AP-106 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	LIQUID	<u>59.2</u>	<u>59.84</u>	<u>*</u>	<u>N/A</u> %
96001337	AP-106 GRAB	2 SAMPLE	S96T005183	0	TGA-01	LIQUID	<u>N/A</u>	<u>94.31</u>		%
96001337	AP-106 GRAB	3 DUP	S96T005183	0	TGA-01	LIQUID	<u>94.31</u>	<u>94.33</u>	<u>N/A</u>	%

Final page for worklist # 13981

A. Lambel
Analyst Signature

10-21-96
Date

Brenda March
Analyst Signature

10-24-96
Date

Verified/Validated by

Blandina

Valenzuela

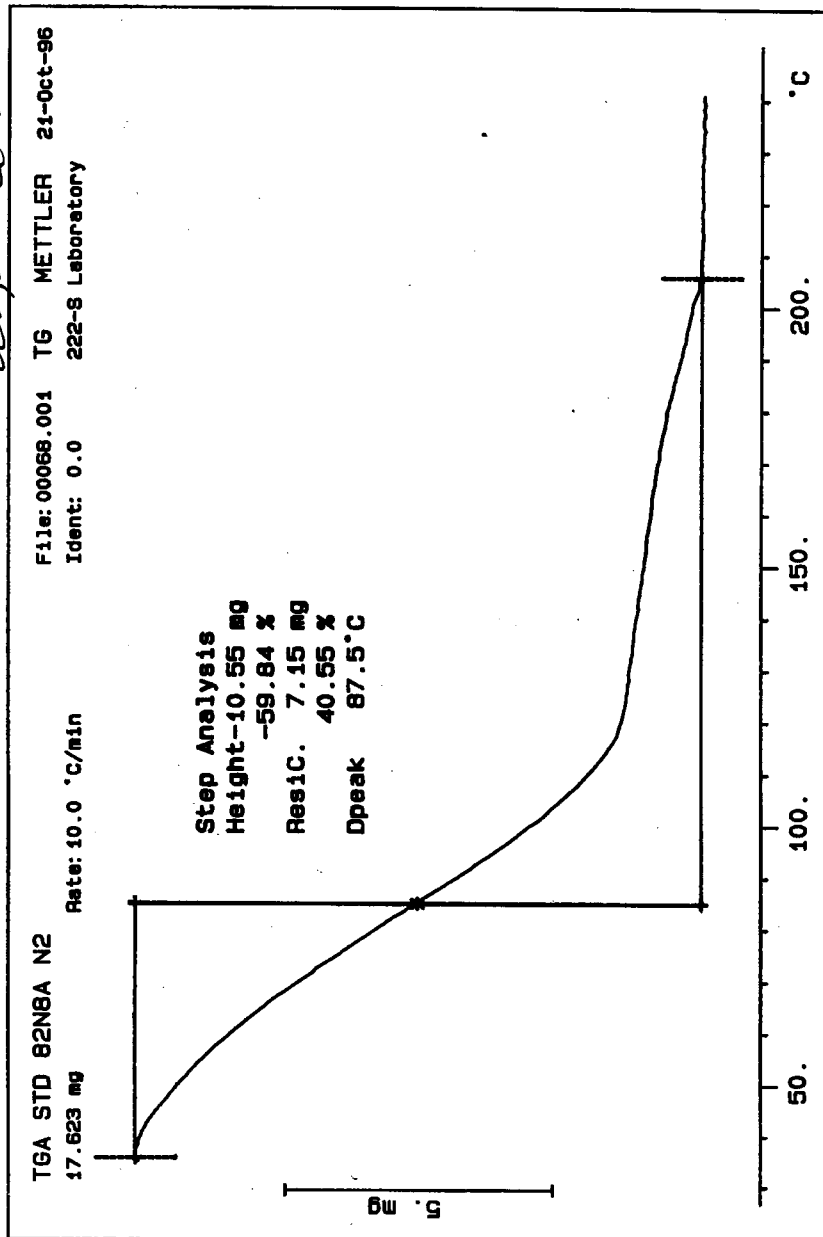
10-30-96

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 26 TO 28.

Label 10-21-96



S96T005183 SAM N2

15.385 mg

Rate: 10.0 °C/min

File: 00079.001 TG METTLER 21-Oct-96
Ident: 0.0 222-S Laboratory

Step Analysis

Height-14.51 mg

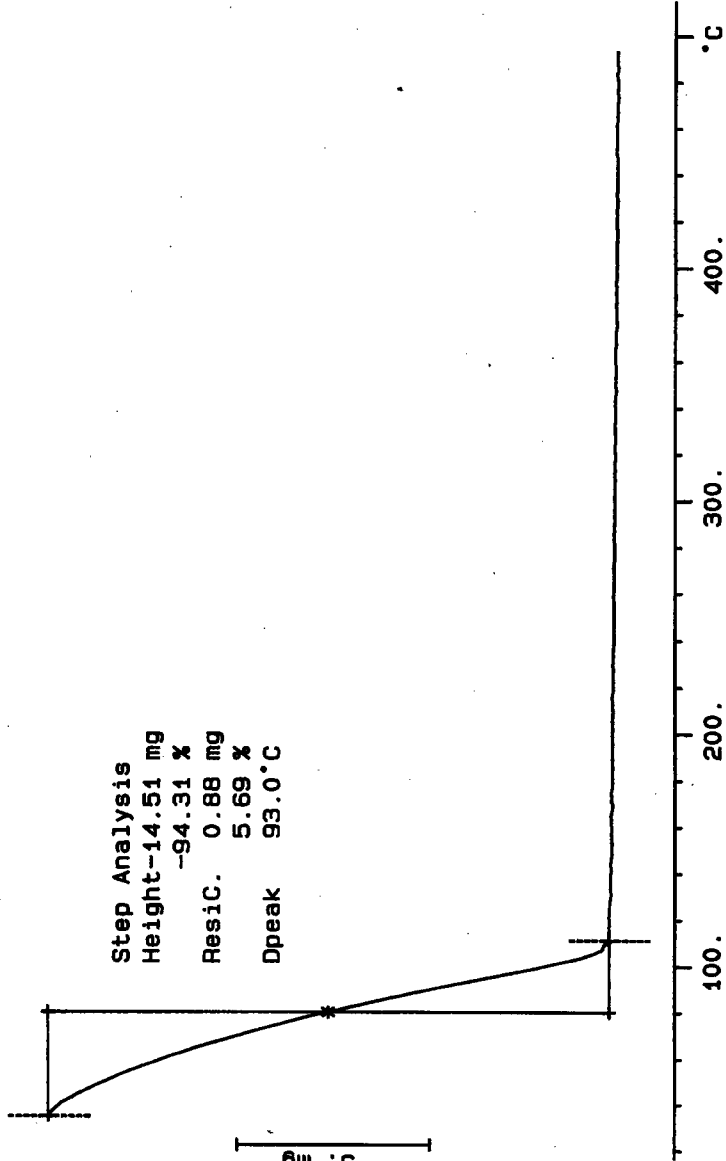
-94.31 %

ResiC. 0.88 mg

5.69 %

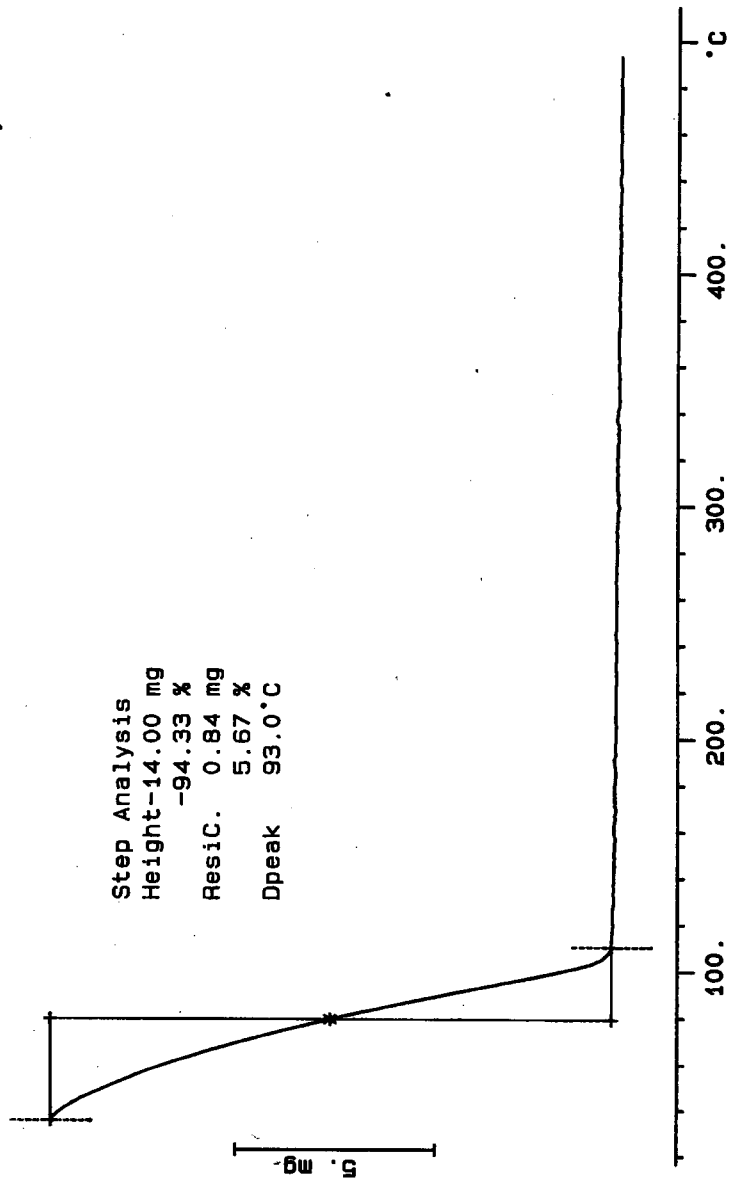
Dpeak 93.0 °C

5. mg



S96T005183 DUP N2
14.845 mg
Rate: 10.0 °C/min
File: 00081.001 TG METTLER 21-Oct-96
Ident: 0.0 222-S Laboratory

Step Analysis
Height-14.00 mg
-94.33 %
Resid. 0.84 mg
5.67 %
Dpeak 93.0 °C



LABCORE Completed Worklist Report for Worklist# 13984

Analyst: rag

Instrument: BA001

Book# 133N116-A

Method: LA-SID-112 Rev/Mod C-3

Worklist Comment: AP-106 SPG. RCJ

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD		0	SPG-01	LIQUID	1.39755	1.375	98.386 % Recovery	
2 SAMPLE	S96T005181	0	SPG-01	LIQUID	N/A	0.9869	1.00e-003	Sp.G.
3 DUP	S96T005181	0	SPG-01	LIQUID	0.9869	0.9937	0.687	RPD
4 SAMPLE	S96T005182	0	SPG-01	LIQUID	N/A	1.2054	1.00e-003	Sp.G.
5 DUP	S96T005182	0	SPG-01	LIQUID	1.2054	1.2070	0.133	RPD
6 SAMPLE	S96T005183	0	SPG-01	LIQUID	N/A	1.0089	1.00e-003	Sp.G.
7 DUP	S96T005183	0	SPG-01	LIQUID	1.0089	1.0161	0.711	RPD

Final page for worklist# 13984

See attached
Analyst Signature _____ Date _____

See attached
Analyst Signature _____ Date _____

Verified into labcore, John McCusker
Reviewer Signature _____ Date 11/04/96

worklistrpt Version 2.1 05/15/95
10/14/96 11:38

Page: 1

LABCORE Data Entry Template for Worklist# 13984

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

Method: LA-510-112 Rev/Mod 133N16-A Rev 11-2-96

Worklist Comment: AP-106 SPG. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			SPG-01	LIQUID	<u>1.39755</u>	<u>1.375</u>	<u>N/A</u>	Sp.G.
96001337	AP-106 GRAB	2 SAMPLE	S96T005181	0	SPG-01	LIQUID	<u>N/A</u>	<u>0.9869</u>		Sp.G.
96001337	AP-106 GRAB	3 DUP	S96T005181	0	SPG-01	LIQUID	<u>0.9869</u>	<u>0.9937</u>	<u>N/A</u>	Sp.G.
96001337	AP-106 GRAB	4 SAMPLE	S96T005182	0	SPG-01	LIQUID	<u>N/A</u>	<u>1.2054</u>		Sp.G.
96001337	AP-106 GRAB	5 DUP	S96T005182	0	SPG-01	LIQUID	<u>1.2054</u>	<u>1.2070</u>	<u>N/A</u>	Sp.G.
96001337	AP-106 GRAB	6 SAMPLE	S96T005183	0	SPG-01	LIQUID	<u>N/A</u>	<u>1.0089</u>		Sp.G.
96001337	AP-106 GRAB	7 DUP	S96T005183	0	SPG-01	LIQUID	<u>1.0089</u>	<u>1.0161</u>	<u>N/A</u>	Sp.G.

Final page for worklist # 13984

Rae Ann Green 11-2-96
Analyst Signature Date

[Signature] 11-2-96
Analyst Signature Date

Data Entry Comments:

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

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

WORKLIST
#

ANALYST
INITIALS

ANALYSIS
DATE

ANALYSIS
TIME

INSTRUMENT
CODE

13984

B. H.

11-2-96

15.00

☒ SAMPLE
☐ STANDARD

☐ DUPLICATE

SAMPLE # =

STD # =

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

1.3524 g
1.6978 g
1.7007 g
3.4218 g

REPLICATE
1.3580 g
1.7007 g
3.4218 g

☒ SAMPLE
☐ STANDARD

☒ DUPLICATE

SAMPLE # =

STD # =

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

1.4073 g
1.5983 g
1.6543 g
2.4708 g

REPLICATE
1.5983 g
1.6543 g
2.4708 g

61

☒ SAMPLE
☐ STANDARD

☒ DUPLICATE

SAMPLE # =

STD # =

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

1.3266 g
1.6283 g
1.7133 g
3.0219 g

REPLICATE
1.4112 g
1.7133 g
3.0219 g

☒ SAMPLE
☐ STANDARD

☒ DUPLICATE

SAMPLE # =

STD # =

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

1.3419 g
1.5944 g
1.6834 g
2.5458 g

REPLICATE
1.3281 g
1.6834 g
2.5458 g

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		STANDARD	STANDARD
STANDARD	Gross Weight (W2)	1.6978	1.7007
	Tare Weight (W1)	1.3524	1.3580
13984	Weight of Solution (W2-W1)	0.3454	0.3427
	Volume of Solution μL	250.2800	250.2800
SPG-01	Specific Gravity	1.3801	1.3693
	Specific Gravity (Average)	1.3747	
LIQUID			
STD			
BA001	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
	Tare Weight (W1) = Wt. of vial + cap + cotton		
RAG	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L}/\text{mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g}/\text{mL}]$		
11/02/96	v RESULT v		
	Specific Gravity Average =	1.375	
03:00 PM			

Data Entry by: <i>Gay Hammett</i>	Date: 11/02/96
Approved by: <i>John M. Clendinning</i>	Date: 11/04/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.6543	1.6370
	Tare Weight (W1)	1.4073	1.3883
	13984 Weight of Solution (W2-W1)	0.247	0.2487
	Volume of Solution μL	250.2800	250.2800
	SPG-01 Specific Gravity	0.9869	0.9937
	Specific Gravity (Average)	0.9903	
LIQUID			
S96T005181			
BA001			
RAG			
11/02/96			
03:00 PM			
Gross Weight (W2) = Wt. of vial + cap + cotton + solution			
Tare Weight (W1) = Wt. of vial + cap + cotton			
Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$			
v RESULT v			
Specific Gravity Average =		0.990	

Data Entry by: <i>Jay Hammett</i>	Date: 11/02/96
Approved by: <i>John McCloud</i>	Date: 11/04/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.6283	1.7133
	Tare Weight (W1)	1.3266	1.4112
	13984 Weight of Solution (W2-W1)	0.3017	0.3021
	Volume of Solution μ L	250.2800	250.2800
	SPG-01 Specific Gravity	1.2054	1.2070
	Specific Gravity (Average)	1.2062	
LIQUID			
S96T005182			
BA001			
RAG			
11/02/96			
03:00 PM			
Gross Weight (W2) = Wt. of vial + cap + cotton + solution			
Tare Weight (W1) = Wt. of vial + cap + cotton			
Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$			
v RESULT v			
Specific Gravity Average =		1.206	

Data Entry by: <i>Shay H...</i>	Date: 11/02/96
Approved by: <i>John McCloud</i>	Date: 11/04/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.5944	1.5824
	Tare Weight (W1)	1.3419	1.3281
	13984 Weight of Solution (W2-W1)	0.2525	0.2543
	Volume of Solution μL	250.2800	250.2800
	SPG-01 Specific Gravity	1.0089	1.0161
	Specific Gravity (Average)	1.0125	
LIQUID			
S96T006183			
BA001			
RAG			
Specific Gravity = $[(W2-W1) * 1000 \mu\text{L}/\text{mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g}/\text{mL}]$			
11/02/96			
v RESULT v			
Specific Gravity Average =		1.012	
03:00 PM			

Data Entry by:	Date: 11/02/96
Approved by:	Date: 11/04/96
Form 510112L1 Rev. 1.1	Page 1 of 1

LABCORE Data Entry Template for Worklist# 13975Analyst: ROM Instrument: PH01 Book # 18N14DMethod: LA-212-106 Rev/Mod B-0

Worklist Comment: AP-106 PH. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STDPH	<u>18N14D</u>		PH-01	LIQUID	<u>8.00</u>	<u>8.03</u>	<u>N/A</u>	pH
96001337	AP-106 GRAB	2 SAMPLE	S96T005181 0		PH-01	LIQUID	<u>N/A</u>	<u>13.21</u>	<u>0.01</u>	pH
96001337	AP-106 GRAB	3 DUP	S96T005181 0		PH-01	LIQUID	<u>13.21</u>	<u>13.27</u>	<u>N/A</u>	pH
96001337	AP-106 GRAB	4 SAMPLE	S96T005182 0		PH-01	LIQUID	<u>N/A</u>	<u>13.70</u>	<u>0.01</u>	pH
96001337	AP-106 GRAB	5 DUP	S96T005182 0		PH-01	LIQUID	<u>13.70</u>	<u>13.72</u>	<u>N/A</u>	pH
96001337	AP-106 GRAB	6 SAMPLE	S96T005183 0		PH-01	LIQUID	<u>N/A</u>	<u>13.59</u>	<u>0.01</u>	pH
96001337	AP-106 GRAB	7 DUP	S96T005183 0		PH-01	LIQUID	<u>13.59</u>	<u>13.56</u>	<u>N/A</u>	pH

Final page for worklist # 13975Analyst Signature: ROM Date: 11/3/96Analyst Signature: John McCluskey Date: 11/05/96Approved RW Schneider 11/5/96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 13974

Analyst:

Rm

Instrument: PH01

Book # *79NB*

Method: LA-211-102 Rev/Mod *C-0*

Worklist Comment: AP-106 OH. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			OH-01	LIQUID	<i>1.66^{E4}</i>	<i>1.67^{E4}</i>	N/A	ug/mL
		2 BLNK			OH-01	LIQUID	<i>1</i>	<i>6.25^{E3}</i>	N/A	ug/mL
96001337	AP-106 GRAB	3 SAMPLE	S96T005181	0	OH-01	LIQUID	N/A	<i>2.56^{E3}</i>	<i>1.25^{E3}</i>	ug/mL
96001337	AP-106 GRAB	4 DUP	S96T005181	0	OH-01	LIQUID	<i>2.56^{E3}</i>	<i>2.83^{E3}</i>	N/A	ug/mL
96001337	AP-106 GRAB	5 SAMPLE	S96T005182	0	OH-01	LIQUID	N/A	<i>2.78^{E4}</i>	<i>1.25^{E3}</i>	ug/mL
96001337	AP-106 GRAB	6 DUP	S96T005182	0	OH-01	LIQUID	<i>2.78^{E4}</i>	<i>2.79^{E4}</i>	N/A	ug/mL
96001337	AP-106 GRAB	7 SAMPLE	S96T005183	0	OH-01	LIQUID	N/A	<i>6.07^{E3}</i>	<i>2.50^{E3}</i>	ug/mL
96001337	AP-106 GRAB	8 DUP	S96T005183	0	OH-01	LIQUID	<i>6.07^{E3}</i>	<i>6.41^{E3}</i>	N/A	ug/mL

Final page for worklist # 13974

Analyst Signature

Date

Analyst Signature

Date

Data Entry Comments:

.2005 M HNO3

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

WORKLIST # 13974

☒ SAMPLE STANDARD ☐ DUPLICATE PREP BLANK ☐ SPIKE REAGENT BLANK MATRIX = _____

SAMPLE/STD # = 79NB

SAMPLE SIZE (mL) .050

VOL. H₂O ADDED FOR DILUTION (if necessary) _____

VOL. DILUTED SAMPLE ANALYZED _____

* BaCl₂ VOLUME ADDED 1m

* ATTACH PRINT REPORT #2 & #5

☐ SAMPLE STANDARD ☐ DUPLICATE PREP BLANK ☒ SPIKE REAGENT BLANK MATRIX = _____

SAMPLE/STD # = 5167005181

SAMPLE SIZE (mL) .100

VOL. H₂O ADDED FOR DILUTION (if necessary) _____

VOL. DILUTED SAMPLE ANALYZED _____

* BaCl₂ VOLUME ADDED 1m

* ATTACH PRINT REPORT #2 & #5

☒ SAMPLE STANDARD ☐ DUPLICATE PREP BLANK ☐ SPIKE REAGENT BLANK MATRIX = _____

SAMPLE/STD # = 5167005183

SAMPLE SIZE (mL) .050

VOL. H₂O ADDED FOR DILUTION (if necessary) _____

VOL. DILUTED SAMPLE ANALYZED _____

* BaCl₂ VOLUME ADDED 1m

* ATTACH PRINT REPORT #2 & #5

☐ SAMPLE STANDARD ☒ DUPLICATE PREP BLANK ☐ SPIKE REAGENT BLANK MATRIX = _____

SAMPLE/STD # = 5167005181

SAMPLE SIZE (mL) .050m

VOL. H₂O ADDED FOR DILUTION (if necessary) _____

VOL. DILUTED SAMPLE ANALYZED _____

* BaCl₂ VOLUME ADDED 1m

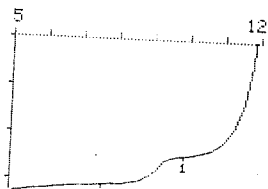
* ATTACH PRINT REPORT #2 & #5

date 96-11-04 time 00:34
GET pH 12 # 157
Id.#1 0479
Id.#2 .2005 *79N8*
pH(init) 11.85
V/ml -0
EP1 .245 9.75
EP2 .310 7.50
stop volt.reached
=====

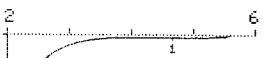
date 96-11-04 time 00:26
GET pH 12 # 156
Id.#1 0479
Id.#2 .2005 *BLK*
pH(init) 5.60
V/ml
EP1 .006 4.00
stop volt.reached
=====

date 96-11-04 time 02:00
GET pH 12 # 159
Id.#1 0479
Id.#2 .2005 *5181*
pH(init) 11.31
V/ml
EP1 .075 9.75
EP2 .098 7.50
stop volt.reached
=====

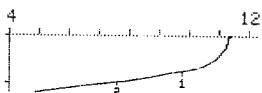
date 96-11-04 time 00:34
GET pH 12 # 15
10ml/div dVH=1/div
start V .000 ml



date 96-11-04 time 00:26
GET pH 12 # 156
10ml/div dVH=1/div
start V .000 ml



date 96-11-04 time 02:00
GET pH 12 # 159
10ml/div dVH=1/div
start V .000 ml

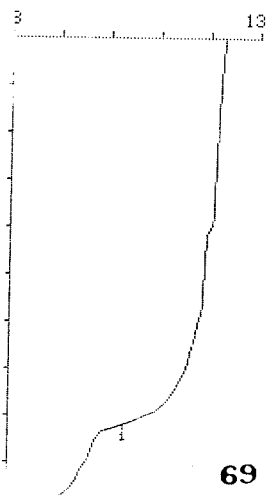


date 96-11-04 time 02:40
GET pH 12 # 161
Id.#1 0479
Id.#2 .2005 *5182*
pH(init) 12.27
V/ml
EP1 .817 10.31
stop V reached
=====

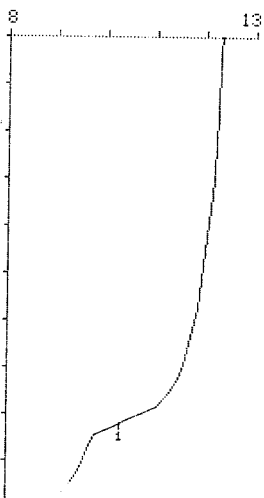
date 96-11-04 time 02:48
GET pH 12 # 162
Id.#1 0479
Id.#2 .2005 *5182*
pH(init) 12.28 *D4P*
V/ml
EP1 .818 10.28
stop V reached
=====

date 96-11-04 time 02:26
GET pH 12 # 160
Id.#1 0479
Id.#2 .2005 *5181*
pH(init) 11.24 *D4P*
V/ml
EP1 .083 8.24
stop volt.reached
=====

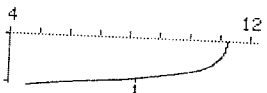
date 96-11-04 time 02:40
GET pH 12 # 161
10ml/div dVH=1/div
start V .000 ml



date 96-11-04 time 02:48
GET pH 12 # 162
10ml/div dVH=1/div
start V .000 ml



date 96-11-04 time 02:26
GET pH 12 # 160
10ml/div dVH=1/div
start V .000 ml



```

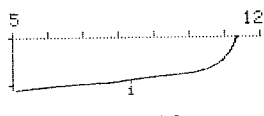
date 96-11-04 time 02:53
GET pH 12 # 163
Id.#1 0479
Id.#2 .2005 5183
pH(init) 11.30
V/ml pH
EP1 .089 8.34
stop volt.reached
=====

```

```

date 96-11-04 time 02:53
GET pH 12 # 163
.10ml/div  $\Delta$ pH=1/div
start V .000 ml

```



```

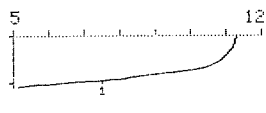
date 96-11-04 time 02:57
GET pH 12 # 164
Id.#1 0479
Id.#2 .2005 5183
pH(init) 11.28
V/ml pH
EP1 .094 7.0
stop volt.reached
=====

```

```

date 96-11-04 time 02:57
GET pH 12 # 164
.10ml/div  $\Delta$ pH=1/div
start V .000 ml

```



PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

	STANDARD
STANDARD	Sample Size (mL) SS
	Concentration of HNO3 (Molarity)
13974	HNO3 Titrant at OH end-point in mL
	Dilution Factor DF
OH-01	Concentration of OH in Sample (Molarity)
	OH in Sample in µg/mL (PPM)

LIQUID

STD

PH01

RDM

11/02/96

05:05 AM

OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor

OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))

	STANDARD
05:05 AM	Concentration of OH in Sample (Molarity)
	OH in Sample in µg/mL (PPM)

Data Entry by: *[Signature]* Date: 11/04/96
 Approved by: *[Signature]* Date: 11/5/96
 Form 211102_1 Rev. 1.3 Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

	BLANK
Sample Size (mL) SS	3 -0.050
Concentration of HNO3 (Molarity)	0.2005
HNO3 Titrant at OH end-point in mL	0.006
Dilution Factor DF	1
Concentration of OH in Sample (Molarity)	2.41E-02
OH in Sample in µg/mL (PPM)	4.09E+02

RWS 11/05/96

LIQUID

Detection Limit = 125µg / SS * DF

BLANK

Detection Limit (µg/mL) 43 2.50E+03

RWS 11/05/96

PH01

OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor

RDM

OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))

11/02/96

05:05 AM

	BLANK
Concentration of OH in Sample (Molarity)	2.41E-02
OH in Sample in µg/mL (PPM)	<43 <2500

The Result is < Detection Limit

RWS 11/05/96

Data Entry by: <i>[Signature]</i>	Date: 11/04/96
Approved by: <i>[Signature]</i>	Date: 10/5/96

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Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

OH (AUTO) : LA-211-102 (C-0)		SAMPLE
SAMPLE	Sample Size (mL) SS	0.100
	Concentration of HNO3 (Molarity)	0.2005
	HNO3 Titrant at OH end-point in mL	0.075
13974	Dilution Factor DF	1
	Concentration of OH in Sample (Molarity)	1.50E-01
OH-01	OH in Sample in µg/mL (PPM)	2.56E+03
LIQUID		
	Detection Limit = 125µg / SS * DF	
S96T005181	Detection Limit (µg/mL)	1.25E+03
PH01	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
RDM	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
11/02/96		
05:05 AM		
	SAMPLE	
	Concentration of OH in Sample (Molarity)	1.50E-01
	OH in Sample in µg/mL (PPM)	2.56E+03

Data Entry by: <i>[Signature]</i>	Date: 11/04/96
Approved by: <i>[Signature]</i>	Date: 11/5/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

OH (AUTO) : LA-211-102 (C-0)		DUPLICATE
DUPLICATE	Sample Size (mL) SS	0.100
	Concentration of HNO3 (Molarity)	0.2005
	HNO3 Titrant at OH end-point in mL	0.083
13974	Dilution Factor DF	1
	Concentration of OH in Sample (Molarity)	1.66E-01
OH-01	OH in Sample in µg/mL (PPM)	2.83E+03
LIQUID		
	Detection Limit = 125µg / SS * DF	
S96T005181	Detection Limit (µg/mL)	1.25E+03
PH01	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
RDM	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
11/02/96		
05:05 AM		
	DUPLICATE	
	Concentration of OH in Sample (Molarity)	1.66E-01
	OH in Sample in µg/mL (PPM)	2.83E+03

Data Entry by: <i>Ray Starnes</i>	Date: 11/04/96
Approved by: <i>RW Scholten</i>	Date: 11/5/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

OH (AUTO) : LA-211-102 (C-0)		SAMPLE
SAMPLE	Sample Size (mL) SS	0.100
	Concentration of HNO3 (Molarity)	0.2005
	HNO3 Titrant at OH end-point in mL	0.817
13974	Dilution Factor DF	1
	Concentration of OH in Sample (Molarity)	1.64E+00
OH-01	OH in Sample in µg/mL (PPM)	2.78E+04
LIQUID		
S96T006182	Detection Limit = 125µg / SS * DF	
PH01	Detection Limit (µg/mL)	1.25E+03
RDM	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
11/02/96	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
05:05 AM		
	SAMPLE	
	Concentration of OH in Sample (Molarity)	1.64E+00
	OH in Sample in µg/mL (PPM)	2.78E+04

Data Entry by:	Date: 11/04/96
Approved by:	Date: 11/5/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		DUPLICATE
	Sample Size (mL) SS	0.100
DUPLICATE	Concentration of HNO3 (Molarity)	0.2005
	HNO3 Titrant at OH end-point in mL	0.818
13974	Dilution Factor DF	1
	Concentration of OH in Sample (Molarity)	1.64E+00
OH-01	OH in Sample in µg/mL (PPM)	2.79E+04
LIQUID		
S96T006182	Detection Limit = 125µg / SS * DF	
PH01	Detection Limit (µg/mL)	1.25E+03
	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
RDM	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
11/02/96		
		DUPLICATE
05:05 AM	Concentration of OH in Sample (Molarity)	1.64E+00
	OH in Sample in µg/mL (PPM)	2.79E+04

Data Entry by: <i>Dan Hammond</i>	Date: 11/04/96
Approved by: <i>DW Schmedt</i>	Date: 11/5/96

Form 211102_1 Rev. 1.3

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

OH (AUTO) : LA-211-102 (C-0)		SAMPLE
SAMPLE	Sample Size (mL) SS	0.050
	Concentration of HNO3 (Molarity)	0.2005
	HNO3 Titrant at OH end-point in mL	0.089
13974	Dilution Factor DF	1
	Concentration of OH in Sample (Molarity)	3.57E-01
OH-01	OH in Sample in µg/mL (PPM)	6.07E+03
LIQUID		
	Detection Limit = 125µg / SS * DF	
S96T005183	Detection Limit (µg/mL)	2.50E+03
PH01	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
RDM	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
11/02/96		
05:05 AM		
		SAMPLE
	Concentration of OH in Sample (Molarity)	3.57E-01
	OH in Sample in µg/mL (PPM)	6.07E+03

Data Entry by: <i>Ben Hammett</i>	Date: 11/04/96
Approved by: <i>Ben Hammett</i>	Date: 11/05/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		DUPLICATE
	Sample Size (mL) SS	0.050
DUPLICATE	Concentration of HNO3 (Molarity)	0.2005
	HNO3 Titrant at OH end-point in mL	0.094
13974	Dilution Factor DF	1
	Concentration of OH in Sample (Molarity)	3.77E-01
OH-01	OH in Sample in µg/mL (PPM)	6.41E+03
LIQUID		
	Detection Limit = 125µg / SS * DF	
S96T005183	Detection Limit (µg/mL)	2.50E+03
PH01	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
RDM	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
11/02/96		
		DUPLICATE
05:05 AM	Concentration of OH in Sample (Molarity)	3.77E-01
	OH in Sample in µg/mL (PPM)	6.41E+03

Data Entry by: <i>Ray H. Hines</i>	Date: 11/04/96
Approved by: <i>Paul J. Schwedler</i>	Date: 11/5/96

LABCORE Completed Worklist Report for Worklist# 13978

Analyst: eal

Instrument: IC01

Book# 321120A

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

Worklist Comment: AP-106 IC. RCJ

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	CCB	0	②IC-QC F	QC	1	<1.20e-2		ug/mL
1	CCB	0	②IC-QC CL	QC	1	<1.70e-2		ug/mL
1	CCB	0	②IC-QC NO2	QC	1	<1.08e-1		ug/mL
1	CCB	0	②IC-QC BR	QC	1	<1.25e-1		ug/mL
1	CCB	0	②IC-QC NO3	QC	1	<1.39e-1		ug/mL
1	CCB	0	②IC-QC P04	QC	1	<1.20e-1		ug/mL
1	CCB	0	②IC-QC S04	QC	1	<1.38e-1		ug/mL
1	CCB	0	②IC-QC OXALATE2	QC	1	<1.05e-1		ug/mL
2	CCV	0	②IC-QC F	QC	5.90e01	5.45e+01	92.373 %	Recovery
2	CCV	0	②IC-QC CL	QC	7.90e01	7.35e+01	93.038 %	Recovery
2	CCV	0	②IC-QC NO2	QC	5.40e02	5.03e+02	93.148 %	Recovery
2	CCV	0	②IC-QC BR	QC	5.89e02	5.60e+02	95.076 %	Recovery
2	CCV	0	②IC-QC NO3	QC	5.94e02	5.90e+02	99.327 %	Recovery
2	CCV	0	②IC-QC P04	QC	5.45e02	5.20e+02	95.413 %	Recovery
2	CCV	0	②IC-QC S04	QC	6.31e02	6.39e+02	101.268 %	Recovery
2	CCV	0	②IC-QC OXALATE2	QC	5.27e02	5.26e+02	99.810 %	Recovery
3	SAMPLE	S96T005181	②IC-01 F-02	LIQUID	N/A	1.287e+02	2.412	ug/mL
3	SAMPLE	S96T005181	②IC-01 CL-02	LIQUID	N/A	1.731e+02	3.417	ug/mL
3	SAMPLE	S96T005181	②IC-01 NO2-02	LIQUID	N/A	1.857e+03	21.710	ug/mL
3	SAMPLE	S96T005181	②IC-01 BR-02	LIQUID	N/A	2.512e+01	25.120	ug/mL
3	SAMPLE	S96T005181	②IC-01 NO3-02	LIQUID	N/A	5.951e+03	27.940	ug/mL
3	SAMPLE	S96T005181	②IC-01 P04-02	LIQUID	N/A	6.700e+02	24.120	ug/mL
3	SAMPLE	S96T005181	②IC-01 S04-02	LIQUID	N/A	2.791e+02	27.740	ug/mL
3	SAMPLE	S96T005181	②IC-01 OXALATE2	LIQUID	N/A	5.962e+01	21.110	ug/mL
4	DUP	S96T005181	②IC-01 F-02	LIQUID	1.29e+02	1.28e+02	0.778	RPD
4	DUP	S96T005181	②IC-01 CL-02	LIQUID	1.73e+02	1.80e+02	3.966	RPD
4	DUP	S96T005181	②IC-01 NO2-02	LIQUID	1.86e+03	1.89e+03	1.600	RPD
4	DUP	S96T005181	②IC-01 BR-02	LIQUID	<2.51e1	<2.51e1		RPD
4	DUP	S96T005181	②IC-01 NO3-02	LIQUID	5.95e+03	5.92e+03	0.505	RPD
4	DUP	S96T005181	②IC-01 P04-02	LIQUID	6.70e+02	6.75e+02	0.743	RPD
4	DUP	S96T005181	②IC-01 S04-02	LIQUID	2.79e+02	2.91e+02	4.211	RPD
4	DUP	S96T005181	②IC-01 OXALATE2	LIQUID	5.96e+01	6.47e+01	8.206	RPD
5	SPK	S96T005181	②IC-01 F-02	LIQUID	5.90e01	5.16e+01	87.458 %	Recovery
5	SPK	S96T005181	②IC-01 CL-02	LIQUID	7.90e01	6.91e+01	87.468 %	Recovery
5	SPK	S96T005181	②IC-01 NO2-02	LIQUID	5.40e02	5.17e+02	95.741 %	Recovery
5	SPK	S96T005181	②IC-01 BR-02	LIQUID	5.89e02	5.45e+02	92.530 %	Recovery
5	SPK	S96T005181	②IC-01 NO3-02	LIQUID	5.94e02	5.83e+02	98.148 %	Recovery
5	SPK	S96T005181	②IC-01 P04-02	LIQUID	5.45e02	5.40e+02	99.083 %	Recovery
5	SPK	S96T005181	②IC-01 S04-02	LIQUID	6.31e02	6.42e+02	101.743 %	Recovery
5	SPK	S96T005181	②IC-01 OXALATE2	LIQUID	5.27e02	5.32e+02	100.949 %	Recovery
6	SAMPLE	S96T005182	②IC-01 F-02	LIQUID	N/A	2.473e+03	49.690	ug/mL

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

LABCORE Completed Worklist Report for Worklist# 13978

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
6 SAMPLE	S96T005182 0	②IC-01 CL-02	LIQUID	N/A	1.616e+03	70.400	ug/mL
6 SAMPLE	S96T005182 0	②IC-01 NO2-02	LIQUID	N/A	3.058e+04	447.200	ug/mL
6 SAMPLE	S96T005182 0	②IC-01 BR-02	LIQUID	N/A	5.176e+02	517.600	ug/mL
6 SAMPLE	S96T005182 0	②IC-01 NO3-02	LIQUID	N/A	1.294e+05	575.600	ug/mL
6 SAMPLE	S96T005182 0	②IC-01 PO4-02	LIQUID	N/A	8.210e+02	496.900	ug/mL
6 SAMPLE	S96T005182 0	②IC-01 SO4-02	LIQUID	N/A	3.605e+03	571.500	ug/mL
6 SAMPLE	S96T005182 0	②IC-01 OXALATE2	LIQUID	N/A	1.006e+03	434.800	ug/mL
7 DUF	S96T005182 0	②IC-01 F-02	LIQUID	2.47e+03	2.43e+03	1.633	RPD
7 DUF	S96T005182 0	②IC-01 CL-02	LIQUID	1.62e+03	1.61e+03	0.619	RPD
7 DUF	S96T005182 0	②IC-01 NO2-02	LIQUID	3.06e+04	3.10e+04	1.299	RPD
7 DUF	S96T005182 0	②IC-01 BR-02	LIQUID	<5.18e2	<5.18e2		RPD
7 DUF	S96T005182 0	②IC-01 NO3-02	LIQUID	1.29e+05	1.29e+05	0.000	RPD
7 DUF	S96T005182 0	②IC-01 PO4-02	LIQUID	8.21e+02	6.99e+02	16.053	RPD
7 DUF	S96T005182 0	②IC-01 SO4-02	LIQUID	3.60e+03	3.64e+03	1.105	RPD
7 DUF	S96T005182 0	②IC-01 OXALATE2	LIQUID	1.01e+03	9.76e+02	3.424	RPD

Final page for worklist# 13978

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

John M. Lyle
Reviewer Signature Date 10/29/96

LABCORE Data Entry Template for Worklist# 13978

Analyst: EAC Instrument: IC0 TR01 Book# 32N20-A
Method: LA-533-105 Rev/Mod D-1
Worklist Comment: AP-106 IC, RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	CCB				@IC-QC	QC		
2	CCV				@IC-QC	QC		
3	SAMPLE	S96T005181 0			@IC-01	LIQUID	96001337	AP-106 GRAB
		Analytes Requested:	BR-02		CL-02		F-02	NO2-02 , NO3-02 ,
			OXALATE2,	PO4-02			SO4-02	
4	DUP	S96T005181 0			@IC-01	LIQUID		
5	SPK	S96T005181 0			@IC-01	LIQUID		
6	SAMPLE	S96T005182 0			@IC-01	LIQUID	96001337	AP-106 GRAB
		Analytes Requested:	BR-02		CL-02		F-02	NO2-02 , NO3-02 ,
			OXALATE2,	PO4-02			SO4-02	
7	DUP	S96T005182 0			@IC-01	LIQUID		

Final page for worklist # 13978

 10-27-96
Analyst Signature Date

Analyst Signature Date

139780c.csv
Uploaded 10/29/96 JMF
Validated 10/29/96 JMF

Data Entry Comments:

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

A-0010-IC				DATA FILE/WORKLIST RESOLUTION				29-Oct-96			
Worklist#: 13978				Data File: 13978OC.CSV							
		Seq	Type	Sample #			Seq#	Data File	Sample Name	Dilution	
-	=>	1	CCB	S96T005181	-	1	96102741.d14	INST. BLANK		1.00	
	=>	2	CCV			2	96102741.d19	32N20-A STD.		101.00	
	=>	3	SAMPLE			3	96102741.d16	S96T005181		201.00	
	=>	4	DUP			4	96102741.d17	S96T005181 DUP		201.00	
	=>	5	SPK			5	96102741.d18	S96T005181 SPIKE		201.00	
	=>	6	SAMPLE				96102741.d20	S96T005182		1111.00	
	=>	7	DUP			6	96102741.d22	S96T005182		4141.00	
					7	96102741.d23	S96T005182 DUP		4141.00		
+					+						

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

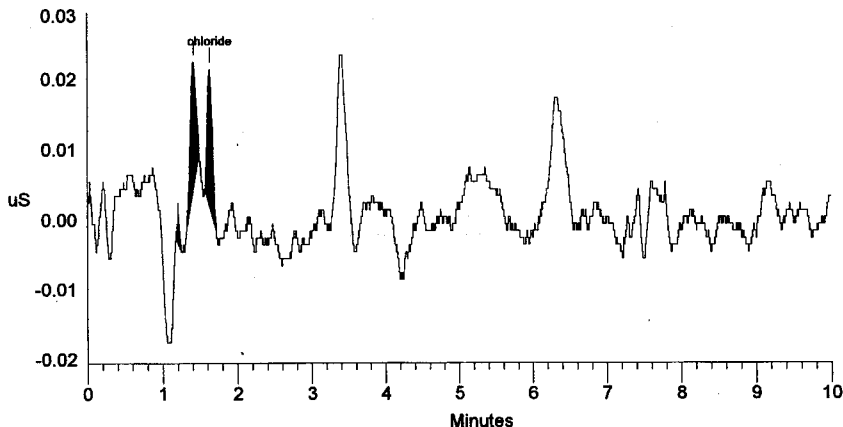
Sample Name: INST. BLANK Date: 10/27/1996 12:58:35
 Data File : C:\DX\DATA\96102741.D14
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 14 Detector: CDM-1
 Analyst : *John Frey* Column: AG4A/AS4A anion column

Calibration Volume Dilution Points Rate Start Stop Area Reject
 External 1 1 3000 5Hz 0.00 10.00 50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
2	1.41		0.000	18	95	1	
3	1.63	chloride	0.005	20	90	1	1.24
Totals			0.005	37	186		

File: 96102741.D14 Sample: INST. BLANK



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 83 TO 90.

Data Reprocessed On 10/29/1996 10:22:41

```

=====
Sample Name: 32N20-A STD.                      Date: 10/27/1996 14:11:38
Data File  : F:\DATA\96102741.D19
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 19             Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

```

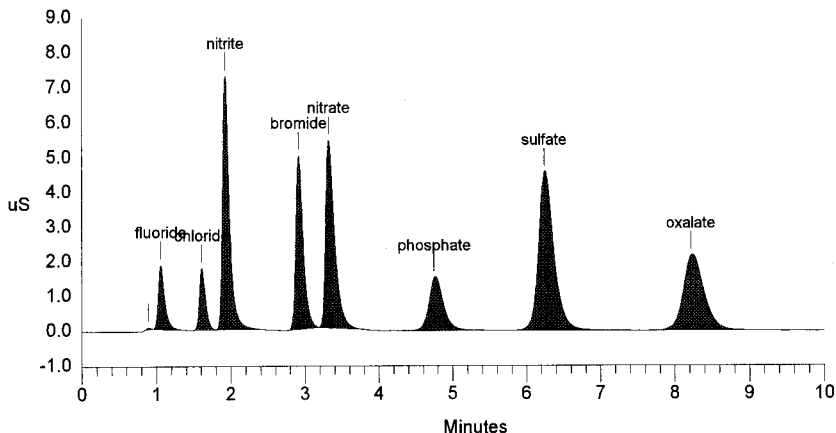
=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          101    3000  5Hz   0.00 10.00          50
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.89		0.000	38	143	2	
2	1.06	fluoride	54.490	1836	10729	2	3.92
3	1.61	chloride	73.495	1765	9734	1	-0.41
4	1.93	nitrite	503.125	7271	46396	1	-2.69
5	2.91	bromide	560.317	4993	34365	1	-2.24
6	3.32	nitrate	589.600	5393	45187	1	-2.64
7	4.75	phosphate	519.582	1504	20780	1	-3.72
8	6.24	sulfate	639.132	4554	65347	1	-4.88
9	8.21	oxalate	525.870	2142	41622	1	0.04
Totals			3465.610	29496	274302		

File: 96102741.D19 Sample: 32N20-A STD.



```

=====
Sample Name: S96T005181                      Date: 10/27/1996 13:28:24
Data File  : C:\DX\DATA\96102741.D16
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 16          Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====
  
```

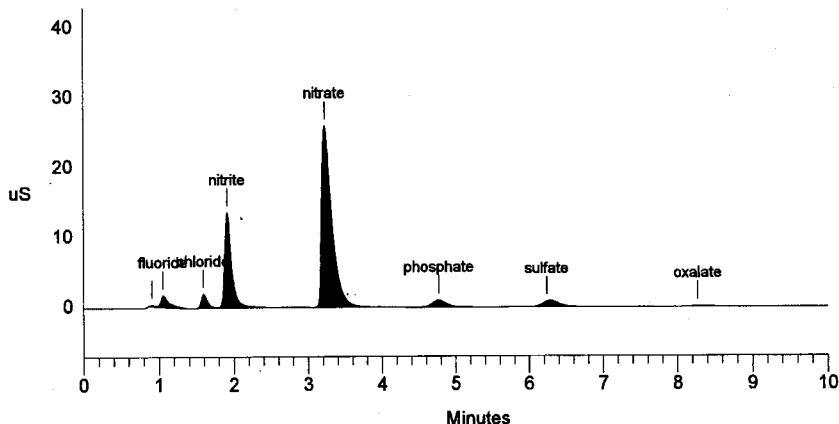
```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
=====
External          1          201 3000 5Hz 0.00 10.00          50
=====
  
```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.90		0.000	206	987	2	
2	1.05	fluoride	128.695	1659	12800	2	3.27
3	1.59	chloride	173.130	2001	11544	1	-1.24
4	1.91	nitrite	1857.434	13559	87577	1	-3.37
5	3.23	nitrate	5951.278	26001	251104	1	-5.38
6	4.77	phosphate	669.995	1001	13395	1	-3.18
7	6.24	sulfate	279.091	794	13774	1	-4.88
8	8.27	oxalate	59.622	112	2149	1	-9.85
Totals			9119.244	45332	393330		

File: 96102741.D16 Sample: S96T005181



```

=====
Sample Name: S96T005181 DUP                      Date: 10/27/1996 13:40:54
Data File  : C:\DX\DATA\96102741.D17
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 17              Detector: CDM-1
Analyst    :                      Column: AG4A/AS4A anion column
=====

```

```

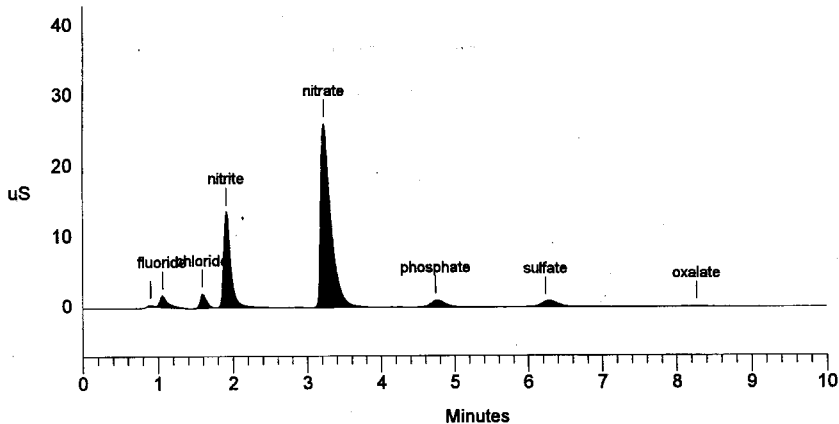
=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          201  3000  5Hz   0.00 10.00          50
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.90		0.000	220	1075	2	
2	1.06	fluoride	128.036	1674	12732	2	3.92
3	1.59	chloride	179.606	2024	11982	1	-1.24
4	1.91	nitrite	1889.446	13592	89130	1	-3.37
5	3.23	nitrate	5915.966	26049	249454	1	-5.38
6	4.75	phosphate	674.852	957	13493	1	-3.72
7	6.24	sulfate	290.680	811	14368	1	-4.88
8	8.27	oxalate	64.716	119	2352	1	-9.85
Totals			9143.303	45445	394585		

File: 96102741.D17 Sample: S96T005181 DUP



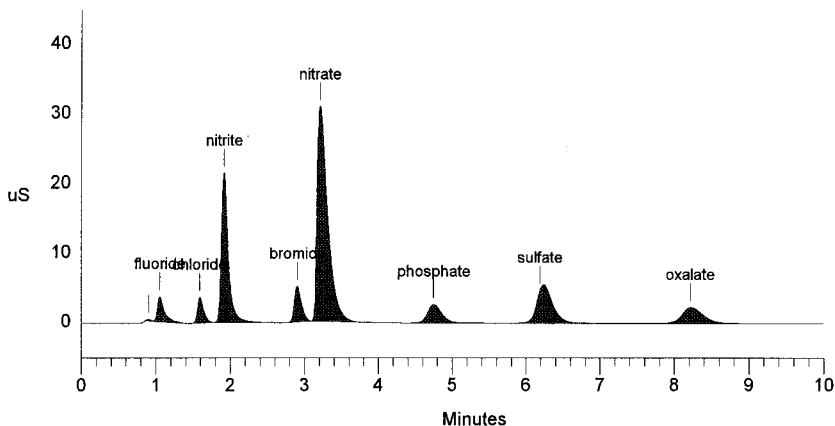
Sample Name: S96T005181 SPIKE Date: 10/27/1996 13:59:15
Data File : F:\DATA\96102741.D18
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 18 Detector: CDM-1
Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	201	3000	5Hz	0.00	10.00		50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.90		0.000	221	970	2	
2	1.05	fluoride	231.920	3599	23503	2	3.27
3	1.59	chloride	311.306	3708	21003	1	-1.65
4	1.91	nitrite	2890.578	21441	138221	1	-3.37
5	2.90	bromide	1090.624	5142	33584	1	-2.68
6	3.21	nitrate	7117.634	30871	306935	1	-5.96
7	4.75	phosphate	1750.422	2664	35557	1	-3.72
8	6.19	sulfate	1562.245	4698	80712	1	-5.69
9	8.21	oxalate	1123.478	2302	44725	1	0.04
Totals			16078.206	74647	685211		

File: 96102741.D18 Sample: S96T005181 SPIKE



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=====
Sample Name: S96T005182                      Date: 10/27/1996 14:32:52
Data File  : C:\DX\DATA\96102741.D20
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 20          Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

```

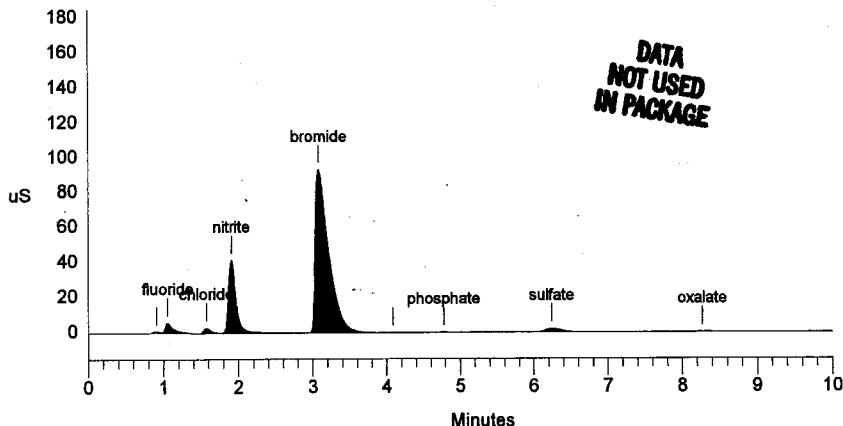
=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
=====
External          1          1111  3000  5Hz   0.00 10.00          50
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.90		0.000	542	2663	2	
2	1.05	fluoride	2265.733	5802	42584	2	3.27
3	1.57	chloride	1611.152	3133	19631	1	-2.89
4	1.91	nitrite	32284.735	41329	289189	1	-3.70
5	3.08	bromide	96733.340	93349	1172901	1	3.36
6	4.09		0.000	79	756	1	
7	4.77	phosphate	635.549	174	2288	1	-3.18
8	6.24	sulfate	3508.180	2107	32076	1	-4.88
9	8.27	oxalate	958.253	347	6668	1	-9.85
Totals			137996.942	146862	1568756		

File: 96102741.D20 Sample: S96T005182



```

=====
Sample Name: S96T005182                      Date: 10/27/1996 15:06:28
Data File  : C:\DX\DATA\96102741.D22
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 22          Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====
  
```

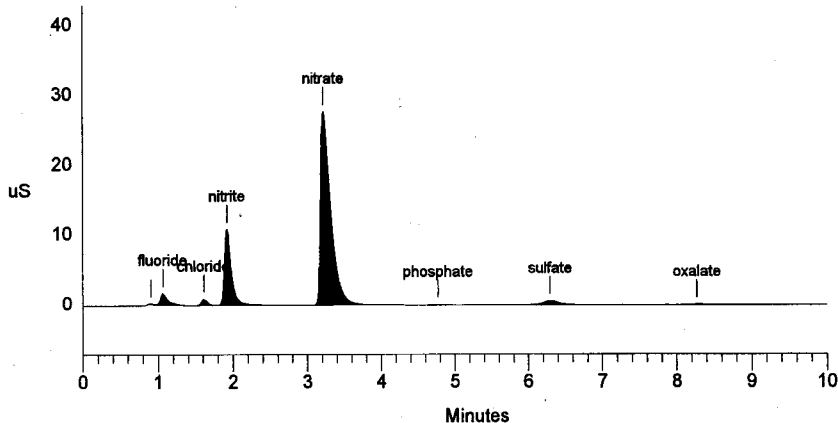
```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          4141   3000  5Hz   0.00 10.00          50
=====
  
```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.90		0.000	145	703	2	
2	1.06	fluoride	2472.551	1655	11911	2	3.92
3	1.61	chloride	1615.518	898	5201	1	-0.41
4	1.92	nitrite	30579.693	10827	69544	1	-3.03
5	3.22	nitrate	129379.402	27722	266573	1	-5.57
6	4.77	phosphate	821.045	47	798	1	-3.18
7	6.29	sulfate	3604.913	564	8450	1	-4.07
8	8.27	oxalate	1006.049	86	1721	1	-9.85
Totals			169479.171	41945	364902		

File: 96102741.D22 Sample: S96T005182



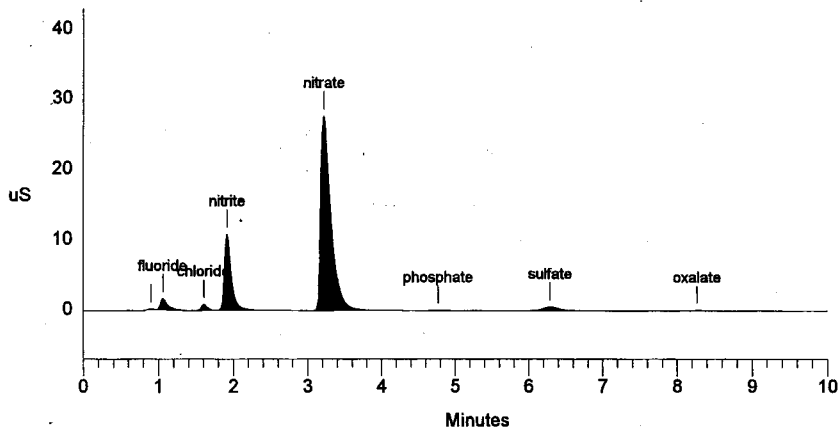
Sample Name: S96T005182 DUP Date: 10/27/1996 15:20:15
 Data File : C:\DX\DATA\96102741.D23
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 23 Detector: CDM-1
 Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	4141	3000	5Hz	0.00	10.00		50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.90		0.000	140	655	2	
2	1.06	fluoride	2429.120	1638	11696	2	3.92
3	1.61	chloride	1612.943	898	5192	1	-0.41
4	1.92	nitrite	30988.665	10855	70500	1	-3.03
5	3.22	nitrate	128920.969	27667	265519	1	-5.57
6	4.77	phosphate	698.930	48	681	1	-3.18
7	6.29	sulfate	3640.902	565	8540	1	-4.07
8	8.27	oxalate	976.094	87	1664	1	-9.85
Totals			169267.624	41899	364446		

File: 96102741.D23 Sample: S96T005182 DUP



LABCORE Completed Worklist Report for Worklist# 13979

Analyst: eal

Instrument: IC01

Book# 32 N20A

Method: HA-533-05 Rev/Mod D-1

Worklist Comment: AP-106 IC. RCJ

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	CCB	0	④IC-QC F	QC	1	<1.20e-2		ug/mL
1	CCB	0	④IC-QC CL	QC	1	<1.70e-2		ug/mL
1	CCB	0	④IC-QC NO2	QC	1	<1.08e-1		ug/mL
1	CCB	0	④IC-QC BR	QC	1	<1.25e-1		ug/mL
1	CCB	0	④IC-QC NO3	QC	1	<1.39e-1		ug/mL
1	CCB	0	④IC-QC PO4	QC	1	<1.20e-1		ug/mL
1	CCB	0	④IC-QC SO4	QC	1	<1.38e-1		ug/mL
1	CCB	0	④IC-QC OXALATE2	QC	1	<1.05e-1		ug/mL
2	CCV	0	④IC-QC F	QC	5.90e01	5.35e+01	90.678 %	Recovery
2	CCV	0	④IC-QC CL	QC	7.90e01	7.34e+01	92.911 %	Recovery
2	CCV	0	④IC-QC NO2	QC	5.40e02	5.01e+02	92.778 %	Recovery
2	CCV	0	④IC-QC BR	QC	5.89e02	5.68e+02	96.435 %	Recovery
2	CCV	0	④IC-QC NO3	QC	5.94e02	6.13e+02	103.199 %	Recovery
2	CCV	0	④IC-QC PO4	QC	5.45e02	5.30e+02	97.248 %	Recovery
2	CCV	0	④IC-QC SO4	QC	6.31e02	6.47e+02	102.536 %	Recovery
2	CCV	0	④IC-QC OXALATE2	QC	5.27e02	5.32e+02	100.949 %	Recovery
3	SAMPLE	S96T005183	④IC-01 F-02	LIQUID	N/A	6.565e+02	49.690	ug/mL
3	SAMPLE	S96T005183	④IC-01 CL-02	LIQUID	N/A	6.377e+02	70.400	ug/mL
3	SAMPLE	S96T005183	④IC-01 NO2-02	LIQUID	N/A	7.734e+03	447.200	ug/mL
3	SAMPLE	S96T005183	④IC-01 BR-02	LIQUID	N/A	5.176e+02	517.600	ug/mL
3	SAMPLE	S96T005183	④IC-01 NO3-02	LIQUID	N/A	2.770e+04	575.600	ug/mL
3	SAMPLE	S96T005183	④IC-01 PO4-02	LIQUID	N/A	1.872e+03	496.900	ug/mL
3	SAMPLE	S96T005183	④IC-01 SO4-02	LIQUID	N/A	1.293e+03	571.500	ug/mL
3	SAMPLE	S96T005183	④IC-01 OXALATE2	LIQUID	N/A	4.348e+02	434.800	ug/mL
4	DUP	S96T005183	④IC-01 F-02	LIQUID	6.56e+02	6.06e+02	7.924	RPD
4	DUP	S96T005183	④IC-01 CL-02	LIQUID	6.38e+02	6.15e+02	3.671	RPD
4	DUP	S96T005183	④IC-01 NO2-02	LIQUID	7.73e+03	7.58e+03	1.960	RPD
4	DUP	S96T005183	④IC-01 BR-02	LIQUID	<5.18e2	<5.18e2		RPD
4	DUP	S96T005183	④IC-01 NO3-02	LIQUID	2.77e+04	2.85e+04	2.847	RPD
4	DUP	S96T005183	④IC-01 PO4-02	LIQUID	1.87e+03	1.65e+03	12.500	RPD
4	DUP	S96T005183	④IC-01 SO4-02	LIQUID	1.29e+03	1.31e+03	1.538	RPD
4	DUP	S96T005183	④IC-01 OXALATE2	LIQUID	<4.35e2	<4.35e2		RPD
5	SPK	S96T005183	④IC-01 F-02	LIQUID	5.90e01	4.97e+01	84.237 %	Recovery
5	SPK	S96T005183	④IC-01 CL-02	LIQUID	7.90e01	6.54e+01	82.785 %	Recovery
5	SPK	S96T005183	④IC-01 NO2-02	LIQUID	5.40e02	4.63e+02	85.741 %	Recovery
5	SPK	S96T005183	④IC-01 BR-02	LIQUID	5.89e02	5.29e+02	89.813 %	Recovery
5	SPK	S96T005183	④IC-01 NO3-02	LIQUID	5.94e02	5.71e+02	96.128 %	Recovery
5	SPK	S96T005183	④IC-01 PO4-02	LIQUID	5.45e02	4.89e+02	89.725 %	Recovery
5	SPK	S96T005183	④IC-01 SO4-02	LIQUID	6.31e02	5.95e+02	94.295 %	Recovery
5	SPK	S96T005183	④IC-01 OXALATE2	LIQUID	5.27e02	5.02e+02	95.256 %	Recovery

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

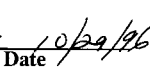
LABCORE Completed Worklist Report for Worklist# 13979

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

Final page for worklist# 13979

Analyst Signature	Date
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Analyst Signature	Date
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Reviewer Signature	Date

LABCORE Data Entry Template for Worklist# 13979

Analyst: GM Instrument: IC0 IC01 Book# 32N20A

Method: LA-533-105 Rev/Mod D1

Worklist Comment: AP-106 IC. RCJ

S Type	Sample#	R A	Test	Matrix	Group#	Project
1	CCB		@IC-QC	QC		
2	CCV		@IC-QC	QC		
3	SAMPLE	S96T005183 0	@IC-01	LIQUID	96001337	AP-106 GRAB
Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
4	DUP	S96T005183 0	@IC-01	LIQUID		
5	SPK	S96T005183 0	@IC-01	LIQUID		

Final page for worklist # 13979

A. Lambel 10-27-96
Analyst Signature Date

Analyst Signature Date

~~13979002.CSV~~ gmf 10/29/96

In shell

13979002.CSV

Uploaded 10/29/96 gmf

Validated 10/29/96 gmf

Data Entry Comments:

A-0010-IC				DATA FILE/WORKLIST RESOLUTION				29-Oct-96			
Worklist#: 13979				Data File: 13979OC2.CSV							
		Seq	Type	Sample #	Seq#		Data File	Sample Name	Dilution		
-	=>	1	CCB	S96T005183 S96T005183 S96T005183	-	1	96102741.d01	INST. BLANK	1.00		
	=>	2	CCV			2	96102741.d05	32N20-A STD.	101.00		
	=>	3	SAMPLE				96102741.d06	S96T005183	4141.00		
	=>	4	DUP				96102741.d08	S96T005183	101.00		
	=>	5	SPK				96102741.d07	S96T005183	1111.00		
					3	96102741.d11	S96T005183		4141.00		
					4	96102741.d12	S96T005183	DUP	4141.00		
					5	96102741.d13	S96T005183	SPIKE	4141.00		
+					+						

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

Data Reprocessed On 10/29/1996 15:52:41

```

=====
Sample Name: INST. BLANK                      Date: 10/27/1996 07:16:14
Data File  : F:\DATA\96102741.d01
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 1           Detector: CDM-1
Analyst    : Jan M. Faye                   Column: AG4A/AS4A anion column
=====

```

```

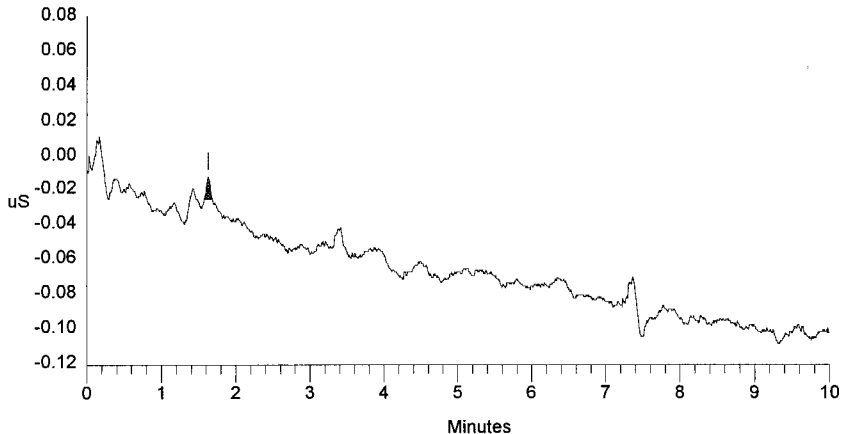
=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          1    3000  5Hz   0.00 10.00          50
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: 96102741.d01 Sample: INST. BLANK



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 95 TO 99.

Data Reprocessed On 10/29/1996 15:52:41

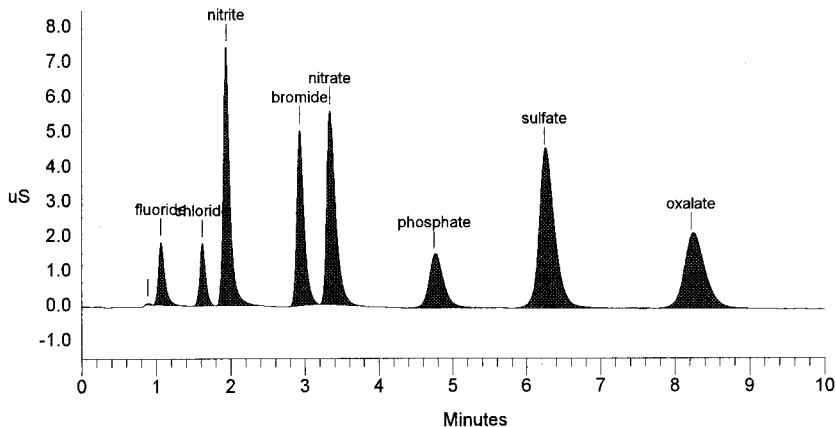
Sample Name: 32N20-A STD.				Date: 10/27/1996 10:06:50			
Data File : F:\DATA\96102741.d05							
Method : C:\DX\METHOD\KIT.MET							
ACI Address: 1 System: 1 Inject#: 5				Detector: CDM-1			
Analyst :				Column: AG4A/AS4A anion column			

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	101	3000	5Hz	0.00	10.00		50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.89		0.000	47	186	2	
2	1.06	fluoride	53.535	1801	10535	2	3.92
3	1.61	chloride	73.368	1793	9717	1	0.00
4	1.93	nitrite	500.720	7422	46168	1	-2.36
5	2.93	bromide	567.611	5056	34829	1	-1.79
6	3.33	nitrate	612.751	5576	47030	1	-2.25
7	4.75	phosphate	530.348	1519	21217	1	-3.72
8	6.24	sulfate	647.318	4522	66205	1	-4.88
9	8.21	oxalate	531.803	2083	42098	1	0.04
Totals			3517.455	29820	277984		

File: 96102741.d05 Sample: 32N20-A STD.



Data Reprocessed On 10/29/1996 15:52:44

```

=====
Sample Name: S96T005183                               Date: 10/27/1996 12:12:26
Data File  : F:\DATA\96102741.d11
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 11                   Detector: CDM-1
Analyst    :                                           Column: AG4A/AS4A anion column
=====

```

```

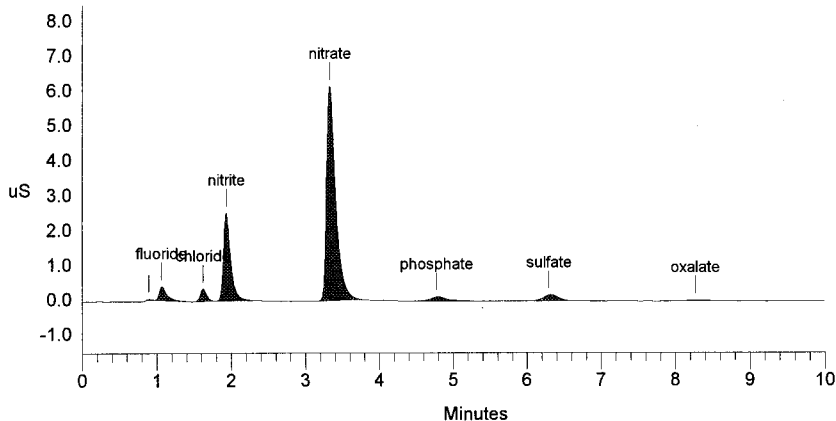
-----
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          4141    3000  5Hz   0.00 10.00          50

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.89		0.000	36	160	2	
2	1.06	fluoride	656.482	401	2981	2	3.92
3	1.62	chloride	637.714	361	2062	1	0.41
4	1.93	nitrite	7734.395	2530	16724	1	-2.36
5	3.33	nitrate	27698.660	6157	52042	1	-2.44
6	4.77	phosphate	1871.783	117	1809	1	-3.18
7	6.29	sulfate	1293.012	173	2729	1	-4.07
8	8.27	oxalate	393.847	26	542	1	-9.85
Totals			40285.892	9801	79049		

File: 96102741.d11 Sample: S96T005183



Data Reprocessed On 10/29/1996 15:52:44

```

=====
Sample Name: S96T005183  DUP                               Date: 10/27/1996 12:28:19
Data File  : F:\DATA\96102741.d12
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 12                      Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====
  
```

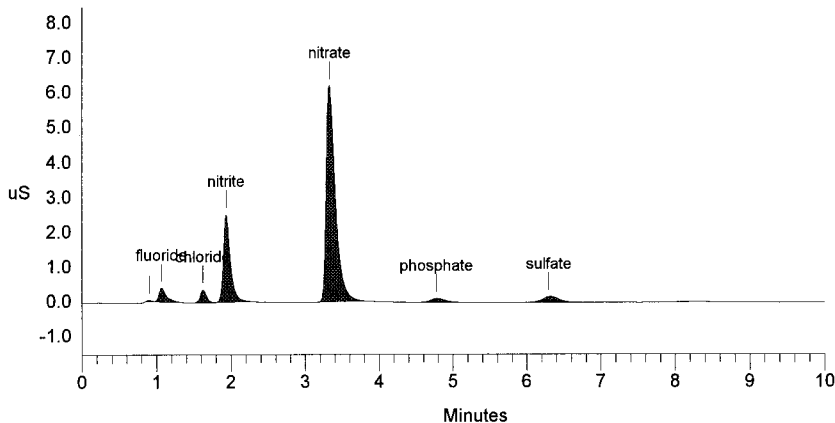
```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          4141    3000  5Hz   0.00 10.00          50
=====
  
```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.90		0.000	42	185	2	
2	1.07	fluoride	606.028	400	2735	2	4.58
3	1.62	chloride	615.465	368	1991	1	0.41
4	1.93	nitrite	7575.660	2532	16361	1	-2.36
5	3.33	nitrate	28455.271	6216	53517	1	-2.44
6	4.77	phosphate	1646.591	116	1592	1	-3.18
7	6.29	sulfate	1306.126	170	2762	1	-4.07
Totals			40205.140	9845	79143		

File: 96102741.d12 Sample: S96T005183 DUP



Data Reprocessed On 10/29/1996 16:06:07

```

=====
Sample Name: S96T005183 SPIKE                               Date: 10/27/1996 12:46:37
Data File  : F:\DATA\96102741.D13
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 13                        Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

```

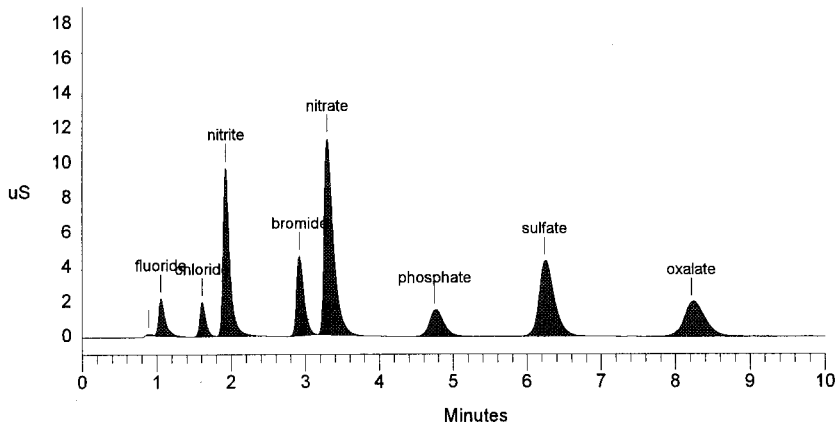
=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          4141    3000  5Hz   0.00 10.00          50
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.89		0.000	84	381	2	
2	1.05	fluoride	2662.102	2127	12853	2	3.27
3	1.61	chloride	3273.155	1974	10583	1	-0.41
4	1.93	nitrite	26394.258	9686	59782	1	-2.69
5	2.92	bromide	21319.451	4596	31805	1	-2.01
6	3.29	nitrate	50710.421	11288	97635	1	-3.42
7	4.75	phosphate	21607.209	1509	21081	1	-3.72
8	6.24	sulfate	25265.164	4346	62946	1	-4.88
9	8.21	oxalate	20222.908	1967	39006	1	0.04
Totals			171454.667	37577	336072		

File: 96102741.D13 Sample: S96T005183 SPIKE



10/02/96 09:42
A-0004-1

File #: 961015B.TYT

WHC-SD-WM-DP-217, REV. 0

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LABCORE Data Entry Template for Worklist# 13590

Analyst: AK 5670 Instrument: ICP01-2 10-15-96 Book# 638480Method: LA-505-151/161 Rev/Mod B-1Worklist Comment: 10-15-96 ICP AP-106 (DIRECT)

S Type	Sample#	R A	Test	Matrix	Group#	Project
1	ICV		@ICP-QC	QC		
2	ICB		@ICP-QC	QC		
3	LLS		@ICP-QC	QC		
4	ICSA		@ICP-QC	QC		
5	ICSAB		@ICP-QC	QC		
6	SERDIL	S96T005181 0 D	@ICP-D01	LIQUID		
7	SAMPLE	S96T005181 0 D	@ICP-D01	LIQUID	96001337	AP-106 GRAB
Analytes Requested: AG-D-01 , AL-D-01 , AS-D-01 , B-D-01 , BA-D-01 , BE-D-01 , BI-D-01 , CA-D-01 , CD-D-01 , CE-D-01 , CO-D-01 , CR-D-01 , CU-D-01 , FE-D-01 , K-D-01 , LA-D-01 , LI-D-01 , MG-D-01 , MN-D-01 , MO-D-01 , NA-D-01 , ND-D-01 , NI-D-01 , P-D-01 , PB-D-01 , S-D-01 , SB-D-01 , SE-D-01 , SI-D-01 , SM-D-01 , SR-D-01 , TI-D-01 , TL-D-01 , U-D-01 , V-D-01 , ZN-D-01 , ZR-D-01						
8	DUP	S96T005181 0 D	@ICP-D01	LIQUID		
9	SPK 1 ppb Sample 1 ppb 10 ppb	S96T005181 0 D	@ICP-D01	LIQUID		
10	CCV		@ICP-QC	QC		
11	CCB		@ICP-QC	QC		
12	SERDIL	S96T005182 0 D	@ICP-D01	LIQUID	10-9-96	
13	SAMPLE	S96T005182 0 D	@ICP-D01	LIQUID	96001337	AP-106 GRAB
Analytes Requested: AG-D-01 , AL-D-01 , AS-D-01 , B-D-01 , BA-D-01 , BE-D-01 , BI-D-01 , CA-D-01 , CD-D-01 , CE-D-01 , CO-D-01 , CR-D-01 , CU-D-01 , FE-D-01 , K-D-01 , LA-D-01 , LI-D-01 , MG-D-01 , MN-D-01 , MO-D-01 , NA-D-01 , ND-D-01 , NI-D-01 , P-D-01 , PB-D-01 , S-D-01 , SB-D-01 , SE-D-01 , SI-D-01 ,						

Data Entry Comments:

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

WHC-SD-WM-DP-217, REV. 0

10/02/96 09:42

A-0004-1

Page: 2

LABCORE Data Entry Template for Worklist# 13590

S Type	Sample#	R A Test	Matrix	Group#	Project
			SM-D-01 , SR-D-01 , TI-D-01 , TL-D-01 , U-D-01 , V-D-01 , ZN-D-01 , ZR-D-01		
14 DUP	S96T005182 0 D	@ICP-D01	LIQUID		
15 GPK	S96T005182 0 D	@ICP-D01	LIQUID		10-9-96
16 SERDIL	S96T005183 0 D	@ICP-D01	LIQUID		10-9-96
17 SAMPLE	S96T005183 0 D	@ICP-D01	LIQUID	96001337 AP-106	GRAB
	Analytes Requested: AG-D-01 , AL-D-01 , AS-D-01 , B-D-01 , BA-D-01 , BE-D-01 , BI-D-01 , CA-D-01 , CD-D-01 , CE-D-01 , CO-D-01 , CR-D-01 , CU-D-01 , FE-D-01 , K-D-01 , LA-D-01 , LI-D-01 , MG-D-01 , MN-D-01 , MO-D-01 , NA-D-01 , ND-D-01 , NI-D-01 , P-D-01 , PB-D-01 , S-D-01 , SB-D-01 , SE-D-01 , SI-D-01 , SM-D-01 , SR-D-01 , TI-D-01 , TL-D-01 , U-D-01 , V-D-01 , ZN-D-01 , ZR-D-01				
18 DUP	S96T005183 0 D	@ICP-D01	LIQUID		
19 GPK	S96T005183 0 D	@ICP-D01	LIQUID		10-9-96
20 ICSA		@ICP-QC	QC		
21 ICSAB		@ICP-QC	QC		
22 CCV		@ICP-QC	QC		
23 CCB		@ICP-QC	QC		

Final page for worklist # 13590

JH
 Analyst Signature Date 10-15-96
 S96T005181_L, 5-10-2.8, DF 105
 S96T005181, 5-10, 21
 S96T005181_D, 5-10, 21
 S96T005181_Q, 5-10, 21, 5ml sample + 2.1 ml H₂O
 S96T005181_X, 0.5-10, 21, 201
 S96T005181_Q, 0.5-10, 201, 0.54 sample + 1.003 ml acid + 12.2 + 7.99 ml H₂O
 S96T005182, 0.5-15, DF 301
 S96T005182_D, 0.5-15, 301

Revised by:
Sail K. Ray
 Analyst Signature Date 10/15/96
 S96T005183, 2.5-10, DF 91
 S96T005183_D, 2.5-10, 91

Data Entry Comments:

Spike recovery calculation:

$$R = \frac{(771.6/21) - (351.3/21)}{1} \times 100 = 96.7\%$$

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

Spike true value is 1.0 pp- for all elements except for U = 2.0 pp- .

WHC-SD-WM-DP-217, REV. 0

Analysis Report

Summary

Tue 10-15-96 01:13:54 PM

page 1

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	961015B	ICP2	10/15/96	11:46	DKS	Q	CONC
2	ICB	961015B	ICP2	10/15/96	11:49	DKS	Q	CONC
3	LLS	961015B	ICP2	10/15/96	11:52	DKS	Q	CONC
4	ICSA	961015B	ICP2	10/15/96	11:55	DKS	Q	CONC
5	ICSAB	961015B	ICP2	10/15/96	11:58	DKS	Q	CONC
6	S96T005181_L	961015B	ICP2	10/15/96	12:04	DKS	S	CONC
7	S96T005181-	961015B	ICP2	10/15/96	12:08	DKS	S	CONC
8	S96T005181_A	961015B	ICP2	10/15/96	12:12	DKS	S	CONC
9	S96T005181-D	961015B	ICP2	10/15/96	12:16	DKS	S	CONC
10	S96T005181-A	961015B	ICP2	10/15/96	12:20	DKS	S	CONC
11	S96T005181-X	961015B	ICP2	10/15/96	12:24	DKS	S	CONC
12	S96T005181-AD	961015B	ICP2	10/15/96	12:29	DKS	S	CONC
13	CCV	961015B	ICP2	10/15/96	12:33	DKS	Q	CONC
14	CCB	961015B	ICP2	10/15/96	12:38	DKS	Q	CONC
15	S96T005182	961015B	ICP2	10/15/96	12:42	DKS	S	CONC
16	S96T005182_D	961015B	ICP2	10/15/96	12:45	DKS	S	CONC
17	S96T005183	961015B	ICP2	10/15/96	12:51	DKS	S	CONC
18	S96T005183_D	961015B	ICP2	10/15/96	12:54	DKS	S	CONC
19	ICSA	961015B	ICP2	10/15/96	13:00	DKS	Q	CONC
20	ICSAB	961015B	ICP2	10/15/96	13:04	DKS	Q	CONC
21	CCV_1	961015B	ICP2	10/15/96	13:07	DKS	Q	CONC
22	CCB_1	961015B	ICP2	10/15/96	13:11	DKS	Q	CONC

DK 10-15-96

10-15-96

ap-106

Worklist # 13590

596T005181

596T005182

596T005183

K and P failed in the first post spike. A second post spike with more diluted sample and with higher spike concentration was made and the results are:

$$K = \frac{\left(\frac{3185}{201}\right) - \left(\frac{1129}{201}\right)}{10} \times 100 = 102.3\%$$

$$P = \frac{\left(\frac{2345}{201}\right) - \left(\frac{240.7}{201}\right)}{10} \times 100 = 104.7\%$$

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 102 TO 100.

WHC-SD-WM-DP-217, REV. 0

Analysis Report

Averages

Tue 10-15-96 01:13:54 PM

page 2

#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	5.001	4.916	5.218	5.071	4.981	5.201
2	ICB	-.0004	-.0067	-.0032	.0039	-.0002	.0003
3	LLS	.0203	.0946	.2157	.1011	.0983	.0106
4	ICSA	.0013	244.1	-.0030	.0054	.0015	.0003
5	ICSAB	.9502	243.8	-.0798	-.0096	.4661	.4759
6	S96T005181_L	.6516	357.3	-.8170	1.067	-.0098	.0510
7	S96T005181	.6121	351.3	.2422	1.473	.0060	.0379
8	S96T005181_A	.6244	352.1	-.1090	1.453	.0071	.0378
9	S96T005181_D	.6001	353.9	.0654	1.494	.0051	.0369
10	S96T005181_A	19.77	371.6	22.51	22.69	20.73	21.90
11	S96T005181_X	.5449	353.8	-.8087	1.167	-.0358	.0800
12	S96T005181_AD	1983.	2333.	2114.	2019.	2059.	2123.
13	CCV	5.012	4.966	5.273	5.110	5.046	5.247
14	CCB	-.0011	-.0043	-.0012	.0024	-.0002	.0004
15	S96T005182	7.799	8776.	-12.55	10.05	-.0528	1.247
16	S96T005182_D	8.344	8998.	-14.06	9.183	.0242	1.246
17	S96T005183	1.217	952.4	-.6155	2.182	.0013	.1192
18	S96T005183_D	1.183	947.3	-1.228	2.242	-.0052	.1156
19	ICSA	.0025	246.1	-.0366	-.0030	.0017	.0003
20	ICSAB	.9528	244.7	-.0019	-.0041	.4711	.4821
21	CCV_1	4.963	4.857	5.243	5.035	4.912	5.204
22	CCB_1	-.0006	-.0107	-.0024	.0024	-.0002	.0002

10-15-96

#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	5.105	5.077	5.038	4.985	5.091	5.084
2	ICB	-.0067	-.0051	-.0004	-.0170	-.0003	-.0008
3	LLS	.1840	.2197	.0103	.1819	.0414	.0212
4	ICSA	-.0156	250.6	.0002	-.0015	-.0007	.0090
5	ICSAB	-.0081	252.0	.9190	-.0006	.4621	.4708
6	S96T005181_L	.6274	1.785	-.0185	-1.396	.1025	12.95
7	S96T005181	-.0821	1.446	.0084	-.2915	-.0199	12.92
8	S96T005181_A	.0368	1.166	-.0011	-.1507	.0061	12.97
9	S96T005181_D	-.0220	1.218	.0213	-.2296	.0083	12.88
10	S96T005181_A	21.63	22.67	21.02	20.79	21.02	33.99
11	S96T005181_X	-1.919	2.797	-.2763	-3.710	-.0249	13.32
12	S96T005181_AD	2064.	2070.	2019.	2020.	3.033	2051.
13	CCV	5.189	5.100	5.057	4.992	5.089	5.091
14	CCB	.0016	-.0038	-.0016	-.0162	-.0012	.0004
15	S96T005182	-1.340	17.63	2.059	-3.627	-.1034	159.0
16	S96T005182_D	-.5648	18.98	2.160	-1.290	-.0650	163.3
17	S96T005183	.8041	1.263	.0316	-.5105	.0557	24.26
18	S96T005183_D	-.0735	1.010	-.0247	-.5843	-.0138	24.32
19	ICSA	-.0095	254.7	.0013	.0036	-.0015	.0085
20	ICSAB	-.0184	253.2	.9240	-.0013	.4644	.4761
21	CCV_1	5.103	5.106	5.020	4.863	5.059	5.052
22	CCB_1	-.0160	-.0056	-.0000	-.0114	-.0016	-.0006

10-15-96

WHC-SD-WM-DP-217, REV. 0

Analysis Report

Averages

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#	Sample Name	Cu	Eu	Fe	K	La	Li
1	ICV	5.221	-.0017	5.075	4.652	5.058	5.074
2	ICB	-.0013	-.0004	-.0009	-.3216	-.0018	-.0006
3	LLS	.0201	.0001	.1039	Q.3030	.0997	.0206
4	ICSA	-.0109	-.0429	93.99	-.0528	-.0070	.0019
5	ICSAB	.4723	-.0440	93.77	-.0682	-.0053	1.034
6	S96T005181 L	.1334	-.0405	.2375	1184.	-.1678	.2908
7	S96T005181	.2446	-.0133	.2672	1191.	-.0362	.3261
8	S96T005181_A	.2108	-.0050	.2804	1190.	-.0046	.3255
9	S96T005181_D	.2211	-.0189	.2727	1192.	-.0265	.3134
10	S96T005181_A	.22.19	-.0310	21.33	1207.	21.38	22.18
11	S96T005181_X	.1731	-.0736	-.0867	1129.	-.5020	.2420
12	S96T005181_AD	-.9440	.4713	2037.	3185.	2053.	2071.
13	CCV	5.277	-.0022	5.104	4.798	5.082	5.144
14	CCB	-.0004	-.0002	-.0016	-.3069	-.0021	-.0005
15	S96T005182	2.721	-.1128	4.479	22280.	-.3123	.1055
16	S96T005182_D	2.713	-.0998	5.525	22780.	-.0284	-.1125
17	S96T005183	.2885	-.0234	.2615	3467.	-.0317	.3997
18	S96T005183_D	.2882	-.0126	.1374	3447.	-.0836	.3157
19	ICSA	-.0111	-.0488	94.95	-.0157	-.0050	.0024
20	ICSAB	.4774	-.0448	94.32	-.1341	-.0065	1.046
21	CCV_1	5.164	-.0009	5.043	4.757	4.956	5.027
22	CCB_1	-.0016	.0004	-.0011	-.3449	-.0018	-.0000

10-15-96

#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	4.883	4.917	5.065	4.942	5.078	5.044
2	ICB	-.0111	-.0001	.0017	-.0017	-.0025	-.0082
3	LLS	.1838	.0194	.0993	.2049	.1979	.0347
4	ICSA	.256.5	-.0070	-.0063	197.0	.0024	-.0120
5	ICSAB	.255.8	.4355	-.0118	196.5	-.0020	.9095
6	S96T005181 L	.1716	-.0064	1.998	8625.	-.2442	.1564
7	S96T005181	.0253	.0397	1.860	8415.	-.0092	.2252
8	S96T005181_A	.0439	.0328	1.789	8494.	-.0306	.2302
9	S96T005181_D	20.27	20.11	23.14	8436.	21.42	21.40
10	S96T005181_A	-2.024	.0433	1.844	8562.	-.0866	-.4688
11	S96T005181_X	2074.	2013.	1994.	10560.	2062.	2017.
12	S96T005181_AD	4.928	4.943	5.080	4.963	5.096	5.074
13	CCV	-.0178	.0001	.0020	.0021	-.0005	-.0056
14	CCB	5.144	.1591	17.10	110400.	-.4969	6.689
15	S96T005182	-3.966	.2289	17.67	112800.	-.8506	7.248
16	S96T005182_D	-.4491	-.0055	2.078	17280.	-.0452	.7308
17	S96T005183	-.8143	-.0005	2.134	17120.	-.0767	.5692
18	S96T005183_D	.259.3	-.0070	-.0046	197.5	-.0015	-.0133
19	ICSA	.257.4	.4370	-.0099	197.2	.0008	.8998
20	ICSAB	4.848	4.887	5.041	4.865	4.968	5.028
21	CCV_1	-.0118	.0000	.0012	.0059	-.0021	-.0034
22	CCB_1						

10-15-96

WHC-SD-WM-DP-217, REV. 0

Analysis Report

Averages

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#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	5.173	5.019	5.054	4.846	4.920	5.023
2	ICB	-0045	.0093	-0172	.0008	.0344	-.0057
3	LLS	.4124	.2302	.1945	.0899	.2348	.1585
4	ICSA	.0474	.0320	-.0265	.0007	-.0241	-.0012
5	ICSAH	.0194	.9671	-.0423	-.0057	-.0015	.0010
6	S96T005181 L	238.9	1.800	88.79	-.7704	5.009	14.55
7	S96T005181	237.9	1.601	88.42	-.0200	1.330	14.99
8	S96T005181 A	239.6	1.455	88.87	-.1040	1.766	15.07
9	S96T005181 D	240.4	1.311	88.59	-.1601	1.107	15.01
10	S96T005181 X	265.4	22.04	109.1	20.15	23.83	36.42
11	S96T005181	240.7	4.026	81.89	-1.895	7.178	14.80
12	S96T005181 AD	2345.	2067.	2146.	2028.	2010.	2128.
13	CCV	5.197	5.027	5.059	4.867	4.973	5.054
14	CCB	.0116	.0067	-.0090	-.0030	.0543	-.0015
15	S96T005182	454.9	21.78	1154.	-.5193	22.80	40.22
16	S96T005182 D	468.3	14.16	1188.	.6776	24.94	42.28
17	S96T005183	326.1	2.809	183.3	-.1909	3.087	18.92
18	S96T005183 D	323.4	3.401	181.1	-.2874	3.211	18.97
19	ICSA	.0464	.0305	-.0488	.0021	-.0040	.0007
20	ICSAH	-.0000	.9842	-.0272	.0126	-.0012	-.0015
21	CCV 1	5.310	5.007	5.112	4.813	4.983	5.010
22	CCB 1	.0027	-.0009	-.0106	-.0088	.0501	.0011

#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	4.896	4.955	.0230	4.893	4.885	9.643
2	ICB	-.0080	.0000	-.0066	-.0000	.0147	-.0156
3	LLS	.2014	.0202	-.0057	.0200	.4226	.5031
4	ICSA	-.0018	.0017	-.0051	.0017	-.0008	-.0690
5	ICSAH	.0003	.0018	-.0125	.0014	.0020	-.0608
6	S96T005181 L	-.5995	.0050	-.4049	-.0040	1.738	3.149
7	S96T005181	-.1537	.0070	-.1283	.0020	.5514	4.745
8	S96T005181 A	-.0511	.0000	-.1070	.0011	.1270	6.346
9	S96T005181 D	-.1817	.0060	-.1504	-.0033	.2777	4.895
10	S96T005181 X	20.41	20.87	-.0917	20.55	20.67	45.83
11	S96T005181	-1.117	.0099	-1.114	-.0072	1.995	2.657
12	S96T005181 AD	1993.	2017.	7.988	1840.	1948.	149.4
13	CCV	4.930	4.976	.0315	4.925	4.822	9.705
14	CCB	-.0011	.0001	-.0045	-.0000	.0024	-.0052
15	S96T005182	-1.112	.1017	-2.677	.0310	8.849	59.82
16	S96T005182 D	-.9031	.1316	-2.519	-.0459	5.981	68.34
17	S96T005183	-.2738	.0035	-2.728	-.0049	.8346	6.854
18	S96T005183 D	-.0115	.0055	-.5949	-.0164	.0112	8.164
19	ICSA	-.0005	.0017	-.0120	.0007	-.0306	-.0694
20	ICSAH	-.0039	.0017	-.0089	.0012	-.0131	-.0783
21	CCV 1	4.810	4.868	.0207	4.826	4.814	9.483
22	CCB 1	.0048	.0002	-.0042	-.0003	.0016	.0256

Analysis Report

Averages

WMC-SD-WM-DP-217 REV 0

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#	Sample Name	V	Y	Zn	Zr
1	ICV	5.066	.0065	5.097	4.948
2	ICB	-.0013	-.0002	-.0004	-.0002
3	LLS	.1028	.0006	.0223	.0208
4	ICSA	-.0017	.0068	.0036	-.0032
5	ICSA B	.4619	.0071	.9448	-.0025
6	S96T005181 L	-.0851	-.0096	.4734	-.0477
7	S96T005181	-.0263	-.0020	.5414	-.0043
8	S96T005181 A	-.0022	-.0022	.5205	-.0056
9	S96T005181 D	-.0458	-.0120	.5376	-.0175
10	S96T005181 A	21.16	.0118	21.78	20.31
11	S96T005181 X	-.3021	-.0169	.5124	-.1320
12	S96T005181 AD	1.562	2.867	-6.210	2044.
13	CCV	5.091	.0063	5.102	4.962
14	CCB	-.0004	.0001	-.0011	.0000
15	S96T005182	-.2919	-.0490	4.860	2.874
16	S96T005182 D	-.0856	.0417	4.867	3.170
17	S96T005183	-.0524	-.0158	.6000	-.0318
18	S96T005183 D	-.0007	.0030	.5917	.0337
19	ICSA	-.0005	.0070	.0041	-.0021
20	ICSA B	.4637	.0069	.9486	-.0028
21	CCV 1	5.028	.0067	5.094	4.875
22	CCB 1	.0007	.0004	-.0013	.0006

JK

10-15-96

LABCORE Completed Worklist Report for Worklist# 13977

Analyst: raw Instrument: TOC01 Book# _____

Method: _____ Rev/Mod _____

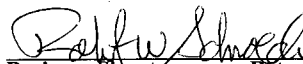
Worklist Comment: AP-106 TOC. RCJ

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLNK	0	TOC-01	LIQUID	1	4.00E-1	0.400	ug/mL
2 STD	0	TOC-01	LIQUID	3.00E+03	2.93E+3	97.667	% Recovery
3 SAMPLE	S96T005181 0	TOC-01	LIQUID	N/A	7.34E+02	21.700	ug/mL
4 DUP	S96T005181 0	TOC-01	LIQUID	7.34E+2	6.85E+2	6.906	RPD
5 SPK	S96T005181 0	TOC-01	LIQUID	1.00E+02	8.04E+01	80.400	% Recovery
6 SAMPLE	S96T005182 0	TOC-01	LIQUID	N/A	3.40E+03	25.000	ug/mL
7 DUP	S96T005182 0	TOC-01	LIQUID	3.41E+3	3.10E+3	9.524	RPD
8 SAMPLE	S96T005183 0	TOC-01	LIQUID	N/A	9.14E+02	21.700	ug/mL
9 DUP	S96T005183 0	TOC-01	LIQUID	9.14E+2	8.34E+2	9.153	RPD

Final page for worklist# 13977

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____


Reviewer Signature _____ Date 11/5/96

LABCORE Data Entry Template for Worklist# 13977

Analyst: RAW Instrument: TOC01 WB39937 Book# 24N12-D STD
23N12-B SPK

Method: LA-344-105 Rev/Mod D-1

Worklist Comment: AP-106 TOC. RCJ

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			TOC-01	LIQUID		
2 STD			TOC-01	LIQUID		
3 SAMPLE	S96T005181 0		TOC-01	LIQUID	96001337	AP-106 GRAB
Analytes Requested: TOC-01						
4 DUP	S96T005181 0		TOC-01	LIQUID		
5 SPK	S96T005181 0		TOC-01	LIQUID		
6 SAMPLE	S96T005182 0		TOC-01	LIQUID	96001337	AP-106 GRAB
Analytes Requested: TOC-01						
7 DUP	S96T005182 0		TOC-01	LIQUID		
8 SAMPLE	S96T005183 0		TOC-01	LIQUID	96001337	AP-106 GRAB
Analytes Requested: TOC-01						
9 DUP	S96T005183 0		TOC-01	LIQUID		

Final page for worklist # 13977

R. Wendland 11-1-96
Analyst Signature Date

Analyst Signature Date

STD .5M
.200 - 2mL - .200 (INJ)
81+83 .5M
.600 - 2mL - .200 (INJ)
82 .500 - 2mL - .200 (INJ)
(2M)
SPK .500 (DILUTE) - .500 (SPIKE) - .200 (INJ)

Data Entry Comments:

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BASE

Date: 11/01/96

Time: 09:21:26

Sample Size = 200 uL

Dil Factor = 1

Blank ID # =

Blank Value = 0 ug/minute C

Analyst : RA WENDLAND

Min Readings = 10

Max Readings = 10

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	0.20	0.00
3	1.51	0.50	60.00
4	2.01	0.70	28.57
5	2.51	1.00	30.00
6	3.01	1.10	9.09
7	3.51	1.30	15.38
8	4.01	1.60	18.75
9	4.51	1.70	5.88
10	5.01	2.00	15.00

USER INPUT BLANK VALUE

BLANK VALUE = 0 micrograms carbon

BLANK FACTOR = 0 / 0 =

+0.0E+00 ug/min Carbon

SAMPLE RESULTS:

(2 - 0) (1) / (200) =

+1.0E-02 g/L Carbon

(2 - 0) (1) / (200) (12) =

+8.3E-04 Molar Carbon

<<<< WARNING- PERCENT DIFFERENCE EXCEEDS 10 PERCENT >>>>

Sample Run By:

R. W. Wendland for RA Wendland
RA WENDLAND 00000 12/9/96

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 109 TO 118.

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BLK

Date: 11/01/96

Time: 09:37:54

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BLK

Blank Value = N/A

Analyst : RA WENDLAND

Min Readings = 10

Max Readings = 10

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.30	100.00
3	1.51	0.60	50.00
4	2.01	0.80	25.00
5	2.51	0.90	11.11
6	3.01	1.00	10.00
7	3.51	1.20	16.67
8	4.00	1.30	7.69
9	4.50	1.50	13.33
10	5.00	1.60	6.25

BLANK VALUE = 1.6 micrograms carbon

BLANK FACTOR = 1.6 / 5.004639 = +3.2E-01 ug/min Carbon

Sample Run By:

RA WENDLAND

00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD

Date: 11/01/96

Time: 09:49:22

Sample Size = 200 uL

Dil Factor = 11

Blank ID # = BLK

Blank Value = .3197034 ug/minute C

Analyst : RA WENDLAND

Min Readings = 10

Max Readings = 10

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.20	0.00
2	1.01	32.60	99.39
3	1.51	46.90	30.49
4	2.01	50.80	7.68
5	2.51	52.80	3.79
6	3.01	53.70	1.68
7	3.51	54.30	1.10
8	4.00	54.60	0.55
9	4.50	55.00	0.73
10	5.00	55.20	0.36

BLANK VALUE = 1.6 micrograms carbon

BLANK FACTOR = 1.6 / 5.004639 =

+3.2E-01 ug/min Carbon

SAMPLE RESULTS:

(55.2 - 1.6) (11) / (200) =

+2.95E+00 g/L Carbon

(55.2 - 1.6) (11) / (200) (12) =

+2.46E-01 Molar Carbon

Sample Run By:

RA WENDLAND

00000

WHC-SD-WM-DP-217, REV. 0
 TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
 TICTOC REV 2.0

Sample: 5181

Date: 11/01/96

Time: 10:17:48

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BLK

Blank Value = .3197034 ug/minute C

Analyst : RA WENDLAND

Min Readings = 10

Max Readings = 10

% Difference = 10

== Reading ==	Analysis	Time	Coulometer	% Difference ==
1	0.51		1.20	0.00
2	1.01		26.10	95.40
3	1.51		30.10	13.29
4	2.01		32.10	6.23
5	2.51		33.20	3.31
6	3.01		34.10	2.64
7	3.51		34.60	1.45
8	4.01		35.10	1.42
9	4.50		35.50	1.13
10	5.00		35.90	1.11

BLANK VALUE = 1.6 micrograms carbon

BLANK FACTOR = 1.6 / 5.004639 =

+3.2E-01 ug/min Carbon

SAMPLE RESULTS:

(35.9 - 1.600019) (1) / (200) =

+1.71E-01 g/L Carbon

(35.9 - 1.600019) (1) / (200) (12) =

+1.43E-02 Molar Carbon

Sample Run By:

RA WENDLAND

00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5181D

Date: 11/01/96

Time: 10:23:31

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BLK

Blank Value = .3197034 ug/minute C

Analyst : RA WENDLAND

Min Readings = 10

Max Readings = 10

% Difference = 10

== Reading ==	Analysis	Time	Coulometer	% Difference ==
1	0.51		1.60	0.00
2	1.01		24.40	93.44
3	1.51		28.10	13.17
4	2.01		30.00	6.33
5	2.51		30.90	2.91
6	3.01		31.60	2.22
7	3.51		32.30	2.17
8	4.01		32.90	1.82
9	4.51		33.20	0.90
10	5.01		33.60	1.19

BLANK VALUE = 1.6 micrograms carbon

BLANK FACTOR = 1.6 / 5.004639 = +3.2E-01 ug/min Carbon

SAMPLE RESULTS:

(33.6 - 1.600254) (1) / (200) =

+1.60E-01 g/L Carbon

(33.6 - 1.600254) (1) / (200) (12) =

+1.33E-02 Molar Carbon

Sample Run By:

RA WENDLAND

00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5181S

Date: 11/01/96

Time: 10:29:30

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BLK

Blank Value = .3197034 ug/minute C

Analyst : RA WENDLAND

Min Readings = 10

Max Readings = 10

% Difference = 10

== Reading ==	Analysis	Time	==== Coulometer	==== % Difference ==
1	0.51		1.30	0.00
2	1.01		56.40	97.70
3	1.50		67.70	16.69
4	2.00		72.00	5.97
5	2.51		74.60	3.49
6	3.01		76.50	2.48
7	3.51		77.50	1.29
8	4.00		78.30	1.02
9	4.50		78.90	0.76
10	5.01		79.50	0.75

BLANK VALUE = 1.6 micrograms carbon

BLANK FACTOR = 1.6 / 5.004639 = +3.2E-01 ug/min Carbon

SAMPLE RESULTS:

(79.5 - 1.600293) (1) / (200) =

+3.89E-01 g/L Carbon

(79.5 - 1.600293) (1) / (200) (12) =

+3.25E-02 Molar Carbon

Sample Run By:

RA WENDLAND

00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5182

Date: 11/01/96

Time: 10:58:10

Sample Size = 200 uL

Analyst : RA WENDLAND

Dil Factor = 1

Min Readings = 10

Blank ID # = BLK

Max Readings = 10

Blank Value = .3197034 ug/minute C

% Difference = 10

== Reading ==	Analysis	Time	==== Coulometer	==== % Difference ==
1	0.51		3.40	0.00
2	1.01		98.90	96.56
3	1.51		117.00	15.47
4	2.01		125.10	6.47
5	2.51		129.70	3.55
6	3.01		132.70	2.26
7	3.51		134.80	1.56
8	4.01		136.20	1.03
9	4.51		137.20	0.73
10	5.01		138.20	0.72

BLANK VALUE = 1.6 micrograms carbon

BLANK FACTOR = 1.6 / 5.004639 =

+3.2E-01 ug/min Carbon

SAMPLE RESULTS:

(138.2 - 1.600293) (1)/(200) =

+6.830E-01 g/L Carbon

(138.2 - 1.600293) (1)/(200) (12) =

+5.692E-02 Molar Carbon

Sample Run By:

RA WENDLAND

00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5182D

Date: 11/01/96

Time: 11:15:01

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BLK

Blank Value = .3197034 ug/minute C

Analyst : RA WENDLAND

Min Readings = 10

Max Readings = 10

% Difference = 10

== Reading ==	Analysis	Time ==	Coulometer ==	% Difference ==
1	0.51		3.00	0.00
2	1.01		90.60	96.69
3	1.51		106.10	14.61
4	2.01		113.60	6.60
5	2.51		117.80	3.57
6	3.01		120.70	2.40
7	3.51		122.80	1.71
8	4.01		124.20	1.13
9	4.51		125.20	0.80
10	5.01		126.10	0.71

BLANK VALUE = 1.6 micrograms carbon

BLANK FACTOR = 1.6 / 5.004639 =

+3.2E-01 ug/min Carbon

SAMPLE RESULTS:

(126.1 - 1.600273) (1) / (200) =

+6.225E-01 g/L Carbon

(126.1 - 1.600273) (1) / (200) (12) =

+5.187E-02 Molar Carbon

Sample Run By:

RA WENDLAND

00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5183

Date: 11/01/96

Time: 10:43:36

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BLK

Blank Value = .3197034 ug/minute C

Analyst : RA WENDLAND

Min Readings = 10

Max Readings = 10

% Difference = 10

== Reading ==	Analysis	Time	==== Coulometer	==== % Difference ==
1	0.51		1.00	0.00
2	1.01		31.50	96.83
3	1.51		36.70	14.17
4	2.01		39.20	6.38
5	2.51		40.80	3.92
6	3.01		41.80	2.39
7	3.51		42.70	2.11
8	4.01		43.30	1.39
9	4.51		43.70	0.92
10	5.01		44.20	1.13

BLANK VALUE = 1.6 micrograms carbon

BLANK FACTOR = 1.6 / 5.004639 =

+3.2E-01 ug/min Carbon

SAMPLE RESULTS:

(44.2 - 1.600332) (1) / (200) =

+2.13E-01 g/L Carbon

(44.2 - 1.600332) (1) / (200) (12) =

+1.77E-02 Molar Carbon

Sample Run By:

RA WENDLAND

00000

WHC-SD-WM-DP-217, REV. 0
 TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
 TICTOC REV 2.0

Sample: 5183 *DUO*

Date: 11/01/96

Time: 10:49:08

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BLK

Blank Value = .3197034 ug/minute C

Analyst : RA WENDLAND

Min Readings = 10

Max Readings = 10

% Difference = 10

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

1	0.51	1.40	0.00
2	1.01	29.10	95.19
3	1.51	33.90	14.16
4	2.01	35.80	5.31
5	2.51	37.20	3.76
6	3.01	38.20	2.62
7	3.51	38.90	1.80
8	4.01	39.60	1.77
9	4.51	40.10	1.25
10	5.01	40.50	0.99

BLANK VALUE = 1.6 micrograms carbon

BLANK FACTOR = 1.6 / 5.004639 = +3.2E-01 ug/min Carbon

SAMPLE RESULTS:

(40.5 - 1.600605) (1)/(200) =

+1.94E-01 g/L Carbon

(40.5 - 1.600605) (1)/(200) (12) =

+1.62E-02 Molar Carbon

Sample Run By:

RA WENDLAND

00000

WORKBOOK PAGE: BLANK1

TOC : LA-344-105 (D-1)

LIQUIDS

		BLNK
	Sample Volume in mL (SS)	0.200
BLNK	H2SO4 Volume in mL (VR)	0.000
	Volume Injected in mL (VI)	0.200
13977	Dilution Factor (calculated) (DF)	1.000
	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Blank (C1)	1.6
	µg of Carbon from Baseline (C2)	2
LIQUID		
96010499	µg of Carbon = C1-C2	
0	Method Detection Limit (µg/mL) = 1 µg C * DF * DDF / VI	
N/A		
BLNK		
TOC01		
RTS		
RWS		
RAW		
11/04/96		
11/02/96		
Method Detection Limit in µg/mL		5.00E+00
µg of Carbon		4.00E-01
AP-106		

Data Entered By:	RTS	Date:	11/04/96
Signature of Chemist:	<i>DW Schaefer</i>	Date:	11/5/96

BLANK.WB1 REV 2.0

344105ML

WORKBOOK PAGE: STD2

TOC : LA-344-105 (D-1)

LIQUIDS

		STD
	Sample Volume in mL (SS)	0.200
STD	H2SO4 Volume in mL (VR)	2.000
	Volume Injected in mL (VI)	0.200
13977	Dilution Factor (calculated) (DF)	11.000
	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon Found (C1)	55.2
	µg of Carbon from Baseline (C2)	2
LIQUID	Standard Book Number	24N12D
	Standard Value (µg/ml)	3000

96010499

0

 $\mu\text{g of Carbon/mL} = (C1-C2) * DF * DDF / VI$

Sample

N/A

 $\text{Method Detection Limit } (\mu\text{g/mL}) = 1 \mu\text{g C} * DF * DDF / VI$

Sample

STD

Instrument

TOC01

RTS

RWS

Analysis

RAW

Date Sampled

11/04/96

Date Analyzed

11/02/96

Analysis

Method Detection Limit in µg/mL

5.50E+01

QC Actual in µg/mL

3.00E+03

QC Found in µg/mL

2.93E+03

AP-106

Percent Standard Recovery

97.5

Data Entered By:

RTS

Date:

11/04/96

Signature of Chemist:

BW Schneider

Date:

11/5/96

STANDARD.WB1 REV 2.0

344105ML

WORKBOOK PAGE: SAM3

TOC : LA-344-105 (D-1)

LIQUIDS

		SAMPLE
	Sample Volume in mL	(SS) 0.600
SAMPLE	H2SO4 Volume in mL	(VR) 2.000
	Volume Injected in mL	(VI) 0.200
13977	Dilution Factor (calculated)	(DF) 4.333
	Digest Dilution Factor	(DDF) 1
TOC-01	µg of Carbon in Sample	(C1) 35.9
	µg of Carbon from Baseline	(C2) 2
LIQUID		
96010499		
0	$\mu\text{g of Carbon/mL} = (C1-C2) * DF * DDF / VI$	
N/A	Method Detection Limit = $1 \mu\text{g C} * DF * DDF / VI$	
S96T005181		
TOC01		
RTS		
RWS		
RAW		
11/04/96		
11/01/96		
	Method Detection Limit in µg/mL	2.17E+01
	µg of Carbon/mL	7.34E+02
AP-106		

Data Entered By:	RTS	Date:	11/04/96
Signature of Chemist:	<i>Paul Schmitt</i>	Date:	11/5/96

SAMPLE WB1 REV 2.0

344105ML

WORKBOOK PAGE: DUP4

TOC : LA-344-105 (D-1)

LIQUIDS

		DUP
	Sample Volume in mL (SS)	0.600
DUP	H2SO4 Volume in mL (VR)	2.000
	Volume Injected in mL (VI)	0.200
13977	Dilution Factor (calculated) (DF)	4.333
	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	33.6
	µg of Carbon from Baseline (C2)	2
LIQUID	Result from Sample Page	7.34E+2

96010499	
0	µg of Carbon/mL = (C1-C2) * DF * DDF / VI
0	
N/A	Method Detection Limit = 1 µg C * DF * DDF / VI
S96T005181	
TOC01	
RTS	
RWS	
RAW	
11/04/96	
11/02/96	
	Method Detection Limit in µg/mL 2.17E+01
	µg of Carbon/mL 6.85E+02
AP-106	

Data Entered By:	RTS	Date:	11/04/96
Signature of Chemist:	<i>raw schmidt</i>	Date:	11/05/96

SAMPLE WB1 REV 2.0

344105ML

WORKBOOK PAGE: SPIKE5

TOC : LA-344-105 (D-1)

LIQUIDS

LIQUIDS				SPIKE
Sample Vial Data			Spiked Vial Data	
SPK	Sample Volume in mL (SS)	0.600	Was the sample dilution used? (yes/no)	YES
	H2SO4 Volume in mL (VR)	2.000	Sample Volume in mL (SPK SS)	0.500
13977	Volume Injected in mL (VI)	0.200	H2SO4 Volume in mL (SPK VR)	0.000
	µg of Carbon in Sample (C1)	35.9	Amount of Spike Std. in mL (SPK VOL)	0.500
TOC-01	µg of Carbon from Baseline (C2)	2	Volume Injected in mL (SPK VI)	0.200
			µg C in Sample + Spike (C3)	79.5
LIQUID			Pre-Spike Dilution Factor (PDF)	4.33
			Spike Book Number	23N12B
96010499			Spike Value in µg/ml	753
0	Spike Correction Factor (SPK CF) = (SPK SS + SPK VOL + SPK VR) / SPK VI			
	Sample Correction Factor (SAM CF) = (SS + VR) / (VI)			
N/A	Sample Size Correction Factor (SS CF) = (SPK SS) / (SS)			
S96T005181	QC Actual in µg/mL = Spike Value (µg/mL)			
	QC Found in µg/mL = [(C3 - C2)(SPK CF) - (C1-C2)(SAM CF)(SS CF)/(PDF)] / (SPK VOL)			
TOC01	Percent Spike Recovery = (QC Found) / (QC Actual) * 100			
RTS				
RWS				
RAW				
11/04/96				
11/02/96				
	QC Actual in µg/mL			7.53E+02
	QC Found in µg/mL			6.06E+02
AP-106	Percent Spike Recovery			80.4

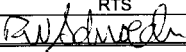
RW Schrock 11/5/96

WORKBOOK PAGE: SAM6

TOC : LA-344-105 (D-1)

LIQUIDS

		SAMPLE
	Sample Volume in mL (SS)	0.500
SAMPLE	H2SO4 Volume in mL (VR)	2.000
	Volume Injected in mL (VI)	0.200
13977	Dilution Factor (calculated) (DF)	5.000
	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	138.2
	µg of Carbon from Baseline (C2)	2
LIQUID		
96010499		
0	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
0		
N/A	Method Detection Limit = 1 µg C * DF * DDF / VI	
S96T005182		
TOC01		
RTS		
RWS		
RAW		
11/04/96		
11/02/96		
	Method Detection Limit in µg/mL	2.50E+01
	µg of Carbon/mL	3.40E+03
AP-106		

Data Entered By:	RTS	Date:	11/04/96
Signature of Chemist:		Date:	11/5/96

SAMPLE WB1 REV 2.0

344105ML

WORKBOOK PAGE: DUP7

TOC : LA-344-105 (D-1)

LIQUIDS

		DUP
	Sample Volume in mL (SS)	0.500
DUP	H2SO4 Volume in mL (VR)	2.000
	Volume Injected in mL (VI)	0.200
13977	Dilution Factor (calculated) (DF)	5.000
	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	126.1
	µg of Carbon from Baseline (C2)	2
LIQUID	Result from Sample Page	3.41E+3
96010499		
0	µg of Carbon/mL = (C1-C2) * DF * DDF / VI	
N/A	Method Detection Limit = 1 µg C * DF * DDF / VI	
S96T005182		
TOC01		
RTS		
RWS		
RAW		
11/04/96		
11/02/96		
	Method Detection Limit in µg/mL	2.50E+01
	µg of Carbon/mL	3.10E+03
AP-106		

Data Entered By:

RTS

Date: 11/04/96

Signature of Chemist:

RWS

Date: 11/5/96

SAMPLE.WB1 REV 2.0

344105ML

WORKBOOK PAGE: SAM8

TOC : LA-344-105 (D-1)

LIQUIDS

		SAMPLE
	Sample Volume in mL	(SS) 0.600
SAMPLE	H2SO4 Volume in mL	(VR) 2.000
	Volume Injected in mL	(VI) 0.200
13977	Dilution Factor (calculated)	(DF) 4.333
	Digest Dilution Factor	(DDF) 1
TOC-01	µg of Carbon in Sample	(C1) 44.2
	µg of Carbon from Baseline	(C2) 2
LIQUID		
96010499		
0	$\mu\text{g of Carbon/mL} = (C1-C2) * DF * DDF / VI$	
Sample Prep	Method Detection Limit = $1 \mu\text{g C} * DF * DDF / VI$	
N/A		
SAMPLE		
S96T005183		
TOC01		
RTS		
RWS		
RAW		
Date Complete		
11/04/96		
11/02/96		
Method Detection Limit in µg/mL	2.17E+01	
µg of Carbon/mL	9.14E+02	
AP-106		

Data Entered By:	RTS	Date:	11/04/96
Signature of Chemist:	<i>R. W. Schroeder</i>	Date:	11/5/96

SAMPLE WB1 REV 2.0

344105ML

WORKBOOK PAGE: DUP9

TOC : LA-344-105 (D-1)

LIQUIDS

		DUP
	Sample Volume in mL (SS)	0.600
DUP	H2SO4 Volume in mL (VR)	2.000
	Volume Injected in mL (VI)	0.200
13977	Dilution Factor (calculated) (DF)	4.333
	Digest Dilution Factor (DDF)	1
TOC-01	µg of Carbon in Sample (C1)	40.5
	µg of Carbon from Baseline (C2)	2
LIQUID	Result from Sample Page	9.14E+2

96010499	
0	µg of Carbon/mL = (C1-C2) * DF * DDF / VI
N/A	Method Detection Limit = 1 µg C * DF * DDF / VI
S96T005183	
TOC01	
RTS	
RWS	
RAW	
11/04/96	
11/02/96	
Method Detection Limit in µg/mL	2.17E+01
µg of Carbon/mL	8.34E+02
AP-106	

Data Entered By:	RTS	Date:	11/04/96
Signature of Chemist:	<i>RW Schmidt</i>	Date:	11/5/96

SAMPLE.WB1 REV 2.0

344105ML

LABCORE Data Entry Template for Worklist# 13976

Analyst: _____ Instrument: TIC01 _____ Book # _____

Method: LA-342-100 Rev/Mod _____

Worklist Comment: AP-106 TIC. RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK			TIC-02	LIQUID	<u>1</u>	<u>4.60^{e1}</u>	<u>N/A</u>	ug/mL
								<u>5.87^{e2}</u>	<u>REUS 11/8/96</u>	
		2 STD			TIC-02	LIQUID	<u>6.62^{e2}</u>	<u>5.78^{e2}</u>	<u>N/A</u>	ug/mL
96001337	AP-106 GRAB	3 SAMPLE	S96T005181	0	TIC-02	LIQUID	<u>N/A</u>	<u>5.61^{e2}</u>	<u>S</u>	ug/mL
96001337	AP-106 GRAB	4 DUP	S96T005181	0	TIC-02	LIQUID	<u>5.61^{e2}</u>	<u>5.60^{e2}</u>	<u>N/A</u>	ug/mL
96001337	AP-106 GRAB	5 SPK	S96T005181	0	TIC-02	LIQUID	<u>100</u>	<u>100.0</u>	<u>N/A</u>	ug/mL
96001337	AP-106 GRAB	6 SAMPLE	S96T005182	0	TIC-02	LIQUID	<u>N/A</u>	<u>4.06^{e3}</u>	<u>S</u>	ug/mL
96001337	AP-106 GRAB	7 DUP	S96T005182	0	TIC-02	LIQUID	<u>4.06^{e3}</u>	<u>4.09^{e3}</u>	<u>N/A</u>	ug/mL
96001337	AP-106 GRAB	8 SAMPLE	S96T005183	0	TIC-02	LIQUID	<u>N/A</u>	<u>8.04^{e2}</u>	<u>S</u>	ug/mL
96001337	AP-106 GRAB	9 DUP	S96T005183	0	TIC-02	LIQUID	<u>8.04^{e2}</u>	<u>7.72^{e2}</u>	<u>N/A</u>	ug/mL

Final page for worklist # 13976

See Attached
 Analyst Signature _____ Date _____

R. D. H. 11/7/96
 Analyst Signature _____ Date _____

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 13976

Analyst: JSZ Instrument: TIC01 #1 Book# 22N12F

Method: LA-342-100 Rev/Mod 9.0

Worklist Comment: AP-106 TIC. RCJ

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			TIC-02	LIQUID		
2 STD			TIC-02	LIQUID		
3 SAMPLE	S96T005181 0		TIC-02	LIQUID	96001337	AP-106 GRAB
Analytes Requested: TIC-02						
4 DUP	S96T005181 0		TIC-02	LIQUID		
5 SPK	S96T005181 0		TIC-02	LIQUID		
6 SAMPLE	S96T005182 0		TIC-02	LIQUID	96001337	AP-106 GRAB
Analytes Requested: TIC-02						
7 DUP	S96T005182 0		TIC-02	LIQUID		
8 SAMPLE	S96T005183 0		TIC-02	LIQUID	96001337	AP-106 GRAB
Analytes Requested: TIC-02						
9 DUP	S96T005183 0		TIC-02	LIQUID		

Final page for worklist # 13976

Spacie Steele 11/6/96
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

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

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
	Sample Size in mL (SS)	0.0000	
BLANK	Dilution Factor (DF)	1	1
	µg of Carbon in Sample (C1)	5	
13976	µg of Carbon from Baseline (C2)	5.4	
TIC-02			
LIQUID			
	µg of Carbon = C1-C2		
BLNK			
TIC01			
RTS			
RWS			
JLS2			
11/07/96			
11/06/96			
	Method Detection Limit in µg/mL	5	40
	µg of Carbon	4.00E-01	
AP-106 GRAB			

Data Entered By:	RTS	Date:	11/07/96
Signature of Chemist:	<i>R. W. Schroeder</i>	Date:	11/8/96

BLANK.WB1 REV 1.0

342100ML

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
	Sample Size in mL (SS)	1.0000	
STANDARD	Dilution Factor (DF)	1	1
	Final Coulometer Reading in μg (C1)	592.1	
13976	μg of Carbon from Baseline (C2)	5.4	
	Standard Book Number	22N12F	
TIC-02	Standard Value ($\mu\text{g}/\text{ml}$)	602	
LIQUID			
	QC Actual in $\mu\text{g}/\text{mL}$ = Standard Value ($\mu\text{g}/\text{mL}$)		
	QC Found in $\mu\text{g}/\text{mL}$ = (C1 - C2) * DF / SS		
	QC Found in $\mu\text{g}/\text{mL}$ for TIC = 5 if C1 < C2		
	QC Found in $\mu\text{g}/\text{mL}$ for TOC = 40 if C1 < C2		
STD			
	% Recovery = QC Found / QC Actual * 100		
TIC01			
RTS			
RWS			
JLS2			
11/07/96			
11/06/96	NOTE: FOR TOC: The Reported Result is < 40.		
	Method Detection Limit in $\mu\text{g}/\text{mL}$	5	40
	QC Actual in $\mu\text{g}/\text{mL}$	6.02E+02	
	QC Found in $\mu\text{g}/\text{mL}$ See Note: <	5.87E+02	
AP-106 GRAB	Percent Standard Recovery	97.5	

Data Entered By:	RTS	Date:	11/07/96
Signature of Chemist:	<i>RW Schmitt</i>	Date:	11/8/96

STANDARD.WB1 REV 1.0

342100ML

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
	Sample Size in mL (SS)	0.1000	
SAMPLE	Dilution Factor (DF)	1	1
	µg of Carbon in Sample (C1)	61.5	
13976	µg of Carbon from Baseline (C2)	5.4	
TIC-02			
LIQUID			
S96T005181			
TIC01			
RTS			
RWS			
JLS2			
11/07/96			
	NOTE: FOR TOC: The Reported Result is < 40.		
11/06/96			
	Method Detection Limit in µg/mL	5	40
	µg of Carbon/mL Note: <	5.61E+02	
AP-106 GRAB			

Data Entered By:	RTS	Date:	11/07/96
Signature of Chemist:	<i>RW Schwach</i>	Date:	11/8/96

SAMPLE.WB1 REV 1.0

342100ML

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
	Sample Size in mL (SS)	0.1000	
DUP	Dilution Factor (DF)	1	1
	µg of Carbon in Sample (C1)	61.4	
13976	µg of Carbon from Baseline (C2)	5.4	
	Known µg of C from Original Sample		
TIC-02			

LIQUID

$\mu\text{g of Carbon/mL} = (C1 - C2) * DF / SS$
 $\mu\text{g of Carbon/mL for TIC} = 5 \text{ if } C1 < C2$
 $\mu\text{g of Carbon/mL for TOC} = 40 \text{ if } C1 < C2$

S96T005181

TIC01

RTS

RWS

JLS2

11/07/96

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

11/06/96

Method Detection Limit in µg/mL

TIC

TOC

5

40

µg of Carbon/mL

Note:

<

5.60E+02

AP-106 GRAB

Data Entered By:

RTS

Date: 11/07/96

Signature of Chemist:

R. J. Schmalzer

Date: 11/8/96

DUP.WB1 REV 1.0

342100ML

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

	Sample Vial Data	TIC	TOC
SPIKE	Sample Volume in mL (SS)	0.1000	
	Final Coulometer Reading in µg (C1)	61.5	
13976	Spiked Vial Data		
	Sample Volume in mL (SPK SS)	0.1000	
TIC-02	Amount of Spike Std. in mL (SPK VOL)	0.500	
	Final Coulometer Reading in µg (C2)	362.5	
LIQUID	Spike Book Number	22N12F	
	Spike Standard Value in µg/ml (SPK CONC)	602	

$$\text{Percent Spike Recovery} = (C2 - C1 * (\text{SPK SS}) / \text{SS}) / ((\text{SPK CONC}) * (\text{SPK VOL})) * 100$$

S96T005181	QC Actual in µg/mL = Spike Value (µg/mL)
TIC01	QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100

RTS
RWS
JLS2
11/07/96
11/06/96

	TIC	TOC
QC Actual in µg/mL	6.02E+02	
QC Found in µg/mL	6.02E+02	
AP-016 GRAB	Percent Spike Recovery	100.0

Data Entered By:	RTS	Date: 11/07/96
Signature of Chemist:	<i>RW Schrader</i>	Date: 11/8/96

SPIKE WB1 REV 1.1

342100ML

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
	Sample Size in mL (SS)	0.1000	
SAMPLE	Dilution Factor (DF)	1	1
	µg of Carbon in Sample (C1)	411.9	
13976	µg of Carbon from Baseline (C2)	5.4	
TIC-02			

LIQUID
S96T005182
TIC01
RTS
RWS
JLS2
11/07/96
11/06/96
AP-106 GRAB

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

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

	TIC	TOC
Method Detection Limit in µg/mL	5	40
µg of Carbon/mL Note: <	4.06E+03	

Data Entered By:	RTS	Date: 11/07/96
Signature of Chemist:	<i>rtw Scholten</i>	Date: 11/8/96

SAMPLE.WB1 REV 1.0

342100ML

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
	Sample Size in mL (SS)	0.1000	
DUP	Dilution Factor (DF)	1	1
	µg of Carbon in Sample (C1)	414.2	
13976	µg of Carbon from Baseline (C2)	5.4	
	Known µg of C from Original Sample		
TIC-02			

LIQUID

$\mu\text{g of Carbon/mL} = (C1 - C2) * DF / SS$
 $\mu\text{g of Carbon/mL for TIC} = 5 \text{ if } C1 < C2$
 $\mu\text{g of Carbon/mL for TOC} = 40 \text{ if } C1 < C2$

S96T005182

TIC01

RTS

RWS

JLS2

11/07/96

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

11/06/96

Method Detection Limit in µg/mL

TIC

TOC

5

40

µg of Carbon/mL

Note:

<

4.09E+03

AP-106 GRAB

Data Entered By:

RTS

Date: 11/07/96

Signature of Chemist:

RW Schmedt

Date: 11/8/96

DUP.WB1 REV 1.0

342100ML

136

LIQUIDS

TIC/TOC : LA-342-100 (E-0)		LIQUIDS	TIC	TOC
	Sample Size in mL	(SS)	0.1000	
SAMPLE	Dilution Factor	(DF)	1	1
	µg of Carbon in Sample	(C1)	85.8	
13976	µg of Carbon from Baseline	(C2)	5.4	
TIC-02				

LIQUID

$\mu\text{g of Carbon/mL} = (C1 - C2) * DF / SS$
 $\mu\text{g of Carbon/mL for TIC} = 5 \text{ if } C1 < C2$
 $\mu\text{g of Carbon/mL for TOC} = 40 \text{ if } C1 < C2$

S96T005183

TIC01

RTS**RWS**

JLS2

11/07/96

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

11/06/96

			TIC	TOC
Method Detection Limit in µg/mL			5	40
µg of Carbon/mL	Note:	<	8.04E+02	

AP-106 GRAB

Data Entered By:	RTS	Date:	11/07/96
Signature of Chemist:	<i>RW Schradin</i>	Date:	11/8/96

SAMPLE.WB1 REV 1.0

342100ML

TIC/TOC : LA-342-100 (E-0)

LIQUIDS

		TIC	TOC
	Sample Size in mL (SS)	0.1000	
DUP	Dilution Factor (DF)	1	1
	µg of Carbon in Sample (C1)	82.6	
13976	µg of Carbon from Baseline (C2)	5.4	
	Known µg of C from Original Sample		
TIC-02			

LIQUID

$\mu\text{g of Carbon/mL} = (C1 - C2) * DF / SS$
 $\mu\text{g of Carbon/mL for TIC} = 5 \text{ if } C1 < C2$
 $\mu\text{g of Carbon/mL for TOC} = 40 \text{ if } C1 < C2$

S96T006183

TIC01

RTS

RWS

JLS2

11/07/96

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

11/06/96

Method Detection Limit in µg/mL

TIC	TOC
5	40

µg of Carbon/mL Note: < 7.72E+02

AP-106 GRAB

Data Entered By:

RTS

Date: 11/07/96

Signature of Chemist:

RW Johnson

Date: 11/8/96

DUP.WB1 REV 1.0

342100ML

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: 1-BASELINE

Date: 11/06/96

Time: 09:34:21

Sample Size = 1 uL

Dil Factor = 1

Blank ID # = 1-BASELINE

Blank Value = N/A

Analyst : JL STEELE

Min Readings = 22

Max Readings = 22

% Difference = 10

==	Reading	====	Analysis	Time	====	Coulometer	====	% Difference	==
	1		0.51			0.00		0.00	
	2		1.01			0.20		100.00	
	3		1.51			0.60		66.67	
	4		2.01			1.00		40.00	
	5		2.51			1.40		28.57	
	6		3.01			1.70		17.65	
	7		3.51			2.00		15.00	
	8		4.01			2.20		9.09	
	9		4.51			2.50		12.00	
	10		5.01			2.70		7.41	
	11		5.50			3.00		10.00	
	12		6.00			3.20		6.25	
	13		6.50			3.50		8.57	
	14		7.00			3.80		7.89	
	15		7.50			4.00		5.00	
	16		8.00			4.10		2.44	
	17		8.50			4.40		6.82	
	18		9.00			4.60		4.35	
	19		9.50			4.90		6.12	
	20		10.00			5.00		2.00	
	21		10.50			5.20		3.85	
	22		11.00			5.40		3.70	

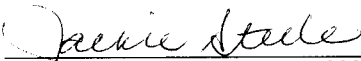
BLANK VALUE = 5.4 micrograms carbon

BLANK FACTOR = 5.4 / 11.0025 =

+4.9E-01

ug/min Carbon

Sample Run By:


JL STEELE

00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1-STD 22N12F

Date: 11/06/96

Time: 10:41:08

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .49 ug/minute C

Analyst : JL STEELE

Min Readings = 22

Max Readings = 22

% Difference = 10

```

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==
 1           0.51           2.30           0.00
 2           1.01          39.40          94.16
 3           1.51         192.00         79.48
 4           2.01         331.40         42.06
 5           2.51         428.50         22.66
 6           3.01         486.90         11.99
 7           3.50         517.90           5.99
 8           4.00         534.00           3.01
 9           4.50         545.00           2.02
10           5.00         552.30           1.32
11           5.50         558.30           1.07
12           6.00         563.30           0.89
13           6.50         567.50           0.74
14           7.00         571.60           0.72
15           7.50         574.90           0.57
16           8.00         578.00           0.54
17           8.50         580.90           0.50
18           9.00         583.50           0.45
19           9.50         585.90           0.41
20          10.00         588.10           0.37
21          10.50         590.30           0.37
22          11.00         592.10           0.30

```

USER INPUT BLANK VALUE

BLANK VALUE = 5.391226 micrograms carbon

BLANK FACTOR = 5.391226 / 11.0025 = +4.9E-01 ug/min Carbon

SAMPLE RESULTS:

```

( 592.1 - 5.389851 ) (1)/(1) = +5.867E+02 g/L Carbon
( 592.1 - 5.389851 ) (1)/(1)(12) = +4.889E+01 Molar Carbon

```

Sample Run By:

JL STEELE

00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1-BLANK

Date: 11/06/96

Time: 13:48:53

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .49 ug/minute C

Analyst : JL STEELE

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.10	0.00
2	1.01	0.50	80.00
3	1.51	0.90	44.44
4	2.01	1.30	30.77
5	2.51	1.60	18.75
6	3.01	1.90	15.79
7	3.51	2.10	9.52
8	4.00	2.30	8.70
9	4.50	2.60	11.54
10	5.00	2.70	3.70
11	5.50	3.00	10.00
12	6.00	3.10	3.23
13	6.50	3.20	3.13
14	7.00	3.60	11.11
15	7.50	3.70	2.70
16	8.00	3.90	5.13
17	8.50	4.10	4.88
18	9.00	4.30	4.65
19	9.50	4.50	4.44
20	10.00	4.60	2.17
21	10.50	4.80	4.17
22	11.00	5.00	4.00

USER INPUT BLANK VALUE

BLANK VALUE = 5.391226 micrograms carbon

BLANK FACTOR = 5.391226 / 11.0025 = +4.9E-01 ug/min Carbon

SAMPLE RESULTS:

(5 - 5.389432) (1) / (1) = < 5.00 E-3 g/L Carbon
(5 - 5.389432) (1) / (1) (12) = < 4.17 E-4 Molar Carbon

Sample Run By:

JL STEELE

00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1-S96T005181

Date: 11/06/96

Time: 14:04:38

Sample Size = 1 uL *100ml*
Dil Factor = 1
Blank ID # =
Blank Value = .49 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==	Analysis	Time	==== Coulometer	==== % Difference ==
1	0.51		0.10	0.00
2	1.01		2.80	96.43
3	1.51		14.10	80.14
4	2.00		30.20	53.31
5	2.51		43.30	30.25
6	3.01		50.90	14.93
7	3.51		55.10	7.62
8	4.01		56.90	3.16
9	4.50		57.90	1.73
10	5.00		58.40	0.86
11	5.50		58.80	0.68
12	6.00		59.20	0.68
13	6.50		59.50	0.50
14	7.00		59.70	0.34
15	7.50		60.00	0.50
16	8.00		60.30	0.50
17	8.50		60.50	0.33
18	9.00		60.70	0.33
19	9.50		60.90	0.33
20	10.00		61.10	0.33
21	10.50		61.30	0.33
22	11.00		61.50	0.33

USER INPUT BLANK VALUE

BLANK VALUE = 5.391226 micrograms carbon

BLANK FACTOR = 5.391226 / 11.0025 = +4.9E-01 ug/min Carbon

SAMPLE RESULTS:

(61.5 - 5.389881) (1)/(1) = +5.61E+01 g/L Carbon
(61.5 - 5.389881) (1)/(1) (12) = +4.68E+00 Molar Carbon

Sample Run By:

JL Steele
JL STEELE 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1-5181 DUP

Date: 11/06/96

Time: 14:18:43

Sample Size = 1 uL *100ml*
Dil Factor = 1
Blank ID # =
Blank Value = .49 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.30	0.00
2	1.01	3.00	90.00
3	1.51	15.70	80.89
4	2.00	32.20	51.24
5	2.50	45.00	28.44
6	3.00	52.00	13.46
7	3.50	55.60	6.47
8	4.00	57.10	2.63
9	4.50	58.00	1.55
10	5.00	58.50	0.85
11	5.50	58.80	0.51
12	6.00	59.10	0.51
13	6.50	59.40	0.51
14	7.00	59.70	0.50
15	7.50	59.90	0.33
16	8.00	60.20	0.50
17	8.50	60.40	0.33
18	9.00	60.60	0.33
19	9.50	60.80	0.33
20	10.00	61.00	0.33
21	10.50	61.20	0.33
22	11.00	61.40	0.33

USER INPUT BLANK VALUE

BLANK VALUE = 5.391226 micrograms carbon

BLANK FACTOR = 5.391226 / 11.0025 = +4.9E-01 ug/min Carbon

SAMPLE RESULTS:

(61.4 - 5.390299) (1)/(1) = +5.60E+01 g/L Carbon
(61.4 - 5.390299) (1)/(1) (12) = +4.67E+00 Molar Carbon

Sample Run By:

JL Steele
JL STEELE

00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1-5181 SPIKE

Date: 11/06/96

Time: 14:32:44

Sample Size = 1 uL *100ml +*Dil Factor = 1 *500ml 22N12F*

Blank ID # =

Blank Value = .49 ug/minute C

Analyst : JL STEELE

Min Readings = 22

Max Readings = 22

% Difference = 10

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

1	0.51	0.10	0.00
2	1.01	9.50	98.95
3	1.51	80.60	88.21
4	2.00	185.60	56.57
5	2.50	270.50	31.39
6	3.00	318.00	14.94
7	3.50	342.00	7.02
8	4.00	352.10	2.87
9	4.50	356.30	1.18
10	5.00	358.10	0.50
11	5.50	359.20	0.31
12	6.00	359.70	0.14
13	6.50	360.10	0.11
14	7.00	360.40	0.08
15	7.50	360.70	0.08
16	8.00	361.10	0.11
17	8.50	361.40	0.08
18	9.00	361.60	0.06
19	9.50	361.80	0.06
20	10.00	362.00	0.06
21	10.50	362.30	0.08
22	11.00	362.50	0.06

USER INPUT BLANK VALUE

BLANK VALUE = 5.391226 micrograms carbon

BLANK FACTOR = 5.391226 / 11.0025 = +4.9E-01 ug/min Carbon

SAMPLE RESULTS:

(362.5 - 5.38991) (1)/(1) = +3.571E+02 g/L Carbon
 (362.5 - 5.38991) (1)/(1) (12) = +2.976E+01 Molar Carbon

Sample Run By:

JL Steele
JL STEELE

00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1-S96T005182

Date: 11/06/96

Time: 14:45:45

Sample Size = 1 uL *1.00 mL*
 Dil Factor = 1
 Blank ID # =
 Blank Value = .49 ug/minute C

Analyst : JL STEELE
 Min Readings = 22
 Max Readings = 22
 % Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.20	0.00
2	1.01	7.30	97.26
3	1.51	63.60	88.52
4	2.01	158.70	59.92
5	2.51	254.90	37.74
6	3.01	327.30	22.12
7	3.51	368.90	11.28
8	4.01	389.40	5.26
9	4.50	398.50	2.28
10	5.00	402.80	1.07
11	5.50	404.90	0.52
12	6.00	406.20	0.32
13	6.50	407.20	0.25
14	7.00	407.90	0.17
15	7.50	408.60	0.17
16	8.00	409.10	0.12
17	8.50	409.80	0.17
18	9.00	410.30	0.12
19	9.50	410.70	0.10
20	10.00	411.10	0.10
21	10.50	411.50	0.10
22	11.00	411.90	0.10

USER INPUT BLANK VALUE

BLANK VALUE = 5.391226 micrograms carbon

BLANK FACTOR = 5.391226 / 11.0025 = +4.9E-01 ug/min Carbon

SAMPLE RESULTS:

(411.9 - 5.390329) (1)/(1) = +4.065E+02 g/L Carbon
 (411.9 - 5.390329) (1)/(1) (12) = +3.388E+01 Molar Carbon

Sample Run By:

Joanne Steele
 JL STEELE

00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1-5182 DUP

Date: 11/06/96

Time: 14:58:52

Sample Size = 1 uL *100ml*
Dil Factor = 1
Blank ID # =
Blank Value = .49 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference ==
1	0.51	0.30	0.00
2	1.00	9.80	96.94
3	1.50	79.30	87.64
4	2.00	187.10	57.62
5	2.50	285.20	34.40
6	3.00	348.50	18.16
7	3.51	381.00	8.53
8	4.00	395.80	3.74
9	4.50	402.30	1.62
10	5.00	405.50	0.79
11	5.50	407.00	0.37
12	6.00	408.20	0.29
13	6.50	409.00	0.20
14	7.00	409.80	0.20
15	7.50	410.50	0.17
16	8.00	411.10	0.15
17	8.50	411.70	0.15
18	9.00	412.30	0.15
19	9.50	412.80	0.12
20	10.00	413.30	0.12
21	10.50	413.70	0.10
22	11.00	414.20	0.12

USER INPUT BLANK VALUE

BLANK VALUE = 5.391226 micrograms carbon

BLANK FACTOR = 5.391226 / 11.0025 = +4.9E-01 ug/min Carbon

SAMPLE RESULTS:

(414.2 - 5.390329) (1)/(1) = +4.088E+02 g/L Carbon
(414.2 - 5.390329) (1)/(1) (12) = +3.407E+01 Molar Carbon

Sample Run By:

JL Steele
JL STEELE

00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1-S96T005183

Date: 11/06/96

Time: 15:11:09

Sample Size = 1 uL *1000µl*
Dil Factor = 1
Blank ID # =
Blank Value = .49 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference
1	0.51	0.40	0.00
2	1.01	3.10	87.10
3	1.51	19.30	83.94
4	2.01	42.30	54.37
5	2.51	61.50	31.22
6	3.01	72.70	15.41
7	3.51	77.90	6.68
8	4.00	80.00	2.62
9	4.50	81.10	1.36
10	5.00	81.80	0.86
11	5.50	82.30	0.61
12	6.00	82.70	0.48
13	6.50	83.00	0.36
14	7.00	83.40	0.48
15	7.50	83.70	0.36
16	8.00	84.10	0.48
17	8.50	84.30	0.24
18	9.00	84.60	0.35
19	9.50	84.90	0.35
20	10.00	85.20	0.35
21	10.50	85.50	0.35
22	11.00	85.80	0.35

USER INPUT BLANK VALUE

BLANK VALUE = 5.391226 micrograms carbon

BLANK FACTOR = 5.391226 / 11.0025 = +4.9E-01 ug/min Carbon

SAMPLE RESULTS:

(85.8 - 5.390718) (1)/(1) = +8.04E+01 g/L Carbon
(85.8 - 5.390718) (1)/(1) (12) = +6.70E+00 Molar Carbon

Sample Run By:

JL Steele
JL STEELE

00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1-5183 DUP

Date: 11/06/96

Time: 15:26:20

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .49 ug/minute C

Analyst : JL STEELE

Min Readings = 22

Max Readings = 22

% Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference ==
1	0.51	0.30	0.00
2	1.01	3.40	91.18
3	1.51	22.00	84.55
4	2.00	46.60	52.79
5	2.50	64.70	27.98
6	3.00	73.30	11.73
7	3.50	76.80	4.56
8	4.00	78.20	1.79
9	4.50	78.90	0.89
10	5.00	79.40	0.63
11	5.50	79.60	0.25
12	6.00	80.00	0.50
13	6.50	80.30	0.37
14	7.00	80.50	0.25
15	7.50	80.90	0.49
16	8.00	81.20	0.37
17	8.50	81.40	0.25
18	9.00	81.70	0.37
19	9.50	81.90	0.24
20	10.00	82.20	0.36
21	10.50	82.40	0.24
22	11.00	82.60	0.24

USER INPUT BLANK VALUE

BLANK VALUE = 5.391226 micrograms carbon

BLANK FACTOR = 5.391226 / 11.0025 = +4.9E-01 ug/min Carbon

SAMPLE RESULTS:

(82.6 - 5.389432) (1)/(1)	=	+7.72E+01	g/L Carbon
(82.6 - 5.389432) (1)/(1)(12)	=	+6.43E+00	Molar Carbon

Sample Run By:

JL STEELE

00000

WHC-SD-WM-DP-217, REV. 0

RADIOCHEMICAL ANALYSIS

WHC-SD-WM-DP-217, REV. 0

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LABCORE Completed RadChem Report for Worklist#: 13973

Analyst: slh

Instrument: GEA03

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: AP106, @GEA-01, See traveler for sample sizes. skm

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	0	GEA-01 C060-02	LIQUID	7.941e-03	7.86e-03	98.980	% Recovery
1 STD	0	0	GEA-01 C060-02E	LIQUID	1	2.20	2.200	% Ct Error
1 STD	0	0	GEA-01 CS13702	LIQUID	7.715e-03	7.68e-03	99.546	% Recovery
1 STD	0	0	GEA-01 CS13702E	LIQUID	1	2.92	2.920	% Ct Error
2 BLNK	0	0	GEA-01 C060-02	LIQUID	1	<2.25e-4		uCi/mL
2 BLNK	0	0	GEA-01 CS13702	LIQUID	1	<6.43e-4		uCi/mL
3 SAMPLE	S96T005184	0	GEA-01 C060-02	LIQUID	N/A	<3.711e-04	371.1e-006	uCi/mL
3 SAMPLE	S96T005184	0	GEA-01 C060-02E	LIQUID	N/A	n/a	0.0e+000	% Ct. Error
3 SAMPLE	S96T005184	0	GEA-01 CS13702	LIQUID	N/A	1.020e+01	0.0e+000	uCi/mL
3 SAMPLE	S96T005184	0	GEA-01 CS13702E	LIQUID	N/A	0.220	0.0e+000	% Ct. Error
4 DUF	S96T005184	0	GEA-01 C060-02	LIQUID	<3.71e-4	<3.87e-4		RPD
4 DUF	S96T005184	0	GEA-01 C060-02E	LIQUID	1	n/a		% Ct Error
4 DUF	S96T005184	0	GEA-01 CS13702	LIQUID	1.02e+01	9.36e+00	8.589	RPD
4 DUF	S96T005184	0	GEA-01 CS13702E	LIQUID	1	0.220	0.220	% Ct Error
5 SAMPLE	S96T005185	0	GEA-01 C060-02	LIQUID	N/A	<3.064e-02	306.4e-004	uCi/mL
5 SAMPLE	S96T005185	0	GEA-01 C060-02E	LIQUID	N/A	n/a	0.0e+000	% Ct. Error
5 SAMPLE	S96T005185	0	GEA-01 CS13702	LIQUID	N/A	1.390e+02	0.0e+000	uCi/mL
5 SAMPLE	S96T005185	0	GEA-01 CS13702E	LIQUID	N/A	0.580	0.0e+000	% Ct. Error
6 DUF	S96T005185	0	GEA-01 C060-02	LIQUID	<3.06e-2	<2.60e-2		RPD
6 DUF	S96T005185	0	GEA-01 C060-02E	LIQUID	1	n/a		% Ct Error
6 DUF	S96T005185	0	GEA-01 CS13702	LIQUID	1.39e+02	1.39e+02	0.000	RPD
6 DUF	S96T005185	0	GEA-01 CS13702E	LIQUID	1	0.580	0.580	% Ct Error
7 SAMPLE	S96T005186	0	GEA-01 C060-02	LIQUID	N/A	<7.579e-04	757.9e-006	uCi/mL
7 SAMPLE	S96T005186	0	GEA-01 C060-02E	LIQUID	N/A	n/a	0.0e+000	% Ct. Error
7 SAMPLE	S96T005186	0	GEA-01 CS13702	LIQUID	N/A	2.500e+01	0.0e+000	uCi/mL
7 SAMPLE	S96T005186	0	GEA-01 CS13702E	LIQUID	N/A	0.140	0.0e+000	% Ct. Error
8 DUF	S96T005186	0	GEA-01 C060-02	LIQUID	<7.58e-4	<7.59e-4		RPD
8 DUF	S96T005186	0	GEA-01 C060-02E	LIQUID	1	n/a		% Ct Error
8 DUF	S96T005186	0	GEA-01 CS13702	LIQUID	2.50e+01	2.43e+01	2.840	RPD
8 DUF	S96T005186	0	GEA-01 CS13702E	LIQUID	1	0.140	0.140	% Ct Error

Comments Section:

Comments for sample# S96T005184 and test @GEA-01 .
DL=0 => n/a.Comments for sample# S96T005185 and test @GEA-01 .
DL=0 => n/a.

Comments for sample# S96T005186 and test @GEA-01 .

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

LABCORE Completed RadChem Report for Worklist#: 13973

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

DL=0 => n/a.

Final page for worklist# 13973_____
Analyst Signature Date_____
Analyst Signature Date

 10/31/96

Reviewer Signature Date

LABCORE Data Entry Template for Worklist# 13973Analyst: SLH Instrument: GEA00 3 Book# 62856Method: LA-548-121 Rev/Mod E-D

Worklist Comment: AP106, @GEA-01, See traveler for sample sizes. skm

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@GEA-01	LIQUID		
2 BLNK			@GEA-01	LIQUID		
3 SAMPLE	S96T005184 0		@GEA-01	LIQUID	96001337	AP-106 GRAB
Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E						
4 DUP	S96T005184 0		@GEA-01	LIQUID		
5 SAMPLE	S96T005185 0		@GEA-01	LIQUID	96001337	AP-106 GRAB
Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E						
6 DUP	S96T005185 0		@GEA-01	LIQUID		
7 SAMPLE	S96T005186 0		@GEA-01	LIQUID	96001337	AP-106 GRAB
Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E						
8 DUP	S96T005186 0		@GEA-01	LIQUID		

Final page for worklist # 13973

Sandra L. Hod Boatright
 Analyst Signature Date
 10-29-96

MLB 10/30/96
 Analyst Signature Date

Data Entry Comments:

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

 * 22Z-S Laboratory Counting Room 29-OCT-1996 21:32:58.95 *

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

Worklist #: 13973
 Sample ID: WL13973-STD
 Sample Size: 1.00000E-03 L
 Dilution Factor: 1.00000E+00

Removed by:

C. J. Huron

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

Detector ID: GE43
 File Number: dka300:[spec.GEA3]3g3833.cnf
 Geometry: 42
 Count Time: 0 00:50:00.00 sec
 Real Time: 0 00:50:06.00 sec
 Dead Time: 0.2%

Verified by:

B. M. Schell 10/30/96

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

Sample Count Time: 29-OCT-1996 20:42:13.92
 Decayed to: 29-OCT-1996 20:42:13.92
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: AKH
 Background Subtract: DKA300:[SPEC.GEA3]3GBACK

WHC-SD-WM-DP-217, REV 0

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

Date of last energy calibration: 11-MAR-1994 11:47:01.11
 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	86.77	157	0.88	174.05	171	6	74.6		NP-237	0.580
									EU-155	0.219
									CD-109	1.93
0	105.58	222	2.17	211.66	209	7	54.8		EU-155	0.360
0	122.88	16281	1.27	246.24	239	13	2.0		EU-152	18.3
									CO-57	6.06
									EU-154	12.8
0	247.87	1701	1.22	496.11	489	11	10.6		EU-154	11.1
0	344.21	835	1.40	688.73	683	12	16.5		EU-152	1.78
0	443.79	170	1.58	887.84	882	12	74.1			
0	582.29*	127	1.39	1164.77	1161	9	60.5			
0	591.83	673	1.70	1183.84	1178	12	15.8			
0	661.58*	6798	1.62	1323.34	1317	14	2.9		CS-137	7.68
0	692.17	200	1.62	1384.51	1379	11	42.6		CO-57	123.
0	723.24	2325	1.63	1446.64	1440	13	5.6		EU-154	12.1
0	756.89	574	1.76	1513.95	1509	13	17.3			
0	778.62	245	2.19	1557.41	1550	18	54.2		EU-152	2.09
0	873.06	1159	1.75	1746.30	1741	12	9.4		EU-154	11.7
0	964.03	259	2.15	1928.25	1922	13	36.6		EU-152	2.39
0	996.08	1010	1.80	1992.35	1986	13	10.3		EU-154	13.4
0	1004.67	1722	1.86	2009.53	2003	14	7.0		EU-154	13.3
0	1085.25	129	2.35	2170.73	2165	12	58.2		EU-152	1.91

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	1111.64	191	1.55	2223.51	2218	12	37.8		EU-152	2.12
0	1173.07	4978	1.96	2346.41	2339	16	3.1		CO-60	7.85
0	1213.53	52	3.14	2427.35	2424	10	56.5			
0	1245.99	63	0.85	2492.28	2487	15	66.4			
0	1274.21	2637	2.11	2548.76	2540	18	4.3		EU-154	12.9
0	1332.28	4491	2.06	2664.93	2657	17	3.1		CO-60	7.86
0	1396.98	63	1.68	2794.39	2787	14	30.9			
0	1407.83	217	1.98	2816.09	2809	18	18.8		EU-152	1.90
0	1493.17	61	1.89	2986.86	2978	19	35.1			
0	1596.78	138	2.07	3194.20	3183	22	22.8			

Summary of Nuclide Activity

Sample ID : WL13973-STD

Acquisition date : 29-OCT-1996 20:42:13

Total number of lines in spectrum 28
 Number of unidentified lines 7
 Number of lines tentatively identified by NID 21 75.00%

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
CO-57	271.80D	1.000	1.234E+02	1.234E+02	0.526E+02	42.62	157E-82
CO-60	5.27Y	1.000	7.855E+00	7.855E+00	0.173E+00	2.20	
CD-109	462.90D	1.000	1.930E+00	1.930E+00	1.441E+00	74.64	846E-82
CS-137	30.00Y	1.000	7.683E+00	7.683E+00	0.224E+00	2.92	
EU-152	13.54Y	1.000	1.890E+00	1.890E+00	0.204E+00	10.81	
EU-154	8.59Y	1.000	1.252E+01	1.252E+01	0.034E+01	2.71	
EU-155	4.68Y	1.000	3.599E-01	3.599E-01	1.974E-01	54.84	
NP-237	2.14E+06Y	1.000	5.798E-01	5.798E-01	4.327E-01	74.64	846E-82
Total Activity :			1.562E+02	1.562E+02			

Grand Total Activity : 1.562E+02 1.562E+02

Flags: "K" = Keyline not found

"E" = Manually edited

"M" = Manually accepted

"A" = Nuclide specific abn. limit

Minimum Detectable Activity Report

Sample ID : WL13973-STD

Acquisition date : 29-OCT-1996 20:42:13

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	651.	477.59	8.4062E-01
NA-22	2681.	1274.53	4.0644E-01
NA-24	26.	1368.55	4.3417E-02
K-40	135.	1460.75	9.4990E-01
CR-51	658.	320.08	6.3596E-01
MN-54	384.	834.83	1.0709E-01
CO-56	513.	846.76	1.2540E-01
CO-58	428.	810.78	1.1088E-01
FE-59	318.	1099.25	2.1883E-01
SE-75	835.	264.66	1.0732E-01
SR-85	572.	514.01	9.0074E-02
Y-88	3.	1836.06	1.7641E-02
NB-94	1276.	871.09	2.0269E-01
ZRNB-95	2593.	724.18	5.6390E-01
RU-103	559.	497.08	9.1445E-02
RURH-106	410.	621.93	1.7341E+00
AG-108m	2649.	722.94	2.7390E-01
AG-110M	573.	657.76	1.1280E-01
SN-113	633.	391.69	1.1440E-01
TE-123m	849.	159.00	5.1887E-02
SB-124	436.	602.73	8.8330E-02
SB-125	616.	427.89	2.6352E-01
TE-125m	1287.	109.27	2.0217E+01
I-131	644.	364.48	8.6243E-02
CS-134	434.	604.70	8.8629E-02
BA-140	500.	537.31	3.4405E-01
LA-140	143.	1596.21	1.1800E-01
CEPR-144	847.	133.51	7.6194E-01
HG-203	770.	279.20	7.6872E-02
TL-208	782.	277.36	9.9523E-01
BI-212	407.	727.18	1.4729E+00
PB-212	1007.	238.63	1.4657E-01
BI-214	473.	609.31	2.0275E-01
PB-214	627.	351.92	3.3494E-01
RA-224	935.	240.99	1.5681E+00
RA-226	969.	186.10	1.4575E+00
AC-228	420.	911.21	4.5391E-01
TH-228	1358.	84.37	6.5041E+00
TH-229	1334.	88.47	3.0340E-01
PA-233	682.	312.17	1.6592E-01
UTH-233	1413.	245.34	7.2275E-01
PA-234M	520.	1001.03	2.4707E+01
TH-234	751.	63.29	3.2571E+00
U-235	957.	185.71	8.8029E-02
NP-239	1371.	106.12	2.6476E-01
PU-239	862.	129.30	6.6867E+02
AM-241	792.	59.54	5.9049E-01
AM-243	902.	74.67	1.4808E-01

* 222-S Laboratory Counting Room 29-OCT-1996 22:34:39.58 *

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

Worklist #: 13973
Sample ID: WL13973-BLK
Sample Size: 1.00000E-04 L
Dilution Factor: 1.00000E+00

Removed by:

A. Furson

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

Detector ID: GEA3
File Number: dka300:[spec.GEA3]3g3834.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:00.43 sec
Dead Time: 0.0%

Verified by:

D. Machebo 10/30/96

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

Sample Count Time: 29-OCT-1996 21:44:02.80
Decayed to: 29-OCT-1996 21:44:02.80
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: AKH
Background Subtract: DKA300:[SPEC.GEA3]3GBACK

WHC-SD-WM-DP-217, REV. 0

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

Date of last energy calibration: 11-MAR-1994 11:47:01.11
Date of last efficiency calibration: 15-MAR-1994 10:28:40.20

Post-NID Peak Search Report

***** No peaks found *****

Summary of Nuclide Activity
Sample ID : WL13973-BLK

WHC-SD-WM-DP-217, REV. 0

Page : 2
Acquisition date : 29-OCT-1996 21:44:02

**** There are no nuclides meeting summary criteria ****

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

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	30.	477.59	1.7900E+00
NA-22	10.	1274.53	2.5297E-01
NA-24	7.	1368.55	2.2123E-01
K-40	105.	1460.75	8.3819E+00
CR-51	64.	320.08	1.9782E+00
MN-54	20.	834.83	2.4512E-01
CO-56	19.	846.76	2.3997E-01
CO-57	80.	122.06	1.5439E-01
CO-58	16.	810.78	2.1255E-01
FE-59	11.	1099.25	4.0834E-01
CO-60	8.	1332.50	2.2510E-01
SE-75	74.	264.66	3.1939E-01
SR-85	43.	514.01	2.4575E-01
Y-88	2.	1836.06	1.4753E-01
NB-94	20.	871.09	2.5283E-01
ZRNB-95	29.	724.18	5.9264E-01
RU-103	32.	497.08	2.1981E-01
RURH-106	21.	621.93	3.9367E+00
AG-108m	24.	722.94	2.5828E-01
CD-109	60.	88.03	4.4474E+00
AG-110M	22.	657.76	2.2187E-01
SN-113	34.	391.69	2.6604E-01
TE-123m	76.	159.00	1.5482E-01
SB-124	14.	602.73	1.5719E-01
SB-125	52.	427.89	7.6706E-01
TE-125m	66.	109.27	4.5850E+01
I-131	34.	364.48	1.9931E-01
CS-134	15.	604.70	1.6223E-01
CS-137	150.	661.66	6.4268E-01
BA-140	29.	537.31	8.2871E-01
LA-140	3.	1596.21	1.7457E-01
CEPR-144	75.	133.51	2.2736E+00
EU-152	9.	1408.01	1.2143E+00
EU-154	10.	1274.51	7.3496E-01
EU-155	62.	105.31	5.9151E-01
HG-203	60.	279.20	2.1492E-01
TL-208	55.	277.36	2.6296E+00
BI-212	34.	727.18	4.2436E+00
PB-212	85.	238.63	4.2468E-01
BI-214	52.	609.31	6.7037E-01
PB-214	75.	351.92	1.1599E+00
RA-224	82.	240.99	4.6518E+00
RA-226	80.	186.10	4.1970E+00
AC-228	28.	911.21	1.1783E+00
TH-228	65.	84.37	1.4209E+01
TH-229	67.	88.47	6.7760E-01
PA-233	52.	312.17	4.5711E-01
UTH-233	70.	245.34	1.6117E+02
PA-234M	14.	1001.03	4.0591E-01
TH-234	60.	63.29	9.1961E+00
U-235	85.	185.71	2.6257E-01

Minimum Detectable Activity Report (continued)

Sample ID : WL13973-BLK

Acquisition date : 29-OCT-1996 21:44:02

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	65.	86.48	1.3878E+00
NP-239	69.	106.12	5.9248E-01
PU-239	75.	129.30	1.9755E+03
AM-241	44.	59.54	1.3878E+00
AM-243	71.	74.67	4.1586E-01

 * 222-S Laboratory Counting Room 29-OCT-1996 23:33:18.57

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

Worklist #: 13973
 Sample ID: S96T005184-SAM
 Sample Size: 1.00000E-04 L
 Dilution Factor: 1.00000E+00

Removed by:

A. Hurson

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

Detector ID: GEA3
 File Number: dka300:[spec.GEA3]3g3835.cnf
 Geometry: 42
 Count Time: 0 00:50:00.00 sec
 Real Time: 0 00:51:53.52 sec
 Dead Time: 3.6%

Verified by:

B. Machel 10/30/96

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

Sample Count Time: 29-OCT-1996 22:40:41.32
 Decayed to: 29-OCT-1996 22:40:41.32
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: AKH
 Background Subtract: DKA300:[SPEC.GEA3]3GBACK

WHC-SD-WM-DP-217, REV. 0

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

Date of last energy calibration: 11-MAR-1994 11:47:01.11
 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	604.75	772	1.40	1209.69	1206	8	30.8		CS-134	7.06
0	661.56*	903988	1.62	1323.30	1315	17	0.2		CS-137	1.022E+04
0	795.74	493	1.74	1591.63	1586	12	22.0		CS-134	6.51
0	1321.95	226	3.53	2644.26	2637	20	29.8			

Total number of lines in spectrum 4
Number of unidentified lines 1
Number of lines tentatively identified by NID 3 75.00%

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-134	2.06Y	1.000	6.676E+00	6.676E+00	1.195E+00	17.90	
CS-137	30.00Y	1.000	1.022E+04	1.022E+04	0.002E+04	0.22	
Total Activity :			1.022E+04	1.022E+04			

Grand Total Activity : 1.022E+04 1.022E+04

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

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	27417.	477.59	5.4550E+01
NA-22	93.	1274.53	7.5797E-01
NA-24	7.	1368.55	2.2575E-01
K-40	133.	1460.75	9.4537E+00
CR-51	21628.	320.08	3.6461E+01
MN-54	523.	834.83	1.2502E+00
CO-56	438.	846.76	1.1594E+00
CO-57	22181.	122.06	2.5775E+00
CO-58	518.	810.78	1.2207E+00
FE-59	155.	1099.25	1.5247E+00
CO-60	21.	1332.50	3.7110E-01
SE-75	23618.	264.66	5.7080E+00
SR-85	13864.	514.01	4.4350E+00
Y-88	1.	1836.06	1.0492E-01
NB-94	409.	871.09	1.1476E+00
ZRNB-95	718.	724.18	2.9678E+00
RU-103	16937.	497.08	5.0344E+00
RURH-106	4973.	621.93	6.0428E+01
AG-108m	723.	722.94	1.4313E+00
CD-109	19244.	88.03	7.9496E+01
AG-110M	22194.	657.76	7.0178E+00
SN-113	23562.	391.69	6.9784E+00
TE-123m	22926.	159.00	2.6958E+00
SB-124	5759.	602.73	3.2121E+00
SB-125	27500.	427.89	1.7600E+01
TE-125m	20438.	109.27	8.0553E+02
I-131	22119.	364.48	5.0558E+00
BA-140	9622.	537.31	1.5100E+01
LA-140	5.	1596.21	2.1089E-01
CEPR-144	22951.	133.51	3.9655E+01
EU-152	8.	1408.01	1.1321E+00
EU-154	93.	1274.51	2.1998E+00
EU-155	20073.	105.31	1.0661E+01
HG-203	22764.	279.20	4.1789E+00
TL-208	22871.	277.36	5.3809E+01
BI-212	784.	727.18	2.0444E+01
PB-212	26388.	238.63	7.5038E+00
BI-214	5196.	609.31	6.7206E+00
PB-214	21734.	351.92	2.0087E+01
RA-224	25862.	240.99	8.2487E+01
RA-226	30804.	186.10	8.2178E+01
AC-228	340.	911.21	4.0821E+00
TH-228	19182.	84.37	2.4444E+02
TH-229	19235.	88.47	1.1519E+01
PA-233	21738.	312.17	9.3640E+00
UTH-233	25671.	245.34	3.0803E+03
PA-234M	213.	1001.03	1.5790E+00
TH-234	17813.	63.29	1.5865E+02
U-235	30468.	185.71	4.9673E+00
NP-237	19113.	86.48	2.3795E+01
NP-239	20018.	106.12	1.0117E+01

Minimum Detectable Activity Report (continued)

Sample ID : S96T005184-SAM

Acquisition date : 29-OCT-1996 22:40:41

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	22586.	129.30	3.4234E+04
AM-241	17925.	59.54	2.8085E+01
AM-243	18645.	74.67	6.7325E+00

 * 222-S Laboratory Counting Room 30-OCT-1996 00:31:22.98

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

Worklist #: 13973
 Sample ID: S96T005184-DUP
 Sample Size: 1.00000E-04 L
 Dilution Factor: 1.00000E+00

Removed by:

G. Henderson

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

Detector ID: GEA3
 File Number: dka300:[spec.GEA3]3g3836.cnf
 Geometry: 42
 Count Time: 0 00:50:00.00 sec
 Real Time: 0 00:51:44.13 sec
 Dead Time: 3.4%

Verified by:

B. Mackel 10/30/90

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

Sample Count Time: 29-OCT-1996 23:38:59.80
 Decayed to: 29-OCT-1996 23:38:59.80
 Standard Deviations: 2
 Analysis Library: ENVGEA
 Analyst: AKH
 Background Subtract: DKA300:[SPEC.GEA3]3GBACK

WHC-SD-WM-DP-217, REV. 10

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

Date of last energy calibration: 11-MAR-1994 11:47:01.11
 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	604.48	621	1.86	1209.14	1205	10	44.0		CS-134	5.68
0	661.56*	828347	1.61	1323.30	1315	17	0.2		CS-137	9.363E+03
0	795.97	391	1.85	1592.10	1587	15	32.1		CS-134	5.16
0	1321.83	176	3.18	2644.03	2636	15	30.1			

Total number of lines in spectrum 4
Number of unidentified lines 1
Number of lines tentatively identified by NID 3 75.00%

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-134	2.06Y	1.000	5.321E+00	5.321E+00	1.382E+00	25.98	
CS-137	30.00Y	1.000	9.363E+03	9.363E+03	0.021E+03	0.22	
Total Activity :			9.368E+03	9.368E+03			

Grand Total Activity : 9.368E+03 9.368E+03

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

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	25218.	477.59	5.2316E+01
NA-22	76.	1274.53	6.8577E-01
NA-24	11.	1368.55	2.8457E-01
K-40	124.	1460.75	9.1042E+00
CR-51	19862.	320.08	3.4941E+01
MN-54	462.	834.83	1.1751E+00
CO-56	416.	846.76	1.1296E+00
CO-57	20295.	122.06	2.4655E+00
CO-58	416.	810.78	1.0941E+00
FE-59	136.	1099.25	1.4285E+00
CO-60	23.	1332.50	3.8677E-01
SE-75	21775.	264.66	5.4807E+00
SR-85	12685.	514.01	4.2423E+00
Y-88	0.	1836.06	0.0000E+00
NB-94	337.	871.09	1.0419E+00
ZRNB-95	592.	724.18	2.6937E+00
RU-103	15303.	497.08	4.7854E+00
RURH-106	4679.	621.93	5.8615E+01
AG-108m	590.	722.94	1.2928E+00
CD-109	17757.	88.03	7.6364E+01
AG-110M	20331.	657.76	6.7168E+00
SN-113	21922.	391.69	6.7313E+00
TE-123m	21161.	159.00	2.5900E+00
SB-124	5143.	602.73	3.0352E+00
SB-125	25148.	427.89	1.6831E+01
TE-125m	18693.	109.27	7.7037E+02
I-131	20372.	364.48	4.8520E+00
BA-140	8980.	537.31	1.4588E+01
LA-140	3.	1596.21	1.7096E-01
CEPR-144	20904.	133.51	3.7845E+01
EU-152	10.	1408.01	1.2754E+00
EU-154	76.	1274.51	1.9913E+00
EU-155	18402.	105.31	1.0208E+01
HG-203	20687.	279.20	3.9837E+00
TL-208	21040.	277.36	5.1610E+01
BI-212	580.	727.18	1.7592E+01
PB-212	24423.	238.63	7.2190E+00
BI-214	4723.	609.31	6.4074E+00
PB-214	20183.	351.92	1.9327E+01
RA-224	24079.	240.99	7.9592E+01
RA-226	28224.	186.10	7.8661E+01
AC-228	265.	911.21	3.6035E+00
TH-228	17501.	84.37	2.3348E+02
TH-229	17898.	88.47	1.1112E+01
PA-233	19966.	312.17	8.9741E+00
UTH-233	23883.	245.34	2.9710E+03
PA-234M	205.	1001.03	1.5511E+00
TH-234	16258.	63.29	1.5157E+02
U-235	28028.	185.71	4.7643E+00
NP-237	17513.	86.48	2.2777E+01
NP-239	18600.	106.12	9.7523E+00

Sample ID : S96T005184-DUP

Acquisition date : 29-OCT-1996 23:38:59

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	20900.	129.30	3.2932E+04
AM-241	16385.	59.54	2.6852E+01
AM-243	16914.	74.67	6.4123E+00

```

*****
* 222-S Laboratory Counting Room 30-OCT-1996 01:45:51.00 *
*****
>>>>>>>> SAMPLE INFORMATION <<<<<<<<<
Worklist #: 13973
Sample ID: S96T005185-SAM
Sample Size: 1.00000E-04 L
Dilution Factor: 1.01000E+02

>>>>>>>> COUNT INFORMATION <<<<<<<<<
Detector ID: GEA3
File Number: dka300:[spec.GEA3]3g3837.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:15.15 sec
Dead Time: 0.5%

>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<
Sample Count Time: 30-OCT-1996 00:54:53.95
Decayed to: 30-OCT-1996 00:54:53.95
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: AKH
Background Subtract: DKA300:[SPEC.GEA3]3GBACK

>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<
Date of last energy calibration: 11-MAR-1994 11:47:01.11
Date of last efficiency calibration: 15-MAR-1994 10:28:40.20
*****

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Removed by:

A. Thorsen

Verified by:

P. Machelo 10/30/96

WHC-SD-WM-DP-217, REV. 0

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	479.37	195	1.45	958.97	955	10116.1				
0	604.70	159	1.98	1209.58	1207	7 47.8			CS-134	147.
0	661.57*	122124	1.63	1323.32	1315	17 0.6			CS-137	1.394E+05
0	795.79	58	2.17	1591.74	1584	15 41.8			CS-134	77.2
0	969.41*	16	1.84	1939.02	1935	9 91.3				

Total number of lines in spectrum 5
Number of unidentified lines 1
Number of lines tentatively identified by NID 4 80.00%

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-134	2.06Y	1.000	8.935E+01	8.936E+01	2.933E+01	32.83	
CS-137	30.00Y	1.000	1.394E+05	1.394E+05	0.008E+05	0.58	
Total Activity :			1.395E+05	1.395E+05			

Grand Total Activity : 1.395E+05 1.395E+05

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

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3653.	477.59	2.0111E+03
NA-22	15.	1274.53	3.0294E+01
NA-24	6.	1368.55	2.0951E+01
K-40	121.	1460.75	9.1088E+02
CR-51	2834.	320.08	1.3329E+03
MN-54	19.	834.83	2.4356E+01
CO-56	26.	846.76	2.8397E+01
CO-57	3014.	122.06	9.5964E+01
CO-58	22.	810.78	2.5346E+01
FE-59	18.	1099.25	5.1895E+01
CO-60	14.	1332.50	3.0642E+01
SE-75	3217.	264.66	2.1277E+02
SR-85	1843.	514.01	1.6331E+02
Y-88	0.	1836.06	0.0000E+00
NB-94	21.	871.09	2.6314E+01
ZRNB-95	35.	724.18	6.5840E+01
RU-103	2190.	497.08	1.8283E+02
RURH-106	651.	621.93	2.2082E+03
AG-108m	34.	722.94	3.1342E+01
CD-109	2583.	88.03	2.9417E+03
AG-110M	2950.	657.76	2.5840E+02
SN-113	3147.	391.69	2.5760E+02
TE-123m	3229.	159.00	1.0219E+02
SB-124	740.	602.73	1.1631E+02
SB-125	3789.	427.89	6.5987E+02
TE-125m	2787.	109.27	3.0043E+04
I-131	3013.	364.48	1.8846E+02
BA-140	1301.	537.31	5.6084E+02
LA-140	5.	1596.21	2.2286E+01
CEPR-144	3206.	133.51	1.4969E+03
EU-152	8.	1408.01	1.1619E+02
EU-154	15.	1274.51	8.8254E+01
EU-155	2660.	105.31	3.9201E+02
HG-203	3024.	279.20	1.5383E+02
TL-208	3062.	277.36	1.9884E+03
BI-212	32.	727.18	4.1964E+02
PB-212	3605.	238.63	2.8011E+02
BI-214	703.	609.31	2.4974E+02
PB-214	2928.	351.92	7.3233E+02
RA-224	3562.	240.99	3.0914E+03
RA-226	4211.	186.10	3.0690E+03
AC-228	37.	911.21	1.3588E+02
TH-228	2629.	84.37	9.1400E+03
TH-229	2592.	88.47	4.2711E+02
PA-233	2938.	312.17	3.4771E+02
UTH-233	3461.	245.34	1.1423E+05
PA-234M	22.	1001.03	5.0927E+01
TH-234	2460.	63.29	5.9545E+03
U-235	4159.	185.71	1.8537E+02
NP-237	2616.	86.48	8.8909E+02
NP-239	2704.	106.12	3.7549E+02

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	3070.	129.30	1.2748E+06
AM-241	2456.	59.54	1.0501E+03
AM-243	2614.	74.67	2.5462E+02

```

*****
* 222-S Laboratory Counting Room 30-OCT-1996 02:57:07.05
*****
>>>>>>>> SAMPLE INFORMATION <<<<<<<<<
Worklist #: 13973
Sample ID: S96T005185-DUP
Sample Size: 1.00000E-04 L
Dilution Factor: 1.01000E+02

>>>>>>>> COUNT INFORMATION <<<<<<<<<
Detector ID: GEA3
File Number: dka300:[spec.GEA3]3g3838.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:15.14 sec
Dead Time: 0.5%

>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<
Sample Count Time: 30-OCT-1996 02:05:47.89
Decayed to: 30-OCT-1996 02:05:47.89
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: AKH
Background Subtract: DKA300:[SPEC.GEA3]3GBACK

>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<
Date of last energy calibration: 11-MAR-1994 11:47:01.11
Date of last efficiency calibration: 15-MAR-1994 10:28:40.20
*****

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Removed by:

(Signature) 9/

Verified by:

(Signature) 10/30/96

WHC-SD-WM-DP-217, REV. 0

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.57*	121902	1.60	1323.32	1315	17	0.6		CS-137	1.392E+05
0	795.86	83	1.86	1591.88	1587	14	29.4			
0	912.15*	20	0.60	1824.47	1820	13	99.0			

Summary of Nuclide Activity

Sample ID : S96T005185-DUP

Acquisition date : 30-OCT-1996 02:05:47

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
CS-137	30.00Y	1.000	1.392E+05	1.392E+05	0.008E+05	0.58	
Total Activity :			1.392E+05	1.392E+05			

Grand Total Activity :	1.392E+05	1.392E+05
------------------------	-----------	-----------

Flags: "K" = Keyline not found

"E" = Manually edited

"M" = Manually accepted

"A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3716.	477.59	2.0284E+03
NA-22	12.	1274.53	2.7462E+01
NA-24	12.	1368.55	2.9629E+01
K-40	124.	1460.75	9.2174E+02
CR-51	2914.	320.08	1.3517E+03
MN-54	29.	834.83	2.9950E+01
CO-56	17.	846.76	2.3271E+01
CO-57	3037.	122.06	9.6321E+01
CO-58	29.	810.78	2.8923E+01
FE-59	9.	1099.25	3.7579E+01
CO-60	10.	1332.50	2.5993E+01
SE-75	3239.	264.66	2.1349E+02
SR-85	1869.	514.01	1.6446E+02
Y-88	5.	1836.06	2.3695E+01
NB-94	27.	871.09	2.9958E+01
ZRNB-95	38.	724.18	6.8622E+01
RU-103	2245.	497.08	1.8512E+02
RURH-106	659.	621.93	2.2213E+03
AG-108m	32.	722.94	3.0448E+01
CD-109	2621.	88.03	2.9634E+03
AG-110M	2949.	657.76	2.5836E+02
SN-113	3197.	391.69	2.5963E+02
TE-123m	3148.	159.00	1.0090E+02
SB-124	811.	602.73	1.2172E+02
SB-125	3671.	427.89	6.4947E+02
TE-125m	2793.	109.27	3.0075E+04
I-131	3058.	364.48	1.8986E+02
CS-134	813.	604.70	1.2247E+02
BA-140	1309.	537.31	5.6258E+02
LA-140	6.	1596.21	2.4413E+01
CEPR-144	3218.	133.51	1.4997E+03
EU-152	6.	1408.01	1.0062E+02
EU-154	12.	1274.51	7.9785E+01
EU-155	2661.	105.31	3.9203E+02
HG-203	3018.	279.20	1.5369E+02
TL-208	3044.	277.36	1.9827E+03
BI-212	35.	727.18	4.3842E+02
PB-212	3686.	238.63	2.8325E+02
BI-214	705.	609.31	2.4996E+02
PB-214	3053.	351.92	7.4783E+02
RA-224	3609.	240.99	3.1117E+03
RA-226	4114.	186.10	3.0333E+03
AC-228	38.	911.21	1.3759E+02
TH-228	2674.	84.37	9.2177E+03
TH-229	2630.	88.47	4.3020E+02
PA-233	2933.	312.17	3.4740E+02
UTH-233	3435.	245.34	1.1379E+05
PA-234M	20.	1001.03	4.9204E+01
TH-234	2491.	63.29	5.9926E+03
U-235	4067.	185.71	1.8331E+02
NP-237	2622.	86.48	8.9018E+02

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2707.	106.12	3.7574E+02
PU-239	3031.	129.30	1.2666E+06
AM-241	2475.	59.54	1.0540E+03
AM-243	2552.	74.67	2.5158E+02

```

*****
* 222-S Laboratory Counting Room 30-OCT-1996 05:15:35.24 *
*****
>>>>>>> SAMPLE INFORMATION <<<<<<<<
Worklist #: 13973
Sample ID: S96T005186-SAM
Sample Size: 1.00000E-04 L
Dilution Factor: 1.00000E+00

>>>>>>> COUNT INFORMATION <<<<<<<<
Detector ID: GEA3
File Number: dka300:[spec.GEA3]3g3841.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:54:57.56 sec
Dead Time: 9.0%

>>>>>>> ANALYSIS INFORMATION <<<<<<<<
Sample Count Time: 30-OCT-1996 04:19:58.52
Decayed to: 30-OCT-1996 04:19:58.52
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: AKH
Background Subtract: DKA300:[SPEC.GEA3]3GBACK

>>>>>>> CALIBRATION INFORMATION <<<<<<<<
Date of last energy calibration: 11-MAR-1994 11:47:01.11
Date of last efficiency calibration: 15-MAR-1994 10:28:40.20
*****

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Removed by:

Verified by:

WHC-SD-WM-DP-217, REV. 0

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	604.77	1652	1.77	1209.74	1206	10	28.6		CS-134	15.1
0	661.58*	2215166	1.64	1323.34	1315	17	0.1		CS-137	2.504E+04
0	795.64	1321	1.75	1591.45	1585	12	20.0		CS-134	17.5
0	1321.76	1386	2.27	2643.88	2635	18	11.2			
0	1332.15	53	1.46	2664.68	2658	14	60.8			

Total number of lines in spectrum 5
Number of unidentified lines 1
Number of lines tentatively identified by NID 4 80.00%

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-134	2.06Y	1.000	1.653E+01	1.653E+01	0.271E+01	16.40	
CS-137	30.00Y	1.000	2.504E+04	2.504E+04	0.003E+04	0.14	
Total Activity :			2.505E+04	2.505E+04			

Grand Total Activity : 2.505E+04 2.505E+04

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

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	69682.	477.59	8.6966E+01
NA-22	468.	1274.53	1.6976E+00
NA-24	59.	1368.55	6.5071E-01
K-40	172.	1460.75	1.0739E+01
CR-51	53876.	320.08	5.7547E+01
MN-54	2941.	834.83	2.9654E+00
CO-56	2848.	846.76	2.9553E+00
CO-57	54664.	122.06	4.0463E+00
CO-58	3159.	810.78	3.0134E+00
FE-59	1107.	1099.25	4.0793E+00
CO-60	87.	1332.50	7.5793E-01
SE-75	58977.	264.66	9.0200E+00
SR-85	35415.	514.01	7.0884E+00
Y-88	3.	1836.06	1.8104E-01
NB-94	2490.	871.09	2.8316E+00
ZRNB-95	4609.	724.18	7.5189E+00
RU-103	43419.	497.08	8.0608E+00
RURH-106	13588.	621.93	9.9885E+01
AG-108m	4593.	722.94	3.6062E+00
CD-109	47051.	88.03	1.2430E+02
AG-110M	56844.	657.76	1.1231E+01
SN-113	59380.	391.69	1.1078E+01
TE-123m	56823.	159.00	4.2441E+00
SB-124	15608.	602.73	5.2878E+00
SB-125	69002.	427.89	2.7879E+01
TE-125m	50114.	109.27	1.2614E+03
I-131	55740.	364.48	8.0265E+00
BA-140	25751.	537.31	2.4704E+01
LA-140	17.	1596.21	4.0744E-01
CEPR-144	56385.	133.51	6.2155E+01
EU-152	41.	1408.01	2.6147E+00
EU-154	467.	1274.51	4.9305E+00
EU-155	49016.	105.31	1.6660E+01
HG-203	56941.	279.20	6.6093E+00
TL-208	57112.	277.36	8.5030E+01
BI-212	4590.	727.18	4.9475E+01
PB-212	66144.	238.63	1.1880E+01
BI-214	14042.	609.31	1.1048E+01
PB-214	54892.	351.92	3.2922E+01
RA-224	64970.	240.99	1.3077E+02
RA-226	75581.	186.10	1.2872E+02
AC-228	2076.	911.21	1.0092E+01
TH-228	46696.	84.37	3.8138E+02
TH-229	47307.	88.47	1.8065E+01
PA-233	53605.	312.17	1.4705E+01
UTH-233	63530.	245.34	4.8456E+03
PA-234M	1477.	1001.03	4.1616E+00
TH-234	43616.	63.29	2.4826E+02
U-235	74733.	185.71	7.7796E+00
NP-237	46889.	86.48	3.7270E+01
NP-239	49279.	106.12	1.5879E+01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	55852.	129.30	5.3835E+04
AM-241	43573.	59.54	4.3789E+01
AM-243	45636.	74.67	1.0533E+01

```

*****
* 222-S Laboratory Counting Room 30-OCT-1996 10:10:29.50 *
*****
>>>>>>>> SAMPLE INFORMATION <<<<<<<<<
Worklist #: 13973
Sample ID: S96T005186-DUP
Sample Size: 1.00000E-04 L
Dilution Factor: 1.00000E+00

Removed by:
Cf. Opium

>>>>>>>> COUNT INFORMATION <<<<<<<<<
Detector ID: GEA3
File Number: dka300:[spec.GEA3]3g3842.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:54:47.44 sec
Dead Time: 8.7%

Verified by:
Q. Mackel 10/30/96

>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<
Sample Count Time: 30-OCT-1996 09:15:04.78
Decayed to: 30-OCT-1996 09:15:04.78
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: CJO
Background Subtract: DKA300:[SPEC.GEA3]3GBACK

WHC-SD-WM-DP-217, REV. 0

>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<
Date of last energy calibration: 11-MAR-1994 11:47:01.11
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	604.78	1813	1.64	1209.75	1206	9	23.3		CS-134	16.6
0	661.57*	2146072	1.63	1323.32	1315	17	0.1		CS-137	2.426E+04
0	795.77	1086	1.83	1591.70	1588	9	18.7		CS-134	14.4
0	1322.07	1252	2.93	2644.51	2637	17	11.7			
0	1460.49*	41	1.86	2921.47	2913	17	69.0		K-40	7.13

Total number of lines in spectrum 5
Number of unidentified lines 1
Number of lines tentatively identified by NID 4 80.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.000	7.131E+00	7.131E+00	4.919E+00	68.99	BLG, P
CS-134	2.06Y	1.000	1.507E+01	1.508E+01	0.221E+01	14.64	
CS-137	30.00Y	1.000	2.426E+04	2.426E+04	0.003E+04	0.14	
Total Activity :			2.428E+04	2.428E+04			
Grand Total Activity :			2.428E+04	2.428E+04			

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

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	67381.	477.59	8.5518E+01
NA-22	464.	1274.53	1.6916E+00
NA-24	58.	1368.55	6.4685E-01
CR-51	52061.	320.08	5.6570E+01
MN-54	2701.	834.83	2.8418E+00
CO-56	2645.	846.76	2.8478E+00
CO-57	52688.	122.06	3.9725E+00
CO-58	2964.	810.78	2.9187E+00
FE-59	947.	1099.25	3.7742E+00
CO-60	87.	1332.50	7.5860E-01
SE-75	57658.	264.66	8.9186E+00
SR-85	34567.	514.01	7.0030E+00
Y-88	4.	1836.06	2.0464E-01
NB-94	2370.	871.09	2.7627E+00
ZRNB-95	4333.	724.18	7.2900E+00
RU-103	41785.	497.08	7.9076E+00
RURH-106	12888.	621.93	9.7281E+01
AG-108m	4352.	722.94	3.5104E+00
CD-109	45934.	88.03	1.2282E+02
AG-110M	54556.	657.76	1.1003E+01
SN-113	57392.	391.69	1.0891E+01
TE-123m	55304.	159.00	4.1870E+00
SB-124	14861.	602.73	5.1597E+00
SB-125	67262.	427.89	2.7526E+01
TE-125m	48594.	109.27	1.2421E+03
I-131	53928.	364.48	7.8949E+00
BA-140	25331.	537.31	2.4501E+01
LA-140	14.	1596.21	3.7249E-01
CEPR-144	54781.	133.51	6.1265E+01
EU-152	40.	1408.01	2.5587E+00
EU-154	464.	1274.51	4.9140E+00
EU-155	47566.	105.31	1.6412E+01
HG-203	54882.	279.20	6.4887E+00
TL-208	54947.	277.36	8.3403E+01
BI-212	4267.	727.18	4.7700E+01
PB-212	63583.	238.63	1.1648E+01
BI-214	13427.	609.31	1.0804E+01
PB-214	52564.	351.92	3.2162E+01
RA-224	63059.	240.99	1.2883E+02
RA-226	73073.	186.10	1.2657E+02
AC-228	1946.	911.21	9.7708E+00
TH-228	45573.	84.37	3.7677E+02
TH-229	45805.	88.47	1.7776E+01
PA-233	52382.	312.17	1.4536E+01
UTH-233	62157.	245.34	4.7930E+03
PA-234M	1420.	1001.03	4.0813E+00
TH-234	42350.	63.29	2.4463E+02
U-235	72292.	185.71	7.6514E+00
NP-237	45722.	86.48	3.6803E+01
NP-239	47698.	106.12	1.5622E+01
PU-239	53875.	129.30	5.2873E+04

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	42026.	59.54	4.3004E+01
AM-243	43945.	74.67	1.0336E+01

LABCORE Completed RadChem Report for Worklist#: 15260

Analyst: rga

Instrument: AB12

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: Use 0.1mL for 5184 & 5186. Use 0.1-10-0.1mL for 5185. sac

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		QSR90-01 SR90-01 LIQUID		1.40E-03	1.44E-3	102.857	% Recovery
1 STD	0		QSR90-01 SR90-01C LIQUID		100	6.01E+01	60.100	% Recovery
1 STD	0		QSR90-01 SR90-01E LIQUID		1.00	2.13E+00	2.130	% Ct. Error
2 BLNK	0		QSR90-01 SR90-01 LIQUID		1	2.29E-5	22.900E-006	uCi/mL
2 BLNK	0		QSR90-01 SR90-01C LIQUID		100	9.21E+01	92.100	% Recovery
2 BLNK	0		QSR90-01 SR90-01E LIQUID		1.00	9.65E+01	96.500	uCi/mL
3 BLNK/BKG	0		QSR90-01 SR90-01 LIQUID		1	1.49E+00	1.490	BLNK/BKG
4 SAMPLE	S96T005184	0	QSR90-01 SR90-01 LIQUID		N/A	2.77E-02	280.0E-007	uCi/mL
4 SAMPLE	S96T005184	0	QSR90-01 SR90-01C LIQUID		N/A	9.26E+01	0.0E+000	% Recovery
4 SAMPLE	S96T005184	0	QSR90-01 SR90-01E LIQUID		N/A	1.23E+00	0.0E+000	% Ct. Error
5 DUP	S96T005184	0	QSR90-01 SR90-01 LIQUID		2.77E-2	2.76E-2	0.362	RPD
5 DUP	S96T005184	0	QSR90-01 SR90-01C LIQUID		100	9.29E+01	92.900	% Recovery
5 DUP	S96T005184	0	QSR90-01 SR90-01E LIQUID		1.00	1.23E+00	1.230	% Cnt Err
6 SAMPLE	S96T005185	0	QSR90-01 SR90-01 LIQUID		N/A	4.96E-01	284.0E-005	uCi/mL
6 SAMPLE	S96T005185	0	QSR90-01 SR90-01C LIQUID		N/A	9.20E+01	0.0E+000	% Recovery
6 SAMPLE	S96T005185	0	QSR90-01 SR90-01E LIQUID		N/A	2.94E+00	0.0E+000	% Ct. Error
7 DUP	S96T005185	0	QSR90-01 SR90-01 LIQUID		4.96E-1	5.28E-1	6.250	RPD
7 DUP	S96T005185	0	QSR90-01 SR90-01C LIQUID		100	9.09E+01	90.900	% Recovery
7 DUP	S96T005185	0	QSR90-01 SR90-01E LIQUID		1.00	2.87E+00	2.870	% Cnt Err
8 SAMPLE	S96T005186	0	QSR90-01 SR90-01 LIQUID		N/A	4.51E-03	294.0E-007	uCi/mL
8 SAMPLE	S96T005186	0	QSR90-01 SR90-01C LIQUID		N/A	8.77E+01	0.0E+000	% Recovery
8 SAMPLE	S96T005186	0	QSR90-01 SR90-01E LIQUID		N/A	3.14E+00	0.0E+000	% Ct. Error
9 DUP	S96T005186	0	QSR90-01 SR90-01 LIQUID		4.51E-3	4.62E-3	2.410	RPD
9 DUP	S96T005186	0	QSR90-01 SR90-01C LIQUID		100	9.21E+01	92.100	% Recovery
9 DUP	S96T005186	0	QSR90-01 SR90-01E LIQUID		1.00	3.02E+00	3.020	% Cnt Err

Final page for worklist# 15260

Analyst Signature

Date

Analyst Signature

Date


Reviewer Signature

11/27/96
Date

LABCORE Data Entry Template for Worklist# 15260

Analyst: NEA Instrument: AB00 12 Book# 62B56

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: Use 0.1mL for 5184 & 5186. Use 0.1-10-0.1mL for 5185. sac

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	S96T005184 0		@SR90-01	LIQUID	96001337	AP-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E					
5 DUP	S96T005184 0		@SR90-01	LIQUID		
6 SAMPLE	S96T005185 0		@SR90-01	LIQUID	96001337	AP-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E					
7 DUP	S96T005185 0		@SR90-01	LIQUID		
8 SAMPLE	S96T005186 0		@SR90-01	LIQUID	96001337	AP-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E					
9 DUP	S96T005186 0		@SR90-01	LIQUID		

Final page for worklist # 15260

Analyst Signature [Signature] Date 11-27-96

Analyst Signature [Signature] Date 11/27/96

Data Entry Comments:

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

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

				STANDARD
DETECTOR NUMBER	12	CARRIER ADDED in mL (CVA)	1.000	
STD TOTAL COUNTS (TC)	8611	GROSS WEIGHT (W2)	7.6920	
COUNT TIME in MINUTES (CT)	10	TARE WEIGHT (W1)	7.6319	
15260 BACKGROUND in cpm (BKG)	4.3	NET WEIGHT (W3)	0.0601	
SAMPLE VOLUME in mL (SS)	1.000	DELTA TIME (HOURS) (DT)	6.00	
@SR90-01 DILUTION FACTOR (DF)	1			
DIGEST DILUTION FACTOR DDF	1			
LIQUID SAMPLE COUNT RATE (Rs)	856.80	SR-90 EFFICIENCY FACTO (C1)	0.4180	
CRITICAL LEVEL (Lc)	1.25	Y-90 EFFICIENCY FACTOR (C2)	0.4660	
96011870 TIME OF SEPARATION (ST)	04:00	Rmax	N/A	
DATE OF SEPARATION (SD)	11/27/96	DETECTION LIMIT (Ld)	2.59	
0 TIME OF COUNT (TOC)	10:00	Sr-89/90 CONC. in µCi/L	1.4359E+00	
DATE OF COUNT (DOC)	11/27/96			
N/A STANDARD BOOK #	62B56			
STANDARD VALUE in µCi/mL	1.3960E-03			
WL15260				
WB27811	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)			
MCB	Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<Lc AND RS>=0 OR REPLACE RS WITH Lc IF RS<0			
SLF	RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)			
RG	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))			
RG	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)			
RG	Percent Carrier Recovery = (Net Weight / Expected weight) * 100			
RG	NOTE: Expected weight = CVA * 0.1			
11/27/96	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
11/27/96	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100			
11/27/96	Sr-89/90 CONCENTRATION	1.44E-03	µCi/mL	DETECTION LEVEL 4.34E-06 µCi/L
08:45 AM	RELATIVE COUNTING ERROR	2.1%		
AP-106 GRAB	PERCENT CARRIER RECOVERY	60.1%		

Analyst:

RGA

Date:

27-Nov-96

Signature of Chemist:

SLF

Date:

11/27/96

STANDARD WB1 REV 2.0

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LA-220-101 / D-1				Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)		BLNK	
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000	
BLNK	TOTAL COUNTS	(TC)	64	GROSS WEIGHT	(W2)	7.7211	
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.6290	
15260	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0921	
	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	6.17	
@SR90-01	DILUTION FACTOR	DF	1				
	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	2.10	SR-90 EFFICIENCY FACTOR	(C1)	0.4180	
	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660	
96011870	TIME OF SEPARATION	(ST)	04:00	Rmax		N/A	
	DATE OF SEPARATION	(SD)	11/27/96	DETECTION LIMIT	(Ld)	2.59	
0	TIME OF COUNT	(TOC)	10:10	Sr-89/90 CONC in µCi/L		2.2925E-02	
	DATE OF COUNT	(DOC)	11/27/96				
N/A							
WL15260							
	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 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))						
	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
	NOTE: Expected weight = CVA * 0.1						
RG	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
11/27/96							
11/27/96	Sr-89/90 CONCENTRATION	2.29E-05	µCi/mL	DETECTION LEVEL			
08:45 AM	RELATIVE COUNTING ERROR	96.5%	2.83E-05 µCi/mL				
AP-106 GRAB	PERCENT CARRIER RECOVERY	92.1%					

Analyst:	RG	Date:	27-Nov-96
Signature of Chemist:	SLF	Date:	11/27/96

WORKBOOK PAGE: SAM4

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-3)						SAMPLE
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	25594	GROSS WEIGHT	(W2)	7.9313
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.8387
15260	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0926
	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	6.42
@SR90-01	DILUTION FACTOR	DF	1			
	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	2555.10	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96011870	TIME OF SEPARATION	(ST)	04:00	Rmax		N/A
	DATE OF SEPARATION	(SD)	11/27/96	DETECTION LIMIT	(Ld)	2.59
0	TIME OF COUNT	(TOC)	10:25	Sr-89/90 CONC in µCi/L 2.7670E+01		
	DATE OF COUNT	(DOC)	11/27/96			
N/A						
S96T005184						
WB27811	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
	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					
	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))					
	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
	NOTE: Expected weight = CVA * 0.1					
RGA	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
11/27/96						
11/27/96	Sr-89/90 CONCENTRATION		2.77E-02	µCi/mL	DETECTION LEVEL	
08:45 AM	RELATIVE COUNTING ERROR		1.2%			
AP-106 GRAB	PERCENT CARRIER RECOVERY		92.6%	2.80E-05 µCi/mL		

Analyst:

RGA

Date:

27-Nov-96

Signature of Chemist:

SLF

Date:

11/27/96

SAMPLE.WB1 REV 2.0

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					DUP	
DUP	DETECTOR NUMBER	12	CARRIER ADDED in mL	(CVA)	1.000	
DUP	TOTAL COUNTS (TC)	25625	GROSS WEIGHT	(W2)	7.7221	
15260	COUNT TIME in MINUTES (CT)	10	TARE WEIGHT	(W1)	7.6292	
15260	BACKGROUND in cpm (BKG)	4.3	NET WEIGHT	(W3)	0.0929	
	SAMPLE VOLUME in mL (SS)	0.100	DELTA TIME (HOURS)	(DT)	6.58	
@SR90-01	DILUTION FACTOR (DF)	1				
	DIGEST DILUTION FACTOR (DDF)	1				
LIQUID	SAMPLE COUNT RATE (Rs)	2558.20	SR-90 EFFICIENCY FACTOR	(C1)	0.4180	
	CRITICAL LEVEL (Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660	
96011870	TIME OF SEPARATION (ST)	04:00	Rmax		N/A	
	DATE OF SEPARATION (SD)	11/27/96	DETECTION LIMIT	(Ld)	2.59	
0	TIME OF COUNT (TOC)	10:35	Sr-89/90 CONC in µCi/L		2.7566E+01	
	DATE OF COUNT (DOC)	11/27/96				
N/A						
SAMPLE						
S96T005184						
WB27811	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
	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					
	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))					
	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT)) * 1.96					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
	NOTE: Expected weight = CVA * 0.1					
RGA	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
11/27/96						
11/27/96	Sr-89/90 CONCENTRATION	2.76E-02	µCi/mL	DETECTION LEVEL		
08:45 AM	RELATIVE COUNTING ERROR	1.2%	2.79E-05 µCi/mL			
AP-106 GRAB	PERCENT CARRIER RECOVERY	92.9%				

Analyst:

RGA

Date:

27-Nov-96

Signature of Chemist:

SLF

Date:

11/27/96

SAMPLE WB1 REV 2.0

22010NML

WORKBOOK PAGE: SAM6

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

Sr-89/90 : LA-220-01 (D-1), 102 (E-3), 104 (D-1)						SAMPLE
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	4561	GROSS WEIGHT	(W2)	7.7080
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.6140
15260	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0920
	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	6.75
@SR90-01	DILUTION FACTOR	DF	101			
	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	451.80	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96011870	TIME OF SEPARATION	(ST)	04:00	Rmax		N/A
	DATE OF SEPARATION	(SD)	11/27/96	DETECTION LIMIT	(Ld)	2.59
0	TIME OF COUNT	(TOC)	10:45	Sr-89/90 CONC in µCi/L		4.9566E+02
	DATE OF COUNT	(DOC)	11/27/96			
N/A						
S96T005185						
	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					
	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))					
	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
	NOTE: Expected weight = CVA * 0.1					
RGA	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
11/27/96						
11/27/96	Sr-89/90 CONCENTRATION		4.96E-01	µCi/mL	DETECTION LEVEL	
08:45 AM	RELATIVE COUNTING ERROR		2.9%	2.84E-03 µCi/mL		
AP-106 GRAB	PERCENT CARRIER RECOVERY		92.0%			

Analyst:	RGA	Date:	27-Nov-96
Signature of Chemist:	SLF	Date:	11/27/96

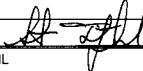
SAMPLE:WB1 REV 2.0

22010NML

WORKBOOK PAGE: DUP7

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)						DUP	
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000	
DUP	TOTAL COUNTS	(TC)	4802	GROSS WEIGHT	(W2)	7.9295	
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.8386	
15260	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0909	
	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	6.92	
@SR90-01	DILUTION FACTOR	DF	101				
	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	475.90	SR-90 EFFICIENCY FACTOR	(C1)	0.4180	
	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660	
96011870	TIME OF SEPARATION	(ST)	04:00	Rmax		N/A	
	DATE OF SEPARATION	(SD)	11/27/96	DETECTION LIMIT	(Ld)	2.59	
0	TIME OF COUNT	(TOC)	10:55	Sr-89/90 CONC in µCi/L		5.2751E+02	
	DATE OF COUNT	(DOC)	11/27/96				
N/A							
S96T005185							
WB27811	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
	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 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))						
	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
	NOTE: Expected weight = CVA * 0.1						
RGA	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
11/27/96							
11/27/96	Sr-89/90 CONCENTRATION	5.28E-01	µCi/mL		DETECTION LEVEL		
08:45 AM	RELATIVE COUNTING ERROR	2.9%					
AP-106 GRAB	PERCENT CARRIER RECOVERY	90.9%	2.87E-03 µCi/mL				

Analyst:		RGA	Date:	27-Nov-96
Signature of Chemist:		SLF	Date:	11/27/96

SAMPLE:WB1 REV 2.0

22010NML

WORKBOOK PAGE: SAM8

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

					SAMPLE	
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	4016	GROSS WEIGHT	(W2)	7.9117
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.8240
15260	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0877
	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	7.17
@SR90-01	DILUTION FACTOR	DF	1			
	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	397.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96011870	TIME OF SEPARATION	(ST)	04:00	Rmax		N/A
	DATE OF SEPARATION	(SD)	11/27/96	DETECTION LIMIT	(Ld)	2.59
0	TIME OF COUNT	(TOC)	11:10	Sr-89/90 CONC in µCi/L		4.5077E+00
	DATE OF COUNT	(DOC)	11/27/96			
N/A						
S96T005186						
Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG) 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 $RS * DF * DDF / ((C1 + C2 * (1 - e \text{ to the power of } ((- \text{natural log } 2) / 64.2 * DT))) * SS * REC * 2220000)$ NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000)) Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT)) * 1.96 Percent Carrier Recovery = (Net Weight / Expected weight) * 100 NOTE: Expected weight = CVA * 0.1 Detection Levels and Less Than Values are determined from Procedure LA-508-002. Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
11/27/96						DETECTION LEVEL
11/27/96	Sr-89/90 CONCENTRATION	4.51E-03	µCi/mL			
08:45 AM	RELATIVE COUNTING ERROR	3.1%				
AP-106 GRAB	PERCENT CARRIER RECOVERY	87.7%				
					2.94E-05 µCi/mL	

Analyst:	RGA	Date:	27-Nov-96
Signature of Chemist:	SLF	Date:	11/27/96

SAMPLE.WB1 REV 2.0

22010NML

LABCORE Completed RadChem Report for Worklist#: 13954

Analyst: slh

Instrument: AB13

Book# 62B56

Method: LA-953-103 Rev/Mod B-2

Worklist Comment: AP106, @AM24101, Determine sample size using Ludlum. skm

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@AM24101 AM24101 LIQUID		1.19E-04	1.03E-4	86.555	% Recovery
1 STD	0		@AM24101 AM24101T LIQUID		100.	8.90E+01	89.000	% Recovery
1 STD	0		@AM24101 AM24101E LIQUID		1.0	1.62E+00	1.620	% Ct Error
2 BLNK	0		@AM24101 AM24101 LIQUID		1	<6.13E-6		uCi/mL
2 BLNK	0		@AM24101 AM24101T LIQUID		100.0	8.34E+01	83.400	% Recovery
2 BLNK	0		@AM24101 AM24101E LIQUID		1.0	1.00E+02	100.000	% Ct Error
3 SAMPLE	S96T005184	0	@AM24101 AM24101 LIQUID		N/A	6.15E-06	615.0e-008	uCi/mL
3 SAMPLE	S96T005184	0	@AM24101 AM24101E LIQUID		N/A	1.04E+01	0.0e+000	% Ct. Error
3 SAMPLE	S96T005184	0	@AM24101 AM24101T LIQUID		N/A	8.53E+01	0.0e+000	% Recovery
4 DUP	S96T005184	0	@AM24101 AM24101 LIQUID		<6.15E-6	<7.06E-6		RPD
4 DUP	S96T005184	0	@AM24101 AM24101T LIQUID		100.0	7.97E+01	79.700	% Recovery
4 DUP	S96T005184	0	@AM24101 AM24101E LIQUID		1.0	5.50E+00	5.500	% Ct Error
5 SAMPLE	S96T005185	0	@AM24101 AM24101 LIQUID		N/A	3.39E-04	227.0e-007	uCi/mL
5 SAMPLE	S96T005185	0	@AM24101 AM24101E LIQUID		N/A	8.11E-01	0.0e+000	% Ct. Error
5 SAMPLE	S96T005185	0	@AM24101 AM24101T LIQUID		N/A	2.40E+02	0.0e+000	% Recovery
6 DUP	S96T005185	0	@AM24101 AM24101 LIQUID		3.39E-4	4.69E-4	32.178	RPD
6 DUP	S96T005185	0	@AM24101 AM24101T LIQUID		100.0	1.96E+02	196.000	% Recovery
6 DUP	S96T005185	0	@AM24101 AM24101E LIQUID		1.0	9.30E-01	0.930	% Ct Error
7 SAMPLE	S96T005186	0	@AM24101 AM24101 LIQUID		N/A	6.72E-06	672.0e-008	uCi/mL
7 SAMPLE	S96T005186	0	@AM24101 AM24101E LIQUID		N/A	1.00E+02	0.0e+000	% Ct. Error
7 SAMPLE	S96T005186	0	@AM24101 AM24101T LIQUID		N/A	8.05E+01	0.0e+000	% Recovery
8 DUP	S96T005186	0	@AM24101 AM24101 LIQUID		<6.72E-6	<9.37E-6		RPD
8 DUP	S96T005186	0	@AM24101 AM24101T LIQUID		100.0	6.49E+01	64.900	% Recovery
8 DUP	S96T005186	0	@AM24101 AM24101E LIQUID		1.0	1.00E+02	100.000	% Ct Error

Final page for worklist# 13954

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

John Relyea 23 Oct 96
Reviewer Signature _____ Date _____

S96T005184 + S186 validated

S96T005185 rerun on 6/14/98

LABCORE Data Entry Template for Worklist# 13954

Analyst: SLH Instrument: AM01 AB13 Book# 62856

Method: LA-953-103 Rev/Mod B-0

Worklist Comment: AP106, @AM24101, Determine sample size using Ludlum. skm use 1 mL

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@AM24101	LIQUID		
2 BLNK			@AM24101	LIQUID		
3 SAMPLE	S96T005184 0		@AM24101	LIQUID	96001337	AP-106 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T					
4 DUP	S96T005184 0		@AM24101	LIQUID		
5 SAMPLE	S96T005185 0		@AM24101	LIQUID	96001337	AP-106 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T					
6 DUP	S96T005185 0		@AM24101	LIQUID		
7 SAMPLE	S96T005186 0		@AM24101	LIQUID	96001337	AP-106 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T					
8 DUP	S96T005186 0		@AM24101	LIQUID		

Final page for worklist # 13954

Sandra L. Hood Boatright
Analyst Signature Date
Smuldon 10-20-96

Lee H. Gorman 10/22/96
Analyst Signature Date
C.J. Quinn 10/22/96

Data Entry Comments:

WORKBOOK PAGE: STD1

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

LIQUID

STD

Type	Date Counted	OCT-21-96	Am 241 AEA Frac. (C241)	0.472
STD	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.423
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0
13954	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	4107
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)	0.13
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm	64.16
LIQUID	Detector Number	13	Am 243 cpm	57.5
Batch Number	Detector Efficiency (DetEff)	0.3163	Cm 243/244 cpm	0
96010476	Standard Book No	62B56	AEA Count Time (min)	480
Rerun	Standard Value in $\mu\text{Ci/mL}$	1.186E-04	Am 241 $\mu\text{Ci/L}$ =	1.0324E-01
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 1.2281E-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))			
WL13954	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				
SEH				
Chemist				
JFR	Am 241 $\mu\text{Ci/mL}$ =	1.03E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$	
Analyst	Relative Counting Error =	1.6%		
SLH				
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
10/22/96	Cm 243/244 $\mu\text{Ci/mL}$	< 1.23E-05	1.23E-05	
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244	
10/20/96	Am 243 Tracer Recovery =	89.0%	1.23E-05	
Analysis Time				
03:00 AM				
Sample Point				
AP-106 GRAB				

Analyst	SLH	Date:	10/22/96
Signature of Chemist:	JFR	Date:	23 Oct 96

STANDARD WB1 REV 1.2

953103ML

WORKBOOK PAGE: BLANK2

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

LIQUID / SOLID

BLNK

Type	Date Counted	OCT-21-96	Am 241 AEA Frac. (C241)	0
BLNK	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.905
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0
13954	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	1800
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)	0.13
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm	0
LIQUID	Detector Number	13	Am 243 cpm	54.64
Batch Number	Detector Efficiency (DetEff)	0.3163	Cm 243/244 cpm	0
96010476			AEA Count Time (min)	480
Rerun			Am 241 $\mu\text{Ci/L}$ =	< 6.1293E-03
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 6.1293E-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))			
WL13954	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.			
SEH				
Chemist				
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 6.13E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$	
Analyst	Relative Counting Error =	100.0%		
SLH				
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241	
10/22/96	Cm 243/244 $\mu\text{Ci/mL}$ =	< 6.13E-06	6.13E-06	
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244	
10/20/96	Am 243 Tracer Recovery =	83.4%	6.13E-06	
Analysis Time				
03:00 AM				
Sample Point				
AP-106 GRAB				

Analyst	SLH	Date:	10/22/96
Signature of Chemist:	JFR	Date:	23 Oct 96
BLANK WB1 REV 1.2	953103ML		

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (B-0)**LIQUID / SOLID**

Am 241 and Cm 243/244: LA-953-103 (B-0)				LIQUID / SOLID		SAMPLE	
Type	Date Counted	OCT-21-96	Am 241 AEA Frac.	(C241)	0.013		
SAMPLE	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac.	(C243)	0.882		
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac.	(Cm)	0		
13954	Tracer Volume in mL (SPKV)	0.200	Total AT Counts		1889		
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)		30		
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)		0.13		
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm		0.75		
LIQUID	Detector Number	13	Am 243 cpm		50.25		
Batch Number	Detector Efficiency (DetEff)	0.3163	Cm 243/244 cpm		0		
96010476			AEA Count Time (min)		480		
Rerun			Am 241 $\mu\text{Ci/L}$ =	<	6.1485E-03		
0			Cm 243/244 $\mu\text{Ci/L}$ =	<	6.1485E-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))						
S96T005184	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))						
Instrument Code							
WB27810	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100						
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV						
SEH							
Chemist	NOTE: Am-241 Result is a LESS THAN Value.						
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 6.15E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$				
Analyst	Relative Counting Error =	10.4%					
SLH							
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.						
10/22/96	Cm 243/244 $\mu\text{Ci/mL}$	< 6.15E-06	Am 241				
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244				
10/20/96	Am 243 Tracer Recovery =	85.3%	6.15E-06				
Analysis Time							
03:00 AM							
Sample Point							
AP-106 GRAB							

Analyst:	SLH	Date:	10/22/96
Signature of Chemist:	JFR	Date:	23 Oct 96
SAMPLE WB1 REV 1.2	953103ML		

WORKBOOK PAGE: DUP4

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

LIQUID / SOLID

Am 241 and Cm 243/244: LA-953-103 (B-0)				LIQUID / SOLID	DUP
Type	Date Counted	OCT-21-96	Am 241 AEA Frac.	(C241)	0.046
DUP	Sample Volume In mL (SS)	1.000	Am 243 AEA Frac.	(C243)	0.822
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
13954	Tracer Volume in mL (SPKV)	0.200	Total AT Counts		1893
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)		30
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)		0.13
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm		2.79
LIQUID	Detector Number	13	Am 243 cpm		49.69
Batch Number	Detector Efficiency (DetEff)	0.3163	Cm 243/244 cpm		0
96010476			AEA Count Time (min)		480
Retun			Am 241 $\mu\text{Ci/L}$ =	<	7.0638E-03
0			Cm 243/244 $\mu\text{Ci/L}$ =	<	7.0638E-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))				
S96T005184	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.				
SEH	JFR	Am 241 $\mu\text{Ci/mL}$ =	<	7.06E-06	DETECTION LEVELS In $\mu\text{Ci/mL}$
Chemist	Analyst	Relative Counting Error =	5.5%		
SLH					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
10/22/96	Cm 243/244 $\mu\text{Ci/mL}$	<	7.06E-06	Am 241	
Analysis Date	Relative Counting Error =	100.0%		Cm 243/244	
10/20/96	Am 243 Tracer Recovery =	79.7%		7.06E-06	
Analysis Time					
03:00 AM					
Sample Point					
AP-106 GRAB					

Analyst	SLH	Date:	10/22/96
Signature of Chemist:	JFR	Date:	23 Oct 96
SAMPLE.WB1 REV 1.2	953103ML		

WORKBOOK PAGE: SAM7

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

LIQUID / SOLID

Am 241 and Cm 243/244: LA-953-103 (B-0)				LIQUID / SOLID		SAMPLE
Type	Date Counted	OCT-21-96	Am 241 AEA Frac.	(C241)		0
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.855
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
13954	Tracer Volume in mL	(SPKV)	0.200	Total AT Counts		1840
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		125B43	Background in cpm	(Bkg)	0.13
Matrix	Am-243 Tracer Value	(dpm/mL)	1027	Am 241 cpm		0
LIQUID	Detector Number		13	Am 243 cpm		53.16
Batch Number	Detector Efficiency	(DetEff)	0.3163	Cm 243/244 cpm		0
96010476				AEA Count Time	(min)	480
Rerun				Am 241 $\mu\text{Ci/L}$ =	<	6.7175E-03
0				Cm 243/244 $\mu\text{Ci/L}$ =	<	6.7175E-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))					
S96T005186	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))					
Instrument Code						
WB27810	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min))] + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100					
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV					
SEH						
Chemist	NOTE: Am-241 Result is a LESS THAN Value.					
JFR	Am 241 $\mu\text{Ci/mL}$	=	< 6.72E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error	=	100.0%			
SLH						
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.					
10/22/96	Cm 243/244 $\mu\text{Ci/mL}$		< 6.72E-06	Am 241		
Analysis Date	Relative Counting Error	=	100.0%	Cm 243/244		
10/20/96	Am 243 Tracer Recovery	=	80.5%	6.72E-06		
Analysis Time						
03:00 AM						
Sample Point						
AP-106 GRAB						

Analyst	SLH	Date:	10/22/96
Signature of Chemist:	JFR	Date:	23 Oct 96
SAMPLE.WB1 REV 1.2	953103ML		

WORKBOOK PAGE: DUP8

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

LIQUID / SOLID

				DUP
Type	Date Counted	OCT-21-96	Am 241 AEA Frac. (C241)	0
DUP	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.761
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0
13954	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	1666
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)	0.13
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm	0
LIQUID	Detector Number	13	Am 243 cpm	43.33
Batch Number	Detector Efficiency (DetEff)	0.3163	Cm 243/244 cpm	0
96010476			AEA Count Time (min)	480
Rerun			Am 241 $\mu\text{Ci/L}$ =	< 9.3672E-03
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 9.3672E-03
Sample Prep				
N/A				
Sample Number	Am-241 $\mu\text{Ci/L}$ = $(\text{C241} * \text{Am-243 Tracer Value} * \text{SPKV} * \text{DF} * \text{DDF} * (1000\text{mL/L})) / (\text{C243} * \text{SS} * (2220000\text{dpm}/\mu\text{Ci}))$			
S96T005188	Cm-243/244 $\mu\text{Ci/L}$ = $(\text{Cm} * \text{Am-243 Tracer Value} * \text{SPKV} * \text{DF} * \text{DDF} * (1000\text{mL/L})) / (\text{C243} * \text{SS} * (2220000\text{dpm}/\mu\text{Ci}))$			
Instrument Code	Relative Counting Error = Square Root of $[(1/(\text{Am-243 cpm} * \text{min})) + (1/(\text{Am-241 or Cm-243/244 cpm} * \text{min}))] * 1.96 * 100$			
WB27810	Am 243 Tracer Recovery = $(\text{Total AT Counts} / \text{TC} - \text{Bkg}) * (1/\text{DetEff}) * \text{C243} * 100 / \text{Am-243 Tracer Value} * \text{SPKV}$			
Prepared By	NOTE: Am-241 Result is a LESS THAN Value.			
SEH	JFR	Am 241 $\mu\text{Ci/mL}$ =	DETECTION LEVELS in $\mu\text{Ci/mL}$	
SLH	Analyst	Relative Counting Error =		
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
10/22/96	Cm 243/244 $\mu\text{Ci/mL}$ =			9.37E-06
Analysis Date	Relative Counting Error =			Cm 243/244
10/20/96	Am 243 Tracer Recovery =			9.37E-06
Analysis Time				
03:00 AM				
Sample Point				
AP-108 GRAB				

Analyst:	SLH	Date:	10/22/96
Signature of Chemist:	<i>John Relyea</i>	JFR	Date: 23 Oct 96
SAMPLE.WB1 REV 1.2	953103ML		

Westinghouse Hanford Co.
 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. 2.02

DATA REDUCTION REPORT

SAMPLE
 WL13954-STD
 File ID: 5a5613.CNF

Counted on: 10/21/96 @ 2:35
 Detector: AEA5
 Geometry number: 1
 Count time: 28805. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1076.2	1076.2	300.696	300.696	20.000	11.854	10.000	2.224
2	956.4	956.4	255.486	255.277	14.000	8.693	7.000	1.494
3	45.7	45.7	153.729	153.429	138.000	1.000	69.000	0.100
4?	16.5	16.5	121.544	120.620	16.000	35.840	8.000	12.728
5?	10.6	10.6	108.227	106.707	22.000	3.440	11.000	10.983
6?	15.1	15.1	92.460	91.444	18.000	11.519	9.000	5.506
7	17.3	17.3	51.049	50.691	60.000	134.957	30.000	48.437

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err c/m	Activity d/m	Activity uCi/ea	
			Exp.	Obs.	Diff.	FWHM	@95			
1	Am241	0.472	5.479	5.457	0.0220	0.05	64.16	1.1	788.2	0.355E-03
	Pu238		5.487	5.457	0.030				1029.0	0.464E-03
2	Am243	0.423	5.270	5.248	0.0220	0.04	57.50	1.3	670.7	0.302E-03
3	Np237	0.027	4.769	4.779	-0.0100	0.00	3.63	5.0	48.2	0.217E-04
4		????		4.628			1.04	19.4		
5		????		4.564			0.19	65.1		
6		????		4.494			0.57	23.0		
7	U 238	0.014	4.184	4.307	-0.1230	0.62	1.97	9.7	29.5	0.133E-04
	U 235		4.386	4.307	0.079				39.9	0.180E-04
Totals:			0.936	<--valid peaks only-->			127.26			

DETECTOR CALIBRATION

Energy (MEV) = 4.073 + (0.0046)*Channel
 Energy range (MeV): 4.073 TO 6.429
 Efficiency = 0.0866 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	65283.0	100.000
Smoothed	65283.0	100.000
Composite fit	61963.1	94.915
Residuals	3319.9	5.085

WORKBOOK PAGE: DUP9

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

				DUP	
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA) 1.000
DUP	TOTAL COUNTS	(TC)	4331	GROSS WEIGHT	(W2) 7.2071
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1) 7.1150
15260	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3) 0.0921
	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT) 7.33
@SR90-01	DILUTION FACTOR	DF	1		
	DIGEST DILUTION FACTOR	(DDF)	1		
LIQUID	SAMPLE COUNT RATE	(Rs)	428.80	SR-90 EFFICIENCY FACTOR	(C1) 0.4180
	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2) 0.4660
96011870	TIME OF SEPARATION	(ST)	04:00	Rmax	N/A
	DATE OF SEPARATION	(SD)	11/27/96	DETECTION LIMIT	(Ld) 2.59
0	TIME OF COUNT	(TOC)	11:20	Sr-89/90 CONC in $\mu\text{Ci/L}$	4.6248E+00
	DATE OF COUNT	(DOC)	11/27/96		
N/A					
S96T005186					
WB27811	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG) Sr-89/90 CONC in $\mu\text{Ci/L}$ Replace RS with RMAX if $RS \leq Lc$ and $RS > 0$ or Replace RS with Lc if $RS < 0$ $RS * DF * DDF / ((C1 + C2 * (1 - e \text{ to the power of } ((- \text{natural log } 2) / 64.2 * DT)))) * SS * REC * 22200000$				
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery $((W2 - W1) / (CVA * 0.1000))$				
SLF	Relative Counting Error = (The Square Root of $(TC + BKG * CT) / (TC - BKG * CT) * 1.96$				
	Percent Carrier Recovery = (Net Weight / Expected weight) * 100				
	NOTE: Expected weight = CVA * 0.1				
RGA	Detection Levels and Less Than Values are determined from Procedure LA-508-002.				
	Delta Time (hours) = $((DOC - SD) * 24) + (TOC - ST) / 100$				
11/27/96					
11/27/96	Sr-89/90 CONCENTRATION		4.62E-03	$\mu\text{Ci/mL}$	DETECTION LEVEL
08:45 AM	RELATIVE COUNTING ERROR		3.0%		2.79E-05 $\mu\text{Ci/mL}$
AP-106 GRAB	PERCENT CARRIER RECOVERY		92.1%		

Analyst:	RGA	Date:	27-Nov-96
Signature of Chemist:	SLF	Date:	11/27/96

SAMPLE:WB1 REV 2.0

22010NML

Westinghouse Hanford Co.
 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. 2.02

DATA REDUCTION REPORT

SAMPLE
 WL13954-BLK
 File ID: 6a6715.CNF

Counted on: 10/21/96 @ 2:37
 Detector: AEA6
 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	885.8	885.8	254.013	254.013	16.000	12.950	8.000	2.363
2	12.8	12.8	101.694	101.653	202.000	1.000	101.000	0.100

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.					
1	Pu239	0.905	5.147	5.250	-0.103	0.06	54.64	1.2	114.1	0.514E-04
	Am243		5.270	5.250	0.020				115.3	0.519E-04
2		0.016		4.549		0.00	0.97	9.2	2.0	0.911E-06
Totals:			0.921	<--valid peaks only-->			55.61			

DETECTOR CALIBRATION

Energy(MEV) = 4.081 + (0.0046)*Channel
 Energy range (MeV): 4.081 TO 6.436
 Efficiency = 0.4787 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	28980.0	100.000
Smoothed	28981.4	100.005
Composite fit	26695.7	92.118
Residuals	2284.3	7.882

Analyzed by: _____

AKH

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 6741.5

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WHC-SD-WM-DP-217, REV. 0

[illegible]

Analyzed by:

AKH

Spectrum 5a5613.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 8115.6

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Raw Data Dump for AEA Spectrum: 6a6715.CNF										
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	1.	1.	0.	1.	3.	6.	2.	4.	5.	1.
21	2.	4.	2.	5.	5.	4.	6.	3.	4.	5.
31	7.	8.	8.	5.	5.	8.	5.	6.	5.	4.
41	1.	3.	5.	4.	5.	7.	7.	6.	3.	3.
51	7.	12.	6.	8.	12.	2.	7.	3.	8.	6.
61	6.	10.	4.	4.	10.	3.	8.	13.	7.	5.
71	6.	13.	8.	8.	0.	1.	8.	9.	12.	12.
81	12.	8.	3.	8.	7.	9.	11.	8.	7.	7.
91	7.	7.	11.	4.	9.	12.	17.	9.	9.	14.
101	12.	14.	15.	11.	9.	6.	15.	8.	11.	10.
111	19.	13.	12.	3.	17.	15.	19.	13.	14.	8.
121	13.	15.	9.	16.	15.	16.	16.	18.	15.	13.
131	18.	17.	21.	16.	13.	24.	12.	23.	11.	24.
141	11.	17.	20.	22.	15.	13.	25.	19.	19.	23.
151	29.	27.	29.	29.	24.	33.	28.	23.	36.	22.
161	19.	34.	28.	32.	38.	29.	34.	24.	41.	38.
171	35.	40.	26.	47.	33.	38.	46.	34.	43.	40.
181	57.	48.	60.	43.	74.	45.	52.	47.	58.	44.
191	60.	62.	69.	72.	74.	72.	69.	60.	79.	83.
201	78.	90.	81.	83.	104.	93.	104.	105.	111.	121.
211	116.	122.	111.	135.	154.	154.	141.	139.	173.	187.
221	193.	206.	200.	216.	223.	230.	243.	238.	269.	290.
231	269.	324.	363.	341.	342.	402.	386.	462.	439.	460.
241	545.	553.	603.	635.	652.	657.	766.	732.	723.	865.
251	868.	919.	927.	902.	940.	865.	854.	727.	657.	536.
261	438.	348.	254.	169.	146.	115.	112.	74.	66.	50.
271	44.	43.	21.	24.	16.	6.	8.	4.	1.	0.
281	4.	1.	0.	1.	1.	0.	3.	1.	2.	0.
291	1.	4.	2.	2.	3.	2.	3.	3.	2.	0.
301	4.	0.	2.	0.	1.	1.	0.	0.	0.	0.
311	0.	2.	1.	0.	0.	0.	0.	0.	0.	1.
321	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	1.	0.	0.	1.	0.	2.	0.	0.	1.	4.
351	1.	1.	0.	1.	1.	2.	1.	0.	0.	0.
361	3.	4.	0.	0.	1.	0.	0.	0.	1.	0.
371	2.	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.	1.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
431	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	1.	1.	0.	1.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	2.	0.								

Westinghouse Hanford Co.
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. 2.02

DATA REDUCTION REPORT

SAMPLE
S96T5184-SAM
File ID: 7a7483.CNF

Counted on: 10/21/96 @ 2:38
Detector: AEA7
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	19.2	19.2	302.075	302.075	18.000	14.399	9.000	9.213
2?	18.2	18.2	290.522	289.411	10.000	0.398	5.000	9.213
3	852.8	852.8	255.730	255.730	20.000	14.452	10.000	2.947
4	14.9	14.9	129.542	129.495	166.000	1.000	83.000	0.100
5	7.2	7.2	123.243	123.243	182.000	1.000	91.000	0.100

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Am241	0.013	5.479	5.461	0.0180.07	0.75	10.3	3.5	0.157E-05
	Pu238		5.487	5.461	0.026			4.5	0.204E-05
2		????		5.403		0.11	39.0		
3	Pu239	0.882	5.147	5.248	-.1010.07	50.25	1.3	218.1	0.983E-04
	Am243		5.270	5.248	0.022			220.3	0.992E-04
4	Np237	0.020	4.640	4.667	-.0270.00	1.16	8.4	84.1	0.379E-04
5		????		4.638		0.56	21.0		
Totals:			0.915	<--valid peaks only-->			52.17		

DETECTOR CALIBRATION

Energy(MEV) = 4.071 + (0.0046)*Channel
Energy range (MeV): 4.071 TO 6.427
Efficiency = 0.2304 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	27367.0	100.000
Smoothed	27366.8	99.999
Composite fit	25367.0	92.692
Residuals	2000.0	7.308

Analyzed by:

AKH

[illegible]

Raw Data	Dump for	AEA Spectrum:	7a7483.CNF						
1	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	0.	3.	2.	4.	4.	4.	2.	3.	2.
21	4.	1.	5.	2.	1.	7.	4.	10.	4.
31	2.	4.	6.	1.	1.	5.	4.	7.	4.
41	6.	2.	7.	3.	1.	8.	2.	4.	6.
51	2.	5.	7.	5.	10.	5.	9.	8.	7.
61	6.	3.	5.	7.	3.	6.	5.	4.	3.
71	3.	8.	5.	4.	7.	5.	8.	11.	11.
81	4.	11.	4.	7.	4.	6.	6.	6.	9.
91	1.	2.	3.	10.	8.	10.	14.	6.	5.
101	10.	5.	9.	8.	9.	5.	7.	6.	7.
111	6.	11.	9.	10.	9.	10.	4.	15.	10.
121	10.	13.	14.	17.	8.	13.	9.	9.	16.
131	16.	8.	7.	14.	7.	13.	20.	18.	16.
141	13.	10.	17.	11.	13.	18.	18.	12.	26.
151	21.	20.	26.	19.	19.	18.	26.	29.	29.
161	21.	22.	29.	22.	29.	23.	24.	32.	37.
171	29.	32.	31.	33.	34.	42.	36.	34.	35.
181	41.	47.	41.	41.	44.	48.	38.	51.	46.
191	47.	42.	52.	52.	65.	50.	65.	54.	82.
201	92.	85.	68.	59.	86.	83.	84.	88.	96.
211	82.	98.	105.	99.	116.	114.	132.	113.	140.
221	134.	160.	154.	161.	167.	187.	209.	211.	213.
231	239.	248.	234.	293.	313.	310.	302.	331.	425.
241	397.	445.	482.	506.	517.	533.	623.	653.	710.
251	728.	810.	804.	899.	933.	878.	868.	839.	761.
261	662.	521.	426.	321.	266.	211.	156.	140.	89.
271	69.	69.	48.	30.	36.	27.	19.	11.	17.
281	9.	8.	12.	6.	7.	6.	5.	15.	13.
291	21.	13.	6.	13.	6.	9.	17.	14.	23.
301	24.	19.	21.	19.	16.	21.	18.	12.	8.
311	9.	3.	8.	4.	2.	2.	2.	2.	1.
321	1.	3.	1.	1.	1.	1.	1.	2.	0.
331	0.	0.	0.	0.	0.	1.	0.	0.	6.
341	2.	3.	1.	1.	1.	3.	1.	3.	2.
351	1.	2.	0.	2.	5.	3.	1.	6.	4.
361	4.	7.	5.	7.	2.	5.	2.	4.	4.
371	3.	2.	4.	6.	1.	6.	1.	0.	1.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	1.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	1.	0.	1.	1.	0.	0.	0.	3.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	2.	0.	1.	0.	1.	1.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	1.	0.							

Westinghouse Hanford Co.
 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. 2.02

DATA REDUCTION REPORT

SAMPLE
 S96T5184DUP
 File ID: 8a8683.CNF

Counted on: 10/21/96 @ 2:40
 Detector: AEA8
 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	15.7	15.7	301.943	299.422	28.000	31.693	14.000	1.585
2	683.2	683.2	256.424	255.727	20.000	14.871	10.000	2.188
3	10.8	10.8	25.125	27.609	392.000	42.584	196.000	199.411

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	Am241	0.046	5.479	5.480	-0.0010	15	2.79	5.4	7.9	0.355E-05
	Pu238		5.487	5.480	0.007				10.3	0.464E-05
2	Pu239	0.822	5.147	5.275	-0.1280	07	49.69	1.3	131.9	0.594E-04
	Am243		5.270	5.275	-0.005				133.2	0.600E-04
3	U 238	0.011	4.184	4.203	-0.0190	20	0.69	11.3	2.4	0.107E-05
Totals:			0.880	<--valid peaks only-->			53.17			

DETECTOR CALIBRATION

Energy(MEV) = 4.073 + (0.0047)*Channel
 Energy range (MeV): 4.073 TO 6.480
 Efficiency = 0.3768 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	29000.0	100.000
Smoothed	29000.0	100.000
Composite fit	25521.4	88.005
Residuals	3478.6	11.995

Analyzed by:

AKH

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$$\begin{matrix} 1 & \dots & 2 & \dots & \\ 1 & & & & 2 \end{matrix}$$
$$\begin{array}{ccccccc} 1 & \cdot & \cdot & \cdot & \cdot & 2 & \cdot & \cdot & \cdot \\ 1 & & & & & & & & 2 \end{array}$$

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1 2
2

$$\begin{matrix} 2 & \cdot & \cdot & \cdot \\ 1 \end{matrix}$$

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Raw Data Dump for AEA Spectrum: 8a8683.CNF									
1	0.	0.	0.	0.	0.	0.	0.	0.	4.
11	7.	1.	5.	5.	4.	6.	9.	13.	10.
21	14.	5.	13.	17.	5.	5.	10.	11.	8.
31	10.	8.	9.	6.	12.	7.	14.	9.	5.
41	12.	13.	11.	9.	9.	11.	8.	10.	9.
51	11.	13.	13.	9.	10.	19.	8.	12.	11.
61	9.	11.	8.	11.	13.	13.	8.	15.	10.
71	12.	14.	11.	14.	13.	14.	7.	14.	16.
81	15.	15.	18.	15.	14.	19.	18.	16.	14.
91	12.	11.	20.	18.	17.	19.	24.	17.	22.
101	14.	22.	16.	13.	15.	28.	23.	29.	17.
111	25.	18.	23.	16.	15.	21.	20.	26.	21.
121	21.	24.	28.	17.	19.	21.	29.	33.	31.
131	24.	33.	35.	30.	32.	32.	28.	37.	27.
141	33.	28.	37.	40.	36.	38.	34.	33.	39.
151	43.	51.	38.	34.	39.	41.	60.	51.	45.
161	41.	43.	42.	44.	46.	49.	61.	51.	55.
171	63.	41.	48.	51.	53.	73.	65.	50.	53.
181	65.	75.	67.	78.	78.	78.	73.	76.	79.
191	83.	75.	87.	84.	97.	83.	92.	90.	108.
201	125.	103.	108.	133.	92.	128.	143.	147.	130.
211	150.	159.	137.	148.	155.	176.	162.	161.	177.
221	179.	199.	212.	198.	224.	238.	238.	239.	245.
231	261.	278.	284.	321.	318.	337.	355.	337.	360.
241	443.	417.	458.	446.	524.	529.	552.	583.	530.
251	625.	651.	659.	732.	713.	719.	719.	663.	639.
261	495.	454.	404.	297.	219.	191.	154.	117.	88.
271	65.	67.	46.	38.	40.	24.	21.	19.	14.
281	15.	6.	14.	8.	9.	10.	8.	6.	18.
291	15.	17.	13.	17.	19.	5.	14.	19.	10.
301	15.	8.	16.	19.	13.	12.	12.	17.	11.
311	7.	4.	7.	2.	3.	0.	0.	0.	0.
321	2.	1.	0.	1.	0.	0.	0.	0.	0.
331	1.	1.	1.	1.	0.	0.	1.	1.	0.
341	2.	1.	3.	4.	0.	1.	3.	0.	3.
351	1.	2.	3.	2.	5.	2.	1.	3.	3.
361	3.	4.	1.	3.	2.	3.	0.	0.	1.
371	1.	1.	2.	6.	1.	2.	1.	0.	1.
381	1.	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.	1.	0.	1.	0.	0.	0.	0.	0.
431	0.	0.	1.	0.	0.	0.	0.	0.	1.
441	0.	1.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	1.
481	0.	0.	0.	0.	0.	0.	0.	1.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.							

Westinghouse Hanford Co.
 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. 2.02

DATA REDUCTION REPORT

SAMPLE
 S96T5186-SAM
 File ID: 11a1104.CNF

Counted on: 10/21/96 @ 2:44
 Detector: AEA11
 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	866.4	866.4	256.883	256.883	14.000	7.398	7.000	1.198
2	28.1	28.1	154.370	150.129	148.000	1.000	74.000	0.100
3	9.2	9.2	86.033	85.726	54.000	171.630	27.000	53.486

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid				Count Rate	%err	d/m	Activity
			Exp.	Obs.	Diff.	FWHM	c/m	@95		uCi/ea
1	Am243	0.855	5.270	5.254	0.016	0.03	53.16	1.2	132.7	0.598E-04
2	Np237	0.036	4.769	4.763	0.006	0.00	2.23	6.6	6.3	0.285E-05
3	U 235	0.019	4.386	4.466	-0.080	0.79	1.20	15.0	5.2	0.234E-05
Totals:		0.910	<--valid peaks only-->				56.59			

DETECTOR CALIBRATION

Energy (MEV) = $4.072 + (0.0046) \cdot \text{Channel}$
 Energy range (MeV): 4.072 TO 6.427
 Efficiency = 0.4046 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	29861.0	100.000
Smoothed	29866.4	100.018
Composite fit	27165.5	90.973
Residuals	2695.5	9.027

Analyzed by:

AKH

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 5932.6

[illegible]

Raw Data	Dump	for	AEA Spectrum:	11a1104.CNF						
1	0.	0.	4.	6.	5.	4.	6.	5.	3.	8.
11	8.	3.	6.	7.	5.	4.	8.	3.	5.	2.
21	5.	3.	8.	9.	6.	6.	7.	4.	3.	9.
31	6.	9.	5.	5.	8.	14.	13.	6.	5.	7.
41	10.	7.	6.	7.	4.	8.	8.	4.	8.	15.
51	6.	6.	11.	8.	9.	8.	8.	8.	5.	7.
61	10.	12.	12.	9.	9.	13.	7.	5.	8.	9.
71	13.	6.	11.	13.	13.	9.	5.	10.	12.	19.
81	11.	11.	12.	12.	17.	11.	20.	12.	8.	17.
91	9.	13.	12.	13.	10.	10.	13.	18.	9.	16.
101	15.	12.	14.	13.	17.	15.	13.	23.	12.	18.
111	15.	19.	13.	14.	17.	13.	21.	17.	16.	16.
121	20.	14.	19.	10.	22.	14.	25.	25.	24.	20.
131	10.	16.	26.	16.	20.	22.	27.	22.	27.	27.
141	24.	33.	29.	26.	27.	31.	37.	27.	34.	39.
151	40.	36.	34.	38.	32.	40.	30.	36.	46.	28.
161	33.	29.	33.	40.	50.	47.	42.	36.	31.	45.
171	55.	52.	48.	55.	43.	55.	56.	40.	51.	71.
181	73.	59.	65.	79.	58.	62.	57.	68.	61.	79.
191	85.	90.	104.	89.	86.	79.	88.	99.	89.	100.
201	132.	94.	113.	96.	96.	140.	121.	140.	144.	154.
211	170.	153.	166.	171.	174.	159.	164.	177.	187.	206.
221	211.	217.	225.	208.	226.	258.	253.	235.	267.	266.
231	279.	311.	324.	341.	340.	356.	414.	398.	384.	439.
241	479.	446.	491.	529.	486.	576.	611.	631.	657.	687.
251	706.	814.	742.	831.	855.	882.	934.	905.	846.	768.
261	568.	385.	231.	185.	123.	102.	84.	72.	68.	68.
271	55.	52.	45.	31.	26.	11.	4.	5.	6.	2.
281	2.	7.	2.	3.	4.	3.	6.	4.	5.	6.
291	4.	5.	5.	7.	8.	9.	9.	6.	2.	6.
301	4.	11.	10.	8.	8.	8.	4.	5.	8.	3.
311	4.	2.	1.	3.	0.	1.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	1.	2.	1.
331	1.	0.	1.	1.	0.	0.	2.	0.	0.	0.
341	1.	1.	0.	0.	1.	1.	0.	0.	3.	3.
351	0.	3.	2.	2.	0.	1.	1.	0.	2.	2.
361	0.	0.	1.	0.	1.	2.	3.	1.	0.	1.
371	3.	1.	0.	2.	1.	0.	2.	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.	1.	0.	0.	0.	0.	0.	0.	0.
411	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
471	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.
481	1.	0.	1.	0.	0.	1.	1.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.
 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. 2.02

DATA REDUCTION REPORT

SAMPLE
 S96T5186-DUP
 File ID: 12a1276.CNF

Counted on: 10/21/96 @ 2:45
 Detector: AEA12
 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	527.1	527.1	249.599	249.651	18.000	11.955	9.000	1.419

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 Pu239	0.761	5.147	5.254	-.1070	0.05	43.33	1.4	113.7	0.512E-04
Am243		5.270	5.254	0.016				114.9	0.517E-04

Totals:	0.761	<--valid peaks only-->				43.33			

DETECTOR CALIBRATION

Energy(MEV) = 4.105 + (0.0046)*Channel
 Energy range (MeV): 4.105 TO 6.461
 Efficiency = 0.3811 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	27329.0	100.000
Smoothed	27323.5	99.980
Composite fit	20801.9	76.117
Residuals	6527.1	23.883

Analyzed by:

AKH

[illegible]

Raw Data Dump for AEA Spectrum: 12a1276.CNF

1	0.	0.	22.	15.	18.	18.	20.	17.	22.	18.
11	21.	29.	15.	24.	24.	26.	15.	22.	25.	23.
21	26.	15.	20.	22.	22.	27.	27.	21.	26.	27.
31	16.	29.	25.	20.	24.	16.	20.	25.	17.	24.
41	22.	29.	27.	14.	24.	27.	36.	21.	21.	29.
51	24.	19.	28.	31.	26.	30.	19.	30.	28.	27.
61	28.	40.	32.	29.	24.	28.	29.	28.	32.	24.
71	36.	31.	29.	37.	32.	30.	23.	35.	32.	39.
81	36.	30.	33.	30.	37.	33.	36.	35.	32.	25.
91	46.	34.	41.	40.	36.	40.	48.	36.	33.	35.
101	35.	45.	33.	53.	44.	38.	42.	36.	42.	38.
111	48.	50.	41.	43.	51.	48.	53.	41.	39.	41.
121	39.	54.	37.	45.	50.	38.	63.	61.	52.	43.
131	50.	62.	54.	48.	54.	63.	39.	50.	60.	45.
141	62.	56.	73.	56.	48.	39.	62.	61.	67.	47.
151	72.	63.	61.	69.	62.	61.	46.	65.	60.	65.
161	78.	73.	71.	54.	53.	70.	85.	86.	68.	87.
171	86.	80.	69.	85.	110.	96.	95.	91.	92.	74.
181	100.	94.	105.	96.	105.	100.	95.	108.	100.	122.
191	134.	111.	125.	111.	135.	124.	124.	138.	124.	131.
201	152.	178.	153.	140.	138.	147.	135.	148.	153.	189.
211	176.	179.	179.	181.	173.	173.	209.	173.	200.	242.
221	213.	208.	230.	239.	250.	264.	262.	276.	257.	298.
231	266.	310.	337.	341.	322.	326.	370.	393.	386.	399.
241	432.	467.	442.	453.	521.	477.	542.	530.	533.	545.
251	542.	533.	451.	418.	312.	238.	177.	94.	102.	64.
261	50.	51.	47.	40.	44.	24.	30.	16.	16.	8.
271	5.	6.	3.	2.	1.	1.	0.	0.	2.	4.
281	4.	1.	3.	2.	4.	5.	1.	3.	9.	4.
291	4.	4.	2.	6.	4.	4.	4.	4.	4.	3.
301	3.	0.	2.	3.	1.	2.	1.	0.	0.	1.
311	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	1.	0.	0.	1.	0.	1.
341	1.	1.	2.	0.	0.	2.	0.	1.	0.	1.
351	1.	1.	0.	1.	0.	2.	0.	1.	0.	2.
361	0.	1.	1.	0.	0.	1.	1.	0.	0.	0.
371	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	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.	1.	0.	0.	0.	0.	0.
431	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	1.	1.	0.	1.	0.	0.	0.
481	1.	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#: 14315

Analyst: jmv

Instrument: AB13

Book#

Method: Rev/Mod

Worklist Comment: Rerun of WL13954 and 13834. See Traveler for sample size-jfr

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	0	AM24101 AM24101	LIQUID	1.19E-04	1.09E-4	91.597	% Recovery
1 STD	0	0	AM24101 AM24101T	LIQUID	100.	8.02E+01	80.200	% Recovery
1 STD	0	0	AM24101 AM24101E	LIQUID	1.0	1.72E+00	1.720	% Ct Error
2 BLNK	0	0	AM24101 AM24101	LIQUID	1	<4.02E-5		uCi/mL
2 BLNK	0	0	AM24101 AM24101T	LIQUID	100.0	6.90E+01	69.000	% Recovery
2 BLNK	0	0	AM24101 AM24101E	LIQUID	1.0	1.00E+02	100.000	% Ct Error
3 SAMPLE	S96T005081	0	AM24101 AM24101	LIQUID	N/A	3.33E-05	333.0e-007	uCi/mL
3 SAMPLE	S96T005081	0	AM24101 AM24101E	LIQUID	N/A	5.76E+00	0.0e+000	% Ct. Error
3 SAMPLE	S96T005081	0	AM24101 AM24101T	LIQUID	N/A	7.98E+01	0.0e+000	% Recovery
4 DUP	S96T005081	0	AM24101 AM24101	LIQUID	<3.33E-5	<3.66E-5		RPD
4 DUP	S96T005081	0	AM24101 AM24101T	LIQUID	100.0	7.40E+01	74.000	% Recovery
4 DUP	S96T005081	0	AM24101 AM24101E	LIQUID	1.0	6.49E+00	6.490	% Ct Error
5 SAMPLE	S96T005082	0	AM24101 AM24101	LIQUID	N/A	4.13E-05	413.0e-007	uCi/mL
5 SAMPLE	S96T005082	0	AM24101 AM24101E	LIQUID	N/A	7.24E+00	0.0e+000	% Ct. Error
5 SAMPLE	S96T005082	0	AM24101 AM24101T	LIQUID	N/A	6.99E+01	0.0e+000	% Recovery
6 DUP	S96T005082	0	AM24101 AM24101	LIQUID	<4.13E-5	<4.49E-5		RPD
6 DUP	S96T005082	0	AM24101 AM24101T	LIQUID	100.0	6.50E+01	65.000	% Recovery
6 DUP	S96T005082	0	AM24101 AM24101E	LIQUID	1.0	9.75E+00	9.750	% Ct Error
7 SAMPLE	S96T005185	0	AM24101 AM24101	LIQUID	N/A	8.76E-04	155.0e-006	uCi/mL
7 SAMPLE	S96T005185	0	AM24101 AM24101E	LIQUID	N/A	1.95E+00	0.0e+000	% Ct. Error
7 SAMPLE	S96T005185	0	AM24101 AM24101T	LIQUID	N/A	6.94E+01	0.0e+000	% Recovery
8 DUP	S96T005185	0	AM24101 AM24101	LIQUID	8.76E-4	9.00E-4	2.703	RPD
8 DUP	S96T005185	0	AM24101 AM24101T	LIQUID	100.0	8.10E+01	81.000	% Recovery
8 DUP	S96T005185	0	AM24101 AM24101E	LIQUID	1.0	1.75E+00	1.750	% Ct Error

Final page for worklist# 14315

Analyst Signature

Date

Analyst Signature

Date

Reviewer Signature

Date

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

LABCORE Data Entry Template for Worklist# 14315

Analyst: JmV Instrument: AM01 13 Book# 62856

Method: LA-953-103 Rev/Mod B-0

Worklist Comment: Rerun of WL13954 and 13834. See Traveler for sample size-jfr

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@AM24101	LIQUID		
2 BLNK			@AM24101	LIQUID		
3 SAMPLE	S96T005081 0		@AM24101	LIQUID	96001215	AW-105 GRAB ₂₀
Analytes Requested: AM24101 , AM24101E, AM24101T						
4 DUP	S96T005081 0		@AM24101	LIQUID		
5 SAMPLE	S96T005082 0		@AM24101	LIQUID ¹⁹	96001215	AW-105 GRAB
Analytes Requested: AM24101 , AM24101E, AM24101T						
6 DUP	S96T005082 0		@AM24101	LIQUID		
7 SAMPLE	S96T005185 0		@AM24101	LIQUID	96001337	AP-106 GRAB
Analytes Requested: AM24101 , AM24101E, AM24101T						
8 DUP	S96T005185 0		@AM24101	LIQUID ¹⁵		

Final page for worklist # 14315

Jamila Smt 10-29-96
Analyst Signature Date

Sandra Hood Boatright
10-30-96

ZA Raymond 11-1-96
Analyst Signature Date

MEB 11/1/96

Data Entry Comments:

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

WORKBOOK PAGE: STD1

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

LIQUID

				STD
Type	Date Counted	OCT-31-96	Am 241 AEA Frac. (C241)	0.507
STD	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.431
Worklist	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0
14315	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	3626
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)	0.03
Matrix	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm	58.98
LIQUID	Detector Number	13	Am 243 cpm	50.15
Batch Number	Detector Efficiency (DetEff)	0.3163	Cm 243/244 cpm	0
96010857	Standard Book No	62B56	AEA Count Time (min)	480
Return	Standard Value in $\mu\text{Ci/mL}$	1.186E-04	Am 241 $\mu\text{Ci/L}$ =	1.0884E-01
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 1.3389E-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))			
WL14315	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
Instrument Code				
WB27810	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100			
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
VAR				
Chemist				
JFR	Am 241 $\mu\text{Ci/mL}$ =	1.09E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$	
Analyst	Relative Counting Error =	1.7%		
JMV			Am 241 1.34E-05	
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			
11/01/96	Cm 243/244 $\mu\text{Ci/mL}$	< 1.34E-05	Cm 243/244 1.34E-05	
Analysis Date	Relative Counting Error =	100.0%		
10/30/96	Am 243 Tracer Recovery =	80.2%		
Analysis Time				
08:00 PM				
Sample Point				
AW-105 GRAB				

Analyst:	JMV	Date:	11/01/96
Signature of Chemist:	JFR	Date:	4 Nov 96

STANDARD.WB1 REV 1.2 953103ML

WORKBOOK PAGE: BLANK2

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

LIQUID / SOLID

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

LIQUID / SOLID

BLNK

Type	Date Counted	OCT-31-96	Am 241 AEA Frac. (C241)	0		
BLNK	Sample Volume in mL (SS)	0.200	Am 243 AEA Frac. (C243)	0.835		
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0		
14315	Tracer Volume in mL (SPKV)	0.200	Total AT Counts	1611		
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30		
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)	0.03		
Blank	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm	0		
LIQUID	Detector Number	13	Am 243 cpm	45.59		
Batch Number	Detector Efficiency (DetEff)	0.3163	Cm 243/244 cpm	0		
96010857			AEA Count Time (min)	480		
Room			Am 241 $\mu\text{Ci/L}$ =	< 4.0159E-02		
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 4.0159E-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 * (222000dpm/ μCi))					
WL14315	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (222000dpm/ 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						
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV					
VAR						
Chemist	NOTE: Am-241 Result is a LESS THAN Value.					
JFR	Am 241 $\mu\text{Ci/mL}$ =	< 4.02E-05	DETECTION LEVELS in $\mu\text{Ci/mL}$	Am 241 4.02E-05 Cm 243/244 4.02E-05		
Analyst	Relative Counting Error =	100.0%				
JMV						
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.					
11/01/96	Cm 243/244 $\mu\text{Ci/mL}$	< 4.02E-05				
Analysis Date	Relative Counting Error =	100.0%				
10/30/96	Am 243 Tracer Recovery =	69.0%				
Analysis Time						
08:00 PM						
Sample Point						
AW-105 GRAB						

Analyst:	JMV	Date:	11/01/96
Signature of Chemist:	JFR	Date:	4 Nov 96

BLANK.WB1 REV 1.2

953103ML

WORKBOOK PAGE: SAM7

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

LIQUID / SOLID

Am 241 and Cm 243/244: LA-953-103 (B-0)				LIQUID / SOLID		SAMPLE
	Date Counted	OCT-31-96	Am 241 AEA Frac. (C241)		0.406	
SAMPLE	Sample Volume in mL (SS)	0.100	Am 243 AEA Frac. (C243)		0.429	
	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)		0	
14315	Tracer Volume in mL (SPKV)	0.200	Total AT Counts		3154	
	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)		30	
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)		0.03	
	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm		40.97	
LIQUID	Detector Number	13	Am 243 cpm		43.28	
	Detector Efficiency (DetEff)	0.3163	Cm 243/244 cpm		0	
96010857			AEA Count Time (min)		480	
			Am 241 $\mu\text{Ci/L}$ =		8.7562E-01	
0			Cm 243/244 $\mu\text{Ci/L}$ =		< 1.5538E-01	
N/A						
	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))					
S96T005185	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))					
WB27810	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100					
VAR	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV					
JFR	Am 241 $\mu\text{Ci/mL}$ =	8.76E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$			
	Relative Counting Error =	2.0%				
JMV	NOTE: Cm-243/244 Result is a LESS THAN Value.				Am 241	
11/01/96	Cm 243/244 $\mu\text{Ci/mL}$	< 1.55E-04			1.55E-04	
	Relative Counting Error =	100.0%			Cm 243/244	
10/30/96	Am 243 Tracer Recovery =	69.4%			1.55E-04	
05:00 PM						
AW-105 GRAB						

Analyst:	JMV	Date:	11/01/96
Signature of Chemist:	JFR	Date:	7 Nov 96
SAMPLE.WB1 REV 1.2	953103ML		

WORKBOOK PAGE: DUP8

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

LIQUID / SOLID

Am 241 and Cm 243/244: LA-953-103 (B-O)				LIQUID / SOLID		DUP
DUP	Date Counted	OCT-31-96	Am 241 AEA Frac.	(C241)	0.46	
	Sample Volume In mL (SS)	0.100	Am 243 AEA Frac.	(C243)	0.473	
	Sample D.F. (DF)	1	Cm 243/244 AEA Frac.	(Cm)	0	
14315	Tracer Volume in mL (SPKV)	0.200	Total AT Counts		3338	
	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)		30	
@AM24101	Tracer Book No.	125B43	Background in cpm (Bkg)		0.03	
	Am-243 Tracer Value (dpm/mL)	1027	Am 241 cpm		51.58	
LIQUID	Detector Number	13	Am 243 cpm		53.01	
	Detector Efficiency (DetEff)	0.3163	Cm 243/244 cpm		0	
95010857			AEA Count Time (min)		480	
			Am 241 $\mu\text{Ci/L}$ =		8.9980E-01	
0			Cm 243/244 $\mu\text{Ci/L}$ =	<	1.2077E-01	
N/A						
S96T005185	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))					
	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))					
WB27810	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100					
	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV					
VAR						
JFR	Am 241 $\mu\text{Ci/mL}$ =	9.00E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$			
JMV	Relative Counting Error =	1.7%				
	NOTE: Cm-243/244 Result is a LESS THAN Value.					
11/01/96	Cm 243/244 $\mu\text{Ci/mL}$	< 1.21E-04	Am 241			
	Relative Counting Error =	100.0%	1.21E-04			
10/30/96	Am 243 Tracer Recovery =	81.0%	Cm 243/244			
			1.21E-04			
08:00 PM						
AW-105 GRAB						

Analyst:	JMV	Date:	11/01/96
Signature of Chemist:	JFR	Date:	4 Nov 96

SAMPLE.WB1 REV 1.2 953103ML

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Westinghouse Hanford Co.
GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
WL14315-STD
File ID: 5a5629.CNF

Counted on: 10/31/96 @22:28
Detector: AEA5
Geometry number: 1
Count time: 28805. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	993.7	993.7	301.350	301.350	22.000	20.064	11.000	4.683
2	831.9	831.9	255.260	255.056	22.000	18.066	11.000	3.873
3	25.3	25.3	142.957	142.877	164.000	1.000	82.000	0.100
4?	4.1	4.1	116.138	115.648	6.000	0.329	3.000	0.155
5?	3.7	3.7	95.326	94.257	20.000	2.524	10.000	2.203

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	0.507	5.479	5.472	0.0070	58.98	1.2	131.1	0.590E-04
	Pu238		5.487	5.472	0.015			171.1	0.771E-04
2	Pu239	0.431	5.147	5.259	-0.1120	50.15	1.4	104.8	0.472E-04
	Am243		5.270	5.259	0.011			105.8	0.477E-04
3		0.017		4.743	0.00	2.00	6.4	4.2	0.188E-05
4		????		4.618		0.08	119.		
5		????		4.520		0.07	109.		
Totals:			0.956	<--valid peaks only-->			111.13		

DETECTOR CALIBRATION

Energy(MEV) = 4.086 + (0.0046)*Channel
Energy range (MeV): 4.086 TO 6.441
Efficiency = 0.4787 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	55800.0	100.000
Smoothed	55800.0	100.000
Composite fit	53421.3	95.737
Residuals	2378.7	4.263

Analyzed by:

AKH

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Raw Data Dump for AEA Spectrum: 5a5629.CNF WHC-SD-WM-DP-217, REV. 0

1	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	1.	1.	3.	1.	4.	3.	4.	1.	4.
21	4.	4.	4.	1.	4.	3.	3.	1.	2.
31	2.	2.	2.	1.	3.	2.	9.	8.	6.
41	5.	9.	2.	5.	4.	1.	5.	3.	4.
51	5.	6.	3.	6.	6.	9.	6.	5.	3.
61	7.	5.	9.	8.	2.	6.	7.	10.	5.
71	8.	7.	9.	8.	11.	3.	7.	11.	11.
81	9.	4.	11.	10.	6.	8.	6.	11.	9.
91	6.	8.	12.	11.	10.	12.	11.	10.	8.
101	7.	10.	7.	14.	10.	9.	13.	11.	13.
111	18.	11.	12.	13.	9.	23.	18.	13.	8.
121	11.	9.	13.	16.	15.	17.	17.	12.	22.
131	25.	14.	24.	18.	21.	19.	31.	16.	21.
141	28.	30.	23.	34.	21.	24.	23.	26.	19.
151	32.	30.	18.	20.	29.	29.	33.	32.	29.
161	33.	23.	31.	46.	39.	42.	41.	54.	46.
171	44.	48.	48.	44.	54.	50.	42.	62.	48.
181	53.	49.	52.	64.	58.	55.	63.	58.	83.
191	56.	75.	71.	67.	67.	91.	87.	74.	86.
201	88.	77.	78.	93.	83.	85.	97.	101.	98.
211	120.	139.	131.	113.	127.	149.	137.	145.	152.
221	163.	166.	180.	168.	191.	176.	193.	221.	220.
231	217.	249.	272.	260.	292.	322.	301.	357.	366.
241	402.	415.	463.	549.	560.	655.	663.	687.	712.
251	845.	876.	896.	896.	949.	898.	955.	758.	771.
261	684.	639.	555.	471.	435.	409.	362.	307.	289.
271	251.	274.	246.	251.	237.	296.	281.	259.	276.
281	323.	331.	344.	357.	409.	402.	486.	484.	521.
291	622.	634.	728.	771.	788.	811.	926.	928.	1031.
301	1038.	1069.	988.	900.	911.	821.	733.	681.	615.
311	457.	377.	318.	264.	214.	181.	126.	105.	73.
321	50.	40.	29.	19.	7.	8.	7.	3.	2.
331	1.	1.	0.	0.	1.	0.	1.	0.	0.
341	0.	0.	1.	0.	2.	0.	1.	1.	0.
351	0.	1.	1.	0.	1.	1.	2.	1.	0.
361	0.	0.	0.	0.	0.	1.	0.	0.	0.
371	0.	0.	0.	1.	1.	0.	1.	0.	0.
381	0.	0.	0.	0.	1.	0.	0.	0.	0.
391	0.	0.	1.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	1.	1.
481	1.	0.	0.	1.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.							

du Regan

Westinghouse Hanford Co.
 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. 2.02

DATA REDUCTION REPORT

SAMPLE
 WL14315-BLK
 File ID: 6a6734.CNF

Counted on: 10/31/96 @22:29
 Detector: AEA6
 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	790.1	790.1	253.918	253.918	18.000	12.913	9.000	2.624
2	37.6	37.6	171.564	171.119	86.000	1.000	43.000	0.100
3	7.7	7.7	119.531	119.127	12.000	30.959	6.000	7.954
4	6.5	6.5	95.253	93.531	28.000	6.194	14.000	0.206

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Exp.	Peak Centroid Obs.	Diff.	FWHM	Count Rate	%err c/m	@95	d/m	Activity uCi/ea	
1	Am243	0.835	5.270	5.269	0.0010	0.06	45.59	1.3		173.6	0.782E-04	
2	Pu242	0.055	4.891	4.880	0.0110	0.00	3.01	5.5		11.3	0.510E-05	
3		????		4.635			0.50	26.9				
4		0.017		4.515		0.03	0.92	12.1		3.5	0.156E-05	
Totals:		0.906	<--valid peaks only-->				49.51					

DETECTOR CALIBRATION

Energy (MEV) = 4.076 + (0.0047)*Channel
 Energy range (MeV): 4.076 TO 6.482
 Efficiency = 0.2653 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	26223.0	100.000
Smoothed	26224.2	100.005
Composite fit	24007.9	91.553
Residuals	2215.1	8.447

Analyzed by: _____

AKH

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 6036.7

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Raw Data Dump for AEA Spectrum:	6a6734.CNF									
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.
11	3.	2.	2.	5.	4.	3.	4.	3.	4.	4.
21	5.	5.	1.	5.	2.	6.	3.	8.	1.	4.
31	7.	9.	5.	5.	5.	2.	5.	2.	4.	3.
41	6.	7.	4.	2.	5.	6.	10.	4.	8.	9.
51	3.	6.	8.	6.	6.	11.	5.	3.	10.	5.
61	6.	5.	8.	6.	6.	8.	10.	10.	7.	12.
71	6.	13.	5.	8.	4.	6.	11.	5.	9.	6.
81	9.	9.	12.	13.	10.	15.	8.	7.	14.	10.
91	9.	11.	9.	12.	15.	8.	11.	15.	5.	9.
101	11.	12.	5.	20.	14.	11.	12.	11.	9.	13.
111	12.	15.	15.	18.	20.	10.	12.	17.	20.	18.
121	18.	14.	13.	15.	11.	14.	17.	17.	14.	23.
131	20.	21.	21.	22.	21.	13.	22.	21.	23.	22.
141	24.	19.	31.	18.	20.	21.	27.	23.	27.	25.
151	21.	27.	35.	28.	32.	35.	37.	37.	24.	23.
161	37.	46.	29.	45.	38.	40.	37.	42.	35.	57.
171	34.	46.	50.	43.	30.	32.	50.	43.	41.	49.
181	58.	54.	63.	70.	62.	69.	84.	62.	65.	77.
191	71.	88.	69.	75.	86.	64.	73.	69.	78.	97.
201	91.	108.	112.	90.	100.	93.	114.	111.	121.	123.
211	119.	114.	129.	122.	135.	127.	127.	142.	137.	158.
221	167.	194.	170.	172.	154.	192.	232.	216.	213.	228.
231	228.	229.	247.	275.	302.	291.	325.	355.	361.	385.
241	422.	424.	487.	503.	553.	578.	643.	635.	716.	753.
251	801.	814.	848.	817.	791.	826.	718.	635.	551.	459.
261	375.	273.	221.	187.	128.	109.	96.	75.	68.	48.
271	48.	41.	26.	24.	23.	11.	8.	4.	6.	3.
281	3.	2.	0.	4.	2.	1.	2.	1.	2.	3.
291	1.	4.	2.	0.	2.	3.	2.	5.	7.	1.
301	3.	4.	4.	6.	0.	4.	4.	4.	2.	1.
311	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.
321	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
331	0.	0.	0.	0.	0.	1.	1.	0.	1.	2.
341	0.	0.	1.	1.	1.	0.	0.	1.	1.	1.
351	0.	1.	1.	1.	2.	0.	0.	1.	0.	1.
361	1.	1.	1.	3.	2.	0.	2.	0.	1.	0.
371	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	1.	0.	0.	0.	1.	0.	0.	1.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
471	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
481	1.	1.	0.	1.	0.	1.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

See Report

Westinghouse Hanford Co.
 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. 2.02

DATA REDUCTION REPORT

SAMPLE
 S96T005185-SAM
 File ID: 11a1124.CNF

Counted on: 10/31/96 @22:35
 Detector: AEA11
 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?	13.7	13.7	371.280	371.280	10.000	3.341	5.000	0.744
2	971.5	971.5	303.148	303.147	16.000	8.929	8.000	2.750
3	991.1	991.1	257.442	257.391	12.000	7.707	6.000	2.099
4	57.4	57.4	170.810	170.698	136.000	1.000	68.000	0.100
5?	7.2	7.2	143.814	142.351	8.000	0.659	4.000	0.222
6	6.3	6.3	126.152	124.083	14.000	2.793	7.000	0.036
7?	4.6	4.6	65.222	63.779	10.000	2.503	5.000	4.918

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		????		5.779			0.60	11.5		
2	Am241	0.406	5.479	5.466	0.0130	0.04	40.97	1.4	100.6	0.453E-04
	Pu238		5.487	5.466	0.021				131.4	0.592E-04
3	Am243	0.429	5.270	5.255	0.0150	0.04	43.28	1.4	100.9	0.455E-04
4		0.045		4.856		0.00	4.58	4.2	10.6	0.476E-05
5		????		4.726			0.19	74.1		
6	Np237	0.013	4.640	4.642	-0.0020	0.01	1.35	11.4	52.0	0.234E-04
7		????		4.364			0.07	124.		
Totals:			0.894	<--valid peaks only-->			90.18			

DETECTOR CALIBRATION

Energy(MEV) = 4.071 + (0.0046)*Channel
 Energy range (MeV): 4.071 TO 6.426
 Efficiency = 0.4331 CPM/DFM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	48411.0	100.000
Smoothed	48410.7	99.999
Composite fit	43704.3	90.278
Residuals	4706.7	9.722

Analyzed by:

AKH

Spectrum 11a1124.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 6646.7

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Raw Data Dump for AEA Spectrum: 11a1124.CNF

1	0.	0.	5.	1.	2.	5.	6.	2.	7.	2.
11	5.	1.	6.	5.	4.	5.	4.	4.	8.	8.
21	8.	4.	5.	7.	5.	5.	5.	4.	4.	7.
31	5.	6.	4.	10.	6.	11.	1.	6.	6.	8.
41	5.	3.	13.	6.	12.	8.	7.	15.	7.	8.
51	9.	12.	5.	5.	3.	1.	9.	8.	6.	9.
61	9.	17.	16.	9.	16.	10.	15.	11.	8.	9.
71	6.	14.	7.	11.	15.	18.	13.	9.	9.	13.
81	9.	11.	4.	15.	12.	12.	11.	13.	7.	11.
91	12.	16.	14.	17.	12.	12.	10.	11.	16.	16.
101	13.	17.	11.	20.	14.	14.	17.	16.	16.	21.
111	21.	21.	22.	15.	28.	13.	18.	18.	18.	20.
121	21.	19.	26.	26.	23.	23.	28.	24.	19.	23.
131	18.	17.	23.	22.	25.	43.	22.	31.	30.	22.
141	28.	41.	21.	34.	38.	30.	19.	33.	25.	36.
151	28.	35.	36.	36.	51.	40.	38.	43.	50.	39.
161	40.	54.	45.	41.	50.	55.	46.	54.	65.	67.
171	55.	65.	54.	55.	64.	51.	46.	62.	59.	50.
181	60.	62.	72.	72.	62.	87.	60.	77.	51.	80.
191	73.	104.	84.	71.	64.	76.	82.	91.	73.	100.
201	93.	95.	103.	121.	86.	121.	107.	106.	100.	125.
211	122.	126.	127.	117.	128.	118.	124.	131.	139.	153.
221	163.	139.	143.	178.	163.	150.	174.	178.	182.	182.
231	205.	200.	230.	216.	247.	269.	267.	286.	305.	344.
241	306.	348.	331.	369.	417.	492.	489.	560.	587.	633.
251	726.	763.	883.	957.	950.	1033.	1082.	1125.	1051.	918.
261	729.	471.	373.	299.	242.	240.	207.	223.	221.	212.
271	191.	189.	189.	187.	174.	164.	177.	192.	183.	199.
281	196.	209.	214.	223.	238.	258.	270.	319.	300.	345.
291	377.	394.	465.	486.	574.	603.	667.	698.	833.	901.
301	954.	1036.	1107.	996.	962.	871.	659.	517.	409.	300.
311	260.	238.	182.	135.	107.	89.	47.	34.	12.	6.
321	8.	2.	0.	1.	0.	2.	1.	0.	0.	2.
331	1.	0.	0.	4.	1.	2.	3.	3.	0.	2.
341	1.	5.	1.	3.	7.	1.	5.	6.	2.	3.
351	5.	3.	6.	1.	8.	4.	4.	9.	7.	12.
361	5.	6.	12.	9.	13.	9.	13.	10.	11.	16.
371	12.	15.	18.	9.	4.	1.	2.	0.	0.	0.
381	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
391	0.	2.	0.	0.	0.	0.	0.	0.	0.	1.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
411	0.	2.	1.	1.	1.	0.	0.	0.	0.	0.
421	0.	0.	2.	1.	1.	0.	0.	0.	0.	1.
431	0.	1.	1.	4.	1.	2.	1.	3.	3.	2.
441	0.	1.	1.	1.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
461	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
481	0.	1.	0.	0.	1.	0.	1.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	1.	0.								

Westinghouse Hanford Co.
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
 S96T005185-DUP
 File ID: 12a1297.CNF

Counted on: 10/31/96 @22:36
 Detector: AEA12
 Geometry number: 1
 Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1?	16.6	16.6	370.064	370.064	18.000	8.606	9.000	2.127
2	1378.4	1378.4	302.847	302.847	16.000	10.535	8.000	4.816
3	1474.1	1474.1	256.964	256.948	14.000	8.307	7.000	3.454
4	19.5	19.5	178.260	178.230	98.000	1.000	49.000	0.100

PEAK RESULTS
 Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate c/m	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff. FWHM				
1		????		5.782		0.79	10.1		
2	Am241	0.460	5.479	5.473	0.0060.05	51.58	1.2	142.3	0.641E-04
	Pu238		5.487	5.473	0.014			185.8	0.837E-04
3	Am243	0.473	5.270	5.262	0.0080.04	53.01	1.2	138.9	0.626E-04
4	Pu242	0.014	4.891	4.900	-0.0090.00	1.56	7.2	4.0	0.182E-05
-----			-----						
Totals:			0.947 <--valid peaks only-->			106.14			

DETECTOR CALIBRATION
 Energy(MEV) = 4.080 + (0.0046)*Channel
 Energy range (MeV): 4.080 TO 6.435
 Efficiency = 0.3855 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	53812.0	100.000
Smoothed	53812.1	100.000
Composite fit	51328.3	95.385
Residuals	2483.7	4.615

Analyzed by:

AKH

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 9418.9

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Raw Data Dump for AEA Spectrum: 12a1297.CNF

1	0.	0.	1.	0.	1.	1.	0.	3.	1.	2.
11	2.	1.	1.	0.	3.	2.	3.	8.	2.	2.
21	2.	4.	5.	3.	4.	2.	3.	0.	3.	0.
31	3.	1.	0.	2.	1.	2.	5.	5.	1.	3.
41	2.	1.	3.	5.	7.	2.	2.	5.	2.	1.
51	3.	4.	1.	1.	5.	2.	0.	1.	5.	4.
61	2.	3.	7.	4.	3.	2.	2.	1.	2.	6.
71	4.	2.	3.	3.	3.	2.	4.	2.	5.	2.
81	4.	3.	5.	3.	0.	4.	4.	5.	6.	3.
91	5.	6.	4.	3.	3.	7.	4.	4.	3.	8.
101	4.	5.	8.	1.	4.	2.	5.	1.	4.	2.
111	5.	5.	13.	3.	5.	8.	8.	7.	6.	4.
121	9.	4.	5.	1.	4.	8.	4.	8.	7.	7.
131	9.	8.	11.	7.	6.	7.	8.	7.	12.	4.
141	9.	4.	12.	7.	4.	9.	6.	5.	5.	4.
151	10.	14.	12.	9.	12.	17.	7.	4.	15.	10.
161	10.	16.	7.	12.	12.	14.	6.	12.	11.	16.
171	19.	8.	17.	13.	8.	13.	18.	22.	13.	20.
181	11.	11.	10.	17.	19.	16.	11.	29.	18.	20.
191	25.	22.	25.	33.	23.	22.	23.	32.	30.	27.
201	23.	40.	33.	25.	44.	40.	39.	27.	51.	40.
211	51.	42.	52.	42.	54.	46.	65.	49.	63.	54.
221	79.	70.	72.	68.	65.	81.	83.	92.	99.	135.
231	124.	137.	122.	150.	177.	179.	206.	211.	235.	254.
241	250.	299.	363.	444.	462.	528.	594.	751.	795.	877.
251	1041.	1186.	1236.	1427.	1464.	1689.	1604.	1571.	1458.	1253.
261	960.	678.	529.	378.	306.	273.	215.	226.	191.	193.
271	190.	159.	146.	142.	115.	104.	128.	124.	103.	139.
281	128.	170.	146.	206.	205.	246.	264.	292.	355.	407.
291	428.	546.	576.	621.	743.	797.	896.	1017.	1176.	1266.
301	1480.	1517.	1540.	1422.	1329.	1127.	952.	770.	686.	524.
311	439.	345.	302.	243.	204.	131.	121.	81.	50.	21.
321	17.	19.	12.	8.	5.	12.	6.	6.	7.	5.
331	4.	5.	4.	5.	7.	6.	3.	6.	4.	4.
341	4.	5.	5.	4.	7.	1.	0.	8.	5.	6.
351	5.	5.	3.	4.	3.	8.	5.	4.	7.	8.
361	9.	10.	11.	8.	16.	11.	14.	19.	21.	16.
371	15.	21.	12.	13.	11.	8.	5.	3.	5.	1.
381	0.	2.	0.	0.	0.	0.	1.	1.	2.	3.
391	1.	0.	0.	0.	1.	1.	1.	1.	2.	0.
401	1.	1.	1.	1.	0.	1.	1.	2.	0.	2.
411	1.	1.	1.	1.	3.	0.	0.	0.	1.	1.
421	1.	0.	2.	2.	0.	1.	1.	0.	1.	0.
431	2.	0.	1.	3.	0.	0.	2.	3.	3.	3.
441	2.	1.	1.	0.	0.	0.	0.	0.	0.	1.
451	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
461	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	1.	1.	1.	0.	1.
481	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
491	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

LABCORE Completed RadChem Report for Worklist#: 13992

Analyst: jmv

Instrument: AB18

Book# 62B56

Method: LA-943.128 Rev/Mod B-0

Worklist Comment: AP-106 Grab. Determine sample size using ludlum. new

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	0	0PU23901 PU23901 LIQUID		1.49E-04	1.35E-4	90.604	% Recovery
1 STD	0	0	0PU23901 PU23901E LIQUID		1.00	1.48E+00	1.480	% Ct Error
1 STD	0	0	0PU23901 PU23901T LIQUID		100	1.05E+02	105.000	% Recovery
2 BLNK	0	0	0PU23901 PU23901 LIQUID		1	<3.68E-6		uCi/mL
2 BLNK	0	0	0PU23901 PU23901T LIQUID		100	9.01E+01	90.100	% Recovery
2 BLNK	0	0	0PU23901 PU23901E LIQUID		1.00	1.00E+02	100.000	uCi/mL
3 SAMPLE	S96T005184	0	0PU23901 PU23901 LIQUID		N/A	5.89E-06	589.0e-008	uCi/mL
3 SAMPLE	S96T005184	0	0PU23901 PU23901T LIQUID		N/A	6.04E+01	0.0e+000	% Recovery
3 SAMPLE	S96T005184	0	0PU23901 PU23901E LIQUID		N/A	7.35E+00	0.0e+000	% Ct. Error
4 DUP	S96T005184	0	0PU23901 PU23901 LIQUID		<5.89E-6	<5.39E-6		RPD
4 DUP	S96T005184	0	0PU23901 PU23901T LIQUID		100	6.45E+01	64.500	% Recovery
4 DUP	S96T005184	0	0PU23901 PU23901E LIQUID		1.00	7.35E+00	7.350	% Ct Error
5 SAMPLE	S96T005185	0	0PU23901 PU23901 LIQUID		N/A	1.17E-04	384.0e-007	uCi/mL
5 SAMPLE	S96T005185	0	0PU23901 PU23901T LIQUID		N/A	1.09E+02	0.0e+000	% Recovery
5 SAMPLE	S96T005185	0	0PU23901 PU23901E LIQUID		N/A	3.31E+00	0.0e+000	% Ct. Error
6 DUP	S96T005185	0	0PU23901 PU23901 LIQUID		1.17E-4	1.17E-4	0.000	RPD
6 DUP	S96T005185	0	0PU23901 PU23901T LIQUID		100	1.14E+02	114.000	% Recovery
6 DUP	S96T005185	0	0PU23901 PU23901E LIQUID		1.00	3.22E+00	3.220	% Ct Error
7 SAMPLE	S96T005186	0	0PU23901 PU23901 LIQUID		N/A	1.84E-05	431.0e-008	uCi/mL
7 SAMPLE	S96T005186	0	0PU23901 PU23901T LIQUID		N/A	1.03E+02	0.0e+000	% Recovery
7 SAMPLE	S96T005186	0	0PU23901 PU23901E LIQUID		N/A	2.73E+00	0.0e+000	% Ct. Error
8 DUP	S96T005186	0	0PU23901 PU23901 LIQUID		1.84E-5	2.00E-5	8.333	RPD
8 DUP	S96T005186	0	0PU23901 PU23901T LIQUID		100	1.07E+02	107.000	% Recovery
8 DUP	S96T005186	0	0PU23901 PU23901E LIQUID		1.00	2.64E+00	2.640	% Ct Error

Final page for worklist# 13992

Analyst Signature

Date

Analyst Signature

Date

John Relyea 2400896
Reviewer Signature Date
Validated

LABCORE Data Entry Template for Worklist# 13992

Analyst: JmV Instrument: PU01 18 Book# 162856

Method: LA-943-128 Rev/Mod B-0

Worklist Comment: AP-106 Grab. Determine sample size using ludlum. new

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@PU23901	LIQUID		
2 BLNK			@PU23901	LIQUID		
3 SAMPLE	S96T005184 0		@PU23901	LIQUID	96001337	AP-106 GRAB
Analytes Requested: PU23901 , PU23901E, PU23901T						
4 DUP	S96T005184 0		@PU23901	LIQUID		
5 SAMPLE	S96T005185 0		@PU23901	LIQUID	96001337	AP-106 GRAB
Analytes Requested: PU23901 , PU23901E, PU23901T						
6 DUP	S96T005185 0		@PU23901	LIQUID		
7 SAMPLE	S96T005186 0		@PU23901	LIQUID	96001337	AP-106 GRAB
Analytes Requested: PU23901 , PU23901E, PU23901T						
8 DUP	S96T005186 0		@PU23901	LIQUID		

Final page for worklist # 13992

JmV 10-21-96
Analyst Signature Date

Alicia Hogan 10/23/96
Analyst Signature Date
McB 10/23/96

Data Entry Comments:

I did everything except for the prep work. Kim Thomas 10-22-96
JmV got up to co-prep

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

WORKBOOK PAGE: STD1

Pu 238 and 239/240 : LA-943-128 (B-0)

LIQUID

Type	DATE COUNTED	OCT-23-96	Pu 236 AEA FRAC (C236)	STD
STD	SAMPLE VOLUME in mL	SS	1.000	0.412
Work List	SAMPLE DILUTION FACTOR	DF	1.000	0.018
1392	TRACER VOLUME in mL	SPKV	0.100	0.537
Test Code	DIGEST DILUTION FACTOR	DDF	1.000	4749
@PU23901	TRACER BOOK NO	126B43	AT COUNT TIME (MIN)	30
Matrix	DETECTOR NUMBER	18	BACKGROUND in cpm (Bkg)	0.270
LIQUID	EFFICIENCY FACTOR	EFF	0.269	64.590
Batch Number	TRACER PREPARATION DATE	07/12/96	Pu 238 cpm	2.830
96010514	TRACER PREPARATION VALUE (dpm/mL)	2464.000	Pu 239 cpm	84.160
Recon	PU-236 DECAY CORR'D VALUE (dpm/mL)	2300.670	AEA COUNT TIME	480
0	PU-238 TRACER VALUE (dpm/mL)	0.000	Pu 239/240 µCi/L	1.3508E-01
Sample Prep	STANDARD BOOK NO	62B56		
N/A	STANDARD VALUE in µCi/mL	1.485E-04		
Sample #				
WL13992				
Instrument Code	Decay Time = Date Counted - Tracer Preparation Date			
WB27809	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(ln2 * Decay Time/1040.95)}]			
Prepared By	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * 1/EFF * C236 * 100 / Pu-236 Decay Corr'd Value * SPKV			
SEH	Pu 239/240 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			
JMV				
Date Complete				
10/23/96	Pu 239/240 µCi/mL	1.35E-04	DETECTION LEVELS	
Analysis Date	Relative Counting Error	= 1.5%	in µCi/mL	
10/22/96			Pu 239/240	
Analysis Time			7.55E-06	
04:05 PM				
Sample Point				
AP-106 GRAB	Pu 236 Tracer Recovery	= 105.4%		

Analyst:	JMV	Date:	23-Oct-96
Signature of Chemist:	<i>John Deluca</i>	Date:	24 Oct 96
STANDARD WB1 REV 1.0	943128ML		

WORKBOOK PAGE: BLANK2

Pu 238 and 239/240 : LA-943-128 (B-0)

LIQUID / SOLID

Type	DATE COUNTED	OCT-23-96	PU 236 AEA FRAC (C236)	BLNK
BLNK	SAMPLE VOLUME in mL	SS	1.000	0.938
Work List	SAMPLE DILUTION FACTOR	DF	1.000	0.000
13992	TRACER VOLUME in mL	SPKV	0.100	0.000
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	1768
@PU23901	TRACER BOOK NO	126B43	AT COUNT TIME (MIN)	30
Matrix	DETECTOR NUMBER	18	BACKGROUND in cp (Bkg)	0.270
LIQUID	EFFICIENCY FACTOR	EFF	PU 236 cpm	57.520
Batch Number	TRACER PREPARATION DATE	07/12/96	PU 238 cpm	0.000
96010514	TRACER PREPARATION VALUE (dpm/mL)	2464.00	PU 239 cpm	0.000
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2300.67	AEA COUNT TIME	480
0	PU-238 TRACER VALUE (dpm/mL)	0.00	Pu 239/240 $\mu\text{Ci/L}$ =	< 3.680E-03
Sample Prep				
N/A				
Sample #	Decay Time = Date Counted - Tracer Preparation Date			
WL13992	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]			
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)			
WB27809	Pu 239/240 $\mu\text{Ci/L}$ = (C239) / (Pu 236 Decay Corr'd Value) (SPKV) (1000mL/L) (DF) (DDF) / [(C236) (SS) (D g/L) (2220000 d			
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery /			
SEH	Pu 238 $\mu\text{Ci/L}$ = [(Pu 238 dpm) (DF) (DDF) (1000mL/L)] / [(Pu-236 Tracer Recovery / 100) (2220000 dpm/ μCi) (D g/L) (SS)]			
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				
JMV				
Date Complete				
10/23/96	Pu 239/240 $\mu\text{Ci/mL}$	< 3.68E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$	
Analysis Date	Relative Counting Error	= 100.0%		
10/22/96				
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.		Pu 239/240	
04:05 PM	Pu 238 $\mu\text{Ci/mL}$	< 3.68E-06	3.68E-06	
Sample Point	Relative Counting Error	= 100.0%	Pu 238	
AP-106 GRAB	Pu 236 Tracer Recovery	= 90.1%	3.68E-06	

Analyst:	JMV	Date:	23-Oct-96
Signature of Chemist:	JFR	Date:	24 Oct 96

BLANK.WB1 REV 1.0

943128ML

WORKBOOK PAGE: SAM3

Pu 238 and 239/240 : LA-943-128 (B-0)

LIQUID / SOLID

Pu 238 and 239/240 : LA-943-128 (B-0)				LIQUID / SOLID		SAMPLE
Type	DATE COUNTED		OCT-23-96	Pu 236 AEA FRAC (C236)		0.874
SAMPLE	SAMPLE VOLUME in mL	SS	1.000	Pu 238 AEA FRAC (C238)		0.073
Work List	SAMPLE DILUTION FACTOR	DF	1.000	Pu 239 AEA FRAC (C239)		0.035
13992	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		1289
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO		126B43	BACKGROUND in cpm (Bkg)		0.270
Matrix	DETECTOR NUMBER		18	Pu 236 cpm		38.770
LIQUID	EFFICIENCY FACTOR	EFF	0.269	Pu 238 cpm		3.250
Batch Number	TRACER PREPARATION DATE		07/12/96	Pu 239 cpm		1.540
96010514	TRACER PREPARATION VALUE (dpm/mL)		2464.000	AEA COUNT TIME		480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)		2300.670	Pu 239/240 $\mu\text{Ci/L}$ =	<	5.8907E-03
0	PU-238 TRACER VALUE (dpm/mL)		0.000			
Sample Prep						
N/A						
Sample #	Decay Time = Date Counted - Tracer Preparation Date					
S96T005184	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of $\{(-\ln 2 * \text{Decay Time}/1040.95)\}$]					
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)					
WB27809	Pu 239/240 $\mu\text{Ci/L}$ = (C239) / (Pu 236 Decay Corr'd Value) * (SPKV) / (1000 mL/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 236 Tracer Recovery / 100)					
SEH	Pu 238 $\mu\text{Ci/L}$ = [(Pu 238 dpm) * (DF) * (DDF) / (1000 mL/L)] / [(Pu-236 Tracer Recovery / 100) * (2220000 dpm/ μCi) * (D g/L) * (SS)]					
Chemist	Relative Counting Error = Square Root of $\{[1 / (\text{Pu 236 cpm} * \text{min})] + [1 / (\text{Pu 238 or 239/240 cpm} * \text{min})]\} * 1.96 * 100$					
JFR						
Analyst						
JMV						
Date Complete						
10/23/96	Pu 239/240 $\mu\text{Ci/mL}$		< 5.89E-06	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analysis Date	Relative Counting Error	=	7.4%			
10/22/96				Pu 239/240		
Analysis Time				5.89E-06		
04:05 PM	Pu 238 $\mu\text{Ci/mL}$		8.66E-06	Pu 238		
Sample Point	Relative Counting Error	=	5.2%	5.89E-06		
AP-106 GRAB	Pu 236 Tracer Recovery	=	60.4%			

Analyst:	JMV	Date:	23-Oct-96
Signature of Chemist:	<i>John Relyea</i>	JFR	Date: 24 Oct 96
SAMPLE WB1 REV 1.0 943128ML			

WORKBOOK PAGE: DUP4

Pu 238 and 239/240 : LA-943-128 (B-0)**LIQUID / SOLID**

				DUP
Type	DATE COUNTED	OCT-23-96	PU 236 AEA FRAC (C236)	0.895
DUP	SAMPLE VOLUME in mL	SS	1.000 PU 238 AEA FRAC (C238)	0.048
Work Lot	SAMPLE DILUTION FACTOR	DF	1.000 PU 239 AEA FRAC (C239)	0.034
13892	TRACER VOLUME in mL	SPKV	0.100 TOTAL AT COUNTS	1344
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000 AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	126B43	BACKGROUND in cpm (Bkg)	0.270
Matrix	DETECTOR NUMBER	18	PU 236 cpm	40.240
LIQUID	EFFICIENCY FACTOR	EFF	0.269 PU 238 cpm	2.140
Batch Number	TRACER PREPARATION DATE	07/12/96	PU 239 cpm	1.540
96010514	TRACER PREPARATION VALUE (dpm/mL)	2464.000	AEA COUNT TIME	480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2300.670	Pu 239/240 $\mu\text{Ci/L}$ =	< 5.3862E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.000		

Sample Prep

N/A

Sample #

Decay Time = Date Counted - Tracer Preparation Date

S96T005184

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of $\{-\ln 2 * \text{Decay Time}/1040.95\}$]

Instrument Code

Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)

WB27809

Pu 239/240 $\mu\text{Ci/L}$ = (C239) / (Pu 236 Decay Corr'd Value) * (SPKV) * (1000mL/L) * (DF) * (DDF) / $\{[(C236)(SS)(D \text{ g/L})(2220000 \text{ dpm}/\mu\text{Ci})]\}$

Prepared By

Pu 238 dpm = $\{[(\text{Total AT Counts} / \text{TC}) - \text{Bkg} * 1/\text{EFF} * \text{C238}] - (\text{Pu-238 Tracer Value} * \text{SPKV} * \text{Pu 236 Tracer Recovery} / 100)\}$

SEH

Pu 238 $\mu\text{Ci/L}$ = $\{[(\text{Pu 238 dpm})(DF)(DDF)(1000mL/L)] / [(\text{Pu-236 Tracer Recovery} / 100)(2220000 \text{ dpm}/\mu\text{Ci})(D \text{ g/L})(SS)]\}$

Chemist

Relative Counting Error = Square Root of $\{[(1/(\text{Pu 236 cpm} * \text{min})) + (1/(\text{Pu 238 or 239/240 cpm} * \text{min}))]\} * 1.96 * 100$

JFR

Analyst

JMV

Date Complete

10/23/96

Pu 239/240 $\mu\text{Ci/mL}$ < 5.39E-06

Analysis Date

10/22/96

Relative Counting Error = 7.3%

Analysis Time

04:05 PM

Pu 238 $\mu\text{Ci/mL}$ 5.56E-06

Sample Point

AP-106 GRAB

Relative Counting Error = 6.3%

Pu 236 Tracer Recovery = 64.5%

DETECTION
LEVELS
in $\mu\text{Ci/mL}$

Pu 239/240

5.39E-06

Pu 238

5.39E-06

Analyst:	JMV	Date:	23-Oct-96
Signature of Chemist:	JFR	Date:	24 Oct 96

SAMPLE WB1 REV 1.0

943128ML

WORKBOOK PAGE: SAM5

Pu 238 and 239/240 : LA-943-128 (B-0)

LIQUID / SOLID

				SAMPLE
Type	DATE COUNTED	OCT-23-96	PU 236 AEA FRAC (C236)	0.809
SAMPLE	SAMPLE VOLUME in mL	SS	0.100 PU 238 AEA FRAC (C238)	0.078
Work List	SAMPLE DILUTION FACTOR	DF	1.000 PU 239 AEA FRAC (C239)	0.091
13992	TRACER VOLUME in mL	SPKV	0.100 TOTAL AT COUNTS	2495
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000 AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	126B43	BACKGROUND in cpm (Bkg)	0.270
Matrx	DETECTOR NUMBER	18	PU 236 cpm	72.090
LIQUID	EFFICIENCY FACTOR	EFF	0.269 PU 238 cpm	6.950
Batch Number	TRACER PREPARATION DATE	07/12/96	PU 239 cpm	8.140
96010514	TRACER PREPARATION VALUE (dpm/mL)	2464.000	AEA COUNT TIME	480
Refun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2300.670	Pu 239/240 µCi/L	1.1657E-01
0	PU-238 TRACER VALUE (dpm/mL)	0.000		

Sample Prep

N/A

Sample #

Decay Time = Date Counted - Tracer Preparation Date

S96T005185

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]

Instrument Code

Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)

WB27809

Pu 239/240 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 236 Tracer Recovery / 100)

SEH

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

JMV

Date Complete

10/23/96

Analysis Date

10/22/96

Analysis Time

04:05 PM

Sample Point

AP-106 GRAB

Pu 239/240 µCi/mL 1.17E-04

Relative Counting Error = 3.3%

Pu 238 µCi/mL 9.99E-05

Relative Counting Error = 3.6%

Pu 236 Tracer Recovery = 108.5%

DETECTION

LEVELS

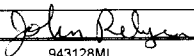
in µCi/mL

Pu 239/240

3.84E-05

Pu 238

3.84E-05

Analyst:	JMV	Date:	23-Oct-96
Signature of Chemist:		JFR	Date: 24 Oct 96

SAMPLE WB1 REV 1.0

943128ML

WORKBOOK PAGE: DUP6

Pu 238 and 239/240 : LA-943-128 (B-0)
LIQUID / SOLID

				DUP
Type	DATE COUNTED	OCT-23-96	PU 236 AEA FRAC (C236)	0.809
DUP	SAMPLE VOLUME in mL SS	0.100	PU 238 AEA FRAC (C238)	0.084
Work List	SAMPLE DILUTION FACTOR DF	1.000	PU 239 AEA FRAC (C239)	0.091
13992	TRACER VOLUME in mL SPKV	0.100	TOTAL AT COUNTS	2616
Test Code	DIGEST DILUTION FACTOR DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	126B43	BACKGROUND in cpm (Bkg)	0.270
Matrix	DETECTOR NUMBER	18	PU 236 cpm	76.220
LIQUID	EFFICIENCY FACTOR EFF	0.269	PU 238 cpm	7.910
Batch Number	TRACER PREPARATION DATE	07/12/96	PU 239 cpm	8.570
96010514	TRACER PREPARATION VALUE (dpm/mL)	2464.000	AEA COUNT TIME	480
Retrun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2300.670	Pu 239/240 µCi/L	1.1657E-01
0	PU-238 TRACER VALUE (dpm/mL)	0.000		
Sample Prep				
N/A				
Sample #	Decay Time = Date Counted - Tracer Preparation Date			
S96T005185	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]			
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)			
WB27809	Pu 239/240 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 236 Tracer Recovery / 100)			
SEH	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				
JMV				
Date Complete				
10/23/96	Pu 239/240 µCi/mL	1.17E-04	DETECTION LEVELS in µCi/mL	
Analysis Date	Relative Counting Error =	3.2%		
10/22/96			Pu 239/240	
Analysis Time			3.84E-05	
04:05 PM	Pu 238 µCi/mL	1.08E-04	Pu 238	
Sample Point	Relative Counting Error =	3.3%	3.84E-05	
AP-106 GRAB	Pu 236 Tracer Recovery =	113.8%		

Analyst:	JMV	Date:	23-Oct-96
Signature of Chemist:	<i>John Deluca</i>	JFR	Date: 24 Oct 96

SAMPLE WB1 REV 1.0

943128ML

WORKBOOK PAGE: SAM7

Pu 238 and 239/240 : LA-943-128 (B-0)

LIQUID / SOLID

				SAMPLE	
Type	DATE COUNTED	OCT-23-96	PU 236 AEA FRAC (C236)		0.722
SAMPLE	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC (C238)	0.122
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC (C239)	0.128
13992	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	2647
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	126B43	BACKGROUND in cpm (Bkg)		0.270
Matrix	DETECTOR NUMBER	18	PU 236 cpm		71.250
LIQUID	EFFICIENCY FACTOR	EFF	0.269	PU 238 cpm	12.060
Batch Number	TRACER PREPARATION DATE	07/12/96	PU 239 cpm		12.680
96010514	TRACER PREPARATION VALUE (dpm/mL)	2464.000	AEA COUNT TIME		480
Retun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2300.670	Pu 239/240 µCi/L		1.8373E-02
0	PU-238 TRACER VALUE (dpm/mL)	0.000			
Sample Prep					
N/A					
Sample #	Decay Time = Date Counted - Tracer Preparation Date				
S96T005186	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]				
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)				
WB27809	Pu 239/240 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 236 Tracer Recovery / 100)				
SEH	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					
JMV					
Date Complete					
10/23/96	Pu 239/240 µCi/mL	1.84E-05	DETECTION LEVELS in µCi/mL		
Analysis Date	Relative Counting Error	= 2.7%			
10/22/96			Pu 239/240		
Analysis Time			4.31E-06		
04:05 PM	Pu 238 µCi/mL	1.75E-05	Pu 238		
Sample Point	Relative Counting Error	= 2.8%	4.31E-06		
AP-106 GRAB	Pu 236 Tracer Recovery	= 102.8%			

Analyst:	JMV	Date:	23-Oct-96
Signature of Chemist:	<i>John Relyea</i>	Date:	24 Oct 96
SAMPLE.WB1 REV 1.0	943128ML		

WORKBOOK PAGE: DUP8

Pu 238 and 239/240 : LA-943-128 (B-0)
LIQUID / SOLID

WORKBOOK PAGE: 0076

Pu 238 and 239/240 : LA-943-128 (B-0)			LIQUID / SOLID		DUP
Type	DATE COUNTED	OCT-23-96	PU 236 AEA FRAC (C236)		0.720
DUP	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC (C238)	0.122
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC (C239)	0.139
13992	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	2753
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	126B43		BACKGROUND in cpm (Bkg)	0.270
Matrix	DETECTOR NUMBER		18	PU 236 cpm	71.000
LIQUID	EFFICIENCY FACTOR	EFF	0.269	PU 238 cpm	12.040
Batch Number	TRACER PREPARATION DATE		07/12/96	PU 239 cpm	13.690
96010514	TRACER PREPARATION VALUE (dpm/mL)		2464.000	AEA COUNT TIME	480
Retain	PU-236 DECAY CORR'D VALUE (dpm/mL)		2300.670	Pu 239/240 μ Ci/L	2.0007E-02
0	PU-238 TRACER VALUE (dpm/mL)		0.000		
Sample Prep					
N/A					
Sample #	Decay Time = Date Counted - Tracer Preparation Date				
S96T005186	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {(-ln2 * Decay Time/1040.95)}]				
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)				
WB27809	Pu 239/240 μ Ci/L = (C239) / (Pu 236 Decay Corr'd Value) * (SPKV) / (1000mL/L) * (DF) * (DDF) / [(C236) * (SS) * (D g/L) * (2220000 dpm/ μ Ci)]				
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)				
SEH	Pu 238 μ Ci/L = [(Pu 238 dpm) * (DF) * (DDF) * (1000mL/L)] / [(Pu-236 Tracer Recovery / 100) * (2220000 dpm/ μ Ci) * (D g/L) * (SS)]				
Chemist	Relative Counting Error = Square Root of {(1 / (Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))} * 1.96 * 100				
JFR					
Analyst					
JMV					
Date Complete					
10/23/96	Pu 239/240 μ Ci/mL	2.00E-05	DETECTION LEVELS in μ Ci/mL		
Analysis Date	Relative Counting Error =	2.6%			
10/22/96			Pu 239/240 4.32E-06		
Analysis Time					
04:05 PM	Pu 238 μ Ci/mL	1.76E-05	Pu 238 4.32E-06		
Sample Point	Relative Counting Error =	2.8%			
AP-106 GRAB	Pu 236 Tracer Recovery =	106.6%	4.32E-06		

Analyst:	JMV	Date:	23-Oct-96
Signature of Chemist:	<i>John Relyea</i>	Date:	24 Oct 96
SAMPLE WB1 REV 1.0 943128ML			

Westinghouse Hanford Co.
 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. 2.02

DATA REDUCTION REPORT

SAMPLE
 WL13992-STD-PU
 File ID: 7a7486.CNF

Counted on: 10/23/96 @ 0:57
 Detector: AEA7
 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	1346.5	1346.5	363.352	363.352	18.000	9.445	9.000	2.355
2	30.5	30.5	292.906	292.224	24.000	24.738	12.000	2.861
3	1917.1	1917.1	230.993	230.990	16.000	9.113	8.000	2.624
4	22.9	22.9	156.020	155.211	104.000	1.000	52.000	0.100
5?	1.2	1.2	124.281	124.000	4.000	0.000	2.000	3.758

PEAK RESULTS

Peak Error Limit: 30%

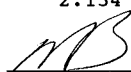
Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Cm243	0.412	5.779	5.744	0.0350.04	64.59	1.1	383.0	0.173E-03
	Pu236		5.755	5.744	0.011			285.3	0.129E-03
2	Th228	0.018	5.400	5.416	-.0160.11	2.83	7.3	17.3	0.778E-05
	Am241		5.479	5.416	0.063			13.0	0.588E-05
3	Pu239	0.537	5.147	5.135	0.0120.04	84.16	1.0	364.3	0.164E-03
	Pu240		5.144	5.135	0.009			364.3	0.164E-03
4	Np237	0.012	4.769	4.786	-.0170.00	1.82	7.1	9.1	0.409E-05
5	????			4.643		0.00	3122.		
Totals:			0.979	<--valid peaks only-->			153.40		

DETECTOR CALIBRATION

Energy (MEV) = 4.072 + (0.0046)*Channel
 Energy range (MeV): 4.072 TO 6.427
 Efficiency = 0.2310 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	75246.0	100.000
Smoothed	75246.8	100.001
Composite fit	73640.4	97.866
Residuals	1605.6	2.134

Analyzed by: 

Spectrum 7a7486.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 13662.8

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Raw Data	Dump for	AEA Spectrum:	7a7486.CNF							
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11	2.	4.	2.	0.	2.	5.	2.	2.	4.	4.
21	2.	1.	2.	5.	2.	1.	1.	5.	2.	2.
31	5.	4.	1.	0.	2.	7.	1.	2.	3.	5.
41	3.	3.	2.	3.	3.	2.	7.	2.	3.	2.
51	4.	1.	2.	5.	3.	3.	1.	2.	3.	4.
61	5.	2.	4.	4.	1.	7.	3.	3.	0.	8.
71	9.	4.	2.	6.	3.	3.	7.	4.	10.	6.
81	3.	5.	4.	1.	8.	7.	4.	8.	6.	6.
91	5.	2.	5.	6.	9.	3.	6.	3.	10.	9.
101	4.	10.	5.	4.	6.	5.	6.	7.	11.	10.
111	4.	7.	8.	6.	9.	5.	9.	8.	8.	14.
121	11.	9.	7.	13.	12.	10.	7.	9.	7.	15.
131	13.	16.	16.	16.	10.	17.	14.	9.	17.	20.
141	19.	18.	14.	19.	16.	19.	15.	16.	23.	21.
151	21.	19.	27.	32.	35.	26.	28.	33.	23.	21.
161	27.	18.	39.	32.	32.	38.	25.	47.	45.	50.
171	31.	49.	40.	50.	48.	60.	56.	64.	77.	62.
181	82.	68.	94.	91.	88.	102.	99.	118.	107.	133.
191	119.	134.	167.	160.	167.	196.	163.	196.	204.	216.
201	233.	255.	226.	299.	314.	321.	326.	362.	412.	405.
211	454.	468.	537.	569.	592.	626.	744.	785.	863.	941.
221	998.	1179.	1181.	1332.	1404.	1553.	1700.	1866.	1966.	2076.
231	2035.	2081.	1841.	1709.	1462.	1244.	979.	676.	474.	307.
241	183.	112.	58.	30.	22.	17.	16.	11.	9.	11.
251	14.	13.	15.	17.	8.	12.	16.	13.	17.	10.
261	11.	10.	12.	14.	12.	16.	12.	26.	14.	27.
271	27.	22.	20.	17.	22.	17.	34.	27.	16.	28.
281	35.	23.	37.	34.	26.	28.	38.	45.	33.	39.
291	32.	47.	45.	44.	38.	28.	39.	43.	33.	35.
301	33.	41.	36.	33.	40.	45.	40.	39.	56.	51.
311	48.	52.	45.	47.	52.	70.	51.	53.	75.	79.
321	76.	86.	82.	92.	109.	119.	103.	135.	113.	145.
331	152.	169.	185.	166.	182.	231.	239.	242.	249.	291.
341	294.	351.	327.	389.	402.	485.	485.	524.	573.	595.
351	673.	763.	813.	930.	956.	1037.	1039.	1141.	1244.	1216.
361	1327.	1319.	1487.	1406.	1375.	1201.	1100.	898.	719.	558.
371	438.	284.	172.	98.	59.	36.	13.	5.	2.	3.
381	2.	1.	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.	1.	1.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	1.	0.	0.	0.	0.	0.	1.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	1.	0.	0.	0.	0.	3.	0.	0.	0.	0.
461	1.	0.	1.	0.	0.	1.	1.	2.	0.	1.
471	0.	3.	2.	3.	2.	0.	1.	3.	5.	1.
481	2.	3.	2.	0.	0.	1.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.
 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. 2.02

DATA REDUCTION REPORT

SAMPLE
 WL13992-BLK-PU
 File ID: 8a8686.CNF

Counted on: 10/23/96 @ 0:58
 Detector: AEA8
 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	1090.8	1090.8	362.228	362.228	18.000	10.779	9.000	2.396

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 Cm243 Pu236	0.938	5.779	5.765 -0.010	0.0140.05	57.52	1.2	208.5 155.3	0.939E-04 0.700E-04

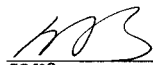
Totals:	0.938	<--valid peaks only-->			57.52			

DETECTOR CALIBRATION

Energy(MEV) = 4.098 + (0.0046)*Channel
 Energy range (MeV): 4.098 TO 6.454
 Efficiency = 0.3779 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	29445.0	100.000
Smoothed	29445.0	100.000
Composite fit	27615.8	93.788
Residuals	1829.2	6.212

Analyzed by: 

SLH2

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 7794.2

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Raw Data	Dump	for AEA	Spectrum:	8a8686.CNF						
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	3.	0.	2.	3.	2.	0.	3.	0.	1.	1.
21	2.	2.	1.	1.	1.	1.	0.	1.	2.	2.
31	1.	3.	2.	3.	0.	1.	3.	2.	0.	4.
41	0.	3.	3.	1.	1.	0.	2.	3.	1.	1.
51	1.	1.	1.	2.	3.	2.	3.	1.	3.	6.
61	2.	0.	3.	2.	0.	4.	2.	1.	1.	2.
71	2.	2.	0.	1.	2.	1.	0.	0.	2.	1.
81	0.	1.	1.	1.	0.	5.	1.	1.	0.	0.
91	3.	1.	1.	0.	3.	1.	1.	2.	1.	1.
101	2.	1.	0.	2.	2.	3.	1.	2.	1.	0.
111	2.	3.	1.	1.	3.	2.	5.	3.	4.	1.
121	0.	3.	2.	1.	1.	1.	3.	0.	4.	0.
131	1.	1.	1.	3.	0.	2.	3.	2.	1.	0.
141	2.	1.	3.	2.	2.	1.	0.	1.	3.	2.
151	4.	2.	2.	5.	1.	0.	3.	2.	1.	2.
161	3.	0.	3.	2.	0.	2.	1.	1.	6.	1.
171	6.	3.	0.	1.	4.	0.	1.	3.	3.	2.
181	5.	2.	3.	5.	4.	6.	3.	1.	3.	4.
191	2.	3.	5.	3.	2.	3.	4.	5.	5.	5.
201	2.	2.	3.	3.	3.	4.	5.	6.	3.	0.
211	5.	7.	4.	3.	5.	7.	7.	5.	5.	8.
221	10.	4.	6.	7.	11.	5.	6.	4.	10.	13.
231	5.	10.	5.	7.	6.	9.	6.	12.	6.	10.
241	11.	8.	5.	11.	3.	9.	9.	13.	9.	9.
251	10.	11.	8.	14.	17.	13.	15.	15.	17.	14.
261	11.	14.	17.	10.	12.	22.	11.	24.	15.	24.
271	20.	26.	18.	25.	21.	26.	22.	18.	23.	28.
281	26.	31.	25.	27.	38.	38.	42.	38.	41.	45.
291	36.	35.	38.	38.	33.	35.	40.	34.	39.	35.
301	44.	59.	39.	38.	49.	43.	55.	46.	57.	56.
311	57.	56.	78.	70.	60.	58.	87.	80.	92.	101.
321	93.	97.	117.	118.	127.	125.	132.	125.	140.	174.
331	154.	176.	184.	189.	209.	211.	238.	242.	254.	292.
341	315.	351.	400.	385.	399.	441.	461.	508.	582.	666.
351	669.	755.	755.	800.	891.	853.	1035.	1011.	1046.	1089.
361	1119.	1141.	1153.	1107.	988.	938.	765.	677.	480.	372.
371	242.	191.	123.	81.	37.	23.	9.	2.	2.	1.
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.	1.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.
431	1.	0.	0.	0.	1.	0.	0.	1.	2.	0.
441	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
461	0.	1.	0.	1.	0.	2.	0.	0.	0.	1.
471	0.	3.	1.	0.	1.	2.	1.	0.	0.	1.
481	0.	0.	2.	2.	0.	3.	1.	1.	1.	2.
491	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.
 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. 2.02

DATA REDUCTION REPORT

SAMPLE
 S96T005184-SAM-P
 File ID: 9a9496.CNF

Counted on: 10/23/96 @ 0:59
 Detector: AEA9
 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	951.5	951.5	362.716	362.716	12.000	4.748	6.000	1.252
2	39.2	39.2	306.729	305.803	18.000	12.293	9.000	1.452
3	38.3	38.3	231.702	231.595	14.000	7.284	7.000	2.241

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.	FWHM				
1	Pu236	0.874	5.755	5.740	0.015	0.02	38.77	1.4	87.6	0.395E-04
2	Am241	0.073	5.479	5.478	0.001	0.06	3.25	6.4	7.6	0.345E-05
	Pu238		5.487	5.478	0.009				10.0	0.450E-05
3	Pu239	0.035	5.147	5.137	0.010	0.03	1.54	8.1	3.4	0.154E-05
	Pu240		5.144	5.137	0.007				3.4	0.154E-05
Totals:			0.981	<--valid peaks only-->			43.56			

DETECTOR CALIBRATION

Energy(MEV) = 4.071 + (0.0046)*Channel
 Energy range (MeV): 4.071 TO 6.426
 Efficiency = 0.4516 CPM/DEP

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	21307.0	100.000
Smoothed	21307.1	100.000
Composite fit	20910.8	98.141
Residuals	396.2	1.859

Analyzed by: 

SLH2

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 6139.2

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Raw Data	Dump for	AEA Spectrum:	9a9496.CNF							
1	0.	0.	1.	1.	0.	1.	0.	2.	2.	0.
11	1.	0.	1.	0.	2.	0.	1.	0.	1.	2.
21	0.	3.	1.	2.	2.	0.	1.	1.	0.	0.
31	1.	0.	0.	0.	1.	2.	4.	2.	0.	0.
41	2.	5.	0.	0.	3.	0.	1.	0.	1.	1.
51	4.	1.	3.	0.	0.	4.	2.	2.	0.	0.
61	3.	2.	1.	2.	0.	4.	1.	2.	1.	0.
71	1.	2.	1.	0.	0.	1.	1.	1.	3.	2.
81	2.	0.	0.	2.	2.	1.	2.	3.	0.	2.
91	1.	0.	3.	1.	2.	0.	2.	1.	0.	1.
101	3.	0.	4.	2.	1.	2.	2.	0.	2.	0.
111	2.	1.	0.	0.	1.	0.	2.	1.	3.	1.
121	2.	2.	2.	0.	1.	2.	0.	0.	4.	5.
131	1.	2.	0.	0.	1.	0.	2.	2.	2.	6.
141	1.	0.	2.	3.	0.	2.	4.	4.	0.	4.
151	2.	1.	2.	2.	2.	3.	0.	2.	4.	2.
161	1.	3.	3.	2.	2.	4.	1.	2.	3.	2.
171	4.	4.	5.	3.	4.	6.	3.	1.	6.	6.
181	3.	1.	0.	4.	1.	3.	3.	7.	2.	4.
191	4.	5.	0.	0.	6.	1.	7.	4.	4.	5.
201	5.	3.	8.	9.	6.	11.	9.	6.	9.	12.
211	15.	8.	7.	17.	16.	13.	18.	17.	22.	11.
221	18.	20.	19.	23.	28.	23.	31.	43.	43.	44.
231	44.	46.	45.	36.	34.	43.	23.	17.	7.	7.
241	9.	5.	4.	10.	1.	8.	11.	4.	7.	6.
251	9.	3.	6.	6.	10.	11.	7.	7.	6.	12.
261	5.	17.	4.	9.	15.	11.	15.	12.	14.	18.
271	13.	11.	7.	11.	19.	14.	17.	22.	16.	15.
281	27.	20.	28.	30.	20.	29.	28.	31.	26.	39.
291	49.	38.	39.	31.	34.	34.	40.	44.	40.	48.
301	36.	37.	54.	42.	62.	65.	57.	49.	55.	55.
311	49.	41.	44.	42.	38.	46.	55.	46.	41.	52.
321	55.	69.	77.	47.	72.	80.	85.	77.	99.	98.
331	98.	103.	99.	143.	125.	148.	157.	154.	182.	187.
341	198.	200.	236.	249.	269.	278.	325.	336.	372.	423.
351	460.	555.	604.	620.	652.	670.	656.	722.	807.	881.
361	932.	991.	1070.	1018.	902.	676.	421.	227.	114.	41.
371	18.	2.	3.	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.	1.	0.	0.	0.
411	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	2.	0.	0.	0.	0.	1.	0.	0.	0.
461	1.	0.	1.	1.	1.	1.	1.	0.	4.	0.
471	0.	0.	4.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.
GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
S96T005184-DUP-P
File ID: 10a1006.CNF

Counted on: 10/23/96 @ 1: 0
Detector: AEA10
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	976.1	976.1	362.859	362.859	12.000	3.815	6.000	0.943
2	33.7	33.7	305.877	304.823	16.000	6.479	8.000	0.978
3?	10.8	10.8	289.562	288.504	6.000	1.426	3.000	0.874
4?	6.8	6.8	272.447	271.255	8.000	1.894	4.000	0.354
5	39.4	39.4	231.253	231.200	10.000	4.574	5.000	1.277

PEAK RESULTS

Peak Error Limit: 30%

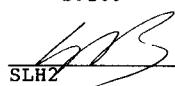
Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate c/m	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff. FWHM				
1	Pu236	0.895	5.755	5.752	0.0030.02	40.24	1.4	116.7	0.526E-04
2	Pu238	0.048	5.487	5.485	0.0020.03	2.14	8.2	8.5	0.381E-05
	Am241		5.479	5.485	-.006			6.5	0.292E-05
3		????		5.410		0.21	57.3		
4		????		5.331		0.32	28.9		
5	Pu239	0.034	5.147	5.147	0.0000.02	1.54	7.7	4.4	0.197E-05
	Pu240		5.144	5.147	-.003			4.4	0.197E-05
Totals:			0.977	<--valid peaks only-->		43.92			

DETECTOR CALIBRATION

Energy(MEV) = 4.083 + (0.0046)*Channel
Energy range (MeV): 4.083 TO 6.439
Efficiency = 0.3517 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	21576.0	100.000
Smoothed	21575.8	99.999
Composite fit	21336.6	98.891
Residuals	239.4	1.109

Analyzed by: 

SLH2

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

Display Max.:

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Raw Data Dump for AEA Spectrum: 10a1006.CNF W/C-SD-WM-DP-217, REV 0

1	0.	0.	3.	1.	0.	1.	2.	1.	1.	2.
11	1.	1.	1.	1.	1.	1.	2.	1.	1.	1.
21	1.	1.	1.	2.	6.	0.	1.	1.	1.	2.
31	2.	1.	0.	1.	1.	2.	3.	1.	1.	1.
41	2.	1.	1.	0.	0.	2.	1.	3.	1.	1.
51	0.	1.	2.	2.	3.	2.	2.	1.	0.	2.
61	2.	2.	3.	1.	2.	2.	0.	1.	5.	4.
71	3.	2.	2.	1.	2.	2.	3.	5.	3.	2.
81	0.	0.	4.	3.	1.	0.	3.	1.	4.	1.
91	2.	0.	1.	1.	2.	2.	0.	1.	1.	1.
101	1.	1.	4.	0.	4.	0.	2.	1.	1.	2.
111	1.	2.	2.	1.	4.	0.	1.	1.	4.	0.
121	3.	2.	1.	5.	3.	0.	0.	6.	4.	2.
131	0.	1.	4.	0.	1.	3.	3.	3.	3.	1.
141	2.	0.	5.	4.	2.	3.	1.	1.	3.	1.
151	3.	3.	1.	3.	0.	2.	2.	4.	5.	6.
161	4.	3.	2.	1.	0.	1.	2.	3.	5.	0.
171	0.	2.	2.	2.	3.	3.	8.	6.	2.	3.
181	5.	2.	6.	8.	3.	3.	4.	4.	3.	6.
191	6.	7.	3.	5.	5.	2.	8.	6.	8.	9.
201	8.	9.	9.	13.	7.	10.	8.	9.	9.	10.
211	8.	12.	19.	12.	11.	13.	17.	17.	21.	29.
221	23.	26.	19.	22.	25.	22.	32.	35.	45.	41.
231	44.	50.	46.	29.	21.	16.	10.	6.	10.	6.
241	6.	6.	6.	9.	3.	7.	5.	5.	3.	7.
251	10.	4.	6.	13.	5.	3.	13.	11.	11.	14.
261	9.	8.	12.	14.	12.	14.	19.	15.	16.	15.
271	17.	22.	19.	18.	15.	15.	14.	14.	18.	14.
281	27.	28.	23.	26.	24.	24.	33.	33.	45.	37.
291	28.	36.	26.	29.	36.	42.	41.	30.	33.	40.
301	45.	49.	48.	60.	54.	58.	57.	50.	49.	45.
311	38.	39.	39.	42.	42.	43.	43.	55.	56.	46.
321	70.	63.	63.	68.	73.	69.	75.	74.	73.	106.
331	105.	107.	102.	128.	132.	138.	165.	157.	175.	173.
341	197.	225.	257.	270.	286.	301.	349.	367.	453.	478.
351	506.	592.	623.	720.	716.	694.	651.	724.	720.	799.
361	919.	1004.	1167.	1004.	967.	657.	363.	115.	39.	6.
371	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
421	0.	1.	0.	0.	1.	0.	0.	1.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	1.	1.	0.	1.	0.	1.	3.
471	1.	0.	0.	2.	1.	3.	5.	3.	0.	1.
481	1.	0.	0.	3.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS

Rev. 2.02

DATA REDUCTION REPORT

SAMPLE

S96T005185-SAM-P

File ID: 11a1107.CNF

Counted on: 10/23/96 @ 1: 0

Detector: AEA11

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	1841.1	1841.1	363.863	363.863	12.000	4.043	6.000	1.089
2	110.4	110.4	306.057	305.605	14.000	7.393	7.000	1.156
3	217.4	217.4	232.218	232.195	14.000	5.166	7.000	1.590
4?	8.1	8.1	181.724	181.231	24.000	1.000	12.000	0.100
5?	1.9	1.9	174.382	173.927	68.000	1.000	34.000	0.100

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AREA Frac	Peak Centroid			Count Rate c/m	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff. FWHM				
1	Pu236	0.809	5.755	5.745	0.0100.02	72.09	1.1	171.3	0.771E-04
2	Pu238	0.078	5.487	5.477	0.0100.03	6.95	4.0	22.5	0.101E-04
	Am241		5.479	5.477	0.002			17.2	0.776E-05
3	Pu239	0.091	5.147	5.139	0.0080.02	8.14	3.2	19.0	0.854E-05
	Pu240		5.144	5.139	0.005			19.0	0.854E-05
4		????		4.905		0.65	12.5		
5		????		4.871		0.15	54.0		
Totals:			0.979	<--valid peaks only-->		87.19			

DETECTOR CALIBRATION

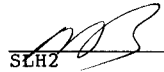
Energy(MEV) = 4.071 + (0.0046)*Channel

Energy range (MeV): 4.071 TO 6.427

Efficiency = 0.4295 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	42754.0	100.000
Smoothed	42755.1	100.003
Composite fit	42238.3	98.794
Residuals	515.7	1.206

Analyzed by: 

SLH2

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 12434.8

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1	0.	0.	0.	1.	1.	0.	2.	0.	0.	0.
11	1.	0.	0.	0.	1.	0.	1.	0.	0.	3.
21	2.	3.	1.	0.	1.	0.	0.	1.	0.	0.
31	1.	0.	2.	2.	1.	1.	1.	1.	0.	2.
41	1.	0.	0.	5.	1.	1.	2.	1.	1.	0.
51	1.	0.	2.	2.	1.	1.	0.	0.	2.	1.
61	3.	4.	1.	1.	3.	0.	0.	3.	6.	4.
71	6.	3.	3.	2.	3.	2.	3.	3.	3.	1.
81	0.	3.	1.	0.	1.	1.	4.	2.	3.	0.
91	3.	0.	4.	1.	1.	1.	1.	1.	0.	2.
101	2.	0.	1.	4.	2.	1.	2.	2.	2.	4.
111	0.	1.	1.	4.	1.	2.	1.	1.	1.	1.
121	3.	6.	4.	3.	0.	3.	2.	2.	1.	0.
131	2.	1.	1.	3.	4.	2.	7.	2.	2.	0.
141	3.	3.	3.	3.	7.	6.	2.	6.	5.	5.
151	9.	5.	10.	5.	3.	4.	1.	2.	4.	5.
161	8.	9.	6.	2.	5.	5.	8.	5.	4.	6.
171	11.	7.	9.	13.	13.	6.	9.	7.	9.	7.
181	16.	10.	13.	10.	5.	6.	9.	7.	18.	18.
191	14.	25.	14.	26.	19.	17.	17.	16.	19.	23.
201	26.	30.	31.	37.	37.	36.	41.	36.	38.	47.
211	54.	55.	51.	55.	62.	66.	78.	58.	74.	75.
221	89.	98.	101.	131.	136.	145.	171.	163.	179.	253.
231	230.	244.	235.	252.	183.	124.	92.	55.	29.	25.
241	9.	6.	12.	9.	13.	8.	14.	14.	10.	11.
251	9.	15.	15.	10.	13.	15.	22.	28.	13.	21.
261	23.	18.	19.	16.	23.	13.	18.	28.	18.	34.
271	27.	28.	37.	19.	36.	27.	37.	26.	40.	35.
281	42.	36.	48.	51.	58.	67.	60.	78.	75.	90.
291	84.	92.	65.	85.	86.	81.	81.	85.	100.	97.
301	102.	108.	127.	130.	155.	144.	145.	142.	105.	96.
311	67.	71.	63.	68.	80.	77.	78.	84.	88.	90.
321	111.	95.	94.	121.	147.	128.	146.	148.	169.	177.
331	173.	180.	178.	205.	239.	246.	235.	262.	282.	314.
341	342.	406.	408.	421.	404.	490.	514.	605.	665.	681.
351	810.	926.	1011.	1136.	1162.	1251.	1250.	1297.	1330.	1406.
361	1535.	1747.	1949.	2126.	1988.	1796.	1241.	720.	323.	133.
371	24.	6.	3.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
421	1.	0.	0.	0.	0.	1.	1.	0.	1.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	1.	0.	0.	0.	0.	1.	0.	0.	0.	0.
451	0.	1.	0.	0.	0.	0.	0.	2.	0.	1.
461	0.	0.	0.	1.	1.	1.	0.	1.	0.	1.
471	2.	1.	2.	1.	3.	2.	4.	4.	3.	4.
481	1.	2.	0.	0.	0.	1.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.
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. 2.02

DATA REDUCTION REPORT

SAMPLE
S96T005185-DUP-P
File ID: 12a1280.CNF

Counted on: 10/23/96 @ 1: 1
Detector: AEA12
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	1678.8	1678.8	357.639	357.639	12.000	5.828	6.000	1.375
2	98.3	98.3	300.684	299.326	16.000	9.246	8.000	1.087
3	212.4	212.4	225.749	225.709	14.000	5.807	7.000	1.643

PEAK RESULTS

Peak Error Limit: 30%

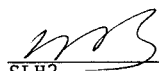
Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate c/m	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Pu236	0.809	5.755	5.746	0.0090.03	76.22	1.0	202.6	0.913E-04
2	Am241	0.084	5.479	5.478	0.0010.04	7.91	3.9	21.9	0.988E-05
	Pu238		5.487	5.478	0.009			28.6	0.129E-04
3	Pu239	0.091	5.147	5.139	0.0080.03	8.57	3.2	22.3	0.101E-04
	Pu240		5.144	5.139	0.005			22.3	0.101E-04
Totals:			0.984	<--valid peaks only-->			92.70		

DETECTOR CALIBRATION

Energy(MEV) = 4.101 + (0.0046)*Channel
Energy range (MeV): 4.101 TO 6.456
Efficiency = 0.3838 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	45211.0	100.000
Smoothed	45211.2	100.000
Composite fit	44499.4	98.426
Residuals	711.6	1.574

Analyzed by: 

SLH2

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 12309.1

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Raw Data Dump for AEA Spectrum: 12a1280.CNF

1	0.	0.	1.	0.	1.	2.	0.	1.	1.
11	1.	1.	0.	3.	0.	2.	2.	3.	0.
21	1.	0.	1.	4.	2.	0.	0.	1.	3.
31	0.	1.	0.	2.	1.	1.	1.	0.	3.
41	1.	0.	0.	3.	1.	1.	0.	3.	1.
51	2.	2.	2.	2.	0.	3.	1.	2.	0.
61	2.	1.	5.	5.	4.	2.	2.	4.	0.
71	3.	4.	1.	2.	0.	4.	1.	1.	0.
81	1.	1.	3.	1.	0.	1.	1.	2.	2.
91	5.	0.	0.	3.	3.	3.	2.	3.	1.
101	1.	1.	3.	0.	0.	1.	0.	3.	2.
111	1.	1.	5.	2.	3.	1.	1.	2.	3.
121	4.	3.	1.	2.	4.	4.	2.	3.	7.
131	4.	4.	4.	3.	2.	4.	8.	6.	3.
141	5.	2.	3.	4.	8.	5.	3.	7.	4.
151	7.	5.	8.	8.	5.	9.	6.	6.	8.
161	9.	7.	12.	5.	8.	6.	7.	7.	10.
171	8.	8.	13.	13.	14.	11.	11.	10.	9.
181	11.	16.	17.	10.	16.	18.	29.	14.	26.
191	21.	27.	20.	31.	38.	41.	28.	37.	37.
201	47.	36.	35.	46.	48.	57.	57.	63.	73.
211	83.	93.	81.	101.	118.	108.	123.	158.	126.
221	179.	177.	203.	225.	236.	254.	227.	213.	163.
231	94.	55.	42.	19.	25.	20.	17.	16.	11.
241	9.	15.	14.	13.	15.	24.	18.	17.	14.
251	16.	33.	22.	24.	26.	24.	26.	31.	22.
261	29.	28.	41.	32.	34.	40.	32.	27.	40.
271	37.	35.	46.	56.	48.	61.	55.	65.	65.
281	72.	80.	71.	87.	106.	96.	112.	95.	113.
291	82.	88.	106.	126.	118.	123.	141.	134.	147.
301	137.	158.	135.	117.	102.	87.	90.	91.	75.
311	111.	116.	94.	136.	117.	110.	122.	130.	146.
321	194.	188.	184.	207.	213.	229.	228.	259.	255.
331	301.	323.	346.	334.	351.	390.	410.	475.	499.
341	613.	627.	675.	768.	837.	902.	998.	1118.	1172.
351	1299.	1351.	1382.	1438.	1606.	1677.	1739.	1844.	1758.
361	1269.	941.	556.	342.	174.	71.	30.	14.	1.
371	1.	0.	0.	0.	1.	2.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	1.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	1.	0.	0.	1.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	1.
441	0.	0.	0.	0.	1.	1.	0.	1.	2.
451	0.	2.	2.	0.	0.	1.	1.	1.	1.
461	0.	0.	0.	1.	1.	2.	1.	1.	1.
471	2.	1.	4.	4.	0.	1.	1.	1.	1.
481	0.	1.	0.	0.	0.	0.	0.	0.	0.
491	0.	1.	0.	0.	0.	0.	0.	0.	1.
511	0.	0.							

Westinghouse Hanford Co.
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. 2.02

DATA REDUCTION REPORT

SAMPLE
S96T005186-SAM-P
File ID: 5a5616.CNF

Counted on: 10/23/96 @ 0:55
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	1644.7	1644.7	362.482	362.482	12.000	5.462	6.000	1.361
2	237.0	237.0	304.183	303.924	14.000	6.611	7.000	1.360
3	9.3	9.3	256.733	255.017	6.000	4.699	3.000	0.220
4	316.5	316.5	230.234	230.203	14.000	6.578	7.000	1.964

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err c/m	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.		@95		
1	Pu236	0.722	5.755	5.746	0.0090	71.25	1.1	853.4	0.384E-03
2	Pu238	0.122	5.487	5.477	0.0100	12.06	2.9	196.5	0.885E-04
	Am241		5.479	5.477	0.002			150.5	0.678E-04
3	Am243	0.016	5.270	5.252	0.0180	1.54	9.8	18.2	0.821E-05
4	Pu239	0.128	5.147	5.137	0.0100	12.68	2.7	148.8	0.670E-04
	Pu240		5.144	5.137	0.007			148.8	0.670E-04

Totals: 0.988 <--valid peaks only--> 97.53

DETECTOR CALIBRATION

Energy(MEV) = 4.078 + (0.0046)*Channel
Energy range (MeV): 4.078 TO 6.434
Efficiency = 0.0852 CPM/CPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	47365.0	100.000
Smoothed	47365.0	100.000
Composite fit	46813.7	98.836
Residuals	551.3	1.164

Analyzed by: 

SLH2

[illegible]

Raw	Data	Dump	for	AEA	Spectrum:	5a5616.CNF	WHC-SD-WM-DP-217, REV. 9			
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	1.	0.	0.	2.	1.	0.	1.	0.	1.
21	1.	1.	0.	0.	2.	0.	0.	0.	1.	0.
31	0.	0.	0.	0.	3.	1.	1.	0.	0.	2.
41	1.	3.	1.	2.	0.	1.	0.	1.	1.	2.
51	0.	0.	0.	1.	2.	1.	0.	2.	2.	2.
61	1.	3.	0.	0.	0.	0.	3.	2.	3.	0.
71	1.	0.	0.	1.	1.	1.	2.	0.	2.	2.
81	2.	2.	2.	2.	1.	2.	0.	2.	1.	2.
91	0.	1.	0.	2.	1.	0.	2.	1.	2.	2.
101	2.	2.	0.	0.	0.	2.	2.	2.	0.	1.
111	2.	1.	3.	4.	1.	2.	3.	5.	0.	1.
121	6.	2.	4.	3.	2.	3.	4.	4.	1.	2.
131	1.	4.	2.	1.	3.	2.	3.	3.	3.	4.
141	8.	2.	2.	3.	3.	7.	6.	6.	3.	2.
151	1.	4.	4.	5.	6.	2.	7.	7.	6.	10.
161	9.	9.	6.	8.	7.	4.	10.	9.	8.	10.
171	13.	10.	19.	9.	16.	16.	9.	16.	15.	15.
181	19.	19.	20.	28.	22.	23.	28.	25.	23.	14.
191	22.	19.	37.	35.	38.	26.	42.	30.	35.	43.
201	54.	44.	49.	56.	51.	65.	58.	61.	78.	61.
211	64.	73.	100.	106.	113.	120.	130.	133.	156.	174.
221	187.	196.	206.	207.	262.	263.	322.	309.	346.	365.
231	354.	307.	299.	261.	168.	134.	80.	53.	30.	23.
241	9.	11.	15.	12.	21.	13.	19.	8.	9.	18.
251	18.	15.	28.	25.	27.	33.	23.	31.	25.	19.
261	21.	29.	35.	31.	40.	39.	38.	38.	39.	43.
271	40.	39.	44.	40.	49.	58.	59.	65.	62.	73.
281	69.	87.	80.	79.	85.	98.	137.	126.	132.	133.
291	148.	156.	131.	158.	159.	216.	202.	185.	212.	239.
301	238.	262.	276.	297.	280.	273.	231.	192.	162.	117.
311	75.	83.	74.	98.	88.	80.	72.	109.	97.	94.
321	111.	108.	115.	119.	142.	143.	158.	158.	172.	185.
331	184.	210.	228.	244.	248.	277.	272.	289.	319.	337.
341	379.	388.	442.	440.	496.	545.	588.	629.	693.	811.
351	881.	1008.	1065.	1197.	1210.	1275.	1237.	1298.	1363.	1574.
361	1646.	1825.	1814.	1683.	1555.	1156.	805.	470.	223.	103.
371	32.	12.	5.	6.	3.	2.	1.	0.	0.	2.
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.	1.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.
441	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	2.	0.	2.
461	1.	0.	1.	1.	0.	0.	0.	1.	0.	1.
471	1.	1.	3.	1.	3.	1.	0.	1.	3.	1.
481	1.	2.	0.	1.	0.	1.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.
 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. 2.02

DATA REDUCTION REPORT

SAMPLE
 S96T005186-DUP-P
 File ID: 6a6718.CNF

Counted on: 10/23/96 @ 0:56
 Detector: AEA6
 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	1377.6	1377.6	361.228	361.228	16.000	9.985	8.000	2.248
2	204.6	204.6	303.472	302.929	16.000	9.141	8.000	1.638
3	271.0	271.0	229.719	229.617	18.000	10.152	9.000	2.377

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	Cm243	0.720	5.779	5.741	0.0380.05	71.00	1.1	199.6	0.899E-04
	Pu236		5.755	5.741	0.014			148.7	0.670E-04
2	Am241	0.122	5.479	5.473	0.0060.04	12.04	3.0	26.3	0.118E-04
	Pu238		5.487	5.473	0.014			34.3	0.155E-04
3	Pu239	0.139	5.147	5.136	0.0110.05	13.69	2.5	28.1	0.127E-04
	Pu240		5.144	5.136	0.008			28.1	0.127E-04

Totals:		0.981	<--valid peaks only-->			96.73			

DETECTOR CALIBRATION

Energy(MEV) = 4.080 + (0.0046)*Channel
 Energy range (MeV): 4.080 TO 6.435
 Efficiency = 0.4873 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	47339.0	100.000
Smoothed	47341.9	100.006
Composite fit	46437.0	98.095
Residuals	902.0	1.905

Analyzed by:

SLH2

1

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.....1.....1.....
.....1.....1.....
.....1.....1.....
.....1.....1.....

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Raw	Data	Dump	for	AEA	Spectrum:	6a6718.CNF				
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	3.	0.	2.	0.	1.	1.	2.	2.	0.	2.
21	1.	1.	1.	0.	3.	2.	0.	0.	2.	0.
31	0.	0.	0.	2.	3.	0.	2.	0.	0.	1.
41	0.	1.	0.	0.	0.	0.	4.	2.	2.	1.
51	1.	1.	0.	4.	2.	2.	2.	2.	1.	1.
61	0.	1.	2.	2.	0.	1.	2.	1.	0.	1.
71	0.	3.	1.	2.	0.	3.	1.	3.	1.	2.
81	2.	3.	0.	2.	2.	0.	3.	0.	2.	2.
91	3.	3.	2.	2.	0.	1.	4.	2.	0.	1.
101	2.	1.	1.	1.	2.	5.	1.	1.	8.	4.
111	2.	2.	1.	3.	6.	3.	1.	2.	2.	1.
121	4.	3.	2.	2.	0.	2.	1.	6.	2.	1.
131	2.	5.	7.	3.	4.	3.	4.	2.	5.	6.
141	4.	4.	3.	4.	6.	4.	7.	9.	7.	6.
151	4.	11.	8.	7.	7.	13.	9.	8.	12.	13.
161	9.	11.	8.	5.	12.	18.	12.	13.	8.	10.
171	15.	15.	15.	22.	17.	11.	21.	17.	11.	17.
181	17.	15.	18.	24.	27.	22.	17.	27.	30.	30.
191	21.	28.	41.	28.	35.	34.	43.	34.	41.	39.
201	53.	49.	52.	57.	63.	56.	54.	79.	82.	71.
211	90.	103.	114.	102.	121.	156.	135.	144.	182.	167.
221	195.	192.	246.	247.	265.	247.	279.	290.	296.	290.
231	260.	300.	249.	220.	158.	142.	121.	81.	40.	38.
241	18.	13.	20.	22.	15.	15.	22.	22.	26.	13.
251	24.	22.	16.	20.	24.	26.	26.	28.	29.	28.
261	22.	31.	42.	34.	38.	34.	50.	49.	44.	37.
271	51.	49.	55.	65.	54.	65.	68.	69.	69.	76.
281	78.	84.	86.	99.	99.	102.	102.	130.	151.	157.
291	146.	164.	173.	159.	187.	195.	205.	221.	232.	239.
301	235.	248.	253.	265.	244.	233.	220.	174.	135.	150.
311	128.	107.	106.	92.	85.	99.	92.	92.	96.	125.
321	117.	142.	111.	129.	147.	169.	165.	183.	198.	213.
331	191.	210.	264.	261.	270.	310.	314.	337.	351.	381.
341	388.	415.	468.	499.	550.	586.	734.	687.	747.	835.
351	914.	970.	1037.	1064.	1161.	1222.	1312.	1316.	1399.	1465.
361	1392.	1443.	1397.	1320.	1156.	1004.	770.	594.	414.	274.
371	173.	86.	35.	19.	12.	8.	4.	0.	1.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
401	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
451	0.	0.	0.	1.	1.	1.	0.	1.	1.	0.
461	1.	0.	1.	1.	0.	1.	0.	0.	1.	1.
471	0.	1.	2.	3.	2.	2.	4.	1.	5.	3.
481	5.	0.	2.	3.	1.	1.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

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