This document was too large to scan as a whole document,
therefore it required breaking into smaller sections.

Document number: SD-WM-OP-238

Section 1 of 2

Title: Waste Compatibility Safety Issues
and Final Results for Tank
241-T-110 Pump/Moisture Samples

Pgs. EDT-307

Date: 5/15/97 Revision: A000

Originator: Nuzum J.L.
Co: RFSH

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Page 1 of 1
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Waste Compatibility Safety Issues and Final Results for Tank 241-T-110 Push Mode Samples

Jennifer L. Muzum

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

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HNH-SD-WM-DP-238, REV. 0

ANALYTICAL SERVICES

**WASTE COMPATIBILITY SAFETY ISSUES AND FINAL
RESULTS FOR TANK 241-T-110 PUSH MODE
SAMPLES**

Project Coordinator: JENNIFER L. NUZUM

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

by

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

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TABLE OF CONTENTS

Narrative	1
T-110 Sample Breakdown (Attachment 1)	12
Sample Data Summary	30
Chain of Custody Forms	49
Photographs	68
Bulk Density Worksheets	87
Data Verification and Deliverable Summary Report (Attachment 2)	104
Sample Handling	193
Extrusion Worklist # 16499 (99)	195
Extrusion Worklist # 16500 (100)	196
Extrusion Worklist # 16501 (101)	197
Extrusion Worklist # 16502 (102)	198
Extrusion Worklist # 16503 (103)	199
Extrusion Worklist # 16504 (104)	200
Extrusion Worklist # 16513 (105)	201
Extrusion Worklist # 16514 (106)	202
Extrusion Worklist # 16515 (107)	203
Extrusion Worklist # 16643 (153)	204
Extrusion Worklist # 16644 (154)	205
Extrusion Worklist # 16646 (155)	206
Extrusion Worklist # 16726 (187)	207
Extrusion Worklist # 16726 (188)	208
Extrusion Worklist # 16727 (189)	209
Extrusion Worklist # 16728 (183)	210
Extrusion Worklist # 16889 (182)	211
Sample Preparations	212
Fusion Digest Worklist # 16689 (148, 149)	214
Fusion Digest Worklist # 16690 (162, 169, 178)	215
Fusion Digest Worklist # 16818 (1996, 230)	218
Fusion Digest Worklist # 16820 (232, 233, 268)	220
Fusion Digest Worklist # 16821 (269, 270)	221
Fusion Digest Worklist # 16885 (150, 151)	224
Inorganic Analysis	225
Differential Scanning Calorimetry (DSC)	
DSC Worklist # 16714 (119)	227
DSC Worklist # 16716 (125, 141)	234
DSC Worklist # 16717 (142, 143)	240

TABLE OF CONTENTS (Continued)

DSC Worklist # 16718 (144, 145)	247
DSC Worklist # 16719 (146, 147)	255
DSC Worklist # 16720 (158, 159)	262
DSC Worklist # 16798 (125, 141, 142, 143, 144, 145, 146, 147, 158, 159)	269
DSC Worklist # 16825 (192, 193, 214)	272
DSC Worklist # 16826 (216, 217, 218)	281
DSC Worklist # 16827 (219, 220)	292
DSC Worklist # 16828 (221, 222)	299
DSC Worklist # 16896 (192, 193, 214, 216, 217, 218, 219, 220, 221, 222)	306
DSC Worklist # 16904 (119)	308
DSC Worklist # 17018 (168, 170)	309
DSC Worklist # 17019 (174, 176)	317
DSC Worklist # 17020 (261, 262)	324
DSC Worklist # 17021 (263, 264)	331
DSC Worklist # 17022 (265, 266)	340
DSC Worklist # 17125 (168, 170, 174, 175, 261, 262, 263, 264, 265, 266)	346
Thermogravimetric Analysis (TGA)	
TGA Worklist # 16707 (119)	348
TGA Worklist # 16709 (125, 141)	355
TGA Worklist # 16710 (142, 143)	361
TGA Worklist # 16711 (144, 145)	368
TGA Worklist # 16712 (146, 147)	374
TGA Worklist # 16713 (158, 159)	381
TGA Worklist # 16830 (192, 193, 214)	388
TGA Worklist # 16831 (216, 217, 218)	397
TGA Worklist # 16832 (219, 220)	408
TGA Worklist # 16833 (221, 222)	415
TGA Worklist # 17028 (168, 170)	422
TGA Worklist # 17029 (174, 175)	430
TGA Worklist # 17030 (261, 262)	436
TGA Worklist # 17031 (263, 264)	442
TGA Worklist # 17032 (265, 266)	450
TGA Worklist # 17116 (214)	456
Specific Gravity Analysis (SpG)	
SpG Worklist # 16721 (119)	460
SpG Worklist # 16749 (204)	466
Ion Chromatography (IC)	
IC Worklist # 16706 (119)	472
IC Worklist # 17115 (381)	479
Inductively Coupled Plasma Spectrophotometer (ICP)	
ICP Worklist # 16639 (119)	486

TABLE OF CONTENTS (Continued)

Total Inorganic Carbon / Total Organic Carbon (TICTOC)	
TICTOC Worklist # 16990 (381)	495
Radiochemical Analysis	519.1
Total Alpha (AT)	
AT Worklist # 16696 (119)	520
AT Worklist # 16899 (150, 151)	526
AT Worklist # 17065 (232, 233, 268)	534
AT Worklist # 17066 (162, 165, 178)	545
AT Worklist # 17067 (148, 149)	556
AT Worklist # 17068 (259, 270)	565
AT Worklist # 17072 (186, 230, 231)	574
Plutonium 239/240 (Pu239)	
Pu239 Worklist # (381)	586

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NARRATIVE

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222-S ANALYTICAL SERVICES

TANK 241-T-110, CORES 180 AND 181,
ANALYTICAL RESULTS FOR THE FINAL REPORT

Summary

This document is the final laboratory report for Tank 241-T-110. Push mode core segments were removed from risers 2 and 6 between January 29, 1997, and February 7, 1997. Segments were received and extruded at 222-S Laboratory. Analyses were performed in accordance with *Tank 241-T-110 Push Mode Core Sampling and Analysis Plan (TSAP)* (McCain, 1997) and *Safety Screening Data Quality Objective (DQO)* (Dukelow, et al., 1995).

None of the subsamples submitted for total alpha activity (AT) or differential scanning calorimetry (DSC) analyses exceeded the notification limits stated in DQO.

Appearance and Sample Handling

Two cores of eight segments were expected from this tank. Complete cores were obtained.

Attachment 1 illustrates subsamples generated in the laboratory for analysis and identifies their sources. This reference also relates tank form identification numbers to their corresponding 222-S Laboratory sample numbers.

Core 180

Segments 1-8 were removed from Tank 241-T-110 Riser 6 between February 6, 1997, and February 7, 1997. All segments were received by 222-S Laboratory between February 10, 1997, and February 14, 1997. There was no sample retrieved from Segment 5. Table 1 summarizes extrusion information.

Core 181

Segments 1-8 were removed from Tank 241-T-110 Riser 2 between January 29, 1997, and February 3, 1997. All segments were received by 222-S Laboratory on February 3, 1997. Table 2 summarizes extrusion information.

Field Blank

A field blank was provided to 222-S Laboratory with Core 181. This sample was treated as a drainable liquid in accordance with TSAP.

Hydrostatic Head Fluid Blank

There was no indication of the use of hydrostatic head fluid (HHF) in sampling, nor a HHF blank provided to 222-S Laboratory.

HNF-SD-WM-DP-238, REV. 0

Table 1. Sample Receipt and Extrusion Information for T-110, Core 180.

Sample ID	Sample Number	Sample Date	Sample Time	Sample Location	Sample Depth (ft)	Sample Depth (m)	Sample Description	Sample Notes
97-1	1	2/5/97	2/10/97	2/18/97	19.0	5.7	164 2--Lower Half 175 7--Upper Half	Solids were yellow to brown and resembled a wet sludge
97-2	2	2/5/97	2/10/97	2/18/97	19.0	5.7	154 7--Lower Half 166 7--Upper Half	Solids were dark yellow and resembled a wet sludge
97-3	3	2/5/97	2/10/97	2/18/97	19.0	5.7	164 0--Lower Half 167 0--Upper Half	Solids were dark yellow and resembled a wet sludge
97-4	4	2/5/97	2/10/97	2/18/97	19.0	5.7	216 1--Lower Half 196 3--Upper Half	Solids were dark yellow and resembled a wet sludge
97-5	5	2/5/97	2/10/97	2/18/97	0.0	0.0	0.0	There were no solids or liquids retrieved. The sampler was empty
97-6	6	2/5/97	2/10/97	2/18/97	19.0	5.7	173 0--Lower Half 173 7--Upper Half	Solids were dark yellow and resembled a wet sludge
97-7	7	2/5/97	2/10/97	2/18/97	19.0	5.7	148 5--Lower Half 179 3--Upper Half	Solids were dark yellow and resembled a dry sludge
97-8	8	2/5/97	2/10/97	2/18/97	10.0	3.0	144 0--Lower Half 218 4--Upper Half	Solids were dark yellow and resembled a dry sludge

*Approximate Depth Extruded

HNF-SD-WM-DP-238, REV. 0

Table 2. Sample Receipt and Extraction Information for T-110, Core 151.

Blank	Blank	10/97	10/97	10/97	00	201 1--Orange	00	Descriptive legend was clear and collection
97-08	1	1/25/97	2/3/97	2/3/97	10.0	0.0	135 4--Lower Half 114 3--Upper Half	Solids were dark yellow and resembled a sludge slurry
97-09	2	1/10/97	2/3/97	2/6/97	19.0	0.0	158 6--Lower Half 141 4--Upper Half	Solids were dark yellow and resembled a sludge slurry
97-09.1	3	1/10/97	2/3/97	2/7/97	19.0	0.0	155 9--Lower Half 182 5--Upper Half	Solids were dark yellow and resembled a sludge slurry
97-12	4	1/10/97	2/3/97	2/6/97	19.0	0.0	111 4--Lower Half 178 6--Upper Half	Solids were dark yellow and resembled a wet sludge
97-13	5	1/10/97	2/3/97	2/13/97	19.0	0.0	164 7--Lower Half 179 4--Upper Half	Solids were dark yellow and resembled a wet sludge
97-14	6	1/10/97	2/3/97	2/13/97	19.0	0.0	161 6--Lower Half 183 4--Upper Half	Solids were dark yellow and resembled a wet sludge
97-15	7	1/10/97	2/3/97	2/11/97	19.0	0.0	164 7--Lower Half 186 6--Upper Half	Solids were dark yellow and resembled a wet sludge
97-16	8	1/11/97	2/3/97	2/18/97	19.0	0.0	183 6--Lower Half 174 1--Upper Half	Solids were dark yellow and resembled a wet sludge

*Approximate Jarako Extracted

Analytical Results Summary

The Data Summary Table (Table 3) included in this report compiles analytical results associated with each subsample submitted in accordance with TSAP and DQO.

Liquid subsamples prepared for analysis by an acid adjustment of the direct subsample are indicated by a "D" in the A# column in Table 3. Solid subsamples prepared for analysis by performing a fusion digest are indicated by a "F" in the A# column in Table 3. Solid subsamples prepared for analysis by performing a water digest are indicated by a "W" in the A# column of Table 3.

Near infrared spectroscopy and percent water by gravimetry analyses were performed on drainable liquid and half segment samples by Numatec Hanford Company at 222-S Laboratory. These results will be reported in a revision to this document.

Inorganic Analyses

Differential Scanning Calorimetry (DSC) Analysis

The exothermic energy, based on dry weight of subsample, was calculated for all subsamples. The average of the thermogravimetric analysis (TGA) results for each subsample was used in the dry weight correction for that subsample. Statistical evaluation of the results by calculating the 95% upper confidence limit is not performed by 222-S Laboratory and, thus, not considered in this report.

Relative percent difference (RPD) between sample and duplicate for Upper Half Segment 5 of Core 181 (S97T000170) was 200%. Poor precision is due to a very small exotherm detected on the duplicate in comparison to no exotherm present for the sample. Rerun analysis was not requested.

Thermogravimetric Analysis (TGA)

TGA results were typically determined by summing weight loss steps below 200°C. Weight loss steps above this were not used to determine the result. More information may be obtained by examining the raw data.

A second analysis of Lower Half Segment 1 of Core 180 (S97T000214) was performed (denoted by a "1" in the replicate (R) column of Table 3) due to differences in appearance of the thermograms between the sample and duplicate. These differences were not seen in the replicate analysis. The results for both analyses are presented in Table 3.

Density

Bulk density was requested only on lower half segments in accordance with TSAP. Results from bulk density tests ranged from 1.16 g/mL to 1.32 g/mL. The highest bulk density result of 1.32 g/mL was used to calculate the solid total alpha activity notification limit for this tank (46.6 $\mu\text{Ci/g}$).

Specific Gravity (SpG)

There were no exceptions to the quality control (QC) parameters stated in TSAP for these subsamples.

Ion Chromatography (IC)

There were no exceptions to the QC parameters stated in TSAP for these subsamples.

Inductively Coupled Plasma Spectrophotometry (ICP)

There were no exceptions to the QC parameters stated in TSAP for these subsamples.

Total Organic Carbon (TOC)

There were no exceptions to the QC parameters stated in TSAP for these subsamples.

Total Inorganic Carbon (TIC)

For all TIC analyses, a "Total Inorganic Carbon Analysis Report" worksheet is included as raw data. Due to programming limitations with the TIC instrument software, the sample size listed on this worksheet is incorrect. This value is not used in the final calculations (also included) and has no bearing on the results in Table 3. Results are presented in Table 3 as opportunistic. There were no customer defined TIC QC parameters. The results are not discussed.

Radiochemistry Analyses

Attachment 2 contains the Data Verification and Deliverable (DVD) Summary Report for radiochemistry analyses. This report summarizes results from radiochemistry analyses and provides data qualifiers and total propagated uncertainty (TPU) values for results. The TPU values are based on the uncertainties inherent in each step of the analysis process. They may be used as an additional reference to determine "reasonable" RPD values which may be used to accept valid data that do not meet the TSAP acceptance criteria. A report guide is provided with the report to assist in understanding this summary report.

Total Alpha (AT) Analysis

AT analyses were requested for lower half segments only in accordance with TSAP. Liquid AT results were below the total alpha activity notification limit of $61.5 \mu\text{Ci/mL}$. All solid AT results were below the total alpha activity notification limit of $46.6 \mu\text{Ci/g}$ (based on a bulk density of 1.32 g/mL).

RPD between sample and duplicate exceeded 20% for four subsamples. Segments 3, 4, and 6 of Core 180 (S97T000231, S97T000232, and S97T000233) and Segment 5 of Core 181 (S97T000169) had RPDs of 20.8%, 31.4%, 39.5%, and 21.4%, respectively. High RPD is due to low sample alpha activity. Rerun analyses were not requested. AT analysis of five subsamples resulted in low spike recoveries. For Segments 1 and 7 of Core 180 (S97T000230 and S97T000269) and Segment 8 of Core 181 (S97T000196), rerun results showed similar spike recoveries, suggesting the cause to be matrix interference. Continuing reruns were not requested. For Segment 4 of Core 180 (S97T000232) and Segment 7 of Core 181 (S97T000162), the spike recoveries were within control limits for the QC standard. Rerun analyses were not requested.

Plutonium 239/240 (Pu)

There were no exceptions to the QC parameters stated in TSAP for these subsamples.

Procedures

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

Table 4. Analytical Procedures

Analysis	Sample Type	Procedure	Reference
DSC	Solid Liquid	N/A	LA-514-113 Rev C-1 LA-514-114 Rev D-0
TGA	Solid Liquid	N/A	LA-514-114 Rev D-0 LA-560-112 Rev C-0
Density	Solid	N/A	LO-160-103 Rev B-0
AT	Solid Liquid	H.A-349-141 Rev F-0 N/A	LA-308-101 Rev F-0
Sp G	Liquid	N/A	LA-510-112 Rev D-1
IC	Liquid	N/A	LA-533-105 Rev D-1
ICP	Liquid	N/A	LA-505-161 Rev B-1
Tec	Liquid	N/A	LA-342-100 Rev E-0
TTC	Liquid	N/A	LA-342-100 Rev E-0
IN	Liquid	N/A	LA-243-128 Rev B-0

BNF-SD-WM-DF-238, REV. 0

Notes:

N/A	not applicable (these are direct samples)
DSC	differential scanning calorimetry
TGA	thermogravimetric analysis
Density	bulk density
AT	total alpha
Sp.G	specific gravity
IC	ion chromatography
ICP	inductively coupled plasma
TOC	total organic carbon
TIC	total inorganic carbon
Pu	photonium 239/240
+	fusion digest

References

- Dukelow, G. T., J. W. Hunt, H. Babad, and J. E. Maacham, 1995, *Tank Safety Screening Data Quality Objective*, WHC-SD-WM-SP-004, Rev. 2, Westinghouse Hanford Company, Richland, WA 99352.
- McCain, D.J., 1997, *Tank 241-T-110 Push Mode Core Sampling and Analysis Plan*, HNF-SD-WM-TSAP-113, Rev. 1, Westinghouse Hanford Company, Richland, WA 99352.
- Meznarch, H. K., 1995, *Quality Assurance Plan for the 222-S Laboratories*, WHC-SD-CP-QAPP-016, Rev. 0, Westinghouse Hanford Company, Richland, WA 99352.

HNF-SD-WM-OP-238, REV. 0

T-110 SAMPLE BREAKDOWN (ATTACHMENT 1)

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Attachment 1

T-110
Core:181
Seg: 1 (97-09)
S97T000100

Attachment 1

Upper
Hall

S97T000127

Lower
Hall

S97T000124

15

S97T000141

S97T000134

S97T000125

S97T000126

S97T000148

HNIF-SD-MM-DF-238, REV. 0

T-110
Core:181
Seg: 2 (97-010)
S97T000101

Attachment 1

T-110
Core:181
Seg: 3 (97-011)
S97T000102

Attachment 1

T-110
Core:181
Seg: 4 (97-12)
S97T000103

Attachment 1

Upper
Hall

S97T000133

Lower
Hall

S97T000132

18

S97T000147

S97T000140

S97T000146

S97T000139

S97T000151

HNF-SD-WM-DP-228, REV. 0

T-110
Core:181
Seg: 5 (97-13)
S97T000104

Attachment 1

Upper
Hall

S97T000168

Lower
Hall

S97T000165

19

S97T000170

S97T000171

S97T000166

S97T000167

S97T000169

HNF-SD-WM-DP-239, REV. 0

T-110
Core:181
Seg: 6 (97-14)
S97T000105

Attachment 1

Upper
Half

S97T000173

Lower
Half

S97T000172

S97T000175

S97T000177

S97T000174

S97T000176

S97T000178

HF-SO-WM-CP-236, REV. 0

T-110
Core:181
Seg: 7 (97-15)
S97T000106

Attachment 1

21

T-110
Core:181
Seg: 8 (97-16)
S97T000107

Attachment 1

HNF-SG-WM-DF-238, REV. 0

T-110

Core:180

Seg: 1 (97-1)

S97T000153

Attachment 1

T-110
Core:180
Seg: 2 (97-2)
S97T000154

Attachment 1

24

T-110
Core:180
Seg: 3 (97-3)
S97T000155

Attachment 1

T-110
Core:180
Seg: 4 (97-4)
S97T000187

Attachment 1

Upper
Hall

S97T000211

Lower
Hall

S97T000210

92

S97T000220

S97T000227

S97T000219

S97T000226

S97T000232

HNF-SD-WHA-OP-238, REV. 0

T-110
Core:180
Seg: 6 (97-6)
S97T000189

Attachment 1

27

Upper
Hall

S97T000213

Lower
Hall

S97T000212

S97T000222

S97T000229

S97T000221

S97T000228

S97T000233

YMF-SD-WM-DP-238, REV. 0

T-110
Core:180
Seg: 7 (97-7)
S97T000183

Attachment 1

T-110
Core:180
Seg: 8 (97-8)
S97T000182

Attachment 1

29

Upper
Half

S97T000254

Lower
Half

S97T000258

S97T000268

S97T000260

S97T000265

S97T000269

S97T000270

HNF-9D-MH-0P-238, REV. 0

HMF-SD-WM-OP-238, REV. 0

SAMPLE DATA SUMMARY

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Table 3. Data Summary Table
1-110

CONE NUMBER: 100
SEGMENT #: 1

SEGMENT PORTION: U Upper Half of Segment

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S92T000216		DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S92T000216		DSC Exotherm on Parlin Filter	Joules/g	77.30	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S92T000216		% Water by TGA on Parlin Filter	%	99.26	n/a	76.98	77.40	77.19	0.54	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S92T900206		Bulk Density of Sample	g/mL	n/a	n/a	1.290	n/a	n/a	n/a	n/a	5.00e-01	n/a
S92T900214		DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S92T900214		DSC Exotherm on Parlin Filter	Joules/g	94.52	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S92T900214		% Water by TGA using Mettler	%	99.65	n/a	77.27	77.18	77.22	0.12	n/a	n/a	n/a
S92T900214		% Water by TGA on Parlin Filter	%	99.29	n/a	9.280	76.91	43.09	157	n/a	n/a	n/a
S92T000230	F	Alpha of Digested Solid	uCi/g	85.50	<1.64e-03	4.47e+02	4.43e+02	4.54e+02	3.52	56.70	5.00e-03	1.60E+01

Table 3. Data Summary Table
T-110

CORE NUMBER: 180
SEGMENT #: 2

SEGMENT POSITION: U Upper Half of Segments

Sample#	ANALYZER	Unit	Standard %	Blank	Result	Duplicates	Average	APD %	Std. Dev %	Det. Limit	Count Error
5571000252	HSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.804+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
5571000253	HSC Exotherm on Perkin Elmer	Joules/g	94.76	n/a	0.804+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
5571000254	% Water by TGA using Mettler	%	98.81	n/a	77.10	76.36	76.73	0.95	n/a	n/a	n/a

L Lower Half of Segments L Lower Half of Segments

Sample#	ANALYZER	Unit	Standard %	Blank	Result	Duplicates	Average	APD %	Std. Dev %	Det. Limit	Count Error
5571000255	Bulk Density of Sample	g/cm ³	n/a	n/a	1.250	n/a	n/a	n/a	n/a	5.00e-01	n/a
5571000257	HSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
5571000258	HSC Exotherm on Perkin Elmer	Joules/g	94.76	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
5571000259	% Water by TGA using Mettler	%	98.81	n/a	77.84	75.60	76.72	0.95	n/a	n/a	n/a
5571000259	% Ashes of Digested Solid	g/g	86.00	<1.67e-05	4.41e-02	3.90e-02	4.16e-02	12.3	n/a	3.00e-03	3.55e+01

Table 3. Data Summary Table
T-110

CORE NUMBER: 180
SEGMENT #: 3

SEGMENT PORTION: V Upper Half of Segment

Sample	R Ad	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RSD %	Std Dev %	Det Limit	Count Err%
S971000215		DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S971000216		DSC Exotherm on Packin Elmer	Joules/g	91.59	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S971000218		% Water by TGA on Packin Elmer	%	99.24	n/a	76.61	76.03	76.32	0.76	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample	R Ad	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RSD %	Std Dev %	Det Limit	Count Err%
S971000205		Bulk Density of Sample	g/ml	n/a	n/a	1.320	n/a	n/a	n/a	n/a	2.00e-01	n/a
S971000217		DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S971000217		DSC Exotherm on Packin Elmer	Joules/g	91.59	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S971000217		% Water by TGA on Packin Elmer	%	99.24	n/a	76.27	76.28	76.28	0.34	n/a	n/a	n/a
S971000241		# Alpha of Disaggregated Solid	UG/g	85.50	<1.64e-03	2.88e-02	1.55e-02	1.21e-02	20.31	n/a	1.00e-02	2.00e+01

Table 3. Data Summary Table
T-110

CORE NUMBER: 100
SEGMENT #: 4

SEGMENT POSITION: 4 Upper Half of Segment

Sample#	RAW	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RSD %	Std Err %	Det Limit	Count Err%
8071000200		DSC Isotherm Dry - Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
8071000200		DSC Isotherm on Porfin Elmer	Joules/g	91.70	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
8071000200		% Water by TGA on Porfin Elmer	%	98.70	n/a	77.15	75.60	76.38	0.18	n/a	n/a	n/a

Lower Half of Segment 1 Lower Half of Segment

Sample#	RAW	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RSD %	Std Err %	Det Limit	Count Err%
8071000210		Bulk Density of Sample	g/mL	n/a	n/a	1.340	n/a	n/a	n/a	n/a	5.00e-01	n/a
8071000210		DSC Isotherm Dry - Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
8071000210		DSC Isotherm on Porfin Elmer	Joules/g	91.70	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
8071000210		% Water by TGA on Porfin Elmer	%	98.70	n/a	75.25	74.80	75.53	1.95	n/a	n/a	n/a
8071000220	F	Alpha of Digestion Solid	g/g	86.00	<1.47e-05	4.50e-02	4.20e-02	5.40e-02	31.1	66.70	4.00e-03	1.50e-01

Table 3. Data Summary Table
T-170

CORE NUMBER: 130
SEGMENT #: 6

SEGMENT POSITION: Upper Half of Segment

Sample#	RA	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
8971000222		DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
8971000222		DSC Exotherm on Perkin Elmer	Joules/g	93.74	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
8971000222		% Water by TGA on Perkin Elmer	%	98.85	n/a	72.80	74.87	73.84	2.60	n/a	n/a	n/a

1. Lower Half of Segments 2. Lower Half of Segment

Sample#	RA	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
8971000221		DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
8971000221		DSC Exotherm on Perkin Elmer	Joules/g	93.74	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
8971000221		% Water by TGA on Perkin Elmer	%	98.85	n/a	71.95	71.32	71.63	0.88	n/a	n/a	n/a
8971000233	F	Alpha of Digested Solid	uCi/g	86.08	<1.62e-02	4.10e-02	6.80e-02	5.45e-02	39.3	n/a	4.40e-02	1.88e+01

Table 3. Data Summary Table
T-110

CORE NUMBER: 180
SEGMENT #: 7

SEGMENT POSITION: Upper Half of Segment

Sample#	R AS	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	APD %	Spk Rec %	Det Limit	Count Err%
5577000264		DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
5577000264		DSC Exotherm on Perkin Elmer	Joules/g	04.76	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
5577000264		% Water by IGA using Mettler	%	06.37	n/a	74.22	74.27	74.25	0.05	n/a	n/a	n/a

Lower Half of Segment & Lower Half of Segment

Sample#	R AS	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	APD %	Spk Rec %	Det Limit	Count Err%
5577000265		Bulk Density of Sample	g/mL	n/a	n/a	1.230	n/a	n/a	n/a	n/a	5.00e-01	n/a
5577000265		DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
5577000265		DSC Exotherm on Perkin Elmer	Joules/g	04.76	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
5577000265		% Water by IGA using Mettler	%	06.37	n/a	73.50	73.22	73.36	0.26	n/a	n/a	n/a
5577000265		Alkyls of Chlorinated Solids	wt-%	07.00	<1.00e-05	7.72e-02	7.22e-02	7.50e-02	7.67	28.70	5.00e-03	1.37e+01

Table 3. Data Summary Table
T-110

CORE NUMBER: 100
SEGMENT #: 8

SEGMENT PORTION: U Upper Half of Segment

Sample#	A	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	SD %	Spk Rec %	Det Limit	Count Err%
5971000255		DSC (sothern using Mettler	Joules/g	59.55	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
5971000255		DSC (sothern Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
5971000255		% water by TGA using Mettler	%	99.50	n/a	74.77	74.82	74.79	0.07	n/a	n/a	n/a

L Lower Half of Segment: 1 Lower Half of Segment

Sample#	B	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	SD %	Spk Rec %	Det Limit	Count Err%
5971000255		Bulk Density of Sample	g/cm	n/a	n/a	1.238	n/a	n/a	n/a	n/a	5.00e-01	n/a
5971000255		DSC (sothern using Mettler	Joules/g	59.55	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
5971000255		DSC (sothern Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
5971000255		% water by TGA using Mettler	%	99.50	n/a	74.15	74.01	74.08	0.19	n/a	n/a	n/a
5971000270	F	Alpha of Blended Solid	wt/g	97.69	41.00e+03	8.90e+02	7.62e+02	8.26e+02	16.2	n/a	5.00e+03	1.21E-01

63
60

HAIF-SD-WM-CP-288, REV. 0

Table 3. Beta Summary Table
T-110

CORE NUMBER: 101

SECONDARY FIELD BLANK

SIGNATURE POSITION: Field Blank

Sample#	RA	Analyte	Unit	Standard X	Blank	Results	Duplicate	Average	RPO X	Spk Res X	Back Limit	Count Err
8971000119		212 Barium-Dry, Calculated	Counts/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
8971000119		212 Barium-Dry on Perkin Elmer	Counts/g	92.05	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
8971000119		Specific Gravity	Sp. G.	180.2	n/a	9.88e-01	9.70e-01	9.79e-01	0.30	n/a	1.00e-02	n/a
8971000119		2 Silver by ICP on Perkin Elmer	ppm	97.31	n/a	92.66	89.63	91.15	0.04	n/a	n/a	n/a
8971000119	B	Silver-ICP-Acid Dil.	ppm	98.80	<1.00e-02	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	1.00e-02	n/a
8971000119	B	Aluminum-ICP-Acid Dil.	ppm	99.08	<1.00e-02	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	1.00e-02	n/a
8971000119	B	Arsenic-ICP-Acid Dil.	ppm	100.0	<1.00e-01	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	1.00e-01	n/a
8971000119	B	Boron-ICP-Acid Dil.	ppm	100.4	<1.00e-02	1.250	1.250	1.250	1.33	2.09	n/a	n/a
8971000119	B	Barium-ICP-Acid Dil.	ppm	99.00	<1.00e-02	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	1.00e-01	n/a
8971000119	B	Beryllium-ICP-Acid Dil.	ppm	102.4	<1.00e-03	<1.00e-03	<1.00e-03	<1.00e-03	n/a	n/a	1.00e-02	n/a
8971000119	B	Bismuth-ICP-Acid Dil.	ppm	102.4	<1.00e-01	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	1.00e-01	n/a
8971000119	B	Calcium-ICP-Acid Dil.	ppm	98.20	<1.00e-01	10.10	10.10	10.10	16.70	0.80	n/a	n/a
8971000119	B	Carbon-ICP-Acid Dil.	ppm	100.4	<1.00e-03	<1.00e-03	<1.00e-03	<1.00e-03	n/a	n/a	1.00e-02	n/a
8971000119	B	Cadmium-ICP-Acid Dil.	ppm	100.0	<1.00e-01	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	1.00e-01	n/a
8971000119	B	Cobalt-ICP-Acid Dil.	ppm	101.2	<1.00e-02	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	1.00e-01	n/a
8971000119	B	Chromium-ICP-Acid Dil.	ppm	100.2	<1.00e-02	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	1.00e-02	n/a
8971000119	B	Copper-ICP-Acid Dil.	ppm	100.2	<1.00e-02	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	1.00e-02	n/a
8971000119	B	Iron-ICP-Acid Dil.	ppm	100.0	<1.00e-02	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	1.00e-01	n/a
8971000119	B	Potassium-ICP-Acid Dil.	ppm	90.00	<1.00e-01	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	1.00e-01	n/a
8971000119	B	Leads-Dry-ICP-Acid Dil.	ppm	102.2	<1.00e-02	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	1.00e-01	n/a
8971000119	B	Lithium-ICP-Acid Dil.	ppm	100.4	<1.00e-02	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	1.00e-02	n/a
8971000119	B	Magnesium-ICP-Acid Dil.	ppm	100.0	<1.00e-01	<1.00e-01	<1.00e-01	<1.00e-01	3.380	1.18	n/a	n/a
8971000119	B	Manganese-ICP-Acid Dil.	ppm	90.00	<1.00e-02	2.77e-01	2.77e-01	2.77e-01	2.77e-01	0.74	n/a	n/a
8971000119	B	Molybdenum-ICP-Acid Dil.	ppm	102.4	<1.00e-02	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	1.00e-01	n/a
8971000119	B	Nickel-ICP-Acid Dil.	ppm	102.2	<1.00e-01	11.70	11.70	11.70	11.60	1.32	n/a	n/a
8971000119	B	Niobium-ICP-Acid Dil.	ppm	101.0	<1.00e-01	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	1.00e-01	n/a
8971000119	B	Nitrate-ICP-Acid Dil.	ppm	100.2	<1.00e-02	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	1.00e-01	n/a
8971000119	B	Phosphorus-ICP-Acid Dil.	ppm	102.0	<1.00e-01	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	1.00e-01	n/a
8971000119	B	Lead-ICP-Acid Dil.	ppm	90.00	<1.00e-01	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	1.00e-01	n/a
8971000119	B	Polonium-ICP-Acid Dil.	ppm	90.00	<1.00e-01	8.820	8.820	8.820	8.940	2.74	n/a	n/a
8971000119	B	Antimony-ICP-Acid Dil.	ppm	97.00	<1.00e-02	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	1.00e-01	n/a
8971000119	B	Selenium-ICP-Acid Dil.	ppm	90.00	<1.00e-01	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	1.00e-01	n/a
8971000119	B	Silicon-ICP-Acid Dil.	ppm	90.00	<1.00e-02	6.700	6.700	6.700	4.730	1.06	n/a	n/a
8971000119	B	Samarium-ICP-Acid Dil.	ppm	100.2	<1.00e-01	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	1.00e-01	n/a
8971000119	B	Selenium-ICP-Acid Dil.	ppm	100.4	<1.00e-02	7.350e-02	7.350e-02	7.350e-02	0.31	n/a	7.00e-02	n/a
8971000119	B	Titanium-ICP-Acid Dil.	ppm	99.80	<1.00e-02	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	1.00e-02	n/a
8971000119	B	Thallium-ICP-Acid Dil.	ppm	97.00	<1.00e-01	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	1.00e-01	n/a
8971000119	B	Uranium-ICP-Acid Dil.	ppm	97.00	<1.00e-01	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	1.00e-01	n/a
8971000119	B	Vanadium-ICP-Acid Dil.	ppm	102.2	<1.00e-02	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	1.00e-01	n/a
8971000119	B	Zinc-ICP-Acid Dil.	ppm	102.4	<1.00e-02	4.50e-01	4.50e-01	4.50e-01	0.30	n/a	1.00e-02	n/a
8971000119	B	Zirconium-ICP-Acid Dil.	ppm	100.4	<1.00e-02	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	1.00e-02	n/a
8971000119		Albino in Liquid Samples	ppm	92.50	<1.00e-02	5.17e-07	5.17e-07	5.17e-07	5.66	n/a	5.00e-07	1.30e-07
8971000119		TIC by Acid/Conductivity	ppm	101.2	5.000	14.10	14.80	14.45	4.84	100	5.000	n/a
8971000119		TIC by Permanganate/Coulometry	ppm	92.00	1.00e-01	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	50.00	20.00

Sample#	A	AB	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
6977000581			Pu-239/240 by TRU-SPEC Resin	uCi/gal	92.66	2.50e-01	<1.58e-01	<1.58e-01	n/a	n/a	n/a	5.38e-03	1.00E+02
6977000581			Fluoride-IC-Bionex 4000/4500	ug/mL	103.6	<1.20e-01	4.95e-01	5.19e-01	5.07e-01	4.73	n/a	1.02e-01	n/a
6977000581			Chloride-IC-Bionex 4000/4500	ug/mL	97.85	<1.70e-01	7.653	8.758	7.000	6.33	n/a	1.87e-01	n/a
6977000581			Nitrite-IC - Bionex 4000/4500	ug/mL	94.65	<1.08e-01	< 1.188	<1.19e0	n/a	n/a	n/a	1.188	n/a
6977000581			Bromide by Ion Chromatograph	ug/mL	100.2	<1.25e-01	< 1.375	<1.38e0	n/a	n/a	n/a	1.375	n/a
6977000581			Nitrate by IC-Bionex 4000/4500	ug/mL	105.9	2.08e-01	7.611	7.090	7.351	7.07	n/a	1.529	n/a
6977000581			Phosphate-IC-Bionex 4000/4500	ug/mL	90.62	<1.20e-01	< 1.320	<1.33e0	n/a	n/a	n/a	1.320	n/a
6977000581			Sulfate by IC-Bionex 4000/4500	ug/mL	105.3	<1.58e-01	16.76	17.20	16.98	2.35	n/a	1.518	n/a
6977000581			Onalate by IC-Bionex 4000/4500	ug/mL	97.46	<1.05e-01	< 1.155	<1.16e0	n/a	n/a	n/a	1.155	n/a

Table 3. Data Summary Table
1-110

CORE NUMBER: 181
SEGMENT #: 1

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	AP	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Bpk Rec %	Det Limit	Count Err%
8971000141			DSC Exotherm using Mettler	Joules/g	28.58	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
8971000141			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
8971000141			% Water by TGA using Mettler	%	100.0	n/a	79.12	77.80	78.46	1.68	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	AP	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Bpk Rec %	Det Limit	Count Err%
8971000124			Bulk Density of Sample	g/mL	n/a	n/a	1.160	n/a	n/a	n/a	n/a	5.00e-01	n/a
8971000124			DSC Exotherm using Mettler	Joules/g	28.58	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
8971000125			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
8971000125			% Water by TGA using Mettler	%	100.0	n/a	79.73	79.69	79.71	0.05	n/a	n/a	n/a
8971000148	F		Alpha of Digested Solid	LC/g	89.50	<1.45e-03	7.30e-02	6.65e-02	7.09e-02	11.6	77.57	5.00e-03	1.25E-01

41

HN-SD-WM-DF-238, REV. 0

Table 3. Data Summary Table
1-110

CORE NUMBER: 181
SEGMENT #: 2

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	Ad	Analyte	Unit	Standard X	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
5271000142			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	0/a	n/a
5271000142			DSC Exotherm on Perkin Elmer	Joules/g	92.62	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	0/a	n/a
5271000142			% Water by TGA on Perkin Elmer	%	97.91	n/a	75.94	76.13	76.03	0.25	n/a	0/a	n/a

L Lower Half of Segment L Lower Half of Segment

Sample#	R	Ad	Analyte	Unit	Standard X	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
5271000142			Bulk Density of Solids	g/cc	n/a	n/a	1.100	n/a	n/a	n/a	n/a	2.00e-01	n/a
5271000142			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	0/a	n/a
5271000142			DSC Exotherm on Perkin Elmer	Joules/g	92.62	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	0/a	n/a
5271000142			% Water by TGA on Perkin Elmer	%	97.91	n/a	77.51	76.07	76.79	1.68	n/a	0/a	n/a
5271000142	F		Alpha of Digestion Solid	g/l/g	89.58	<1.45e+03	4.00e+02	5.12e+02	4.89e+02	9.41	n/a	2.00e+02	1.00e+01

Table 3. Data Summary Table
P-110

CORE NUMBER: 181
SEGMENT #: 3

SEGMENT PORTION: U Upper Half of Segment

Sample#	# of	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
5971000145	1	DSC Exotherm using Mettler	Jou/g/g	99.99	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
5971000145	1	DSC Exotherm Dry Calculated	Jou/g/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
5971000145	1	% Water by TGA using Mettler	%	99.99	n/a	79.29	79.29	79.29	0.37	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	# of	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
5971000150	1	Bulk Density of Sample	g/ml	n/a	n/a	1.210	n/a	n/a	n/a	n/a	3.00e-01	n/a
5971000144	1	DSC Exotherm using Mettler	Jou/g/g	99.99	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
5971000144	1	DSC Exotherm Dry Calculated	Jou/g/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
5971000144	1	% Water by TGA using Mettler	%	99.99	n/a	78.82	78.82	78.82	7.03	n/a	n/a	n/a
5971000150	1	Alphas of Dispersed Solid	wt/g	99.99	<1.75e-06	3.42e-02	3.42e-02	3.42e-02	12.4	n/a	6.04e-06	0.15E+00

43

Table 3. Data Summary Table
 7-190

CORE NUMBER: 101
 SEGMENT #: 4

SEGMENT POSITION: U Lower Half of Segment

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RSD %	Spk Rec %	Det Limit	Count Err
3371000147		DSC Exotherm Dry, Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
3371000147		DSC Exotherm on Perkin Elmer	Joules/g	93.06	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
3371000147		% Water by TGA on Perkin Elmer	%	98.90	n/a	76.00	76.80	76.40	1.05	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RSD %	Spk Rec %	Det Limit	Count Err
3371000152		Bulk Density of Sample	g/mL	n/a	n/a	1.280	n/a	n/a	n/a	n/a	2.40e-01	n/a
3371000146		DSC Exotherm Dry, Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
3371000146		DSC Exotherm on Perkin Elmer	Joules/g	93.06	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
3371000146		% Water by TGA on Perkin Elmer	%	98.99	n/a	75.50	75.90	75.70	0.53	n/a	n/a	n/a
3371000151	F	Alpha of Dispersed Solid	wt.-%	66.50	61.75e-04	3.91e-02	3.98e-02	3.94e-02	1.77	n/a	6.35e-06	7.79e+00

49

HMF-SD-WM-OP-238, REV. 0

Table 3. Data Summary Table
T-190

CORE NUMBER: 101
SEGMENT N: 5

SEGMENT PORTION: Upper Half of Segment

Sample#	R	AN	Analyte	Unit	Standard X	Blank	Results	Duplicate	Average	SD X	Std Dev %	Det Limit	Conv Gr%
8971000170			DSC Exotherm using Mettler	Joules/g	89.98	n/a	16.80	0.00e+00	8.40	200	n/a	n/a	n/a
8971000170			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	51.27	0.00e+00	25.62	200	n/a	n/a	n/a
8971000170			% Water by TGA using Mettler	%	99.61	n/a	75.28	15.57	75.42	0.55	n/a	n/a	n/a

Lower Half of Segment & Lower Half of Segment

Sample#	R	AN	Analyte	Unit	Standard X	Blank	Results	Duplicate	Average	SD X	Std Dev %	Det Limit	Conv Gr%
8971000165			DSC Exotherm using Mettler	Joules/g	89.98	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
8971000165			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
8971000165			% Water by TGA using Mettler	%	99.61	n/a	74.89	15.74	75.00	0.51	n/a	n/a	n/a
8971000169			Alpha of Diamond Solid	wt/g	86.40	86.52e-04	4.25e-02	5.38e-02	4.80e-02	27.6	n/a	2.90e-03	1.05e+01

45

Table 3. Data Summary Table
T-110

CODE NUMBER: 181
SEGMENT #: 6

SEGMENT PORTION: Upper Half of Segment

Sample#	R	AN	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T000175			OSC Exochrom Dry Calculated	Acidus/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000175			OSC Exochrom on Perkin Elmer	Acidus/g	55.77	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000175			% Water by IGA using Mettler	%	100.5	n/a	65.77	75.33	70.35	84.2	n/a	n/a	n/a

Lower Half of Segment: Lower Half of Segment

Sample#	R	AN	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T000175			Bulk Density of Sample	g/cc	n/a	n/a	1.270	n/a	n/a	n/a	n/a	5.00e-01	n/a
S97T000175			OSC Exochrom Dry Calculated	Acidus/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000175			OSC Exochrom on Perkin Elmer	Acidus/g	55.77	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000175			% Water by TGA using Mettler	%	100.5	n/a	70.26	75.78	75.02	0.83	n/a	n/a	n/a
S97T000175			F Atoms of Disposed Solid	wt/g	54.50	<0.52e+06	5.52e+02	5.04e+02	5.28e+02	9.09	n/a	2.00e+03	1.49e+01

46

HMF-SD-WM-ADP-208, REV. 0

Table 5. Data Summary Table
R-110

CORE NUMBER: 101
SEGMENT N: 2

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	AP	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
6971000159			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/s	0.00e+00	0.00e+00	0.00e+00	0.00	n/s	n/a	n/a
6971000159			DSC Exotherm on Perkin Elmer	Joules/g	95.06	n/s	0.00e+00	0.00e+00	0.00e+00	0.00	n/s	n/a	n/a
6971000159			% Water by TGA on Perkin Elmer	%	99.14	n/s	76.80	75.80	76.30	1.35	n/s	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	AP	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
6971000156			Bulk Density of Sample	g/mL	n/a	n/s	1.250	n/s	n/a	n/s	n/s	5.00e-01	n/a
6971000158			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/s	0.00e+00	0.00e+00	0.00e+00	0.00	n/s	n/a	n/a
6971000158			DSC Exotherm on Perkin Elmer	Joules/g	95.06	n/s	0.00e+00	0.00e+00	0.00e+00	0.00	n/s	n/a	n/a
6971000158			% Water by TGA on Perkin Elmer	%	99.14	n/s	71.27	72.83	72.04	2.05	n/s	n/a	n/a
6971000162	F		Alpha of Digested Solid	LC/g	84.90	<8.52e-04	6.05e-02	6.51e-02	6.28e-02	7.32	68.44	2.00e-03	1.44E+01

47

HAIF-SD-WMA-DF-238, REV. 0

Table 3. Data Summary Table
1-110

CONT. NUMBER: 181
SEGMENT #: B

SEGMENT PORT/DW: U Upper Half of Segment

Sample#	E	AN	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RSD %	Spk Rec %	Det Limit	Count Err%
597T000195			BSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
597T000195			BSC Exotherm on Perkin Elmer	Joules/g	94.53	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
597T000195			% Water by TGA on Perkin Elmer	%	99.29	n/a	72.14	72.64	72.39	0.69	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	E	AN	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RSD %	Spk Rec %	Det Limit	Count Err%
597T000196			Bulk Density of Sample	g/mL	n/a	n/a	1.250	n/a	n/a	n/a	n/a	5.00e-03	n/a
597T000196			BSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
597T000196			BSC Exotherm on Perkin Elmer	Joules/g	94.53	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
597T000196			% Water by TGA on Perkin Elmer	%	99.29	n/a	75.06	72.63	72.87	0.59	n/a	n/a	n/a
597T000196			Alpha of Digestion Solid	wt/g	86.50	<1.64e-03	5.88e-02	6.14e-02	6.01e-02	4.33	53.07	3.00e-03	1.58E+01

46
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HM-SD-WM-CP-238, REV. 0

CHAIN OF CUSTODY FORMS

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CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 200W-08-TF (2) Sample Number 92-1 (3) Supervisor Daniel D. Nye
 (4) Tank T-110 (5) Repetition 6 (6) Segment 4 (7) Core 180 (8) Core Seal Number 5N-226

Reconnaissance Survey Date:		(9) FIELD	(10) LABORATORY	(11) Sample Description
Over Top Deck Rate	<u>2.5</u>	<u>60.5</u>	A. Work Package Number	<u>WS-96-00253</u>
Side Deck Rate	<u>2.5</u>	<u>60.5</u>	B. Core Seal Number	<u>12207</u>
Bottom Deck Rate	<u>2.5</u>	<u>60.5</u>	C. Sampler Seal Number	<u>96-21255</u>
Seaworthy Completion	<u>220</u>	<u>220</u>	D. Date and Time Sample Unrecovered	<u>2/6/97, 1937 hr</u>
(Alpha)	<u>21R</u>	<u>21R</u>	E. Expected Liquid Content	<u>90%</u>
(Beta-Gamma)	<u>41R</u>	<u>41R</u>	F. Expected Solid Cores	<u>20%</u>
ACT* (Signature)	<u>Mally</u>	ACT* (Signature)	G. Core Rate Through Drill String	<u>6.5 m/s/hr</u>
(Signature)		(Signature)	H. Expected Sample Length	<u>15"</u>

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

51

(13) Field Comments	(14) Laboratory Comments
1st seg. only a 15" stroke, small amount of moisture in bottom of core.	

(15) Point of Origin	(16) Description	(17) Sonda Hand (Sign and PRINT)	(18) Date/Time	(19) Sender Comments
<u>T-110</u>	<u>222-5</u>	<u>James Sickle</u> JAMES SICKLE	<u>2-10-97</u>	
(20) Relinquished By (Sign and PRINT)	(21) Received By (Sign and PRINT)	(22) Date/Time	(23) Receiver Comments	
<u>James Sickle</u> JAMES SICKLE	<u>Kevin E Hamilton</u> KEVIN E HAMILTON	<u>2-10-97</u>		
(24) Relinquished By (Sign and PRINT)	(25) Received By (Sign and PRINT)	(26) Date/Time	(27) Receiver Comments	
<u>Kevin E Hamilton</u> KEVIN E HAMILTON	<u>Jim King</u> JIM KING	<u>2-10-97</u>		
(28) Relinquished By (Sign and PRINT)	(29) Received By (Sign and PRINT)	(30) Date/Time	(31) Receiver Comments	

(32) Seal Insert Upon Release?	(33) Seal Insert Upon Receipt?	(34) Seal Data Consistent with this Record?
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

1 Shipments Number <u>2000-08-TF</u>		2 Sample Number <u># 97-2</u>		3 Supervisor <u>Daniel Rye</u>	
1 Tank <u>T-110</u>		(5) Riser <u>6</u>		(6) Segment <u># 2</u>	
(7) Core <u>180</u>		(8) Core Seal Number <u>C-2000</u>			
4 Station Survey Data:		(9) FIELD		(10) LABORATORY	
Over Top Core Rate <u>2.5</u>		<u>2.5</u>		<u>2.5</u>	
Side Core Rate <u>2.5</u>		<u>2.5</u>		<u>2.5</u>	
Bottom Core Rate <u>2.5</u>		<u>2.5</u>		<u>2.5</u>	
Freezeable Contamination <u>420</u>		<u>420</u>		<u>420</u>	
(Alpha) <u>4K</u>		(Alpha) <u>4K</u>		(Alpha) <u>4K</u>	
(Beta-Gamma) <u>4K</u>		(Beta-Gamma) <u>4K</u>		(Beta-Gamma) <u>4K</u>	
ACT (HPT) <u>Mally</u>		ACT (HPT) <u>[Signature]</u>		ACT (HPT) <u>[Signature]</u>	
(Signature)		(Signature)		(Signature)	
5 (11) Shipment Description					
A. Work Package Number <u>WS-76-00253</u>					
B. Core Seal Number <u>12203</u>					
C. Sampler Seal Number <u>46-070-55</u>					
D. Date and Time Sampler Unseated <u>2/6/97, 2130 hrs</u>					
E. Expected Liquid Content <u>50%</u>					
F. Expected Solid Content <u>20%</u>					
G. Core Rate Through Drill String <u>4.5 m/min</u>					
H. Expected Sample Length <u>19"</u>					

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

52

2) Field Comments <u>small amount of moisture in bottom of cask.</u>		3) Laboratory Comments	
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4) Point of Origin <u>T-110</u>		14) Destination <u>222.5 / 1.65</u>		15) Sender Name (Sign and PRINT) <u>Daniel Rye - James Sickett</u>		16) Date/Time <u>2-6-97</u>		17) Sender Comments	
5) Relinquished By (Sign and PRINT) <u>Daniel Rye - James Sickett</u>		18) Received By (Sign and PRINT) <u>Kevin E. Hamilton</u>		19) Date/Time <u>2-6-97</u>		20) Receiver Comments		21) Receiver Comments	
6) Relinquished By (Sign and PRINT) <u>Kevin E. Hamilton</u>		22) Received By (Sign and PRINT) <u>Kevin E. Hamilton</u>		23) Date/Time <u>2-6-97</u>		24) Receiver Comments		25) Receiver Comments	
7) Relinquished By (Sign and PRINT)		26) Received By (Sign and PRINT)		27) Date/Time		28) Receiver Comments		29) Receiver Comments	
18) Seal Intact Upon Release? ☒ Yes ☐ No		19) Seal Intact Upon Receipt? ☒ Yes ☐ No		20) Seal Data Consistent with this Record? ☒ Yes ☐ No					
Shipment No. ☒ Yes ☐ No		Core Seal No. ☒ Yes ☐ No		Sample No. ☒ Yes ☐ No					

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipments: 02W-08-TF (2) Sample Number: 97-3 (3) Supervisor: R. Frank Frost
 (4) Task: 7 (5) Run: 6 (6) Segment: 3 (7) Core: 180 (8) Core Serial Number: C-1020

Radiation Survey Data:		(2) LABORATORY	(10) Shipments Description
Over Top Dose Rate	<u>2.5</u>	<u>20.5</u>	A. Work Package Number: <u>W5-96-253</u>
Side Dose Rate	<u>2.5</u>	<u>20.5</u>	B. Core Serial Number: <u>1180</u>
Bottom Dose Rate	<u>2.5</u>	<u>20.5</u>	C. Sampler Serial Number: <u>96-204</u>
Emasinate Confirmation:	<u>2.0</u>	<u>2.0</u>	D. Date and Time Sampler Unsealed: <u>2-7-97/0255</u>
(Alpha)	<u>41K</u>	(Alpha)	E. Expected Liquid Content: <u>35%</u>
(Beta-Gamma)	<u>41K</u>	(Beta-Gamma)	F. Expected Solid Content: <u>65%</u>
RCR* (HPY)	<u>Alley</u>	RCR* (HPY)	G. Dose Rate Through Drill Stem: <u>2.5 mR</u>
			H. Expected Sample Length: <u>19"</u>

(11) INFORMATION: (Include statements of laboratory tests to be performed.)

(12) Field Comments:	(14) Laboratory Comments:
(a) <u>sample has small amount of waste on bottom</u> (b) <u>small amount of moisture in bottom of core.</u>	

(13) Point of Origin: <u>R-4</u>	(14) Description: <u>2223 Lab</u>	(15) Sender Name (Sign and PRINT): <u>James S. Jones Sickle</u>	(16) Date/Time: <u>2-10-97</u>	(17) Sender Comments:
(18) Relinquished By (Sign and PRINT): <u>James S. Jones Sickle</u>	(19) Received By (Sign and PRINT): <u>Kevin E. Hamilton</u>	(20) Date/Time: <u>2-10-97</u>	(21) Receiver Comments:	
(22) Relinquished By (Sign and PRINT): <u>Kevin E. Hamilton</u>	(23) Received By (Sign and PRINT): <u>Kevin E. Hamilton</u>	(24) Date/Time: <u>2-10-97</u>	(25) Receiver Comments:	
(26) Relinquished By (Sign and PRINT): <u>Kevin E. Hamilton</u>	(27) Received By (Sign and PRINT): <u>Kevin E. Hamilton</u>	(28) Date/Time: <u>2-10-97</u>	(29) Receiver Comments:	

(30) Seal Intact Upon Release?	(31) Seal Intact Upon Receipt?	(32) Seal Date Consistent with this Record?
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

COPY

(1) Shipment Number 222W-08-TF (3) Sample Number 97-5 (5) Supervisor M. L. Jones
 (4) Task T-110 (6) Meter 6 (8) Segment 5 (7) Core 180 (9) Core Serial Number 241-77

(11) FIELD		(13) LABORATORY		(10) Shipment Description	
Over Top Core Rate	<u>6.5</u>	Core Rate	<u>6.5</u>	A. Work Package Number	<u>00253</u> <u>W3-9-006-101</u>
High Core Rate	<u>6.5</u>	Core Rate	<u>6.5</u>	B. Core Seal Number	<u>12425</u>
Bottom Core Rate	<u>6.5</u>	Core Rate	<u>6.5</u>	C. Sampler Serial Number	<u>96-208</u>
Stratigraphic Correlation	<u>270</u>	Core Rate	<u>270</u>	D. Date and Time Sample Unsealed	<u>2-7-97/1120</u>
	(Alpha)		(Alpha)	E. Expected Liquid Content	<u>50%</u>
	<u>6.5</u>		<u>6.5</u>	F. Expected Solid Content	<u>150%</u>
	(Beta-Gamma)		(Beta-Gamma)	G. Date Rate Through Seal-Weld	<u>5 MP/HC</u>
ACT RPT	<u>Marking</u>	ACT RPT	<u>Marking</u>	H. Expected Sample Length	<u>19</u>
	(Signature)		(Signature)		

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

HNF-SD-WM-EP-288, REV. 0

(13) Field Comments	(14) Laboratory Comments

(15) Point of Origin	(16) Destination	(17) Sender Name (Print and Sign)	(18) Date/Time	(19) Sender Comments
<u>T-110</u>	<u>222-S</u>	<u>James S. Jones</u>	<u>2-10-97</u>	
(20) Enclosed by (Print and Sign)	(21) Enclosed by (Print and Sign)	(22) Receiver Comments	(23) Date/Time	(24) Receiver Comments
<u>James S. Jones</u>	<u>James S. Jones</u>		<u>2-10-97</u>	
(25) Enclosed by (Print and Sign)	(26) Enclosed by (Print and Sign)	(27) Receiver Comments	(28) Date/Time	(29) Receiver Comments
<u>James S. Jones</u>	<u>James S. Jones</u>		<u>2-10-97/1120</u>	
(30) Enclosed by (Print and Sign)	(31) Enclosed by (Print and Sign)	(32) Receiver Comments	(33) Date/Time	(34) Receiver Comments

(35) Seal Intact Upon Receipt	(36) Seal Intact Upon Receipt	(37) Seal Date Consistent with this Record
<u>Yes</u> ☐ No	<u>Yes</u> ☐ No	<u>Yes</u> ☐ No

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

COPY

(1) Shipment Number 2000-08-TF (2) Sample Number # 77-4 (3) Supervisor David Perry
 (4) Tank T-110 (5) Date 6 (6) Signature * G (7) Cals 180 (8) Core Seal Number 48 2/4/96 186

(9) FIELD		(10) LABORATORY	(11) Shipment Description
Core Top Dress Rate	<u>2.5</u>	<u>2.5</u>	A. Work Package Number <u>03-96-00283</u>
Side Core Rate	<u>2.5</u>	<u>2.5</u>	B. Core Seal Number <u>12283</u>
Bathes Used Rate	<u>2.5</u>	<u>2.5</u>	C. Sampler Seal Number <u>96-201</u>
Sealable Contamination	<u>2.0</u>	<u>2.0</u>	D. Date and Time Sample Unsealed <u>2/2/97, 1720 hrs</u>
(Alpha)	<u>2.1K</u>	(Alpha) <u>2.1K</u>	E. Expected Liquid Content <u>80%</u>
(Beta Number)	<u>2.1K</u>	(Beta Number)	F. Expected Solid Content <u>20%</u>
(Signature)	<u>2.1K</u>	(Signature)	G. Core Rate Through Drill String <u>2.5 m/hr</u>
(Signature)	<u>2.1K</u>	(Signature)	H. Expected Sample Length <u>19"</u>

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

(12) Field Comments

(13) Laboratory Comments

(12) Point of Origin <u>T-110</u>	(14) Destination <u>222-3 Lake</u>	(15) Sender Name, Title and PRINT <u>James Sickett</u>	(16) Date/Time <u>2-10-97</u>	(17) Receiver Comments
(18) Received by (Name and PRINT) <u>James Sickett</u>	(19) Received by (Name and PRINT) <u>Virginia Walker</u>	(20) Received by (Name and PRINT) <u>Virginia Walker</u>	(21) Date/Time <u>2-10-97</u>	(22) Receiver Comments
(23) Received by (Name and PRINT) <u>Virginia Walker</u>	(24) Received by (Name and PRINT) <u>Virginia Walker</u>	(25) Received by (Name and PRINT) <u>Virginia Walker</u>	(26) Date/Time <u>2-10-97 1740</u>	(27) Receiver Comments
(28) Received by (Name and PRINT) <u>Virginia Walker</u>	(29) Received by (Name and PRINT) <u>Virginia Walker</u>	(30) Received by (Name and PRINT) <u>Virginia Walker</u>	(31) Date/Time <u>2-10-97 1740</u>	(32) Receiver Comments

(33) Seal Intact Upon Release?	(34) Seal Intact Upon Receipt?	(35) Seal Data Destroyed (See Data Record)
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

5477 0001872

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipments Number <u>200W-08-TF</u>		(2) Sample Number <u># 97-7</u>		(3) Supervisor <u>Daniel King</u>	
Tank <u>T-110</u>		(5) Blower <u>6</u>		(7) Core <u>180</u>	
(4) Blower <u>6</u>		(6) Segment <u>7</u>		(8) Core Serial Number <u>C-2017</u>	
Radiation Survey Data:					
(10) FIELD		(11) LABORATORY		(12) Shipment Description	
Over Top Dose Rate <u>0.5 mR/hr</u>		<u>0.5 mR/hr</u>		A. Work Package Number <u>WS-96-00253</u>	
Side Dose Rate <u>0.5 mR/hr</u>		<u>0.5 mR/hr</u>		B. Core Seal Number <u>12205</u>	
Bottom Dose Rate <u>0.5 mR/hr</u>		<u>0.5 mR/hr</u>		C. Sampler Serial Number <u>96-202</u>	
Smearable Contamination <u>0.20 dpm/100cm²</u>		<u>0.20 dpm/100cm²</u>		D. Date and Time Sampler Unleashed <u>2/7/97 1P35 hrs</u>	
(Alpha) <u>0.1 K dpm/100cm²</u>		(Alpha) <u>0.1 K dpm/100cm²</u>		E. Expected Liquid Content <u>POB</u>	
(Beta-Gamma) <u>0.1 K dpm/100cm²</u>		(Beta-Gamma) <u>0.1 K dpm/100cm²</u>		F. Expected Solid Content <u>20%</u>	
RCT- (SPT) <u>R. L. King</u>		RCT- (SPT) <u>Daniel King</u>		G. Dose Rate Through Drill String <u>0.5 mR/hr</u>	
(Signature)		(Signature)		H. Expected Sample Length <u>17"</u>	

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

1 Field Comments

(14) Laboratory Comments

(13) Point of Origin <u>P-110</u>	(14) Destination <u>222-5 LGS</u>	(15) Sender Name (Sign and PRINT) <u>James Leckie James Leckie</u>	(16) Date/Time <u>2-14-97</u>	(17) Sender Comments
(18) Received By (Sign and PRINT) <u>James Leckie James Leckie</u>	(19) Received By (Sign and PRINT) <u>James Leckie James Leckie</u>	(20) Received By (Sign and PRINT) <u>James Leckie James Leckie</u>	(21) Date/Time <u>2-14-97</u>	(22) Receiver Comments
(23) Received By (Sign and PRINT) <u>James Leckie James Leckie</u>	(24) Received By (Sign and PRINT) <u>James Leckie James Leckie</u>	(25) Received By (Sign and PRINT) <u>James Leckie James Leckie</u>	(26) Date/Time <u>2-14-97</u>	(27) Receiver Comments
(28) Received By (Sign and PRINT) <u>James Leckie James Leckie</u>	(29) Received By (Sign and PRINT) <u>James Leckie James Leckie</u>	(30) Received By (Sign and PRINT) <u>James Leckie James Leckie</u>	(31) Date/Time <u>2-14-97</u>	(32) Receiver Comments

(33) Seal Intact Upon Release?		(34) Seal Intact Upon Receipt?		(35) Seal Data Consistent with this Record?	
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

Shipment Number: <u>200W-08-77</u>	(2) Sample Number: <u>BLANK</u>	(3) Supervisor: <u>R. Frank Lust</u>
Tank: <u>T-110</u>	(5) Riser: <u>R</u>	(6) Segment: <u>BLANK</u>
	(7) Core: <u>181</u>	(8) Cask Serial Number: <u>C-2007</u>
(9) FIELD Over Top Dope Rate: <u>40.5</u> Side Dope Rate: <u>40.5</u> Bottom Dope Rate: <u>40.5</u> Small-die Contamination: <u>220</u> (Alpha) <u>L/K</u> (Beta/Gamma) <u>141 Hays</u> (Signature) <u>[Signature]</u> RCT (NPT)		
(12) LABORATORY <u>40.5 m/100</u> <u>40.5 m/100</u> <u>40.5 m/100</u> <u>220</u> (Alpha) <u>L/K</u> (Beta/Gamma) <u>21K</u> (Signature) <u>[Signature]</u> RCT (NPT)		
(10) SHIPMENT DESCRIPTION A. Work Package Number: <u>WIS-96-00252</u> B. Cask Seal Number: <u>1179</u> C. Sampler Serial Number: <u>96-213</u> D. Date and Time Sampler Unchecked: <u>2-3-97/0130</u> E. Expected Liquid Content: <u>100%</u> F. Expected Solid Content: <u>0%</u> G. Dose Rate Through Dose String: <u>---</u> H. Expected Sample Length: <u>---</u>		

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

(1) Field Comments <u>BLANK (T-110) (RISER #2)</u> <u>deionized H₂O</u>		(14) Laboratory Comments	
(15) Point of Origin: <u>R-2</u> <u>T-110</u> (16) Reinspected By (Sign and PRINT): <u>James Sickels</u> (17) Reinspected By (Sign and PRINT): <u>Paula Barclay</u> (18) Reinspected By (Sign and PRINT): <u>Paula Barclay</u> (19) Reinspected By (Sign and PRINT): <u>Paula Barclay</u>		(14a) Date/Time: <u>2-3-97</u> (14b) Date/Time: <u>2-3-97</u> (14c) Date/Time: <u>2-3-97</u> (14d) Date/Time: <u>2-3-97</u>	
(15a) Destination: <u>222's b4 b</u> (15b) Destination: <u>222's b4 b</u> (15c) Destination: <u>222's b4 b</u> (15d) Destination: <u>222's b4 b</u>		(17a) Receiver Comments: <u>---</u> (17b) Receiver Comments: <u>---</u> (17c) Receiver Comments: <u>---</u> (17d) Receiver Comments: <u>---</u>	
(18) Seal Intact Upon Release? ☒ Yes ☐ No		(18) Seal Intact Upon Receipt? ☒ Yes ☐ No	
(19) Seal Date Consistent with this Record? ☒ Yes ☐ No		(19) Seal Date Consistent with this Record? ☒ Yes ☐ No	

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

1) Shipment Number <u>2000-08-TF</u>		12) Sample Number <u>97-09</u>		13) Supervisor <u>M. C. Jones</u>	
1) Tank <u>T-110</u>		15) Floor <u>2</u>		17) Core Segment <u>1</u>	
11) Survey Data:		12) LABORATORY		110) Shipment Description	
(9) FIELD		(10) SHIPMENT		A. Work Package Number	
Over Top Dose Rate <u>< 0.5 mR</u>		<u>< 0.5 mR/hr</u>		B. Work Package Number <u>WS-96-0252</u>	
Side Dose Rate <u>< 0.5 mR</u>		<u>< 0.5 mR/hr</u>		C. Cask Seal Number <u>1178</u>	
Bottom Dose Rate <u>< 0.5 mR</u>		<u>< 0.5 mR/hr</u>		D. Sampler Serial Number <u>96-198</u>	
Dose Rate Concentration <u>< 20 dpm</u>		<u>< 20 dpm</u>		E. Date and Time Sampler Unsealed <u>1-29-96/0208</u>	
(Alpha)		(Alpha)		F. Expected Liquid Content <u>50%</u>	
<u>< 1K dpm</u>		<u>< 1000 dpm</u>		G. Expected Solid Content <u>50%</u>	
(Beta-Gamma)		(Beta-Gamma)		H. Dose Rate Through Dri String <u>< 5 MR/HR</u>	
ACT* <u>CA Hayes</u>		ACT* <u>DAH</u>		I. Expected Sample Length <u>15</u>	
SPT)		SPT)			
Signature		Signature			

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

2) Field Comments		3) Laboratory Comments	
X-Ray Shows Sample Empty Has some liquid in it.			
4) Point of Origin <u>R-2</u>	114) Destination <u>2225 Lab</u>	115) Sender Name (Sign and PRINT)	116) Date/Time <u>2-3-97</u>
5) Reinspected By (Sign and PRINT)	117) Sender Comments	118) Receiver Name (Sign and PRINT)	119) Date/Time <u>2-3-97</u>
6) Reinspected By (Sign and PRINT)	120) Receiver Comments	121) Receiver Name (Sign and PRINT)	122) Date/Time <u>2-3-97</u>
7) Reinspected By (Sign and PRINT)	123) Receiver Comments	124) Receiver Name (Sign and PRINT)	125) Date/Time <u>2-3-97</u>
8) Reinspected By (Sign and PRINT)	126) Receiver Comments	127) Receiver Name (Sign and PRINT)	128) Date/Time <u>2-3-97</u>
9) Reinspected By (Sign and PRINT)	129) Receiver Comments	130) Receiver Name (Sign and PRINT)	131) Date/Time <u>2-3-97</u>
10) Reinspected By (Sign and PRINT)	132) Receiver Comments	133) Receiver Name (Sign and PRINT)	134) Date/Time <u>2-3-97</u>
11) Seal Intact Upon Release?	135) Seal Intact Upon Receipt?	136) Seal Date Consistent with this Record?	
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	
Shipment No.		Cask Seal No.	
☒ Yes ☐ No		☒ Yes ☐ No	
Sample No.		☒ Yes ☐ No	

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

1) Shipment Number <u>200W-08-TF</u>	2) Sample Number <u>97-010</u>	3) Supervisor <u>D. Hartley</u>
4) Tank <u>T-110</u>	5) Reel <u>2</u>	6) Segment <u>2</u>
7) Core <u>181</u>	8) Cask Serial Number <u>C1029</u>	

9) Field		10) Laboratory		11) Shipments Description	
Over Top Dose Rate <u><0.5 mR</u>		Over Top Dose Rate <u><0.5 mR</u>		A. Work Package Number <u>WS-96-00252/0</u>	
Side Dose Rate <u><0.5 mR</u>		Side Dose Rate <u><0.5 mR</u>		B. Cask Seal Number <u>13004</u>	
Bottom Dose Rate <u><0.5 mR</u>		Bottom Dose Rate <u><0.5 mR</u>		C. Sampler Serial Number <u>96-193</u>	
Removable Contamination <u><20 dpm/100cm²</u> (Alpha)		Removable Contamination <u><20 dpm/100cm²</u> (Alpha)		D. Date and Time Sampler Unpacked <u>1-30-97, 1333</u>	
<u><1K dpm/100cm²</u> (Beta-Gamma)		<u><1000 dpm/100cm²</u> (Beta-Gamma)		E. Expected Liquid Content <u>30%</u>	
RET* <u>CR</u> (NPT)		RET* <u>CR</u> (NPT)		F. Expected Solid Content <u>70%</u>	
				G. Dose Rate Through DRI Spring <u><0.5 mR/hr</u>	
				H. Expected Sample Length <u>19"</u>	

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

2) Field Comments <u>Sampler x-rayed, sampler full possible liquid</u>		3) Laboratory Comments	
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4) Point of Origin <u>B110 R#2</u>	11) Destination <u>222 S</u>	15) Sender Name (Sign and PRINT) <u>James Arthur James Sickett</u>	16) Date/Time <u>2-3-97</u>	17) Sender Comments
5) Relinquished By (Sign and PRINT) <u>James Arthur James Sickett</u>		18) Received By (Sign and PRINT) <u>Paula B. Bailey Paula Bailey</u>	21) Date/Time <u>2-3-97</u>	22) Receiver Comments
6) Relinquished By (Sign and PRINT) <u>Paula Bailey Paula Bailey</u>		24) Received By (Sign and PRINT) <u>James Arthur James Sickett</u>	25) Date/Time <u>2-29-97</u>	26) Receiver Comments
7) Relinquished By (Sign and PRINT)		28) Received By (Sign and PRINT)	29) Date/Time	30) Receiver Comments

19) Seal Insert Upon Release? ☒ Yes ☐ No	20) Seal Insert Upon Receipt? ☒ Yes ☐ No	42) Seal Date Consistent with this Record? ☒ Yes ☐ No
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STRUTHER: White - Office of Sample Management

Yellow - Recipient of Sample

Pink - Core Sampling, 24-25

Goldened - Tank Farm Operations, 24-43

80-8000-306 (03/84)

Feb. 3, 1997 11:35AM WRC 222S LAB ROOM 27 BACKSIDE

In. 9505 2/25

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

1) Shipment Number <u>200W-08-TF</u>	(2) Sample Number <u>97-11</u>	(3) Supervisor <u>R. Frank Hunt</u>
1) Tank <u>T-110</u>	(5) River <u>#2</u>	(6) Segment <u>3</u>
	(7) Core <u>181</u>	(8) Core Serial Number <u>7-B</u>
Diagnosis Survey Data:		
(21) FIELD	(33) LABORATORY	(10) Shipment Description
Over Top Dose Rate <u>40.5 mR/h</u>	<u>40.5</u>	A. Work Package Number <u>WIS-96-00352</u>
Side Dose Rate <u>40.5 mR/h</u>	<u>40.5</u>	B. Core Seal Number <u>711-82-97 1173</u>
Bottom Dose Rate <u>40.5 mR/h</u>	<u>40.5</u>	C. Sampler Serial Number <u>96-199</u>
Smearable Contamination <u>420</u>	<u>420</u>	D. Date and Time Sampler Unsealed <u>1-20-97/1707</u>
<u>41K</u> (Alpha)	<u>4200</u> (Alpha)	E. Expected Liquid Content <u>50%</u>
(Beta-Gamma)	(Beta-Gamma)	F. Expected Solid Content <u>50%</u>
RCF- <u>1A Hunt</u> (Signature)	RCF- <u>[Signature]</u> (Signature)	G. Dose Rate Through DRG Strips <u>4.5 mR</u>
(HPM)	(HPM)	H. Expected Sample Length <u>19"</u>

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

2) Field Comments		134) Laboratory Comments	
(a) small amount of waste on bottom of sample t. (b) X-rayed sample - 100% recovery solid			
3) Point of Origin <u>R-2</u>	(14) Destination <u>2235 Lab.</u>	(16) Date/Time <u>2-3-97</u>	(17) Sender Comments
(5) Relinquished By (Sign and PRINT) <u>James Seckels</u>	(23) Received By (Sign and PRINT) <u>James Seckels</u>	(21) Date/Time <u>2-3-97/1045</u>	(22) Receiver Comments
(5) Relinquished By (Sign and PRINT) <u>Jimmy Wallace/Ginny Wallace</u>	(24) Received By (Sign and PRINT) <u>Jimmy Wallace/Ginny Wallace</u>	(25) Date/Time <u>2-3-97 11:30</u>	(26) Receiver Comments
(5) Relinquished By (Sign and PRINT)	(26) Received By (Sign and PRINT) <u>Richard Frank Knight</u>	(28) Date/Time	(29) Receiver Comments
(19) Seal Intact Upon Release?	(31) Seal Intact Upon Receipt?	(32) Seal Data Consistent with this Record?	
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	
Shipment No. ☒ Yes ☐ No		Sample No. ☒ Yes ☐ No	

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

1) Shipment Number 200w-08-TF (2) Sample Number 97-12 (3) Supervisor R. Frank Hunt
 4) Tank T-110 (5) Riser 2 (6) Segment 4 (7) Core 181 (8) Cask Serial Number 17-0

(9) FIELD		(10) LABORATORY		(11) SHIPMENT DESCRIPTION	
Over Top Dose Rate	<u>40.5</u>		<u>40.5</u>	A. Work Package Number	<u>1115-96-00252</u>
Side Dose Rate	<u>40.5</u>		<u>40.5</u>	B. Cask Seal Number	<u>2-327 777 1169</u>
Bottom Dose Rate	<u>40.5</u>		<u>40.5</u>	C. Sampler Serial Number	<u>96-194</u>
Smearable Concentration	<u>420</u>		<u>420</u>	D. Date and Time Sampler Unsealed	<u>1-30-97/ 1910</u>
(Alpha)	<u>L1K</u>		<u>L1040</u>	E. Expected Liquid Content	<u>40%</u>
(Beta-Gamma)	<u>LA Hays</u>		<u>OKS</u>	F. Expected Solid Content	<u>60%</u>
RECT (HPT)	(Signature)		(Signature)	G. Dose Rate Through Drill String	<u>2.5 mR</u>
				H. Exposed Sample Length	<u>19"</u>

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

(a) sample X-rayed - 100% solids
 (b) small amount of waste on bottom of sampler "A"

(13) Laboratory Comments

(1) Point of Origin <u>R-2</u>	(14) Destination <u>227's Lab</u>	(15) Sender Name (Sign and PRINT) <u>James Dickel James Sickett</u>	(16) Date/Time <u>2-2-97</u>	(17) Sender Comments
(18) Relinquished By (Sign and PRINT) <u>James Dickel James Sickett</u>	(19) Received By (Sign and PRINT) <u>Henny Wallace/Ginny Wallace</u>	(20) Date/Time <u>2-2-97</u>	(21) Date/Time <u>2-2-97</u>	(22) Receiver Comments
(23) Relinquished By (Sign and PRINT) <u>Henny Wallace/Ginny Wallace</u>	(24) Received By (Sign and PRINT) <u>R. Knight/ V. Knight</u>	(25) Date/Time <u>2-2-97 11:37</u>	(26) Date/Time	(27) Receiver Comments
(28) Relinquished By (Sign and PRINT)	(29) Received By (Sign and PRINT)	(30) Date/Time	(31) Date/Time	(32) Receiver Comments

(33) Seal intact Upon Release?	(34) Seal intact Upon Receipt?	(35) Seal Data Correlates with this Record?
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

(36) DISTRIBUTION: White - Office of Sample Management Yellow - Receipt at Sample Pink - Core Sampling, 36-85 Goldendred - Tank Farm Operations, 34-13 BC-6000-309 (03/94)

FEB 3 1997 12:16PM WEC 2225 LAB ROOM 2F BACKSIDE

HNF-SD-WM-DP-228, REV.10

No. 9588 P 4/4

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

1) Shipment Number <u>200W-08-TF</u>	2) Sample Number <u>97-13</u>	3) Supervisor <u>R. Frank East</u>
4) Tank <u>T-110</u>	5) Rise <u>2</u>	6) Segment <u>5</u>
7) Core <u>181</u>	8) Cask Serial Number <u>32-67</u>	

(31) FIELD	(32) LABORATORY	(10) Shipment Description
Core Top Date Rate <u>LO.5</u>	<u>LO.5</u>	A. Work Package Number <u>W5-96-00252</u>
Side Core Rate <u>LO.5</u>	<u>LO.5</u>	B. Cask Seal Number <u>10315-510333</u>
Bottom Date Rate <u>LO.5</u>	<u>LO.5</u>	C. Sampler Serial Number <u>96-195</u>
Gravimetric Contamination <u>L20</u>	<u>L20</u>	D. Date and Time Sampler Unchecked <u>1-30-97 / 1919</u>
(Alpha) <u>41K</u>	(Alpha) <u><1000</u>	E. Expected Liquid Content <u>40%</u>
(Beta-Gamma) <u>1.5 mSv</u>	(Beta-Gamma) <u>0.5 mSv</u>	F. Expected Solid Content <u>60%</u>
ACT: <u>1.5 mSv</u>	ACT: <u>0.5 mSv</u>	G. Core Rate Through Drift String <u>~5 mSv</u>
(HP) <u>1.5 mSv</u>	(HP) <u>0.5 mSv</u>	H. Expected Sample Length <u>19"</u>

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

2) Field Comments		3) Laboratory Comments	
<p><i>small amount of waste on bottom of sampler 1/2"</i></p> <p><i>sample X-rayed - 100% solids</i></p>			

4) Point of Origin <u>R-2</u>	5) Destination <u>222-S Lab</u>	6) Sender Name (Sign and PRINT) <u>James Sickels</u>	7) Date/Time <u>2-3-97</u>	8) Sender Comments
9) Received By (Sign and PRINT) <u>James Sickels</u>	10) Received By (Sign and PRINT) <u>Jimmy Wallace</u>	11) Date/Time <u>2-3-97</u>	12) Receiver Comments	
13) Received By (Sign and PRINT) <u>Jimmy Wallace</u>	14) Received By (Sign and PRINT) <u>Jimmy Wallace</u>	15) Date/Time <u>2-3-97 11:30</u>	16) Receiver Comments	
17) Received By (Sign and PRINT) <u>Jimmy Wallace</u>	18) Received By (Sign and PRINT) <u>Jimmy Wallace</u>	19) Date/Time <u>2-3-97 11:30</u>	20) Receiver Comments	

(19) Seal Intact Upon Release?	(21) Seal Intact Upon Receipt?	(23) Seal Date Consistent with this Record?
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

Shipment No. 181 Cask Seal No. 181 Sample No. 181

1) INFORMATION: White - Office of Sample Management Yellow - Receipts of Sample Pink - Core Sampling, 95-98 Collected - Tank Farm Operations, 94-93

DC-6006-809 (02/94)

Feb. 3, 1997 11:35AM HNF-SD-WM-CP-238, REV. 0

H. 9505 P. 4/5

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

1) Shipment Number <u>200w-08-17</u>	2) Sample Number <u>97-14</u>	3) Supervisor <u>R. Lusk Hunt</u>
4) Tank <u>I-110</u>	5) River <u>2</u>	6) Segment <u>6</u>
7) Core <u>181</u>	8) Cask Seal Number <u>10-6</u>	

9) FIELD	10) LABORATORY	11) Shipment Description
Over Top Core Rate <u>20.5</u>	<u>20.5-11/11</u>	A. Work Package Number <u>WS-96-00252</u>
Side Core Rate <u>20.5</u>	<u>20.5-11/11</u>	B. Cask Seal Number <u>10314</u>
Bottom Core Rate <u>20.5</u>	<u>20.5-11/11</u>	C. Sampler Serial Number <u>96-218</u>
Reversible Contamination <u>220</u>	<u>220</u>	D. Date and Time Sampler Unseated <u>1-30-97/2012</u>
(Alpha) <u>1K</u>	(Alpha) <u>1K</u>	E. Expected Liquid Content <u>40%</u>
(Beta-Gamma) <u>1A Hays</u>	(Beta-Gamma) <u>1A Hays</u>	F. Expected Solid Content <u>60%</u>
ACT HPT	ACT HPT	G. Date Rate Through Drill String <u>2 MC</u>
(Signature)	(Signature)	H. Expected Sample Length <u>19"</u>

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

2) Field Comments

(a) small amount of waste on bottom of sample
 (b) sample x-rayed - 100% full solids

3) Laboratory Comments

4) Point of Origin <u>I-110</u>	5) Destination <u>200</u>	6) Sender Name (Sign and PRINT) <u>James Sicket James Sicket</u>	7) Date/Time <u>2-3-97</u>	8) Receiver Comments
9) Relinquished By (Sign and PRINT) <u>James Sicket James Sicket</u>	10) Received By (Sign and PRINT) <u>Tania Bailey Tania Bailey</u>	11) Date/Time <u>2-3-97</u>	12) Receiver Comments	
13) Relinquished By (Sign and PRINT) <u>Tania Bailey Tania Bailey</u>	14) Received By (Sign and PRINT) <u>James Sicket James Sicket</u>	15) Date/Time <u>2-3-97/2012</u>	16) Receiver Comments	
17) Relinquished By (Sign and PRINT)	18) Received By (Sign and PRINT)	19) Date/Time	20) Receiver Comments	

(18) Seal Intact Upon Release?

(19) Seal Intact Upon Receipt?

(20) Seal Data Consistent with this Record?

☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
---	---	---	---

DISTRIBUTION: White - Office of Sample Management Yellow - Recipients of Sample Pink - Core Sampling, SS-SS Goldseed - Tank Farm Operations, S4-43

SC-9000-307 (2/20-4)

FAC 3 1997-12-15 PM WBC 2223 LAB ROOM 2F BACED106

HNF-SD-WM-DP-239, REV. 0

No. 9508

3/4

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

Shipment Number <u>200W-08-TF</u>		(3) Sample Number <u>97-15</u>		(3) Supervisor <u>R. Frank Faust</u>	
Tank <u>T-110</u>		(5) Riser <u>2</u>		(5) Segment <u>7</u>	
(6) Rise		(7) Core <u>181</u>		(8) Core Seal Number <u>SN-70</u>	
(9) FIELD		(10) LABORATORY		(11) Shipment Description	
Over Top Dose Rate <u>40.5</u>		<u>40.5 - 2/14/97</u>		A. Work Package Number <u>WS-96-00352</u>	
Side Dose Rate <u>40.5</u>		<u>40.5 - 2/14/97</u>		B. Core Seal Number <u>1170</u>	
Bottom Dose Rate <u>40.5</u>		<u>40.5 - 2/14/97</u>		C. Sampler Seal Number <u>96-287</u>	
Smearable Concentration <u>2.0</u>		<u>2.0</u>		D. Date and Time Sampler Unsealed <u>1-30-97 / 0012</u>	
(Alpha)		(Alpha)		E. Expected Liquid Content <u>40%</u>	
<u>41K</u>		<u>41K</u>		F. Expected Solid Content <u>60%</u>	
(Beta Gamma)		(Beta Gamma)		G. Dose Rate Through Core Casing <u>2.5 mR</u>	
ACT* <u>(A) Hays</u>		ACT* <u>(A) Hays</u>		H. Expected Sample Length <u>19"</u>	
(HPT)		(HPT)			

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

66

HNF-SD-WN-DP-238, REV 1.0

2) Field Comments (a) sampler clean (b) sample x-rayed - 100% solids		3) Laboratory Comments	
3) Point of Origin <u>R-2</u>	14) Description <u>2223 hab</u>	15) Sender Name (Sign and PRINT) <u>James S. Sackett</u>	16) Date/Time <u>2-3-97</u>
17) Receiver Name (Sign and PRINT) <u>Paula Bailey</u>	18) Receiver Name (Sign and PRINT) <u>Paula Bailey</u>	19) Date/Time <u>2-3-97</u>	20) Receiver Comments
21) Receiver Name (Sign and PRINT) <u>Paula Bailey</u>	22) Receiver Name (Sign and PRINT) <u>Paula Bailey</u>	23) Date/Time <u>2-3-97</u>	24) Receiver Comments
25) Receiver Name (Sign and PRINT) <u>Paula Bailey</u>	26) Receiver Name (Sign and PRINT) <u>Paula Bailey</u>	27) Date/Time <u>2-3-97</u>	28) Receiver Comments
29) Receiver Name (Sign and PRINT) <u>Paula Bailey</u>	30) Receiver Name (Sign and PRINT) <u>Paula Bailey</u>	31) Date/Time <u>2-3-97</u>	32) Receiver Comments
33) Seal (Insert Upon Release?) ☒ Yes ☐ No	34) Seal (Insert Upon Release?) ☒ Yes ☐ No	35) Seal (Insert Upon Release?) ☒ Yes ☐ No	

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number <u>200W-08-TF</u>		(2) Sample Number <u>97-116</u>		(3) Supervisor <u>R. Frank Frost</u>	
(4) Test <u>T-110</u>		(5) Fuser <u>2</u>		(6) Sagger <u>8</u>	
(7) Test <u>T-110</u>		(8) Core <u>181</u>		(9) Core Serial Number <u>C-2013</u>	
(10) Survey Data:		(11) LABORATORY		(12) Shipment Description	
(a) FIELD		(b) LABORATORY		(13) Work Package Number <u>WS-96-00352</u>	
Over Top Core Rate <u><0.5</u>		<u><0.5</u> w/h		(14) Core Seal Number <u>1172</u>	
Side Core Rate <u><0.5</u>		<u><0.5</u> w/h		(15) Sampler Serial Number <u>96-207</u>	
Bottom Core Rate <u><0.5</u>		<u><0.5</u> w/h		(16) Date and Time Sampler Unleashed <u>1-31-97/1743</u>	
Sensitizable Contamination <u><20 dpm 100cm²</u>		<u><20 dpm</u>		(17) Expected Liquid Content <u>100%</u>	
<u><1K dpm 100cm²</u>		<u><1000 dpm</u>		(18) Expected Solid Content <u>0%</u>	
(Alpha)		(Alpha)		(19) Deep Rate Through Drill String <u><1.5 MR</u>	
(Beta-Gamma)		(Beta-Gamma)		(20) Expected Sample Length <u>19"</u>	
RCT: <u>L1 Hump</u>		RCT: <u>OK</u>			
(Signature)		(Signature)			

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

(21) Field Comments		(22) Laboratory Comments	
a) small drops of water on bottom of samples b) sample x-rayed - 100% recovery - solids			
(23) Point of Origin <u>R-2</u>	(24) Description <u>222's Lab</u>	(25) Sender Name (Sign and PRINT) <u>James Dickel James Dickel</u>	(26) Date/Time <u>2-3-97</u>
(27) Relinquished By (Sign and PRINT) <u>James Dickel James Dickel</u>	(28) Receiver Name (Sign and PRINT) <u>Paula Bailey Paula Bailey</u>	(29) Date/Time <u>2-3-97</u>	(30) Receiver Comments
(31) Relinquished By (Sign and PRINT) <u>Paula Bailey Paula Bailey</u>	(32) Receiver Name (Sign and PRINT) <u>James Dickel James Dickel</u>	(33) Date/Time <u>2-3-97</u>	(34) Receiver Comments
(35) Relinquished By (Sign and PRINT)	(36) Receiver Name (Sign and PRINT)	(37) Date/Time	(38) Receiver Comments
(39) Seal (Insert Upon Release?) <u>Yes</u>	(40) Seal (Insert Upon Receipt?) <u>Yes</u>	(41) Seal Data Consistent with the Record? <u>Yes</u>	
(42) Yes ☒ No ☐	(43) Yes ☒ No ☐	(44) Yes ☒ No ☐	

PHOTOGRAPHS

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2/18/97

T-110 C180 Seg 1

2-28-97

T-110 Core 180 Segment 2

T-110 Core 180 Segment 3

2-18-97

2/18/97

Seg 4

C180

T-110

2/18/97

T-110 C180 Seg 5

T-110 core 180 Segment 6

2-18-97

T-110 C180 Seg 7

2/26/97

2/27/97

T-110 C180 Seg 8

9/4/98

F.B.

Core 181

T-110

2/9/72
 T-110 Core #1 Log 1

9/6/97

Log 2

CORE 181

T-110

9/4/97

Aug. 3

ONE 191

T-110

T-110 Core 181 Day 4

2/6/97

2/5/97

T-110 C181 Seg 5

2/13/97

T-110 C181 Seg 6

T-110 Core 181 Segment 8

2-18-97

BULK DENSITY WORKSHEETS

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Requestor: F. Steen Bulk Density Worksheet

Date: 2-26-97

Tank: T-110
 Core: 180
 Seg: 1 Lower Half
 Auger:
 Sample ID: 592T000206

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

Jar#: 12159
 Jar/Vial Size: 250 mL
 Initial Weight: g
 Final Weight: g
 Net Weight: g

LC
 LC
 2/26/97

Cone#:
 Final Vol: 100 mL
 Initial Weight: 7.93 g
 Final Weight: 20.36 g
 Net Weight: 12.93 g
 Sample ID:

Appearance/Narrative:

12.93 / 100 = 1.29

Tank:
 Core:
 Seg:
 Auger:
 Sample ID:

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

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

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

Appearance/Narrative:

Bulk Density Worksheet

Requestor: 2 L 010240

Date: _____

Tank: 7-110
Core: 180
Seg: 2 LH
Anger: 4
Sample ID: 5977000249

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

Cone # _____
Final Vol: 9.5 mL
Initial Weight: 1.47 g
Final Weight: 11.88 g
Net Weight: 11.88 g
Sample ID: _____

Appearance/Narrative:

$$\frac{11.88}{9.5} = 1.25$$

Tank: _____
Core: _____
Seg: _____
Anger: _____
Sample ID: _____

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

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

Appearance/Narrative:

See 5/10/97

Bulk Density Worksheet

Date: 2-27-97

Requestor: _____

Tank: T-110
 Core: 180
 Seg: 3 LH
 Auger: _____
 Sample ID: 597T000208

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

91 Start Time: _____
 End Time: _____
 Homogenization
 Time (Min.): _____
 Jar#: 12161
 Jar/Vial Size: 250 mL
 Initial Weight: _____ g
 Final Weight: _____ g
 Net Weight: _____ g

Cone#: _____
 Final Vol: 9.0 mL
 Initial Weight: 7.67 g
 Final Weight: 19.53 g
 Net Weight: 11.86 g
 Sample ID: _____

Appearance/Narrative:

11.86 g = 1.32

LC
 CC
 2-27-97

Start Time: _____
 End Time: _____
 Homogenization
 Time (Min.): _____
 Jar#: _____
 Jar/Vial Size: _____ mL
 Initial Weight: _____ g
 Final Weight: _____ g
 Net Weight: _____ g

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

Appearance/Narrative:

2/30/97
 LH

HAF-SD-WM-OP-208, REV. 0

Requestor: F. Steen

Bulk Density Worksheet

Date: 2-27-97

Tank: T-110
Core: 180
Seg: 4 LH
Auger: _____
Sample ID: 597T000210

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

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

Jar#: 12/63
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

92

Cone#: _____
Final Vol: 10.0 mL
Initial Weight: 7.48 g
Final Weight: 20.59 g
Net Weight: 13.11 g
Sample ID: _____

Appearance/Narrative:

13.11 = 1.31

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

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

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

Appearance/Narrative:

HNF-SD-WM-DR-238, REV 0

Feb 28 1997 9:49AM WNC 2225 LAB ROOM 2F BACKSIDE

No 0308 P 9/9

Requestor: F. Steen **Bulk Density Worksheet**

Date: 2-26-97

Tank: T-110
 Core: 180
 Seg: 6 LH
 Auger: _____
 Sample ID: 59H000212

Start Time: _____
 End Time: _____
 Homogenization
 Time (Min): _____
 Jar#: 12/65
 Jar/Vial Size: _____ mL
 Initial Weight: _____ g
 Final Weight: _____ g
 Net Weight: _____ g

93

Cone#: _____
 Final Vol: 9.25 mL
 Initial Weight: 7.46 g
 Final Weight: 19.49 g
 Net Weight: 12.03 g
 Sample ID: _____

Appearance/Narrative:

12.03
9.25 = 130

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

Start Time: _____
 End Time: _____
 Homogenization
 Time (Min): _____
 Jar#: _____
 Jar/Vial Size: _____ mL
 Initial Weight: _____ g
 Final Weight: _____ g
 Net Weight: _____ g

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

Appearance/Narrative:

Bulk Density Worksheet

Requestor: 71-2003-0

Date: 1-6-97

Tank: 740
Core: 150
Seg: 7.6H
Auger:
Sample ID: 697T 000 251

Jar# 12167
Jar/Vial Size: mL
Initial Weight: g
Final Weight: g
Net Weight: g

94

Cone# 67
Final Vol: 11.25 mL
Initial Weight: 2.47 g
Final Weight: 13.30 g
Net Weight: 10.83 g

Sample ID: 697T 000 251 750

Appearance/Narrative:

HR Density = 1.23
11.25 = 1.23 g/mL

Tank:
Core:
Seg:
Auger:
Sample ID:

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

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

Sample ID

Appearance/Narrative:

Bulk Density Worksheet

Requestor: TL Nuzum

Date: 7-6-97

Tank: 7-10
Core: 100
Seg: 8-17
Auger:
Sample ID: 97T000253

Net Wt. _____
Gross Wt. _____
Homogenization
Time (Min.): _____

Jar#:
Jar/Vial Size: 3 ml
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

95

Cone#: 71
Final Vol: 10.25 mL
Initial Weight: _____ g
Final Weight: 20.09 g
Net Weight: 12.61 g
Sample ID: _____

Appearance/Narrative: blk 80001 = 12.61 / 10.25 = 1.23 g/mL

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

Net Wt. _____
Gross Wt. _____
Homogenization
Time (Min.): _____

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

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

Appearance/Narrative: _____

Requestor: J. Alvarez

Bulk Density Worksheet

Date: 2/1/97Tank: T-110
Core: 181
Seg: 14H
Auger: _____
Sample ID: 597T000124 Start Time _____
End Time _____
Homogenization
Time (Min.): _____Jar#: 11931
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

96

Cone#: 11931
Final Vol: 12.0 mL
Initial Weight: 7.46 g
Final Weight: 21.38 g
Net Weight: 13.92 g
Sample ID _____

Appearance/Narrative:

$$Bk Den = \frac{13.92}{12.0} = 1.16 \text{ gm/ml}$$
Tank: _____
Core: _____
Seg: _____
Auger: _____
Sample ID: _____ Start Time _____
End Time _____
Homogenization
Time (Min.): _____Jar#: _____
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g Cone#: _____
Final Vol: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g
Sample ID _____

Appearance/Narrative:

HNF-SD-WM-DR-238, REV. 0

HNF-SD-WM-OP-238, REV. 0

Bulk Density Worksheet

Date: 2-1-97Requestor: L. ALUMINTank: 7110Core: 187Seg: 2-4H

Auger:

Sample ID: 597D00128Start Time _____
End Time _____
Homogenization
Time (Min) _____ Jar#: 182

Jar/Vial Size: _____ mL

Initial Weight: _____ g

Final Weight: _____ g

Net Weight: _____ g

Cone#: 11929Final Vol: 12.8 mLInitial Weight: 7.47 gFinal Weight: 2.86 g

Net Weight: _____ g

Sample ID: _____

Appearance/Narrative:

Bulk Den 15/18 = 1.18 g/mL

Tank: _____

Core: _____

Seg: _____

Auger: _____

Sample ID: _____

Start Time _____
End Time _____
Homogenization
Time (Min) _____ Jar#: 182

Jar/Vial Size: _____ mL

Initial Weight: _____ g

Final Weight: _____ g

Net Weight: _____ g

Cone#: _____

Final Vol: _____ mL

Initial Weight: _____ g

Final Weight: _____ g

Net Weight: _____ g

Sample ID: _____

Appearance/Narrative:

HNF-SO-WM-DP-238, REV. 0

Bulk Density Worksheet

Date: 2-13-97

Requestor: J. Nazam

Tank: T-110
 Core: 18
 Seg: 3 LH
 Auger: —

Sample ID: 59TT000130

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

Jar#: 12149
 Jar/Vial Size: mL
 Initial Weight: g
 Final Weight: g
 Net Weight: g

Cone#: 12149
 Final Vol: 11.5 mL
 Initial Weight: 746 g
 Final Weight: 2132 g
 Net Weight: 1386 g

Sample ID: _____

Appearance/Narrative: 1.21

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

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

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

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

Sample ID: _____

Appearance/Narrative: _____

Bulk Density Worksheet

Requestor: J. Nuzum

Date: 2/13/97

Tank: T-110
 Core: 181
 Auger: 4-111 LH
 Sample ID: 597000132

Tank:
 Core:
 Auger:
 Sample ID:

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

Jar#: 11934
 Jar/Vial Size: mL
 Initial Weight: g
 Final Weight: g
 Net Weight: 9.1317 g

Cone#: 193
 Final Vol: 12.2 mL
 Initial Weight: 7.45 g
 Final Weight: 22.14 g
 Net Weight: 14.69 g

Sample ID: 1193

Appearance/Narrative: 1.20
Bulk Den = 22.14 / 18.2 = 1.21 g/mL
2/13/97

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

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

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

Sample ID:

Appearance/Narrative:

Requestor: 3-6-97

Bulk Density Worksheet

Date: 3-7-97

Tank: T-110
Core: 161
Seg: 5-LH
Auger:
Sample ID: 3-7-97-165

Jar/Vial Size:
Initial Weight:
Final Weight:
Net Weight:

Jar/Vial Size: 12153
Initial Weight:
Final Weight: 2.8-97
Net Weight:

Cone# 12153
Final Vol: 11.75 mL
Initial Weight: 2.52 g
Final Weight: 21.93 g
Net Weight: 19.41 g
Sample ID:

Appearance/Narrative:
Big pieces of 11.75 = 1.229/161

Tank:
Core:
Seg:
Auger:
Sample ID:

Jar/Vial Size:
Initial Weight:
Final Weight:
Net Weight:

Jar/Vial Size:
Initial Weight:
Final Weight:
Net Weight:

Cone# 3-7-97
Final Vol: mL
Initial Weight: g
Final Weight: g
Net Weight: g
Sample ID:

Appearance/Narrative:

000

568 J73 143Z

13:04

03/10/97

Bulk Density Worksheet

Requestor: 2602020Date: 3-7-97

Tank: T-112
 Core: 10
 Seg: LLH
 Auger:
 Sample ID: 5777-20172

Jar No.
 Jar/Vial Size: mL
 Initial Weight: g
 Final Weight: g
 Net Weight: g

Jar No. 12155
 Jar/Vial Size: mL
 Initial Weight: g
 Final Weight: 74.8 g
 Net Weight: 13.97 g

Cone# 12155
 Final Vol: 10.80 mL
 Initial Weight: 74.8 g
 Final Weight: 26.4 g
 Net Weight: 13.97 g
 Sample ID:

Appearance/Narrative:
Bulk Density = 13.97 / 10.80 = 1.29 g/mL

Tank:
 Core:
 Seg:
 Auger:
 Sample ID:

Jar No.
 Jar/Vial Size: mL
 Initial Weight: g
 Final Weight: g
 Net Weight: g

Jar No. 925
 Jar/Vial Size: mL
 Initial Weight: g
 Final Weight: 79.57 g
 Net Weight: g

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

Appearance/Narrative:

NAF-SD-WM-OP-238, REV. 0

Bulk Density Worksheet

Requestor: S.L. M. Zup

Date: 2-13-97

Tank: 110
Core: 181
Seg: 16H
Auger:
Sample ID: 1977000156

Shake Time:
Set Time:
Homogenization
Time (Min):

Jar: 12152
Jar/Vial Size: ml
Initial Weight: g
Final Weight: g
Net Weight: 2.1897

Cone#: 52
Final Vol: 10.5 ml
Initial Weight: 7.67 g
Final Weight: 20.58 g
Net Weight: 12.91 g
Sample ID:

Appearance/Narrative:
12.91/10.5 = 1.23

Tank:
Core:
Seg:
Auger:
Sample ID:

Shake Time:
Set Time:
Homogenization
Time (Min):

Jar:
Jar/Vial Size: ml
Initial Weight: g
Final Weight: g
Net Weight: 2.1897

Cone#:
Final Vol: ml
Initial Weight: g
Final Weight: g
Net Weight: g
Sample ID:

Appearance/Narrative:

Bulk Density Worksheet

Requestor: NUZUM

Date: 2-27-97

Tank: T-110
Core: 181
Seg: BLH
Auger:
Sample ID: S97T000190

Tank:
Core:
Seg:
Auger:
Sample ID:

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

Jar#: 12154
Jar/Vial Size: mL
Initial Weight: g
Final Weight: g
Net Weight: g

103

Cone#:
Final Vol: 9.5 mL
Initial Weight: 7.50 g
Final Weight: 19.66 g
Net Weight: 12.16 g

Sample ID: S97T000190

Appearance/Narrative:

12.16 / 9.5 = 1.28

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

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

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

Sample ID:

Appearance/Narrative:

RA 2/19/97

*LC
SL
2-27-97*

DATA VERIFICATION AND DELIVERABLE SUMMARY REPORT
(ATTACHMENT 2)

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222-S LABORATORY
TANK 241-T-110 CORE 180SDG 97000111
Contact J. L. NUSUMClient TWRS
Tank T-110

SUMMARY DATA SECTION

TABLE OF CONTENTS

About this section	1
Sample Summaries	3
Prep Batch Summary	5
Work Summary	6
Method Blanks	9
Lab Control Samples	10
Duplicates	21
Matrix Spikes	19
Data Sheets	21
Method Summaries	28
Report Guides	31
End of Section	46

Final Report

Reviewed by

Approved by

Lab id 222-S
 Protocol SST
 Version 1.0
 Form DVD-TOC
 Version 3.08
 Report date 02/26/97

222-S LABORATORY

TANK 241-T-170 CORE 180

SDG 97000111
Contact J. L. HUGHES

REPORT GUIDE

Client TWNS
Tank T-170

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DUPLICATES

Final Report

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 1

Lab ID 222-S
Protocol SST
Version 1.0
Form DVD-RG
Version 1.08
Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

SDG 97000111

Contact J. L. Nuzum

Client TWRS

Tank T-110

GUIDE, cont.

ABOUT THE DATA SUMMARY SECTION

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Final Report

REPORT GUIDES

Page 2

SUMMARY DATA SECTION

Page 2

Lab id 222-S

Protocol SSP

Version 1.0

Form QVD-RG

Version 3.08

Report Date 03/26/97

222-S LABORATORY

TANK 251-T-118 CODE 180

SAMPLE SUMMARY

500 97000111

Contract J.A. L. Molybde

Client TMS

Tank T-118

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	PRIORITY	COLLECTED	RECEIVED
T110 C18041 LM FUSION	R: 6 S: 1 C: 100	FUSION	SOLID	9771000230			02/16/97 13:03
T110 C18041 LM FUSION-DU	R: 6 S: 1 C: 100	FUSION	SOLID	97710002306			
T110 C18041 LM FUSION-SP	R: 6 S: 1 C: 100	FUSION	SOLID	97710002308			
T110 C18042 LM FUSION	R: 6 S: 2 C: 100	FUSION	SOLID	9771000268			02/28/97 12:46
T110 C18042 LH FUSION-DU	R: 6 S: 2 C: 100	FUSION	SOLID	97710002682			
T110 C18043 LH FUSION	R: 6 S: 3 C: 100	FUSION	SOLID	9771000231			02/19/97 13:05
T110 C18043 LH FUSION-DU	R: 6 S: 3 C: 100	FUSION	SOLID	97710002316			
T110 C18044 LH FUSION	R: 6 S: 4 C: 100	FUSION	SOLID	9771000232			02/19/97 13:05
T110 C18044 LH FUSION-DU	R: 6 S: 4 C: 100	FUSION	SOLID	97710002322			
T110 C18044 LH FUSION-SP	R: 6 S: 4 C: 100	FUSION	SOLID	97710002325			
T110 C18046 LH FUSION	R: 6 S: 6 C: 100	FUSION	SOLID	9771000233			02/19/97 13:05
T110 C18046 LH FUSION-DU	R: 6 S: 6 C: 100	FUSION	SOLID	97710002336			
T110 C18047 LH FUSION	R: 6 S: 7 C: 100	FUSION	SOLID	9771000269			02/28/97 12:46
T110 C18047 LH FUSION-DU	R: 6 S: 7 C: 100	FUSION	SOLID	97710002696			
T110 C18047 LH FUSION-SP	R: 6 S: 7 C: 100	FUSION	SOLID	97710002698			
T110 C18048 LH FUSION	R: 6 S: 8 C: 100	FUSION	SOLID	9771000270			02/28/97 12:46
T110 C18048 LH FUSION-DU	R: 6 S: 8 C: 100	FUSION	SOLID	97710002706			
Method Blank			SOLID	817065-2			
Method Blank			SOLID	817068-2			
Method Blank			SOLID	817072-2			
Lab Control Sample			SOLID	817065-1			
Lab Control Sample			SOLID	817068-1			
Lab Control Sample			SOLID	817072-1			

Final Report

SAMPLE SUMMARY

Page 1

SUMMARY DATA SECTION

Page 3

Lab id 222-S
 Protocol 351
 Version 1.0
 Form 500-05
 Version 3.02
 Report date 05/26/97

222-S LABORATORY

TANK 243-T-11M CORE 180

QC SUMMARY

Client FWSTank 2-110

BIB 97000117

Contact J. L. Nugent

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	%	SAMPLE	BASIS	DATE #/M/Y			LAB	DEPARTMENT
							DOLE	RCVD	RPTD		
97000117-F		T110 C18051 LH FUSION	FUSION	SOLID						35	997000230
		T110 C18052 LH FUSION	FUSION	SOLID						26	997000268
		T110 C18053 LH FUSION	FUSION	SOLID						35	997000231
		T110 C18054 LH FUSION	FUSION	SOLID						35	997000232
		T110 C18055 LH FUSION	FUSION	SOLID						35	997000233
		T110 C18057 LH FUSION	FUSION	SOLID						26	997000269
		T110 C18058 LH FUSION	FUSION	SOLID						26	997000270
		T110 C18061 LH FUSION-DU FUSION	FUSION	SOLID						35	9970002300
		T110 C18061 LH FUSION-SP FUSION	FUSION	SOLID						35	9970002309
		T110 C18062 LH FUSION-DU FUSION	FUSION	SOLID						26	9970002650
		T110 C18063 LH FUSION-DU FUSION	FUSION	SOLID						35	9970002310
		T110 C18064 LH FUSION-DU FUSION	FUSION	SOLID						35	9970002320
		T110 C18064 LH FUSION-SP FUSION	FUSION	SOLID						35	9970002328
		T110 C18066 LH FUSION-DU FUSION	FUSION	SOLID						35	9970002330
		T110 C18067 LH FUSION-DU FUSION	FUSION	SOLID						26	9970002690
		T110 C18067 LH FUSION-SP FUSION	FUSION	SOLID						26	9970002699
		T110 C18068 LH FUSION-DU FUSION	FUSION	SOLID						26	9970002700
SOLID		Method Blank		SOLID						817065-2	
		Method Blank		SOLID						817066-2	
		Method Blank		SOLID						817072-2	
		Lab Control Sample		SOLID						817065-1	
		Lab Control Sample		SOLID						817066-1	
		Lab Control Sample		SOLID						817072-1	

Final Report

QC SUMMARY

Page 1

SUMMARY DATA SECTION

Page 4

Lab id 222-SProtocol 88TVersion 8.0Form QMS-05Version 3.00Report date 05/26/02

222-S LABORATORY

Tank 241-7-110 CORE 1B0

PREP BATCH SUMMARY

SQC 97000111

Contact J. L. Martin

Client JWS

Tank 7-110

TEST MATRIX	METHOD	PREPARATION	DOSE	PLANCHETS ANALYZED					QUALITY CHECKS	
		BATCH	20 %	CLIENT	MORE	RE BLANK	LCS	OUT/CRID		WB/ORIG
Gas Proportional Counting										
AT	SDEID	Alpha Analysis	97000988	15.0	3		1	1	3/3	1/1
			97000991	15.0	2		1	1	2/2	1/1
			97000995	15.0	2		1	1	2/2	1/1

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Final Report

PREP BATCH SUMMARY

Page 1

SUMMARY DATA SECTION

Page 5

Lab id 222-S

Protocol SST

Version 1.0

Form OWR-PSS

Version 1.02

Report date 05/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

WORK SUMMARY

Soc 97000111

Contact J. L. Madup

Client TMS

Tank T-110

CLIENT SAMPLE ID			LAB SAMPLE ID								
LOCATION	PRIORITY	MATRIX	COLLECTED	PLANCHET	TEST	SUF-	ANALYZED	REVIEWED	BY	METHOD	
OUTDOOR			RECEIVED			PIX					
T110 C18061 LH FUSION		FUSION	597T000230	17072-7	AT	02	03/20/97		SLF	Alpha Analysis	
R: 6 S: 1 C: 180		SOLID	02/19/97								
T110 C18061 LH FUSION-SP		FUSION	597T0002300	17072-8	AT	02	03/20/97		SLF	Alpha Analysis	
R: 6 S: 1 C: 180		SOLID	02/19/97								
T110 C18061 LH FUSION-SP		FUSION	597T0002308	17072-9	AT	02	03/20/97		SLF	Alpha Analysis	
R: 6 S: 1 C: 180		SOLID	02/19/97								
T110 C18062 LH FUSION		FUSION	597T0002308	17065-9	AT	01	03/18/97		SLF	Alpha Analysis	
R: 6 S: 2 C: 180		SOLID	02/28/97								
T110 C18062 LH FUSION-OU		FUSION	597T0002308	17065-10	AT	01	03/18/97		SLF	Alpha Analysis	
R: 6 S: 2 C: 180		SOLID	02/28/97								
T110 C18063 LH FUSION		FUSION	597T000231	17072-10	AT	02	03/20/97		SLF	Alpha Analysis	
R: 6 S: 3 C: 180		SOLID	02/19/97								
T110 C18063 LH FUSION-OU		FUSION	597T0002310	17072-11	AT	02	03/20/97		SLF	Alpha Analysis	
R: 6 S: 3 C: 180		SOLID	02/19/97								
T110 C18064 LH FUSION		FUSION	597T000232	17065-4	AT	01	03/18/97		SLF	Alpha Analysis	
R: 6 S: 4 C: 180		SOLID	02/19/97								
T110 C18064 LH FUSION-OU		FUSION	597T0002320	17065-5	AT	01	03/18/97		SLF	Alpha Analysis	
R: 6 S: 4 C: 180		SOLID	02/19/97								
T110 C18064 LH FUSION-SP		FUSION	597T0002328	17065-6	AT	01	03/18/97		SLF	Alpha Analysis	
R: 6 S: 4 C: 180		SOLID	02/19/97								

Final Report

Update Summary

Page 1

SUMMARY DATA SECTION

Page 6

Lab Id 222-S

Protocol SET

Version 3.0

Form BMO-CMS

Version 3.08

Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

WORK SUMMARY, CONT.

DOB 97000111

Contact J. L. Reagin

Client TMS

Tank 1-110

CLIENT SAMPLE ID LOCATION DUSTBOX	PRIORITY	MATRIX	LAB SAMPLE ID COLLECTION RECEIVED	PLUMBET	TEST	QAF - FIX	ANALYZED	REVIEWED	GT	REMARKS
F110 C18056 LM FUSION R: 6 S: 6 C: 180		FUSION SOLID	997000233 02/19/97	17065-7	AT	01	03/18/97		SLF	Alpha Analysis
F110 C18056 LH FUSION-DU R: 6 S: 6 C: 180		FUSION SOLID	997000233 02/19/97	17065-8	AT	01	03/18/97		SLF	Alpha Analysis
F110 C18057 LM FUSION R: 6 S: 7 C: 180		FUSION SOLID	997000269 02/28/97	17068-4	AT	01	03/18/97		SLF	Alpha Analysis
F110 C18057 LH FUSION-DU R: 6 S: 7 C: 180		FUSION SOLID	997000269 02/28/97	17068-5	AT	01	03/18/97		SLF	Alpha Analysis
F110 C18057 LM FUSION-SF R: 6 S: 7 C: 180		FUSION SOLID	997000269 02/28/97	17068-6	AT	01	03/18/97		SLF	Alpha Analysis
F110 C18058 LM FUSION R: 6 S: 8 C: 180		FUSION SOLID	997000270 02/28/97	17068-7	AT	01	03/18/97		SLF	Alpha Analysis
F110 C18058 LM FUSION-DU R: 6 S: 8 C: 180		FUSION SOLID	997000270 02/28/97	17068-8	AT	01	03/18/97		SLF	Alpha Analysis
Method Blank		SOLID	97065-2 03/18/97	17065-2	AT		03/18/97		SLF	Alpha Analysis
Method Blank		SOLID	97065-2 03/18/97	17065-2	AT		03/18/97		SLF	Alpha Analysis
Method Blank		SOLID	97072-2 03/20/97	17072-2	AT		03/20/97		SLF	Alpha Analysis
Lab Control Sample		SOLID	97065-1 03/18/97	17065-1	AT		03/18/97		SLF	Alpha Analysis

Final Report

WORK SUMMARY

Page 2

SUMMARY DATA SECTION

Page 7

Lab id 222-B

Protocol 261

Version 1.0

Form 049-CMS

Version 2.00

Report date 05/26/97

222-S LABORATORY

TANK 241-T-110 CODE 180

SDD 97000111

Contact: L. Buzum

Client: TMSB

Tank: 1-110

WORK SUMMARY, cont.

CLIENT SAMPLE ID LOCATION CUSTODY	PRIORITY	MATRIX	LAB SAMPLE ID COLLECTED RECEIVER	PLANDMET	TEST	SUF- PIN	ANALYZED	REVIEWED	BY	METHOD
Lab Control Sample		SOL ID	017068-1	17068-1	AT		03/18/97		GLS	Alpha Analysis
Lab Control Sample		SOL ID	017072-1	17072-1	AT		03/20/97		GLS	Alpha Analysis

COUNTS OF TESTS BY SAMPLE TYPE

TEST	PRIORITY	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPINE	TOTAL
AT		Alpha Analysis	222-S Lab Analytical Procedure	7			3	3	7	3	23
TOTALS				7			3	3	7	3	23

Final Report

WORK SKEWER

Page 3

SUMMARY DATA SECTION

Page B

Lab id 222-S

Protocol SST

Version 1.0

Form DWD-038

Version 3.00

Report date 03/26/97

222-S LABORATORY

TANK 241-Y-110 CORE 180

SDG 97000111
Contact J. L. Mueum

BLANKS

Client TMS
Tank Y-110

Lab sample id <u>817065-2</u>		Client sample id <u>Method Blank</u>					
Dept sample id _____		Material/Matrix <u>SOLID</u>					
ANALYTE	CAS NO	RESULT uCi/g	Zr TPU %	NDA uCi/g	NDM uCi/g	QUALI- FIBERS	TEST PREP BATCH
Total Alpha	12547-44-1	<3.72-03		3.7E-03		U	AT 97000948

Lab sample id <u>817068-2</u>		Client sample id <u>Method Blank</u>					
Dept sample id _____		Material/Matrix <u>SOLID</u>					
ANALYTE	CAS NO	RESULT uCi/g	Zr TPU %	NDA uCi/g	NDM uCi/g	QUALI- FIBERS	TEST PREP BATCH
Total Alpha	12547-44-1	<3.28-03		3.2E-03		U	AT 97000991

Lab sample id <u>817072-2</u>		Client sample id <u>Method Blank</u>					
Dept sample id _____		Material/Matrix <u>SOLID</u>					
ANALYTE	CAS NO	RESULT uCi/g	Zr TPU %	NDA uCi/g	NDM uCi/g	QUALI- FIBERS	TEST PREP BATCH
Total Alpha	12547-44-1	<3.0E-03		3.0E-03		U	AT 97000995

Final Report

BLANKS

Page 1

SUMMARY DATA SECTION

Page 9

 Lab id 222-S
 Protocol SSR
 Version 3.0
 Form SW-BLANK
 Version 3.05
 Report date 05/26/97

222-S LABORATORY

TANK 251-1-110 CORE 1B0

LAB CONTROL SAMPLES

SDB 97000111

Contract J. L. Huzar

Client TYPE

Tank T-120

Lab sample id <u>957055-1</u>					Client sample id <u>Lab Control Sample</u>					
Dept sample id _____					Material/Matrix <u>SOLID</u>					
ANALYTE	RESULT uCi/g	2 σ TRU %	MDA uCi/g	MDL uCi/g	QUALI- FIERS	TEST	ADDED uCi/g	2 σ ERR %	REC %	3 σ LIMITS PROTOCOL (TOTAL) LIMITS PREP BATCH
Total Alpha	8.60E-02	15	3.7E-04		AT		1.00E-1	5.0	86	79-121 70-130 97000905

Lab sample id <u>97068-1</u>					Client sample id <u>Lab Control Sample</u>					
Dept sample id _____					Material/Matrix <u>SOLID</u>					
ANALYTE	RESULT uCi/g	2 σ TRU %	MDA uCi/g	MDL uCi/g	QUALI- FIERS	TEST	ADDED uCi/g	2 σ ERR %	REC %	3 σ LIMITS PROTOCOL (TOTAL) LIMITS PREP BATCH
Total Alpha	9.20E-02	15	3.1E-04		AT		9.48E-2	5.0	97	76-124 70-130 97000991

Lab sample id <u>97072-1</u>					Client sample id <u>Lab Control Sample</u>					
Dept sample id _____					Material/Matrix <u>SOLID</u>					
ANALYTE	RESULT uCi/g	2 σ TRU %	MDA uCi/g	MDL uCi/g	QUALI- FIERS	TEST	ADDED uCi/g	2 σ ERR %	REC %	3 σ LIMITS PROTOCOL (TOTAL) LIMITS PREP BATCH
Total Alpha	8.34E-02	16	3.0E-04		AT		9.75E-2	5.0	85	79-121 70-130 97000905

Final Report

LAB CONTROL SAMPLES

Page 1

SUMMARY DATA SECTION

Page 10

Lab Id 222-SProtocol BSIVersion 1.0Form 000-105Version 3.00Report Date 05/26/97

222-S LABORATORY

IAHW 241-T-110 CONC 100

59770002300

DUPLICATE

7190 C18061 LH FUSION

SDG 977000111

Contact J. L. Mague

DUPLICATE

Lab sample id 59770002300

Dapt sample id

ORIGINAL

Lab sample id 59770002300

Dapt sample id

Received 02/10/97

Client TMS

Pack Y-110

Client sample id 7190 C18061 LH FUSION FUSION

Location/Matrix R: 6 S: 1 C: 100 BOLDO

Collected

Chain of custody id

ANALYTE	DUPLICATE uCi/g	2 σ TPU %	NDA uCi/g	MDL uCi/g	QUALI- FIBERS	TEST	ORIGINAL uCi/g	2 σ TPU %	NDA uCi/g	QUALI- FIBERS	RFG %	2 σ FROD TOY LIMIT
Total Alpha	4.63E-02	22	3.1E-03			AF	4.47E-02	22	3.1E-03		4	47 20

Final Report

DUPLICATES

Page 1

SUMMARY DATA SECTION

Page 11

Lab id 222-S

Protocol SST

Version 1.0

Form DND-00P

Version 3.00

Report date 05/24/97

222-S LABORATORY

Form 241.7-110 CODE 180

59770002390.

T110 C180G3 LH FUSION

DUPLICATE

SAC 977000111

Client TMS

Contact J. L. HAZUM

Tank I-11g

DUPLICATE

ORIGINAL

Lab sample id 5977000239

Lab sample id 5977000239

Client sample id T110 C180G3 LH FUSION FUSION

Dept sample id

Dept sample id

Location/Matrix Rt. 6 S. 2 G. 180 50x10

Received 02/19/97

Collected

Chain of custody id

ANALYTE	DUPLICATE uCi/g	2 σ TPU %	MDA uCi/g	MDL uCi/g	QUALI- FIERS	TEST	ORIGINAL uCi/g	2 σ TPU %	MDA uCi/g	QUALI- FIERS	2 σ TPU %	MDL uCi/g	2 σ TPU %	MDL uCi/g
Total Alpha	3.55E-02	25	3.0E-03			AT	2.89E-02	25	3.0E-03			21	51	20

Final Report

DUPLICATES

Page 2

SUMMARY DATA SECTION

Page 12

Lab id 222-S

Protocol SST

Version 1.0

Form TMD-DUP

Version 3.00

Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

9971000232b

T110 C18094 LB FUSION

DUPLICATE

SQA 997000111

Contact 2.1. MURPHY

DUPLICATE

Lab sample id 9971000232b

Dept sample id

ORIGINAL

Lab sample id 9971000232

Dept sample id

Received 02/19/97

Client TMS

Tank T-110

Client sample id T110 C18094 LB FUSION FUSION

Location/Media R-6 S-4 C-1B0 50619

Collected

Chain of custody id

ANALYTE	DUPLICATE	Zr IPY	MDA	MDL	QUALI-	TEST	ORIGINAL	Zr IPY	MDA	QUALI-	TEST
	uCi/g	%	uCi/g	uCi/g	FIERS		uCi/g	%	uCi/g	FIERS	
Potential Alpha	6.28E-02	21	4.08E-03			AT	4.96E-02	22	3.78E-03	31	46 20

Final Report

DUPLICATES

Page 3

SUMMARY DATA SECTION

Page 13

Lab id 222-S
 Protocol 857
 Version 1.0
 Form GMD-004
 Version 3.00
 Report date 03/26/97

222-S LABORATORY

TANK 341-T-110 CORE 1B0

DUPLICATE

59710002330

T110 C10056 LH FURICH

SDG 57900111

Contact A. J. HURCH

DUPLICATE

Lab sample id 59710002330

Dept sample id _____

ORIGINAL

Lab sample id 5971000233

Dept sample id _____

Received 08/19/97Client THESTank T-110Client sample id T110 C10056 LH FURICH DESIGNLocation/Matrix Rt 6 Ss 6 Cl 1B0 SOIL

Collected _____

Chain of custody id _____

ANALYTE	DUPLICATE uCi/g	Zr TPU %	NDA uCi/g	REL uCi/g	QUALI- FIBERS	TEBY	ORIGINAL uCi/g	Zr TPU %	NDA uCi/g	QUALI- FIBERS	APP %	So PROT TOT LIMIT
Total Alpha	6.03E-02	20	3.0E-03		AT		4.04E-02	24	4.0E-03		46	47 20

Final Report

DUPLICATE

Page 4

SUMMARY DATA SECTION

Page 14

Lab id 222-SProtocol SETVersion 1.0Form PHI-602Version 2.08Report date 03/26/97

222-S LABORATORY

Tank 261-T-110 CORR 180

09710002600

T110 C18052 LH FUSION

DUPLICATE

NO 97000111	Client T-110
Contact J. A. HAZEN	Tank T-110
DUPLICATE	ORIGINAL
Lab sample id 09710002600	Lab sample id 09710002600
Client sample id T110 C18052 LH FUSION	FUSION
Dept sample id	Location/Matrix R1 6 31 2 G-180
Received 03/28/97	Collected
Chain of custody id	

ANALYTE	DUPLICATE uCi/g	2 σ TPV %	MDA uCi/g	RDL uCi/g	QUALI- F100%	TEST	ORIGINAL uCi/g	2 σ TPV %	MDA uCi/g	QUALI- F100%	RPD %	3 σ PROT TOT 4190T
Total Alpha	3.90E-02	24	3.5E-03			AT	4.41E-02	22	3.4E-03		12	48 20

Final Report

DUPLICATOR

Page 5

SUMMARY DATA SECTION

Page 15

Lab id 222-S
 Protocol SST
 Version 1.0
 Form DVD-DUP
 Version 3.06
 Report date 03/26/97

222-S LABORATORY

TANK 251-T-110 DOME 180

59710002690

1110 C18057 LH FUSION

DUPLICATE

SDG <u>97000111</u>	Client <u>TWES</u>
Contact <u>J. L. HURUM</u>	Work <u>T-110</u>
DUPLICATE	ORIGINAL
Lab sample id <u>59710002690</u>	Lab sample id <u>59710002690</u>
Client sample id <u>1110 C18057 LH FUSION</u>	<u>FUSION</u>
Depth sample id <u> </u>	Location/Matrix <u>R: 6 S: 7 G: 180</u>
Received <u>02/23/97</u>	Collected <u> </u>
Chain of custody id <u> </u>	<u> </u>

ANALYTE	DUPLICATE uCi/g	Zr 110 %	MDA uCi/g	MDA uCi/g	QUALI- FIBERS	TEST	ORIGINAL uCi/g	Zr 110 %	MDA uCi/g	QUALI- FIBERS	Zr 110 %	MDA uCi/g	QUALI- FIBERS	Zr 110 %	MDA uCi/g	QUALI- FIBERS
Total Alpha	7.22E-02	19	3.58E-03			AT	7.78E-02	19	3.2E-03							

Final Report

DUPLICATES

Page 6

SUMMARY DATA SECTION

Page 16

Lab id	<u>222-S</u>
Protocol	<u>551</u>
Version	<u>1.0</u>
Form	<u>DWG-DUP</u>
Version	<u>1.02</u>
Report date	<u>03/26/97</u>

222-S LABORATORY

TANK 263-T-110 CORN 180

5971000270H

T110 C18058 LH FUSION

DUPLICATE

SOD 27850111

Contact J. A. Nisum

Client TWG

Tank T-110

DUPLICATE

ORIGINAL

Lab sample id 59710002700

Lab sample id 5971000270

Client sample id T110 C18058 LH FUSION FUSION

Dept sample id

Dept sample id

Location/Matrix R1 6 R1 8 R1 120 BOLD

Received 05/28/97

Collected

Chain of custody id

ANALYTE	DUPLICATE uCi/g	2 σ TPU %	MOA uCi/g	ABL uCi/g	QUALITY FIERS TEST	ORIGINAL uCi/g	2 σ TPU %	MOA uCi/g	QUALITY FIERS	APD %	3 σ PROF TDC LIMIT
Total Alpha	7.62E-02	20	5.2E-03		AT	6.96E-02	19	5.2E-03		16	49 20

Final Report

DUPLICATES

Page 7

SUMMARY DATA SECTION

Page 17

Lab id 222-S

Protocol SST

Version 1.0

Form SWP-DUP

Version 3.00

Report date 05/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

MATRIX SPIKE

59710002306

1110 C18051 LM FUSION

REG 97000111

Client TMS

Contact J. L. Mouton

Tank T-110

MATRIX SPIKE

ORIGINAL

Lab sample id 59710002306

Lab sample id 59710002306

Client sample id 1110 C18051 LM FUSION FUSION

Dept sample id

Dept sample id

Location/Matrix RI 5 St 1 G- 180 SOLID

Received 02/19/97

Collected

Chain of custody id

ANALYTE	SPIKE uCi/g	Zr TRU %	PCA uCi/g	REL uCi/g	QUALI- FINDS TEST	ADDED uCi/g	Zr GR %	ORIGINAL uCi/g	Zr TRU %	REC Se LIMITS % (TOTAL) LIMITS	PROTOCOL LIMITS
Total Alpha	1.05E-01				AT	1.0E-01	5.0	4.67E-02	22	57 85-115	75-125

Final Report

MATRIX SPIKES

Page 1

SUMMARY DATA SECTION

Page 15

Lab id 222-S

Protocol SET

Version 1.0

Form 840-MS

Version 3.08

Report date 05/26/97

222-S LABORATORY

TIME 263-2-110 CORR 100

59770002323

T110 C18094 LN PUS10M

MATRIX SPIKE

SDB 977000111

Contact B. J. DUBOISClient TWRSBank 1-110

MATRIX SPIKE

ORIGINAL

Lab sample id 59770002323Lab sample id 59770002323Client sample id T110 C18094 LN PUS10M PUS10M

Dept sample id _____

Dept sample id _____

Location/Matrix 81 6 91 4 Cr 100 80319Received 02/19/97

Collected _____

Chain of custody id _____

ANALYTE	SPIKE UCI/g	2σ 1PU %	HDR UCI/g	HMA UCI/g	QUALITY FIERS TEST	ADDED UCI/g	2σ 1PU %	ORIGINAL UCI/g	2σ 1PU %	REC 3σ LMTS % (TOTAL)	PROTOCOL LIMITS
Total Alpha	1.19E-01				AT	1.70E-01	5.0	4.56E-02	22	66	63-117 25-125

Final Report

MATRIX SPIKES

Page 2

SUMMARY DATA SECTION

Page 19

Lab id 222-SProtocol SSTVersion 1.0Form ENV-HSVersion 1.08Report date 02/26/97

222-S LABORATORY

TANK 241-T-110 CORE 100

MATRIX SPIKE

59710002695

1110 C18057 LH FUSION

QAC 97000111	Client Tank
Contact <u>J. L. Buzza</u>	Tank <u>T-110</u>
MATRIX SPIKE	ORIGINAL
Lab sample id <u>59710002695</u>	Lab sample id <u>59710002695</u>
Client sample id <u>1110 C18057 LH FUSION</u>	Client sample id <u>1110 C18057 LH FUSION</u>
Dept sample id	Location/Matrix <u>8.6.5.7.5.130</u>
Received <u>03/23/97</u>	Collected
	Chain of custody id

ANALYTE	SPIKE uCi/g	2 σ TRV %	MMA uCi/g	RDL uCi/g	QUALI- FIERS TEST	ADDED uCi/g	2 σ ERR %	ORIGINAL uCi/g	2 σ TRV %	REC 3 σ LIMS PROTOCOL % (TOTAL) LIMITS
Total Alpha	9.04E+00				AT	1.70E+01	5.0	7.78E+02	19	53 86-114 75-125

Final Report

MATRIX SPIKES

Page 3

SUMMARY DATA SECTION

Page 20

Lab id	<u>222-S</u>
Protocol	<u>BS</u>
Version	<u>1.0</u>
Form	<u>940-MS</u>
Version	<u>3.06</u>
Report date	<u>03/26/97</u>

222-S LABORATORY

TANK 241-T-110 CORE 180

597T000230

DATA SHEET

T110 C180S1 LH FUSION

SOG 97000111

Client TERS

Contact J. L. Nugent

Tank T-110

Lab sample id 597T000230

Client sample id T110 C180S1 LH FUSION FUSION

Dept sample id

Location/Matrix Rt 6 Sl 1 C: 180 SOLID

Received 02/19/97

Collected

Chain of Custody id

ANALYTE	CAS NO	RESULT UCI/g	2σ TPU %	MDA UCI/g	RDL UCI/g	QUALI- FIERS	TEST
Total Alpha	12567-46-1	4.47E-02	22	3.1E-03			AZ

Final Report

DATA SHEETS

Page 1

SUMMARY DATA SECTION

Page 21

Lab id 222-S

Protocol SST

Version 1.0

Form DVD-03

Version 3.06

Report date 03/26/97

222-S LABORATORY

TAMR 24J-T-110 CORE 180

897000268

T110 C18052 LN FUSION

DATA SHEET

SDG 97000111

Client TWRB

Contact J. E. Nuzum

Tank T-110

Lab sample id 897000268

Client sample id T110 C18052 LN FUSION

FUSION

Dept sample id

Location/Matrix R: 6 T: 2 C: 180

SOLID

Received 02/28/97

Collected

Chain of custody id

ANALYTE	CAS NO	RESULT uCi/g	2 σ TPO %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	4.41E-02	22	3.8E-03			AT

Final Report

DATA SHEETS

Page 2

SUMMARY DATA SECTION

Page 22

Lab id 222-S

Protocol SST

Version 1.0

Form DVP-08

Version 3.08

Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

S97F000231

T110 C180S3 LM FUSION

DATA SHEET

SDG 27000111
Contact J. L. NugumClient THRS
Tank T-110Lab sample id S97F000231
Dept sample id
Received 02/19/97Client sample id T110 C180S3 LM FUSION FUSION
Location/Matrix R: 6 S: 3 C: 180 SOLID
Collected
Chain of custody id

ANALYTE	CAS NO	RESULT uCi/g	2 σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	2.88E-02	25	3.0E-03			AT

Final Report

DATA SHEETS
Page 3SUMMARY DATA SECTION
Page 23Lab id 222-S
Protocol SST
Version 1.0
Form DVB-08
Version 3.08
Report date 01/26/97

222-S LABORATORY
TANK 24J-T-110 CORE 180

897T000232

T110 C18084 LN FUSION

DATA SHEET

SDG 97000111
Contact L. L. FusonClient TYRS
Tank T-110Lab sample id 897T000232
Dept sample id _____
Received 02/18/97Client sample id T110 C18084 LN FUSION PHATON
Location/Matrix R: 5 S: 4 C: 180 SOLID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2 σ TPD %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	4.56E-02	22	3.7E-03			AT

Final Report

DATA SHEETS

Page 4

SUMMARY DATA SECTION

Page 24

 Lab id 222-S
 Protocol 88T
 Version 1.0
 Form DVD-05
 Version 3.08
 Report Date 03/26/97

222-S LABORATORY
TANK 241-T-110 CORE 180

S97T000233

T110 C180S6 LN FUSION

DATA SHEET

SDS 97000111
Contact L. L. NyeClient TVBS
Tank T-110Lab sample id S97T000233
Dept sample id _____
Received 02/19/97Client sample id T110 C180S6 LN FUSION FUSION
Location/Matrix Rt. 6 S. 6 C. 180 SOLID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPO %	MDA uCi/g	RDL uCi/g	QUALI- FIRMS	TEST
Total Alpha	12587-46-1	4.04E-03	24	4.0E-03			AT

Final Report

DATA SHEETS
Page 5SUMMARY DATA SECTION
Page 25Lab id 222-S
Protocol SST
Version 1.0
Form PVD-08
Version 1.08
Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

597000269

T110 C180S7 LN FUSION

DATA SHEET

SDC 97000111
Contact F. L. HUGGClient WRR
Tank T-110Lab sample id 597000269
Dept sample id _____
Received 02/28/97Client sample id T110 C180S7 LN FUSION FUSION
Location/Matrix R: 6 S: 7 C: 180 SOLID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2 σ TRG %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	13487-46-1	7.78E-02	19	3.28-03			AT

Final Report

DATA SHEETS

Page 1

SUMMARY DATA SECTION

Page 26

Lab id 222-S
 Protocol SST
 Version 1.0
 Form QVD-08
 Version 3.08
 Report Date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

S97T000270

T110 C180S8 LM FUSION

DATA SHEET

SDG 27000111
Contact J. L. Nuzum

Client THRS

Tank F-110

Lab sample id S97T000270

Client sample id T110 C180S8 LM FUSION FUSION

Depth sample id

Location/Matrix R 6 S 8 G 180 SOLID

Received 02/26/97

Collected

Chain of custody id

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	NDA uCi/g	RDL uCi/g	QUALI- FERS	TEST
Total Alpha	12587-46-1	8.96E-02	19	3.2E-03			AT

Final Report

DATA SHEETS

Page 7

SUMMARY DATA SECTION

Page 27

Lab id 222-S
 Protocol SST
 Version 1.0
 Form BYG-05
 Version 3.08
 Report date 02/26/97

222-S LABORATORY

JANU 24-Y-190 CORE 180

METHOD SUMMARY

ALPHA ANALYSIS

GAS PROPORTIONAL COUNTING

Task AT Matrix SS-19SNG 97000191Contact J. L. MUELLERClient TYRETask 7-110

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RUN TEST #IX	SUF- PLAMNET	1: Total Alpha	2: Americium 241 (DEA)	3: Sum, Alpha Emitters	RESULT RATIO% (K)
							2+1 2+ 3+1 2+
Preparation batch 97000988							
T110 C18082 LH FUSION-FU	9971000266	01	17065-9	4.41E-02			
T110 C18082 LH FUSION-FU	9971000268	01	17065-10	ok			
T110 C18084 LH FUSION-FU	9971000232	01	17065-4	4.56E-02			
T110 C18084 LH FUSION-FU	9971000232	01	17065-5	ok			
T110 C18084 LH FUSION-FU	9971000232	01	17065-6	ok			
T110 C18086 LH FUSION-FU	9971000233	01	17065-7	4.04E-02			
T110 C18086 LH FUSION-FU	9971000233	01	17065-8	ok			
Method Blank	817065-2		17065-2	U			
Lab Control Sample	917065-1		17065-1	ok			
Preparation batch 97000991							
T110 C18087 LH FUSION-FU	9971000269	01	17068-4	7.78E-02			
T110 C18087 LH FUSION-FU	9971000269	01	17068-5	ok			
T110 C18087 LH FUSION-FU	9971000269	01	17068-6	ok			
T110 C18088 LH FUSION-FU	9971000270	01	17068-7	8.96E-02			
T110 C18088 LH FUSION-FU	9971000270	01	17068-8	ok			
Method Blank	817068-2		17068-2	U			
Lab Control Sample	917068-1		17068-1	ok			
Preparation batch 97000995							
T110 C18091 LH FUSION-FU	9971000250	02	17072-7	4.47E-02			
T110 C18091 LH FUSION-FU	9971000250	02	17072-8	ok			
T110 C18091 LH FUSION-FU	9971000250	02	17072-9	ok			
T110 C18093 LH FUSION-FU	9971000231	02	17072-10	2.88E-02			
T110 C18093 LH FUSION-FU	9971000231	02	17072-11	ok			
Method Blank	817072-2		17072-2	U			
Lab Control Sample	917072-1		17072-1	ok			

Minimal values and limits from method

RELs (uCi/g)

100

50

Averages

Final Report

METHOD SUMMARIES

Page 1

SUMMARY DATA SECTION

Page 28

Lab id 222-SProtocol SS1Version 1.0Form P40-CMSVersion 5.08Report date 05/26/97

222-S LABORATORY

TASK 241-1-110 CODE 180

Test EL Matrix SLP

SQC 97000111

Contact J. L. BAKER

METHOD SUMMARY

ALPHA ANALYSIS

GAS PROPORTIONAL COUNTING

Client TMSTask 1-110

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SLF TEST FIX	NDA UG/g	ALLO mL	PREP FAC	DILO Y/DN	RESID mg	EFF %	COUNT min	RMN keV	DRIFT keV	DAYS WELD	ANAL- PREPARED	Y220	DETECTOR
Preparation batch 97000285 2σ prep error 19.0 % Reference																
T110 C18062 LH FUSION FU 997000268	01	3.48E-03	0.100	462	1.00				27	30			03/12/97	03/18	MB27804	
T110 C18062 LH FUSION-FU 997000268	01	3.5E-03	0.100	477	1.00				27	30			03/12/97	03/18	MB27804	
T110 C18064 LH FUSION-FU 997000232	01	3.7E-03	0.100	500	1.00				27	30			03/12/97	03/18	MB27804	
T110 C18064 LH FUSION-FU 997000232	01	4.0E-03	0.100	546	1.00				27	30			03/12/97	03/18	MB27804	
T110 C18064 LH FUSION-FU 997000232	01		0.100	500	1.00				27	30			03/12/97	03/18	MB27804	
T110 C18064 LH FUSION-FU 997000232	01	4.0E-03	0.100	541	1.00				27	30			03/12/97	03/18	MB27804	
T110 C18064 LH FUSION-FU 997000232	01	3.8E-03	0.100	503	1.00				27	30			03/12/97	03/18	MB27804	
Method Blank	B17065-2	3.7E-03	0.100	500	1.00				27	30			03/18/97		MB27804	
Lab Control Sample	S17065-1	3.7E-04	1.00	500	1.00				27	30			03/18/97		MB27804	
Preparation batch 97000991 2σ prep error 15.0 % Reference																
T110 C18067 LH FUSION-FU 997000269	01	3.2E-03	0.100	474	1.00				27	30			03/11/97	03/18	MB26672	
T110 C18067 LH FUSION-FU 997000269	01	3.3E-03	0.100	496	1.00				27	30			03/11/97	03/18	MB26672	
T110 C18067 LH FUSION-FU 997000269	01		0.100	474	1.00				27	30			03/11/97	03/18	MB26672	
T110 C18068 LH FUSION-FU 997000270	01	3.2E-03	0.100	498	1.00				27	30			03/11/97	03/18	MB26672	
T110 C18068 LH FUSION-FU 997000270	01	3.2E-03	0.100	475	1.00				27	30			03/11/97	03/18	MB26672	
Method Blank	B17068-2	3.2E-03	0.100	474	1.00				27	30			03/18/97		MB26672	
Lab Control Sample	S17068-1	3.0E-04	1.00	474	1.00				27	30			03/18/97		MB26672	
Preparation batch 97000995 2σ prep error 15.0 % Reference																
T110 C18061 LH FUSION-FU 997000230	02	3.1E-03	0.100	513	1.00				27	30			03/06/97	03/20	MB27806	
T110 C18061 LH FUSION-FU 997000230	02	3.1E-03	0.100	513	1.00				27	30			03/06/97	03/20	MB27806	
T110 C18061 LH FUSION-FU 997000230	02		0.100	513	1.00				27	30			03/06/97	03/20	MB27806	
T110 C18063 LH FUSION-FU 997000231	02	3.0E-03	0.100	490	1.00				27	30			03/06/97	03/20	MB27806	
T110 C18063 LH FUSION-FU 997000231	02	3.0E-03	0.100	494	1.00				27	30			03/06/97	03/20	MB27806	
Method Blank	B17072-2	3.0E-03	0.100	488	1.00				27	30			03/20/97		MB27806	
Lab Control Sample	S17072-1	3.0E-04	1.00	488	1.00				27	30			03/20/97		MB27806	

Nominal values and limits from method

0.100

20-30

Final Report

METHOD SUMMARY

Page 2

SUMMARY DATA SECTION

Page 29

Lab id 222-SProtocol 381Version 1.0Form 090-095Version 1.03Report date 02/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

METHOD SUMMARY, cont.

ALPHA ANALYSIS

GAS PROPORTIONAL COUNTING

Test AT Matrix _____
 SQA 97060181
 Contact J. L. RUZUM

Client TRIS
 Tank T-110

PROCEDURES REFERENCE 222-S Lab Analytical Procedure
 60-160-103 Core Segment Extrusion Process and Sample
 Preparation, rev 17
 LA-549-141 Fusion with Alkali Metal Hydroxide, rev 40
 LA-508-101A Alpha in liquid samples, rev 82
 LA-508-111A Operation of the (Tanner) LB-5500 (n=0, A-5),
 LB-1000 (n=1, A-3), ~~gamma~~ products (n=4, A-2)
 Alpha/Beta Counting Systems

AVERAGES ± 2 SD MSA 2.9E-03 $\pm$ 2.3E-03
 FOR 25 SAMPLES EFFICIENCY 27 $\pm$ 0

Final Report

METHOD SUMMARIES

Page 3

SUMMARY DATA SECTION

Page 30

136

Lab Id 222-S
 Protocol SS1
 Version 1.0
 Form 010-CMS
 Version 3.00
 Report date 02/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

SDG 97000111

Contact J. L. Nagum

Client WYRTank F-110

REPORT GUIDE

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
 - * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
 - * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
 - * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.
- QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.
- * All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

Final Report

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 31

Lab id 222-SProtocol SBTVersion 1.0Form DVD-RGVersion 3.00Report date 03/26/97

222-S LABORATORY
TANK 241-T-110 CORE 180SDG 27000111
Contact J. L. Nuzum

REPORT GUIDE

Client WPS
Tank T-110

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, S, L and N that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- Z There were two or more results for one analyte on one planchet imported at one time. The results in DVB may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

Final Report

REPORT GUIDES
Page 2SUMMARY DATA SECTION
Page 33

Lab id 222-S
Protocol SST
Version 1.0
Form DVB-RG
Version 3.08
Report date 03/25/97

222-S LABORATORY

TANK 241-T-110 CORE 180

SDG 97002111

Contact J. L. RUZICK

Client WAS

Tank T-110

REPORT GUIDE

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyse the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are listed by SAS number since it is likely to affect prices.

Final Report

REPORT GUIDES

Page 3

SUMMARY DATA SECTION

Page 33

Lab id 222-S

Protocol SST

Version 1.0

Form QVO-RG

Version 3.08

Report date 03/26/97

222-S LABORATORY

Tank 241-T-110 CORE 180

SDG 97000111

Contact J. L. MURPHY

Client TWS

Tank T-110

REPORT GUIDE

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.
- * ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be "N.R." (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be "N.A." (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

- 0 The RESULT is less than the MDA (Minimum Detectable Activity). If the MDA is blank, the ERROR is used as the limit.

Final Report

REPORT GUIDES

Page 4

SUMMARY DATA SECTION

Page 34

Lab id 222-S

Protocol SST

Version 1.0

Form DVD-RG

Version 3.08

Report date 03/26/97

222-S LABORATORY

TANR 241-T-110 CORE 180

SDG 22000111
Contact J. L. Nyeum

GUIDE, cont.

Client TWPS
Task 2-110

DATA SHEET

- J** The **RESULT** is less than the **RDL** (Required Detection Limit) and no **U** qualifier is assigned.
- B** A Method Blank associated with this sample had a result without a **U** flag and, after correcting for possibly different aliquots, that result is greater than or equal to the **NDA** for this sample.

Normally, **B** is not assigned if **U** is. When method blank subtraction is shown on this report, **B** flags are assigned based on the unsubtracted values while **U**'s are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

- L** Some Lab Control Sample that QC'd this sample had a low recovery. The lab can disable assignment of this qualifier.
- H** Similar to 'L' except the recovery was high.
- P** The **RESULT** is 'preliminary'.
- X** Some data necessary to compute the **RESULT**, **ERROR** or **NDA** was manually entered or modified.
- 2** There were two or more results available for this analyte. The reported result may not be the same as in the raw data.
- Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

- * An **NDA** is underlined if it is bigger than its **RDL**.
- * An **ERROR** is underlined if the 1.645 sigma counting error is bigger than both the **NDA** and the **RESULT**, implying that the **NDA**

Final Report

REPORT GUIDES

Page 5

SUMMARY DATA SECTION

Page 35

Lab id 222-S
Protocol SSS
Version 1.0
Form DVD-RQ
Version 3.08
Report date 02/26/97

222-S LABORATORY
TANK 261-T-110 CORE 180SDG 97000111
Contact J. E. NURUM

GUIDE, cont.

Client TSS
Tank T-110

DATA SHEET

may not be a good estimate of the 'real' minimum detectable activity.

- * A negative RESULT is underlined if it is less than the negative of its 3 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

Final Report

REPORT GUIDES

Page 6

SUMMARY DATA SECTION

Page 36

Lab id 222-S
Protocol SST
Version 1.0
Form DVP-RG
Version 5.08
Report date 03/26/97

222-S LABORATORY
TANK 241-T-110 CORE 180SDG 97000111
Contact J. L. NIZIUM

REPORT GUIDE

Client TWRB
Tank T-110

LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR as estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.
- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
 2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.
- * Laboratory control limits are defined in procedure LQ-543-101.

Final Report

REPORT GUIDES

Page 7

SUMMARY DATA SECTION

Page 37

Lab id 222-S
 Protocol SST
 Version 1.0
 Form DVD-RG
 Version 3.08
 Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

SDG 2700111

Contract J. L. Nuzum

Client TRS

Tank T-110

GUIDE, cont.

LAB CONTROL SAMPLE

DVD reported limits are based on total propagated uncertainty, a part of which is the laboratory control limits.

Final Report

REPORT GUIDES

Page 8

SUMMARY DATA SECTION

Page 38

Lab id 222-S

Protocol SBT

Version 1.0

Form DVD-RG

Version 3.08

Report date 03/25/97

222-S LABORATORY
TANK 241-T-110 CORE 180SDG 91000111
Contact J. L. NUGUM

REPORT GUIDE

Client TWRS
Tank T-110

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- The second limit for the RPD is the larger of:

1. A fixed percentage specified in the protocol.

Final Report

REPORT GUIDES

Page 9

SUMMARY DATA SECTION

Page 19

Lab id 222-S
Protocol SST
Version 1.0
Form DVO-RG
Version 3.08
Report date 01/26/87

222-S LABORATORY
TANK 241-T-110 CORE 180SDG 92000111
Contact J. L. Nunez

GUIDE, Cont.

Client TURS
Tank 2-110

DUPLICATE

2. A protocol factor (typically 3) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

Final Report

REPORT GUIDES

Page 10

SUMMARY DATA SECTION

Page 40

Lab id 222-S
Protocol SST
Version 1.0
Form QVD-RG
Version 3.08
Report Date 03/25/97

222-S LABORATORY
TANK 241-T-110 CORE 180SDG 97000111
Contact J. L. NEAUM

REPORT GUIDE

Client TWAS
Tank T-110

MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.
- * An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding ROL is outside protocol specified limits.
- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
 2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.

Final Report

REPORT GUIDES

Page 11

SUMMARY DATA SECTION

Page 11

 Lab id 222-S
 Protocol EST
 Version 1.0
 Form DVP-RG
 Version 3.08
 Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

SDG 97000111

Contact J. L. MEYER

Client TWSS

Tank T-110

GUIDE, cont.

MATRIX SPIKE

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

The recovery is underlined (out of spec) if it is outside either of these ranges.

Final Report

REPORT GUIDES

Page 12

SUMMARY DATA SECTION

Page 12

Lab id 222-S

Protocol SST

Version 1.0

Form DVD-R0

Version 1.08

Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

SDG 27900111
Contact J. L. Nurius

REPORT GUIDE

Client TWBS
Tank T-110

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- * Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- * The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Blanche ID combined with the (RAW) Test Code and Suffix uniquely identify the raw data for each analysis.

- * If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and K flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: OK, No data, LOW or HIGH, with the last two underlined. 'No data' means no amount ADDED was specified. 'LOW' and 'HIGH'

Final Report

REPORT GUIDES

Page 13

SUMMARY DATA SECTION

Page 43

Lab Id 222-S
Protocol 897
Version 1.0
Form DVD-RG
Version 3.08
Report Date 07/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

SDG 97000111
Contact J. L. Nysum

GUIDE, CONT.

Client TNS
Tank T-110

METHOD SUMMARY

correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
 - * If the NDA column is labeled 'MAX NDA', there was more than one result measured by the reported method and the NDA shown is the largest NDA. If not all these results have the same RDL, the MAX NDA reflects only those results with RDL equal to the smallest one.
- NDAs are underlined if greater than the printed RDL.
- * Aliquots are underlined if less than the nominal value specified for the method.
 - * Preparation factors are underlined if greater than the nominal value specified for the QC batch.
 - * Dilution factors are underlined if greater than the nominal value specified for the method.
 - * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
 - * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
 - * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.
 - * Count times are underlined if less than the nominal value

Final Report

REPORT GUIDES

Page 14

SUMMARY DATA SECTION

Page 14

Lab id 222-S
Protocol SST
Version 1.0
Form DVP-BG
Version 3.09
Report date 03/26/97

222-S LABORATORY
TANK 241-T-110 CORE 180SPS 97000111
Contact J. L. Nuzum

GUIDE, CONT.

Client TWG
Tank T-110

METHOD SUMMARY

specified for the method.

- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held (Analyzed - Collected) are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their placquet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1-3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one placquet reflects only counting errors since other errors should be correlated. For a ratio involving different placquets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the placquets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant results in the DVD database, whether reported or not. Results in the sum are weighted by a particular/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included.

Final Report

REPORT GUIDES

Page 15

SUMMARY DATA SECTION

Page 45

Lab ID 222-S
 Protocol SST
 Version 1.0
 Form DVD-RG
 Version 3.08
 Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

SDG 87000111

Contact J. L. NUGENT

Client WRS

Tank T-110

GUIDE, cont.

METHOD SUMMARY

No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their NDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

Final Report

REPORT GUIDES

Page 16

SUMMARY DATA SECTION

Page 46

Lab id 222-S

Protocol SST

Version 1.0

Form DVO-RG

Version 3.08

Report date 01/26/97

SDG 97000083
Contact J. L. NuzumClient TWRS
Tank T-110

SUMMARY DATA SECTION

TABLE OF CONTENTS

Sample Summaries	1
Prep Batch Summary	3
Work Summary	4
Method Blanks	8
Lab Control Samples	10
Duplicates	12
Matrix Spikes	22
Data Sheets	25
Method Summaries	35
End of Section	39

Final Report

Reviewed by

Approved by

Lab id 222-S
 Protocol SST
 Version 1.0
 Form DVD-TOC
 Version 3.08
 Report date 03/26/97

222-S LABORATORY

FORM 241-T-110 CORR 121

SUG 97000065

Contact: J. L. Hudson

SAMPLE SUMMARY

Client: TMS

Form: T-110

CLIENT SAMPLE ID	LOCATION	HAIRIN	LEVEL	LMR SAMPLE ID	PRIORITY	COLLECTED	RECEIVED
T110 C181 PW DIR J11744	R: 2 S: Field Blank C: 1	LIQUID		8971000119			02/10/97 06:24
T110 C181 PW DIR J11744	R: 2 S: Field Blank C: 1	LIQUID		89710001190			
T110 C181 PB2 DIR W11241	R: 2 S: Field Blank C: 1	LIQUID		8971000281			03/12/97 15:36
T110 C181 PB2 DIR W11241	R: 2 S: Field Blank C: 1	LIQUID		89710003810			
T110 C1811 LM FUSION	R: 2 S: 1 C: 181	FUSION	SOLID	8971000140			02/10/97 09:52
T110 C1811 LM FUSION-DU	R: 2 S: 1 C: 181	FUSION	SOLID	89710001440			
T110 C1811 LM FUSION-SP	R: 2 S: 1 C: 181	FUSION	SOLID	89710001486			
T110 C1818 LM FUSION	R: 2 S: 2 C: 181	FUSION	SOLID	8971000149			02/10/97 09:54
T110 C1818 LM FUSION-DU	R: 2 S: 2 C: 181	FUSION	SOLID	89710001490			
T110 C1818 LM FUSION	R: 2 S: 3 C: 181	FUSION	SOLID	8971000150			02/10/97 09:54
T110 C1818 LM FUSION-DU	R: 2 S: 3 C: 181	FUSION	SOLID	89710001500			
T110 C1818 LM FUSION	R: 2 S: 4 C: 181	FUSION	SOLID	8971000151			02/10/97 09:54
T110 C1818 LM FUSION-DU	R: 2 S: 4 C: 181	FUSION	SOLID	89710001510			
T110 C1818 LM FUSION	R: 2 S: 5 C: 181	FUSION	SOLID	8971000169			02/13/97 14:31
T110 C1818 LM FUSION-DU	R: 2 S: 5 C: 181	FUSION	SOLID	89710001690			
T110 C1818 LM FUSION	R: 2 S: 6 C: 181	FUSION	SOLID	8971000178			02/14/97 09:06
T110 C1818 LM FUSION-DU	R: 2 S: 6 C: 181	FUSION	SOLID	89710001780			
T110 C1818 LM FUSION	R: 2 S: 7 C: 181	FUSION	SOLID	8971000182			02/11/97 13:33
T110 C1818 LM FUSION-DU	R: 2 S: 7 C: 181	FUSION	SOLID	89710001820			
T110 C1818 LM FUSION-SP	R: 2 S: 7 C: 181	FUSION	SOLID	89710001820			
T110 C1818 LM FUSION	R: 2 S: 8 C: 181	FUSION	SOLID	8971000196			02/19/97 07:56
T110 C1818 LM FUSION-DU	R: 2 S: 8 C: 181	FUSION	SOLID	89710001960			
T110 C1818 LM FUSION-SP	R: 2 S: 8 C: 181	FUSION	SOLID	89710001965			
BI Blank		LIQUID		816695-2			
BI Blank		LIQUID		817001-2			
Method Blank		SOLID		816699-2			
Method Blank		SOLID		817066-2			
Method Blank		SOLID		817067-2			
Method Blank		SOLID		817072-2			
Lab Control Sample		LIQUID		816695-1			
Lab Control Sample		LIQUID		817001-1			
Lab Control Sample		SOLID		816699-1			
Lab Control Sample		SOLID		817066-1			
Lab Control Sample		SOLID		817067-1			
Lab Control Sample		SOLID		817072-1			

Final Report

SAMPLE SUMMARY

Page 1

SUMMARY DATA SECTION

Page 1

Lab Id 222-S

Protocol SST

Version 1.0

Form QMS-C3

Version 3.00

Report date 03/26/97

222-S LABORATORY

TIME 243-Y-110 CORE 181

QC SUMMARY

SDG 97000033

Contact J. L. RUSUM

Client TUES

TIME T-110

QC BATCH	CHAIN OF CUSTODY	EXTENT SAMPLE ID	MATRIX	% MOIST	SAMPLE AMOUNT	BASIS AMOUNT	DAYS FROM/TO		LAB	DEPARTMENT
							COLL	RCVD		
							RCVD	RPTD	SAMPLE ID	SAMPLE ID
97000082-F		T110 C18151 LM FUSION	FUSION	SOLID					44	977000148
		T110 C18152 LM FUSION	FUSION	SOLID					44	977000149
		T110 C18153 LM FUSION	FUSION	SOLID					44	977000150
		T110 C18154 LM FUSION	FUSION	SOLID					44	977000151
		T110 C18155 LM FUSION	FUSION	SOLID					41	977000169
		T110 C18156 LM FUSION	FUSION	SOLID					40	977000178
		T110 C18157 LM FUSION	FUSION	SOLID					43	977000162
		T110 C18158 LM FUSION	FUSION	SOLID					35	977000195
		T110 C18151 LM FUSION-DU	FUSION	SOLID					44	977000148
		T110 C18151 LM FUSION-SP	FUSION	SOLID					44	9770001485
		T110 C18152 LM FUSION-DU	FUSION	SOLID					44	9770001490
		T110 C18153 LM FUSION-DU	FUSION	SOLID					44	9770001500
		T110 C18154 LM FUSION-DU	FUSION	SOLID					44	9770001510
		T110 C18155 LM FUSION-DU	FUSION	SOLID					41	9770001690
		T110 C18156 LM FUSION-DU	FUSION	SOLID					40	9770001780
		T110 C18157 LM FUSION-DU	FUSION	SOLID					43	9770001620
		T110 C18157 LM FUSION-SP	FUSION	SOLID					43	9770001625
		T110 C18158 LM FUSION-DU	FUSION	SOLID					35	9770001950
		T110 C18158 LM FUSION-SP	FUSION	SOLID					35	9770001965
97000083-L		T110 C181 F8 DIR J11744	LIQUID						44	977000119
		T110 C181 F82 DIR V43241	LIQUID						14	9770006381
		T110 C181 F8 DIR J11744-	LIQUID						44	9770001190
		T110 C181 F82 DIR V43241	LIQUID						14	9770006381
LIQUID		DI Blank	LIQUID							816695-2
		DI Blank	LIQUID							817065-2
		Lab Control Sample	LIQUID							816695-1
		Lab Control Sample	LIQUID							817065-1
SOLID		Method Blank	SOLID							816695-2
		Method Blank	SOLID							817065-2
		Method Blank	SOLID							817067-2
		Method Blank	SOLID							817072-2
		Lab Control Sample	SOLID							816695-1
		Lab Control Sample	SOLID							817065-1
		Lab Control Sample	SOLID							817067-1
		Lab Control Sample	SOLID							817072-1

Final Report

QC SUMMARY

Page 1

SUMMARY DATA SECTION

Page 2

Lab Id 222-S

Protocol 557

Version 1.0

Form DUB-Q3

Version 1.06

Report date 03/26/97

222-S LABORATORY

TAMC 281-T-110 CORE 181

PREP BATCH SUMMARY

SDE 97000053

Contact J. L. Bishop

Client TMS

Park T-110

TEST MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED					QUALITY FILES	
		BATCH	2σ %	CLIENT	WAVE	RE	BLANK	LCS		DUP/orig
Alpha Spectroscopy										
PV	L10U10	Plutonium-239	97000026	15.0	1		1	1	1/1	
Gas Proportional Counting										
AT	L10U10	Alpha Analysis	97000369	15.0	1		1	1	1/1	
	BOL30	Alpha Analysis	97000816	15.0	2		1	1	2/2	
			97000889	15.0	3		1	1	3/3	1/1
			97000990	15.0	2		1	1	2/2	1/1
			97000995	15.0	1		1	1	1/1	1/1

Duplicates and Matrix spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Final Report

PREP BATCH SUMMARY

Page 1

SUMMARY DATA SECTION

Page 3

156

Lab id 922-S

Protocol SBT

Version 3.0

Form DUB-068

Version 3.00

Report date 02/26/97

222-S LABORATORY

TAMC 241-T-110 CORE 181

WORK SUMMARY

800 2700005

Contact J. L. BULLER

Client THER

Yark 7-110

CLIENT SAMPLE ID LOCATION CUSTOD?	PRIORITY	MATRIX	LAB SAMPLE ID COLLECTED RECEIVED	FLANCHET	TEST	BUF- PIX	ANALYZED	REVIEWED	BY	METHOD
T110 C181 FB DIR J11744 A: 2 S: Field Blank C: 1 LIQUID			8971000119 02/10/97	16695-4	AT		03/03/97		SLF	Alpha Analysis
T110 C181 FB DIR J11744- A: 2 S: Field Blank C: 1 LIQUID			8971000150 02/10/97	16695-5	AT		03/03/97		SLF	Alpha Analysis
T110 C181 FB2 DIR V01241 A: 2 S: Field Blank C: 1 LIQUID			8971000381 03/12/97	17005-3	PU		03/15/97		JFR	Plutonium-239
T110 C181 FB2 DIR V01241 A: 2 S: Field Blank C: 1 LIQUID			8971000380 03/12/97	17005-4	PU		03/15/97		JFR	Plutonium-239
T110 C181S1 LH FUSION A: 2 S: 1 C: 181		FUSION SOLID	8971000148 02/10/97	17067-4	AT	02	03/18/97		SLF	Alpha Analysis
T110 C181S1 LH FUSION-SU FUSION A: 2 S: 1 C: 181		FUSION SOLID	8971000148 02/10/97	17067-5	AT	02	03/18/97		SLF	Alpha Analysis
T110 C181S1 LH FUSION-SP FUSION A: 2 S: 1 C: 181		FUSION SOLID	8971000148 02/10/97	17067-6	AT	02	03/18/97		SLF	Alpha Analysis
T110 C181S2 LH FUSION A: 2 S: 2 C: 181		FUSION SOLID	8971000149 02/10/97	17067-7	AT	02	03/18/97		SLF	Alpha Analysis
T110 C181S2 LH FUSION-BL FUSION A: 2 S: 2 C: 181		FUSION SOLID	8971000149 02/10/97	17067-8	AT	02	03/18/97		SLF	Alpha Analysis
T110 C181S3 LH FUSION A: 2 S: 3 C: 181		FUSION SOLID	8971000150 02/10/97	16899-4	AT		03/03/97		SLF	Alpha Analysis

Final Report

WORK SUMMARY

Page 1

SUMMARY DATA SECTION

Page 4

Lab Id 222-S

Protocol SST

Version 1.0

Form 040-046

Version 3.08

Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CODE 181

BAG 97000063

Contact J. L. Rydum

Client JMB

Park 2-110

WORK SUMMARY, CONT.

CLIENT SAMPLE ID LOCATION QUEST	PRIORITY	MATRIX	LAB SAMPLE ID COLLECTED RECEIVED	PLACNET	TEST	RAF- FIX	ANALYZED	REVIEWED	BY	METHOD
T110 C18153 LH FUSION-BU R: 2 G: 3 G: 181		FUSION SOLID	897T0001500 02/10/97	16899-5	AT		03/04/97		SLF	Alpha Analysis
T110 C18154 LH FUSION R: 2 G: 4 G: 181		FUSION SOLID	897T0001514 02/10/97	16899-6	AT		03/05/97		SLF	Alpha Analysis
T110 C18154 LH FUSION-BU R: 2 G: 4 G: 181		FUSION SOLID	897T0001510 02/10/97	16899-7	AT		03/05/97		SLF	Alpha Analysis
T110 C18155 LH Fusion R: 2 G: 5 G: 181		FUSION SOLID	897T0001609 02/13/97	17066-7	AT	01	03/18/97		SLF	Alpha Analysis
T110 C18155 LH Fusion-BU R: 2 G: 5 G: 181		FUSION SOLID	897T0001610 02/13/97	17066-8	AT	01	03/18/97		SLF	Alpha Analysis
T110 C18156 LH FUSION R: 2 G: 6 G: 181		FUSION SOLID	897T0001708 02/14/97	17066-9	AT	01	03/18/97		SLF	Alpha Analysis
T110 C18156 LH FUSION-BU R: 2 G: 6 G: 181		FUSION SOLID	897T0001700 02/14/97	17066-10	AT	01	03/18/97		SLF	Alpha Analysis
T110 C18157 LH FUSION R: 2 G: 7 G: 181		FUSION SOLID	897T000162 02/11/97	17066-4	AT	01	03/18/97		SLF	Alpha Analysis
T110 C18157 LH FUSION-BU R: 2 G: 7 G: 181		FUSION SOLID	897T0001620 02/11/97	17066-5	AT	01	03/18/97		SLF	Alpha Analysis
T110 C18157 LH FUSION-SP R: 2 G: 7 G: 181		FUSION SOLID	897T0001626 02/11/97	17066-6	AT	01	03/18/97		SLF	Alpha Analysis

Final Report

WORK SUMMARY

Page 2

SUMMARY DATA SECTION

Page 3

Lab id 222-S

Protocol 88T

Version 1.0

Form DWD-CMS

Version 3.08

Report date 02/26/97

222-S LABORATORY

TANK 241-F-110 CORE 181

WORK SUMMARY, cont.

SPC 97000033

Contact J. E. Buzum

Client TWS

Tank T-110

CLIENT SAMPLE ID LOCATION DUSTBOX	PRIORITY	MATRIX	LAB SAMPLE ID COLLECTED RECEIVED	PLANNED TEST	TEST	SUB- FIN	ANALYZED	REVIEWED	BY	METHOD
T110 C18188 LM FUSION K: 2 S: 3 C: 181		FUSION SOLID	S97T000196 02/19/97	17072-4	AT	02	03/20/97		SLF	Alpha Analysis
T110 C18188 LM FUSION-DP K: 2 S: 3 C: 181		FUSION SOLID	S97T000196 02/19/97	17072-5	AT	02	03/20/97		SLF	Alpha Analysis
T110 C18188 LM FUSION-SF K: 2 S: 3 C: 181		FUSION SOLID	S97T000196 02/19/97	17072-6	AT	02	03/20/97		SLF	Alpha Analysis
BI Blank		LIQUID	B16695-2 16695-2	17005-2	AT		03/05/97		SLF	Alpha Analysis
Method Blank		SOLID	B16899-2 16899-2	17066-2	AT		03/08/97		SLF	Alpha Analysis
BI Blank		LIQUID	B17005-2 17005-2	17005-2	PU		03/15/97		JFR	Plutonium-239
Method Blank		SOLID	B17066-2 17066-2	17066-2	AT		03/18/97		SLF	Alpha Analysis
Method Blank		SOLID	B17067-2 17067-2	17067-2	AT		03/18/97		SLF	Alpha Analysis
Method Blank		SOLID	B17072-2 17072-2	17072-2	AT		03/20/97		SLF	Alpha Analysis
Lab Control Sample		LIQUID	B16695-1 16695-1	16695-1	AT		03/05/97		SLF	Alpha Analysis
Lab Control Sample		SOLID	B16899-1 16899-1	16899-1	AT		03/08/97		SLF	Alpha Analysis
Lab Control Sample		LIQUID	B17005-1 17005-1	17005-1	PU		03/15/97		JFR	Plutonium-239

Final Report

WORK SHEET

Page 3

SUMMARY DATA SECTION

Page 6

Lab id 222-S

Protocol SST

Version 1.0

Form 970-DWS

Version 3.00

Report date 03/26/97

222-S LABORATORY

TAMC 241-1-110 CORR 1B1

WORK SUMMARY, CONT.

 SOO 97000005
 Contact J. L. Muehlen

 Client TMS
 Page 1-119

CLIENT SAMPLE ID		LAB SAMPLE ID								
LOCATION	PRIORITY	MATRIX	COLLECTED	PLANNED	TEST	DUPLICATE	ANALYZED	REVIEWED	BY	METHOD
CUSTOMER			RECEIVED							
Lab Control Sample		SOL10	17066-1	17066-1	AT		03/18/97		SLF	Alpha Analysis
Lab Control Sample		SOL10	17067-1	17067-1	AT		03/18/97		SLF	Alpha Analysis
Lab Control Sample		SOL10	17072-1	17072-1	AT		03/20/97		SLF	Alpha Analysis

COUNTS OF TESTS BY SAMPLE TYPE

TEST	PRIORITY	METHOD	REFERENCE	CLIENT	MOIS	RS	BLANK	LOD	DUPLICATE	TOTAL
AT		Alpha Analysis	222-S Lab Analytical Procedure	8			4	4	8	27
AT		Alpha Analysis	222-S Lab Analytical Procedure	1			1	1	1	4
PV		Plutonium-239	222-S Lab Analytical Procedure	1			1	1	1	4
TOTALS				10			6	6	10	35

Final Report

WORK SUMMARY

Page 4

SUMMARY DATA SECTION

Page 7

 Lab ID 222-S
 Protocol SST
 Version 1.0
 Form HNF-005
 Version 1.02
 Report Date 03/26/97

222-S LABORATORY

TASK 241-T-140 CORR 181

SQA 97000083

Contact J. L. Muzum

BLANKS

Client LABS

Task 2-140

Lab sample id <u>816895-2</u>		Client sample id <u>Pl Blank</u>					
Dept sample id _____		Material/Matrix <u>SOLID</u>					
ANALYTE	CAS NO	RESULT uCi/mL	2 σ TPU %	MDA uCi/mL	MDL uCi/mL	QUALI- FIERS	TEST PREP BATCH
Total Alpha	12587-46-1	<3.0E-07		4.0E-07		U	AT 97000549

Lab sample id <u>816899-2</u>		Client sample id <u>Method Blank</u>					
Dept sample id _____		Material/Matrix <u>SOLID</u>					
ANALYTE	CAS NO	RESULT uCi/g	2 σ TPU %	MDA uCi/g	MDL uCi/g	QUALI- FIERS	TEST PREP BATCH
Total Alpha	12587-46-1	<6.0E-06		8.0E-06		CA	AT 97000818

Lab sample id <u>817895-2</u>		Client sample id <u>Pl Blank</u>					
Dept sample id _____		Material/Matrix <u>SOLID</u>					
ANALYTE	CAS NO	RESULT uCi/mL	2 σ TPU %	MDA uCi/mL	MDL uCi/mL	QUALI- FIERS	TEST PREP BATCH
Plutonium 239/240		<3.4E-06		3.4E-06		U	PU 97000926

Lab sample id <u>817896-2</u>		Client sample id <u>Method Blank</u>					
Dept sample id _____		Material/Matrix <u>SOLID</u>					
ANALYTE	CAS NO	RESULT uCi/g	2 σ TPU %	MDA uCi/g	MDL uCi/g	QUALI- FIERS	TEST PREP BATCH
Total Alpha	12587-46-1	<2.0E-03		2.0E-03		U	AT 97000989

Final Report

BLANKS

Page 1

SUMMARY DATA SECTION

Page 8

Lab id 222-S
 Protocol 238
 Version 1.0
 Form ENV-BLANK
 Version 3.08
 Report date 05/26/97

222-S LABORATORY

TANK 241-T-110 CORE 181

SDG 97000063

Contact J. L. Murray

BLANKS

Client TDE

Tank T-110

Lab sample id <u>817067-2</u>		Client sample id <u>Method Blank</u>					
Dept sample id _____		Material/Matrix <u>SOLID</u>					
ANALYTE	CAS NO	RESULT uCi/g	2 σ TPL %	MDA uCi/g	MDL uCi/g	QUALITY FIERS	TEST PREP BATCH
Total Alpha	12587-46-1	<2.9E-03		2.9E-03		U AT	97000990

Lab sample id <u>817072-2</u>		Client sample id <u>Method Blank</u>					
Dept sample id _____		Material/Matrix <u>SOLID</u>					
ANALYTE	CAS NO	RESULT uCi/g	2 σ TPL %	MDA uCi/g	MDL uCi/g	QUALITY FIERS	TEST PREP BATCH
Total Alpha	12587-46-1	<3.0E-03		3.0E-03		U AT	97000995

Final Report

BLANKS

Page 2

SUMMARY DATA SECTION

Page 9

Lab id 222-SProtocol SETVersion 3.0Form BLK-BLANKVersion 3.00Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 DOME 189

BEG 97000063

Contract L. L. MULLIN

LAB CONTROL SAMPLES

Client LMSTask T-150

Lab sample id <u>316695-1</u>					Client sample id <u>Lab Control Sample</u>						
Dept sample id _____					Material/Matrix <u>LIQUID</u>						
ANALYTE	RESULT uCi/mL	2 σ TRU %	MVA uCi/mL	MDL uCi/mL	QUALITY- FIERS	TEST	ADDED uCi/mL	2 σ ERR %	REC %	3 σ LIMS PROTOCOL (TOTAL) LIMITS	PREP BATCH
Total Alpha	3.80E-04	15	4.0E-07			AT	2.00E-4	5.0	92	77-123 70-130	97000569

Lab sample id <u>316699-1</u>					Client sample id <u>Lab Control Sample</u>					
Dept sample id _____					Material/Matrix <u>SOLID</u>					
ANALYTE	RESULT uCi/g	2 σ TRU %	MVA uCi/g	MDL uCi/g	QUALITY- FIERS	TEST	ADDED uCi/g	2 σ ERR %	REC %	3 σ LIMS PROTOCOL (TOTAL) LIMITS PREP BATCH
Total Alpha	7.02E-02	16	2.0E-04			AT	1.01E-1	5.0	70	82-118 70-130 97000518

Lab sample id <u>317005-1</u>					Client sample id <u>Lab Control Sample</u>						
Dept sample id _____					Material/Matrix <u>LIQUID</u>						
ANALYTE	RESULT uCi/mL	2 σ TRU %	MVA uCi/mL	MDL uCi/mL	QUALITY- FIERS	TEST	ADDED uCi/mL	2 σ ERR %	REC %	3 σ LIMS PROTOCOL (TOTAL) LIMITS	PREP BATCH
Plutonium 239/240	1.01E-04	15	6.7E-06			PU	1.00E-4	5.0	93	78-122	97000926

Lab sample id <u>317086-1</u>					Client sample id <u>Lab Control Sample</u>					
Dept sample id _____					Material/Matrix <u>SOLID</u>					
ANALYTE	RESULT uCi/g	2 σ TRU %	MVA uCi/g	MDL uCi/g	QUALITY- FIERS	TEST	ADDED uCi/g	2 σ ERR %	REC %	3 σ LIMS PROTOCOL (TOTAL) LIMITS PREP BATCH
Total Alpha	3.18E-02	16	2.0E-04			AT	9.68E-2	5.0	84	79-121 70-130 97000689

Final Report

LAB CONTROL SAMPLES

Page 1

SUMMARY DATA SECTION

Page 10

Lab id 222-SProtocol SGTVersion 3.0Form 070-105Version 3.05Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORP 101

LAB CONTROL SAMPLES

Client THSTank T-110

SDB 97000085

Contact J. L. Mudge

Lab sample id <u>917067-1</u>					Client sample id <u>Lab Control Sample</u>				
Dept sample id _____					Material/Matrix <u>SSA ID</u>				
ANALYTE	RESULT uCi/g	2 σ RPD %	MDA uCi/g	MDL uCi/g	QUALITY FIELD TEST	ADDED uCi/g	2 σ ERR %	REC %	3 σ LIMITS PROTOCOL (TOTAL) LIMITS PREP BATCH
Total Alpha	2.26E-02	15	2.9E-04		AT	1.03E-1	5.0	90	79-122 70-130 97000990

Lab sample id <u>917072-1</u>					Client sample id <u>Lab Control Sample</u>				
Dept sample id _____					Material/Matrix <u>SSA ID</u>				
ANALYTE	RESULT uCi/g	2 σ RPD %	MDA uCi/g	MDL uCi/g	QUALITY FIELD TEST	ADDED uCi/g	2 σ ERR %	REC %	3 σ LIMITS PROTOCOL (TOTAL) LIMITS PREP BATCH
Total Alpha	8.34E-02	16	3.0E-04		AT	9.76E-2	5.0	85	79-121 70-130 97000995

Final Report

LAB CONTROL SAMPLES

Page 2

SUMMARY DATA SECTION

Page 11

Lab id 222-SProtocol ERTVersion 1.0Form BYD-LCSVersion 3.06Report date 03/26/97

222-S LABORATORY

Task 241-2-110 core 181

9970001198

1110 C181 FB DR J18764

DUPLICATE

SDG 97000003

Contact J. E. HUGHES

DUPLICATE

Lab sample id 9970001198

Dept sample id

ORIGINAL

Lab sample id 9970001199

Dept sample id

Received 02/10/97

Client FWS

Task T-110

Client sample id 1110 C181 FB DR J18764

Location/Matrix ex 2 S: Field Blank G2 3 (Liqui)

Collected

Chain of custody id

ANALYTE	DUPLICATE uCi/ml	2σ TPU %	MDA uCi/ml	REL uCi/ml	QUALITY FIERS	TEST	ORIGINAL uCi/ml	2σ TPU %	MDA uCi/ml	QUALITY FIERS	RPD %	3σ TOT LIMIT
Total Alpha	5.65E-07	69	4.0E-07			AT	5.52E-07	120	4.0E-07		5	200 145

Loc: River's 2 Seps Field Blank Core 181

Loc: River's 2 Seps Field Blank Core 181

Final Report

DUPLICATES

Page 1

SUMMARY DATA SECTION

Page 12

Lab id 222-B

Protocol SST

Version 1.0

Form DVO-BSP

Version 3.00

Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 181

59770001480

DUPLICATE

T110 C18181 LH FUSION

SNO 97000063

Contact J. A. Hughes

Client TMS

Tank T-110

DUPLICATE

ORIGINAL

Lab sample id 59770001480

Lab sample id 5977000148

Client sample id T110 C18181 LH FUSION FUSION

Dept sample id

Dept sample id

Location/Matrix R-2 S-1 C-181 SOLID

Received 02/10/97

Collected

Chain of custody id

ANALYTE	DUPLICATE UC1/g	2 σ TPU %	MDA UC1/g	MDA UC1/g	QUALI- FIBERS	TEST	ORIGINAL UC1/g	2 σ TPU %	MDA UC1/g	QUALI- FIBERS	RPD %	3 σ PROT TOT LIMIT
Total Alpha	6.66E-02	21	2.0E-03		AF		7.90E-02	20	2.9E-03		12	42 20

Final Report

DUPLICATES

Page 2

SUMMARY DATA SECTION

Page 13

Lab id 222-S

Protocol 551

Version 1.0

Form 010-DUP

Version 3.08

Report date 02/26/97

222-S LABORATORY

TANK 241-T-110 CORE 181

69710001490

T110 C18182 LH FUSION

DUPLICATE

BAG 971000063

Contact J. L. McGuire

Client TUES

Tank T-110

DUPLICATE

ORIGINAL

Lab sample id 69710001490

Lab sample id 6971000149

Client sample id T110 C18182 LH FUSION FUSION

Dept sample id

Dept sample id

Location/Media R-2 S-2 C-181 SOLID

Received 02/10/97

Collected

Chain of custody id

ANALYTE	DUPLICATE MC/g	2 σ TPU %	MDA MC/g	MDL MC/g	QUALI- FIBERS	SPD TEST	ORIGINAL MC/g	2 σ TPU %	MDA MC/g	QUALI- FIBERS	SPD %	3 σ PROT LOT LIMIT
Total Alpha	5.12E-02	21	2.68E-03		A1		4.46E-02	21	2.7E-03		9	46 20

Final Report

DUPLICATED

Page 3

SUMMARY DATA SECTION

Page 14

Lab id 222-S

Protocol 321

Version 1.0

Form 970-REP

Version 2.00

Report date 03/26/97

222-S LABORATORY

TAME 241-T-110 CORE 101

67710001506

T110 C18183 LH FUSION

DUPLICATE

SDG 97000083

Contact A. L. HUSUM

DUPLICATE

Client TAMETank F-110

ORIGINAL

Lab sample id 67710001506Lab sample id 6771000150Client sample id T110 C18183 LH FUSION FUSION

Dept sample id _____

Dept sample id _____

Location/Matrix 2 2 3 Cr 101 204.10Received 92/10/97

Collected _____

Chain of custody id _____

ANALYTE	DUPLICATE UG/g	2 σ TRU %	NDA UG/g	2 σ TRU UG/g	QUALI- FIERS	TEST	ORIGINAL UG/g	2 σ TRU %	NDA UG/g	QUALI- FIERS	2 σ TRU %	2 σ PROT TOF LIMIT
Total Alpha	3.02E-02	17	4.0E-04	L	AT		3.42E-02	17	4.0E-04	L	12	57 20

Final Report

DUPLICATES

Page 4

SUMMARY DATA SECTION

Page 15

Lab id 222-SProtocol 331Version 1.0Form 000-000Version 3.06Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 181

09770001510

T110 C18134 LH TUBES

DUPLICATE

SDB 27000083

Contact J. L. Buzum

DUPLICATE

Lab sample id 09770001510

ORIGINAL

Lab sample id 0977000151

Client JMS

Tank T-110

Client sample id T110 C18134 LH TUBES R/S100

Dept sample id

Dept sample id

Location/Matrix R/S 2 G: 6 G: 181

Received 02/10/97

Collected

Chsn of custody id

ANALYTE	DUPLICATE uCi/g	2σ TPV %	MDA uCi/g	MDL uCi/g	QUALITY FIELD	TEST	ORIGINAL uCi/g	2σ TPV %	MDA uCi/g	MDL uCi/g	QUALITY FIELD	2σ TOT LIMIT	3σ PROB
Total Alpha	5.98E-02	17	4.0E-04		L	AT	3.91E-02	17	4.4E-04	L	2	36	20

Final Report

DUPLICATES

Page 5

SUMMARY DATA SECTION

Page 16

Lab id 222-S

Protocol 251

Version 1.0

Form 040-007

Version 3.00

Report date 02/26/97

222-S LABORATORY

TANK 241-T-110 CORE 101

9770001620

1110 C10107 LN FUSION

DUPLICATE

SOL 97000055

Contact J. S. HUGHES

DUPLICATE

Lab sample id 9770001620

Dept sample id

ORIGINAL

Lab sample id 977000162

Dept sample id

Received 02/01/97

Client TMS

Tank 2-110

Client sample id 1110 C10107 LN FUSION

Location/Matrix 2: 2 S; 7 C; 101

Collected

Chain of custody id

ANALYTE	DUPLICATE uCi/g	2 σ TPU %	MDA uCi/g	MDL uCi/g	QUALI- FIERS	TEST	ORIGINAL uCi/g	2 σ TPU %	MDA uCi/g	QUALI- FIERS	APD %	3 σ PROB TOT LIMIT
Total Alpha	6.51E-02	20	2.0E-03			AT	6.05E-02	21	2.0E-03		7	43 20

Final Report

DUPLICATES

Page 6

SUMMARY DATA SECTION

Page 17

Lab id 222-S

Protocol SST

Version 1.0

Form 010-DUP

Version 3.00

Report date 05/26/97

222-S LABORATORY

FORM 241-P-110 CORR 101

82710091698

T110 C18195 LH Position

DUPLICATE

EDB 97100063 Contract <u>Co. L. Mustang</u> DUPLICATE Lab sample id <u>82710091698</u> Dept sample id _____		ORIGINAL Lab sample id <u>8271000169</u> Dept sample id _____ Received <u>02/13/97</u>		Client <u>PLRS</u> Tank <u>F-100</u> Client sample id <u>1110 C18195 LH Position</u> Location/Matrix <u>PL 2 B: 5 C: 101</u> Collected _____ Chain of custody id _____	
---	--	---	--	---	--

ANALYTE	DUPLICATE	2σ TPU	MDA	REL	QUALITY	ORIGINAL	2σ TPU	MDA	QUALITY	RPD	2σ	PROT
	μCi/g	%	μCi/g	μCi/g	FIERS TEST		μCi/g	%	μCi/g	FIERS %	TOT	UNIT
Total Alpha	5.32E-02	21	2.1E-03		AT	4.29E-02	22	2.1E-03		21	46	20

Final Report

DUPLICATES

Page 7

SUMMARY DATA SECTION

Page 18

171

Lab id	<u>222-S</u>
Protocol	<u>SS1</u>
Version	<u>1.0</u>
Form	<u>SW-DUP</u>
Version	<u>3.00</u>
Report date	<u>02/26/97</u>

222-S LABORATORY

TANK 261-T-110 CORE 1B1

9970001780

T110 C13156 IN FUSION

DUPLICATE

SOL 97000089

Contact J. L. HUGHES

DUPLICATE

Lab sample id 9970001780

Dept sample id _____

ORIGINAL

Lab sample id 9970001780

Dept sample id _____

Received 02/16/97Client ELRGTank E-110Client sample id T110 C13156 IN FUSIONLocation/Matrix 2: 2 S: 6 C: 1B1

Collected _____

Chain of custody id _____

ANALYTE	DUPLICATE uCi/g	2 σ TPU %	MDA uCi/g	EDL uCi/g	QUALI- FIERIS	TEST	ORIGINAL uCi/g	2 σ TPU %	MDA uCi/g	QUALI- FIERIS	ADD %	3 σ PROT TOT LIMIT
Total Alpha	6.04E-02	22	2.1E-03			AT	5.52E-02	22	2.2E-03		9	45 20

Final Report

DUPLICATES

Page 8

SUMMARY DATA SECTION

Page 10

Lab id 222-S
 Protocol 387
 Version 1.0
 Form 970-00P
 Version 1.05
 Report date 03/26/97

222-S LABORATORY

TANK 261-Y-110 CORE 101

897000196

T110 C00158 LB FUSION

DUPLICATE

SBC 97000083	Client: HRS
Contact: J. L. Muzum	Task: 6-170
DUPLICATE	ORIGINAL
Lab sample id: 897000196	Lab sample id: 897000196
Client sample id: T110 C00158 LB FUSION	FUSION
Dept sample id:	Location/Matrix: R-2 S-3 C-101
Received: 08/19/97	Collected:
	Chain of custody id:

ANALYTE	DUPLICATE uCi/g	Zr TPU %	HDA uCi/g	GBL uCi/g	QUALI- FIBERS	TEST	ORIGINAL uCi/g	Zr TPU %	HDA uCi/g	QUALI- FIBERS	RFD %	So PROT TON LIMIT
Total Alpha	4.14E-02	20	2.9E-03			AT	5.00E-02	22	3.0E-03		4	45 20

Final Report

DUPLICATES

Page 9

SUMMARY DATA SECTION

Page 28

Lab id: 222-S
 Protocol: 351
 Version: 1.0
 Form: DHD-006
 Version: 1.06
 Report date: 03/26/97

222-S LABORATORY
TANK 241-T-110 CORE 101

HNF-SD-WM-DP-238, REV. 0

8970043610

DUPLICATE

T110 C101 PB2 DIR WP1241

SOG 9700003		Client Type	
Contact J. L. Hogue		Tank T-110	
DUPLICATE		ORIGINAL	
Lab sample id 8970043610	Lab sample id 897004361	Client sample id T110 C101 PB2 DIR WP1241	
Dept sample id	Dept sample id	Location/Matrix R: 2 S: Field Blank C: 1 L10010	
	Received 05/12/97	Collected	
		Chain of custody id	

ANALYTE	DUPLICATE uCi/m	2s TPU %	MBA uCi/m	BDL uCi/ml	QUALI- FIERS	TEST	ORIGINAL uCi/ml	2s TPU %	MBA uCi/m	QUALI- FIERS	2s TPU %	MDL
Plutonium 239/240	3.5E-06		3.5E-06		U	PU	3.4E-06		3.4E-06	U		

Loc: Riser; 2 Seg; Field Blank Core: 101

Sample T110 C101 PB2 DIR WP1241
Loc: Riser; 2 Seg; Field Blank Core: 101

Final Report

DUPLICATES

Page 10

SUMMARY DATA SECTION

Page 21

Lab id 222-S
Protocol SST
Version 3.0
Form 910-007
Version 3.02
Report date 05/24/97

222-S LABORATORY

TANK 241-T-110 CORE 101

997T0001488

MATRIX SPIKE

T110 CRISTE LH RUSION

SUG 97002083

Contact J. L. RUSION

MATRIX SPIKE

Lab sample id 997T0001488

Dept sample id

ORIGINAL

Lab sample id 997T0001488

Dept sample id

Received 02/10/97

Client TUES

Tank T-110

Client sample id T110 CRISTE LH RUSION RUSION

Location/Matrix R-2 B1 1 C-101 SOLID

Collected

Chain of custody id

ANALYTE	SPKNE uCi/g	2σ TRU %	NDA uCi/g	RDL uCi/g	QUALI- FIERE TEST	ADDED uCi/g	2σ GR %	ORIGINAL uCi/g	2σ TRU %	REC 3σ LIMITS % (TOTAL)	PROTOCOL LIMITS
Total Alpha	1.44E-01				AT	1.85E01	5.0	7.50E-02	20	77	81-119 75-125

Final Report

Matrix Spikes

Page 1

SUMMARY DATA SECTION

Page 22

Lab id 222-S
 Protocol SST
 Version 1.0
 Form DWP-103
 Version 1.08
 Report date 03/26/97

222-S LABORATORY

TANK 241-Y-110 CORE 101

MATRIX SPIKE

8970001625

T110 C10187 LN F06108

SPC 97000053

Contract J. L. BURKH

MATRIX SPIKE

Client TMS

Tank T-110

ORIGINAL

Lab sample id 8970001625

Lab sample id 897000162

Client sample id T110 C10187 LN F06108

Dept sample id

Dept sample id

Location/Matrix B-2 S-7 Co 101

Received 08/11/97

Collected

Chain of custody id

ANALYTE	SPKIN UCI/g	2σ TPU %	MDA UCI/g	RDL UCI/g	QUALI- FIERS TEST	ADDED UCI/g	2σ ERR %	ORIGINAL UCI/g	2σ TPU %	REC 3σ LIMS PROTOCOL % (TOTAL) (UNITS)
Total Alpha	1,190 01				AT	1,734 01	5.0	6,058-02	21	68 82-117 75-125

Final Report

MATRIX SPIKES

Page 2

SUMMARY DATA SECTION

Page 23

Lab id 222-S

Protocol 387

Version 3.0

Form DWD-HS

Version 3.06

Report date 03/26/97

222-S LABORATORY

TANK 241-F-110 CORE 181

MATRIX SPIKE

T110-C18153 LN Fusion

SDG 97090063

Contact J. S. Huzum

MATRIX SPIKE

Client: TMS

Tank #110

ORIGINAL

Lab sample id 9770001566

Lab sample id 9770001566

Client sample id T110 C18153 LN Fusion Fusion

Dept sample id

Dept sample id

Location/Matrix #: 2 S, 8 C, 181 90410

Received 08/12/97

Collected

Chain of custody id

ANALYTE	BIKE uCi/g	2σ TPU %	NDA uCi/g	RDA uCi/g	QUAL- FIBER TEST	ADDED uCi/g	2σ ERR %	ORIGINAL uCi/g	2σ TPU %	REC 3σ LIMITS % (TOTAL) LIMITS
Total Alpha	9,356.00				AT	1,75201	5.0	3,008-02	22	53, 86-116 75-125

Final Report

MATRIX SPIKES

Page 3

SUMMARY DATA SECTION

Page 24

Lab id 222-S

Protocol 337

Version 1.0

Form 010-013

Version 3.06

Report date 03/26/97

222-S LABORATORY
TANK 341-T-110 CORE 181

H97T000119

T110 C181 FB DIR J11744

DATA SHEET

SDG 97000083

Client TWES

Contact J. L. Hysun

Tank T-110

Lab sample id H97T000119

Client sample id T110 C181 FB DIR J11744

Dept sample id

Location/Matrix R: 2 S: Field Blank C: 1 LIQUID

Received 02/10/97

Collected

Chain of custody id

ANALYTE	CAS NO	RESULT uCi/ml	2 σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALI- FIERS	TEST
Total Alpha	12587-46-1	5.37E-07	120	4.0E-07			AT

Loc: Riser: 2 Seg: Field Blank Core: 181

Final Report

DATA SHEETS

Page 1

SUMMARY DATA SECTION

Page 25

Lab id 222-S
 Protocol SST
 Version 1.0
 Form OVR-DS
 Version 3.08
 Report date 03/26/97

222-S LABORATORY
TANK 241-T-110 CORE 181

597T0000381

T110 C181 PB2 DIR V#1241

DATA SHEET

SDG 97000081
Contact J. L. NuzumClient TRS
Tank T-110Lab sample id 597T0000381
Dept sample id
Received 03/12/97Client sample id T110 C181 PB2 DIR V#1241
Location/Matrix R: 7 S: Field Blank C: 1 LIQUID
Collected
Chain of custody id

ANALYTE	CAS NO	RESULT	±σ TPU	MDA	RDL	QUALI-	TEST
		UCI/ml	%	UCI/ml	UCI/ml	FIERS	
Plutonium 239/240		<3.4E-06		3.4E-06		U	PU

Samp: T110 C181 PB2 DIR V#12415
Loc: Riser: 2 Seg: Field Blank Core: 181

Final Report

DATA SHEETS
Page 2SUMMARY DATA SECTION
Page 26Lab id 222-S
Protocol SST
Version 1.0
Form DVO-DS
Version 3.08
Report date 03/26/97

222-S LABORATORY
TANK 221-T-110 CORE 181

S97T000148

T110 C18181 LH FUSION

DATA SHEET

SDG 97000081
Contact J. L. NurnanClient THRS
Tank T-110Lab sample id S97T000148
Dept sample id _____
Received 02/10/97Client sample id T110 C18181 LH FUSION FUSION
Location/Matrix A, 2 S, 1 C, 181 SOLID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPV %	MDA uCi/g	RDL uCi/g	QUALI- FISRS	TEST
Total Alpha	12587-46-1	7.50E-02	20	7.9E-03			AT

Final Report

DATA SHEET
Page 3SUMMARY DATA SECTION
Page 27Lab id 222-S
Protocol EST
Version 1.0
Form QVD-DS
Version 3.08
Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 181

S97T000149

T110 C18182 LH FUSION

DATA SHEET

SNG 97000087

Client TRES

Contact J. L. Nussim

Tank T-110

Lab sample id S97T000149

Client sample id T110 C18182 LH FUSION FUSION

Dept sample id

Location/Matrix R. 2 S. 2 C. 181 SOLID

Received 02/10/97

Collected

Chain of custody id

ANALYTE	CAS NO	RESULT nCi/g	2 σ TRV %	MDA nCi/g	RDL nCi/g	QUALI- FIBRS	TEST
Total Alpha	12597-46-1	4.66E-02	21	2.7E-03			AT

Final Report

DATA SHEETS

Page 1

SUMMARY DATA SECTION

Page 28

Lab id 222-S

Protocol SST

Version 1.0

Form DYS-QS

Version 1.06

Report date 03/26/97

222-S LABORATORY
TANK 241-T-110 CORE 181

S97T000150

T110 C18153 LH FUSION

DATA SHEET

SDG 27000087
Contact J. L. KuzumClient THRS
Tank T-110Lab sample id S97T000150
Dept sample id _____
Received 02/19/97Client sample id T110 C18153 LH FUSION FUSION
Location/Matrix R: 2 S: 3 C: 181 SOLID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2 σ TP% %	HDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	3.428-02	17	4.0E-04		L	AT

Final Report

DATA SHEETS
Page 5SUMMARY DATA SECTION
Page 29Lab id 222-S
Protocol EST
Version 1.0
Form DVD-DS
Version 3.08
Report date 03/26/97

222-S LABORATORY
TANK 241-T-110 CORE 181

S97T000151

DATA SHEET

T110 C18134 LN FUSION

SDG 27000081
Contact J. L. HURONClient NRS
Task T-110Lab sample id S97T000151
Dept sample id
Received 02/10/97Client sample id T110 C18134 LN FUSION FUSION
Location/Matrix R. 2. S. 4 C. 181 SOLID
Collected
Chain of custody id

ANALYTE	CAS NO	RESULT UCI/g	2σ TPV %	MDA UCI/g	SDL UCI/g	QUALI- FISRS	TEST
Total Alpha	12587-46-1	3.91E-02	17	4.4E-04		L	AT

Final Report

DATA SHEETS
Page 6SUMMARY DATA SECTION
Page 30

183

Lab id 222-S
Protocol SST
Version 1.0
Form QVP-DS
Version 3.06
Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 181

S97T000169

T110 C18185 LH Fusion

DATA SHEET

SDG 27000061
Contact J. L. NuzumClient INRS
Tank T-110Lab sample id S97T000169
Dept sample id _____
Received 03/13/97Client sample id T110 C18185 LH Fusion FUSION
Location/Matrix R+ Z St. S. C. 181 SOLID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2 σ TRV %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	4.29E-02	22	2.1E-03			AT

Final Report

DATA SHEETS

Page 7

SUMMARY DATA SECTION

Page 31

Lab id 222-S
Protocol EST
Version 1.0
Form DDP-DS
Version 1.08
Report Date 03/26/97

222-S LABORATORY
TADR 241-T-110 CORE 181

S97T000178

T110 C18156 LN FUSION

DATA SHEET

SDG 9700093
Contact J. L. NuzumClient INRS
Task T-110Lab sample id S97T000178
Dept sample id _____
Received 02/13/97Client sample id T110 C18156 LN FUSION FUSION
Location/Matrix R. 2 S. 6 G. 181 SOLID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2 σ TPB %	MDA uCi/g	PDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	3.52E-02	32	2.3E-03			AT

Final Report

DATA SHEETS

Page 3

SUMMARY DATA SECTION

Page 32

Lab id 222-S
Protocol SSS
Version 1.0
Form DVD-DS
Version 3.08
Report date 03/26/97

222-S LABORATORY
TANK 241-T-110 CORB 181

S97T000162

T110 C16187 LH FUSION

DATA SHEET

SDG 27000083
Contact J. L. NuzumClient TURS
Tank T-110Lab sample id S97T000162
Dept sample id
Received 02/11/97Client sample id T110 C16187 LH FUSION FUSION
Location/Matrix R1.2 S1.7 C1 181 SOLID
Collected
Chain of custody id

ANALYTE	CAS NO	RESULT uCi/g	2 σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	6.05E-02	21	2.0E-03			AT

Final Report

DATA SHEETS
Page 9SUMMARY DATA SECTION
Page 31Lab id 222-S
Protocol SST
Version 1.0
Form DTD-04
Version 3.08
Report date 01/26/97

222-S LABORATORY
TANK 241-T-110 CORE 181

897T000195

DATA SHEET

T110 C18158 LN FUSION

SDG 97000083
Contact Z. L. HuxleyClient TRW
Tank T-110Lab sample id 897T000195
Dept Sample id _____
Received 02/19/97Client sample id T110 C18158 LN FUSION FUSION
Location/Matrix Rt 2 S; 8 C; 181 SOLID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2 σ TRU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12567-46-1	5.88E-02	22	3.0E-03			AT

Final Report

DATA SHEETS

Page 10

SUMMARY DATA SECTION

Page 34

 Lab id 122-S
 Protocol SST
 Version 1.0
 Form 0VD-03
 Version 1.08
 Report date 03/26/97

222-S LABORATORY

TANK 241-Y-110 CORE 131

Test AT Matrix LIQUID

SOG 97000085

Contact J. L. McMan

METHOD SUMMARY

ALPHA ANALYSIS

GAS PROPORTIONAL COUNTING

Client TWS

Tank T-110

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAN QUF- TEST FIX PLASMORET	1: Total Alpha	2: Sum, Alpha Emitters	RESULT RATIO (X) 2+1 2+
Preparation batch 97000569					
D1 Blank	816695-2		16695-2	U	
T110 C181 FB DIR J11744	5977000119		16695-4	5.37E-07	
T110 C181 FB DIR J11744	59770001190		16695-5	ok	
Lab Control Sample	516695-1		16695-1	ok	

Nominal values and limits from method MDLs (uCi/ml) 60
Average

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAN QUF- TEST FIX	MDR uCi/ml	ALTA mL	PREP FAC	DILU+ TCON	RESD mg	EFF %	COUNT min	FURN day	DRIFT KEV	DRIFT WELD	DRIFT PREPARED	ANAL- YSED	DETECTION
Preparation batch 97000569 2σ prep error 15.0 % Reference															
D1 Blank	816695-2		4.0E-07	1.00		1.00		27	30					03/05/97	MS27806
T110 C181 FB DIR J11744	5977000119		4.0E-07	1.00	1.00	1.00		27	30					03/05/97	MS27806
T110 C181 FB DIR J11744	59770001190		4.0E-07	1.00	1.00	1.00		27	30					03/05/97	MS27806
Lab Control Sample	516695-1		4.0E-07	1.00	1.00	1.00		27	30					03/05/97	MS27806

Nominal values and limits from method 0.000 30
20-55

PROCEDURES REFERENCE 222-S Lab Analytical Procedure
LG-180-703 Core Segment Extraction Process and Sample
Preparation, rev 17
LA-500-101A Alpha 5n Liquid samples, rev 42
LA-500-111AA Operation of the Tennesse LG-5500 (rev. A-3),
LG-7000 (rev. A-3), Gamma Products (rev. A-2))
Alpha/Beta Counting System

AVERAGES ± 2 SD MDR 4.0E-07 ± 0.0E-00
FOR 4 SAMPLES EFFICIENCY 27 ± 0

Final Report

METHOD SUMMARIES

Page 2

SUMMARY DATA SECTION

Page 36

Lab ID 222-S
Protocol 951
Version 1.0
Form 000-016
Version 3.00
Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CODE 181

Test PU Matrix Liquid

SDQ 9700053

Contact J. L. BROWN

Client TRES

Tank T-110

METHOD SUMMARY

PLUTONIUM-230

ALPHA SPECTROSCOPY

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUB- TEST FIX PLANCHET	Plutonium 230/240	Plutonium 238
Preparation batch 97000926				
D1 Blank	817005-2	17005-2	U	-
T110 C181 FB2 DIR V81261	8977000381	17005-3	U	-
T110 C181 FB2 DIR V81261	8977000381P	17005-4	- U	-
Lab Control Sample	817005-1	17005-1	ok	-

Nominal values and limits from method ND/L (uCi/ml)

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUB- TEST FIX	MAX NOM uCi/ml	ALLO ml	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FLUX keV	DRIFT keV	DAYS	ANAL- YSED	DETECTOR
Preparation batch 97000926 20 prep eff: 15.0 % Reference														
D1 Blank	817005-2		3.44e-06	1.00		1.00	99	37	30				03/15/97	HC1610521
T110 C181 FB2 DIR V81261	8977000381		3.46e-06	1.00	1.00	1.00	105	37	30				03/15/97	HC1610521
T110 C181 FB2 DIR V81261	8977000381P		3.35e-06	1.00	1.00	1.00	97	37	30				03/15/97	HC1610521
Lab Control Sample	817005-1		6.75e-06	1.00	1.00	1.00	95	37	30				03/15/97	HC1610521

Nominal values and limits from method 0.100 30-105 30
20-55

PROCEDURES **REFERENCE** 222-S Lab Analytical Procedure

LO-160-103 Core Segment Extraction Process and Sample Preparation, rev 17

LA-945-126 Determination of Pu by Extraction with EM-Spec Resin, rev 8-0

LA-508-104 Total Alpha Counting by Alpha Proportional Counting, rev 16

LA-508-161 Alpha Energy Analysis Using the Genie System, rev 11

AVERAGES ± 2 SD MDN 4.2E-06 ± 3.3E-06

FOR 4 SAMPLES YIELD 98 ± 7

EFFICIENCY 37 ± 9

Final Report

METHOD SUMMARY

Page 9

SUMMARY DATA SECTION

Page 35

Lab ID 222-S

Protocol 683

Version 1.0

Form DWD-026

Version 3.08

Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 DOME 181

Test AT Metric 2012
 SDC 97000085
 Contact J. L. MURPHY

METHOD SUMMARY

ALPHA ANALYSIS

GAS PROPORTIONAL COUNTING

Client THSTest 7-119

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SW- PLANCHET	1s Total		2s Americium		3s Bismuth Alpha		RESULT RATIO (%)			
				Alpha		241 (GIA)		Emitters		2+1	2+	3+1	2+
Preparation Batch 97000816													
T110 C18183 LH FUSION-FU	977000150			16899-4	3.42E-02								
T110 C18183 LH FUSION-FU	9770001500			16899-5	ok								
T110 C18184 LH FUSION-FU	977000151			16899-6	5.91E-02								
T110 C18184 LH FUSION-FU	9770001510			16899-7	ok								
Method Blank	816899-2			16899-2	U								
Lab Control Sample	816899-1			16899-1	LOW								
Preparation Batch 97000989													
T110 C18185 LH FUSION-FU	977000169	01		17066-7	4.29E-02								
T110 C18185 LH FUSION-FU	9770001690	01		17066-8	LOW								
T110 C18186 LH FUSION-FU	977000178	01		17066-9	5.52E-02								
T110 C18186 LH FUSION-FU	9770001780	01		17066-10	ok								
T110 C18187 LH FUSION-FU	977000162	01		17066-4	6.03E-02								
T110 C18187 LH FUSION-FU	9770001620	01		17066-5	ok								
T110 C18187 LH FUSION-FU	9770001625	01		17066-6	LOW								
Method Blank	817066-2			17066-2	U								
Lab Control Sample	817066-1			17066-1	ok								
Preparation Batch 97000990													
T110 C18181 LH FUSION-FU	977000148	02		17067-4	7.50E-02								
T110 C18181 LH FUSION-FU	9770001480	02		17067-5	ok								
T110 C18181 LH FUSION-FU	9770001486	02		17067-6	LOW								
T110 C18182 LH FUSION-FU	977000149	02		17067-7	6.66E-02								
T110 C18182 LH FUSION-FU	9770001490	02		17067-8	ok								
Method Blank	817067-2			17067-2	U								
Lab Control Sample	817067-1			17067-1	ok								
Preparation Batch 97000993													
T110 C18188 LH FUSION-FU	977000196	02		17072-4	5.88E-02								
T110 C18188 LH FUSION-FU	9770001960	02		17072-5	ok								
T110 C18188 LH FUSION-FU	9770001966	02		17072-6	LOW								
Method Blank	817072-2			17072-2	U								
Lab Control Sample	817072-1			17072-1	ok								

Nominal values and limits from method

RSLs (uCi/g)

MO

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Final Report

METHOD SUMMARY

Page 3

SUMMARY DATA SECTION

Page 37

Lab ID 222-SProtocol 88TVersion 1.0Form DUP-CHSVersion 1.00Report date 03/26/97

222-S LABORATORY

TAG# 241-T-110 CORE 101

Test AT, Matrix SOLID

SDG 97000092

Contact J. L. Buzan

METHOD SUMMARY

ALPHA ANALYSIS

GAS PROPORTIONAL COUNTING

Client FMS

Tank 1-110

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RMK SUP- TEST FIX	MDA uCi/g	ALLO ml	PROP FAC	RELU FLO	RESID mg	EFF %	COUNT min	FLUX kev	DEFT kev	DATE	ANAL- Y200	DETECTION
Preparation batch 97000092 2σ prep error 15.0 % Reference														
T110 C18153 LH FUSION-FU	9971000150		4.0E-04	0.500	505	1.00	27	30				03/05/97	03/06	MB27806
T110 C18153 LH FUSION-DU	9971000150		4.0E-04	0.500	496	1.00	27	30				03/05/97	03/06	MB27806
T110 C18154 LH FUSION-FU	9971000151		4.4E-04	0.500	543	1.00	27	30				03/05/97	03/06	MB27806
T110 C18154 LH FUSION-DU	9971000151		4.2E-04	0.500	522	1.00	27	30				03/05/97	03/06	MB27806
Method Blank	916899-2		4.0E-04	0.500	505	1.00	27	30				03/08/97		MB27806
Lab Control Sample	916899-1		2.0E-04	1.00	505	1.00	27	30				03/08/97		MB27806
Preparation batch 97000099 2σ prep error 15.0 % Reference														
T110 C18159 LH FUSION-FU	9971000169	01	2.1E-03	0.100	519	1.00	26	30				03/11/97	03/16	MB27809
T110 C18155 LH FUSION-DU	9971000169	01	2.1E-03	0.100	509	1.00	26	30				03/11/97	03/16	MB27809
T110 C18156 LH FUSION-FU	9971000178	01	2.2E-03	0.100	546	1.00	26	30				03/11/97	03/16	MB27809
T110 C18156 LH FUSION-DU	9971000178	01	2.1E-03	0.100	543	1.00	26	30				03/11/97	03/16	MB27809
T110 C18157 LH FUSION-FU	9971000168	01	2.0E-03	0.100	484	1.00	26	30				03/11/97	03/16	MB27809
T110 C18157 LH FUSION-DU	9971000168	01	2.0E-03	0.100	483	1.00	26	30				03/11/97	03/16	MB27809
T110 C18157 LH FUSION-SF	9971000168	01		0.100	484	1.00	26	30				03/11/97	03/16	MB27809
Method Blank	917066-2		2.0E-03	0.100	484	1.00	26	30				03/18/97		MB27809
Lab Control Sample	917066-1		2.0E-04	1.00	484	1.00	26	30				03/18/97		MB27809
Preparation batch 97000098 2σ prep error 15.0 % Reference														
T110 C18151 LH FUSION-FU	9971000148	02	2.9E-03	0.100	516	1.00	29	30				03/05/97	03/16	MB27810
T110 C18151 LH FUSION-DU	9971000148	02	2.9E-03	0.100	514	1.00	29	30				03/05/97	03/16	MB27810
T110 C18151 LH FUSION-SF	9971000148	02		0.100	516	1.00	29	30				03/05/97	03/16	MB27810
T110 C18152 LH FUSION-FU	9971000149	02	2.7E-03	0.100	479	1.00	29	30				03/05/97	03/16	MB27810
T110 C18152 LH FUSION-DU	9971000149	02	2.6E-03	0.100	460	1.00	29	30				03/05/97	03/16	MB27810
Method Blank	917067-2		2.9E-03	0.100	516	1.00	29	30				03/18/97		MB27810
Lab Control Sample	917067-1		2.9E-04	1.00	516	1.00	29	30				03/18/97		MB27810
Preparation batch 97000095 2σ prep error 15.0 % Reference														
T110 C18158 LH FUSION-FU	9971000196	02	3.0E-03	0.100	488	1.00	27	30				03/06/97	03/20	MB27804
T110 C18158 LH FUSION-DU	9971000196	02	2.9E-03	0.100	488	1.00	27	30				03/06/97	03/20	MB27804
T110 C18158 LH FUSION-SF	9971000196	02		0.100	488	1.00	27	30				03/06/97	03/20	MB27804
Method Blank	917072-2		3.0E-03	0.100	488	1.00	27	30				03/20/97		MB27804
Lab Control Sample	917072-1		3.0E-06	1.00	488	1.00	27	30				03/20/97		MB27804

Nominal values and limits from method

0.100

30

20-55

Final Report

METHOD SUMMARY

Page 4

SUMMARY DATA SECTION

Page 38

Lab id 222-S

Protocol 331

Version 1.0

Form 910-015

Version 3.06

Report date 03/24/97

222-S LABORATORY

TANK 243-1-110 CORN 181

Test AL Material

SDG 97800053

Contact J. L. HULL

METHOD SUMMARY, cont.

ALPHA ANALYSIS

GAS PROPORTIONAL COUNTING

Client TMSB

Tank T-110

PROCEDURES REFERENCE 222-S Lab Analytical Procedure
 EO-160-105 Core Segment Extrusion Process and Sample
 Preparation, rev 17
 LA-569-141 Fusion with Alkali Metal Hydroxide, rev 40
 LA-568-101A Alpha in liquid samples, rev 42
 LA-568-111A Operation of the (Renewed LB-3500 (n=0, A-3),
 LB-1000 (n=1, A-3), ~~Qana~~ Products (n=4, A-2))
 Alpha/Beta Counting Systems

AVERAGES ± 2 SD NDA 1.76-03 $\pm$ 2.0E-02
 FOR 27 SAMPLES EFFICIENCY 27 $\pm$ 2.4

Final Report

METHOD SUMMARIES

Page 5

SUMMARY DATA SECTION

Page 39

Lab id 222-S

Protocol 557

Version 1.0

Form PWS-ENS

Version 3.00

Report date 05/06/97

SAMPLE HANDLING

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LABCORE Data Entry Template for Worklist# 16499

Analyst: EC Instrument: BA000 Book # N/A

Method: LO-160-103 Rev/Mod B0

Worklist Comment: T-110 C181 FIELD BLANK RISER 2 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE	R A	-----T2B7-----	MATRIX	ACTUAL	FORM	DL	UNIT
		1	INSTRUM01			EXTRUD01	SOLID	<u>20</u> <u>20.01</u>	<u>N/A</u>	
		2	INSTRUM02			EXTRUD01	SOLID	<u>500</u> <u>500.10</u>	<u>N/A</u>	
9700003	T-110	3	SAMPLE	997000099	0	DL16V01	SOLID	<u>N/A</u> <u>250</u>		ML
9700003	T-110	4	SAMPLE	997000099	0	DL16V01	SOLID	<u>N/A</u> <u>253.5</u>		g
9700003	T-110	5	SAMPLE	997000099	0	EXT. G/ML	SOLED	<u>N/A</u> <u>601</u>		g/mL
9700003	T-110	6	SAMPLE	997000099	0	EXTRUD01	SOLID	<u>N/A</u> <u>complete</u>		
9700003	T-110	7	SAMPLE	997000099	0	DL16V01	SOLID	<u>N/A</u> <u>0</u>		g
9700003	T-110	8	SAMPLE	997000099	0	NOTESBOOK	SOLID	<u>N/A</u> <u>N-1200</u>		
9700003	T-110	9	SAMPLE	997000099	0	SUBVOLD1	SOLID	<u>N/A</u> <u>N/A</u>		ML
9700003	T-110	10	SAMPLE	997000099	0	SUBVOLD1	SOLED	<u>N/A</u> <u>0</u>		g
9700003	T-110	11	SAMPLE	997000099	0	APPEND01	SOLED	<u>N/A</u> <u>complete</u>		
9700003	T-110	12	SAMPLE	997000099	0	CRUDVOLD1	SOLID	<u>N/A</u> <u>0</u>		ML

Final page for worklist # 16499

EC 2-7-97
Analyst Signature Date
Berthold Giffen II
2-10-97

EC 2-7-97
Analyst Signature Date

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16500

Analyst: EL Instrument: BA000 Book # NAMethod: LO-160-103 Rev/Mod BO

Worklist Comment: T-110 C181 SEG # 1 RISER 2 EXTRUSION

ORIGP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTRCK01		EXTA001	SOLID	<u>20</u>	<u>20.01</u>	<u>N/A</u>	
		2	INSTRCK02		EXTB001	SOLID	<u>500</u>	<u>500.10</u>	<u>N/A</u>	
9700093	T-110	3	SAMPLE	8971000100	0	DL104DL1	SOLID	<u>N/A</u>	<u>0</u>	<u>ml</u>
9700093	T-110	4	SAMPLE	8971000100	0	DL104WT01	SOLID	<u>N/A</u>	<u>0</u>	<u>g</u>
9700093	T-110	5	SAMPLE	8971000100	0	EXT-0/ML	SOLID	<u>N/A</u>	<u>0</u>	<u>g/ml</u>
9700093	T-110	6	SAMPLE	8971000100	0	EXTB001	SOLID	<u>N/A</u>	<u>complete</u>	
9700093	T-110	7	SAMPLE	8971000100	0	LL104WT01	SOLID	<u>N/A</u>	<u>0</u>	<u>g</u>
9700093	T-110	8	SAMPLE	8971000100	0	MO1800K	SOLID	<u>N/A</u>	<u>N/A200</u>	
9700093	T-110	9	SAMPLE	8971000100	0	SLD04DL01	SOLID	<u>N/A</u>	<u>NA</u>	<u>ml</u>
9700093	T-110	10	SAMPLE	8971000100	0	SLDWT-01	SOLID	<u>N/A</u>	<u>319.9</u>	<u>g</u>
9700093	T-110	11	SAMPLE	8971000100	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>	
9700093	T-110	12	SAMPLE	8971000100	0	GREYDL01	SOLID	<u>N/A</u>	<u>0</u>	<u>ml</u>

Final page for worklist # 16500

Analyst Signature EL Date 2-7-97Analyst Signature EL Date 2-7-97Validated
By RK7
2/9/97

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 16501

Analyst: CE Instrument: BA000 Book # NA

Method: LO-160-103 Rev/Mod B0

Worklist Comment: T-110 C181 SEG # 2 RISER 2 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTRUM01		EXTRUS01	SOLID	20	20.01	N/A	
		2	INSTRUM02		EXTRUS01	SOLID	500	500.13	N/A	
97000083	T-110	3	SAMPLE	9771000101	0	OLIGOMER	N/A	0		ml
97000083	T-110	4	SAMPLE	9771000101	0	OLIGOMER	N/A	0		g
97000083	T-110	5	SAMPLE	9771000101	0	EST. GMR	N/A	0		g/ml
97000083	T-110	6	SAMPLE	9771000101	0	EXTRUS01	N/A	Complete		
97000083	T-110	7	SAMPLE	9771000101	0	LLIGOMER	N/A	< 5		g
97000083	T-110	8	SAMPLE	9771000101	0	NOYEBOK	N/A	11-1200		
97000083	T-110	9	SAMPLE	9771000101	0	SLDYOL01	N/A	NA		ml
97000083	T-110	10	SAMPLE	9771000101	0	SLANT-01	N/A	321.2		g
97000083	T-110	11	SAMPLE	9771000101	0	APPEAR01	N/A	Complete		
97000083	T-110	12	SAMPLE	9771000101	0	DRYKLOS	N/A	0		ml

Final page for worklist # 16501

Analyst Signature CE Date 2-6-97

Analyst Signature CE Date 2-6-97

Validated
2/7/97
RK/ulla

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 16502

Analyst: CE Instrument: BA000 Book # N/A

Method: LO-160-103 Rev/Mod 00

Worklist Comment: T-110 C181 SEG # 3 RISER 2 EXTRUSION

GROUP	PROJECT	C TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTECH01			EXTRUD01	SOLID	20	20.01	N/A	
		2 INSTCH02			EXTRUD01	SOLID	500	500.10	N/A	
97000063	T-110	3 SAMPLE	897T000102	0	BL10V0L1	SOLID	N/A	0		ml
97000063	T-110	4 SAMPLE	897T000102	0	BL10V0T01	SOLID	N/A	0		g
97000063	T-110	5 SAMPLE	897T000102	0	EST. Q/M/L	SOLID	N/A	0		g/ml
97000063	T-110	6 SAMPLE	897T000102	0	EXTRUD01	SOLID	N/A	complete		
97000063	T-110	7 SAMPLE	897T000102	0	LL10V0T01	SOLID	N/A	0		g
97000063	T-110	8 SAMPLE	897T000102	0	MOTEB00K	SOLID	N/A	N-1200		
97000063	T-110	9 SAMPLE	897T000102	0	BLD10V0L1	SOLID	N/A	N/A		ml
97000063	T-110	10 SAMPLE	897T000102	0	BLD10V-01	SOLID	N/A	338.2		g
97000063	T-110	11 SAMPLE	897T000102	0	APPEAR01	SOLID	N/A	complete		
97000063	T-110	12 SAMPLE	897T000102	0	ORIGV0L01	SOLID	N/A	0		ml

Final page for worklist # 16502

CE 2-7-97
Analyst Signature Date

✓ CE 2-7-97
Analyst Signature Date

Data Entry Comments:

Validated
2/7/97
RK Fuller

LABCORE Data Entry Template for Worklist# 16503

Analyst: _____ Instrument: BA000 _____ Book # _____

Method: LO-160-103 Rev/Mod 30

Worklist Comment: T-110 C181 SEG # 4 RISER 2 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	METHOD	ACTUAL	FOUND	ML	UNIT
		1	INSTRUM01		EXTRUSION	SOLID	20	20.01	N/A	
		2	INSTRUM02		EXTRUSION	SOLID	500	500.13	N/A	
97000083	T-110	3	SAMPLE	977000103	0	DL10VCL1	SOLID	N/A	0	ML
97000083	T-110	4	SAMPLE	977000103	0	DL10VCL1	SOLID	N/A	0	g
97000083	T-110	5	SAMPLE	977000103	0	EST. G/ML	SOLID	N/A	0	g/ML
97000083	T-110	6	SAMPLE	977000103	0	EXTRUSION	SOLID	N/A	complete	
97000083	T-110	7	SAMPLE	977000103	0	LL10VCL1	SOLID	N/A	<15	g
97000083	T-110	8	SAMPLE	977000103	0	NOTEBOOK	SOLID	N/A	N-1200	
97000083	T-110	9	SAMPLE	977000103	0	SOLVCL01	SOLID	N/A	N/A	ML
97000083	T-110	10	SAMPLE	977000103	0	SOLVCL01	SOLID	N/A	290.0	g
97000083	T-110	11	SAMPLE	977000103	0	APPEND01	SOLID	N/A	complete	
97000083	T-110	12	SAMPLE	977000103	0	ORIGVCL01	SOLID	N/A	0	ML

Final page for worklist # 16503

[Signature] 2-6-97
Analyst Signature Date

[Signature] 2-6-97
Analyst Signature Date

Validated
2-7-97
RK Puller

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 16504

Analyst: JLE Instrument: BA000 Book # A/A

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

Worklist Comment: T-110 C181 SEG # 5 RISER 2 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE	R A	*****TEST*****	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	146TCM01		EXTREMO1	SOLID	<u>20.00</u>	<u>19.99</u>	<u>N/A</u>	
		2	146TCM02		EXTREMO1	SOLID	<u>522.00</u>	<u>520.09</u>	<u>N/A</u>	
97000083	T-110	3	SAMPLE	9977000104	D	DL160VCL1	SOLID	<u>N/A</u>	<u>0</u>	ml
97000083	T-110	4	SAMPLE	9977000104	D	DL160VCL1	SOLID	<u>N/A</u>	<u>0</u>	g
97000083	T-110	5	SAMPLE	9977000104	D	EST.B/R/L	SOLID	<u>N/A</u>	<u>0</u>	g/ml
97000083	T-110	6	SAMPLE	9977000104	D	EXTREMO1	SOLID	<u>N/A</u>	<u>Complete</u>	
97000083	T-110	7	SAMPLE	9977000104	D	LL160VCL1	SOLID	<u>N/A</u>	<u>0</u>	g
97000083	T-110	8	SAMPLE	9977000104	D	NOTBOOK	SOLID	<u>N/A</u>	<u>N-1220</u>	
97000083	T-110	9	SAMPLE	9977000104	D	SOLVCL01	SOLID	<u>N/A</u>	<u>2/14</u>	ml
97000083	T-110	10	SAMPLE	9977000104	D	SOLVCL01	SOLID	<u>N/A</u>	<u>38.1</u>	g
97000083	T-110	11	SAMPLE	9977000104	D	APPEAR01	SOLID	<u>N/A</u>	<u>Complete</u>	
97000083	T-110	12	SAMPLE	9977000104	D	CRVCL01	SOLID	<u>N/A</u>	<u>0</u>	ml

Final page for worklist # 16504

Jessie J. Smith 2/14/97
Analyst Signature Date

Jessie J. Smith 2/14/97
Analyst Signature Date

Burton D. Hoffman II
2-14-97

✓

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16513

Analyst: JLF Instrument: BA000 Book # N/A

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

Worklist Comment: T-110 C 181 SEG #6 RISER 2 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLER	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCH01		EXTRUD01	SOLID	20.00	19.99	N/A	
		2	INSTCH02		EXTRUD01	SOLID	500.00	500.09	N/A	
97000083	T-110	3	SAMPLE	9971000105	0	OLIGWOL1	SOLID	N/A		ml
97000083	T-110	4	SAMPLE	9971000105	0	OLIGWOL1	SOLID	N/A		g
97000083	T-110	5	SAMPLE	9971000105	0	EST. Q/WL	SOLID	N/A		g/ml
97000083	T-110	6	SAMPLE	9971000105	0	EXTRUD01	SOLID	N/A	Complete	
97000083	T-110	7	SAMPLE	9971000105	0	LLIGWOL1	SOLID	N/A	<5	g
97000083	T-110	8	SAMPLE	9971000105	0	NOTEBOOK	SOLID	N/A	1-12-97	
97000083	T-110	9	SAMPLE	9971000105	0	SLOWCO1	SOLID	N/A	N/A	ml
97000083	T-110	10	SAMPLE	9971000105	0	SLENT-01	SOLID	N/A	346.6	g
97000083	T-110	11	SAMPLE	9971000105	0	APPEAR01	SOLID	N/A	Complete	
97000083	T-110	12	SAMPLE	9971000105	0	ORIGWOL1	SOLID	N/A	5	ml

Final page for worklist # 16513

Jessie S. Sisk 2/14/97
Analyst Signature Date

✓ Jessie S. Sisk 2/14/97
Analyst Signature Date

Bethand Griffin II
2-14-97

Data Entry Comments:

LABCORE Completed Worklist Report for Worklist# 16514

Analyst: jlf Instrument: BA000 Book# _____

Method: _____ Rev/Mod BC

Worklist Comment: T-110 C 181 SEG #7 RISER 2 EXTRUSION

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	EXTRUSION01	0	EXTRUSION01	100.00	20	20.00	100.000 % Recovery
2	EXTRUSION02	0	EXTRUSION01	100.00	100	100.00	100.018 % Recovery
3	SAMPLE	897T000104	0	EXTRUSION01	100.00	N/A	g
4	SAMPLE	897T000104	0	EXTRUSION01	100.00	N/A	g
5	SAMPLE	897T000104	0	EXTRUSION01	100.00	N/A	g/g
6	SAMPLE	897T000104	0	EXTRUSION01	100.00	N/A	complete
7	SAMPLE	897T000104	0	EXTRUSION01	100.00	N/A	g
8	SAMPLE	897T000104	0	EXTRUSION01	100.00	N/A	g
9	SAMPLE	897T000104	0	EXTRUSION01	100.00	N/A	g
10	SAMPLE	897T000104	0	EXTRUSION01	100.00	N/A	g
11	SAMPLE	897T000104	0	EXTRUSION01	100.00	N/A	g
12	SAMPLE	897T000104	0	EXTRUSION01	100.00	N/A	g

Comments Section:

Comments for sample# 897T000106 and test APPEAR01.

*Extruded 19 inches of solids which were dark yellow in color and the texture was a wet sludge (D3). Subsampled in half segments.

Final page for worklist# 16514

897T000104 J.L. Frisk 5-7-97

Analyst Signature

Date

Analyst Signature

Date

Robert D. Hoffman II 5-7-97

Reviewer Signature

Date

LABCORE Data Entry Template for Worklist# 16515

Analyst: CE Instrument: BA000 Book # NA

Method: LO-160-103 Rev/Mod B30

Worklist Comment: T-110 C 181 SEG #8 RISER 2 EXTRUSION

DECP	PROJECT	S TYPE	SAMPLES	R A	TEST	MATRIX	ACTUAL	T/UMP	DL	UNIT
		1	INSTCH001		EXTRUD01	SOLID	20	20.01	N/A	
		2	INSTCH002		EXTRUD01	SOLID	500	500.11	N/A	
97000003	T-110	3	SAMPLE	8971000107	0	DL10V0L1	SOLID	N/A	0	ml
97000003	T-110	4	SAMPLE	8971000107	0	DL10V0L1	SOLID	N/A	0	g
97000003	T-110	5	SAMPLE	8971000107	0	EST.G/MIL	SOLID	N/A	0	g/ml
97000003	T-110	6	SAMPLE	8971000107	0	EXTRUD01	SOLID	N/A	complete	
97000003	T-110	7	SAMPLE	8971000107	0	DL10V0L1	SOLID	N/A	LS	g
97000003	T-110	8	SAMPLE	8971000107	0	NOTEBOOK	SOLID	N/A	N-1200	
97000003	T-110	9	SAMPLE	8971000107	0	BLDVOL01	SOLID	N/A	NA	ml
97000003	T-110	10	SAMPLE	8971000107	0	SIM01-01	SOLID	N/A	369.1	g
97000003	T-110	11	SAMPLE	8971000107	0	APPEND01	SOLID	N/A	complete	
97000003	T-110	12	SAMPLE	8971000107	0	OROVOL01	SOLID	N/A	0	ml

Final page for worklist # 16515

Analyst Signature: C. J. D. Date: 2-18-97
Burhard Diggins II
2-27-97

Analyst Signature: C. J. D. Date: 2-18-97

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16643

Analyst: CC Instrument: BA000 Book # NB

Method: LO-160-103 Rev/Mod BO

Worklist Comment: T-110 C180 SEG#1 R6 EXTRUSION

GROUP	PROJECT	S	TYPE	SAMPLE	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTRUM01				EXTRUS01	SOLID	<u>20</u>	<u>2001</u>	<u>N/A</u>	
		2	INSTRUM02				EXTRUS01	SOLID	<u>500</u>	<u>900.11</u>	<u>N/A</u>	
97000111	T-110	3	SAMPLE	8977000153	0		OL1040L1	SOLID	<u>N/A</u>	<u>0</u>		ml
97000111	T-110	4	SAMPLE	8977000153	0		OL1040T01	SOLID	<u>N/A</u>	<u>0</u>		g
97000111	T-110	5	SAMPLE	8977000153	0		EST. 0.0/ML	SOLID	<u>N/A</u>	<u>0</u>		g/ml
97000111	T-110	6	SAMPLE	8977000153	0		EXTRUS01	SOLID	<u>N/A</u>	<u>complete</u>		
97000111	T-110	7	SAMPLE	8977000153	0		LL1040T01	SOLID	<u>N/A</u>	<u>25</u>		g
97000111	T-110	8	SAMPLE	8977000153	0		NOTEBOOK	SOLID	<u>N/A</u>	<u>14-1200</u>		
97000111	T-110	9	SAMPLE	8977000153	0		BLMVCLO1	SOLID	<u>N/A</u>	<u>NA</u>		ml
97000111	T-110	10	SAMPLE	8977000153	0		SLDWT-01	SOLID	<u>N/A</u>	<u>339.9</u>		g
97000111	T-110	11	SAMPLE	8977000153	0		APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>		
97000111	T-110	12	SAMPLE	8977000153	0		ORGVCLO1	SOLID	<u>N/A</u>	<u>0</u>		ml

Final page for worklist # 16643

Analyst Signature CC Date 2-18-96

Analyst Signature CC Date 2-18-96

Richard Diffin II
2-27-97

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16644

Analyst: DLT Instrument: BA000 Book # N/AMethod: LO-160-103 Rev/Mod R-0

Worklist Comment: T-110 C180 SEG#2 R6 EXTRUSION

CIRCU	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTRUM01		EXTRUD01	SOLID	<u>20.00</u>	<u>19.93</u>	<u>N/A</u>	
		2	INSTRUM02		EXTRUD01	SOLID	<u>500.00</u>	<u>500.05</u>	<u>N/A</u>	
97000111	T-110	3	SAMPLE	9971000154	D	DLT001	SOLID	<u>N/A</u>	<u>0</u>	ml
97000111	T-110	4	SAMPLE	9971000154	D	DLT001	SOLID	<u>N/A</u>	<u>0</u>	g
97000111	T-110	5	SAMPLE	9971000154	D	EST. G/H	SOLID	<u>N/A</u>	<u>0</u>	g/ml
97000111	T-110	6	SAMPLE	9971000154	D	EXTRUD01	SOLID	<u>N/A</u>	<u>Complete</u>	
97000111	T-110	7	SAMPLE	9971000154	D	DLT001	SOLID	<u>N/A</u>	<u><5</u>	g
97000111	T-110	8	SAMPLE	9971000154	D	NOTESBOOK	SOLID	<u>N/A</u>	<u>N-1200</u>	
97000111	T-110	9	SAMPLE	9971000154	D	SLEWEL01	SOLID	<u>N/A</u>	<u>N/A</u>	ml
97000111	T-110	10	SAMPLE	9971000154	D	SUBUT-01	SOLID	<u>N/A</u>	<u>322.4</u>	g
97000111	T-110	11	SAMPLE	9971000154	D	APPEAR01	SOLID	<u>N/A</u>	<u>Complete</u>	
97000111	T-110	12	SAMPLE	9971000154	D	CRIMOL01	SOLID	<u>N/A</u>	<u>0</u>	ml

Final page for worklist # 16644

Analyst Signature

Date

Analyst Signature

Date

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16646

Analyst: TLS Instrument: BA000 Book # KJA

Method: LO-160-103 Rev/Mod BRO

Worklist Comment: T-110 C180 SEG#3 R6 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	*****TEST*****	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCH01		EXTRUD01	SOLID	<u>22.01</u>	<u>N/A</u>		
		2	INSTCH02		EXTRUD01	SOLID	<u>20.11</u>	<u>N/A</u>		
97000111	T-110	3	SAMPLE	8971000155	0	DL10W01	SOLID	<u>N/A</u>	<u>2</u>	ml
97000111	T-110	4	SAMPLE	8971000155	0	DL10W01	SOLID	<u>N/A</u>	<u>2</u>	0
97000111	T-110	5	SAMPLE	8971000155	0	EST.G/MIL	SOLID	<u>N/A</u>	<u>2</u>	g/ml
97000111	T-110	6	SAMPLE	8971000155	0	EXTRUD01	SOLID	<u>N/A</u>	<u>Complete</u>	
97000111	T-110	7	SAMPLE	8971000155	0	LL10W01	SOLID	<u>N/A</u>	<u>25</u>	1
97000111	T-110	8	SAMPLE	8971000155	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>1-12-97</u>	
97000111	T-110	9	SAMPLE	8971000155	0	SL07CL01	SOLID	<u>N/A</u>	<u>20</u>	ml
97000111	T-110	10	SAMPLE	8971000155	0	BL04W-01	SOLID	<u>N/A</u>	<u>331.9</u>	1
97000111	T-110	11	SAMPLE	8971000155	0	APPEAR01	SOLID	<u>N/A</u>	<u>Complete</u>	
97000111	T-110	12	SAMPLE	8971000155	0	OR07CL01	SOLID	<u>N/A</u>	<u>2</u>	ml

Final page for worklist # 16646

Jessie B. Insby 2/19/97
Analyst Signature Date
Bertrand Buffin II
2-27-97

Jessie B. Insby 2/19/97
Analyst Signature Date

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16725

Analyst: SLF Instrument: BA000 Book # N/15-

Method: LO-160-103 Rev/Mod B-D

Worklist Comment: T-110 C180 SEG # 4 RISER 6 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTRUM01		EXTRUSION01	SOLID		20.01	N/A	
		2	INSTRUM02		EXTRUSION01	SOLID		500.11	N/A	
97000111	F-110	3	SAMPLE	8971000187	0	OL10V01	SOLID	N/A	0	ML
97000111	T-110	4	SAMPLE	8971000187	0	OL10W01	SOLID	N/A	0	0
97000111	T-110	5	SAMPLE	8971000187	0	EST.G/M/L	SOLID	N/A	0	g/ml
97000111	F-110	6	SAMPLE	8971000187	0	EXTRUSION01	SOLID	N/A	Complete	
97000111	T-110	7	SAMPLE	8971000187	0	LL10W01	SOLID	N/A	45	0
97000111	T-110	8	SAMPLE	8971000187	0	NOTEBOOK	SOLID	N/A	N-1200	
97000111	F-110	9	SAMPLE	8971000187	0	SLDYL01	SOLID	N/A	100	ML
97000111	T-110	10	SAMPLE	8971000187	0	SLWJ-01	SOLID	N/A	349.4	0
97000111	T-110	11	SAMPLE	8971000187	0	APPEAR01	SOLID	N/A	Complete	
97000111	F-110	12	SAMPLE	8971000187	0	Q86YD01	SOLID	N/A	0	ML

Final page for worklist # 16725

Analyst Signature Bernard Buff II Date 2/13/97
2-26-97

Analyst Signature Bernard Buff II Date 2/13/97

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16726

Analyst: JE Instrument: BA000 Book # N/A

Method: LO-160-103 Rev/Mod B0

Worklist Comment: T-110 C180 SEG # 5 RISER 6 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTRCH01		EXTRUS01	SOLID	<u>20.01</u>	<u>N/A</u>		
		2	INSTRCH02		EXTRUS01	SOLID	<u>20.11</u>	<u>N/A</u>		
97000111	T-110	3	SAMPLE	977000188	0	DL10V01	SOLID	<u>N/A</u>	<u>Q</u>	ml
97000111	T-110	4	SAMPLE	977000188	0	DL10V01	SOLID	<u>N/A</u>	<u>Q</u>	g
97000111	T-110	5	SAMPLE	977000188	0	EST. QTY	SOLID	<u>N/A</u>	<u>Q</u>	g/ml
97000111	T-110	6	SAMPLE	977000188	0	EXTRUS01	SOLID	<u>N/A</u>	<u>Complete</u>	
97000111	T-110	7	SAMPLE	977000188	0	DL10V01	SOLID	<u>N/A</u>	<u>Q</u>	B
97000111	T-110	8	SAMPLE	977000188	0	MOTERB0K	SOLID	<u>N/A</u>	<u>10-1200</u>	
97000111	T-110	9	SAMPLE	977000188	0	SLIMDL01	SOLID	<u>N/A</u>	<u>N/A</u>	ml
97000111	T-110	10	SAMPLE	977000188	0	SLIMDL-01	SOLID	<u>N/A</u>	<u>Q</u>	g
97000111	T-110	11	SAMPLE	977000188	0	APPEAR01	SOLID	<u>N/A</u>	<u>Complete</u>	
97000111	T-110	12	SAMPLE	977000188	0	ORIGV01	SOLID	<u>N/A</u>	<u>Q</u>	ml

Final page for worklist # 16726

James J. J. J. 2/19/97
Analyst Signature Date

James J. J. J. 2/19/97
Analyst Signature Date

Bernard Griffin II
2-27-97

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16727

Analyst: JLF Instrument: BA000 Book # 11A

Method: LO-160-103 Rev/Mod B-D

Worklist Comment: T-110 C180 SEG # 6 RISER 6 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTRCH01		EXTMUD01	SOLID	<u>20.01</u>	<u>N/A</u>		
		2	INSTRCH02		EXTMUD01	BOILED	<u>50.11</u>	<u>N/A</u>		
97000111	T-110	3	SAMPLE	977000189	0	DL10V01	SOLID	<u>N/A</u>	<u>2</u>	ML
97000111	T-110	4	SAMPLE	977000189	0	DL10V101	SOLID	<u>N/A</u>	<u>0</u>	W
97000111	T-110	5	SAMPLE	977000189	0	EST.6/76	SOLID	<u>N/A</u>	<u>2</u>	g/mL
97000111	T-110	6	SAMPLE	977000189	0	EXTMUD01	SOLID	<u>N/A</u>	<u>Complete</u>	
97000111	T-110	7	SAMPLE	977000189	0	UL10V101	SOLID	<u>N/A</u>	<u>LS</u>	W
97000111	T-110	8	SAMPLE	977000189	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>112.0</u>	
97000111	T-110	9	SAMPLE	977000189	0	SLD40L01	BOILED	<u>N/A</u>	<u>02</u>	ML
97000111	T-110	10	SAMPLE	977000189	0	GLD47-01	SOLID	<u>N/A</u>	<u>366.3</u>	W
97000111	T-110	11	SAMPLE	977000189	0	APPEND01	SOLID	<u>N/A</u>	<u>Complete</u>	
97000111	T-110	12	SAMPLE	977000189	0	ORG40L01	SOLID	<u>N/A</u>	<u>0</u>	ML

Final page for worklist # 16727

Jesse S. Insey 2/19/97
Analyst Signature Date
Richard Griffin II
2-27-97

Jesse S. Insey 2/19/97
Analyst Signature Date

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16728

Analyst: W.D. Instrument: BA000 Book # W/A

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

Worklist Comment: T-110 C180 SEG # 7 RISER 6 EXTRUSION

GROUP	PROJECT	B TYPE	SAMPLES	R A	TEST	NOTE(S)	ACTUAL	FOUND	DL	UNIT
		1	INSTCH001		EXTRUD01	SOLID	28.80	19.93	N/A	
		2	INSTCH002		EXTRUD01	SOLID	500.00	500.05	N/A	
97000111	T-110	3	SAMPLE	5971000163	D	OLIGOMOL	SOLID	N/A	0	ml
97000111	T-110	4	SAMPLE	5971000163	D	OLIGOMOL	SOLID	N/A	0	g
97000111	T-110	5	SAMPLE	5971000163	D	EST.G/MIL	SOLID	N/A	0	g/ml
97000111	T-110	6	SAMPLE	5971000163	D	EXTRUD01	SOLID	N/A	Complete	
97000111	T-110	7	SAMPLE	5971000163	D	LLIOMT01	SOLID	N/A	25	g
97000111	T-110	8	SAMPLE	5971000163	D	NOTES00X	SOLID	N/A	N-1200	
97000111	T-110	9	SAMPLE	5971000163	D	BLVDOL01	SOLID	N/A	N/A	ml
97000111	T-110	10	SAMPLE	5971000163	D	SLOUT-01	SOLID	N/A	327.8	g
97000111	T-110	11	SAMPLE	5971000163	D	APPEAR01	SOLID	N/A	Complete	
97000111	T-110	12	SAMPLE	5971000163	D	OROVOL01	SOLID	N/A	10	ml

Final page for worklist # 16728

W.D. Fisher 2-28-97
Analyst Signature Date
W. Lopez 3-13-97

W.D. Fisher 2-28-97
Analyst Signature Date

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 16889

Analyst: EC Instrument: BA000 Book # NA

Method: LO-160-103 Rev/Mod 00

Worklist Comment: T-110 C180 SEG # 8 RISER 6 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLES	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 JMSCHK01			EXTRUD01	SOL10	<u>20</u>	<u>20.00</u>	<u>N/A</u>	
		2 JMSCHK02			EXTRUD01	SOL10	<u>500</u>	<u>500.13</u>	<u>N/A</u>	
97000111	T-110	3 SAMPLE	5977000182	0	DL1QV0L1	SOL10	<u>N/A</u>	<u>0</u>		ml
97000111	T-110	4 SAMPLE	5977000182	0	DL1QVTD1	SOL10	<u>N/A</u>	<u>0</u>		g
97000111	T-110	5 SAMPLE	5977000182	0	EST. 6/HL	SOL10	<u>N/A</u>	<u>0</u>		g/HL
97000111	T-110	6 SAMPLE	5977000182	0	EXTRUD01	SOL10	<u>N/A</u>	<u>complete</u>		
97000111	T-110	7 SAMPLE	5977000182	0	LL1QVTD1	SOL10	<u>N/A</u>	<u>25</u>		g
97000111	T-110	8 SAMPLE	5977000182	0	WATERBOOK	SOL10	<u>N/A</u>	<u>N-1200</u>		
97000111	T-110	9 SAMPLE	5977000182	0	\$L0V0L04	SOL10	<u>N/A</u>	<u>NA</u>		ml
97000111	T-110	10 SAMPLE	5977000182	0	\$L0VTD1	SOL10	<u>N/A</u>	<u>362.8</u>		g
97000111	T-110	11 SAMPLE	5977000182	0	APPEAR01	SOL10	<u>N/A</u>	<u>complete</u>		
97000111	T-110	12 SAMPLE	5977000182	0	DRYV0L01	SOL10	<u>N/A</u>	<u>0</u>		ml

Final page for worklist # 16889

Analyst Signature: [Signature] Date: 3/5/97
Burt B. J. II
3-11-97

Analyst Signature: [Signature] Date: 3/5/97

Data Entry Comments:

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

SAMPLE PREPARATIONS

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worktype Version 2.1 05/15/95
03/04/97 18:30

Page: 1

LABCORE Data Entry Template for Worklist# 16689

Analyst: KAT Instrument: PUS01 _____ Rock # _____Method: LA-549-141 Rev/Mod F-0

Worklist Comment: FUSION01 FOR T-110, CORE 181 SEG 1LH, 2LH, LMH

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FIND	DL	UNIT
		1 BLK-PWP			FUSION01	SOLID	1	.250	N/A	g/L
9700083	T-110	2 SAMPLE	5971000148 O F 4847 → 250L		FUSION01	SOLID	N/A	1.9388		g/L
9700083	T-110	3 SAMPLE	5971000148 O F		DOSE-02	SOLID	N/A	LO.5		mg/dl/hour
9700083	T-110	4 DUP	5971000148 O F 4867 → 250L		FUSION01	SOLID	1.9388	1.9168	N/A	g/L
9700083	T-110	5 DUP	5971000148 O F		DOSE-02	SOLID	LO.5	LO.5	N/A	mg/dl/hour
9700083	T-110	6 SAMPLE	5971000149 O F 5215 → 250L		FUSION01	SOLID	N/A	2.0860		g/L
9700083	T-110	7 SAMPLE	5971000149 O F		DOSE-02	SOLID	N/A	LO.5		mg/dl/hour
9700083	T-110	8 DUP	5971000149 O F 5436 → 250L		FUSION01	SOLID	2.0860	2.1744	N/A	g/L
9700083	T-110	9 DUP	5971000149 O F		DOSE-02	SOLID	LO.5	LO.5	N/A	mg/dl/hour

Final page for worklist # 16689

Kim Thomas 3-5-97
Analyst Signature Date

Jim H. [Signature] 3-5-97
Analyst Signature Date

Validated
3-5-97
RK Miller

Data Entry Comments:

40ml. Can Nitric
HPT was Scott Landenback

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

LABCORE Completed Worklist Report for Worklist# 16690

Analyst: knl Instrument: FUS01 Book# _____
Method: _____ Rev/Mod _____
Worklist Comment: FUSION01 FOR(T-110,CORE 181,SEG 7LH,5LH,6LH,FOR JLN RTS

Seq Type	Sampled R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLK-POST	0	FUSION01	POST	0.000	0.000	0.000	g/L
2 ANGLE	0.77000162	0	FUSION01	0.000	0.000	0.000	g/L
3 ANGLE	0.77000162	0	DOSE-42	0.000	0.000	0.000	g/L
4 DUT	0.77000162	0	FUSION01	0.000	0.000	0.000	g/L
5 DUT	0.77000162	0	DOSE-42	0.000	0.000	0.000	g/L
6 ANGLE	0.77000162	0	FUSION01	0.000	0.000	0.000	g/L
7 ANGLE	0.77000162	0	DOSE-42	0.000	0.000	0.000	g/L
8 DUT	0.77000162	0	FUSION01	0.000	0.000	0.000	g/L
9 DUT	0.77000162	0	DOSE-42	0.000	0.000	0.000	g/L
10 ANGLE	0.77000171	0	FUSION01	0.000	0.000	0.000	g/L
11 ANGLE	0.77000171	0	DOSE-42	0.000	0.000	0.000	g/L
12 DUT	0.77000171	0	FUSION01	0.000	0.000	0.000	g/L
13 DUT	0.77000171	0	DOSE-42	0.000	0.000	0.000	g/L

Final page for worklist# 16690

Analyst Signature _____ Date _____
Analyst Signature _____ Date _____
Keith Fuller 3/11/97
Reviewer Signature _____ Date _____

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

LABCORE Data Entry Template for Worklist# 16690

Analyst: KNT Instrument: FUS01 Book #

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

Worklist Comment: FUSION01 POR(T-110,CORB 181,SEG 7LH,5LH,6LH,FOR JLN RTS

GROUP	PROJECT	S TYPE	SAMPLEN	R A	TEST	MATRIX	ACTUAL	FORM	DL	UNIT
		1 BLANK-PREP			FUSION01	SOLID	<u>1</u>	<u>0.250</u>	<u>N/A</u>	<u>g/L</u>
97000083	T-110	2 SAMPLE	9771000162 O F		FUSION01	SOLID	<u>N/A</u>	<u>2.0668</u>	<u>N/A</u>	<u>g/L</u>
		0.5167 → 0.250								
97000083	T-110	3 SAMPLE	9771000162 O F		DOSE-02	SOLID	<u>N/A</u>	<u><10</u>	<u>N/A</u>	<u>rad/hour</u>
97000083	T-110	4 DUP	9771000162 O F		FUSION01	SOLID	<u>2.0668</u>	<u>2.0916</u>	<u>N/A</u>	<u>g/L</u>
		0.5179 → 0.250								
97000083	T-110	5 DUP	9771000162 O F		DOSE-02	SOLID	<u><10</u>	<u><10</u>	<u>N/A</u>	<u>rad/hour</u>
97000083	T-110	6 SAMPLE	9771000169 O F		FUSION01	SOLID	<u>N/A</u>	<u>1.9452</u>	<u>N/A</u>	<u>g/L</u>
		0.4813 → 0.250								
97000083	T-110	7 SAMPLE	9771000169 O F		DOSE-02	SOLID	<u>N/A</u>	<u><10</u>	<u>N/A</u>	<u>rad/hour</u>
97000083	T-110	8 DUP	9771000169 O F		FUSION01	SOLID	<u>1.9352</u>	<u>1.9440</u>	<u>N/A</u>	<u>g/L</u>
		0.4910 → 0.250								
97000083	T-110	9 DUP	9771000169 O F		DOSE-02	SOLID	<u><10</u>	<u><10</u>	<u>N/A</u>	<u>rad/hour</u>
97000083	T-110	10 SAMPLE	9771000178 O F		FUSION01	SOLID	<u>N/A</u>	<u>1.8320</u>	<u>N/A</u>	<u>g/L</u>
		0.4580 → 0.250								
97000083	T-110	11 SAMPLE	9771000178 O F		DOSE-02	SOLID	<u>N/A</u>	<u><10</u>	<u>N/A</u>	<u>rad/hour</u>
97000083	T-110	12 DUP	9771000178 O F		FUSION01	SOLID	<u>1.8320</u>	<u>1.9488</u>	<u>N/A</u>	<u>g/L</u>
		0.4872 → 0.250								
97000083	T-110	13 DUP	9771000178 O F		DOSE-02	SOLID	<u><10</u>	<u><10</u>	<u>N/A</u>	<u>rad/hour</u>

Final page for worklist # 16690

Analyst Signature: Kim Thomas Date: 3-11-97

Analyst Signature: [Signature] Date: 3-11-97

9771000158 → 162
168 → 169
174 → 178

Data Entry Comments:

Unweighed by KCH + KNT
FAKED 3-11-97
150.0

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

02/14/97 10:32

LABCORE Data Entry Template for Worklist# 16690

Analyst: KNT Instrument: FUS01 Book # Method: LA-549-141 Rev/Mod F-0Worklist Comment: FUSION01 FOR(T-110,CORE 181,SEG 7LH,5LH,6LH,FOR ILN RTS

GROUP	PROJECT	S TYPE	SAMPLES	R A	TEST	ENTRICK	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	90L10	<u>1</u>	<u>250</u>	N/A	g/L
97000083	T-110	2 SAMPLE	5977000162 O F → .250L		FUSION01	90L10	N/A	<u>250</u>	N/A	g/L
97000083	T-110	3 SAMPLE	5977000162 O F		ROSE-02	90L10	N/A	<u>250</u>	N/A	g/L
97000083	T-110	4 DUP	5977000162 O F → .250L		FUSION01	90L10	<u>2068</u>	<u>250</u>	N/A	g/L
97000083	T-110	5 DUP	5977000162 O F		ROSE-02	90L10		<u>250</u>	N/A	g/L
97000083	T-110	6 SAMPLE	5977000169 O F → .250L		FUSION01	90L10	N/A	<u>250</u>	N/A	g/L
97000083	T-110	7 SAMPLE	5977000169 O F		ROSE-02	90L10	N/A	<u>250</u>	N/A	g/L
97000083	T-110	8 DUP	5977000169 O F → .250L		FUSION01	90L10	<u>19252</u>	<u>250</u>	N/A	g/L
97000083	T-110	9 DUP	5977000169 O F		ROSE-02	90L10		<u>250</u>	N/A	g/L
97000083	T-110	10 SAMPLE	5977000178 O F → .250L		FUSION01	90L10	N/A	<u>250</u>	N/A	g/L
97000083	T-110	11 SAMPLE	5977000178 O F		ROSE-02	90L10	N/A	<u>250</u>	N/A	g/L
97000083	T-110	12 DUP	5977000178 O F → .250L		FUSION01	90L10	<u>19320</u>	<u>250</u>	N/A	g/L
97000083	T-110	13 DUP	5977000178 O F		ROSE-02	90L10		<u>250</u>	N/A	g/L

Final page for worklist # 16690

Analyst Signature KNT Date 3-11-97Analyst Signature Date

Data Entry Comments:

Weighted by KNT

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 Completed Worklist Report for Worklist# 16818

Analyst: knt Instrument: FUS01 Book# _____
Method: _____ Rev/Mod _____
Worklist Comment: FUSION01 FOR T-110 CORE 180 & 181 SEG 8LH,1LH,3LH, RTS

Seq Type	Sample# R A	Test	Matrix	Actual	Round	DL or Yield	Unit
1 BLANK-FREE		29830001	SOLED	1	1.350	0.250	g/L
2 SAMPLE	8972000196	29830001	SOLED	N/A	2.4032	1.400-1405	g/L
3 SAMPLE	8972000196	29830001	SOLED	N/A	0.5	3.000-002	mg/L/boon
4 DUP	8972000196	29830001	SOLED	2.4612	2.4555	0.244	MPD
5 DUP	8972000196	29830001	SOLED	<0.5	<0.5		mg/L/boon
6 SAMPLE	8972000230	29830001	SOLED	N/A	1.3400	1.000-1405	g/L
7 SAMPLE	8972000230	29830001	SOLED	N/A	0.5	3.330-002	mg/L/boon
8 DUP	8972000230	29830001	SOLED	1.1400	1.0500	0.144	MPD
9 DUP	8972000230	29830001	SOLED	<0.5	<0.5		mg/L/boon
10 SAMPLE	8972000231	29830001	SOLED	N/A	2.4032	1.000-1405	g/L
11 SAMPLE	8972000231	29830001	SOLED	N/A	0.5	3.180-002	mg/L/boon
12 DUP	8972000231	29830001	SOLED	2.8512	2.8240	0.144	MPD
13 DUP	8972000231	29830001	SOLED	<0.5	<0.5		mg/L/boon

Comments Section:

Comments for sample# 8972000196 and test FUSION01.
8972000192 - > 8972000196 30ML HNO3

Comments for sample# 8972000230 and test FUSION01.
8972000214 - > 8972000230 30ML HNO3

Comments for sample# 8972000231 and test FUSION01.
8972000217 - > 8972000231 30ML HNO3

Final page for worklist# 16818

Analyst Signature _____ Date _____

Analyst Signature _____ Date 5-6-97

Keith Fuller 5-6-97
Reviewer Signature Date

Worklist Version 2.1 05/15/93
02/28/97 13:50

Page: 1

LABCORE Data Entry Template for Worklist# 16818

Analyst: KNT Instrument: FUS01 _____ Book # _____Method: LA-549-141 Rev/Mod E-D

Worklist Comment: FUSION01 FOR T-110 CORE 180 & 181 SEG 8LH, 11LH, 3LH, RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	PL	UNIT
		1	BLANK-PREP		FUSION01	SOLID	<u>1</u>	<u>1.250</u>	N/A	g/L
9700083	T-110	2	SAMPLE 897T000196	0 F	FUSION01	SOLID	N/A	<u>2.0512</u>		g/L
			0.5128g →							
9700083	T-110	3	SAMPLE 897T000194	0 F	DOSE-02	SOLID	N/A	<u>10.5</u>		meq/hour
			0.5128g →							
9700083	T-110	4	SAMPLE 897T000196	0 F	FUSION01	SOLID	<u>2.0512</u>	<u>2.0556</u>	N/A	g/L
			0.5128g →							
9700083	T-110	5	SAMPLE 897T000196	0 F	DOSE-02	SOLID	<u>10.5</u>	<u>10.5</u>	N/A	meq/hour
			0.5128g →							
9700011	T-110	6	SAMPLE 897T000230	0 F	FUSION01	SOLID	N/A	<u>1.2382</u>		g/L
			0.4878g →							
9700011	T-110	7	SAMPLE 897T000230	0 F	DOSE-02	SOLID	N/A	<u>10.5</u>		meq/hour
			0.4878g →							
9700011	T-110	8	SAMPLE 897T000230	0 F	FUSION01	SOLID	<u>1.2382</u>	<u>1.2382</u>	N/A	g/L
			0.4878g →							
9700011	T-110	9	SAMPLE 897T000230	0 F	DOSE-02	SOLID	<u>10.5</u>	<u>10.5</u>	N/A	meq/hour
			0.4878g →							
9700011	T-110	10	SAMPLE 897T000231	0 F	FUSION01	SOLID	N/A	<u>1.2382</u>		g/L
			0.5098g →							
9700011	T-110	11	SAMPLE 897T000231	0 F	DOSE-02	SOLID	N/A	<u>10.5</u>		meq/hour
			0.5098g →							
9700011	T-110	12	SAMPLE 897T000231	0 F	FUSION01	SOLID	<u>2.0392</u>	<u>2.0392</u>	N/A	g/L
			0.5060g →							
9700011	T-110	13	SAMPLE 897T000231	0 F	DOSE-02	SOLID	<u>10.5</u>	<u>10.5</u>	N/A	meq/hour
			0.5060g →							

Final page for worklist # 16818

Analyst Signature: Kim Thomas Date: 3-6-97Analyst Signature: [Signature] Date: 3-5-97

897T000192 → 897T000196
 897T000214 → 897T000230
 897T000217 → 897T000231

Data Entry Comments: 30ml. HNO₃

Units shown for QC (SPE & 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# 16820

Analyst: DPB Instrument: PUS01 Book #

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

Worklist Comment: FUSION01 FOR TANK T-110 CORE 180 & 181 SEG 4LH,6LH,2LH RTS

GROUP	PROJECT	S TYPE	SAMPLEN	S A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK-PREP		FUSION01	SOL10	<u>1</u>	<u>.250</u>	<u>N/A</u>	<u>g/L</u>
97000111	T-110	2	SAMPLE <u>.4994</u> → <u>.250 L</u>	977000232	Q F	FUSION01	SOL10	<u>N/A</u>	<u>1.9996</u>	<u>g/L</u>
97000111	T-110	3	SAMPLE	977000232	Q F	DOSE-02	SOL10	<u>N/A</u>	<u>4.5</u>	<u>meq/hour</u>
97000111	T-110	4	DUP <u>.4576</u> → <u>.250 L</u>	977000232	Q F	FUSION01	SOL10	<u>1.9996</u>	<u>1.8304</u>	<u>g/L</u>
97000111	T-110	5	DUP	977000232	Q F	DOSE-02	SOL10	<u>4.5</u>	<u>4.5</u>	<u>meq/hour</u>
97000111	T-110	6	SAMPLE <u>.4620</u> → <u>.250 L</u>	977000233	Q F	FUSION01	SOL10	<u>N/A</u>	<u>1.8480</u>	<u>g/L</u>
97000111	T-110	7	SAMPLE	977000233	Q F	DOSE-02	SOL10	<u>N/A</u>	<u>4.5</u>	<u>meq/hour</u>
97000111	T-110	8	DUP <u>.4918</u> → <u>.250 L</u>	977000235	Q F	FUSION01	SOL10	<u>1.8480</u>	<u>1.9672</u>	<u>g/L</u>
97000111	T-110	9	DUP	977000235	Q F	DOSE-02	SOL10	<u>4.5</u>	<u>4.5</u>	<u>meq/hour</u>
97000111	T-110	10	SAMPLE <u>.5407</u> → <u>.250 L</u>	977000268	Q F	FUSION01	SOL10	<u>N/A</u>	<u>2.1428</u>	<u>g/L</u>
97000111	T-110	11	SAMPLE	977000268	Q F	DOSE-02	SOL10	<u>N/A</u>	<u>4.5</u>	<u>meq/hour</u>
97000111	T-110	12	DUP <u>.5238</u> → <u>.250 L</u>	977000268	Q F	FUSION01	SOL10	<u>2.1428</u>	<u>2.0552</u>	<u>g/L</u>
97000111	T-110	13	DUP	977000268	Q F	DOSE-02	SOL10	<u>4.5</u>	<u>4.5</u>	<u>meq/hour</u>

Final page for worklist # 16820

James P. Brandy 3/12/97
Analyst Signature Date

Jerry Gunnski 3/12/97
Analyst Signature Date

232/214 5977000 219 → 5977000 232
235 214 5977000 221 → 5977000 233
268 5977000 261 → 5977000 268

Data Entry Comments: 40 mL con HNO₃ added

Validated
3/12/97
RX Fuller

Unlogged by KCA/KUT
HPT was Jerry Gunnski

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 Completed Worklist Report for Worklist# 16821

Analyst: kgh Instrument: FUS01 Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: FUSION01 FOR TANK T-110 CORE 180&181 SEQ, 7LH,8LH, RTS

Seq	Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLK	0977000269	+	FUSION01	SOXHD	1	595	4.280	g/g
2	BLK	0977000269	+	FUSION01	SOXHD	5/2	2.1076	1.08e+003	g/g
3	BLK	0977000269	+	FUSION01	SOXHD	5/2	18	5.39e+002	micro/gram
4	BLK	0977000269	+	FUSION01	SOXHD	3.1076	3.6153	4.483	APD
5	BLK	0977000269	+	FUSION01	SOXHD	419	<19	micro/gram	
6	BLK	0977000270	+	FUSION01	SOXHD	5/2	2.0488	1.08e+003	g/g
7	BLK	0977000270	+	FUSION01	SOXHD	5/2	18	5.39e+002	micro/gram
8	BLK	0977000270	+	FUSION01	SOXHD	3.0488	3.5049	2.145	APD
9	BLK	0977000270	+	FUSION01	SOXHD	<19	<19	micro/gram	

Final page for worklist# 16821

Analyst Signature _____ Date _____ Analyst Signature _____ Date _____

Keith Fuller 5/11/97
Reviewer Signature _____ Date _____

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

worksys Version 2.1 05/15/95
02/23/97 13:54

HNF-SD-WM-DP-238, REV. 0

Page 1

LABCORE Data Entry Template for Worklist# 16821

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

Worklist Comment: FUSION01 FOR TANK T-110 CORE 180&181 SEG, 7LH,8LH, RTS

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MURCH	ACTUAL	FIND	SL	UNIT
		1 BLANK-REF			FUSION01	001.0	<u>1</u>	<u>250</u>	<u>N/A</u>	<u>g/L</u>
97000111	T-110	2 SAMPLE	5777000269 <u>→ 250L</u>	0 F	FUSION01	001.0	<u>N/A</u>	<u>21076</u>		<u>g/L</u>
97000111	T-110	3 SAMPLE	5771000269 B F		DOSE-02	001.0	<u>N/A</u>	<u><10</u>		<u>grad/flow</u>
97000111	T-110	4 DUP	5771000270 B F <u>.5039 → 250L</u>		FUSION01	001.0	<u>21076</u>	<u>2052</u>	<u>N/A</u>	<u>g/L</u>
97000111	T-110	5 DUP	5771000269 0 F		DOSE-02	001.0	<u><10</u>	<u><10</u>	<u>N/A</u>	<u>grad/flow</u>
97000111	T-110	6 SAMPLE	5771000270 0 F <u>.5101 → 250L</u>		FUSION01	001.0	<u>N/A</u>	<u>20108</u>		<u>g/L</u>
97000111	T-110	7 SAMPLE	5771000270 0 F		DOSE-02	001.0	<u>N/A</u>	<u><10</u>		<u>grad/flow</u>
97000111	T-110	8 DUP	5771000270 0 F <u>.5265 → 250L</u>		FUSION01	001.0	<u>20108</u>	<u>2060</u>	<u>N/A</u>	<u>g/L</u>
97000111	T-110	9 DUP	5771000270 0 F		DOSE-02	001.0	<u><10</u>	<u><10</u>	<u>N/A</u>	<u>grad/flow</u>

Final page for worklist # 16821

Analyst Signature: [Signature]Date: 3-11-97Analyst Signature: [Signature]Date: 3-11-97

5977000269 ^{20108 1.5.77}
5977000269
 5777000268 → 5777000269
 265 → 5777000270

Data Entry Comments:

Weighted by KGH & KNT FAVED 3-11-97
15000

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

Worklist# Version 2.1 05/15/95
02/26/97 13:54

HNF-SD-WM-DP-238, REV. 0

Page:

LABCORE Data Entry Template for Worklist# 16821

Analyst: KCH Instrument: FUS01 Book # _____Method: LA-549-141 Rev/Mod E-0

Worklist Comment: FUSION01 FOR TANK T-110 CORE 180&181 SEG, 7LH, 8LH, RTS

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	CL	UNIT
		1 BLANK-PREP			FUSION01	SOLID		<u>1</u> <u>.250</u>	<u>N/A</u>	<u>g/L</u>
97000113	T-110	2 SAMPLE	5977000269 <u>.5269</u> → <u>.250L</u>		FUSION01	SOLID	<u>N/A</u>	<u>2.1076</u>		<u>g/L</u>
97000113	T-110	3 SAMPLE	5977000269 O F		DOSE-02	SOLID	<u>N/A</u>	<u><10</u>		<u>meq/hour</u>
97000113	T-110	4 DUP	5977000269 O F <u>.5038</u> → <u>.250L</u>		FUSION01	SOLID	<u>2.1076</u>	<u>2.052</u>	<u>N/A</u>	<u>g/L</u>
97000113	T-110	5 DUP	5977000269 O F		DOSE-02	SOLID		<u><10</u>	<u>N/A</u>	<u>meq/hour</u>
97000113	T-110	6 SAMPLE	5977000270 O F <u>.5102</u> → <u>.250L</u>		FUSION01	SOLID	<u>N/A</u>	<u>2.0008</u>		<u>g/L</u>
97000113	T-110	7 SAMPLE	5977000270 O F		DOSE-02	SOLID	<u>N/A</u>	<u><10</u>		<u>meq/hour</u>
97000113	T-110	8 DUP	5977000270 O F <u>.5265</u> → <u>.250L</u>		FUSION01	SOLID	<u>2.0008</u>	<u>2.1060</u>	<u>N/A</u>	<u>g/L</u>
97000113	T-110	9 DUP	5977000270 O F		DOSE-02	SOLID		<u><10</u>	<u>N/A</u>	<u>meq/hour</u>

Final page for worklist # 16821

Analyst Signature: KCHDate: 7-11-97

Analyst Signature: _____

Date: _____

205 3.5-97
~~5977000192~~

5977000268 → 5977000269
 265 → 5977000270

Data Entry Comments:

Weighted by KCH & RWT

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# 16885

Analyst: KNT Instrument: FUS01 Book #

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

Worklist Comment: FUSION FOR T110 CORE 181 SEG 3LH, 4LH LMH

GROUP	PROJECT	S TYPE	SAMPLE	EA	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLANK-PREP		FUSION#1	SOLID	<u>1</u>	<u>.250</u>	<u>N/A</u>	<u>g/L</u>
9708083	T-110	2	SAMPLE	597T000150 D F	FUSION#1	SOLID	<u>N/A</u>	<u>1.9808</u>		<u>g/L</u>
				<u>4952 → 250L</u>						
9708083	T-110	3	SAMPLE	597T000150 Q F	DOSE-Q2	SOLID	<u>N/A</u>	<u>20.5</u>		<u>mgd/hour</u>
9708083	T-110	4	DUP	597T000150 Q F	FUSION#1	SOLID	<u>1.9808</u>	<u>2.0180</u>	<u>N/A</u>	<u>g/L</u>
				<u>5045 → 250L</u>						
9708083	T-110	5	DUP	597T000150 Q F	DOSE-Q2	SOLID	<u>20.5</u>	<u>20.5</u>	<u>N/A</u>	<u>mgd/hour</u>
9708083	T-110	6	SAMPLE	597T000151 Q F	FUSION#1	SOLID	<u>N/A</u>	<u>1.9400</u>		<u>g/L</u>
				<u>4600 → 250L</u>						
9708083	T-110	7	SAMPLE	597T000151 Q F	DOSE-Q2	SOLID	<u>N/A</u>	<u>20.5</u>		<u>mgd/hour</u>
9708083	T-110	8	DUP	597T000151 Q F	FUSION#1	SOLID	<u>1.9400</u>	<u>1.9168</u>	<u>N/A</u>	<u>g/L</u>
				<u>4792 → 250L</u>						
9708083	T-110	9	DUP	597T000151 Q F	DOSE-Q2	SOLID	<u>20.5</u>	<u>20.5</u>	<u>N/A</u>	<u>mgd/hour</u>

Final page for worklist # 16885

Kim Thomas 3-5-97
Analyst Signature Date

Ray Hammond 3-5-97
Analyst Signature Date

*Validated
3-5-97
AK Fuller*

Data Entry Comments: 40ml. Con Nitric
HPT was Scott Landenback

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

INORGANIC ANALYSIS

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LABCORE Data Entry Template for Worklist# 16714

Analyst: SME Instrument: DSC0 3 Book # 12NHB

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

Worklist Comment: DSC-01 FOR T-110 GRAB & (T-110) RUN UNDER NITROGEN RTS

ORCP	PROJECT	B TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	POLYD	DL	UNIT
		1 STD			DSC-03	LIQUID	<u>28.45</u>	<u>26.19</u>	<u>N/A</u>	Joules/g
96001704	T-110 GRAB	2 SAMPLE	997000008	0	DSC-03	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g
96001704	T-110 GRAB	3 DUP	997000008	0	DSC-03	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000083	T-110	4 SAMPLE	9970000119	0	DSC-03	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g
97000083	T-110	5 DUP	9970000119	0	DSC-03	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16714

See attached for signatures
Analyst Signature _____ Date 2-20-97

Frank Mendoza
Analyst Signature _____ Date _____

Verified/Validated by
Blandina
Valenzuela
2-20-97

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16714

Analyst: SHF Instrument: DSC0 Book # 12A14B

Method: LA-514-113 Rev/Mod

Worklist Comment: DSC-01 FOR T-110 GRAB & T-110)RUN UNDER NITROGEN) RTS

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	L10U10			N/A	joules/g
95001704	T-110 GRAB	2 SAMPLE	9977000085	0	DSC-01	L10U10	N/A			joules/g
95001704	T-110 GRAB	3 DUP	9977000085	0	DSC-01	L10U10			N/A	joules/g
97000083	T-110	4 SAMPLE	9977000119	0	DSC-01	L10U10	N/A			joules/g
97000083	T-110	5 DUP	9977000119	0	DSC-01	L10U10			N/A	joules/g

Final page for worklist # 16714

Sadie M. Johnston 2-18-97
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

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

Curve 1: 09C

File Info: IND021801 Tue Feb 18 08:39:57 1997

Sample Weight: 10.490 mg

STD 12M14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES ~~229~~ TO ~~243~~.

229

H2, EXOTHERM DOWN

TIME: 12:28 TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 08:41:13 1997

HMF-SD-WM-OP-239, REV. 0

Curve 1: DSC

File Info: BAW024801 Tue Feb 18 02:11:40 1997

Sample Weight: 8.760 mg

B97T000008

N2 100/min

HESS 00:0 8

TIME:

0.0 via RATE: 10.0 G/min

Temperature (°C)

SM FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Tue Feb 18 02:51:54 1997

HNF-SD-WM-DP-238, REV. 0

Curve 1: DSC

File info: 84H021802 Tue Feb 18 10:58:05 1997

Sample Weight: 10.750 mg

897T000008 DLP

HE 10C/min

TIME 85.2 s

TIME:

9.0 min RATE: 10.0 °/min

Temperature (°C)

BN FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Tue Feb 18 11:00:05 1997

HNF-SD-WM-DF-238, REV.0

Curve 1: DSC

File Info: SAND21803 Tue Feb 18 12:30:27 1997

Sample Weight: 9.210 mg

997T000119

HE 100/min

TIME 00:08

TD=0.0

0.0 min RATE=

10.0 °C/min

Temperature (°C)

SW MILTON

PERKIN-ELMER

7 Series Thermal Analysis System

Tue Feb 18 14:23:58 1997

HNF-SD-WM-DP-208, REV. 0

Curve 1: DSC

File info: SAM021804 Tue Feb 18 15:13:31 1997

Sample Weight: 8.350 mg

9971000119 DUP

N2 10C/min

DATE: 02/18/97

TIME: 15:13

0.0 min. 10.0 C/min

Temperature (°C)

ON FILTOM

PERKIN-ELMER

7 Series Thermal Analysis System

Tue Feb 18 15:25:45 1997

HNF-SD-WM-DF-238, REV. 0

LABCORE Data Entry Template for Worklist# 16716

Analyst: AM Instrument: DSCD 1 Book # 12N143

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

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM RTS

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	28.45	25.23*	N/A	counts/g
97000082	T-110	2 SAMPLE	9771000125	D	DSC-01	SOLID	N/A	0		counts/g
97000083	T-110	3 DUP	9771000125	B	DSC-01	SOLID	0	0	N/A	counts/g
97000083	T-110	4 SAMPLE	9771000141	D	DSC-01	SOLID	N/A	0		counts/g
97000083	T-110	5 DUP	9771000141	D	DSC-01	SOLID	0	0	N/A	counts/g

Final page for worklist # 16716

A. Lambert 2-18-97
Analyst Signature Date

Frank Mark 2-20-97
Analyst Signature Date

Verified/Validated by
Blandina
Valenzuela 2-20-97

Data Entry Comments:

Units shown for QC (SPE & 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 235 TO 239.

A. Lambel 2-18-97

DATE
PERFORMED

DSC STD 12N14-B

22.750 mg

Rate: 10.0 °C/min

File: 00045.001

Ident: 0.0

DSC METTLER

11-Feb-97

222-S Laboratory

HNF-SO-WM-DP-239, REV. 0

S97T000125 N2

25.953 mg

Rate: 10.0 °C/min

File: 00086.001

DSC METTLER

18-Feb-97

Ident: 0.0

222-8 Laboratory

S97T000125 DUP N2

17.808 mg

Rate: 10.0 °C/min

File: 00000.001

DSC METTLER

15-Feb-87

Ident: 0.0

222-8 Laboratory

S97T000141 N2

13.449 mg

Rate: 10.0 °C/min

File: 00080.001

DSC METTLER

18-Feb-97

Ident: 0.0

222-S Laboratory

exo

200
50 mW

Integration

Delta H 14998 mJ

1115.2 J/g

Peak 103.5°C

-62.2 mW

Integration

Delta H 477 mJ

35.5 J/g

Peak 292.8°C

-1.5 mW

100.

200.

300.

400.

°C

S97T000141 DUP N2

21.857 mg

Rate: 10.0 °C/min

File: 00069.001

DSC METTLER

18-Feb-97

Ident: 0.0

222-S Laboratory

LABCORE Data Entry Template for Worklist# 16717

Analyst: EAL Instrument: DSC0 3 Book # 12N14B

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

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-05	SOLID	28.45	26.35 *	N/A	Joules/g
97000083	T-110	2 SAMPLE	5971000142	0	DSC-03	SOLID	N/A	0		Joules/g
97000083	T-110	3 DUP	5971000142	0	DSC-03	SOLID	0	0	N/A	Joules/g
97000083	T-110	4 SAMPLE	5971000143	0	DSC-03	SOLID	N/A	0		Joules/g
97000083	T-110	5 DUP	5971000143	0	DSC-03	SOLID	0	0	N/A	Joules/g

Final page for worklist # 16717

See attached for signatures
Analyst Signature _____ Date 2-20-97 ERS

[Signature] 2-20-97
Analyst Signature _____ Date _____

Verified/Validated
by Blandina
Valenzuela
3-3-97

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16717

Analyst: ABE Instrument: DSC0 _____ Bank # 12NH48

Method: LA-514-113 Rev/Mod _____

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM RTS

GROUP	PROJECT	#	TYPE	SAMPLES	R	A	TEST	MATRIX	ACTUAL	FORM	DL	UNIT
		1	STD				DSC-01	SOLID			N/A	Scouters/g
9700003	T-110	2	SAMPLE	977000142	0		DSC-01	SOLID	N/A			Scouters/g
9700003	T-110	3	DUP	977000142	0		DSC-01	SOLID			N/A	Scouters/g
9700003	T-110	4	SAMPLE	977000143	0		DSC-01	SOLID	N/A			Scouters/g
9700003	T-110	5	DUP	977000143	0		DSC-01	SOLID			N/A	Scouters/g

Final page for worklist # 16717

A. Lambert 2-18-97
Analyst Signature Date

Analyst Signature Date

DSC-01 instrument
was used

2-20-97

Blandina
Valenzuela

Data Entry Comments:

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

Curve 1: DSC

File info: INDO21001 Tue Feb 19 08:39:57 1997

Sample Weight: 10.490 mg

STD 12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 242 TO 246

A. Lamber 2/18/97

242

HNF-SD-WM-OP-238, REV. 0

N2, EXOTHERM DOWN

WEIGHT 10.490 g

TIME 0.0 min RATE 10.0 °C/min

Temperature (°C)

SM FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Wed Feb 19 00:04:09 1997

Curve 1: DSC

File info: SAM021805 Tue Feb 16 17:36:21 1997

Sample Weight: 22.910 mg

9577000142

243

HE 10C/min
TIME: 00:00

0.0 min RATE: 10.0 °C/min

EA LABS
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 16 17:47:49 1997

WAF-SD-WM-0P-208, REV. 0

Curve 1: DSC

File info: SAMP21807 Tue Feb 18 20:28:39 1997

Sample Weight: 12.490 mg

887D00143

EA LABEL
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 20:38:17 1997

HNF-SD-WM-OP-238, REV. 0

Curve 1: DSC

File info: 8AM021808 Tue Feb 18 21:28:00 1997

Sample Weight: 24.980 mg

8977000143DUP

246

He 100/min

Time: 0.0 min Rate: 10.0 °/min

Temperature (°C)

EA LABEL

PERKIN-ELMER

7 Series Thermal Analysis System

Tue Feb 18 22:35:15 1997

HNF-SD-MM-OP-238, REV. 0

LABCORE Data Entry Template for Worklist# 16718

Analyst: KRM **Instrument:** DSC0 1 **Book #** 12NHB

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

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM **RTS**

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	28.45	25.6	N/A	Joules/g
97000083	T-110	2 SAMPLE	97T000144	0	DSC-01	SOLID	N/A	0		Joules/g
97000083	T-110	3 DUP	97T000144	0	DSC-01	SOLID	0	0	N/A	Joules/g
97000083	T-110	4 SAMPLE	97T000145	0	DSC-01	SOLID	N/A	0		Joules/g
97000083	T-110	5 DUP	97T000145	0	DSC-01	SOLID	0	0	N/A	Joules/g
97000083	T-110	6 TRIPL	97T000145	0	DSC-01	SOLID	0	0	N/A	Joules/g

Final page for worklist # 16718

See attached for signatures
Analyst Signature *[Signature]* **Date** 2-25-97

[Signature] **2-26-97**
Analyst Signature *[Signature]* **Date**

Verified/Validated by
Blandina
Valepinela 2-27-97

Data Entry Comments: S97T000145 was run in triplicate because the duplicate run indicated another substance present within the sample (possibly organic) with very little water. The triplicate run was similar to original analysis.
Units shown for DSC (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# 16718

Analyst: KRM Instrument: DSC0 _____ Book # 12H14B

Method: LA-514-113 Rev/Mod _____

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM RTS

GROUP	PROJECT	S TYPE	SAMPLES	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID			N/A	joules/g
9700003	T-110	2 SAMPLE	9971000144	0	DSC-01	SOLID	N/A			joules/g
9700003	T-110	3 DUP	9971000144	0	DSC-01	SOLID			N/A	joules/g
9700003	T-110	4 SAMPLE	9971000145	0	DSC-01	SOLID	N/A			joules/g
9700003	T-110	5 DUP	9971000145	0	DSC-01	SOLID			N/A	joules/g

Final page for worklist # 16718

2-19-97
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

RAN TRIP ON 997145

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 242 TO 254

SS7T000144 N2

18.840 mg

Rate: 10.0 °C/min

File: 00070.001

DSC NETTLER

19-Feb-97

Ident: 0.0

222-8 Laboratory

exo
Δ

Integration
Delta H14465 mJ
767.8 J/g
Peak 113.6°C
-50.0 mW

Integration
Delta H 214 mJ
11.3 J/g
Peak 294.6°C
-3.4 mW

100.

200.

300.

400.

°C

[Signature] 2.19.97

HNF-SO-WM-DP-238, REV. 0

OSC STD 12N14A

22.750 mg

Rate: 10.0 °C/min

File: 00068.001

Ident: 0.0

OSC METTLER

19-Feb-97

282-S Laboratory

Integration

Delta H 583 mJ

25.6 J/g

Peak 156.1°C

-30.8 mW

120.

130.

140.

150.

160.

170.

°C

S97T000144 DUP N2

21.182 mg

Rate: 10.0 °C/min

File: 00072.001

DSC METTLER

12-Feb-97

Ident: 0.0

222-S Laboratory

exo

251
50. mW

Integration

Delta H 15223 mJ

718.7 J/g

Peak 119.6°C

-61.2 mW

Integration

Delta H 251 mJ

11.9 J/g

Peak 294.4°C

-4.2 mW

100.

200.

300.

400.

°C

597T000145 N2

23.878 mg

Rate: 10.0 °C/min

File: 00074.001

DSC METTLER

19-Feb-97

Ident: 0.0

222-S Laboratory

S97T000145 DLP N2

30.341 mg

Rate: 10.0 °C/min

File: 00076.001

Ident: 0.0

DSC NETTLER 19-Feb-97

222-G Laboratory

exo
up

253
mW
0.5

Integration

Delta H 143 mJ

7.0 J/g

Peak 60.5°C

-8.7 mW

Integration

Delta H 192 mJ

9.5 J/g

Peak 292.5°C

-3.9 mW

Integration

Delta H 27700 mJ

1361.8 J/g

Peak 217.6°C

-72.0 mW

100.

200.

300.

400.

°C

S97T000145 TRIP N2

29.039 mg

Rate: 10.0 °C/min

File: 00078.001

Ident: 0.0

DSC NETTLER

19-Feb-97

222-S Laboratory

LABCORE Data Entry Template for Worklist# 16719

Analyst: KRM Instrument: DSCD 3 Book # 12N14B

Method: LA-S14-114 Rev/Mod D-0

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM RTS

GROUP	REQUEST	B TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>26.48</u>	<u>N/A</u>	joules/g
97000083	T-110	2 SAMPLE	9971000146	0	DSC-03	BOILED	<u>N/A</u>	<u>0</u>		joules/g
97000083	T-110	3 DUP	9971000146	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	joules/g
97000083	T-110	4 SAMPLE	9971000147	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		joules/g
97000083	T-110	5 DUP	9971000147	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	joules/g

Final page for worklist # 16719

See attached for signature
Analyst Signature 2-20-97
Date for

Josh Smith
Analyst Signature 2-20-97
Date

Verified/Validated by
Blandina
Valenzuela
2-20-97

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 16719

Analyst: KRM Instrument: DSC0 _____ Book # 12A14B

Method: LA-514-113 Rev/Mod _____

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM RTS

GROUP	PROJECT	S TYPE	SAMPLE#	S A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID			N/A	Joules/g
9700083	T-110	2 SAMPLE	8971000146	0	DSC-01	SOLID	N/A			Joules/g
9700083	T-110	3 DUP	8971000146	0	DSC-01	SOLID			N/A	Joules/g
9700083	T-110	4 SAMPLE	8971000147	0	DSC-01	SOLID	N/A			Joules/g
9700083	T-110	5 DUP	8971000147	0	DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 16719

Analyst Signature

Date

2-18-97

Analyst Signature

Date

DSC-03 instrument

was used

2-20-97

Blandina
Valenzuela

Data Entry Comments:

Units shown for QC (SPE & 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: IND021901 Wed Feb 19 03:31:57 1997

Sample Weight: 10.490 mg

STD 12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 257 TO 261.

N2, EXOTHERM DOWN
THERM 160.0 g THERM: 0.0 min RATE: 10.0 °C/min

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 03:40:35 1997

HNF-SD-WMA-OP-238, REV. 0

Curve 1: DSC

File info: SAN021901 Wed Feb 19 05:35:37 1997

Sample Weight: 23.420 mg

897T000146

852.

HE 10C/min

TEMP 30.0 °C

TIME 0.0 GAS RATE: 20.0 O/min

Temperature (°C)

KG MONTEITH

PERKIN-ELMER

7 Series Thermal Analysis System

Wed Feb 19 07:08:59 1997

HNF-SD-WM-OP-230, REV. 0

Curve 1: DSC

File Info: SAN021902 Wed Feb 19 08:03:36 1997

Sample Weight: 28.800 mg

697T000146 DUP

N2 10C/min
FILE 697T000146

TIME

0.0 min RATE 10.0 C/min

Temperature (°C)

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 09:06:55 1997

HNF-SO-WMA-DP-238, REV. 0

Curve 1: DSC

File info: SAM021903 Wed Feb 19 10:00:21 1997

Sample Weight: 37.680 mg

897T000147

Table 1: 8

Table 2: 8

TIDEL 0.0 mL/min, 10.0 C/min

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 11:38:17 1997

HNF-SO-WM-DP-238, REV. 0

Curve 1: DSC

File Info: SAH021904 Wed Feb 19 12:29:10 1997

Sample Weight: 38.000 mg

997T000147 SUP

N2 100/min

Pressure 45.0 2

Time 22

9.0 min RATE: 10.0 °/min

Temperature (°C)

KR MONTEITH

PERKIN-ELMER

7 Series Thermal Analysis System

Wed Feb 19 12:52:28 1997

HNF-SO-WMA-DP-238, REV. 0

LABCORE Data Entry Template for Worklist# 16720

Analyst: RGH Instrument: DSC0 3 Book # 12N14B

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

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>26.47</u>	<u>N/A</u>	Joules/g
97000083	T-110	2 SAMPLE	5977000158	0	DSC-03	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
97000083	T-110	3 DUP	5977000158	0	DSC-03	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g
97000083	T-110	4 SAMPLE	5977000159	0	DSC-03	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
97000083	T-110	5 DUP	5977000159	0	DSC-03	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16720

See attached for signatures
Analyst Signature

Date

2-25-97

Analyst Signature

Date

2-26-97

Verified/Validated by

Blandina

Valenzuela 2-27-97

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 16720

Analyst: RGA Instrument: DSC0 _____ Back # 12N148

Method: LA-514-113 Rev/Mod _____

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM **RTS**

GROUP	PROJECT	S TYPE	SAMPLE	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID			N/A	Joules/g
97000083	T-110	2 SAMPLE	8971000158	0	DSC-01	SOLID	N/A			Joules/g
97000083	T-110	3 DUP	8971000158	0	DSC-01	SOLID			N/A	Joules/g
97000083	T-110	4 SAMPLE	8971000159	0	DSC-01	SOLID	N/A			Joules/g
97000083	T-110	5 DUP	8971000159	0	DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 16720

J. P. [Signature]
Analyst Signature

2-19-97
Date

Analyst Signature

Date

DSC-03 instrument

was used.

Blandina

Vale [Signature]

2 25 97

Data Entry Comments:

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

Curve 1: DSC

File Info: IN0021901 Wed Feb 19 03:31:57 1997

Sample Weight: 10.490 mg

STD 12N14-8

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES *241* TO *248*

X2, EXOTHERM DOWN

TEMP 123.3 8

Y2min 0.0 min MaxTemp 50.0 C/min

KR MONTEITH

PERKIN-ELMER

7 Series Thermal Analysis System

Wed Feb 19 22:41:39 1997

HNF-SD-WM-DC-238, REV. 0

Drachlor 2/19/97

Curve 1: DSC
File Info: SAN021906 Wed Feb 19 17:15:48 1997
Sample Weight: 30.130 mg
987T000158 SAN

NR 10C/min
TIME 30.2 6
FIDEL 0.0 mW RATE 10.0 C/min

RB ACHEN
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 19:20:14 1997

HNF-SD-WM-OP-288, REV. 0

Curve 1: DSC

File info: 8AH0210910 Wed Feb 19 21:26:18 1997

Sample Weight: 42.730 mg

8971000198.DUP

N2 10C/min

TIME 85.2 9

TIME: 0.0 min RATE: 10.0 C/min

NO ACHEN

PERKIN-ELMER

7 Series Thermal Analysis System

Wed Feb 19 23:02:35 1997

HNF-SD-WM-DF-238, REV. 0

Curve 1: DSC

File info: 84021912 Thu Feb 20 00:53:18 1997

Sample Weight: 42.270 mg

887T000199 SAM

N2 10C/min

887T000199

Time

0.0 min RATE

10.0 C/min

Temperature (°C)

88 ACHEN

PERKIN-ELMER

7 Series Thermal Analysis System

Thu Feb 20 01:01:12 1997

HNF-SD-WM-DP-238, REV. 0

Curve 1: DSC
 File info: SAM021913 Thu Feb 20 01:54:21 1997
 Sample Weight: 40.890 mg
 S97T0001B9 DLP

N2 10C/min
 THERM: 25.0 0 TONEL: 0.0 min RATEIN 10.0 C/min

RG ACHEN
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Thu Feb 20 02:17:04 1997

HNF-SD-WM-DP-238, REV. 0

LABCORE Data Entry Template for Worklist# 16798

Analyst: BDY Instrument: DSC01 Book #

Method: LA-514-113 Rev/Mod

Worklist Comment: T-110 dry DSC. bdy

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
97000083	T-110	1 SAMPLE	9971000125	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	2 DUP	9971000125	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
97000083	T-110	3 SAMPLE	9971000141	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	4 DUP	9971000141	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
97000083	T-110	5 SAMPLE	9971000142	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	6 DUP	9971000142	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
97000083	T-110	7 SAMPLE	9971000143	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	8 DUP	9971000143	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
97000083	T-110	9 SAMPLE	9971000144	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	10 DUP	9971000144	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
97000083	T-110	11 SAMPLE	9971000145	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	12 DUP	9971000145	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
97000083	T-110	13 SAMPLE	9971000146	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	14 DUP	9971000146	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
97000083	T-110	15 SAMPLE	9971000147	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	16 DUP	9971000147	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
97000083	T-110	17 SAMPLE	9971000153	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	18 DUP	9971000150	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry

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# 16798

GROUP	PROJECT	S TYPE	SAMPLED	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
97000003	T-110	19 SAMPLE	0971000159	0	DSC-02	SOLID	N/A	<u>0</u>		Joules/g Dry
97000003	T-110	20 DUP	0971000159	0	DSC-02	SOLID		<u>0</u>	N/A	Joules/g Dry

Final page for worklist # 16798

 Analyst Signature

Date

Analyst Signature

Date

Data Entry Comments:

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

T-110 dry DSC

CALCULATED DRY DSC			
SAMPLE NO.	DSC RESULT (J/g)	TGA RESULT (% water)	DRY DSC RESULT
S97T000125	Ø		
125D	Ø		
141	Ø		
141D	Ø		
142	Ø		
142D	Ø		
143	Ø		
143D	Ø		
144	Ø		
144D	Ø		
145	Ø		
145D	Ø		
146	Ø		
146D	Ø		
147	Ø		
147D	Ø		
158	Ø		
158D	Ø		

LABCORE Data Entry Template for Worklist# 16825

Analyst: SMP Instrument: DSC0 5 Book # 12N148

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

Worklist Comment: T-110 DSC, RUN UNDER N2. RCI

GROUP	PROJECT	S TYPE	SAMPLE	R A	*****TBSF*****	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>26.89</u>	<u>N/A</u>	Joules/g
9700085	T-110	2 SAMPLE	9971000192	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
9700083	T-110	3 DUP	9971000192	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
9700083	T-110	4 SAMPLE	9971000193	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
9700083	T-110	5 DUP	9971000193	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
9700011	T-110	6 SAMPLE	9971000214	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
9700011	T-110	7 DUP	9971000214	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16825

See Attached for Signature
Analyst Signature Date
Validated by Bachelor 3/5/97

[Signature] 3-4-97
Analyst Signature Date

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16825

Analyst: SHF Instrument: DSC0 3 Book # 12114-B

Method: LA-514-149 Rev/Mod D-V

Worklist Comment: T-110 DSC, RUN UNDER N2. RCI

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRM	ACTRL	FOUND	DL	UNIT
		1 STD			DSC-01	SCLD	<u>28.45</u>	<u>26.89</u>	<u>N/A</u>	Joules/g
9700083	T-110	2 SAMPLE	9971000192	0	DSC-01	SCLD	<u>N/A</u>	<u>0</u>		Joules/g
9700083	T-110	3 DUP	9971000192	0	DSC-01	SCLD	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
9700083	T-110	4 SAMPLE	9971000193	0	DSC-01	SCLD	<u>N/A</u>	<u>0</u>		Joules/g
9700083	T-110	5 DUP	9971000193	0	DSC-01	SCLD	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
9700111	T-110	6 SAMPLE	9971000214	0	DSC-01	SCLD	<u>N/A</u>	<u>0</u>		Joules/g
9700111	T-110	7 DUP	9971000214	0	DSC-01	SCLD	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16825

Sadie M. Dalton 3-1-97
Analyst Signature Date

Analyst Signature Date

Fixed Both Dsc And TGA to 3B

16 pages total

@ 0640 3-2-97

SDS

Re-Run on 3/1/97. SDS

Date Entry Comments:

Run samples using DX-03. SDS

Curve 1: D60

File Info: INDO30101 Sat Mar 1 16:28:39 1997

Sample Weight: 10.480 mg

STD 12N14-B

274

HNF-SC-WM-DP-239, REV. 0

N2, EXOTHERM DOWN
TEMP: 159.8 °C

TURBO 0.0 min RATE: 10.0 °C/min

Temperature (°C)

SK PLATON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 1 16:28:31 1997

Curve 1: DSC

File Info: SAM090101 Sat Mar 1 17:58:38 1997

Sample Weight: 13.340 mg

897T000192

HE 100/min

TIME: 00:02

TIME:

0.0 min RATE:

0.0 °C/min

Temperature (°C)

SH FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Mon Mar 3 08:00:55 1997

HNF-SD-WM-OP-238, REV. 0

Curve 1: DSC

File info: S4M30102 Sat Mar 1 12:26:15 1987

Sample Weight: 16.360 mg

997T000182 DUF

N2 10C/min

Sample 16.360 mg

TDMS

0.0 min

Rate 10.0

0.0/min

Temperature (°C)

SM FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Tue Mar 4 12:50:17 1987

HNF-SO-WA-DP-236, REV. 0

Curve 1: DSC

File info: BAK030103 Sat Mar 1 22:32:08 1997

Sample Weight: 19.290 mg

9871000193

N2 100/min

105.2 65.8 2

THRU

0.0 min

Rate

10.0 °C/min

Temperature (°C)

SM FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Sun Mar 2 00:01:35 1997

HMF-SD-WHM-DF-238, REV. 0

Curve 1: DSC

File info: SAM030104 Sun Mar 2 00:42:19 1997

Sample Weight: 13.110 mg

8877000129 DUP

278

N2 10C/min

Start Temp: 50.0 °C

Time: 0.0 min Rate: 10.0 °C/min

Temperature (°C)

SN FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Tue Mar 4 12:56:20 1997

HMF-SO-WMA-DR-238, REV. 0

Curve 1: DSC
 File Info: SAM090105 Sun Mar 2 01:50:47 1997
 Sample Weight: 19.490 mg
 8877000214

M2 10C/min
 THERM 85.2 S
 TIME 00:00
 VTIME 0.0 min RATE 10.0 C/min

BN FULTON
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Sun Mar 2 02:52:46 1997

Curve 1: DSC
 File info: SAM030106 Sun Mar 2 09:49:40 1997
 Sample Weight: 19.990 mg
 8877000214 DUP

N2 100/min
 REF: 88.8 g
 TIME: 0.0 min RATE: 20.0 °C/min

SH FULTON
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Tue Mar 4 13:00:36 1997

HNF-SO-WMA-DP-238, REV. 0

LABCORE Data Entry Template for Worklist# 16826

Analyst: ARM Instrument: DSC0 3 Book # 12N148
Method: LA-514-114 Rev/Mod D-0 HNF-SD-WM-DP-236, REV. 0
Worklist Comment: T-110 DSC, RUN UNDER N2. RCI

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>26.00</u>	N/A	Joules/g
97000111	T-110	2 SAMPLE	9971000216	0	DSC-03	SOLID	N/A	<u>0</u>		Joules/g
97000111	T-110	3 DUP	9971000216	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	N/A	Joules/g
97000111	T-110	4 SAMPLE	9971000217	0	DSC-03	SOLID	N/A	<u>0</u>		Joules/g
97000111	T-110	5 DUP	9971000217	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	N/A	Joules/g
97000111	T-110	6 SAMPLE	9971000218	0	DSC-03	SOLID	N/A	<u>0</u>		Joules/g
97000111	T-110	7 DUP	9971000218	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	N/A	Joules/g

Final page for worklist # 16826

See Attached for Signature
Analyst Signature Date

3/4/97
Analyst Signature Date

Validated: 3/5/97

Data Entry Comments:

Units shown for QC (BPK & 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# 16826

Analyst: KRM Instrument: DSC0 3 Book # 12474B
17406 2/4/97
Method: LA-514-119 Rev/Mod D-0

Worklist Comment: T-110 DSC, RUN UNDER N2: BCI

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>26.00</u>	<u>N/A</u>	<u>Acoules/g</u>
97000111	T-110	2 SAMPLE	9971000216	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		<u>Acoules/g</u>
97000111	T-110	3 DUP	9971000216	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	<u>Acoules/g</u>
97000111	T-110	4 SAMPLE	9971000217	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		<u>Acoules/g</u>
97000111	T-110	5 DUP	9971000217	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	<u>Acoules/g</u>
97000111	T-110	6 SAMPLE	9971000218	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		<u>Acoules/g</u>
97000111	T-110	7 DUP	9971000218	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	<u>Acoules/g</u>

Final page for worklist # 16826

[Signature] 3-2-97
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

RUN USING DSC-03 2/4/97

WNC QCHISTORY TABLE EDIT SCREEN

Sample#		Assoc		Sample ID				
Group#				Customer				
Worklist# 16826				WL Comment T-110 DSC, RUN UNDER N2. RCJ				
Test	Matrix	Type	Actual	Found	Yield	STAT	AnalDate	User
DSC-03	SOLID	STD	28.45	26.0	91.3884	NEW	03/04/97 1512	rts
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/04/97 1512	rts
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/04/97 1512	rts
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/04/97 1512	rts

Save(F12) End(F3)

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Assoc Sample ID
 Group# Customer
 Worklist# 16826 WL Comment T-110 DSC, RUN UNDER N2. RCJ

Test	Matrix	Type	Actual	Found	Yield	STAT	AnalDate	User
DSC-03	SOLID	STD	28.45	26.04	91.3884	TEXT	03/04/97 1512	rts
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/04/97 1512	rts
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/04/97 1512	rts
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/04/97 1512	rts

Save(F12) End(F3)

Curva 1: ISC

File info: D:\DC30201 Sun Mar 2 04:38:54 1997

Sample Weight: 10.490 mg

STD 12H14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 285 TO 291

Curve 1: DSC

File info: SAMP00206 Sun Mar 2 18:38:31 1997

Sample Weight: 29.540 mg

987T000216 DUF

HNF-SD-WM-DP-238, REV. 0

He 100/min
TIME 29.5 g

TEMP: 0.5 min RATES 40.0 °/min

Temperature (°C)

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 18:29:45 1997

Curve 1: DSC

File Info: SAK030207 Sun Mar 2 20:10:35 1997

Sample Weight: 8.840 mg

997T000217

N2 10C/min
THERM 88.3 g

20.0 mL/min

Temperature (°C)

OR MONTAITH
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 23:36:17 1997

HNF-SD-MM-OP-236, REV.0

Curve 1: DSC

File Info: 8AH030206 Sun Mar 2 22:12:42 1997

Sample Weight: 98.980 mg

9871000217 DUP

N2 100/min

75.0 g

TIME

0.0 min RATE

10.0 °C/min

Temperature (°C)

KB MONTEITH

PERKIN-ELMER

7 Series Thermal Analysis System

Sun Mar 2 22:41:30 1997

1NF-SD-WM-DP-238, REV. 0

Curve 1: DSC

File info: SAM030269 Mon Mar 3 00:18:10 1997

Sample Weight: 50.990 mg

897T000218

HMF-SD-WM-LP-238, REV.0

Curve 1: DSC

File info: SAN030210 Mon Mar 3 01:23:54 1997

Sample Weight: 16.390 mg

997F000216 DUP

N2 100/min

Temperature (°C)

File: 030210

TIME: 0.0 min RATE: 10.0 °C/min

MR MONTEITH

PERKIN-ELMER

7 Series Thermal Analysis System

Mon Mar 3 07:32:32 1997

HAUF-SD-MIM-DF-228, REV.0

LABCORE Data Entry Template for Worklist# 16827

Analyst: JDS Instrument: DSC0 3 Book # 12N148

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

Worklist Comment: T-110 DSC, RUN UNDER N2. RCI

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>25.45</u>	<u>26.09</u>	<u>N/A</u>	Joules/g
97000111	T-110	2 SAMPLE	977000219	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>	<u>0</u>	Joules/g
97000111	T-110	3 DUP	977000219	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	4 SAMPLE	977000220	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>	<u>0</u>	Joules/g
97000111	T-110	5 DUP	977000220	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16827

See Attached. for Signature
Analyst Signature _____ Date _____

R. J. Smith 3/4/97
Analyst Signature _____ Date _____

Validated: JDS 3/5/97

Date 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# 16827

Analyst: Jds Instrument: DSC0 9 Book # 9 ^{DATE 3/21/97}
 Method: LA-514-119-Rev/Mod D-D ^{12/11/95}

Worklist Comment: T-110 DSC, RUN UNDER N2: RCI

GROUP	PROJECT	S TYPE	SAMPLES	R A	TEST	MATRIX	ACTUAL	FORMED	DL	UNIT
		1 STD			DSC-01	SOLID	28.45	26.09	N/A	Joules/g
97000111	T-110	2 SAMPLE	9971000219	0	DSC-01	SOLID	N/A	0		Joules/g
97000111	T-110	3 DUP	9971000219	0	DSC-01	SOLID	0	0	N/A	Joules/g
97000111	T-110	4 SAMPLE	9971000220	0	DSC-01	SOLID	N/A	0		Joules/g
97000111	T-110	5 DUP	9971000220	0	DSC-01	SOLID	0	0	N/A	Joules/g

Final page for worklist # 16827

Jds 3-2-97
 Analyst Signature Date

 Analyst Signature Date

Data Entry Comments:
Samples run using DSC-03 QP2 3/14/97

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

Curve 1: DSC

File Info: IN0050201 Sun Mar 2 04:38:14 1997

Sample Weight: 10.490 mg

STD 12M14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 294 TO 298

294

HNF-SQ-WM-OP-238, REV. 0

N2, EXOTHERM DOWN

HEAT FLOW

TIME

0.0

MIN

RATE

50.0

°C/MIN

Temperature (°C)

JO SPELLEMAN

PERKIN-ELMER

7 Series Thermal Analysis System

Sun Mar 2 04:44:14 1997

Curve 1: DSC

File info: SAN030201 Sun Mar 2 05:47:15 1997

Sample Weight: 27.270 mg

897T000219

295

HE 10C/min
THERM 20.5 8

TIME 9.0 min RATE: 10.0 C/min

Temperature (°C)

JO SPILLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 06:52:48 1997

HNF-SD-WM-DP-238, REV. 0

Curve 1: DSC

File Info: 8AM030202 Sun Mar 2 09:49:57 1997

Sample Weight: 11.700 mg

897T000219DUP

N2 100/min

150.0 mW/g

TIME: 0.0 min RATE: 10.0 °/min

JO SPELLMAN

PERKIN-ELMER

7 Series Thermal Analysis System

Mon Mar 2 07:52:08 1997

HMF-SD-MM-DF-238, REV.0

Curve 1: DSC

File Info: SAMP030203 Sun Mar 2 14:17:37 1997

Sample Weight: 19.540 mg

8277000220

N2 100/min

25.0 g

Time

0.0 min Sample 20.0 g/min

Temperature (°C)

JO SPELLMAN

PERKIN-ELMER

7 Series Thermal Analysis System

Sun Mar 2 15:06:13 1997

HNF-SD-WM-DP-218, REV. 0

Curve 2: DSC

File Info: 8AN090804 Sun Mar 2 15:54:49 1987

Sample Weight: 34.400 mg

897T0002200UP

N2 10C/min

TEMP: 85.0 °C
PRESS: 695.0 g

TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

JD BPELLMAN

PERKIN-ELMER

7 Series Thermal Analysis System
Sun Mar 2 16:48:40 1987

HNF-SD-WM-DF-236, REV. 0

LABCORE Data Entry Template for Worklist# 16828

Analyst: RWK Instrument: DSC0 3 Book # 12N148

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

Worklist Comment: T-110 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			09C-03	SOLID	<u>28.45</u>	<u>26.67</u>	<u>N/A</u>	Joules/g
97000111	T-110	2 SAMPLE	9971000221	0	09C-03	SOLID	<u>N/A</u>	<u>+28.12<97</u>		Joules/g
97000111	T-110	3 DUP	9971000221	0	09C-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	4 SAMPLE	9971000222	0	09C-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	5 DUP	9971000222	0	09C-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16828

See Attached for Signature
Analyst Signature Date

 3-4-97
Analyst Signature Date

Validated: 3/5/97

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16828

Analyst: TRK Instrument: DSC0 3 Book # 12014-B

Method: LA-514-119 Rev/Mod D-0

Worklist Comment: T-110 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FORMD	DL	UNIT
		1 STD			DSC-01	SOLID	<u>38.45</u>	<u>26.67</u>	<u>N/A</u>	joules/g
97000111	T-110	2 SAMPLE	997000221	0	DSC-01	SOLID	<u>N/A</u>	<u>1940</u>	<u>2-1-97</u>	joules/g
97000111	T-110	3 DUP	997000221	0	DSC-01	SOLID	<u>1940</u>	<u>1940</u>	<u>N/A</u>	joules/g
97000111	T-110	4 SAMPLE	997000222	0	DSC-01	SOLID	<u>N/A</u>	<u>1619</u>	<u>2-1-97</u>	joules/g
97000111	T-110	5 DUP	997000222	0	DSC-01	SOLID	<u>1619</u>	<u>1506</u>	<u>2-1-97</u>	joules/g

Final page for worklist # 16828

Analyst Signature Not King Date 3/3/97
Shirley M. Fulford 3-4-97

Analyst Signature _____ Date _____

Data Entry Comments:

Run samples using DSC-03.

Results were for Exothermic not

Endothermic. Changed Results to REJECT.

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

Curve 1: DSC

File Info: INDO30302 Mon Mar 3 15:10:44 1997

Sample Weight: 10.490 mg

STD 12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 301 TO 307.

NE, EXOTHERM DOWN

TIME: 16:25

TIME: 3

0.0 min RATE: 10.0 °C/min

10.0 °C/min

Temperature (°C)

FM KING

PERKIN-ELMER

7 Series Thermal Analysis System

Mon Mar 3 15:25:52 1997

HNF-SD-WM-OP-238, REV. 0

Signature 5/12/97

Curve 1: DSC

File Info: SAN0030303 Non Mar 3 16:08:47 1997

Sample Weight: 10.790 mg

9877000221

302

H2 100/min
TIME 00:08 9 T2444 0.0 min RATE 10.0 0/min

RW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Non Mar 3 17:16:37 1997

HNF-SD-WM-DP-238, REV. 0

Curve 1: DSC

File info: 8AH030304 Mon Mar 3 17:48:03 1997

Sample Weight: 40.740 mg

837T000221 DUP

NR 10C/min

722000 0.0 min 0.0000 00.0 C/min

Temperature (°C)

SH FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Mon Mar 3 17:48:34 1997

HNF-SD-WM-DP-238, REV. 0

Curve 1: DSC

File Info: 8AM030305 Mon Mar 9 18:37:32 1997

Sample Weight: 25.920 mg

897T000222

304

HNF-SD-WM-CP-238, REV. 0

HE 10C/min
THERM 9.0 min RATE: 20.0 C/min

SH FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 9 19:15:49 1997

Curve 1: DSC

File Info: SAK030306 Mon Mar 3 20:06:41 1997

Sample Weight: 21.010 mg

8877000222 DUP

50C

N2 10C/min
THERM 25.5 g

TDMS 0.6 min Rate: 10.0 C/min

Temperature (°C)

SH FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 3 21:32:49 1997

HNF-SD-WM-DP-239, REV. 0

LABCORE Data Entry Template for Worklist# 16896

Analyst: ppb Instrument: DSC01 Book # N/AMethod: LA-514-113 Rev 01/01/97

Worklist Comment: DSC-02 T-110. -PPB

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	RTX1X	ACTUAL	FOUND	DL	UNIT
97000083	T-110	1 SAMPLE	9971000192	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000083	T-110	2 DUP	9971000192	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry
97000083	T-110	3 SAMPLE	9971000193	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000083	T-110	4 DUP	9971000193	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry
97000111	T-110	5 SAMPLE	9971000214	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000111	T-110	6 DUP	9971000214	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry
97000111	T-110	7 SAMPLE	9971000216	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000111	T-110	8 DUP	9971000216	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry
97000111	T-110	9 SAMPLE	9971000217	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000111	T-110	10 DUP	9971000217	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry
97000111	T-110	11 SAMPLE	9971000218	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000111	T-110	12 DUP	9971000218	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry
97000111	T-110	13 SAMPLE	9971000219	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000111	T-110	14 DUP	9971000219	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry
97000111	T-110	15 SAMPLE	9971000220	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000111	T-110	16 DUP	9971000220	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry
97000111	T-110	17 SAMPLE	9971000221	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000111	T-110	18 DUP	9971000221	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 16896

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
97000111	T-110	19 SAMPLE	977000222	#	DSC-02	SOLID	N/A	0		Joules/g Dry
97000111	T-110	20 CALP	977000222	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry

Final page for worklist # 16896

B. Amador 3/5/97
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

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

This document was too large to scan as a whole document,
therefore it required breaking into smaller sections.

Document number: 50-WM-DR-238

Section 2 of 2

Title: Waste Compatibility, Safety Issues
and Final Results for Tank
241-T-110 Push Mode Samples

Pgs. 308 - 604

Date: 5/15/97 Revision: A000

Originator: Nugent J.S.
Co: RFSH

Recipient: 1
Co: _____

References: EDT-620399

LABCORE Data Entry Template for Worklist# 16904Analyst: ppb Instrument: DSC01 Book # N/AMethod: LA-514-H3-Rsv/MSD 3/6/97

Worklist Comment: DSC-02 calculations. -PPB

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
97000003	T-110	1 SAMPLE	9971000119	0	DSC-02	LIQUID	N/A	0		moles/g Dry
97000003	T-110	2 DUP	9971000119	0	DSC-02	LIQUID	0	0	N/A	moles/g Dry

Final page for worklist # 16904
PPB
 Analyst Signature Date 3/6/96

 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# 17018

Analyst: RLM Instrument: DSC0 1 Book # 12A14B

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

Worklist Comment: T-110, DSC-01 skm

GROUP	PROJECT	S TYPE	SAMPLE	S A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>25.64</u>	<u>N/A</u>	Joules/g
97000003	T-110	2 SAMPLE	9771000165	#	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000003	T-110	3 DUP	9771000168	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000003	T-110	4 SAMPLE	9771000170	0	DSC-01	SOLID	<u>N/A</u>	<u>12.6</u>		Joules/g
97000003	T-110	5 DUP	9771000170	0	DSC-01	SOLID	<u>12.6</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17018

RLM 3/15/97
Analyst Signature Date

[Signature] 3-18-97
Analyst Signature Date

Validated 3/20/97 [Signature]

Failed 3B
3-17-97

Data Entry Comments:

170 DUP
FAILED QC. RQ 3-18-97

WHC QCHISTORY TABLE EDIT SCREEN

Sample#		Assoc		Sample ID				
Group#				Customer				
Worklist# 17018				WL Comment T-110, DSC-01		skm		
Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
DSC-01	SOLID	STD	28.45	25.6	89.9824	NEW	03/18/97 1810	rcj
DSC-01	SOLID	DUP	0	0	0.0000	NEW	03/18/97 1810	rcj
DSC-01	SOLID	DUP	12.6	0	200.0000	NEW	03/18/97 1810	rcj

Save (F12) End (F3)

WHC QCHISTORY TABLE EDIT SCREEN

Sample#		Assoc		Sample ID				
Group#				Customer				
Worklist# 17018				WL Comment T-110, DSC-01		skm		
Test	Matrix	Type	Actual	Found	Yield	STAT	AnalDate	User
DSC-01	SOLID	STD	28.45	25.6*	89.9824	TEXT	03/18/97 1810	rcj
DSC-01	SOLID	DUP	0	0	0.0000	NEW	03/18/97 1810	rcj
DSC-01	SOLID	DUP	12.6	0	200.0000	NEW	03/18/97 1810	rcj

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 362 TO 366

DSC STD 12N14-B N2

10.490 mg

Rate: 10.0 °C/min

File: 00011.001

Ident: 0.0

DSC METTLER 14-Mar-97

222-B Laboratory

Blanca 3/15/97

exo

10. mW

Integration

Delta H 268 mJ

25.6 J/g

Peak 157.6°C

-17.0 mW

120.

130.

140.

150.

160.

170.

°C

5977000168 SAM N2

21.675 mg

Rate: 10.0 °C/min

File: 00021.001

Ident: 0.0

DSC METTLER

222-6 Laboratory

14-Mar-97

Rfm

S97T000168 DVP N2

24.255 mg

Rate: 10.0 °C/min

File: 00089.001

DSC METTLER

14-Mar-87

Ident: 0.0

222-B Laboratory

RAK

S87T000170 SAM N2

30.123 mg

Rate: 10.0 °C/min

File: 00025.001 DSC METTLER 15-Mar-97

Ident: 0.0

222-S Laboratory

exo
↑

50.0 mW

Integration

Delta H 480 mJ

15.9 J/g

Peak 295.8°C

-5.8 mW

Integration

Delta H 379 mJ

12.6 J/g

Peak 485.4°C

3.1 mW

Integration

Delta H29113 mJ

966.2 J/g

Peak 181.5°C

-67.0 mW

100.

200.

300.

400.

°C

S97T000170 DUP N2

25.985 mg

Rate: 10.0 °C/min

File: 00027.001

Ident: 0.0

DSC METTLER

222-8 Laboratory

18-Mar-97

Refin

LABCORE Data Entry Template for Worklist# 17019

Analyst: RIM Instrument: DSC0 3 Book # 12N1413

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

Worklist Comment: T-110, DSC-01 skm

GROUP	PROJECT	S TYPE	SAMPLES	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>27.53</u>	<u>N/A</u>	Joules/g
97000083	T-110	2 SAMPLE	8971000174	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000083	T-110	3 DUP	8971000174	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000083	T-110	4 SAMPLE	8971000175	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000083	T-110	5 DUP	8971000175	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17019

See Attached for Signature
Analyst Signature _____
Date _____

3-17-97
Analyst Signature _____
Date _____

Validated 3/20/97 Q. Melator

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# 17019

Analyst: PJm Instrument: DSC0 3 Book # 120148
Method: LA-514-¹¹⁴113 Rev/Mod D-0
Rev 3/15/97
Worklist Comment: T-110, DSC-01 skin

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>29.45</u>	<u>21.53</u>	<u>N/A</u>	Joules/g
9700003	T-110	2 SAMPLE	97T000174	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
9700003	T-110	3 DUP	97T000174	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
9700003	T-110	4 SAMPLE	97T000175	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
9700003	T-110	5 DUP	97T000175	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17019

PJm 3/15/97
Analyst Signature Date

Analyst Signature Date

Date Entry Comments:

Units shown for QC (SPE & 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: IN0031401 Fri Mar 14 20:12:18 1997

Sample Weight: 10.490 mg

STD 12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 319 TO 325

319

Pat McCann 3/15/97

W2, EXOTHERM DOWN

WEIGHT 10.490 g

TIME: 0.0 min RATE: 10.0 °C/min

Temperature (°C)

PJ NGDOM

PERKIN-ELMER

7 Series Thermal Analysis System

Fri Mar 14 20:32:29 1997

44F-SO-WM-CP-238, REV. 0

Curve 1: DSC

File Info: SAM091401 Fri Mar 14 21:41:43 1997

Sample Weight: 29.770 mg

987T000174 SAM

HNF-SD-WM-DP-239, REV. 0

Curve 1: DSC

File info: 8AM031402 Fri Mar 14 22:41:09 1997

Sample Weight: 80.250 mg

897T000174 DUP

MS 100/min

HEAT 20.5 °C

TIME 0.0 min

PAUSE

10.0 °C/min

Temperature (°C)

PJ MCCOMM

PERKIN-ELMER

7 Series Thermal Analysis System

Fri Mar 14 23:23:32 1997

HMF-SD-WMA-DP-238, REV. 0

Curve 1: DSC

File Info: SAMP31801 Sat Mar 15 00:34:49 1997

Sample Weight: 25.070 mg

8977000175 SAM

N2 10C/min

TIME 05:18

T2400

0.0 min AFTER

10.0 C/min

Temperature (°C)

PJ MCCOMM

PERKIN-ELMER

7 Series Thermal Analysis System

Sat Mar 15 00:50:00 1997

HMF-SD-WM-DP-238, REV. 0

BS77000175 BUP

PJ MCCOMM
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 10 04:57:04 1997

LABCORE Data Entry Template for Worklist# 17020

Analyst: KDP Instrument: DSC0 3 Book # 2N14B

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

Worklist Comment: DSC-01, T-110 skm

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	29.45	26.96	N/A	Joules/g
97000111	3-110	2 SAMPLE	997T000261	0	DSC-03	SOLID	N/A	0		Joules/g
97000111	T-110	3 DUP	997T000261	0	DSC-03	SOLID	0	0	N/A	Joules/g
97000111	1-110	4 SAMPLE	997T000262	0	DSC-03	SOLID	N/A	0		Joules/g
97000111	T-110	5 DUP	997T000262	0	DSC-03	SOLID	0	0	N/A	Joules/g

Final page for worklist # 17020

See Attached for Signature
Analyst Signature Date
Validated 3/20/97

 3-18-97
Analyst Signature Date

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 17020

Analyst: ADP Instrument: DSC0 3 Book # 12M4-B
 Method: LA-514-H9 Rev/Mod E+D0
 Worklist Comment: DSC-01, T-110 skin

GROUP	PROJECT	S TYPE	Sample#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>26.96</u>	<u>N/A</u>	Joules/g
97000111	T-110	2 SAMPLE	8971000261	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	3 DUP	8971000261	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	4 SAMPLE	8971000262	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	5 DUP	8971000262	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17020

ADP 3-15-97
 Analyst Signature Date

 Analyst Signature Date

Data Entry Comments:

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

Curve 1: OSC

File info: IN0091501 Sat Mar 15 05:17:12 1997

Sample Weight: 10.490 mg

STD 12M14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 326 TO 330

326

N2, EXOTHERM DOWN

TIME: 148.8 s THERM: 0.0 mW RATE: 10.0 °C/min

Temperature (°C)

AD FURUTION

PERKIN-ELMER

7 Series Thermal Analysis System

Sat Mar 15 05:19:41 1997

HN1F-SD-WM-DP-288, REV. 0

Curve 1: DSC

File info: BAM031505 Sat Mar 15 06:30:10 1997

Sample Weight: 14.870 mg

897T000281 BAM

N2 10C/min

Heat 88.8 8

TDRM

0.0 min RATE: 10.0 C/min

Temperature (°C)

AD PURITON

PERKIN-ELMER

7 Series Thermal Analysis System

Sat Mar 15 07:20:34 1997

HMF-SD-WM-OP-238, REV. 0

Curve 1: DSC

File info: SAM031506 Sat Mar 15 08:16:49 1997

Sample Weight: 52.350 mg

8977000251 QLP

N2 10C/min
THERM 25:5 8

TIME: 0.0 min RATE: 10.0 °C/min

Temperature (°C)

AD PLENTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 15 08:51:07 1997

HAIF-SD-MM-DP-238, REV. 0

Curve 1: DSC

File Info: SAM101507 Sat Mar 15 02:42:10 1997

Sample Weight: 26.620 mg

887000252 SAM

N2 10C/min

DATE 03-15-97

TIME 10:02:27

9.0 min N2/WT

10.0 C/min

Temperature (°C)

AD PURITON

PERKIN-ELMER

7 Series Thermal Analysis System

Sat Mar 15 10:02:27 1997

HN1-SD-WM-DF-238, REV. 0

Curve 1: DSC

File Info: SAM031506 Sat Mar 15 10:32:09 1997

Sample Weight: 39.090 mg

SE7000282 SAM

DUP

330

N2 10C/min

TIME: 35:28

TIME: 35:28

0.0

33.3

RATE: 10.0

0.0

0.0

0.0

0.0

Temperature (°C)

AD PURITON

PERKIN-ELMER

7 Series Thermal Analysis System

Sat Mar 15 11:22:42 1997

HNF-SO-WMA-DP-238, REV. 0

LABCORE Data Entry Template for Worklist# 17021

Analyst: ADP Instrument: DSC 3 Book # 12A14BMethod: LA-514-114 Rev/Mod D-D

Worklist Comment: T-110, DSC-01 skm

GROUP	PROJECT	S TYPE	SAMPLER	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>26.96*</u>	<u>N/A</u>	Joules/g
97000111	T-110	2 SAMPLE	9977000263	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	3 DUP	9977000263	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	4 SAMPLE	9977000264	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	5 DUP	9977000264	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17021

See Attached for Signature
Analyst Signature _____ Date _____Le Jamin 3-18-97
Analyst Signature _____ Date _____Validated 3/20/97 SS made for

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# 17021

Analyst: FTD Instrument: DSC0 3 Book # 12N14-B

Method: LA-514-113 Rev/Mod FTD

Worklist Comments: T-110, DSC-01 skm

GROUP	PROJECT	E TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 FTD			OXC-01	SOLID	<u>28.45</u>	<u>26.9%</u>	<u>N/A</u>	Joules/g
97080111	T-110	2 SAMPLE	5971000263	0	OXC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97080111	T-110	3 BLP	5971000263	0	OXC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97080111	T-110	4 SAMPLE	5971000264	0	OXC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97080111	T-110	5 BLP	5971000264	0	OXC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17021

Anthony Puro 3-15-97
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

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

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Asec Y Sample ID
 Group# Customer
 Worklist# 17021 WL Comment T-110, DSC-Q1 skm

Test	Matrix	Type	Actual	Found	Yield	STAT	AnalDate	User
DSC-03	SOLID	STD	28.45	26.96	94.7627	NEW	03/18/97 1739	rcj
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/18/97 1739	rcj
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/18/97 1739	rcj

Save(F12) End(F3)

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Assoc Y Sample ID
 Group# Customer
 Worklist# 17021 WL Comment T-110, DSC-01 skm

Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
DSC-03	SOLID	STD	28.45	26.96*	94.7627	TEXT	03/18/97 1739	rcj
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/18/97 1739	rcj
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/18/97 1739	rcj

Save (F12) End (F3)

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 335 TO 339

Curve 1: DSC

File info: IND031501 Sat Mar 15 02:17:12 1997

Sample Weight: 10.450 mg

STD 12N14-B

1 STD 12N14-B; IND031501

Heat Flow (mW)

335

HNF-SO-WM-OP-238, REV. 0

Curve 1: DSC

File info: 8AN031509 Sat Mar 15 12:18:30 1997

Sample Weight: 27.000 mg

997T000263 SAM

MS 100/min

25.0 0

TDMS

0.0 min RATE: 10.0 C/min

AD PURITON

PERKIN-ELMER

7 Series Thermal Analysis System

Sat Mar 15 12:18:24 1997

HMF-SD-WM-DP-238 REV. 0

Curve 1: DSC

File info: SAM031510 Sat Mar 15 13:18:13 1997

Sample Weight: 18.840 mg

8977000263 DUP

N2 10C/min

DATE: 03-15-97

TIME: 13:18

0.5 min

DATE: 03-15-97

18.8 mg

Temperature (°C)

AD PURDITON

PERKIN-ELMER

7 Series Thermal Analysis System

Sat Mar 15 13:38:29 1997

HNF-SD-WM-DP-238, REV. 0

Curve 1: DSC

File info: SAM091511 Set Mar 15 14:32:36 1997

Sample Weight: 22.990 mg

8977000284 SAM

HE 100/min

TEMPERATURE 100.0 °C

TIME: 0.0 min

DATE: 03/15/97

10.0 °C/min

Temperature (°C)

AD FURINTON

PERKIN-ELMER

7 Series Thermal Analysis System

Set Mar 15 14:32:36 1997

HNF-SD-WM-DP-238, REV. 0

Curve 1: DSC

File info: 8AM091512 Sat Mar 15 15:27:05 1997

Sample Weight: 35.850 mg

897T000264 DUP

N2 100/min

Time: 0.0 min

Time: 0.0 min

Time: 0.0 min

Time: 0.0 min

Temperature (°C)

AD PURITON

PERKIN-ELMER

7 Series Thermal Analysis System

Sat Mar 15 16:32:53 1997

HNF-SO-WM-DF-238, REV. 0

LABCORE Data Entry Template for Worklist# 17022

Analyst: PLM Instrument: DSC0 1 Book # 120148

Method: LA-514-113 Rev/Mod C1

Worklist Comments: T-110, DSC-01 slm

GROUP	PROJECT	S TYPE	SAMPLE#	Q A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>24.85</u>	<u>23.6</u>	<u>N/A</u>	Joules/g
97000111	T-110	2 SAMPLE	9571000265	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	3 DUP	9571000265	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	4 SAMPLE	9571000264	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	5 DUP	9571000264	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17022

PLM 3/16/97
Analyst Signature Date
Validated 3/20/97 Brachlor

PLM 3-15-97
Analyst Signature Date

*failed 3B
3-17-97*

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 341 TO 345

DSC STD 12N148 N2

10.480 mg

Rate: 10.0 °C/min

File: 00039.001

Ident: 0.0

DSC METTLER 15-Mar-97

222-S Laboratory

R. McCown 3/16/97

120. 130. 140. 150. 160. 170. °C

S97T000265 SAM N2

24.348 mg

Rate: 10.0 °C/min

File: 00041.001

DSC METTLER

15-Mar-97

Ident: 0.0

222-S Laboratory

RLM

S87T000265 DUP N2

28.124 mg

Rate: 10.0 °C/min

File: 00049.001

Ident: 0.0

DSC METTLER

222-S Laboratory

15-Mar-97

Rha

S87T000266 SAM N2

24.014 mg

Rate: 10.0 °C/min

File: 00045.001

DSC METTLER

15-Mar-97

Ident: 0.0

222-S Laboratory

Ref

344

S97T000265 DUP N2

17.221 mg

Rate: 10.0 °C/min

File: 00047.001

Ident: 0.0

DSC WETTLER

222-S Laboratory

15-Mar-87

RLM

LABCORE Data Entry Template for Worklist# 17125

Analyst: ppb Instrument: DSC01 Book # NA

Method: LA-514-113 Rev Mod 083 3/24/97

Worklist Comment: DSC-02 T-110. -PPB

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
97000083	T-110	1 SAMPLE	5970000968	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000083	T-110	2 DUP	5970000968	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry
97000083	T-110	3 SAMPLE	5970000170	0	DSC-02	SOLID	N/A	51.27 0-00 N/A? 51.27		Joules/g Dry
97000083	T-110	4 DUP	5970000170	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry
97000083	T-110	5 SAMPLE	5970000174	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000083	T-110	6 DUP	5970000174	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry
97000083	T-110	7 SAMPLE	5970000175	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000083	T-110	8 DUP	5970000175	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry
97000111	T-110	9 SAMPLE	5970000261	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000111	T-110	10 DUP	5970000261	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry
97000111	T-110	11 SAMPLE	5970000262	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000111	T-110	12 DUP	5970000262	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry
97000111	T-110	13 SAMPLE	5970000263	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000111	T-110	14 DUP	5970000263	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry
97000111	T-110	15 SAMPLE	5970000264	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000111	T-110	16 DUP	5970000264	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry
97000111	T-110	17 SAMPLE	5970000265	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000111	T-110	18 DUP	5970000265	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry

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# 17125

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
97000111	T-110	19 SAMPLE	977000266	0	DEC-02	SOLID	M/A	0		Joules/g Dry
97000111	T-110	20 DUP	977000266	0	DEC-02	SOLID	0	0	M/A	Joules/g Dry

Final page for worklist # 17125

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16707

Analyst: SME Instrument: TGA0 3 Book # 9708-A

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

T110

Worklist Comment: TGA-01 POR T-110 GRAB (RUN UNDER NITROGEN)TERLIQSTD RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	L19010	<u>59.4</u>	<u>59.16</u>	<u>N/A</u>	%
96001704	T-110 GRAB	2 SAMPLE	597000000 0		TGA-03	L19010	<u>N/A</u>	<u>86.96</u>		%
96001704	T-110 GRAB	3 DUP	597000008 0		TGA-03	L19010	<u>86.96</u>	<u>86.60</u>	<u>N/A</u>	%
97000083	T-110	4 SAMPLE	597000119 0		TGA-03	L19010	<u>N/A</u>	<u>99.66</u>		%
97000083	T-110	5 DUP	597000119 0		TGA-03	L19010	<u>99.66</u>	<u>99.62</u>	<u>N/A</u>	%

Final page for worklist# 16707

See attached for Signatures 2-20-97
Analyst Signature Date

Frank X Mark 2-20-97
Analyst Signature Date

Verified/Validated by
Blandina
Valenzuela
2-20-97

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 16707

Analyst: SHE Instrument: TGA0 _____ Book # 97NB-A

Method: LA-560-112 Rev/Mod _____

Worklist Comment: TGA-01 FOR T-110 GRAB (RUN UNDER NITROGEN)TERLIQSTD RTS

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	LIQUID			N/A	X
96801704	T-110 GRAB	2 SAMPLE	9971000886 #		TGA-01	LIQUID	N/A			X
96801704	T-110 GRAB	3 DUP	9971000886 #		TGA-01	LIQUID			N/A	X
97800023	T-110	4 SAMPLE	9971000119 #		TGA-01	LIQUID	N/A			X
97800023	T-110	5 DUP	9971000119 #		TGA-01	LIQUID			N/A	X

Final page for worklist # 16707

Analyst Signature

Date

Analyst Signature

Date

TGA 03 instruments

was used

2-20-97

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: TGA

File Info: TERS21801 Tue Feb 18 07:32:50 1997

Sample Weight: 21.723 mg

TGA STD 87MB-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 350 TO 354

N2 100/Min

TIME 20.0 2

TIME: 0.0 min RATE: 10.0 °C/min

SM DALTON

PEAKIN-ELMER

7 Series Thermal Analysis System

Tue Feb 18 07:35:18 1997

HNF-SD-WM-IDP-238, REV. 0

Curve 1: TGA
 File Info: S40021001 Tue Feb 18 09:12:20 1997
 Sample Weight: 10.808 mg
 9877000008

10C/NIX K2
 THERM 98.5 2 THERM 9.0 98.5 98.5 20.0 98.5

SH FULTON
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Tue Feb 18 09:58:53 1997

HNF-SD-WM-OP-238, REV. 0

Curve 1: TGA

File info: SAM021802 Tue Feb 18 10:52:35 1997

Sample Weight: 10.632 mg

897T000096 DLP

10C/MIN H2

100.0 50.0 0

T0MIN

0.0 min RATE

10.0 g/min

Temperature (°C)

SH FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Tue Feb 18 11:28:35 1997

Curve 1: TGA

File info: 8AN021003 Tue Feb 18 12:32:43 1997

Sample Weight: 8.957 mg

BN7T000118

353

LOC/MDN 18

TIME: 08:08

TIME: 0.0 min RATE: 10.0 °C/min

Temperature (°C)

SH FILTON

PERKIN-ELMER

7 Series Thermal Analysis System

Tue Feb 18 14:17:45 1997

HN-SC-WM-DF-238, REV. 0

Curve 1: TGA

File info: BAM021B04 Tue Feb 18 15:19:00 1997

Sample Weight: 9.053 mg

9877000119 D/P

100/MIN M2

TIME: 15.2 2

TIME: 15.2 2

0.0 min RATE: 10.0 °C/min

10.0 °C/min

Temperature (°C)

SH FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Tue Feb 18 15:19:49 1997

HNF-SD-WM-DP-288, REV. 0

LABCORE Data Entry Template for Worklist# 16709

Analyst: ML Instrument: TGA0 1 Book # 97A8A

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

Worklist Comment: TGA-01 FOR T-110(RUN UNDER NITROGEN)TERLIQ RTS

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOLED	DL	UNIT
		1 STD			TGA-01	SOLID	59.4	59.9 *	N/A	X
9700003	T-110	2 SAMPLE	9971000125	0	TGA-01	SOLID	N/A	79.73		X
9700003	T-110	3 DUP	9971000125	0	TGA-01	SOLID	79.73	79.69	N/A	X
9700003	T-110	4 SAMPLE	9971000141	0	TGA-01	SOLID	N/A	79.12		X
9700003	T-110	5 DUP	9971000141	0	TGA-01	SOLID	79.12	78.80	N/A	X

Final page for worklist # 16709

A. Lambel 2-18-97
Analyst Signature Date

Frank Muck 2-20-97
Analyst Signature Date

Verified/Validated by

Blandina
Valencia
2-20-97

Data Entry Comments:

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

A. Lumbel 21894

TGA STD 97NB-A

18,870 mg

Rate: 10.0 °C/min

File: 00047.001

TG METTLER

18-Feb-97

Ident: 0.0

222-S Laboratory

Step Analysis

Height -6.19 mg

-59.94 %

Resid. 5.48 mg

40.06 %

Dpeak 94.2°C

S97T000125 N2

24.118 mg

Rate: 10.0 °C/min

File: 00057.001

T8

METTLER

18-Feb-97

Ident: 0.0

222-S Laboratory

S97T000125 DUP N2

28.549 mg

Rate: 10.0 °C/min

File: 00059.001

TS

METTLER

18-Feb-97

Ident: 0.0

22E-8 Laboratory

Step Analysis
Height-21.16 mg
-79.69 %
ResidC. 5.39 mg
20.31 %
Dpeak 123.0 °C

S97T000141 N2

29.480 mg

Rate: 10.0 °C/min

File: 00061.001

TG

METTLER

18-Feb-97

Ident: 0.0

232-S Laboratory

Step Analysis
Height-23.33 mg
-79.12 %
Resid. 6.16 mg
20.88 %
Dpeak 129.0 °C

10. mg

100.

200.

300.

400.

°C

S97T000141 DUP N2

22.168 mg

Rate: 10.0 °C/min

File: 00083.001

TG

METTLER

18-Feb-97

Ident: 0.0

222-B Laboratory

LABCORE Completed Worklist Report for Worklist# 16710

Analyst: eal Instrument: TGA03 Book# 97NBA
Method: LA-514-114 Rev/Mod D-0
Worklist Comment: TGA-01 FOR T-110(RUN UNDER NITROGEN)TERLIQ RTS

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	TGA-01	100.00	8.94e-02	89.16	97.912 % Moisture	
2 SAMPLE	9972049342 0	TGA-01	100.00	N/A	77.51	%	
3 STD	9972049342 0	TGA-01	100.00	77.51	74.07	1.875 STD	
4 SAMPLE	9972049342 0	TGA-01	100.00	N/A	75.14	%	
5 STD	9972049342 0	TGA-01	100.00	75.14	74.53	0.350 STD	

Final page for worklist# 16710

See attached for signature 2-20-97
Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Blamaina Valenzuela 2-20-97
Reviewer Signature _____ Date _____

LABCORE Data Entry Template for Worklist# 16710

Analyst: KOL Instrument: TGA0 _____ Back # 99/18A

Method: LA-560-112 Rev/Mod _____

Worklist Comment: TGA-01 FOR T-110(RUN UNDER NITROGEN)TERLIQ RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID			N/A	%
97000003	T-110	2 SAMPLE	9971000142	0	TGA-01	SOLID	N/A			%
97000003	T-110	3 STD	9971000142	0	TGA-01	SOLID			N/A	%
97000003	T-110	4 SAMPLE	9971000143	0	TGA-01	SOLID	N/A			%
97000003	T-110	5 STD	9971000143	0	TGA-01	SOLID			N/A	%

Final page for worklist # 16710

A. Lambert 2-18-97
Analyst Signature Date

Analyst Signature Date

TGA 03 instrument
was used 2-20-97

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: TGA

File info: TGA021801 Tue Feb 18 07:32:50 1997

Sample Weight: 21.723 mg

TGA STD 57HB-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 363 TO 367.

N2 100/MLH

200.0 8

TIME

0.0 MIN RATE

10.0 C/MIN

Temperature (°C)

BN FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Tue Feb 18 07:35:18 1997

Curve 1: TGA
 File info: SAM021805 Tue Feb 16 17:30:51 1987
 Sample Weight: 18.676 mg
 8871000142

364

100.0 MIN N2
 THERM 0.0 min 100.0°C 10.0 C/min

EA LAMBEL
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Tue Feb 16 17:39:58 1987

HNF-SD-WM-DP-238, REV. 0

Curve 1: TGA

File Info: SAM021806 Tue Feb 18 18:32:14 1997

Sample Weight: 16.351 mg

BQ7T000142DUP

10C/MIN N2

TIME: 00:03

RATE: 0.0 MIN RATE: 10.0 C/MIN

Temperature (°C)

EA LABEL

PERKIN-ELMER

7 Series Thermal Analysis System

Wed Feb 19 12:58:34 1997

HNF-SD-WM-OP-238, REV. 0

Curve 1: TGA
 File Info: SA4021807 Tue Feb 18 20:37:55 1997
 Sample Weight: 29.187 mg
 897T000143

10C/ATM N2

7 Series Thermal Analysis System

THERM

0.2 min RATE

10.0 g/min

Temperature (°C)

EA LABEL

PERKIN-ELMER

7 Series Thermal Analysis System

Tue Feb 18 20:52:50 1997

Curve 1: TGA

File info: 8AN021808 Tue Feb 18 22:03:45 1997

Sample Weight: 27.237 mg

687700014904P

100°C/MIN NR
TGA: 25.0 g

0.0 min (at 25.0 °C/min)

Temperature (°C)

EA LABEL
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 23:25:01 1997

HAIF-SD-MIM-DP-238, REV.0

LABCORE Data Entry Template for Worklist# 16711

Analyst: KRM Instrument: TGA0 1 Book # 97NBA

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

Worklist Comment: TGA-01 FOR T-110(RUN UNDER NITROGEN)TERLIQ RTS

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	59.4	59.27	N/A	%
97000003	T-110	2 SAMPLE	897T000144	0	TGA-01	SOLID	N/A	78.82		%
97000003	T-110	3 DUP	897T000144	0	TGA-01	SOLID	78.82	73.47	N/A	%
97000003	T-110	4 SAMPLE	897T000145	0	TGA-01	SOLID	N/A	78.29		%
97000003	T-110	5 DUP	897T000145	0	TGA-01	SOLID	78.29	85.13	N/A	%

Final page for worklist # 16711

Analyst Signature [Signature] Date 2-19-97

Analyst Signature [Signature] Date 2-20-97

Verified/Validated by

Blandina

Valeryneta

2-20-97

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 319 TO 323.

TGA STD 97N8A

15.351 mg

Rate: 10.0 °C/min

File: 00089.001

TG

METTLER

19-Feb-97

Ident: 0.0

222-B Laboratory

Step Analysis

Height -9.10 mg

-59.27 %

ResidC. 6.25 mg

40.73 %

Onset 91.7 °C

Handwritten signature 2-19-97

S97T000144 N2

29.573 mg

Rate: 10.0 °C/min

File: 00071.001

TG

METTLER

19-Feb-97

Ident: 0.0

222-S Laboratory

Step Analysis

Height-23.31 mg

-76.82 %

ResidC. 6.22 mg

21.02 %

Dpeak 125.0°C

S97T000144 DUF N2

File: 00079.001 TB METTLER 19-Feb-97

15.988 mg

Rate: 10.0 °C/min

Ident: 0.0

222-B Laboratory

Step Analysis

Height-12.48 mg
-73.47 %

Resid. 4.45 mg
26.18 %

Dpeak 103.0 °C

374
5. mg

100. 200. 300. 400. °C

897T000145 N2

22.580 mg

Rate: 10.0 °C/min

File: 00075.001

Ident: 0.0

TG METTLER 19-Feb-97

222-8 Laboratory

Step Analysis

Height-17.68 mg

-78.29 %

Res1C. 4.90 mg

21.71 %

Dpeak 113.0°C

10. mg

100.

200.

300.

400.

°C

HMF-SD-WM-DP-238, REV. 0

S97T000145 DUP N2

11.374 mg

Rate: 10.0 °C/min

File: 00077.001

Ident: 0.0

T8 METTLER 19-Feb-97

828-B Laboratory

Step Analysis
Height -9.68 mg
-85.13 %
ResidC. 1.89 mg
16.58 %
Dpeak 87.0°C

5. mg

100.

200.

300.

400.

°C

LABCORE Data Entry Template for Worklist# 16712

Analyst: KRM Instrument: TGA0 3 Book # 97N2A

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

Worklist Comment: TGA-01 FOR T-110(RUN UNDER NITROGEN)TERLIQ RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	WTRBX	ACTUAL	FOUND	DL	LIMIT
		1 STD			TGA-05	SOLID	<u>59.4</u>	<u>58.8</u>	<u>N/A</u>	<u>X</u>
97000085	T-110	2 SAMPLE	977000146	0	TGA-05	SOLID	<u>N/A</u>	<u>75.5</u>		<u>X</u>
97000085	T-110	3 DUP	977000146	0	TGA-05	SOLID	<u>75.5</u>	<u>75.9</u>	<u>N/A</u>	<u>X</u>
97000085	T-110	4 SAMPLE	977000147	0	TGA-05	SOLID	<u>N/A</u>	<u>76.0</u>		<u>X</u>
97000085	T-110	5 DUP	977000147	0	TGA-05	SOLID	<u>76.0</u>	<u>76.8</u>	<u>N/A</u>	<u>X</u>

Final page for worklist # 16712

See attached for signatures
Analyst Signature _____ Date 2-20-97
for

Lucia Mack
Analyst Signature _____ Date 2-20-97

Verified/Validated by
Blandina
Valenzuela 2-20-97

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16712

Analyst: KRM Instrument: TGA0 _____ Book # 97N8A

Method: LA-560-112 Rev/Mod _____

Worklist Comment: TGA-01 FOR T-110(RUN UNDER NITROGEN)TERLIQ RTS

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID			N/A	%
97000005	T-110	2 SAMPLE	9971000144	D	TGA-01	SOLID	N/A			%
97000003	T-110	3 BLK	9971000144	D	TGA-01	SOLID			N/A	%
97000003	T-110	4 SAMPLE	9971000147	D	TGA-01	SOLID	N/A			%
97000003	T-110	5 BLK	9971000147	D	TGA-01	SOLID			N/A	%

Final page for worklist # 16712

2-19-97
Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

TGA-03 instrument
was used

2-20-97

Blandina

Valenzuela

Data Entry Comments:

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

Curve 1: TGA

File info: TER021901 Wed Feb 19 03:56:03 1997

Sample Weight: 21.311 mg

TGA STD 97MS-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 376 TO 380.

N2 100/MIN

TEMP 30.0 °C

TIME 0.0 min

max RATE: 10.0 °C/min

HNF-SD-WM-OP-238, REV. 0

Curve 1: TGA

File Infr: SAK021801 Wed Feb 19 07:36:55 1997

Sample Weight: 16.339 mg

9977000146

TIME: 22.8 s

TIME: 0.0 min RATE: 10.0 °C/min

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 07:18:15 1997

HNF-SD-WM-PP-238, REV. 0

Curve 1: TGA

File info: 844021902 Wed Feb 19 08:03:53 1997

Sample Weight: 12.697 mg

897T000146 DUP

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 09:14:28 1997

HMF-SD-WM-OP-238, REV. 0

Curve 1: TGA

File info: SAM021903 Wed Feb 19 09:52:39 1997

Sample Weight: 23.317 mg

897T000147

10C/MIN N2

TIME: 0.0 min RATE: 10.0 W/min

TIME: 0.0 min RATE: 10.0 W/min

Temperature (°C)

KR MONTEITH

PERKIN-ELMER

7 Series Thermal Analysis System

Wed Feb 19 11:48:34 1997

HNF-SD-WM-DP-238, REV. 0

Curve 1: TBA
 File info: SAND21904 Wed Feb 19 12:28:31 1997
 Sample Weight: 19.139 mg
 9977000147 DUP

10C/MIN N2
 TGA: 19.139 mg
 TGA: 99.625 %

TIME: 0.0 min RATE: 10.0 °C/min

KB MONTEITH
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Wed Feb 19 12:44:03 1997

HNFS-SD-WM-OP-238, REV. 0

LABCORE Data Entry Template for Worklist# 16713

Analyst: PDM Instrument: TGA0 3 Book # 97NBA

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

Worklist Comment: TGA-01 FOR T-110(RUN UNDER NITROGEN)TERLIQ RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	POUND	DL	UNIT
		1 STD			TGA-03	SOLID	<u>59.4</u>	<u>58.89</u>	<u>N/A</u>	%
9700083	T-110	2 SAMPLE	5977000158	0	TGA-03	SOLID	<u>N/A</u>	<u>71.27</u>		%
9700083	T-110	3 DUP	5977000158	0	TGA-03	SOLID	<u>71.27</u>	<u>72.82</u>	<u>N/A</u>	%
9700083	T-110	4 SAMPLE	5977000159	0	TGA-03	SOLID	<u>N/A</u>	<u>74.80</u>		%
9700083	T-110	5 DUP	5977000159	0	TGA-03	SOLID	<u>74.80</u>	<u>73.80</u>	<u>N/A</u>	%

Final page for worklist # 16713

See Attached for Signature
Analyst Signature File

Rt D/Lk 3/4-91
Analyst Signature Date

Validated: SS Bacheler 3/5/97

Data Entry Comments:

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

CORE Data Entry Template for Worldlist# 16713

Analyst: SL Instrument: TGA0 3 Book # 97N8A
 Method: A-56 (Rev. 2) 1 ov/Mod D-0
 Werklis: Comm TGA-01 FOR T-110(RUN UNDER NITROGEN)TERLIQ RTS

GROUP	OBJECT	TYPE	SAMPLES	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
97000083	* 110	7 SAMPLE	8971000156	0	TGA-01	SOLID	<u>59.4</u>	<u>58.89</u>	<u>N/A</u>	%
97000083	* 110	7 SAMPLE	8971000156	0	TGA-01	SOLID	<u>N/A</u>	<u>91.27</u>	<u>N/A</u>	%
97000083	* 110	7 SAMPLE	8971000156	0	TGA-01	SOLID	<u>71.27</u>	<u>72.82</u>	<u>N/A</u>	%
97000083	* 110	7 SAMPLE	8971000156	0	TGA-01	SOLID	<u>N/A</u>	<u>74.80</u>	<u>N/A</u>	%
97000083	* 110	7 SAMPLE	8971000156	0	TGA-01	SOLID	<u>74.80</u>	<u>73.80</u>	<u>N/A</u>	%

Final page for worklist # 16713

RV
Analyst, print

2/28/97
Date

Analyst Signature

Date

Forward to 3
2/25/97
to pgs tot

Date En v Comp

Run using TGA-03 2/4/97

Units shc
R = Replicate

% & STD) may not reflect the actual units DL = Detection Limit, S = Worklist Slot Number,
A = Aliquots Code

QAPPA 1: TBA

File C:\GC TESTS\2701 Thu Feb 27 20:27:54 1997

Sample Weight: 24.728 mg

TBA STD 97HB-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 232 TO 237

HNF-SD-WM-OP-238, REV. 0

100.0000

100.0000

100.0000

100.0000

100.0000

100.0000

100.0000

PJ MCCOMM

JOHN FLUJEN

Thu Feb 27 20:28:40 1997

Curve 1: TGA

File Info: 6/2082701 Thu Feb 27 21:52:06 1997

Sample Weight: 14.866 mg

89770001B8 6AM

100.000000
0.000000

100.000000

Temperature (°C)

PJ MCCOMM
PERKIN-ELMER

Thu Feb 27 21:54:00 1997

HMF-SD-WM-CP-238, REV. 0

Curve 1: TGA

File Name: SAM02702 Thu Feb 27 23:01:50 1997

Sample Weight: 16.570 mg

8977000189.DUP

HNF-SD-WM-DP-238, REV. 0

01 (000000)
02 (000000)

THU FEB 27 23:24:41 1997

Curve 1: TGA

FILE 1:00 SAM022001 Fri Feb 28 00:17:49 1997

Sample Weight: 28.261 mg

2877000158 SAM

HNF-SD-WM-DF-238, REV. 0

PU MCCOY
KID-ELSON

Fri Feb 28 00:24:49 1997

Curve 1: TBA

File Info: 54222502 Fri Feb 28 01:26:15 1997

Sample Weight: 15.800 mg

8877000458 DLP

387

HF-SD-WM-DF-238, REV. 0

PJ MCCOMB
PERKIN-ELMER
Perkin-Elmer Analysis System
Fri Feb 28 01:32:08 1997

LABCORE Data Entry Template for Worklist# 16830

Analyst: SMF Instrument: TGA0 3 Book # 97A8-A

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

Worklist Comment: T-110 TGA, RUN UNDER N2: RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	59.4	58.98	N/A	%
9700005	T-110	2 SAMPLE	977000192	0	TGA-01	SOLID	N/A	73.08	73.08	%
9700005	T-110	3 DUP	977000192	0	TGA-07	SOLID	73.08	72.65	N/A	%
9700005	T-110	4 SAMPLE	977000193	0	TGA-01	SOLID	N/A	72.14		%
9700005	T-110	5 DUP	977000193	0	TGA-01	SOLID	72.14	72.64	N/A	%
9700011	T-110	6 SAMPLE	977000214	0	TGA-01	SOLID	N/A	9.28		%
9700011	T-110	7 DUP	977000214	0	TGA-01	SOLID	9.28	76.91	N/A	%

Final page for worklist # 16830

Luis M. Dulzon 3-1-97
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:
High RPD 977000214 due to sample inhomogeneties. Per run only at
customer request @ 3/4/97 Run using TGA-03 @ 3/4/97

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

03/04/97 09:08
A-0006-J

Page 1

LABCORE Data Entry Template for Worklist# 16830

Analyst: SMF Instrument: TGA0 3 Book# 97NSAMethod: LA-514-114 Rev/Mod D-0

Worklist Comment: T-110 TGA, RUN UNDER N2. RCI

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			TGA-03	SOLID		
2 SAMPLE	997T000192 0		TGA-03	SOLID	97000083	T-110
	Analytes Requested: TGA-03					
3 DUP	997T000192 0		TGA-03	SOLID		
4 SAMPLE	997T000193 0		TGA-03	SOLID	97000083	T-110
	Analytes Requested: TGA-03					
5 DUP	997T000193 0		TGA-03	SOLID		
6 SAMPLE	997T000214 0		TGA-03	SOLID	97000111	T-110
	Analytes Requested: TGA-03					
7 DUP	997T000214 0		TGA-03	SOLID		

Final page for worklist # 16830

See Attached for Signature Results
Analyst Signature _____ Date __________
Analyst Signature _____ Date 3/4/97Validated: SP MacGillivray 3/5/97

Data Entry Comments:

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

Curve 1: TGA

File Info: T8030101 Set Name: 1 16:50:57 1997

Sample Weight: 30.681 mg

TGA STD 97M8-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 390 TO 396

H2 10C/MIN

TIME: 0.0 min

TIME: 0.0 min

TIME: 0.0 min

TIME: 0.0 min

TIME: 0.0 min

TIME: 0.0 min

TIME: 0.0 min

Temperature (°C)

SN FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Set Name: 1 16:58:14 1997

HNF-SD-WM-OP-238, REV. 0

Curve 1: TGA

File Info: BAM030101 Sat Mar 1 18:02:07 1997

Sample Weight: 23.908 mg

8927000192

100/MIN N2

TECH 88.1 g

THERM

0.0 min RATE 20.0 C/min

Temperature (°C)

SH FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Sat Mar 1 18:44:10 1997

HMF-SD-WMI-OP-238, REV. 0

Curve 1: TGA
 File info: BAM030102 Sat Mar 1 19:33:03 1997
 Sample Weight: 16.363 mg
 8877000192 DNP

100/MIN N2
 TGA
 D.C. NER RATE: 10.0 °C/MIN

SM FULTON
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Sat Mar 1 21:25:31 1997

HNF-SD-WM-EP-238, REV. 0

Curve 1: TGA

File info: SAM030103 Sat Mar 1 22:36:14 1997

Sample Weight: 32.241 mg

8877000193

100/MIN N2

8877000193

TEMPER

0.0 MIN RATE

50.0 C/MIN

SM FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Sun Mar 2 00:15:15 1997

HNF-SD-WM-DF-238, REV. 0

Curve 1: TGA

File Info: SAM030104 Sun Mar 2 00:47:29 1997

Sample Weight: 95.997 mg

897T000168 DUP

100/MIN 102

TIME: 00:00

TEMP

5.0 MIN RATE

50.0 g/min

Temperature (°C)

SH FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Sun Mar 2 00:51:52 1997

HNF-SD-WM-DP-236, REV. 0

Curve 1: 76A

File info: SAM090105 Sun Mar 2 01:52:41 1997

Sample Weight: 12.087 mg

8871000214

395

HNFS-D-WM-DP-238, REV. 0

100/10/100

DATE: 03/03/97

TIME: 01:52

0.0 MIN RATE: 10.0

0.000

Temperature (°C)

SH FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Sun Mar 2 02:52:03 1997

Curve 1: TGA

File info: SAM090106 Sun Mar 2 03:45:29 1997

Sample Weight: 12.236 mg

897T000214 DLP

10C/MIN X2

TIME: 00:00

TIME: 00:00

0.0 MIN RATE: 00.0

0.0 C/MIN

Temperature (°C)

SH PULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Sun Mar 2 04:27:32 1997

HNF-SD-WM-DF-238, REV. 0

LABCORE Data Entry Template for Worklist# 16831

Analyst: ARM Instrument: TGA0 3 Book # 97N81

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

Worklist Comment: T-110 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	B	TYPE	SAMPLE#	R	A	*****TEST*****	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-03	SOLID	<u>59.4</u>	<u>58.95%</u>	<u>N/A</u>	%
97000111	T-110	2	SAMPLE	5977000216	0		TGA-02	SOLID	<u>N/A</u>	<u>76.98</u>		%
97000111	T-110	3	DUP	5977000216	0		TGA-05	SOLID	<u>76.98</u>	<u>77.40</u>	<u>N/A</u>	%
97000111	T-110	4	SAMPLE	5977000217	0		TGA-03	SOLID	<u>N/A</u>	<u>76.27</u>		%
97000111	T-110	5	DUP	5977000217	0		TGA-03	SOLID	<u>76.27</u>	<u>76.76</u>	<u>N/A</u>	%
97000111	T-110	6	SAMPLE	5977000218	0		TGA-03	SOLID	<u>N/A</u>	<u>76.61</u>		%
97000111	T-110	7	DUP	5977000218	0		TGA-03	SOLID	<u>76.61</u>	<u>76.03</u>	<u>N/A</u>	%

Final page for worklist # 16831

See Attached for Signature
Analyst Signature Date

 3/4/97
Analyst Signature Date

Validated: 3/5/97

Data Entry Comments:

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

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Assoc Sample ID
 Group# Customer
 Worklist# 16831 WL Comment T-110 TGA, RUN UNDER N2. RCJ

Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
TGA-03	SOLID	STD	5.94e01	58.95	99.2424	NEW	03/04/97 1506	rtz
TGA-03	SOLID	DUP	76.98	77.40	0.5441	NEW	03/04/97 1506	rtz
TGA-03	SOLID	DUP	76.27	76.76	0.6404	NEW	03/04/97 1506	rtz
TGA-03	SOLID	DUP	76.61	76.03	0.7600	NEW	03/04/97 1506	rtz

Save(F12) End(F3)

WHC QCHISTORY TABLE EDIT SCREEN

Sample#		Assoc		Sample ID				
Group#				Customer				
Worklist# 16631		WL Comment T-110 TGA, RUN UNDER N2. ROJ						
Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
TGA-03	SOLID	STD	5.94e01	58.95*	99.2424	TEXT	03/04/97 1506	rts
TGA-03	SOLID	DUP	76.98	77.40	0.5441	NEW	03/04/97 1506	rts
TGA-03	SOLID	DUP	76.27	76.76	0.6404	NEW	03/04/97 1506	rts
TGA-03	SOLID	DUP	76.61	76.03	0.7600	NEW	03/04/97 1506	rts

Save(F12) End(F3)

Curve #: TGA

File info: TEP030201 Sun Mar 2 05:00:09 1997

Sample Weight: 25.821 mg

TGA STD 97NB-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 401 TO 407

HNF-SD-WM-DP-238, REV. 0

JO SPELTMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 17:14:46 1997

Curve 1: TGA

File Info: SAM030905 Sun Mar 2 17:41:46 1997

Sample Weight: 15.969 mg

9971009216

10C/MIN X2

750.0 °C

750.0

0.0 min

0.0 °C/min

Temperature (°C)

OR MONTITH

PERKIN-ELMER

7 Series Thermal Analysis System

Sun Mar 2 17:51:41 1997

HNF-SD-WM-DP-238, REV. 0

Curve 1: TGA

File Info: 8AM030206 Sun Mar 2 18:46:27 1997

Sample Weight: 25.148 mg

897T000216 DUP

100/Min HE
25.148 mg

Time: 0.0 min RTGA, 20.0 C/min

Temperature (°C)

KR MORRIS
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 18:22:43 1997

HNF-SD-WM-DP-239, REV. 0

Curve 1: TGA

File info: 8AM030207 Sun Mar 2 20:15:33 1997

Sample Weight: 15.478 mg

897T000217

404

100/KIN 22
TIME: 22.5 s

TIME: 22.5 s RATE: 20.0 °C/min

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 23:23:53 1997

HNF-SD-WM-OP-238, REV. 0

Curve 1: TGA

File info: 8AM030208 Sun Mar 2 22:12:59 1987

Sample Weight: 18.389 mg

8971000217 DUP

HNF-SD-WM-DP-238; REV. 0

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 23:30:36 1987

Curve 1: TGA

File info: 8A003029 Mon Mar 3 00:18:25 1997

Sample Weight: 13.047 mg

987000298

100/MIN H2

1000 00.0 8

TIME

0.0 min RATE: 00.0 °C/min

KR MONTEITH

PERKIN-ELMER

7 Series Thermal Analysis System

Mon Mar 3 00:38:35 1997

HNF-SD-WM-OP-238, REV. 0

Curve 1: TGA

File Info: BAN030210 Mon Mar 3 01:24:38 1997

Sample Weight: 19.806 mg

8877000210 DUP

100/MIN N2

DATE 03-03-97

TIME

9.0 min RATE

20.0 g/min

Temperature (°C)

KR MONTEITH

PERKIN-ELMER

7 Series Thermal Analysis System

Mon Mar 3 07:35:58 1997

HNF-SD-WM-OP-239, REV. 0

LABCORE Data Entry Template for Worklist# 16832

Analyst: JDS Instrument: TGA0 3 Book # 9788A

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

Worklist Comment: T-110 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-B3	SOLID	<u>59.4</u>	<u>58.63</u>	N/A	%
97000111	T-110	2 SAMPLE	9971000219	0	TGA-B3	SOLID	N/A	<u>76.26</u>		%
97000111	T-110	3 DUP	9971000219	0	TGA-B3	SOLID	<u>76.26</u>	<u>74.80</u>	N/A	%
97000111	T-110	4 SAMPLE	9971000220	0	TGA-B3	SOLID	N/A	<u>77.15</u>		%
97000111	T-110	5 DUP	9971000220	0	TGA-B3	SOLID	<u>77.15</u>	<u>76.60</u>	N/A	%

Final page for worklist # 16832

See Attached for Signature
Analyst Signature _____ Date _____

JK Pich 3/4/97
Analyst Signature _____ Date _____

Validated: ES Macdonald 3/5/97

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16832

Analyst: SJS Instrument: TGAO 3 Book # 121446 ~~24/97~~ 97NBA
Method: LA-560-112 Rev/Mod 00

Worklist Comment: T-110 TGA, RUN UNDER N2: RCJ

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	57.4	58.63	N/A	X
97000111	T-110	2 SAMPLE	977000219	0	TGA-01	SOLID	N/A	76.26		X
97000111	T-110	3 DUP	977000219	0	TGA-01	SOLID	76.26	74.80	N/A	X
97000111	T-110	4 SAMPLE	977000220	0	TGA-01	SOLID	N/A	77.15		X
97000111	T-110	5 DUP	977000220	0	TGA-01	SOLID	77.15	76.60	N/A	X

Final page for worklist # 16832

SJS 3-2/97
Analyst Signature Date

RLB 3/4/97
Analyst Signature Date

Data Entry Comments:
Run using TGA-03 3/4/97

Curve 1: TBA

File Info: TEF030291 Sun Mar 2 05:00:09 1997

Sample Weight: 25.891 mg

TBA STD 87MS-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 410 TO 414.

N2 100/Min
TIME 30:00

TEMPERATURE 24.084 °C

JO SPELMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 05:01:24 1997

HNFSQ-WM-OP-238, REV. 0

Curve 1: TGA
 File Info: SAM030201 Sun Mar 2 08:02:00 1997
 Sample Weight: 31.525 mg
 8877000219

411

10C/MIN X2
 THERM 08:13 5 TONER 0.4 min RATE: 99.0 g/min

JO SPELLEMAN
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Sun Mar 2 08:45:13 1997

HNF-SD-WM-OP-238, REV. 0

Curve 1: TGA

File info: SAM030202 Sun Mar 2 09:44:46 1997

Sample Weight: 33.169 mg

89770002180UP

Curve 1: TGA

File info: SAN030203 Sun Mar 2 14:22:31 1997

Sample Weight: 26.076 mg

897T000220

10C/KIM NR

TIME: 00:00

TEMP:

9.0

MS RATE:

10.0

C/min

Temperature (°C)

JO SPELMAH

PERKIN-ELMER

7 Series Thermal Analysis System

Sun Mar 2 15:01:01 1997

HNF-SD-WM-DP-238, REV. 0

Curve 1: TGA

File Info: SAH030204 Sun Mar 2 16:52:31 1997

Sample Weight: 15.894 mg

897T002200UP

414

10C/MIN N2
TGA: 2 2 TGA: 2 2.0 MIN RATE: 10.0 C/MIN

JO SPELMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 16:56:46 1997

HNF-SD-WM-OP-238, REV. 0

LABCORE Data Entry Template for Worklist# 16833

Analyst: RWK Instrument: TGA0 3 Book # 92N8A

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

Worklist Comment: T-110 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE	S A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	SOLID	<u>59.4</u>	<u>58.72</u>	<u>N/A</u>	%
97000111	T-110	2 SAMPLE	9971000221	0	TGA-03	SOLID	<u>N/A</u>	<u>71.95</u>		%
97000711	T-110	3 DUP	9971000221	0	TGA-03	SOLID	<u>71.95</u>	<u>71.32</u>	<u>N/A</u>	%
97000111	T-110	4 SAMPLE	9971000222	0	TGA-03	SOLID	<u>N/A</u>	<u>72.80</u>		%
97000111	T-110	5 DUP	9971000222	0	TGA-03	SOLID	<u>72.80</u>	<u>74.87</u>	<u>N/A</u>	%

Final page for worklist # 16833

Attached
See Analyst for Signature
Analyst Signature _____
Date _____

John V. Vennart
Analyst Signature _____
Date 3-4-97

Validated: Rachelor 3/5/97

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 16833

Analyst: MR Instrument: TGAO 3 Book # 97128-A

Method: LA-500-112 Rev/Mod 0-0

Worklist Comment: T-110 TGA, RUN UNDER NO. 'RCI'

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<u>59.4</u> <u>58.72</u>	<u>58.72</u>	<u>N/A</u>	X
97000111	T-110	2 SAMPLE	9771000221	0	TGA-01	SOLID	<u>N/A</u> <u>71.95</u>	<u>71.95</u>	<u>N/A</u>	X
97000111	T-110	3 DUP	9771000221	0	TGA-01	SOLID	<u>71.95</u> <u>71.32</u>	<u>71.32</u>	<u>N/A</u>	X
97000111	T-110	4 SAMPLE	9771000222	0	TGA-01	SOLID	<u>N/A</u> <u>72.00</u>	<u>72.00</u>	<u>N/A</u>	X
97000111	T-110	5 DUP	9771000222	0	TGA-01	SOLID	<u>72.00</u> <u>74.87</u>	<u>74.87</u>	<u>N/A</u>	X

Final page for worklist # 16833

Analyst Signature: Mr. King Date: 3/3/97
James M. Gulson 3-4-97

Analyst Signature: _____ Date: _____

Data Entry Comments:

Ran samples using DLE-2 TGA-03.

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

Curve 1: TBA

File Info: TERN030901 Mon Mar 3 07:57:15 1997

Sample Weight: 20.733 mg

TBA STD 97M8-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 417 TO 421.

HMF-SD-MM-OP-288, REV. 0

N2 100/Min

Rate: 20.0 g/min

Temperature (°C)

RM KING

PERKIN-ELMER

7 Series Thermal Analysis System

Mon Mar 3 08:18:24 1997

Signature 5/12/97

Curve 1: TGA
 File info: BAM280301 Mon Mar 3 09:21:23 1987
 Sample Weight: 17.825 mg
 8877000221

418

100/MIN N2
 5.0 MIN RATE
 10.0 G/MIN

THERM

5.0 MIN RATE

10.0 G/MIN

FM KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Mon Mar 3 16:52:25 1987

HNF-SD-WM-DF-208, REV. 0

Curve 1: TGA

File info: SAM090802 Mon Mar 3 10:33:17 1997

Sample Weight: 10.067 mg

8977000221 DUP

4.19

10C/MIN H2
THERM 9.0 MGA RATE 10.0 G/MIN

SW KINS
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 3 17:00:28 1997

HNF-SD-WM-OP-238, REV. 0

Curve 1: TGA
 File Info: 8AM030309 Mon Mar 3 18:00:53 1997
 Sample Weight: 9.018 mg
 897T000222

100/MIN NE
 THERM 0.0 MIN RATE: 10.0 °/min

Temperature (°C)

RM KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Mon Mar 3 18:30:56 1997

HNF-SD-WM-OP-238, REV. 0

Curve 1: TGA
 File Info: SAM090904 Mon Mar 3 20:08:29 1997
 Sample Weight: 13.540 mg
 887T000222 DUP

100/MIN N2
 TGA 20.0 g

TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

BN FULTON
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Mon Mar 3 21:40:01 1997

HNFSO-WM-DP-238, REV. 0

LABCORE Data Entry Template for Worklist# 17028

Analyst: R. J. McLaughlin Instrument: TGA0 1 Book # 97N8A
Method: LA-560-112 Rev/Mod C-0
Worklist Comment: T-110, TGA-01 skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	PORED	DL	UNIT
		1 STD			TGA-01	SOLID	<u>89.4</u>	<u>59.13%</u>	<u>N/A</u>	<u>X</u>
9700003	T-110	2 SAMPLE	977000166	0	TGA-01	SOLID	<u>N/A</u>	<u>74.89</u>		<u>X</u>
9700003	T-110	3 DUP	977000166	0	TGA-01	SOLID	<u>24.89</u>	<u>95.13</u>	<u>N/A</u>	<u>X</u>
9700003	T-110	4 SAMPLE	977000170	0	TGA-01	SOLID	<u>N/A</u>	<u>95.28</u>		<u>X</u>
9700003	T-110	5 DUP	977000170	0	TGA-01	SOLID	<u>95.28</u>	<u>95.57</u>	<u>N/A</u>	<u>X</u>

Final page for worklist # 17028

R. J. McLaughlin 3/15/97
Analyst Signature Date
Validated 3/20/97 R. J. McLaughlin

R. J. McLaughlin 3-18-97
Analyst Signature Date

*Caped 3B
3-17-97*

Data Entry Comments:

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

WHC OCHISTORY TABLE EDIT SCREEN

Sample#	Assoc	Sample ID
Group#		Customer
Worklist# 17028		WL Comment T-110, TGA-01 skm

Test	Matrix	Type	Actual	Found	Yield	STAT	AnalDate	User
TGA-01	SOLID	STD	5.94e01	59.17	99.6128	NEW	03/18/97 1813	rcj
TGA-01	SOLID	DUP	74.89	75.12	0.3066	NEW	03/18/97 1813	rcj
TGA-01	SOLID	DUP	75.28	75.57	0.3845	NEW	03/18/97 1813	rcj

Save (F12) End (F3)

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Assoc Sample ID
 Group# Customer
 Worklist# 17026 WL Comment T-110, TGA-01 skm

Test	Matrix	Type	Actual	Found	Yield	STAT	AnalDate	User
TGA-01	SOLID	STD	5.94e01	59.17*	99.6128	TEXT	03/18/97 1813	rcj
TGA-01	SOLID	DUP	74.89	75.12	0.3066	NEW	03/18/97 1813	rcj
TGA-01	SOLID	DUP	75.28	75.57	0.3845	NEW	03/18/97 1813	rcj

Save (F12) End (F3)

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 425 TO 429

TGA STD 97N8-A N2

17.199 mg

Rate: 10.0 °C/min

File: 00012.001

TG WETTLER

14-Mar-97

Ident: 0.0

222-S Laboratory

PhuMcLown 3/15/97

Step Analysis

Height-10.15 mg

-59.17 %

ResidC. 7.01 mg

40.83 %

Dpeak 90.8°C

S97T000168 SAM N2

14.041 mg

Rate: 10.0 °C/min

File: 00022.001

TG METTLER

14-Mar-97

Ident: 0.0

222-6 Laboratory

R

Step Analysis

Height-10.52 mg

-74.89 %

ResidC. 3.53 mg

25.11 %

Dpeak 93.0 °C

5. mg

100. 200. 300. 400. °C

S87T000168 DLP N2

13.492 mg

Rate: 10.0 °C/min

File: D0024.001

TG

METTLER

15-Mar-87

Ident: 0.0

222-B Laboratory

Real

Step Analysis

Height-10.14 mg

-75.12 %

Resid. 3.36 mg

24.88 %

Dpeak 93.0 °C

427
5.0 mg

100.

200.

300.

400.

°C

SB7T000170 SAM N2

File: 00028.001 TG METTLER 15-Mar-97

28.273 mg

Rate: 10.0 °C/min

Ident: 0.0

222-B Laboratory

S97T000170 DUP N2

File: 00029.001

T6 METTLER

15-Mar-97

34.503 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

Blue

Step Analysis

Height-26.07 mg

-75.57 %

ResidC. 8.43 mg

24.43 %

Dpeak 129.0 °C

LABCORE Data Entry Template for Worklist# 17029

Analyst: SMF Instrument: TGA0 1 Book # 97130-94F 3-17-97
 Method: LA-560-112 Rev/Mod C-0 97130-A
 Worklist Comment: T-110, TGA-01 skm

GROUP	PROJECT	S TYPE	SAMPLES	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<u>59.4</u>	<u>59.71</u>	<u>N/A</u>	<u>X</u>
9700003	T-110	2 SAMPLE	997000174	0	TGA-01	SOLID	<u>N/A</u>	<u>76.26</u>		<u>X</u>
9700003	T-110	3 DUP	997000174	0	TGA-01	SOLID	<u>76.26</u>	<u>76.78</u>	<u>N/A</u>	<u>X</u>
9700003	T-110	4 SAMPLE	997000175	0	TGA-01	SOLID	<u>N/A</u>	<u>65.37</u>		<u>X</u>
9700003	T-110	5 DUP	997000175	0	TGA-01	SOLID	<u>65.37</u>	<u>75.33</u>	<u>N/A</u>	<u>X</u>

Final page for worklist # 17029

Laura M. Dutton 3-17-97
 Analyst Signature Date
 Validated 3/20/97 SMF

[Signature] 3-17-97
 Analyst Signature Date

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 434 TO 435

TGA STD B7NB-A

17.814 mg

Rate: 10.0 °C/min

File: 00080.001

TG

METTLER

17-Mar-97

Ident: 0.0

222-8 Laboratory

Step Analysis

Height-10.64 mg

-59.71 %

ResidC. 7.18 mg

40.29 %

Dpeak 103.3°C

5. mg

50.

100.

150.

200.

Anal. W. Sutton 3-17-97

434

HNF-SD-MM-OP-238, REV.0

597T000174 N2

27.341 mg

Rate: 10.0 °C/min

File: 00081.001

Ident: 0.0

TG NETTLER

17-Mar-97

222-B Laboratory

Step Analysis

Height-20.85 mg

-76.26 %

Resid, 6.49 mg

23.74 %

Dpeak 121.0 °C

10. mg

100.

200.

300.

400.

°C

S97T000174 DUP N2

10.565 mg

Rate: 10.0 °C/min

File: 00082.001

TG METTLER 17-Mar-97

Ident: 0.0

222-B Laboratory

Step Analysis
Height -8.01 mg
-75.76 %
ResidC. 2.56 mg
24.22 %
Dpeak 89.0 °C

SS97T000175 N2

12,524 mg

Rate: 10.0 °C/min

File: 00063.001

TG

METTLER

17-Mar-97

Ident: 0.0

222-S Laboratory

Step Analysis

Height -8.19 mg

-65.37 %

ResidC. 4.34 mg

34.63 %

Dpeak 89.0 °C

5. mg

434

S97T000175 DUP N2

28.709 mg

Rate: 10.0 °C/min

File: 00084.001

Ident: 0.0

TG METTLER

17-Mar-87

222-S Laboratory

Step Analysis

Height-21.63 mg

-75.93 %

Resid. 7.08 mg

24.67 %

Dpeak 117.0°C

worklisttype Version 2.1 05/15/95
03/14/97 15:17

HNF-SD-WM-OP-238, REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 17030

Analyst: ABO Instrument: TGAO 1 Book # 991827 ²⁵ 3-18-97
Method: LA-560-112 Rev/Mod 000 97NPA
Worklist Comment: T-110, TGA-01 skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	PERNO	QL	UNIT
		1 STD			TGA-01	SOLID	59.4	58.61	N/A	X
97000111	T-110	2 SAMPLE	5977000261	0	TGA-01	SOLID	N/A	75.01		X
97000111	T-110	3 DUP	5977000261	0	TGA-01	SOLID	75.84	75.60	N/A	X
97000111	T-110	4 SAMPLE	5977000262	0	TGA-01	SOLID	N/A	97.10		X
97000111	T-110	5 DUP	5977000262	0	TGA-01	SOLID	77.10	76.30	N/A	X

Final page for worklist # 17030

Anthony Purnett 3-18-97
Analyst Signature Date

R. J. Jones 3-18-97
Analyst Signature Date

Validated 3/20/97 SS schelb

*Faked 3B
3-17-97*

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 437 TO 441.

TER97NB-A N3

24.885 mg

Rate: 10.0 °C/min

File: 00030.001

TG

METTLER

15-Mar-97

Ident: 0.0

222-B Laboratory

Step Analysis

Height-14.59 mg

-58.69 %

ResidC. 10.27 mg

41.91 %

Onset 108.3 °C

437

5.0 mg

50.

100.

150.

200.

°C

[Signature] 8-15-97

SB7T000261 SAM, N2

31.388 mg

Rate: 10.0 °C/min

File: 00031.001

Ident: 0.0

TG METTLER 15-Mar-97

222-S Laboratory

HNF-SD-WMA-DP-238, REV. 0

S97T000261 DUP N2

31.810 mg

Rate: 10.0 °C/min

File: 00032.001

Ident: 0.0

TG METTLER 15-Mar-97

222-B Laboratory

Step Analysis

Height-23.90 mg

-75.60 %

Resid. 7.71 mg

24.40 %

Onset 123.0 °C

430

S97T000262 SAN N2

40.711 mg

Rate: 10.0 °C/min

File: 00033.001

TG

METTLER

15-Mar-97

Ident: 0.0

P22-B Laboratory

S97T000262 DUP N2

27.180 mg

Rate: 10.0 °C/min

File: 00034.001

TG

METTLER

15-Mar-87

Ident: 0.0

222-B Laboratory

Step Analysis
Height-20.73 mg
-76.36 %
Res1C. 6.42 mg
23.64 %
Dpeak 117.0°C

HNF-SO-WM-DF-238, REV. 0

LABCORE Data Entry Template for Worklist# 17031

Analyst: ABP Instrument: TGA0 1 Book # 79484 ²³ 3-15-97
Method: LA-560-112 Rev/Mod D-0 97284
Worklist Comments: T-110, TGA-01 skin

GROUP	PROJECT	#	TYPE	SAMPLEN	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID	59.4	58.934	N/A	%
97000111	T-110	2	SAMPLE	8977000263	0		TGA-01	SOLID	N/A	74.59		%
97000111	T-110	3	DUP	8977000265	0		TGA-01	SOLID	22.59	23.22	N/A	%
97000111	T-110	4	SAMPLE	8977000264	0		TGA-01	SOLID	N/A	74.23		%
97000111	T-110	5	DUP	8977000264	0		TGA-01	SOLID	74.23	94.27	N/A	%

Final page for worklist # 17031

ABP 3-15-97
Analyst Signature Date

ABP 3-15-97
Analyst Signature Date

Validated 2/20/97 ABP

Filed 3B
3-17-97

Data Entry Comments:

WMC QCHISTORY TABLE EDIT SCREEN

Sample#		Aasc		Sample ID				
Group#				Customer				
Worklist# 17031				WL Comment T-110, TGA-01		skm		
Test	Matrx	Type	Actual	Pound	Yield	STAT	AnalDate	User
TGA-01	SOLID	STD	5.94e01	58.73	98.8721	NEW	03/18/97 1808	rcj
TGA-01	SOLID	DUP	72.59	73.22	0.8641	NEW	03/18/97 1808	rcj
TGA-01	SOLID	DUP	74.23	74.27	5.3872e-002	NEW	03/18/97 1808	rcj

Save (F12) End (F3)

WHC QC HISTORY TABLE EDIT SCREEN

Sample# Assoc Sample ID
 Group# Customer
 Worklist# 17031 WL Comment T-110, TGA-01 skm

Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
TGA-01	SOLID	STD	5.94e01	58.73*	98.8721	TEXT	03/18/97 1808	rcj
TGA-01	SOLID	DUP	72.59	73.22	0.8641	NEW	03/18/97 1808	rcj
TGA-01	SOLID	DUP	74.23	74.27	5.3872e-002	NEW	03/18/97 1808	rcj

Save (F12) End (F3)

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 445 TO 449

TERB7NB-A N3

24.055 mg

Rate: 10.0 °C/min

File: 00030.001

T6 METTLER

15-Mar-97

Ident: 0.0

222-S Laboratory

Step Analysis

Height-14.80 mg

-58.73 %

ResidC. 10.25 mg

41.27 %

Dpeak 108.3°C

4.45
mg

50.

100.

150.

200.

°C

Signature 215-97

S97T000263 SAM N2

25.555 mg

Rate: 10.0 °C/min

File: 00035.001

Ident: 0.0

TG METTLER 15-Mar-97

222-S Laboratory

Step Analysis

Height-19.28 mg

-72.59 %

Resid. 7.28 mg

27.41 %

Dpeak 115.0 °C

446

987T000263 DUP N2

87.520 mg

Rate: 10.0 °C/min

File: 00036.001

T6 METTLER 15-Mar-97

Ident: 0.0

222-S Laboratory

Step Analysis

Height-27.47 mg

-73.22 %

Resid. 10.05 mg

26.78 %

Dpeak 125.0 °C

27.47
10.05

100.

200.

300.

400.

°C

S87T000264 SAM N2

File: 00087.001 TG METTLER 18-Mar-87

18.858 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

Step Analysis

Height-13.98 mg

-74.23 %

Resid. 4.86 mg

25.77 %

Dpeak 101.0°C

S87T000264 DUP N2

28.415 mg

Rate: 10.0 °C/min

File: 00038.001

TG METTLER

19-Mar-87

Ident: 0.0

222-8 Laboratory

Step Analysis

Height -25.61 mg

-64.98 %

ResidC. 13.80 mg

35.02 %

Dpeak 129.0 °C

Step Analysis

Height -3.66 mg

-9.29 %

ResidC. 10.14 mg

25.73 %

100.

200.

300.

400.

°C

LABCORE Data Entry Template for Worklist# 17032

Analyst: Reed Instrument: TGA01 1 Book # 97108A

Method: LA-560-112 Rev/Mod CO

Worklist Comment: T-110, TGA-01 skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<u>59.4</u>	<u>59.34</u>	<u>N/A</u>	X
97000111	T-110	2 SAMPLE	97T000265	0	TGA-01	SOLID	<u>N/A</u>	<u>74.15</u>		Z
97000111	T-110	3 DUP	97T000265	0	TGA-01	SOLID	<u>74.15</u>	<u>74.01</u>	<u>N/A</u>	X
97000111	T-110	4 SAMPLE	97T000266	0	TGA-01	SOLID	<u>N/A</u>	<u>74.77</u>		X
97000111	T-110	5 DUP	97T000266	0	TGA-01	SOLID	<u>74.77</u>	<u>74.82</u>	<u>N/A</u>	Z

Final page for worklist # 17032

Reed 3/16/97
Analyst Signature Date

Reed 3-18-97
Analyst Signature Date

Validated 3/20/97 Reed

Forced
3-17-97

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 452 TO 455

TGA STD 97N8-A N2

32.007 mg

Rate: 10.0 °C/min

File: 00040.001

Ident: 0.0

TG METTLER 15-Mar-97

222-S Laboratory

R. McCowan 3/16/97

Step Analysis

Height-18.99 mg

-59.34 %

ResidC. 13.01 mg

40.65 %

Dpeak 110.8 °C

897T000265 SAM N2

32.687 mg

Rate: 10.0 °C/min

File: 00042.001

Ident: 0.0

78

NETTLER

15-Mar-87

222-B Laboratory

Alan

Step Analysis

Height-24.17 mg

-74.15 %

ResidC. 8.43 mg

25.65 %

Onset 119.0 °C

S97T000265 DUP N2

16.468 mg

Rate: 10.0 °C/min

File: 00044.001

Ident: 0.0

TG METTLER

222-8 Laboratory

15-Mar-97

RLH

Step Analysis

Height-11.45 mg

-74.01 %

Res1C. 4.02 mg

25.99 %

Onset 93.0°C

453

597T000266 SAM N2

18.971 mg

Rate: 10.0 °C/min

File: 00046.001

TG

METTLER

15-Mar-97

Ident: 0.0

222-S Laboratory

ASL

Step Analysis

Height-13.74 mg

-74.77 %

ResidC. 4.63 mg

25.23 %

Dpeak 99.0°C

454

dw 1.5

100. 200. 300. 400. °C

S97T000266 DUP N2

17.290 mg

Rate: 10.0 °C/min

File: 00048.001

TG

METTLER

18-Mar-97

Ident: 0.0

222-S Laboratory

AM

Step Analysis

Height-12.94 mg

-74.82 %

Resid. 4.35 mg

25.18 %

Dpeak 93.0 °C

455

LABCORE Data Entry Template for Worklist# 17116

Analyst: AMP Instrument: TGA0 1 Book # 97NB-A

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

Worklist Comment: T-110 TGA, RUN UNDER N2. RCI

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SEC.10	<u>59.4</u>	<u>59.19</u>	<u>N/A</u>	%
97900111	T-110	2 SAMPLE	9771000214	B	TGA-01	60L.10	<u>N/A</u>	<u>77.27</u>		%
97900111	T-110	3 DUP	9771000214	B	TGA-01	60L.10	<u>77.27</u>	<u>77.18</u>	<u>N/A</u>	%

Final page for worklist # 17116

Ally Purnett 3-20-97
Analyst Signature Date

Ally Purnett 3-25-97
Analyst Signature Date

Validated 3/25/97 AS Bacheler

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 457 TO 459.

TGA STD 97NB-A N2

26.270 mg

Rate: 10.0 °C/min

File: 00014.001

TG

METTLER

20-Mar-97

Ident: 0.0

222-8 Laboratory

Step Analysis

Height-15.55 mg

-59.19 %

ResidC. 10.72 mg

40.81 %

Dpeak 101.7°C

897T000214 SAM N2

27.232 mg

Rate: 10.0 °C/min

File: 00015.001 TG METTLER 20-Mar-97

Ident: 0.0

222-S Laboratory

Step Analysis

Height-21.04 mg

-77.27 %

ResidC. 6.19 mg

22.73 %

Dpeak 121.0 °C

8977000214 DUP N2

30.600 mg

Rate: 10.0 °C/min

File: 00016.001 TG METTLER 20-Mar-97

Ident: 0.0 222-S Laboratory

Step Analysis

Height-29.62 mg

-77.18 %

Resid. 6.98 mg

22.82 %

Dpeak 127.0 °C

459

10. mg

100.

200.

300.

400.

°C

LABCORE Completed Worklist Report for Worklist# 16721

Analyst: adp Instrument: BA001 Book# 133A/11a-A

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

Worklist Comment: SPG-01 FOR T-110 (ZNCL2 CAL PIPETT) RTS

Seq	Type	Sample#	E A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	SPG-01	LA51020	1.129785	1.400	126.375 % Recovery	
2	SAFES	8072094110	0	SPG-01	LA51020	2.2	0.989	1.000-989 Sp.D.	
3	DUZ	8072094230	0	SPG-01	LA51020	9.380	9.390	0.265 RD	

Final page for worklist# 16721

See attached
Analyst Signature _____ Date _____

See attached
Analyst Signature _____ Date _____

Validated into Labcore by John McClellan 03/20/97
Reviewer Signature _____ Date _____

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

LABCORE Data Entry Template for Worklist# 16721

Analyst: ADD Instrument: BA001 Book # 133N16-AMethod: LA-510-112 Rev/Mod D-1

Worklist Comment: SPG-01 FOR T-110 (ZNCL2 CAL PIPETT) RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			SPG-01	LIQUID	<u>1.39755</u>	<u>1.400</u>	<u>N/A</u>	Sp.G.
9700003	T-110	2 SAMPLE	977000119	0	SPG-01	LIQUID	<u>N/A</u>	<u>0.989</u>		Sp.G.
9700003	T-110	3 DUP	977000119	0	SPG-01	LIQUID	<u>0.889</u>	<u>0.890</u>	<u>N/A</u>	Sp.G.

Final page for worklist # 16721

Anthony P. Puro 3-8-97
Analyst Signature Date

W. Jones 3-8-97
Analyst Signature Date

Data Entry Comment:

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

16721

ADP

3-8-97

0230

☒ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # = 133N16-A

REPLICATE

1.8339

1.8334

1.8334

1.8334

TAKE WEIGHT (g) 1.8242
GROSS WEIGHT (g) 1.8641
VOL. of SOLUTION (mL) 1.0014☐ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # =

REPLICATE

TAKE WEIGHT (g) _____
GROSS WEIGHT (g) _____
VOL. of SOLUTION (mL) _____☒ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # = 133N16-A

REPLICATE

1.8449

1.8449

1.8449

1.8449

TAKE WEIGHT (g) 1.9138
GROSS WEIGHT (g) 2.0143
VOL. of SOLUTION (mL) 1.0514☐ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # =

REPLICATE

TAKE WEIGHT (g) _____
GROSS WEIGHT (g) _____
VOL. of SOLUTION (mL) _____☒ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # = S97T000119

STD # =

REPLICATE

1.9180

1.9180

1.9180

1.9180

TAKE WEIGHT (g) 1.9180
GROSS WEIGHT (g) 1.9985
VOL. of SOLUTION (mL) 0.7514☐ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # =

REPLICATE

TAKE WEIGHT (g) _____
GROSS WEIGHT (g) _____
VOL. of SOLUTION (mL) _____☐ SAMPLE
STANDARD☒ DUPLICATE

SAMPLE # = S97T000119

STD # =

REPLICATE

1.8648

1.8648

1.8648

1.8648

TAKE WEIGHT (g) 1.8648
GROSS WEIGHT (g) 1.9392
VOL. of SOLUTION (mL) 0.7514☐ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # =

REPLICATE

TAKE WEIGHT (g) _____
GROSS WEIGHT (g) _____
VOL. of SOLUTION (mL) _____

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		STANDARD	STANDARD
STANDARD	Gross Weight (W2)	2.0193	1.9497
	Tare Weight (W1)	1.9138	1.8448
16721	Weight of Solution (W2-W1)	0.1055	0.1049
	Volume of Solution μL	75.1400	75.1400
SPG-01	Specific Gravity	1.4040	1.3981
	Specific Gravity (Average)	1.4001	
LIQUID			
133N18A			
SA001			
ADP			
03/08/97			
02:30 AM			
Gross Weight (W2) = Wt. of vial + cap + cotton + solution			
Tare Weight (W1) = Wt. of vial + cap + cotton			
Specific Gravity = $[(W2-W1) \times 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} \times 1.000 \text{ g/mL}]$			
v RESULT v			
Specific Gravity Average =		1.400	

Date Entry by: <i>[Signature]</i>	Date: 03/08/97
Approved by: <i>[Signature]</i>	Date: 03/11/97

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.9823	
Wt. of vial	Tare Weight (W1)	1.9180	
18721	Weight of Solution (W2-W1)	0.0743	0
Vol. of sol.	Volume of Solution μ L	75.1400	
SPG-01	Specific Gravity	0.9888	NA
LIQUID			
SAMPLE NO.			
8927000119			
LABORATORY NO.			
BA001			
ANALYST			
ADP			
DATE			
03/08/97			
TIME			
02:30 AM			
		Gross Weight (W2) = Wt. of vial + cap + cotton + solution	
		Tare Weight (W1) = Wt. of vial + cap + cotton	
		Specific Gravity = $[(W2-W1) \times 1000 (\mu\text{L}/\text{mL})] / [\text{Vol. of Solution } \mu\text{L} \times 1.000 \text{ g/mL}]$	
		v RESULT v	
		Specific Gravity =	0.989

Data Entry by:	<i>John McChesney</i>	Date:	03/08/97
Approved by:	<i>John McChesney</i>	Date:	03/19/97
Form 510112.1 Rev 1.1		Page 1 of 1	

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		DUPLICATE	REPLICATE
DUPLICATE	Gross Weight (W2)	1.8382	
	Tare Weight (W1)	1.8648	
16721	Weight of Solution (W2-W1)	0.0744	0
	Volume of Solution μL	75.1400	
SPG-01	Specific Gravity	0.9902	NA
LIQUID			
597T000116DUP			
BA001	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
	Tare Weight (W1) = Wt. of vial + cap + cotton		
ADP	Specific Gravity = $[(W2-W1) \cdot 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} \cdot 1.000 \text{ g/mL}]$		
03/08/97	v RESULT v		
02:36 AM	Specific Gravity =	0.990	

Data Entry by: <i>John</i>	Date: 03/08/97
Approved by: <i>John McCouly</i>	Date: 03/19/97
Form 610112L1 Rev. 1.1	Page 1 of 1

LABCORE Completed Worklist Report for Worklist# 16749

Analyst: adp Instrument: BA001 Book# 133A116A

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

Worklist Comment: T-110, SPG-01, Use Calibrated pipette. skin

Seq	Type	Sample	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STN		0	STG-01	LABOR	1.29783	1.397	99.941 % Recovery	
2	STATION	0570060004	0	STG-01	LABOR	N/A	1.311	1.000-000 Sp. F.	
3	STN	0570060004	0	STG-01	LABOR	1.3113	1.307	0.961 100 %	

Final page for worklist# 16749

See attached
Analyst Signature Date

See attached
Analyst Signature Date

validated into labware by John McCloud 03/20/97
Reviewer Signature Date

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

LABCORE Data Entry Template for Worklist# 16749

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

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

Worklist Comment: T-110, SPG-01, Use Calibrated pipette. skm

GROUP	PROJECT	S TYPE	SAMPLE	R A	TEST	MATRIX	ACTUAL	FOUND	OK	UNIT
		1 STD			SPG-01	L10010	<u>1.37755</u>	<u>1.397</u>	<u>N/A</u>	Sp.G.
97090083	T-110	2 SAMPLE	9971000204	0	SPG-01	L10010	<u>N/A</u>	<u>1.113</u>		Sp.G.
97090083	T-110	3 DUP	9971000204	0	SPG-01	L10010	<u>1.113</u>	<u>1.107</u>	<u>N/A</u>	Sp.G.

Final page for worklist # 16749

Anthony Puentes 3-8-97
Analyst Signature Date

[Signature] 3-8-97
Analyst Signature Date

Data Entry Comments:

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

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

ANALYSIS
DATEVALUES
TIMESTANDARD
CODE

LABORATORY

ANALYST

ADP

3-8-97

02.00

16749

☒ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # = 133N16-A

TARE WEIGHT (g)
GROSS WEIGHT (g)
VOL. of SOLUTION (mL)1.8235
1.9234
0.0999REPLICATE
1.8235
1.9234
0.0999☐ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # =

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

REPLICATE

☒ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # = 59TT000204 STD # =

TARE WEIGHT (g)
GROSS WEIGHT (g)
VOL. of SOLUTION (mL)1.5892
1.9728
0.0999

REPLICATE

☐ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # =

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

REPLICATE

☐ SAMPLE
STANDARD☒ DUPLICATE

SAMPLE # = 59TT000204 STD # =

TARE WEIGHT (g)
GROSS WEIGHT (g)
VOL. of SOLUTION (mL)1.8665
1.9491
0.0999

REPLICATE

☐ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # =

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

REPLICATE

☐ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # =

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

REPLICATE

☐ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # =

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

REPLICATE

BEST AVAILABLE COPY

HMF-SD-WM-DF-280, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		STANDARD	STANDARD
STANDARD	Gross Weight (W2)	1.9284	1.9284
W2	Tare Weight (W1)	1.8235	1.8234
16749	Weight of Solution (W2-W1)	0.1049	0.105
W2-W1	Volume of Solution μ L	75.1400	75.1400
SPG-01	Specific Gravity	1.3961	1.3974
W2-W1	Specific Gravity (Average)	1.3967	
LIQUID			
133N16A			
BA001	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
ADP	Tare Weight (W1) = Wt. of vial + cap + cotton		
03/08/97	Specific Gravity = $[(W2-W1) \cdot 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} \cdot 1.000 \text{ g/mL}]$		
02:00 AM	γ RESULT γ		
	Specific Gravity Average =	1.397	

Data Entry by: <i>John Mc Clelland</i>	Date: 03/08/97
Approved by: <i>John Mc Clelland</i>	Date: 03/19/97
Form 510112L1 Rev 1.1	Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.8728	
16749	Tare Weight (W1)	1.8892	
	Weight of Solution (W2-W1)	0.0838	0
	Volume of Solution μ L	78.1400	
SPG-01	Specific Gravity	1.1128	NA
LIQUID			
S97Y000294			
BA001	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
	Tare Weight (W1) = Wt. of vial + cap + cotton		
ADP	Specific Gravity = $[(W2-W1) \times 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} \times 1.000 \text{ g/mL}]$		
03/08/97	∇ RESULT ∇		
02:30 AM	Specific Gravity =	1.193	

Data Entry by:

Date:

03/08/97

Approved by:

Date:

03/19/97

Form 510112.1 Rev. 1.1

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

		DUPLICATE	REPLICATE
DUPLICATE	Gross Weight (W2)	1.5487	
	Tare Weight (W1)	1.5565	
16742	Weight of Solution (W2-W1)	0.0632	0
	Volume of Solution μ L	75.1400	
SPG-01	Specific Gravity	1.1073	NA
LIQUID			
B97T000204DUP			
Gross Weight (W2) = Wt. of vial + cap + cotton + solution			
Tare Weight (W1) = Wt. of vial + cap + cotton			
Specific Gravity = $[(W2-W1) \times 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} \times 1.000 \text{ g/mL}]$			
v RESULT v			
Specific Gravity =		1.107	
03/08/97			
02:00 AM			

Data Entry by:

Date:

03/08/97

Approved by:

Date:

03/19/97

LABCORE Data Entry Template for Worklist# 16706

Analyst: 44901 Instrument: IC0 02 Book# 42400-0

Method: LA-533-105 Rev/Mod _____

Worklist Comment: @IC-01 FOR T-110 RTS

#	Type	Sample#	R A	Test	Matrix	Group#	Project
1	CCB			SIC-QC	QC		
2	CCV			SIC-QC	QC		
3	SAMPLE	897T000119 0		SIC-01	LIQUID	97000083	T-110
		Analytes Requested: BR-02 , CL-02 , P-02 , M02-02 , M03-02 , OKALATE2, PO4-02 , SO4-02					
4	DUP	597T000119 0		SIC-01	LIQUID		

Final page for worklist # 16706

7/2/97 14:30
Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Data Entry Comments:

I used the remainder of the sample.
16706MTR.SCH

16706MAR.CSV

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

A-0010-IC				DATA FILE/WORKLIST RESOLUTION				18-Mar-97	
Worklist#: 16706				Data File: 16706MAR.CSV					
	Seq	Type	Sample #	Seq#	Data File	Sample Name	Dilution		
=>	1	CCB		1	97030921.001	BLANK	1.00		
=>	2	CCV		2	97030921.003	STD 42N20-C	101.00		
=>	3	SAMPLE	S97T000119	3	97030921.005	S97T000119 SAN	1.00		
=>	4	DUP	S97T000119	4	97030921.006	S97T000119 DUP	1.00		

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

Sample Name: BLANK Date: 03/10/1997 11:04:07
 Data File : C:\DX\DATA\97030921.D01
 Method : C:\DX\METHOD\ANIONS.MET
 ACI Address: 1 System: 1 Inject#: 1 Detector: CDM-1
 Analyst : *James J. Jones* Column:

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

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.14		0.000	55	319	1	
2	1.39		0.000	20	68	1	
3	1.55	CHLORIDE	0.006	55	213	1	-0.22
4	3.25	NITRATE	0.332	67	503	1	1.67
5	5.92	SULFATE	0.124	45	504	1	-2.79
6	7.45		0.000	41	201	1	
Totals			0.362	284	1827

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 475 TO 478.

Sample Name: STD 42N20-C Date: 03/10/1997 14:43:35
 Data File : C:\DX\DATA\97030921.D03
 Method : C:\DX\METHOD\ANIONS.MET
 ACT Address: 1 System: 1 Inject#: 3 Detector:CDW-1
 Analyst : *P. J. J. J.* 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	BI Code	%Delta
1	0.30		0.000	52	337	1	
2	0.87		0.000	87	372	2	
3	1.02	FLUORIDE	62.600	2486	12207	2	0.00
4	1.41		0.000	34	192	2	
5	1.55	CHLORIDE	93.587	2548	12146	2	0.22
6	1.87	NITRITE	613.718	9683	53155	1	0.54
7	2.83	BROMIDE	631.625	5959	39693	2	-0.12
8	3.21	NITRATE	642.456	8537	52248	2	0.21
10	4.62	PHOSPHATE	579.217	1720	21534	1	-0.43
11	5.91	SULFATE	702.358	5252	72644	1	-3.01
13	7.76	OXALATE	550.271	2311	43606	1	-3.28
Totals			3874.833	36670	308133		

File: 97030921.D03 Sample: STD 42N20-C

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=====
Sample Name: S97T000119 SAM                      Date: 03/10/1997 15:15:41
Data File  : C:\DX\DATA\97030921.D05
Method     : C:\DX\METHOD\ANIONS.MET
ACI Address: 1 System: 1 Inject#: 5                Detector: CDM-1
Analyst    :                                     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	El. Code	%Delta
1	1.03	FLUORIDE	0.400	2028	7818	1	1.31
2	1.59	CHLORIDE	9.170	37083	146801	2	2.37
3	1.88	NITRITE	0.705	1167	5545	2	0.89
5	3.17	NITRATE	14.523	15459	123673	1	-0.83
6	4.65	PHOSPHATE	1.921	544	6814	1	0.14
7	5.88	SULFATE	17.204	14010	186799	1	-3.45
Totals			43.912	70290	477451		

File: 97030921.D05 Sample: S97T000119 SAM

```

=====
Sample Name: S97T000119 DUP                      Date: 03/10/1997 15:30:20
Data File  : C:\DX\DATA\97030921.D06
Method     : C:\DX\METHOD\ANIONS.MET
ACI Address: 1 System: 1 Inject#: 6                Detector: CDM-1
Analyst    :                                     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	ΔDelta
1	1.03	FLUORIDE	0.412	2049	8066	1	1.31
2	1.59	CHLORIDE	9.046	37206	144215	2	2.37
3	1.88	NITRITE	0.706	1157	5546	2	0.89
4	3.17	NITRATE	14.305	15376	121809	1	-0.83
5	4.65	PHOSPHATE	1.919	538	6809	1	0.29
6	5.88	SULFATE	16.942	13794	183784	1	-3.45
7	7.52	OXALATE	0.067	11	59	1	-6.27
Totals			43.397	70130	470289		

File: 97030921.D06 Sample: S97T000119 DUP

LABCORE Completed Worklist Report for Worklist# 17115

Analyst: cal

Instrument: IC01

Book# 421/201

Method: 14-0-33-145 Rev/Mod 2-7

Worklist Comment: T-110 IC. RCI

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 CEN	0	WTO-QC	F	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	CL	QC	1	<1.70e-2	ug/ml
1 CEN	0	WTO-QC	W02	QC	1	<1.40e-2	ug/ml
1 CEN	0	WTO-QC	W03	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W04	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W05	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W06	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W07	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W08	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W09	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W10	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W11	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W12	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W13	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W14	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W15	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W16	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W17	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W18	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W19	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W20	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W21	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W22	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W23	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W24	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W25	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W26	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W27	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W28	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W29	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W30	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W31	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W32	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W33	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W34	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W35	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W36	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W37	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W38	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W39	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W40	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W41	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W42	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W43	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W44	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W45	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W46	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W47	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W48	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W49	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W50	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W51	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W52	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W53	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W54	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W55	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W56	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W57	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W58	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W59	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W60	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W61	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W62	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W63	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W64	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W65	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W66	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W67	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W68	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W69	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W70	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W71	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W72	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W73	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W74	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W75	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W76	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W77	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W78	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W79	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W80	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W81	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W82	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W83	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W84	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W85	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W86	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W87	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W88	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W89	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W90	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W91	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W92	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W93	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W94	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W95	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W96	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W97	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W98	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W99	QC	1	<1.20e-2	ug/ml
1 CEN	0	WTO-QC	W100	QC	1	<1.20e-2	ug/ml

Final page for worklist# 17115

Analyst Signature

Date

Analyst Signature

Date

John M. Lyle 3/1/97

LABCORE Data Entry Template for Worklist# 17115

Analyst: EAL Instrument: IC0 1 Books# 42N70-DMethod: LA-533-105 Rev/Mod D1

Worklist Comment: T-110 IC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	CCB				gIC-QC	QC		
2	CCV				gIC-QC	QC		
3	SAMPLE	S97T000381 0			gIC-01	LIQUID	97000083	T-110
		Analytes Requested: BR-02 , CL-02 , F-02 , NO3-02 , NO3-02 ,						
					IKALATED, PO4-02 , SO4-02			
4	DGP	S97T000381 0			gIC-01	LIQUID		

Final page for worklist # 17115

Analyst Signature

Date

Analyst Signature

Date

17115 MAR. CSV gmf 3/2/97

UPLOADED 3-27-97

JH Womell

17115 MAR. CSV

Validated 3/3/97 gmf

Data Entry Comments:

A-0010-IC				DATA FILE/WORKLIST RESOLUTION				27-Mar-97	
Worklist#: 17115				Data File: 17115MAR.CSV					
	Seq	Type	Sample #	Seq#	Data File	Sample Name	Dilution		
-	=>	1	CCB		1	97032001.d01	INST. BLANK		1.00
	=>	2	CCV		2	97032001.d02	42N10-D STD.		101.00
	=>	3	SAMPLE		3	97032001.d07	S97T000381		11.00
	=>	4	DUP		4	97032001.d08	S97T000381DUP		11.00
+				+					

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

Data Reprocessed On 03/24/1997 15:53:17

Sample Name: INST. BLANK Date: 03/20/1997 19:39:28
 Data File : C:\DX\DATA\97032001.D01
 Method : C:\DX\METHOD\KIT.MST
 ACI Address: 1 System: 1 Inject#: 1 Detector: CDM-1
 Analyst: *[Signature]* Column: AG4A/AS4A anion column

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

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

Pk. Num	Ret. Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.70	chloride	-0.006	14	51	1	3.03
2	3.44	nitrate	0.208	96	678	1	0.80
3	6.45	sulfate	0.046	79	1402	1	4.25
Totals			0.248	189	2131

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 482 TO 485

Data Reprocessed On 03/24/1997 15:53:18

```

=====
Sample Name: 42N20-D STD.                      Date: 03/20/1997 19:51:41
Data File  : C:\DX\DATA\97032001.d02
Method     : C:\DX\METHODS\KIT.MET
ACI Address: 1 System: 1 Inject#: 2             Detector: CDM-1
Analyst    :                               Column: AG4A/AS4A anion column
=====

```

```

-----
Calibration Volumes 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	1.11	fluoride	61.083	1294	9706	1	-1.47
2	1.66	chloride	77.288	1742	9360	1	0.61
3	1.96	nitrite	513.053	5073	38171	1	-1.51
4	2.93	bromide	589.568	5019	33798	1	-2.22
5	3.33	nitrate	629.352	5740	48887	1	-2.44
6	4.88	phosphate	528.161	1801	22094	1	3.29
7	6.29	sulfate	651.912	4748	75700	1	1.67
8	8.32	oxalate	519.638	2401	45098	1	5.45
Totals			3570.055	27817	282815		

File: 97032001.d02 Sample: 42N20-D STD.

Data Reprocessed On 03/24/1997 15:53:21

```

=====
Sample Name: S97T000381                      Date: 03/20/1997 23:16:29
Data File : C:\DX\DATA\97032001.007
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 7           Detector:CDM-1
Analyst :                      Column: AG4A/AS4A anion column
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          1          11 3000 5Hz 0.00 10.00          50
=====

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Sl. Code	%Delta
1	1.15	fluoride	0.495	59	244	1	2.06
2	1.67	chloride	7.653	1441	8511	1	1.01
3	3.43	nitrate	7.611	536	4501	1	0.49
4	4.93	phosphate	3.488	77	1117	1	4.52
5	6.35	sulfate	16.757	1015	18305	1	2.53
Totals			36.004	3125	32677		

File: 97032001.007 Sample: S97T000381

```

=====
Sample Name: S97T000381DUP                      Date: 03/20/1997 23:27:21
Data File  : C:\DX\DATA\97032001.d08
Method     : C:\DX\METHOD\KIT.MET              HNF-SD-WM-OP-238, REV.0
ACI Address: 1 System: 1 Inject#: 8              Detector: CDM-1
Analyst    :                                  Column: AG4A/AS4A anion column
=====

```

```

-----
Calibration Volume  Dilution Points Rate  Start  Stop Area Reject
-----
External           1           11  3000  5Hz   0.00  10.00       50
-----

```

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Sl. Code	%Delta
1	2.15	fluoride	0.519	60	279	1	2.06
2	1.67	chloride	8.147	1437	9060	1	1.01
3	3.42	nitrate	7.094	513	4129	1	0.29
4	4.93	phosphate	3.309	71	1049	1	4.52
5	6.35	sulfate	17.179	1008	18746	1	2.53
Totals			36.248	3089	33262		

File: 97032001.d08 Sample: S97T000381DUP

02/19/97 15:33
A-0004-J

FILE # 0970221 B. TXI

HNF-SD-WM-DP-238, REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 16639

Analyst: B. G. GILL Instrument: ICP⁰²90T Book# 658448Method: LA-505 511161 Rev/Mod 8-1

Worklist Comment: ICP T-110 (DIRECT)

#	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	SRDIL	S97T000008	0 D	ICP-D01	LIQUID		
7	SAMPLE	S97T000008	0 D	ICP-D01	LIQUID	96001704	T-110 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, 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	DUF	S97T000008	0 D	ICP-D01	LIQUID		
9	BEK	S97T000008	0 D	ICP-D01	LIQUID		
10	CCV			ICP-QC	QC		
11	CCB			ICP-QC	QC		
12	SAMPLE	S97T000119	0 D	ICP-D01	LIQUID	97000083	T-110
	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, SE-D-01, SI-D-01, SM-D-01, SR-D-01, TI-D-01, TL-D-01, U-D-01, V-D-01, ZN-D-01, ZR-D-01						

Data Entry Comments:

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

02/19/97 15:33
A-0004-1

HNF-SD-WM-DP-238, REV. 0

Page: 2

LABCORE Data Entry Template for Worklist# 16639

S Type	Sample#	R A	Test	Matrix	Group#	Project
13 DUP	S97T000119	0 D	WICP-DOL LIQUID			
14 ICBA			WICP-QC	QC		
15 ICBA			WICP-QC	QC		
16 OCV			WICP-QC	QC		
17 OCB			WICP-QC	QC		

Final page for worklist # 16639

[Signature] 2-21-97
Analyst Signature Date

Reviewed by:
[Signature] 2/24/97
Analyst Signature Date

S97T000008-C 1st - 2.2ml - 2nd - 0.1 0.5
 8 1st - 2.2ml 500
 8-D 1st - 2.2ml 100
 8-A 1st - 2nd (2.2ml) - 2.2ml 100
 8-X 1st - 2.2ml - 1st - 2nd 100
 8-AX 1st (1st - 2nd - 1st - 2nd) - 2.2ml 100
 1st - 2.2ml - 1st - (1st - 2nd - 1st - 2nd) - 2nd 1000
 S97T000119
 119-D 1st - 6ml 7
 1st - 6ml 7

Data Entry Comments:

Spoke missing calculation:

$$S97T000008 \quad \text{Cal} = \frac{(92.86)}{1.00} = 92.86\%$$

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

second port again:

$$N_2 = \frac{\left(\frac{97260}{1000}\right) - \left(\frac{36940}{1000}\right)}{10} \times 100 = 102.8\%$$

$$P = \frac{\left(\frac{15370}{1000}\right) - \left(\frac{5592}{1000}\right)}{10} \times 100 = 97.8\%$$

HNF-SD-WM-DP-238, REV. 0

Analysis Report

Summary

Fri 02-21-97 02:46:29 PM

page 1

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	IGV	970221B	ICP2	02/21/97	13:40	BJG	Q	CONC
2	IGS	970221B	ICP2	02/21/97	13:43	BJG	Q	CONC
3	ILS	970221B	ICP2	02/21/97	13:45	BJG	Q	CONC
4	IGSA	970221B	ICP2	02/21/97	13:46	BJG	Q	CONC
5	IGSAB	970221B	ICP2	02/21/97	13:51	BJG	Q	CONC
6	S97T000008 L	970221B	ICP2	02/21/97	13:57	BJG	S	CONC
7	S97T000008	970221B	ICP2	02/21/97	13:59	BJG	S	CONC
8	S97T000008 D	970221B	ICP2	02/21/97	14:02	BJG	S	CONC
9	S97T000008 A	970221B	ICP2	02/21/97	14:05	BJG	S	CONC
10	S97T000008 X	970221B	ICP2	02/21/97	14:09	BJG	S	CONC
11	S97T000008 AX	970221B	ICP2	02/21/97	14:12	BJG	S	CONC
12	CCV	970221B	ICP2	02/21/97	14:15	BJG	Q	CONC
13	CCB	970221B	ICP2	02/21/97	14:36	BJG	Q	CONC
14	S97T000119	970221B	ICP2	02/21/97	14:38	BJG	S	CONC
15	S97T000119 D	970221B	ICP2	02/21/97	14:31	BJG	S	CONC
16	IGSA	970221B	ICP2	02/21/97	14:34	BJG	Q	CONC
17	IGSAB	970221B	ICP2	02/21/97	14:37	BJG	Q	CONC
18	CCV	970221B	ICP2	02/21/97	14:39	BJG	Q	CONC
19	CCB	970221B	ICP2	02/21/97	14:42	BJG	Q	CONC

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 489 TO 494.

2-21-97

T-110

1st - 9th

1st - 6th

S97T000008 + 119

FILE # 0970221B.TXT

Analysis Report

Averages

Fri 02-21-97 02:46:29 PM

page 2

#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	4.936	4.947	5.246	5.017	4.975	5.119
2	ICB	.0003	.0075	.0005	.0067	.0003	.0005
3	LLS	.0225	.1142	.2034	.1066	.1000	.0108
4	ICSA	.0001	.242.8	-.0430	.0013	.0001	.0004
5	ICSA#	.9595	.240.4	-.0344	-.0009	.4719	.4774
6	S97T000008 L	2.560	3.231	-1.749	-.4890	.0100	.1255
7	S97T000008-	2.608	.7131	1.660	.4817	.0029	.0210
8	S97T000008 D	2.703	1.156	.0312	.1640	.0024	.0158
9	S97T000008 A	93.46	97.86	104.6	98.32	96.82	99.04
10	S97T000008 X	2.608	5.984	3.107	-.4927	-.0121	.2096
11	S97T000008 AX	.8554	.9744	.10050	.9883	.9952	.9920
12	CCV	4.907	4.896	5.184	4.975	4.974	5.047
13	CCB	Q.0143	.0044	.0040	.0019	-.0001	.0002
14	S97T000119	.0016	.0737	.0360	1.448	.0169	.0015
15	S97T000119 D	.0017	.0699	-.0153	1.417	.0167	.0018
16	ICSA	.0032	.241.3	-.0471	-.0051	.0001	.0003
17	ICSA#	.9638	.241.7	-.0517	.0020	.4809	.4782
18	CCV	4.916	4.945	5.184	5.021	5.042	5.094
19	CCB	.0020	.0118	.0032	.0058	.0003	.0005

#	Sample Name	Bi	Ca	Cd	Ce	Co	Cx
1	ICV	5.096	4.906	5.017	5.003	5.061	5.009
2	ICB	.0035	.0007	.0010	-.0034	.0027	.0001
3	LLS	.2189	.2415	.0118	.1998	.0420	.0214
4	ICSA	.0064	.246.3	.0012	-.0062	.0002	.0076
5	ICSA#	.0035	.246.0	.0350	-.0022	.4692	.4807
6	S97T000008 L	6.219	2.142	.1386	-2.621	.7755	34.79
7	S97T000008-	4.717	1.546	-.0330	-.4876	.1693	34.58
8	S97T000008 D	1.088	1.266	-.0213	-.0089	.2083	34.49
9	S97T000008 A	104.2	98.04	98.52	97.92	99.27	133.0
10	S97T000008 X	11.22	3.038	.0917	-8.523	1.298	35.53
11	S97T000008 AX	10170.	.9964	.9681	10150.	.9962	.9994
12	CCV	3.085	4.867	4.970	4.962	5.020	4.961
13	CCB	-.0287	.0016	-.0001	-.0082	.0003	-.0005
14	S97T000119	.1731	16.12	-.0010	-.0665	.0061	-.0029
15	S97T000119 D	-.1182	16.07	.0016	-.0405	.0128	-.0029
16	ICSA	.0075	.247.0	.0005	-.0042	.0023	.0087
17	ICSA#	.0023	.245.5	.9343	.0040	.4673	.4801
18	CCV	5.130	4.913	4.998	5.034	5.058	4.995
19	CCB	-.0082	.0016	-.0004	-.0003	.0013	.0014

#	Sample Name	Cu	Eu	Fa	K	La	Li
1	ICV	5.359	-.0023	5.276	4.834	5.109	5.017
2	ICB	-.0006	-.0012	-.0003	-.0999	-.0004	-.0010
3	LLS	.0213	-.0014	.1053	Q.3162	.1041	.0198
4	ICSA	-.0091	-.0298	93.14	.0792	-.0055	.0020
5	ICSA#	.4786	-.0287	92.28	-.0227	-.0038	.1.026
6	S97T000008 L	.0076	-.4581	1.061	301.4	-.0662	-.2217
7	S97T000008-	-.0941	-.0706	1.816	316.4	-.0788	-.0221

Analysis Report		Averages		Fri 02-21-97 02:46:29 PH			page 3
Sample Name		Cu	Fu	Fe	K	La	Li
8 S97T000008_D		- .0727	-.0326	1.824	338.13	.0421	-.0313
9 S97T000008_A		104.9	-.1397	104.6	420.9	100.8	99.61
10 S97T000008_X		84.66	-.0095	-.2708	317.4	-.8690	-.5562
11 S97T000008_AX		99.32	-.3445	98.67	9721	10120	9962
12 CCV		5.702	-.0023	5.201	4.647	5.053	4.953
13 CCB		-.0004	-.0006	-.0011	-.1322	-.0012	-.0006
14 S97T000119		-.0014	.0073	-.0103	-.3938	-.0059	.0016
15 S97T000119_D		-.0029	.0099	-.0085	1.263	-.0014	.0008
16 ICSA		-.0098	-.0123	92.73	.0977	-.0046	.0022
17 ICSAB		.6853	-.0238	92.30	.0227	-.0049	1.093
18 CCV		5.358	-.0021	5.234	4.713	5.128	5.014
19 CCB		-.0004	-.0011	.0001	-.0676	-.0002	-.0008

Sample Name		Ng	Mn	Mo	Na	Nd	Ni
1 ICV		5.031	4.918	5.122	5.160	5.083	5.006
2 ICB		.0044	-.0001	.0120	-.0107	-.0008	-.0002
3 LLS		2116	.0191	.1061	1974	2024	.0391
4 ICSA		250.6	-.0063	-.0066	197.1	.0006	-.0065
5 ICSAB		247.5	.6450	-.0077	196.7	.0009	.9258
6 S97T000008_L		4.368	.0292	.1678	37240	.0595	1.626
7 S97T000008_D		.8605	.4015	-.0167	36950	-.3672	.0035
8 S97T000008_A		1.338	.1982	-.0395	36880	-.1855	.0890
9 S97T000008_X		97.36	94.93	100.7	37440	99.43	97.74
10 S97T000008_AX		-1.160	-.1487	1.646	36980	.0722	2.739
11 S97T000008_AX		10200	9877	10020	47260	9617	9896
12 CCV		4.954	4.886	5.090	5.061	5.023	4.968
13 CCB		-.0005	-.0004	.0029	-.0088	-.0011	-.0025
14 S97T000119		3.398	.2715	.0064	11.68	-.0143	.0199
15 S97T000119_D		3.356	.2703	-.0105	11.55	-.0121	-.0110
16 ICSA		248.7	-.0061	-.0029	197.1	.0032	.0014
17 ICSAB		248.1	.4446	-.0094	195.7	.0038	.0193
18 CCV		4.979	4.898	5.113	5.119	5.095	5.001
19 CCB		-.0001	-.0001	.0089	-.0119	-.0004	.0058

Sample Name		P	Pb	S	Sb	Se	Si
1 ICV		5.100	4.925	4.963	4.878	4.825	4.964
2 ICB		-.0091	-.0169	-.0020	-.0066	.0056	-.0084
3 LLS		.3942	.1993	.1993	.0968	Q.2692	.1268
4 ICSA		.0058	.0014	-.0376	-.0166	.0050	-.0010
5 ICSAB		.0385	.9718	-.0451	-.0029	-.0112	-.0072
6 S97T000008_L		5600	-.6.006	1587	4.188	22.17	59.45
7 S97T000008_D		5548	-.4.526	1580	-.2831	6.001	64.33
8 S97T000008_A		5561	1.732	1592	3830	4.271	64.67
9 S97T000008_X		5695	96.90	1688	97.33	102.0	163.9
10 S97T000008_AX		5592	-.4.013	1599	2.398	55.53	64.77
11 S97T000008_AX		15370	10040	11280	10130	9742	10180
12 CCV		5.102	4.873	4.951	4.832	4.793	4.937
13 CCB		-.0059	-.0079	-.0102	.0019	.0511	-.0052
14 S97T000119		.8121	-.0466	8.820	-.0519	3677	4.703
15 S97T000119_D		.7533	-.1052	8.084	-.0368	3787	4.752

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LABCORE Completed Worklist Report for Worklist# 16990

Analyst: slh

Instrument: CARB2

Book# 25N12A

Method: LA-342-60 Rev/Mod E-0

25N12A

Worklist Comment: T-110 & 2706T (S97TP00015) @TIC/TOC1

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLNK	0	BTCTOC1 TIC-02	LIQUID	1	5.00e+0	5.000	ug/ml
1 BLNK	0	BTCTOC1 TOC-02	LIQUID	1	1.00e-1	0.100	ug/ml
2 STD	0	BTCTOC1 TIC-02	LIQUID	6.02e+2	6.10e+2	101.320 % Recovery	
2 STD	0	BTCTOC1 TOC-02	LIQUID	3.001e+3	2.85e+3	95.302 % Recovery	
3 SAMPLE	S97T000381 0	BTCTOC1 TIC-02	LIQUID	N/A	1.241e+4	7.000	ug/ml
3 SAMPLE	S97T000381 0	BTCTOC1 TOC-02	LIQUID	N/A	4.00e+1	40.000	ug/ml
4 DUP	S97T000381 0	BTCTOC1 TIC-02	LIQUID	1.43e+1	1.48e+1	4.85% RPD	
4 DUP	S97T000381 0	BTCTOC1 TOC-02	LIQUID	4.00e+1	4.00e+1	RPD	
5 SPK	S97T000381 0	BTCTOC1 TIC-02	LIQUID	100	100.1	100.100 % Recovery	
5 SPK	S97T000381 0	BTCTOC1 TOC-02	LIQUID	100	95.3	95.300 % Recovery	
6 SAMPLE	S97TP00015 0	BTCTOC1 TIC-02	LIQUID	N/A	2.05e+1	5.000	ug/ml
6 SAMPLE	S97TP00015 0	BTCTOC1 TOC-02	LIQUID	N/A	5.49e+1	40.000	ug/ml

Final page for worklist# 16990

Analyst Signature

Date

Analyst Signature

Date

R. J. Scholch 4/10/97
Reviewer Signature Date

LABCORE Data Entry Template for Worklist# 16990

Analyst: _____ Instrument: CARB2 _____ Book# _____

Method: LA-342-100 Rev/Mod _____

Worklist Comment: T-110 & 2706T (S97TP00015) @TICTOC1

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			@TICTOC1	LIQUID		
2 STD			@TICTOC1	LIQUID		
3 SAMPLE	S97T000381 0		@TICTOC1	LIQUID	97000083	T-110
	Analytes Requested: TIC-02 , TOC-02					
4 DUP	S97T000381 0		@TICTOC1	LIQUID		
5 SPK	S97T000381 0		@TICTOC1	LIQUID		
6 SAMPLE	S97TP00015 0		@TICTOC1	LIQUID	97000211	2706-T
	Analytes Requested: TIC-02 , TOC-02					

Final page for worklist # 16990

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 16990

Analyst: SLH Instrument: CARB2 Book# TLC 25N12-A
Method: LA-342-100 Rev/Mod E-0 TOC 26N12-A

Worklist Comment: T-110, @TICTOC1, SM: TIC= 1.0mL, TOC= .200mL skm

S Type	Sample#	R A Test	Matrix	Group#	Project
1 BLANK		@TICTOC1 LIQUID			
2 STD		@TICTOC1 LIQUID			
3 SAMPLE	S97T000381 0	@TICTOC1 LIQUID		S97000083	T-110
	Analytes Requested: TIC-02 , TOC-02				
4 DUP	S97T000381 0	@TICTOC1 LIQUID			

Final page for worklist # 16990

Sandra L. Hood Boatright
Signature Date
4-6-97

Analyst Signature Date

Data Entry Comments:

WL # 17167 + ~~17217~~ + ~~17235~~
added to then WL

LABCORE Data Entry Template for Worklist# 17167

Analyst: SAH Instrument: CARB2 _____ Book# TIC 25N12-A

Method: LA-342-100 Rev/Mod _____ TOC 26N12-A

Worklist Comments: 2706T 151 T PLANT FOR @TIC TOC1 (STD .2-10.2 TOC) 1.0 TIC RT

S	Type	Sample#	T A	Test	Matrix	Group#	Project
1	STD				@TIC TOC1 LIQUID		
2	BLNK				@TIC TOC1 LIQUID		
3	SAMPLE	8977P00016 0			@TIC TOC1 LIQUID	97000211	2706-T

Analytes Requested: TIC-02 , TOC-02

Final page for worklist # 17167

Sander R. Bostrom
Analyst Signature

4-6-97
Date

Analyst Signature

Date

Data Entry Comments:

added to WL # 116990

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

WORKLIST

2035
4/7/97

ANALYST

INITIALS

ANALYST

DATE

ANALYST

DATE

INSTRUMENT

CODE

16990-17767-17767 SHT

4-6-96

0345

☒ BASELINE
BLANK☐ SAMPLE
DUPLICATE☐ SPUR
DUPLICATE

SAMPLE # = BASE 2

STD # =

SAMPLE WEIGHT (g)

INTEGRATED VOLUME (mL)

TIC

TOC

FINAL COULOMETER READING (V) TIC: 3.10 TOC: 39.30

☐ BASELINE
BLANK☒ SAMPLE
DUPLICATE☐ SPUR
DUPLICATE

SAMPLE # = 597T00381

STD # =

SAMPLE WEIGHT (g)

INTEGRATED VOLUME (mL)

TIC

TOC

FINAL COULOMETER READING (V) TIC: 17.9 TOC: 44.9

STD

☐ BASELINE
BLANK☐ SAMPLE
DUPLICATE☐ SPUR
DUPLICATE

SAMPLE # = STD 2

STD # =

SAMPLE WEIGHT (g)

INTEGRATED VOLUME (mL)

TIC

TOC

FINAL COULOMETER READING (V) TIC: 613.0 TOC: 611.8

☐ BASELINE
BLANK☐ SAMPLE
DUPLICATE☒ SPUR
DUPLICATE

SAMPLE # = 597T00381

STD # =

SAMPLE WEIGHT (g)

INTEGRATED VOLUME (mL)

TIC

TOC

FINAL COULOMETER READING (V) TIC: 318.4 TOC: 335.4

439

☒ BASELINE
BLANK☐ SAMPLE
DUPLICATE☐ SPUR
DUPLICATE

SAMPLE # = BLK 2

STD # =

SAMPLE WEIGHT (g)

INTEGRATED VOLUME (mL)

TIC

TOC

FINAL COULOMETER READING (V) TIC: 8.10 TOC: 39.20

☐ BASELINE
BLANK☐ SAMPLE
DUPLICATE☐ SPUR
DUPLICATE

SAMPLE # = 597T00015

STD # =

SAMPLE WEIGHT (g)

INTEGRATED VOLUME (mL)

TIC

TOC

FINAL COULOMETER READING (V) TIC: 32.0 TOC: 104.2

☐ BASELINE
BLANK☒ SAMPLE
DUPLICATE☐ SPUR
DUPLICATE

SAMPLE # = 597T00381

STD # =

SAMPLE WEIGHT (g)

INTEGRATED VOLUME (mL)

TIC

TOC

FINAL COULOMETER READING (V) TIC: 17.2 TOC: 46.6

☐ BASELINE
BLANK☒ SAMPLE
DUPLICATE☐ SPUR
DUPLICATE

SAMPLE # = 597T00018

STD # =

SAMPLE WEIGHT (g)

INTEGRATED VOLUME (mL)

TIC

TOC

FINAL COULOMETER READING (V) TIC: 102.4 TOC: 102.4

HPLCSD-WM-OP-238, REV. 0

RWS
4/7/97

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD 2

Date: 04/05/97

Time: 22:18:16

Sample Size = 1000 uL

Analyst : SL HOOD

Dil Factor = 1

Min Readings = 22

Blank ID # =

Max Readings = 22

Blank Value = .28 ug/minute C

% Difference = 10

-- Reading	----	Analysis Time	----	Coulometer	----	% Difference	--
1		0.51		0.20		0.00	
2		1.01		0.50		60.00	
3		1.50		35.90		98.61	
4		2.00		195.10		81.60	
5		2.50		368.70		47.08	
6		3.00		489.30		24.65	
7		3.50		552.70		11.47	
8		4.00		582.30		5.08	
9		4.50		598.30		2.67	
10		5.00		604.30		0.99	
11		5.50		607.60		0.54	
12		6.00		608.90		0.21	
13		6.50		609.60		0.11	
14		7.00		610.20		0.10	
15		7.50		610.70		0.08	
16		8.00		611.00		0.05	
17		8.50		611.40		0.07	
18		9.00		611.90		0.08	
19		9.50		612.10		0.03	
20		10.00		612.30		0.03	
21		10.50		612.70		0.07	
22		11.00		613.00		0.05	

USER INPUT BLANK VALUE

BLANK VALUE = 3.079863 micrograms carbon

BLANK FACTOR = 3.079863 / 10.99951 = +2.8E-01 ug/min Carbon

SAMPLE RESULTS:

(613 - 3.078872) (1)/(1000)	=	+6.099E-01	g/L Carbon
(613 - 3.078872) (1)/(1000) (12)	=	+5.083E-02	Molar Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 500 TO 519.

Sample Run By:

SL HOOD

00002

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD 2

Date: 04/05/97

Time: 22:33:36

Sample Size = 200 uL

Analyst : SL HOOD

Dil Factor = 1

Min Readings = 22

Blank ID # =

Max Readings = 22

Blank Value = 3.57 ug/minute C

% Difference = 10

-- Reading	Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.20	100.00
3	1.50	3.20	93.75
4	2.00	21.60	85.19
5	2.50	75.70	71.47
6	3.00	181.80	58.36
7	3.50	335.60	45.83
8	4.00	476.40	29.55
9	4.50	552.00	13.70
10	5.00	586.10	5.82
11	5.50	599.10	2.17
12	6.00	603.70	0.76
13	6.50	605.80	0.35
14	7.00	607.10	0.21
15	7.50	608.20	0.18
16	8.00	609.00	0.13
17	8.50	609.60	0.10
18	9.00	610.10	0.08
19	9.50	610.60	0.08
20	10.00	611.10	0.08
21	10.50	611.40	0.05
22	11.00	611.80	0.07

USER INPUT BLANK VALUE

BLANK VALUE = 39.26826 micrograms carbon

BLANK FACTOR = 39.26826 / 10.99951 = +3.6E+00 ug/min Carbon

SAMPLE RESULTS:

(611.8 - 39.25562) (1) / (200) = +2.863E+00 g/L Carbon
 (611.8 - 39.25562) (1) / (200) (12) = +2.386E-01 Molar Carbon
 <<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>

Sample Run By:

SL HOOD

00002

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BASE 2

Date: 04/05/97

Time: 21:41:43

Sample Size = 1 uL
 Dil Factor = 1
 Blank ID # = BASE 2
 Blank Value = N/A

Analyst : SL HOOD
 Min Readings = 22
 Max Readings = 22
 % Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.10	0.00
2	1.01	0.10	0.00
3	1.51	0.30	66.67
4	2.00	0.50	40.00
5	2.50	0.70	28.57
6	3.00	0.90	22.22
7	3.50	1.00	10.00
8	4.00	1.20	16.67
9	4.50	1.40	14.29
10	5.00	1.50	6.67
11	5.50	1.60	6.25
12	6.00	1.80	11.11
13	6.50	1.90	5.26
14	7.00	2.10	9.52
15	7.50	2.20	4.55
16	8.00	2.30	4.35
17	8.50	2.40	4.17
18	9.00	2.60	7.69
19	9.50	2.70	3.70
20	10.00	2.90	6.90
21	10.50	3.00	3.23
22	11.00	3.10	3.23

BLANK VALUE = 3.1 micrograms carbon

BLANK FACTOR = 3.1 / 10.99609 =

+2.8E-01

ug/min Carbon

Sample Run By:

SL HOOD

00002

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sampler: BASE 2

Date: 04/05/97

Time: 21:58:50

Sample Size = 1 uL
 Dil Factor = 1
 Blank ID # = BASE 2
 Blank Value = N/A

Analyst : SL HOOD
 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	1.50	2.50	92.00
4	2.00	7.60	67.11
5	2.50	15.50	50.97
6	3.01	23.30	33.48
7	3.50	28.60	18.53
8	4.00	31.40	8.93
9	4.50	33.10	5.14
10	5.00	34.10	2.93
11	5.50	35.00	2.57
12	6.00	35.60	1.69
13	6.50	36.00	1.11
14	7.00	36.50	1.37
15	7.50	37.00	1.35
16	8.00	37.30	0.80
17	8.50	37.70	1.06
18	9.00	38.10	1.05
19	9.50	38.40	0.78
20	10.00	38.70	0.78
21	10.50	38.90	0.51
22	11.00	39.30	1.02

BLANK VALUE = 39.3 micrograms carbon

BLANK FACTOR = 39.3 / 10.99951 = +3.57E+00 ug/min Carbon

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

Sample Run By:

SL HOOD

00002

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLK 2

Date: 04/05/97

Time: 22:47:25

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .28 ug/minute C

Analyst : SL HOOD

Min Readings = 22

Max Readings = 23

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.00	0.60	66.67
3	1.50	1.70	64.71
4	2.00	2.60	34.62
5	2.50	3.20	18.75
6	3.00	3.60	11.11
7	3.50	3.90	7.69
8	4.00	4.20	7.14
9	4.50	4.70	10.64
10	5.00	5.00	6.00
11	5.50	5.20	3.85
12	6.00	5.40	3.70
13	6.50	5.70	5.26
14	7.00	6.00	5.00
15	7.50	6.30	4.76
16	8.00	6.50	3.08
17	8.50	6.80	4.41
18	9.00	7.10	4.23
19	9.50	7.40	4.05
20	10.00	7.60	2.63
21	10.80	7.90	3.80
22	11.00	8.10	2.47

USER INPUT BLANK VALUE

BLANK VALUE = 3.079863 micrograms carbon

BLANK FACTOR = 3.079863 / 10.99951 = +2.6E-01 ug/min Carbon

SAMPLE RESULTS:

(8.1 - 3.080171) (1)/(1)	=	+5.0E+00	g/L Carbon
(8.1 - 3.080171) (1)/(1) (12)	=	+4.2E-01	Molar Carbon

Sample Run By:

SL HOOD

00002

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLK 2

Date: 04/05/97

Time: 23:01:35

Sample Size = 1 ul

Dil Factor = 1

Blank ID # =

Blank Value = 3.57 ug/minute C

Analyst: SL HOOD

Min Readings = 22

Max Readings = 22

* Difference = 10

Reading	Analysis Time	Coulometer	* Difference
1	0.51	0.20	0.00
2	1.01	0.70	71.43
3	1.50	5.20	86.54
4	2.00	14.20	63.38
5	2.50	22.50	36.89
6	3.00	27.50	19.18
7	3.50	31.00	11.29
8	4.00	32.60	4.91
9	4.50	33.80	3.55
10	5.00	34.40	1.74
11	5.50	35.00	1.71
12	6.00	35.50	1.41
13	6.50	35.90	1.11
14	7.00	36.40	1.37
15	7.50	36.90	1.36
16	8.00	37.20	0.81
17	8.50	37.60	1.06
18	9.00	38.10	1.31
19	9.50	38.20	0.26
20	10.00	38.60	1.04
21	10.50	38.90	0.77
22	11.00	39.20	0.77

USER INPUT BLANK VALUE

BLANK VALUE = 39.26826 micrograms carbon

BLANK FACTOR = 39.26826 / 10.99951 = +3.6E+00 ug/min Carbon

SAMPLE RESULTS:

(39.2 - 39.26564) (1)/(1) = < 5.00 E-3 g/L Carbon
 (39.2 - 39.26564) (1)/(1)(12) = < 4.17 E-4 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

SL HOOD

00002

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T00381

Date: 04/05/97

Time: 23:17:48

Sample Size = 1 uL

Dil Factor = 1

Blank ID # -

Blank Value = .28 ug/minute C

Analyst : SL HOOD

Min Readings = 22

Max Readings = 22

% Difference = 10

-- Reading	----	Analysis Time	----	Coulometer	----	% Difference	--
1		0.51		0.30		0.00	
2		1.01		0.80		62.50	
3		1.51		2.50		68.00	
4		2.00		5.60		55.36	
5		2.50		9.10		38.46	
6		3.00		10.90		16.51	
7		3.50		12.30		11.38	
8		4.00		13.20		6.82	
9		4.50		13.80		4.35	
10		5.00		14.00		1.43	
11		5.50		14.40		2.78	
12		6.00		14.70		2.04	
13		6.50		15.00		2.00	
14		7.00		15.30		1.96	
15		7.50		15.50		1.29	
16		8.00		15.80		1.90	
17		8.50		16.10		1.86	
18		9.00		16.10		0.00	
19		9.50		16.40		1.83	
20		10.00		16.60		1.20	
21		10.50		16.80		1.19	
22		11.00		17.20		2.33	

USER INPUT BLANK VALUE

BLANK VALUE = 3.079863 micrograms carbon

BLANK FACTOR = 3.079863 / 10.99951 = +2.8E-01 ug/min Carbon

SAMPLE RESULTS:

(17.2 - 3.079419) (1)/(1)	=	+1.41E+01	g/L Carbon
(17.2 - 3.079419) (1)/(1) (12)	=	+1.18E+00	Molar Carbon

Sample Run By:

SL HOOD

00002

35 ml
1.0026g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97TG381

Date: 04/05/97

Time: 23:30:35

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 3.57 ug/minute C

Analyst : SL HOOD

Min Readings = 22

Max Readings = 22

† Difference = 10

-- Reading	----	Analysis Time	----	Coulometer	----	% Difference	--
1		0.51		0.10		0.00	
2		1.01		0.60		83.33	
3		1.50		4.90		87.76	
4		2.00		16.00		69.38	
5		2.50		25.70		37.74	
6		3.00		32.60		21.17	
7		3.50		36.80		11.41	
8		4.00		38.90		5.40	
9		4.50		40.10		2.99	
10		5.00		41.10		2.43	
11		5.50		41.80		1.67	
12		6.00		42.50		1.65	
13		6.50		43.00		1.16	
14		7.00		43.60		1.38	
15		7.50		43.90		0.68	
16		8.00		44.30		0.90	
17		8.50		44.70		0.89	
18		9.00		45.10		0.89	
19		9.50		45.50		0.88	
20		10.00		45.90		0.87	
21		10.50		46.20		0.65	
22		11.00		46.60		0.86	

USER INPUT BLANK VALUE

BLANK VALUE = 39.26826 micrograms carbon

BLANK FACTOR = 39.26826 / 10.99951 = +3.6E+00 ug/min Carbon

SAMPLE RESULTS:

(46.6 - 39.26259) (1) / (1) = +7.34E+00 g/L Carbon
 (46.6 - 39.26259) (1) / (1) (12) = +6.11E-01 Molar Carbon
 <<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>

Sample Run By:

SL HOOD

00002

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T0381 DUF

Date: 04/05/97

Time: 23:43:27

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .28 ug/minute C

Analyst : SL HOOD

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	2.20	77.27
4	2.00	5.60	60.71
5	2.50	9.10	38.46
6	3.00	11.70	22.22
7	3.50	13.10	10.69
8	4.00	13.80	5.07
9	4.50	14.30	3.50
10	5.00	14.60	2.05
11	5.50	15.00	2.67
12	6.00	15.20	1.33
13	6.50	15.60	2.56
14	7.00	15.70	0.64
15	7.50	16.00	1.08
16	8.00	16.30	1.84
17	8.50	16.50	1.21
18	9.00	16.90	2.37
19	9.50	17.10	1.17
20	10.00	17.40	1.72
21	10.50	17.60	1.14
22	11.00	17.90	1.68

USER INPUT BLANK VALUE

BLANK VALUE = 3.079863 micrograms carbon

BLANK FACTOR = 3.079863 / 10.99951 = +2.8E-01 ug/min Carbon

SAMPLE RESULTS:

(17.9 - 3.079863) (1) / (1) = +1.48E+01 g/L Carbon
(17.9 - 3.079863) (1) / (1) (12) = +1.24E+00 Molar Carbon

Sample Run By:

SL HOOD

00002

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T0381 DUP

Date: 04/05/97

Time: 23:56:56

Sample Size = 1 uL

Analyst : SL HOOD

Dil Factor = 1

Min Readings = 22

Blank ID # =

Max Readings = 22

Blank Value = 3.57 ug/minute C

% Difference = 10

== Reading ==	Analysis Time	Coulometer	% Difference ==
1	0.51	0.30	0.00
2	1.01	0.60	50.00
3	1.51	1.70	87.23
4	2.00	14.50	67.59
5	2.50	23.80	39.08
6	3.00	30.80	22.73
7	3.50	35.00	12.00
8	4.00	37.30	6.17
9	4.50	38.50	3.12
10	5.00	39.50	2.53
11	5.50	40.20	1.74
12	6.00	40.80	1.47
13	6.50	41.40	1.43
14	7.00	41.80	0.96
15	7.50	42.30	1.18
16	8.00	42.70	0.94
17	8.50	43.20	1.16
18	9.00	43.60	0.92
19	9.50	43.90	0.68
20	10.00	44.20	0.68
21	10.50	44.60	0.90
22	11.00	44.90	0.67

USER INPUT BLANK VALUE

BLANK VALUE = 39.26826 micrograms carbon

BLANK FACTOR = 39.26826 / 10.99951 = +3.6E+00 ug/min Carbon

SAMPLE RESULTS:

{ 44.9 - 39.25911 } (1)/(1) = +5.64E+00 g/L Carbon
 { 44.9 - 39.25911 } (1)/(1) (12) = +4.70E-01 Molar Carbon
 <<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>

Sample Run By:

SL HOOD

00002

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T0381 SPK

Date: 04/06/97

Time: 01:19:39

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 3.57 ug/minute C

Analyst : SL HOOD

Min Readings = 22

Max Readings = 22

% Difference = 10

-- Reading	----	Analysis Time	----	Coulometer	----	% Difference	--
1		0.51		0.00		0.00	
2		1.01		0.50		100.00	
3		1.51		6.80		92.65	
4		2.01		45.10		84.92	
5		2.50		129.60		64.93	
6		3.00		218.10		41.04	
7		3.50		275.80		20.92	
8		4.00		304.80		9.51	
9		4.50		319.90		4.73	
10		5.00		325.00		1.57	
11		5.50		327.70		0.82	
12		6.00		329.50		0.55	
13		6.50		330.70		0.36	
14		7.00		331.40		0.21	
15		7.50		332.10		0.21	
16		8.00		332.60		0.15	
17		8.50		333.30		0.21	
18		9.00		333.60		0.09	
19		9.50		334.00		0.12	
20		10.00		334.60		0.18	
21		10.50		335.10		0.15	
22		11.00		335.40		0.09	

USER INPUT BLANK VALUE

BLANK VALUE = 39.26826 micrograms carbon

BLANK FACTOR = 39.26826 / 10.99951 = +3.6E+00 ug/min Carbon

SAMPLE RESULTS:

(335.4 - 39.26583) (1) / (1) = +2.961E+02 g/L Carbon
 (335.4 - 39.26583) (1) / (1) (12) = +2.468E+01 Molar Carbon

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

Sample Run By:

SL HOOD

00002

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T0381 SPK

Date: 04/06/97

Time: 00:11:32

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .28 ug/minute C

Analyst : SL HOOD

Min Readings = 22

Max Readings = 22

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	1439.49	0.00	0.00
2	1438.99	0.40	100.00
3	1438.49	14.20	97.18
4	1438.00	90.90	84.38
5	1437.50	181.10	49.81
6	1437.00	244.20	25.84
7	1436.50	280.20	12.85
8	1436.00	298.40	6.10
9	1435.50	307.50	2.96
10	1435.00	311.70	1.35
11	1434.50	313.60	0.61
12	1434.00	314.60	0.32
13	1433.50	315.30	0.22
14	1433.00	315.70	0.13
15	1432.50	316.10	0.13
16	1432.00	316.40	0.09
17	1431.50	316.80	0.13
18	1431.00	317.10	0.09
19	1430.50	317.40	0.09
20	1430.00	317.80	0.13
21	1429.50	318.10	0.09
22	1429.00	318.40	0.09

USER INPUT BLANK VALUE

BLANK VALUE = 3.079863 micrograms carbon

BLANK FACTOR = 3.079863 / 10.99951 = +2.88-01 ug/min Carbon

SAMPLE RESULTS:

(318.4 --400.1208) (1)/(1) = +7.185E+02 g/L Carbon
(318.4 --400.1208) (1)/(1) (12) = +5.988E+01 Molar Carbon

Sample Run By:

SL HOOD

00002

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97TP00015

Date: 04/06/97

Time: 01:52:39

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = 3.57 ug/minute C

Analyst : SL HOOD

Min Readings = 22

Max Readings = 22

% Difference = 10

-- Reading	----	Analysis Time	----	Coulometer	----	% Difference	--
1		0.51		0.00		0.00	
2		1.01		0.30		100.00	
3		1.50		3.90		92.31	
4		2.00		14.10		72.34	
5		2.50		28.20		50.00	
6		3.00		43.10		34.57	
7		3.50		59.50		19.44	
8		4.00		61.90		13.57	
9		4.50		68.10		9.10	
10		5.00		72.80		6.46	
11		5.50		76.50		4.84	
12		6.00		80.50		4.97	
13		6.50		83.50		3.59	
14		7.00		86.70		3.69	
15		7.50		89.40		3.02	
16		8.00		92.00		2.83	
17		8.50		94.30		2.44	
18		9.00		96.60		2.38	
19		9.50		98.60		2.03	
20		10.00		100.90		2.28	
21		10.50		102.40		1.46	
22		11.00		104.20		1.73	

USER INPUT BLANK VALUE

BLANK VALUE = 39.26826 micrograms carbon

BLANK FACTOR = 39.26826 / 10.99951 = +3.6E+00 ug/min Carbon

SAMPLE RESULTS:

(104.2 - 39.26286) (1) / (1) = +6.494E+01 g/L Carbon
 (104.2 - 39.26286) (1) / (1) (12) = +5.411E+00 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

SL HOOD

00002

35 ind =
0.997/g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97TP00015

Date: 04/06/97

Time: 01:38:31

Sample Size = 1 uL

Dil Factor = 1

Blank ID # =

Blank Value = .28 ug/minute C

Analyst : SL HOOD

Min Readings = 22

Max Readings = 22

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.00	0.30	100.00
3	1.50	2.40	87.50
4	2.00	9.20	73.91
5	2.50	17.50	87.43
6	3.00	22.80	23.25
7	3.50	25.60	10.94
8	4.00	27.20	5.88
9	4.50	28.10	3.20
10	5.00	28.60	1.75
11	5.50	29.00	1.38
12	6.00	29.30	1.02
13	6.50	29.60	1.01
14	7.00	29.90	1.00
15	7.50	30.20	0.99
16	8.00	30.50	0.98
17	8.50	30.70	0.85
18	9.00	30.90	0.65
19	9.50	31.10	0.64
20	10.00	31.40	0.96
21	10.50	31.70	0.95
22	11.00	32.00	0.94

USER INPUT BLANK VALUE

BLANK VALUE = 3.079863 micrograms carbon

BLANK FACTOR = 3.079863 / 10.99951 = +2.8E-01 ug/min Carbon

SAMPLE RESULTS:

{ 32 - 3.078925 } (1)/(1) =

+2.89E+01 g/L Carbon

{ 32 - 3.078925 } (1)/(1) {12} =

+2.41E+00 Molar Carbon

Sample Run By:

SL HOOD

00002

ss /ml = 0.997/g

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

LIQUIDS

TIC

TOC

Sample Size in mL

(S6)

Dilution Factor

(DF)

ug of Carbon in Sample

(C1)

ug of Carbon from Baseline

(C2)

TIC/TOC?

Liquid

ug of Carbon = (C1-C2)

0

N/A

TIC

TOC

Method Detection Limit in ug/mL

5

40

ug of Carbon

5.00E+00

1.00E-01

Data Entered By:

Signature of Chemist:

E:\MCP\REP1.0

3/21/04

Date:

04/07/97

Date:

4/7/97

HNF-SO-WM-DP-239, REV. 0

514

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

LIQUIDS

		TIC	TOC
Sample Size in mL	(S)	10	10000
STANDARD	Dilution Factor	1	1
	Final Concentration Reading in µg	1000	1000
10000	µg of Carbon from Baseline	1000	1000
	Standard Book Number	1000	1000
STICTOC1	Standard Value (µg/mL)	1000	1000

26N12A QWS 4/7/97

LIQUID	
5	QC Actual in µg/mL = Standard Value (µg/mL)
	QC Found in µg/mL = (C1 - C2) * DF / S
N/A	QC Found in µg/mL for TIC = 5 if C1 < C2
	QC Found in µg/mL for TOC = 45 if C1 < C2
	% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in µg/mL	5	40
QC Actual in µg/mL	6.82E+02	3.88E+03
QC Found in µg/mL	6.18E+02	2.88E+03
Percent Standard Recovery	101.3	85.4

3 QWS 4/9/97

Date Entered By:	RWS	Date:	04/07/97
Signature of Chemist:	Reu Schwab	Date:	4/7/97

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

LIQUIDS

		TIC	TOC
SAMPLE	Sample Size in mL	(B3)	
	Dilution Factor	(D1)	
	µg of Carbon in Sample	(C1)	
	µg of Carbon from Baseline	(C2)	

TIC/TOC1

LIQUID

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

MFA

NOTE: FOR TOC: The Reported Result is

< 40

		TIC	TOC
	Method Detection Limit (in µg/mL)	5	40
	µg of Carbon/mL	1.41E+01	3.33E+00

Note:

RWS
4/7/97

40

RWS
4/7/97

Date Entered By:	RWS	Date:	04/07/97
Signature of Chemist:	<i>[Signature]</i>	Date:	4/7/97

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

LIQUIDS

		TIC	TOC
Sample Size in mL	(S8)	0.0009	0.0009
Dilution Factor	(DF)		
µg of Carbon in Sample	(C1)		
µg of Carbon from Benzene	(C2)		
Known µg of C from Original Sample			

@TIC/TOC1

LIQUID

µg of Carbon/mL = (C1-C2) * DF / S8
 µg of Carbon/mL for TIC = 5 if C1 < C2
 µg of Carbon/mL for TOC = 40 if C1 < C2

N/A

NOTE: FOR TOC: The Reported Result is < 40

Method Detection Limit in µg/mL	TIC	TOC
	5	40
µg of Carbon/mL	1.43E+01	< 5.00E+00

Note:

Russ
4/7/97

40

Russ
4/9/97

Date Entered By:	URS	Date:	04/07/97
Signature of Chemist:	<i>Russ Schindler</i>	Date:	4/7/97

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

LIQUIDS

[illegible]

Data Entered By:	RWS	Date:	04/07/96
Signature of Chemist:	<i>RWS</i>	Date:	4/7/96
Search with ADP 1.1	NS10006		

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

LIQUIDS

		TIC	TOC
SAMPLE	Sample Size in mL	(SS)	
	Dilution Factor	(DF)	
	µg of Carbon in Sample	(C1)	
18990	µg of Carbon from Baseline	(C2)	
@TIC/TOC1			

LIQUID

0

N/A

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

Method Detection Limit in µg/mL

µg of Carbon/mL

TIC

TOC

5

40

2.89E+01

6.49E+01

Data Entered By:

Signature of Chemist:

RW/S

Date: 04/07/97

Date: 4/7/97

Example 10-10-10-10-10

2010-10-10

HMF-SD-WMADP-238, REV. 0

519

HMF-SD-WM-OP-238, REV. 0

RADIOCHEMICAL ANALYSIS

HNF-SD-WM-DP-238, REV. 0

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LABCORE Completed RadChem Report for Worklist#: 16695

Analyst: jds Instrument: AB16 Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: T-110, @ALPHA01, Deter. s.s. using Ludlum. skm

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	WATERBATH ALPHA01 LIQDIO		2.44E+04	1.56E+4	52.500	% Recovery
1 STD	0	GALPHA01 ALPHA01 LIQDIO		1.00	1.42E+00	3.420	% Ct. Error
2 BLK	0	GALPHA01 ALPHA01 LIQDIO		1	2.85E-7		cts/mh
3 BLK	0	GALPHA01 ALPHA01 LIQDIO		1.00	3.98E+02	501.000	cts/mh
3 BLK/BKG	0	GALPHA01 ALPHA01 LIQDIO		1.44E+00	4.44E+00	4.440	BKG/BKG
4 SAMPLE	0970000110	GALPHA01 ALPHA01 LIQDIO		N/A	1.39E+07	400.00+000	cts/mh
4 SAMPLE	0970000110	GALPHA01 ALPHA01 LIQDIO		N/A	1.34E+02	0.00+000	% Ct. Error
5 STD	0970000110	GALPHA01 ALPHA01 LIQDIO		5.27E-7	5.45E-7	1.000	STD
5 STD	0970000110	GALPHA01 ALPHA01 LIQDIO		3.00	6.19E+02	62.500	% Ct. Error

Final page for worklist# 16695

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Reviewer Signature Date 3/7/97

LABCORE Data Entry Template for Worklist# 16695

Analyst: JLS Instrument: AB00 #16 Book# 7985C

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

Worklist Comment: T-110, @ALPHA01, Deter. s.s. using Ludlum. skm

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@ALPHA01	LIQUID		
2 BLNK			@ALPHA01	LIQUID		
3 BLNK/BLK			@ALPHA01	LIQUID		
4 SAMPLE	S97T000119 0		@ALPHA01	LIQUID	97000083	T-110
	Analytes Requested: ALPHA01 , ALPHA01E					
5 DUP	S97T000119 0		@ALPHA01	LIQUID		

Final page for worklist # 16695

Analyst Signature JLS Date 3/4/97
3/5/97

Analyst Signature Lue Hogan Date 3-5-97
Cf. Quinn 3-5-97

Data Entry Comments:

WORKBOOK PAGE: 5701

AT: LA-508-001 (E-4)

LA-508-112 (E-0) STANDARD

		STANDARD	REPLICATE
DETECTOR NUMBER		10	10
STD	DRIN SIZE (1, 2, or 5)	(N5)	2
GROSS COUNTS	(GC)	3998	3296
COUNT TIME IN MINUTES	(CT)	30	30
BACKGROUND IN cpm	(BKG)	9.83	0.03
SAMPLE SIZE IN mL	(SS)	1.000	1.000
SOLUTION FACTOR	(SF)	1	1
STANDARD BOOK NUMBER	(Std Bk)	79866	79866
EFFICIENCY FACTOR	(EFF)	0.2681	0.2681
LIQUID	LC, RMK, or N/A (SAMPLE RATE IS APPROPRIATE)	111.175	
Standard Value in $\mu\text{Ci/mL}$		2.00E-04	
Concentration in $\mu\text{Ci/mL}$	=	1.87E-04	
Applicable Concentration in $\mu\text{Ci/mL}$	=	1.84E-04	
AVERAGE CONCENTRATION IN $\mu\text{Ci/mL}$	=	1.840E-04	
R/A	$R_A \text{ (Sample Count Rate)} = (TC / CT) - BKG$		
ALPHA TOTAL μCi	$R_A \sim 1000 \text{ mL} \cdot DF / (EFF \cdot SS \cdot 2220000 \text{ dpm}/\mu\text{Ci})$		
ALPHA TOTAL $\mu\text{Ci/mL}$	$\text{ALPHA TOTAL } \mu\text{Ci} / 1000 \text{ mL}$		
Relative Counting Error	$= \left(\frac{\text{The Square Root of } TC + BKG \cdot CT}{(TC - BKG \cdot CT)} \right) \cdot 1.96 \cdot 100$		
Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
ALPHA TOTAL CONCENTRATION IN $\mu\text{Ci/mL}$	=	1.88E-04	
DETECTION LEVEL			
RELATIVE COUNTING ERROR	=	5.4%	
4.00E-03 $\mu\text{Ci/mL}$			

Analysis	SEM	Date: 02-MAY-97
Signature of Chemist	SLF	Date: 3/7/97
STANDARD/VER 1.0	508101ML	

WORKBOOK PAGE: BLANK

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

LIQUIDS

		BLNK	REPLICATE
DETECTOR NUMBER		1B	1B
ORIN SIZE (1, 2, or 6)	(BPS)	2	2
GROSS COUNTS	(GC)	0	2
COUNT TIME in MINUTES	(CT)	30	30
BACKGROUND in cpm	(BKG)	0.00	0.00
SAMPLE SIZE in mL	(SS)	1.000	1.000
DILUTION FACTOR	(DF)	1	1
DIGEST DILUTION FACTOR	(DDF)	1	1
EFFICIENCY FACTOR	(BPF)	0.2693	0.2693
Co. Rate, or R _s SAMPLE RATE is APPROPRIATE		0.170	0.136

STANDARD	Blank Concentration in $\mu\text{Ci/L}$	2.00E-00
TEST	Replicate Concentration in $\mu\text{Ci/L}$	< 2.19E-04
8	Readmark Concentration in $\mu\text{Ci/L}$	< 2.1941E-04

WFA	R _s (Sample Count Rate) = $(TC / CT) - BKG$
AL1000	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s \cdot 1000 \text{ mL} \cdot DF \cdot DDF / (BPF \cdot SS \cdot 2220000 \text{ dpm}/\mu\text{Ci})$
W82700	ALPHA TOTAL $\mu\text{Ci/L}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000 \text{ mL}$
W82700	Relative Counting Error = $[(4 \text{ The Square Root of } TC + BKG \cdot CT) / (TC - BKG \cdot CT)] \cdot 1.00 \cdot 100$

Detection Levels and Less Than Values are determined from Procedure LA-503-002.

SLP	ALPHA TOTAL in $\mu\text{Ci/mL}$ (Maximum)	< 2.19E-07	DETECTION LEVEL
SLP	LESS THAN Value was Determined from R _s .		
034007	RELATIVE COUNTING ERROR	303.4%	4.90E-07 $\mu\text{Ci/mL}$
034007			
034007			
42-10 JLS			
7-115			

Analyst	JDS	Date: 05-Mar-97
Signature of Chemist	SLP	Date: 3/7/97
SLAC/WTB Rev 1.0	508 TOTAL	

W0RusBoOk.Fr0E: 3444

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

LIQUIDS

AT: LA-508-101 (E-1) LIQUIDS		SAMPLE	REPLICATE
1	CITYECTOR NUMBER	98	98
SAMPLE	ORIN SIZE (1, 2, or 3)	2	2
ORIGIN	GROSS COUNTS (GC)	8	10
48846	COUNT TIME IN MINUTES (CT)	30	30
48846	BACKGROUND IN cpm (BKG)	0.03	0.83
AT	SAMPLE SIZE IN mL (SZ)	1.008	1.000
48846	DILUTION FACTOR (DF)	1	1
48846	CORRECT DILUTION FACTOR (CDF)	1	1
48846	EFFICIENCY FACTOR (EFF)	0.2663	0.2688
LIQUID	Co, Fe-59, or Po (SAMPLE RATE) as APPROPRIATE	0.127	0.589
97800890	Blank Concentration in pCi/L	2.29E-04	
97800890	Replicate Concentration in pCi/L	4.48E-04	
97800890	Average Concentration in pCi/L	0.2728E-04	

Ra (Sample Count Rate) = $(CT / CT) - BKG$
 ALPHA TOTAL pCi = $Ra \times 1000mL \times DF \times ORF / (EFF \times SS \times 2220000dpm/pCi)$
 ALPHA TOTAL pCi/mL = $ALPHA\ TOTAL\ pCi / 1000mL$
 Relative Counting Error = $|((The\ Square\ Root\ of\ (CT - BKG) / CT) / (CT - BKG) / CTX)| \times 1.96 \times 100$
 Detection Levels and Loops (These Values are calculated from Procedures LA-500-002.

SIF	ALPHA TOTAL In µCi/mL (Average)	e	8.37E-07	DETECTION LEVEL
JOS				
QSO697	RELATIVE COUNTING ERROR			4.90E-07 µCi/mL
QOUG97				
SIIC3197				
QQ4B AM				
SAU187				
T-110				

1000

Analyst	OS	Date: 05-Mar-97
Signature of Chemist	SLP	Date: 3/7/97
BAUER, W. Rev. 1.0	50510118	

WORKBOOK PAGE: DUPLS

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

LIQUIDS

	CUP	REPLICATE
DETECTOR NUMBER	19	19
CUP	19	19
GRAN SIZE (1, 2, or 6)	2	2
GROSS COUNTS	100	11
COUNT TIME IN MINUTES	CTA	30
BACKGROUND IN cpm	(BKG)	0.83
AT	(BS)	1.000
SAMPLE SIZE IN mL	(DF)	1
DILUTION FACTOR	(DIF)	1
ALPHA TOTAL	(DIF)	1
EFFICIENCY FACTOR	(EFF)	0.2583
LIQUID	0.257	0.257

9700000	Blank Concentration in $\mu\text{Ci/L}$	0.00000
9700000	Sample Concentration in $\mu\text{Ci/L}$	0.00000
9700000	Average Concentration in $\mu\text{Ci/L}$	0.00000

9700000	Rs (Sample Count Rate) = $(TC / CT) \cdot BKG$
9700000	ALPHA TOTAL $\mu\text{Ci/L}$ = $Rs \cdot 1000 \text{ mL} \cdot DF \cdot DIF / (EFF \cdot SS \cdot 22200000 \text{ dpm/}\mu\text{Ci})$
9700000	ALPHA TOTAL $\mu\text{Ci/mL}$ = $ALPHA \text{ TOTAL } \mu\text{Ci/L} / 1000 \text{ mL}$
9700000	Relative Counting Error = $[(\text{The Square Root of } TC + BKG \cdot CT) / (TC + BKG \cdot CT)] \cdot 100$
9700000	Detection Limits and Less Than Values are determined from Procedure LA-903-002.

9700000	SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$ (Average)	0.00000	DETECTION LEVEL
9700000	SLF			0.00000
9700000	SLF	RELATIVE COUNTING ERROR	00.0%	$\mu\text{Ci/mL}$

(System/Type)

Analyst:	SLF	Date: 06-Mar-97
Signature of Chemist:	SLF	Date: 3/7/97
SAMPLE VET Rev. 1.0	00000000	

LABCORE Completed RadChem Report for Worklist#: 16899

Analyst: slh Instrument: AB16 Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: T-110, @ALPHA01, Deter s.s. by Ludlum. Std = 1.0mL akm

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	HALPHAS2 ALPHAS2 SOLID		2.00E-04	3.33E-4	19.500	% Recovery
2 STD	0	HALPHAS1 ALPHAS1 SOLID		1.00	3.33E-04	3.330	% Ct. Recov
3 BLK-BKG	0	HALPHAS2 ALPHAS2 SOLID		1	4.57E-4		uCi/g
4 BLK-BKG	0	HALPHAS1 ALPHAS1 SOLID		1.90	3.00E-02	540.000	uCi/g
5 BLK-BKG	-	HALPHAS2 ALPHAS2 SOLID		3.00E-04	2.70E-04	2.700	BLK/BKG
6 SAMPLE	03770001200	0 X HALPHAS2 ALPHAS2 SOLID		N/A	3.42E-02	444.00000	uCi/g
7 SAMPLE	03770001250	0 X HALPHAS2 ALPHAS2 SOLID		N/A	6.18E-02	0.00000	% Ct. Recov
8 DUP	03770001250	0 X HALPHAS2 ALPHAS2 SOLID		3.62E-2	3.02E-2	32.422	RSD
9 DUP	03770001250	0 X HALPHAS1 ALPHAS1 SOLID		1.00	0.60E-00	0.600	% Ct. Recov
4 SAMPLE	03770001251	0 X HALPHAS2 ALPHAS2 SOLID		N/A	3.51E-02	435.00000	uCi/g
6 SAMPLE	03770001252	0 X HALPHAS2 ALPHAS2 SOLID		N/A	7.35E-04	0.00000	% Ct. Recov
7 DUP	03770001251	0 X HALPHAS1 ALPHAS1 SOLID		3.61E-2	3.38E-2	1.774	RSD
9 DUP	03770001251	0 X HALPHAS2 ALPHAS2 SOLID		1.44	7.77E-02	2.770	% Ct. Recov

Final page for worklist# 16899

Analyst Signature	Date	Analyst Signature	Date
3/13/97
Reviewer Signature	Date		

LABCORE Data Entry Template for Worklist# 16899

Analyst: JS SLH Instrument: ABOQ 16 Book# 79 BSC
123047 g/c
Method: LA-508-101 Rev/Mod F-0

Worklist Comment: T-110, @ALPHA01, Deter s.s. by Ludlum. Std = 1.0mL. skm

S Type	Sample#	R A Test	Matrix	Group#	Project
1 STD		@ALPHA01 SOLID			
2 BLNK-PREP		@ALPHA01 SOLID			
3 BLNK/BKG		@ALPHA01 SOLID			
4 SAMPLE	S97T000150 Q P	@ALPHA01 SOLID		97000083	T-110
	Analytes Requested: ALPHA01 , ALPHA01R				
5 DXP	S97T000150 Q P	@ALPHA01 SOLID			
6 SAMPLE	S97T000151 Q P	@ALPHA01 SOLID		97000083	T-110
	Analytes Requested: ALPHA01 , ALPHA01R				
7 DXP	S97T000151 Q P	@ALPHA01 SOLID			

Final page for worklist # 16899

JS SLH 3/7/97
Analyst Signature Date
Shirley Boatright 3-8-96

SLH 3/10/97
Analyst Signature Date
Steve Hogan 3-10-97

Data Entry Comments: Did a boil down on sample and still
had crusty dishes

Run samples at 500ml per Scot Fitzgerald
S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WORKBOOK PAGE BLANK2

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

SOLIDS

		BLNK-PREP	REPLICATE
YR	DETECTOR NUMBER	18	18
BLNK-PREP	ORH SIZE (1, 2, or 6)	2	2
	GROSS COUNTS	4	1
10000	COUNT TIME in MINUTES	30	30
	BACKGROUND in cpm	0.03	0.03
AT	SAMPLE SIZE in mL	0.500	0.500
	DILUTION FACTOR	1	1
ALPHA01	GROSS GRAMS of SOLIDS / L	1.9968	1.9908
CT	EFFICIENCY FACTOR	0.2883	0.2883
SOLID	Lc, Rm, or Rn (SAMPLE RATE) as APPROPRIATE	0.103	0.079
07000618	Blank Concentration in $\mu\text{Ci/g}$	1.76E-04	
0	Replicate Concentration in $\mu\text{Ci/g}$	< 1.34E-04	
	Maximum Concentration in $\mu\text{Ci/g}$	< 1.7517E-04	
N/A	R_n (Sample Count Rate) = $(TC / CT) - BKG$		
	ALPHA TOTAL $\mu\text{Ci/g}$ = $R_n \cdot 1000 \text{ mL} \cdot DF / (EFF \cdot SS \cdot DgtL \cdot 222000 \text{ dpm}/\mu\text{Ci})$		
AL10000-BLANK	Relative Counting Error = $[(\text{The Square Root of } TC + BKG \cdot CT) / (TC - BKG \cdot CT)] \cdot 100 \cdot 100$		
WB27808	Detection Levels and Less Than Values are determined from Procedure LA-508-002		
MCB			
CT			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Maximum) =	< 1.75E-04	DETECTION LEVEL
SLH	LESS THAN Value was Determined from R_n .		
0311067	RELATIVE COUNTING ERROR	800.0%	4.04E-04 $\mu\text{Ci/g}$
0308097			
0600 AM			
T-110			

Analyst	SLH	Date 10-Mar-97
Signature of Chemical	SLF	Date 3/13/92
BLANK WB1 Rev 1.0	508101AL	

WORKBOOK PAGE 8AM4

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

SOLIDS

		SAMPLE	REPLICATE
DETECTOR NUMBER		16	16
DISH SIZE (1, 2, or 3)	(DS)	2	2
GROSS COUNTS	(GC)	630	601
COUNT TIME in MINUTES	(CT)	30	30
BACKGROUND in cpm	(BKG)	0.83	0.83
SAMPLE SIZE in mL	(SS)	0.500	0.500
DILUTION FACTOR	(DF)	1	1
DIGEST GRAINS OF SOLIDS / L	(DGL)	1.9688	1.9688
EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
LC, Rmax, or Ra (SAMPLE RATE) as APPROPRIATE		20.970	19.337
Mean Concentration in $\mu\text{Ci/g}$		3.38E-02	
Replicate Concentration in $\mu\text{Ci/g}$		3.38E-02	
Average Concentration in $\mu\text{Ci/g}$		3.41E-02	
Rs (Sample Count Rate) = $(TC / CT) - BKG$			
ALPHA TOTAL $\mu\text{Ci/g}$ = $Ra \cdot 1000 \text{ mL} \cdot DF / (EFF \cdot SS \cdot Dg/L \cdot 2220000 \text{ dpm}/\mu\text{Ci})$			
Relative Counting Error = $[\sqrt{(TC + BKG \cdot CT)} / (TC - BKG \cdot CT)] \cdot 100 \cdot 100$			
Detection Levels and Less Than Values are determined from Procedure LA-508-002			
ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)		3.42E-02	
			DETECTION LEVEL
			4.04E-04 $\mu\text{Ci/g}$
RELATIVE COUNTING ERROR		8.2%	

Analyst	SLH	Date	10-30-97
Signature of Chemist	SLF	Date	3/12/97
SAMPLE WBT Rev 1.0	508101ML		

WORKBOOK PAGE DUPS

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

SOLIDS

		DUP	REPLICATE
DETECTOR NUMBER		16	16
DUP	DRSH SIZE (1, 2, or 5)	(BS)	2
GROSS COUNTS	(GC)	618	672
COUNT TIME IN MINUTES	(CT)	30	30
BACKGROUND IN cpm	(BKG)	0.03	0.03
SAMPLE SIZE IN mL	(SS)	0.800	0.800
DILUTION FACTOR	(DF)	1	1
DIGEST GRAMS OF SOLIDS / L	(Dg/L)	2.018	2.018
EFFICIENCY FACTOR	(EF)	0.2683	0.2683
LC, Rm, or R _s (SAMPLE RATE) as APPROPRIATE		17.237	18.237
Blank Concentration in $\mu\text{Ci/g}$		2.87E-02	
Replicate Concentration in $\mu\text{Ci/g}$		3.17E-02	
Average Concentration in $\mu\text{Ci/g}$		3.017E-02	
R _s (Sample Count Rate) = $(\text{TC} / \text{CT}) - \text{BKG}$			
ALPHA TOTAL $\mu\text{Ci/g}$ = $\text{R}_s * 1000 \text{ mL/L} * \text{DF} / (\text{EFF} * \text{SS} * \text{Dg/L} * 2220000 \text{ dpm}/\mu\text{Ci})$			
Relative Counting Error = $[(\text{The Square Root of TC} + \text{BKG} * \text{CT}) / (\text{TC} - \text{BKG} * \text{CT})] * 100 * 100$			
Detection Levels and Less Than Values are determined from Procedure LA-508-002			
ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)		3.92E-02	DETECTION LEVEL
			3.96E-04 $\mu\text{Ci/g}$
RELATIVE COUNTING ERROR		8.6%	

Analyst	SLM	Date	10-Mar-97
Signature of Chemist	SLF	Date	3/12/97
SAMPLE WBT Rev 1.0	608101AL		

WORKBOOK PAGE 00P7

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

		DUP	REPLICATE
DETECTOR NUMBER		16	16
DUP	CEN SIZE (1, 2, or 5)	(H8)	2
GROSS COUNTS		(GC)	730
COUNT TIME in MINUTES		(CT)	30
BACKGROUND in cpm		(BG)	0.00
AT	SAMPLE SIZE in mL	(SS)	8.500
DILUTION FACTOR		(DF)	1
ALPHA01	GROSS GRAMS OF SOLIDS / L	(DGL)	1.9188
EFFICIENCY FACTOR		(EFF)	0.2683
i.e. Dmax. or R _s (SAMPLE RATE) as APPROPRIATE			24.179
Blank Concentration in µCi/g			4.23E-02
Replicate Concentration in µCi/g			3.73E-02
Average Concentration in µCi/g			3.980E-02
R _s (Sample Count Rate) = (TC / CT) * BRG			
ALPHA TOTAL µCi/g = R _s * 1000mL/L * DF / (EFF * 60 * DGL * 2220000dpm/CI)			
Relative Counting Error = [(The Square Root of TC + BRG * CT) / (TC - BRG * CT)] * 100			
Detection Limits and Less Than Values are determined from Procedure LA-508-002			
ALPHA TOTAL in µCi/g (Average)		=	3.98E-02
			DETECTION LEVEL
			4.17E-04
RELATIVE COUNTING ERROR			7.3%
			µCi/g

Analyst	SLH	Date	10-Mar-97
Signature of Chemist	SLF	Date	3/12/97
SAMPLE W61 Rev 1.0	008701ML		

LABCORE Completed RadChem Report for Worklist#: 17065

Analyst: amf

Instrument: AB16

Book#

Method: Rev/Mod

Worklist Comment: Use .100 mL sample size. Rerun #1. SLF

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	66128001 ALPHAD01 SOLID		2.00E-04	1.72E-04	\$6,000	% Recovery
1 STD	0	66128001 ALPHAD01 SOLID		1.00	1.40E-04	1.400	% Ch. Error
2 SIGN-PROD	0	66128001 ALPHAD01 SOLID		1	4.14E-04		uCi/g
2 SIGN-PROD	0	66128001 ALPHAD01 SOLID		1.00	8.44E-04	590.400	uCi/g
3 SIGN-PROD	0	66128001 ALPHAD01 SOLID		1.00E+00	7.84E-04	0.784	uCi/g
4 SAMPLE	8977000232	0 F 66128001 ALPHAD01 SOLID		N/A	4.51E-04	171.00-445	uCi/g
4 SAMPLE	8977000232	0 F 66128001 ALPHAD01 SOLID		N/A	2.67E-04	0.00000	% Ch. Error
5 STD	8977000232	0 F 66128001 ALPHAD01 SOLID		1.00E-02	1.40E-04	14.000	% Ch. Error
5 STD	8977000232	0 F 66128001 ALPHAD01 SOLID		1.00	1.40E-04	14.000	% Ch. Error
5 STD	8977000232	0 F 66128001 ALPHAD01 SOLID		1.00E-02	2.37E-04	66.393	% Recovery
6 SAMPLE	8977000232	0 F 66128001 ALPHAD01 SOLID		N/A	1.06E-04	402.00-805	uCi/g
6 SAMPLE	8977000232	0 F 66128001 ALPHAD01 SOLID		N/A	1.06E-04	0.00000	% Ch. Error
7 STD	8977000232	0 F 66128001 ALPHAD01 SOLID		4.00E-04	0.44E-04	34.000	% Ch. Error
7 STD	8977000232	0 F 66128001 ALPHAD01 SOLID		1.00	1.37E-04	13.700	% Ch. Error
8 SAMPLE	8977000232	0 F 66128001 ALPHAD01 SOLID		N/A	4.41E-04	341.00-605	uCi/g
8 SAMPLE	8977000232	0 F 66128001 ALPHAD01 SOLID		N/A	1.55E-04	0.00000	% Ch. Error
10 STD	8977000232	0 F 66128001 ALPHAD01 SOLID		1.00E-02	1.40E-04	14.000	% Ch. Error
10 STD	8977000232	0 F 66128001 ALPHAD01 SOLID		1.00	1.40E-04	14.000	% Ch. Error

Final page for worklist# 17065

Analyst Signature

Date

Analyst Signature

Date

Reviewer Signature

Date

The elevated RSDs are acceptable due to low sample alpha activity.
The SPK recovery is within method control limits
for the STD. No rerun requested.

3/19/97

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

LABCORE Data Entry Template for Worklist# 17065

Analyst: SMF Instrument: AB00 116 Book# 49B56Method: LA-508-101 Rev/Mod F-0

Worklist Comment: Use .100 mL sample size. Rerun #1. SLF

S Type	Sample#	S A	Test	Matrix	Group#	Project
1 STD			@ALPHA01	SOLID		
2 BLANK-PREP			@ALPHA01	SOLID		
3 BLANK/BX0			@ALPHA01	SOLID		
4 SAMPLE	S97T000232 0 F		@ALPHA01	SOLID	97000111	T-110
	Analytes Requested: ALPHA01 , ALPHA01B					
5 DUP	S97T000232 0 F		@ALPHA01	SOLID		
6 SPK	S97T000232 0 F		@ALPHA01	SOLID		
7 SAMPLE	S97T000233 0 F		@ALPHA01	SOLID	97000111	T-110
	Analytes Requested: ALPHA01 , ALPHA01B					
8 DUP	S97T000233 0 F		@ALPHA01	SOLID		
9 SAMPLE	S97T000268 0 F		@ALPHA01	SOLID	97000111	T-110
	Analytes Requested: ALPHA01 , ALPHA01B					
10 DUP	S97T000268 0 F		@ALPHA01	SOLID		

Final page for worklist # 17065

Analyst Signature Lucie M. Dulhorn Date 3-18-97Analyst Signature Jill K. Hearn Date 3-19-97Data Entry Comments: SPK #123843 .100 mL

WORKSHEET PAGE 87D1

AT: LA-608-101 (E-1)

LA-608-113 (E-4) STANDARD

		STANDARD	REPLICATE
DETECTOR NUMBER		98	18
87D	DETH SIZE (1, 2, or 5)	(NB)	2
17065	GROSS COUNTS	(GC)	2158
17065	COUNT TIME IN MINUTES	(CT)	30
17065	BACKGROUND IN cpm	(BG)	0.97
AT	SAMPLE SIZE in mL	(SS)	1.008
17065	DILUTION FACTOR	(DF)	1
ALPHA01	STANDARD BOOK NUMBER	(Sd BN)	78968
17065	EFFICIENCY FACTOR	(EF)	0.2683
LIQID	(i.e., Rms, or Rm, (SAMPLE RATE) as APPROPRIATE		205.097
17065	Standard Value in pCi/mL		2.695-04
17065	Concentration in pCi/mL		1.72E-01
17065	Applicable Concentration in pCi/mL		1.64E-01
0	AVERAGE CONCENTRATION in pCi/mL		1.7226E-01

N/A Fix (Sample Count Rate) = $(TC / CT) - BKG$
 ALPHA TOTAL μCi = $R_s \cdot 1000mL \cdot OF / (EFF \cdot SS \cdot 2220000dpm/CI)$
 WL17065 ALPHA TOTAL $\mu Ci/mL$ = ALPHA TOTAL μCi / 1000mL
 WL17065 Relative Counting Error = $\{ [The Square Root of TC + BKG \cdot CT] / (TC - BKG \cdot CT) \} \cdot 1.06 \cdot 100$
 WL17065 Detection Levels and Less Than Values are determined from Procedure LA-608-002.

87D	ALPHA TOTAL CONCENTRATION in pCi/mL	1.72E-04	DETECTION LEVEL
17065			7.42E-07
17065	RELATIVE COUNTING ERROR	3.6%	pCi/mL
0311997			
0311997			
0430 PM			
0430 PM			
T-118			

Analyst:	SEH	Date: 12-29-97
Signature of Chemist:	SLF	Date: 3/19/97
STANDARD/WG1 Rev. 1.0	506101AL	

WORKBOOK PAGE: 8AAM

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

SOLIDS

		SAMPLE	REPLICATE
DETECTOR NUMBER		48	184
SAMPLE DISH SIZE (1, 2, or 6)	(DS)	2	2
CROSS COUNTS	(CC)	184	182
COUNT TIME in MINUTES	(CT)	30	30
BACKGROUND in cpm	(BGCS)	0.17	0.17
SAMPLE SIZE in mL	(SS)	0.160	0.160
DILUTION FACTOR	(DF)	1	1
GROSS COUNT RATE	(GR)	1.9990	1.9990
NET COUNT RATE	(NR)	0.2683	0.2683
EFFICIENCY FACTOR	(EF)	0.963	0.967
U, Rmax, or Rn (SAMPLE RATE) as APPROPRIATE			
Blank Concentration in $\mu\text{Ci/g}$		5.01E-02	
Reportable Concentration in $\mu\text{Ci/g}$		4.71E-02	
Average Concentration in $\mu\text{Ci/g}$		4.68E-02	

R_s (Sample Count Rate) = $(TC / CT) - BG$
 $\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s * 1000 \text{ mL} * DF / (EFF * SS * Dg * 2230000 \text{ dpm } \mu\text{Ci})$
 $\text{Relative Counting Error} = [(\text{The Square Root of } TC + BG * CT) / (TC - BG * CT)] * 1.96 * 100$
 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	4.68E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR	16.7%	5.71E-03 $\mu\text{Ci/g}$

C:\SYSTEM\AMT\238-

Analyst:	SLF	Date: 16-Mar-97
Signature of Chemist:	SLF	Date: 3/19/97
SAMPLE WGT Rpt: 1.0	500101W	

SOLIDS

97900168	Blank Concentration in µg/L	5.50E-02
97900169	Replicate Concentration in µg/L	5.50E-02
1	Average Concentration in µg/L	5.50E-02

$$\text{ALPHA TOTAL } \mu\text{Ci/g} = \text{As} \times 1000 \text{ mL/L} \times \text{DF} / (\text{EFF} \times \text{SS} \times \text{Dp/L} \times 2220000 \text{ dpm/}\mu\text{Ci})$$

WB377008 Deletion Levels and Last Then Values are determined from Procedure LVE08-002

20

[illegible]

DEBENT

12:30 PM

T-41

IT IS ORDERED THAT THE ABOVE-ENTITLED

Analyt	SMF	Date: 15-Mar-97
Signature of Chemist	SLF	Date: 3/19/97
50001.0 Unit (Row 1 of 1)	50010101	

WATERWORKS PAGE SPKIS

AT: LA-508-104 (E-1) LA-508-113 (E-6) SPIKED SAMPLE

		SPKIS	REPLICATE
DETECTOR NUMBER		10	15
DATE	1, 2, or 3	2	2
TOTAL COUNTS	(TC)	36797	48496
COUNT TIME IN MINUTES	(CT)	30	30
BACKGROUND IN cpm	(BKG)	0.17	0.17
SAMPLE VOLUME in mL	(SVol)	0.100	0.100
SAMPLE DILUTION FACTOR	(DF)	1	1
DIGEST GRAMS OF SOLIDS / L	(Dg/L)	1.9998	1.9998
SPIKE VOLUME in mL	(SVol)	0.100	0.100
SPIKE DILUTION FACTOR	(SDF)	1	1
SPIKE STOCK NUMBER	(Spk SKN)	129B43	129B43
SPIKE VALUE in $\mu\text{Ci/mL}$	(SVu)	9.843E-03	9.843E-03
INSTRUMENT EFFICIENCY FACTOR	(IEF)	0.3663	0.3663
SAMPLE + SPIKE $\mu\text{Ci/g}$	(S+S)	1.03E+07	1.34E+07
AVERAGE OF MAXIMUM $\mu\text{Ci/g}$ in SAMPLE		4.56E-02	
FUNCTION			
SPKIS			
SPKIS0022	Rs (Sample Count Rate) = (TC / CT) - BKG		
SPKIS0023	SAMPLE + SPIKE $\mu\text{Ci/g}$ = $R_s \times 100\text{mL} \times \text{DF} / (\text{IEF} \times \text{B}_S \times \text{Dg/L} \times 22200000\text{cpm}/\mu\text{Ci})$		
SPKIS0024	QC ACTUAL = SVu		
SPKIS0025	QC FOUND = $(R_s \times B \times \text{Dg/L} - \text{SAMPLE } \mu\text{Ci/g}) \times ((\text{SDF} \times \text{IEF} \times 1000) / (\text{DF} \times \text{SDF} \times \text{Dg/L}))$		
SPKIS0026	PERCENT SPIKE RECOVERY = $(\text{QC FOUND} / \text{QC ACTUAL}) \times 100$		
SPKIS0027			
SPKIS0028			
SPKIS0029			
SPKIS0030			
SPKIS0031			
SPKIS0032			
SPKIS0033			
SPKIS0034			
SPKIS0035			
SPKIS0036			
SPKIS0037			
SPKIS0038			
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WORKBOOK PAGE: 6442

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

DETECTOR NUMBER	44	16
SAMPLE DISE SIZE (1, 2, or 5)	(MIS)	2
GROSS COUNTS (HC)	150	123
COUNTY TIME IN MINUTES (ET)	30	30
BACKGROUND IN cpm (BKGD)	0.17	0.17
AT SAMPLE SIZE IN mL (SB)	0.100	0.100
DILUTION FACTOR (DF)	1	1
DIGEST GRAMS OF SOLIDS / L (Dg/L)	1.848	1.848
EFFICIENCY FACTOR (EFF)	0.2683	0.2683
BOLIG	1.6, 10mL, or R (SAMPLE RATE) as APPROPRIATE	0.997
STANDARD	Blank Concentration in $\mu\text{Ci/g}$	0.54E-09
1	Sample Concentration in $\mu\text{Ci/g}$	1.54E-09
1	Average Concentration in $\mu\text{Ci/g}$	4.63E-02

FLUOROMET	Rs (Sample Count Rate) = $(TC / CT) \cdot BKG$
ALPHA TOTAL µCi	= $R_s \cdot 100mL \cdot DF / [EFF \cdot SS \cdot DqL \cdot 22200000 \cdot pmP/Cd]$
SAF700023	Relative Counting Error = $\sqrt{[TC + BKG \cdot CT] / [TC \cdot BKG \cdot CT]} \cdot 1.98 \cdot 100$
SAF77001	Detection Levels and Less Than Values are determined from Procedure LA-688-022.

03/18/97	ALPHA TOTAL in µCi/g (Average)	4.04E-02	DETECTION LEVEL
03/18/97	RELATIVE COUNTING ERROR	16.8%	

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Analyst: SNF Date: 12/11/97
Signature of Chemist: SLF Date: 3/19/98
SALMON 9051 Rev. 1.0 905113

Wichtigste Partei: CDU/CSU

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

AT: LA-508-101 (E-1)		SOLIDS	DUP	REPLICATE
AT	DETECTOR NUMBER		90	90
DUP	DRUM SIZE (1, 2, or 5)	(MS)	2	2
7700000	GROSS COUNTS	(GC)	220	214
17000	COUNT TIME IN MINUTES	(CT)	30	30
	BACKGROUND IN cpm	(BKG)	0.77	0.17
AT	SAMPLE SIZE IN mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
ALPHEA	DROST GRAMS OF SOLIDS / L	(DGL)	1.0472	1.0473
7700000	EFFICIENCY FACTOR	(EFF)	0.2043	0.2083
SOLID	LC, Bq/g, or PL (SAMPLE RATE) $\times$ APPROXIMATE		7.15	0.303
7700000				
7700000	Air Concentration in μ g/m ³		0.91E-02	
7700000	Soil Concentration in μ g/g		0.94E-02	
7700000	Average Concentration in μ g/g		0.92E-02	

Relative Counting Error = $\left[\frac{[(TC + BK) - CT]}{(TC - BK - CT)} \right]^2 \times 100$
 Detection Limits and Less. These Values are determined from Procedure LA-502-002

ALPHA TOTAL in pCi/g (Average)	0.05E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR	13.9%	

44 years, 1 month, 1 day, 10 hours, 10 minutes, 10 seconds

Analyst: _____ SMF Date: 12-Nov-97
Signature of Chemist: _____ 6LF Date: 3/19/97
SAMPLE UNIT Rev. 1.0 60610166

AT: LA-508-101 (E-4)

SOLIDS

		SAMPLE	REPLICATE
1700	DETECTOR NUMBER	18	40
SAMPLE	DRUM SIZE (1, 2, or 5)	2	2
1700	GROSS COUNTS	174	177
1700	COUNT TIME in MINUTES	30	30
1700	Background in cpm	0.17	0.77
AT	SAMPLE SIZE in mL	0.100	0.100
1700	DILUTION FACTOR	1	1
ALPHA	GROSS GRAMS OF SOLIDS / L	2.4428	2.1828
1700	EFFICIENCY FACTOR	0.3683	0.3683
SOLID	L.C. Rate, or R _s (SAMPLE RATE) as APPROPRIATE	0.33	0.730

1700	Net Concentration in $\mu\text{Ci/g}$	2.3720
1700	Alpha Concentration in $\mu\text{Ci/g}$	4.418-02
1	Average Concentration in $\mu\text{Ci/g}$	4.3092E-02

R_s (Sample Count Rate) = $(TC / CT) \cdot BKG$
 $ALPHA \text{ TOTAL } \mu\text{Ci/g} = R_s \cdot 1000 \text{ mL} \cdot CF / (EFF \cdot SS \cdot Dgt \cdot 222000 \text{ dpm}/\mu\text{Ci})$

$\text{Relative Counting Error} = |(\text{The Square Root of } TC + BKG \cdot CT) / (TC + BKG \cdot CT)| \cdot 1.96 \cdot 100$

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

1700	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	=	4.41E-02	DETECTION LEVEL
1700				3.43E-03
1700	RELATIVE COUNTING ERROR		15.5%	$\mu\text{Ci/g}$

V:\WORKBOOKS

Analyst:	BAF	Date: 18-Mar-97
Signature of Chemist:	ELF	Date: 3/19/97
SAMPLE WBT Rev. 1.0	508101AL	

WORKBOOK PAGE: 00110

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

SOLIDS

		GRIP	REPLICATE
DETECTOR NUMBER		10	10
CUP	DRSH SIZE (1, 2, or 5)	(MB)	2
GROSS COUNTS	(GC)	170	922
COUNT TIME in MINUTES	(CT)	30	30
BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.760
DILUTION FACTOR	(DF)	1	1
CALCULATED	GROSS GRAMS of SOLIDS / L	(GAL)	2.0182
EFFICIENCY FACTOR	(BNF)	0.3683	0.3683
LC, BNF, or R _s /SAMPLE RATE as APPROPRIATE		0.397	4.350
CONCENTRATION	Sample Concentration in µCi/g	4.30E-02	
CONCENTRATION	Duplicate Concentration in µCi/g	3.39E-02	
1	Average Concentration in µCi/g	3.89E-02	

FUSION	R _s (Sample Count Rate) = (TC / CT) - BKG
SS1000263	ALPHA TOTAL µCi/g = R _s * 1000mL * DF / (BNF * SS * Cpl * 2220000dpm/µCi)
RELATIVE COUNTING ERROR	Relative Counting Error = ((The Square Root of TC + BKG * CT) / (TC - BKG * CT)) * 1.00 * 100
DETECTION LEVEL	Detection Levels and Less Than Values are determined from Procedure LA-508-012.

SEI		
SLP	ALPHA TOTAL in µCi/g (Average)	3.90E-02
DETECTION LEVEL		
3.84E-03		
RELATIVE COUNTING ERROR	16.1%	µCi/g

Analyst:	SNF	Date: 10-Mar-97
Signature of Chemist:	SNF	Date: 3/19/97
SAMPLEVIST Rev. 1.0	508101ML	

LABCORE Completed RadChem Report for Worklist#: 17066

Analyst: smf Instrument: AB18 Book#

Method: Rev/Mod

Worklist Comment: Use 100 mL sample size. Rerun #1. SLP

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	04LPM01 ALPHAD1	SOLED	2.00E-04	1.63E-4	64.000	% Recovery
2 STD	0	04LPM01 ALPHAD1	SOLED	1.00	7.63E+00	3.400	% Ch. Error
3 BLANK-BLANK	0	04LPM01 ALPHAD1	SOLED	1	6.32E-4		uCi/g
4 BLANK-BLANK	0	04LPM01 ALPHAD1	SOLED	1.00	5.00E+02	100.000	uCi/g
5 BLANK-BLANK	0	04LPM01 ALPHAD1	SOLED	1.00E+00	2.70E+00	2.700	uCi/g
6 SAMPLE	0372000141	0 2	04LPM01 ALPHAD1	SOLED	4.03E-02	194.00+005	uCi/g
7 SAMPLE	0372000142	0 2	04LPM01 ALPHAD1	SOLED	N/A	2.40E+01	% Ch. Error
8 STD	0372000143	0 2	04LPM01 ALPHAD1	SOLED	4.03E-02	6.51E-2	7.523 STD
9 STD	0372000144	0 2	04LPM01 ALPHAD1	SOLED	1.00	1.35E+01	13.500 % Ch. Error
10 STD	0372000145	0 2	04LPM01 ALPHAD1	SOLED	1.50E-02	3.45E-02	60.426 % Recovery
11 SAMPLE	0372000146	0 2	04LPM01 ALPHAD1	SOLED	N/A	4.80E-01	233.00+000 uCi/g
12 SAMPLE	0372000147	0 2	04LPM01 ALPHAD1	SOLED	N/A	2.63E-02	4.00+000 % Ch. Error
13 STD	0372000148	0 2	04LPM01 ALPHAD1	SOLED	4.20E-02	9.21E-02	21.476 STD
14 STD	0372000149	0 2	04LPM01 ALPHAD1	SOLED	1.00	1.53E+01	15.300 % Ch. Error
15 SAMPLE	0372000150	0 2	04LPM01 ALPHAD1	SOLED	N/A	8.52E-02	323.00+000 uCi/g
16 SAMPLE	0372000151	0 2	04LPM01 ALPHAD1	SOLED	N/A	2.40E+01	6.00+000 % Ch. Error
17 STD	0372000152	0 2	04LPM01 ALPHAD1	SOLED	8.52E-02	8.51E-2	9.993 STD
18 STD	0372000153	0 2	04LPM01 ALPHAD1	SOLED	1.00	1.54E+01	15.400 % Ch. Error

Final page for worklist# 17066

Analyst Signature	Date	Analyst Signature	Date
3/19/97
Reviewer Signature	Date		

The 57% recovery for 162 is within method control limits for the STD. No rerun requested.

3/19/97

LABCORE Data Entry Template for Worklist# 17066

Analyst: SMF Instrument: AB00 18 Book# 79B56Method: LA-508-101 Rev/Mod F-0

Worklist Comment: Use .100 mL sample size. Run #1. SLF

#	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				ALPHA01	SOLID		
2	BLNK-PREP				ALPHA01	SOLID		
3	BLNK/BKG				ALPHA01	SOLID		
4	SAMPLE	S97T000162	0	F	ALPHA01	SOLID	97000083	T-110
		Analytes Requested: ALPHA01 , ALPHA01B						
5	DUP	S97T000162	0	F	ALPHA01	SOLID		
6	SPK	S97T000162	0	F	ALPHA01	SOLID		
7	SAMPLE	S97T000169	0	F	ALPHA01	SOLID	97000083	T-110
		Analytes Requested: ALPHA01 , ALPHA01B						
8	DUP	S97T000169	0	F	ALPHA01	SOLID		
9	SAMPLE	S97T000178	0	F	ALPHA01	SOLID	97000083	T-110
		Analytes Requested: ALPHA01 , ALPHA01B						
10	DUP	S97T000178	0	F	ALPHA01	SOLID		

Final page for worklist # 17066

Analyst Signature Luis M. Dalton Date 3-18-97Analyst Signature Sharon Holden Date 3-19-97 SN
Jim Hogan 3-19-97Data Entry Comments: A SPK # 123843 .100 mL

WORKBOOK PAGE: 8701

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

		STANDARD	REPLICATE
708	DETECTOR NUMBER	18	18
910	DISH SIZE (1, 2, or 5)	(NBS)	2
100000	GROSS COUNTS (GC)	3627	2893
17066	COUNT TIME in MINUTES (CT)	28	28
100000	BACKGROUND in cpm (BKG)	0.03	0.03
AT	SAMPLE SIZE in mL (SS)	1.000	1.000
100000	DILUTION FACTOR (DF)	1	1
0ALPHA01	STANDARD BOOK NUMBER (Std BN)	73906	73906
100000	EFFICIENCY FACTOR (EFF)	0.2844	0.2844
LIQID	C_s , R_{max} , or R_s (SAMPLE RATE) as APPROPRIATE	702.870	98.870
100000000	Standard Value in $\mu\text{Ci/mL}$	2.90E-04	
07000000	Concentration in $\mu\text{Ci/L}$	1.73E-01	
0700	Replicate Concentration in $\mu\text{Ci/L}$	1.64E-01	
0	AVERAGE CONCENTRATION in $\mu\text{Ci/L}$	1.6948E-01	

07000000	R_s (Sample Count Rate) = $(TC / CT) \cdot BKG$
07000000	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s \cdot 1000\text{mL/L} \cdot DF / (EFF \cdot SS \cdot 2220000\text{dpm/}\mu\text{Ci})$
07000000	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$
07000000000	Relative Counting Error = $[(\text{The Square Root of } TC + BKG \cdot CT) / (TC - BKG \cdot CT)] \cdot 1.96 \cdot 100$
07000000000	Detection Levels and Less Than Values are determined from Procedure LA-508-002.

07000000000	ALPHA TOTAL CONCENTRATION in $\mu\text{Ci/mL}$ =	1.69E-01	DETECTION LEVEL
07000000000			4.00E-07 $\mu\text{Ci/mL}$
07000000000	RELATIVE COUNTING ERROR =	3.3%	

Analyst:	SLH2	Date: 18-Mar-97
Signature of Chemist:	SLF	Date: 3/17/97

STANDARD.WB1 Rev. 1.0

508101ML

WORKBOOK PAGE: BLANK2

AT: LA-808-101 (E-1)

SOLIDS

	BLNK-PREP	REPLICATE
DETECTOR NUMBER	18	18
BLNK-PREP		
DISH SIZE (1, 2, or 5)	(MS)	2
GROSS COUNTS	(GC)	4
COUNT TIME IN MINUTES	(CT)	30
BACKGROUND in cpm	(BKG)	0.03
AT		
SAMPLE SIZE in mL	(SS)	0.100
DILUTION FACTOR	(DF)	1
WET PHASE		
DIGEST GRAINS OF SOLIDS / L	(Dg/L)	2.0448
EFFICIENCY FACTOR	(EFF)	0.2844
SOLID		
LC, Rmr, or R _s (SAMPLE RATE) as APPROPRIATE	0.103	0.078
Blank Concentration in µCi/g	8.52E-04	
Replicate Concentration in µCi/g	< 8.52E-04	
Maximum Concentration in µCi/g	< 8.5178E-04	
NA		
Rs (Sample Count Rate) = (TC / CT) - BKG		
ALPHA TOTAL µCi/g = R _s * 1000mL * DF / (EFF * 68 * Dg/L * 2220000dpm/µCi)		
Relative Counting Error = [1 / (The Square Root of TC + BKG * CT)] / (TC - BKG * CT) * 1.96 * 100		
Detection Limits and Less Than Values are determined from Procedure LA-500-002.		
ALF	ALPHA TOTAL in µCi/g (Maximum)	< 8.52E-03
SNF	LESS THAN Value was Determined from R _s .	DETECTION LEVEL
SLF	RELATIVE COUNTING ERROR	500.8%
SNF		1.35E-03 µCi/g
03/18/97		
03/18/97		
04:30 PM		
T-120		

Analyst	SMF	Date: 10-Mar-97
Signature of Chemist	SLF	Date: 3/17/97
BLANK-W01 Rev. 1.0	006101ML	

WORKBOOK PAGE 3444

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

SOLIDS

		SAMPLE	REPLICATE
DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1, 2, or 6") (MS)	2	2
GROSS COUNTS	(GC)	263	189
COUNT TIME in MINUTES	(CT)	30	30
BACKGROUND in cpm	(BKG)	8.03	8.03
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
DILUTION FACTOR	(DF)	1	1
DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0665	2.0665
EFFICIENCY FACTOR	(EFF)	0.2644	0.2644
SOLID	Lo, Rinex, or R _s (SAMPLE RATE) as APPROPRIATE	8.405	8.270
CONCENTRATION			
8700455	Alpha Concentration in µCi/g	6.93E-02	
8700456	Replicate Concentration in µCi/g	5.17E-02	
1	Average Concentration in µCi/g	6.0476E-02	
FORMULAS			
DISCOUNT	R _s (Sample Count Rate) = (TC / CT) - BKG		
8871000162	ALPHA TOTAL µCi/g = R _s * 1000mL/L * DF / (EFF * 65 * Dgt * 2220000dpm/µCi)		
WB27388	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
SLH2	ALPHA TOTAL in µCi/g (Average) =		6.95E-02
SLF	DETECTION LEVEL		
0319597	RELATIVE COUNTING ERROR		14.4%
0319597			1.95E-03 µCi/g
04:38 PM			
T-130			

Analyst	SMF	Date: 19-Mar-87
Signature of Chemist	SLF	Date: 3/19/87
SAMPLE WB1 Rev. 1. 508101ML		

WORKBOOK PAGE: DUFS

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

SOLIDS

		DUP	REPLICATE
DETECTOR NUMBER		19	18
DISH SIZE (1, 2, or 5)	(MS)	2	2
GROSS COUNTS	(GC)	219	258
COUNT TIME in MINUTES	(CT)	30	30
BACKGROUND in cps	(BKG)	0.63	0.03
SAMPLE SIZE in mL	(SS)	0.100	0.100
DILUTION FACTOR	(DF)	1	1
DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0716	2.0716
EFFICIENCY FACTOR	(EFF)	0.2644	0.2644
SOLID	Lo, Rmtr, or Rs (SAMPLE RATE) as APPROPRIATE	7.270	8.670
Blank Concentration in $\mu\text{Ci/g}$		6.98E-02	
Replicate Concentration in $\mu\text{Ci/g}$		7.08E-02	
Average Concentration in $\mu\text{Ci/g}$		6.5134E-02	
Rs (Sample Count Rate) = $(TC / CT) - BKG$			
ALPHA TOTAL $\mu\text{Ci/g}$ = $Rs * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$			
Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.06 * 100$			
Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
ALF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	6.51E-02	DETECTION LEVEL
SMF			
RELATIVE COUNTING ERROR		13.3%	1.95E-03 $\mu\text{Ci/g}$

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/19/97

SAMPLE:VIB1 Rev. 1.

508101ML

WORKBOOK PAGE 8PK6

AT: LA-508-181 (E-1) LA-508-113 (E-8) SPIKED SAMPLE

		SPIKE	REPLICATE
DETECTOR NUMBER		18	18
DISH SIZE	1, 2, or 6 (MS)	2	2
TOTAL COUNTS	(TC)	38376	47486
COUNT TIME IN MINUTES	(CT)	30	30
BACKGROUND in cpm	(BKG)	0.83	0.03
SAMPLE VOLUME (in mL) (Spiked Vial)	(SV)	0.100	0.100
SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.8668	2.0868
SPIKE VOLUME (in mL)	(SVol)	0.100	0.100
SPIKE DILUTION FACTOR	(SDF)	1	1
SPIKE BOOK NUMBER	(Spk BN)	123843	123843
SPIKE VALUE in pCi/mL	(SVa)	3.6843E-02	2.6843E-02
INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2844	0.2844
SAMPLE + SPIKE pCi/g	(S+S)	1.08E+01	1.30E+01
AVERAGE or MAXIMUM pCi/g in SAMPLE		6.6476E-02	
$R_s (\text{Sample Count Rate}) = (TC / CT) - BKG$ $\text{SAMPLE} + \text{SPIKE } \mu\text{Ci/g} = R_s * 100\text{mL} * DF / (EFF * SV * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$ $QC \text{ ACTUAL} = SVa$ $QC \text{ FOUND} = ((S+S \mu\text{Ci/g} - \text{SAMPLE } \mu\text{Ci/g}) * ((SDF)(SVa)(1000)(Dg/L)))$ $\text{PERCENT SPIKE RECOVERY} = (QC \text{ FOUND} / QC \text{ ACTUAL}) * 100$			
QC ACTUAL	=	3.68E-02	
QC FOUND	=	2.45E-02	
AVG. PERCENT SPIKE RECOVERY	=	66.4%	

Analyst:	SLH2	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/19/97

SPIKEWB1 Rev. 1.0

508101ML

The RPD for the SPK + SPK/Dup is due to solids in the vial causing an inconsistent geometry.
No rerun requested.

3/19/97

WORKBOOK PAGE: SAM7

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

SOLIDS

		SAMPLE	REPLICATE
DETECTOR NUMBER		18	18
SAMPLE	GRN SIZE (1, 2, or 3)	(MS)	2
GRSS COUNTS	(GC)	150	143
COUNT TIME in MINUTES	(CT)	30	30
BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.100
	DILUTION FACTOR	(DF)	1
ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.922
	EFFICIENCY FACTOR	(EFF)	0.2844
SOLID	Ls, Rmsr, or Rs, (SAMPLE RATE) as APPROPRIATE		4.970
Blank Concentration in $\mu\text{Ci/g}$		4.40E-02	
Replicate Concentration in $\mu\text{Ci/g}$		4.13E-02	
Average Concentration in $\mu\text{Ci/g}$		4.254E-02	
Rs (Sample Count Rate) = $(TC / CT) \cdot BKG$			
ALPHA TOTAL $\mu\text{Ci/g}$ = $Rs \cdot 1000\text{mL/L} \cdot DF / (EFF \cdot SS \cdot Dg/L \cdot 222000\text{dpm}/\mu\text{Ci})$			
Relative Counting Error = $[(\text{The Square Root of } TC + BKG \cdot CT) / (TC - BKG \cdot CT)] \cdot 1.96 \cdot 100$			
Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	4.25E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR	16.5%	2.11E-03 $\mu\text{Ci/g}$	

Analyte:	SMF	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 7/19/97

SAMPLE:WB1 Rev. 1.

508101ML

WORKBOOK PAGE: DUPE

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

SOLIDS

		DUP	REPLICATE
DETECTOR NUMBER		18	18
DUP	DISH SIZE (1, 2, or 5)	2	2
GROSS COUNTS	(GC)	201	189
COUNT TIME in MINUTES	(CT)	30	30
BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	0.100	0.100
DILUTION FACTOR	(DF)	1	1
DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.064	1.064
EFFICIENCY FACTOR	(EFF)	0.2644	0.2644
SOLID	Lo, Rmax, or Rs (SAMPLE RATE) as APPROPRIATE	6.670	5.693
Blank Concentration in $\mu\text{Ci/g}$		6.79E-02	
Replicate Concentration in $\mu\text{Ci/g}$		4.88E-02	
Average Concentration in $\mu\text{Ci/g}$		5.32E-02	
Rs (Sample Count Rate) = $(TC / CT) - BKG$			
ALPHA TOTAL $\mu\text{Ci/g}$ = $Rs * 1000 \text{ mL} * DF / (EFF * SS * Dg/L * 2220000 \text{ dpm/}\mu\text{Ci})$			
Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.06 * 100$			
Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)		5.32E-02	
DETECTION LEVEL			
RELATIVE COUNTING ERROR		15.2%	
			2.07E-03 $\mu\text{Ci/g}$

Analyst:	SMF	Date: 10/22/97
Signature of Chemist:	SLF	Date: 3/17/97

SAMPLE WBT Rev. 1.

508101ML

WORKBOOK PAGE: 5846

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

SOLIDS

		SAMPLE	REPLICATE
DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1, 2, or 6)	(MB)	2
	GROSS COUNTS	(GC)	183
17048	COUNT TIME in MINUTES	(CT)	30
	BACKGROUND in cps	(BG)	0.83
AT	SAMPLE SIZE in mL	(SS)	8.100
	DILUTION FACTOR	(DF)	1
ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.832
	EFFICIENCY FACTOR	(EFF)	0.2844
SOLID	LC, Rmax, or Rn (SAMPLE RATE) as APPROPRIATE		5.078

77800589	Blank Concentration in $\mu\text{C/g}$	5.04E-02
77801	Replicate Concentration in $\mu\text{C/g}$	5.40E-02
1	Average Concentration in $\mu\text{C/g}$	5.520E-02

FUSION01	R_n (Sample Count Rate) = $(TC / CT) - BKG$
	α ALPHA TOTAL $\mu\text{C/g}$ = $R_n * 1000\text{mL/L} * DF / (EFF * SS * \text{Dg/L} * 2220000\text{dpm/pCi})$

6977000178	Relative Counting Error = $\left(\frac{\text{The Square Root of } TC + BKG * CT}{(TC - BKG * CT)} \right) * 1.96 * 100$
W527809	Detection Levels and Less Than Values are determined from Procedure LA-508-002

SLF	ALPHA TOTAL in $\mu\text{C/g}$ (Average)	5.52E-02	DETECTION LEVEL
SNF			2.22E-03 $\mu\text{C/g}$
03/19/97	RELATIVE COUNTING ERROR	14.9%	

03/19/97			
03/19/97			
04:30 PM			
T-110			

Analyst:	HMF	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/19/97

SAMPLE:V081 Rev. 1.

5081011ML

LABCORE Completed RadChem Report for Worklist#: 17067

Analyst: smf Instrument: AB13 Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: Use .100 mL sample size. Rerun #2. SLF

Seq Type	Sample#	E.A.	Test	Matrix	Actual	Found	DL or Yield	Unit
1. STD			ALPHA-01 ALPHA-01 SOLID		2.50E-14	2.70E-14	92.50%	% Recovery
2. STD			ALPHA-01 ALPHA-01 SOLID		1.00	1.41E+00	3.41%	% Ct. Error
3. BLK/BKG			ALPHA-01 ALPHA-01 SOLID		1.00	4.14E-3		c/d/g
4. BLK/BKG			ALPHA-01 ALPHA-01 SOLID		1.00	5.00E-02	560.00%	c/d/g
5. BLK/BKG			ALPHA-01 ALPHA-01 SOLID		1.00E+00	1.17E+00	1.17%	% Recovery
6. SAMPLE	8977000149	0 F	ALPHA-01 ALPHA-01 SOLID		N/A	7.50E-03	295.00-005	c/d/g
7. SAMPLE	8977000149	0 F	ALPHA-01 ALPHA-01 SOLID		N/A	4.27E-03	4.60-009	% Ct. Error
8. STD	8977000149	0 F	ALPHA-01 ALPHA-01 SOLID		1.00E-2	4.40E-2	21.04%	% Recovery
9. STD	8977000149	0 F	ALPHA-01 ALPHA-01 SOLID		1.00	1.37E+01	93.70%	% Ct. Error
10. STD	8977000149	0 F	ALPHA-01 ALPHA-01 SOLID		1.00E-02	2.77E-02	77.37%	% Recovery
11. SAMPLE	8977000149	0 F	ALPHA-01 ALPHA-01 SOLID		N/A	5.40E-03	272.90-003	c/d/g
12. SAMPLE	8977000149	0 F	ALPHA-01 ALPHA-01 SOLID		N/A	1.41E-03	0.90-004	% Ct. Error
13. STD	8977000149	0 F	ALPHA-01 ALPHA-01 SOLID		4.40E-2	5.12E-2	5.49%	% Recovery
14. STD	8977000149	0 F	ALPHA-01 ALPHA-01 SOLID		1.00	1.40E+01	34.00%	% Ct. Error

Final page for worklist# 17067

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Reviewer Signature Date 3/20/97

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

LABCORE Data Entry Template for Worklist# 17067

Analyst: SMF Instrument: AB00 13 Book# 79356

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

Worklist Comment: Use .100 mL sample size. Rerun #2. SLP

#	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S97T000148	0	F	@ALPHA01	SOLID	97000083	T-110
		Analytes Requested: ALPHA01 , ALPHA01B						
5	DOP	S97T000148	0	F	@ALPHA01	SOLID		
6	SPK	S97T000148	0	F	@ALPHA01	SOLID		
7	SAMPLE	S97T000149	0	F	@ALPHA01	SOLID	97000083	T-110
		Analytes Requested: ALPHA01 , ALPHA01B						
8	DUP	S97T000149	0	F	@ALPHA01	SOLID		

Final page for worklist # 17067

Marie M. Jullon 3/18/97
Analyst Signature Date

C. J. Quinn 3/19/97
Analyst Signature Date
MCB 3/19/97

Data Entry Comments: Aspk #173643 .100mL

WORKBOOK PAGE: STD1

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

LA-508-113 (B-0) STANDARD

		STANDARD	REPLICATE
STD	DETECTOR NUMBER	13	13
STD	DESH SIZE (1, 2, or 4)	(US)	2
STD	GROSS COUNTS	(GC)	3602
STD	COUNT TIME in MINUTES	(CT)	30
STD	BACKGROUND in cpm	(BKG)	0.1
STD	SAMPLE SIZE in mL	(SS)	1.000
STD	DILUTION FACTOR	(DF)	1
STD	STANDARD BOOK NUMBER	(SAB NO)	78956
STD	EFFICIENCY FACTOR	(EFF)	0.2867
STD	LC, Rmax, or R _s (SAMPLE RATE) as APPROPRIATE		116.633
STD	Standard Value in $\mu\text{Ci/mL}$		2.98E-04
STD	Concentration in $\mu\text{Ci/mL}$		1.78E-04
STD	Replicate Concentration in $\mu\text{Ci/mL}$		1.74E-04
STD	AVERAGE CONCENTRATION in $\mu\text{Ci/mL}$		1.7893E-04

BNA R_s (Sample Count Rate) = $(TC / CT) - BKG$
 WL17867 ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s * 1000\text{mL/L} * DF / (EFF * BG * 2220000\text{dpm}/\mu\text{Ci})$
 WL17867 ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$
 WL17867 Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$
 WL17867 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLP	ALPHA TOTAL CONCENTRATION in $\mu\text{Ci/mL}$	1.78E-04	DETECTION LEVEL
SLP			8.68E-07 $\mu\text{Ci/mL}$
SLP	RELATIVE COUNTING ERROR	3.4%	

Analyst: CJO Date: 18-Mar-97
 Signature of Chemist: SLF Date: 3/20/97
 STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

SOLIDS

		BLNK-PREP	REPLICATE
LAB	DETECTOR NUMBER	13	13
BLNK-PREP	DISH SIZE (1, 2, or 3)	(IN)	2
17167	GROSS COUNTS	(GC)	4
17167	COUNT TIME in MINUTES	(CT)	30
17167	BACKGROUND in cpm	(BKG)	0.1
AT	SAMPLE SIZE in mL	(SS)	0.100
17167	DILUTION FACTOR	(DF)	1
04LPHM1	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9388
17167	EFFICIENCY FACTOR	(EFF)	0.2857
SOLID	L_0 , R_{max} , or R_s (SAMPLE RATE) as APPROPRIATE		0.179
17167	Blank Concentration in $\mu\text{Ci/g}$	<	1.46E-03
17167	Replicate Concentration in $\mu\text{Ci/g}$	<	1.46E-03
0	Maximum Concentration in $\mu\text{Ci/g}$	<	1.4644E-03
17167	R_s (Sample Count Rate) = $(TC / CT) \cdot BKG$ α ALPHA TOTAL $\mu\text{Ci/g}$ = $R_s \cdot 1000 \text{ mL} \cdot DF / (EFF \cdot SS \cdot Dg/L \cdot 2220000 \text{ dpm} \mu\text{Ci})$		
17167	Relative Counting Error = $[(\text{The Square Root of } TC + BKG \cdot CT) / (TC + BKG \cdot CT)] \cdot 1.00 \cdot 100$		
17167	Detection Levels and Less Than Values are determined from Procedure LA-508-002		
17167	ALPHA TOTAL in $\mu\text{Ci/g}$ (Maximum) =		< 1.45E-03
17167	LESS THAN Value was Determined from R_{max} .		2.93E-03
17167	RELATIVE COUNTING ERROR		500.0%

Analyst:	SLF	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/20/97
BLANK-WB Rev. 1.0	608101ML	

WORKBOOK PAGE: BAHM

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

SOLIDS

		SAMPLE	REPLICATE
DETECTOR NUMBER		13	13
DISH SIZE (1, 2, or 5)	(BS)	2	2
GROSS COUNTS	(GC)	303	288
COUNT TIME (in MINUTES)	(CT)	30	30
BACKGROUND in cpm	(BKG)	0.1	0.1
SAMPLE SIZE in mL	(SS)	0.100	0.100
DILUTION FACTOR	(DF)	1	1
GROSS GRAMS of SOLIDS / L	(DGL)	1.9388	1.9388
EFFICIENCY FACTOR	(EFF)	0.2887	0.2887
LC, RMAX, or R _s (SAMPLE RATE) as APPROPRIATE		10.000	8.433

Blank Concentration in $\mu\text{Ci/g}$	8.15E-02
Replicate Concentration in $\mu\text{Ci/g}$	8.88E-02
Average Concentration in $\mu\text{Ci/g}$	7.4901E-02

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

ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	7.50E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR	12.5%	2.93E-03 $\mu\text{Ci/g}$

Analyst:	BMF	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/20/97
SAMPLEWB1 Rev. 1.0	508101NM	

WORKBOOK PAGE 0093

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

SOLIDS

		DUP	REPLICATE
001	DETECTOR NUMBER	13	13
002	DISH SIZE (1, 2, or 3)	(MS)	2
003	GROSS COUNTS	(GC)	288
004	COUNT TIME in MINUTES	(CT)	30
005	BACKGROUND in cpm	(BKG)	0.1
006	SAMPLE SIZE in mL	(SS)	8.900
007	DILUTION FACTOR	(DF)	1
008	DIGEST GRAVE OF SOLIDS / L	(Dg/L)	1.8488
009	EFFICIENCY FACTOR	(EFF)	0.3887
010	Lo, RhoL, or Rn (SAMPLE RATE) as APPROPRIATE	8.800	7.000
011	Blank Concentration in pCi/g	7.88E-02	
012	Sample Concentration in pCi/g	8.87E-02	
013	Average Concentration in pCi/g	5.68E-02	
014	Rs (Sample Count Rate) = $(TC / CT) - BKG$		
015	ALPHA TOTAL, pCi/g = $Rn * 1000 \text{ mL} * DF / (EFF * SS * Dg/L * 2220000 \text{ dpm/pCi})$		
016	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
017	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
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WORKBOOK PAGE: SPK3

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

		SPRKE	REPLICATE
DETECTOR NUMBER		13	13
SPK	DRN SIZE 1, 2, or 5 (MS)	2	2
17067	TOTAL COUNTS (TC)	81611	84801
17067	COUNT TIME in MINUTES (CT)	30	30
17067	BACKGROUND in cpm (BKG)	0.1	0.1
A1	SAMPLE VOLUME in mL (Spiked Vol) (SV)	0.100	0.100
17067	SAMPLE DILUTION FACTOR (Spiked Vol) (DF)	4	4
CALPMAG1	DIGEST GRAINS of SOLIDS/L (Dg/L)	1.8888	1.8888
17067	SPIKE VOLUME in mL (SVol)	0.100	0.100
SOLD	SPIKE DILUTION FACTOR (SDP)	1	1
17067	SPIKE BOOK NUMBER (Spk BN)	128843	128843
9704990	SPIKE VALUE in pCi/mL (EVOL)	3.1843E-02	3.6843E-02
17067	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2867	0.2867
2	SAMPLE + SPIKE pCi/g (S+S)	1.40E+01	1.48E+01
17067	AVERAGE or MAXIMUM pCi/g in SAMPLE	7.488E-02	
PUSION01			
17067			
587780145	Rs (Sample Count Rate) = (TC / CT) - BKG		
587780145	SAMPLE + SPIKE pCi/g = Rs * 1000mL * OF / (EFF * SS * Dg/L * 2220000dpm/pCi)		
WB27818	QC ACTUAL = SVol		
17067	QC FOUND = (((S+S pCi/g) - SAMPLE pCi/g) * ((SDP/(SVol*1000)))/(DF/SS/Dg/L)))		
CJO	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) * 100		
17067			
SLF			
17067			
88F			
17067			
587780145			
587780145	QC ACTUAL =	3.58E-02	
587780145	QC FOUND =	2.77E-02	
44:30 PM	AVG. PERCENT SPIKE RECOVERY =	77.4%	
17067			
T-110			

Analyt:	CJO	Date: 19-Mar-87
Signature of Chemist:	SLF	Date: 3/20/87
SPIKE.WB1 Rev. 1.0	508101M1	

WORKBOOK PAGE: 5447

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

		SAMPLE	REPLICATE
DETECTOR NUMBER		13	13
SAMPLE ORN SIZE (1, 2, or 6)	(WPS)	2	2
GROSS COUNTS	(GC)	161	166
COUNT TIME in MINUTES	(CT)	30	30
BACKGROUND in cpm	(BKG)	0.1	0.1
SAMPLE SIZE in mL	(SS)	0.100	0.100
DILUTION FACTOR	(DF)	1	1
DIGEST GRAINS of SOLIDS / L	(Dg/L)	2.068	2.068
EFFICIENCY FACTOR	(EFF)	0.2857	0.2857
Le, Rm(x), or Rn (SAMPLE RATE) as APPROPRIATE		6.853	6.498

87400960	Blank Concentration in $\mu\text{Ci/g}$	4.68E-02
87400960	Replicate Concentration in $\mu\text{Ci/g}$	4.68E-02
2	Average Concentration in $\mu\text{Ci/g}$	4.68E-02

FUSION01	Re (Sample Count Rate) = $(TC / CT) \cdot BKG$
887700148	ALPHA TOTAL $\mu\text{Ci/g}$ = $Re \cdot 1000 \text{ mL} \cdot DF / (EFF \cdot SS \cdot Dg/L \cdot 222000 \text{ dpm}/\mu\text{Ci})$

887700148	Relative Counting Error = $\left[\frac{(\text{The Square Root of } TC + BKG \cdot CT)}{(TC - BKG \cdot CT)} \right] \cdot 1.88 \cdot 100$
887700148	Detection Levels and Less Than Values are determined from Procedure LA-508-002.

CAD			
13/03/97			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	=	4.68E-02
13/03/97			
SLF			
13/03/97			
13/03/97	RELATIVE COUNTING ERROR	14.9%	
13/03/97			
13/03/97			
64:30 PM			
13/03/97			
T-100			

Analyst:	SNF	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/20/97
SAMPLE W81 Rev. 1.0	508101M	

WORKBOOK PAGE: 0018

AT : LA-506-101 (E-1) SOLIDS

		DUP	REPLICATE
DETECTOR NUMBER		13	13
DUP			
DISH SIZE (1, 2, or 6)	(HIS)	2	2
GROSS COUNTS	(GC)	206	224
COUNT TIME in MINUTES	(CT)	39	39
BACKGROUND in cpm	(BKG)	0.1	0.1
AT			
SAMPLE SIZE in mL	(SS)	6.900	6.900
DILUTION FACTOR	(DF)	1	1
GROSS GRAMS of SOLIDS / L	(Dg/L)	2.1744	2.1744
EFFICIENCY FACTOR	(EFF)	0.2887	0.2887
SOLID			
Le, Rmex, or Rg (SAMPLE RATE) as APPROPRIATE			

Blank Concentration in $\mu\text{Ci/g}$	4.91E-02
Replicate Concentration in $\mu\text{Ci/g}$	5.34E-02
Average Concentration in $\mu\text{Ci/g}$	6.124E-02

FUSION#1	$R_s (\text{Sample Count Rate}) = (TC / CT) - BKG$		
Alpha	$\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s * 1000 \text{ mL} * DF / (EFF * SS * Dg/L * 2220000 \text{ dpm}/\mu\text{Ci})$		
697700149	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27518	Detection Limits and Less Than Values are determined from Procedure LA-506-002.		

SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	6.12E-02	DETECTION LEVEL
SNF			2.61E-03 $\mu\text{Ci/g}$
62/19/97	RELATIVE COUNTING ERROR	14.0%	
63/18/97			
64/20 PM			
T-116			

Analyst:	SNF	Date: 10-Mar-97
Signature of Chemist:	SLF	Date: 3/30/97
SAMPLE.WB1 Rev. 1.0	506101ML	

LABCORE Completed RadChem Report for Worklist#: 17068

Analyst: jmv

Instrument: AB15

Book#

Method: Rev/Mod

Worklist Comment: Use .100 mL sample size. Rerun #1. SLF

Seq Type	Sample/ R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	GALPHAS1 ALPHAS1 BULK		1.00E+00	1.18E+00	97.000	% Recovery
2 STD	0	GALPHAS1 ALPHAS1 BULK		1.00	3.11E+00	2.330	% Co. Error
3 BLK-BLK	0	GALPHAS1 ALPHAS1 BULK		1	<1.00E+00		wt%/g
4 BLK-PUR	0	GALPHAS1 ALPHAS1 BULK		1.00	8.00E+00	800.000	wt%/g
5 BLK-BLK	0	GALPHAS1 ALPHAS1 BULK		1.00E+00	2.15E+00	1.150	BLK/BULK
6 SAMPLE	0977000240	0 F	GALPHAS1 ALPHAS1 BULK	N/A	7.70E-02	315.0E-000	wt%/g
7 SAMPLE	0977000240	0 F	GALPHAS1 ALPHAS1 BULK	N/A	1.17E-01	8.0E+000	% Co. Error
8 STD	0977000240	0 F	GALPHAS1 ALPHAS1 BULK	7.70E-02	7.70E-02	7.147	RPO
9 STD	0977000240	0 F	GALPHAS1 ALPHAS1 BULK	1.00	2.20E+01	12.000	% Co. Error
10 STD	0977000240	0 F	GALPHAS1 ALPHAS1 BULK	5.00E+00	2.00E+00	52.730	% Recovery
11 SAMPLE	0977000270	0 F	GALPHAS1 ALPHAS1 BULK	N/A	8.00E-02	315.0E-000	wt%/g
12 SAMPLE	0977000270	0 F	GALPHAS1 ALPHAS1 BULK	N/A	1.21E+01	8.0E+000	% Co. Error
13 STD	0977000270	0 F	GALPHAS1 ALPHAS1 BULK	4.90E-02	7.00E-02	14.164	RPO
14 STD	0977000270	0 F	GALPHAS1 ALPHAS1 BULK	1.00	1.01E+00	10.100	% Co. Error

Final page for worklist# 17068

Analyst Signature Date

Analyst Signature Date

Reviewer Signature

Date

Low spk recovery is consistent with the 1st run (even though sample size was decreased). This indicates that the low recovery is due to matrix interference. No rerun requested.

3/19/97

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

LABCORE Data Entry Template for Worklist# 17068

Analyst: Jay Instrument: AB00 15 Book# 79856

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

Worklist Comment: Use .100 mL sample size. Retun #1. SLP

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			αALPHA01	SOLID		
2 BLNK-PREP			αALPHA01	SOLID		
3 BLNR/BFG			αALPHA01	SOLID		
4 SAMPLE	897T000269	0 F	αALPHA01	SOLID	97000111	T-110
	Analytes Requested: ALPHA01 , ALPHA01E					
5 DUP	897T000269	0 F	αALPHA01	SOLID		
6 SFX	897T000269	0 F	αALPHA01	SOLID		
7 SAMPLE	897T000270	0 F	αALPHA01	SOLID	97000111	T-110
	Analytes Requested: ALPHA01 , ALPHA01E					
8 DUP	897T000270	0 F	αALPHA01	SOLID		

Final page for worklist # 17068

Jay 12-18-97
Analyst Signature Date

Jay Hogan 3-19-97
Analyst Signature Date
MEB 2/12/97

Data Entry Comments: A.S. # RS BUB. 100ml.

WORKBOOK PAGE: BLANK

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

SOLIDS

	DETECTOR NUMBER	BLANK PREP	REPLICATE
BLANK PREP	DETH SIZE (1, 2, or 5)	(N5)	18
17088	GROSS COUNTS	(G5)	2
	COUNT TIME in MINUTES	(CT)	8
	BACKGROUND in cps	(BKG)	20
AT	SAMPLE SIZE in mL	(SS)	0.180
	DILUTION FACTOR	(DF)	1
ALPHA81	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1076
	EFFICIENCY FACTOR	(EFF)	0.2781
SOLID	I.e., Amms, or Rn (SAMPLE RATE) as APPROPRIATE		0.144

9900091	Blank Concentration in $\mu\text{Ci/g}$	< 1.32E-03
9900092	Sample Concentration in $\mu\text{Ci/g}$	< 1.32E-03
0	Maximum Concentration in $\mu\text{Ci/g}$	< 1.32E-03

9900093	RA (Sample Count Rate) = $(TC / CT) - BKG$	
9900094	ALPHA TOTAL $\mu\text{Ci/g}$ = $Ra * 1000 \text{ mL} * DF / (EFF * SS * Dg/L * 2220000 \text{ dpm}/\mu\text{Ci})$	

9900095	Relative Counting Error = $\left(\frac{\sqrt{(TC + BKG * CT)}}{(TC - BKG * CT)} \right) * 1.96 * 100$	
9900096	Depletion Levels and Less Than Values are determined from Procedure LA-508-002.	

9900097	ALPHA TOTAL in $\mu\text{Ci/g}$ (Maximum) =	< 1.32E-03	DETECTION LEVEL
9900098	LESS THAN Value was Determined from Table.		3.16E-03
9900099	RELATIVE COUNTING ERROR	500.0%	$\mu\text{Ci/g}$

03/19/97
02:15 PM
LA-508-101
T-118

Analyst:	JRV	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/19/97
SLA/RYT/ST Rev. 1.0	508101ML	

WORKSHEET: SAH4

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

		SAMPLE	REPLICATE
DETECTOR NUMBER		10	10
DISH SIZE (1, 2, or 5)	(MS)	2	2
GROSS COUNTS	(GC)	204	204
COUNT TIME IN MINUTES	(CT)	30	30
BACKGROUND IN cpm	(BKG)	0.03	0.10
SAMPLE SIZE in mL	(SS)	0.100	0.100
DILUTION FACTOR	(DF)	1	1
DIGEST GRAMS OF SOLIDS / L	(Dg/L)	2.1090	2.1070
EFFICIENCY FACTOR	(EFF)	0.2701	0.2701
Li, Bmax, or R _s (SAMPLE RATE) as APPROPRIATE		90.803	9.670

Blank Concentration in $\mu\text{Ci/g}$	7.82E-02
Regulate Concentration in $\mu\text{Ci/g}$	7.82E-03
Average Concentration in $\mu\text{Ci/g}$	7.763E-03

R_s (Sample Count Rate) = $(TC / CT) \cdot BKG$
 $\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s \cdot 1000 \text{ mL} \cdot DF / (EFF \cdot SS \cdot Dg/L \cdot 2220000 \text{ dpm/gCi})$

Relative Counting Error = $[(TC + BKG \cdot CT) / (TC \cdot BKG \cdot CT)]^{1/2} \cdot 1.65 \cdot 100$
 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	=	7.76E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		11.7%	5.10E-03 $\mu\text{Ci/g}$

2 systems, one typical

Analyst:	REV	Date: 10-Mar-07
Signature of Chemist:	ELF	Date: 3/12/99
SAMPLE: 101 Rev. 1.0	508101ML	

WORKBOOK PAGE: DUPL

AT: LA-505-101 (E-1)

SOLIDS

		DUP	REPLIQUATE
DETECTOR NUMBER		15	16
ORBI SIZE (1, 2, or 5)	(MS)	2	2
GROSS COUNTS	(GC)	276	309
COUNT TIME IN MINUTES	(CT)	30	30
BACKGROUND (n cpm)	(BK0)	0.13	0.13
SAMPLE SIZE in ml	(SS)	8.100	0.100
DILUTION FACTOR	(DF)	1	1
DENSITY GRAVIM of SOLIDS / L	(DGL)	2.300	2.100
EFFICIENCY FACTOR	(EFF)	0.2701	0.2701
COLID	i.e. Rmkx, or Rn (SAMPLE RATE as APPROPRIATE)	9.070	90.170

Blank Concentration in $\mu\text{Ci/g}$	7.18E-02
Refractive Concentration in $\mu\text{Ci/g}$	8.06E-02
Average Concentration in $\mu\text{Ci/g}$	7.62E-02

$$R_x (\text{Sample Count Rate}) = (TC / CT) - BK/G$$

$$\text{ALPHA TOTAL } \mu\text{Ci/g} = R_x \times 1000 \text{ mL} \times DF / (EFF \times SS \times Dgt. \times 2220000 \text{ dpm/Ci})$$

$$\text{Relative Counting Error} = \left(\sqrt{TC + BK/G \times CT} / (TC - BK/G \times CT) \right) \times 100 \times 100$$

Detection Levels and Less Than Values are determined from Procedure LA-505-002.

SSN		
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	7.62E-02
DETECTION LEVEL		5.16E-03
RELATIVE COUNTING ERROR		12.1%

(System Lock Type)

Analyst:	RRV	Date: 10-Mar-97
Signature of Chemist:	SLF	Date: 3/19/97
SAMPLE Y851 Rev. 1.0	5050101ML	

LABCORE Completed RadChem Report for Worklist#: 17072

Analyst: slh Instrument: AB16 Book#

Method: Rev/Mod

Worklist Comment: Use .100 mL sample size. Rerun #2. SLF

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit	
1 STD	0	04LPH041 ALPHAD1	SOLED	2.00E+00	5.71E+04	95.500	% Recovery	
2 STD	0	04LPH041 ALPHAD1	SOLED	1.00	3.63E+00	1.500	% Ct. Error	
3 BLANK-PROD	0	04LPH041 ALPHAD1	SOLED	1	<1.54E-1		uCi/g	
4 BLANK-PROD	0	04LPH041 ALPHAD1	SOLED	1.00	5.00E+00	500.000	uCi/g	
5 BLANK-PROD	0	04LPH041 ALPHAD1	SOLED	1.00E+00	2.00E+00	2.000	uCi/g	
6 SAMPLE	0977000120	0 2	04LPH041 ALPHAD1	SOLED	N/A	295.00-005	uCi/g	
7 SAMPLE	0977000120	0 2	04LPH041 ALPHAD1	SOLED	N/A	0.00-009	% Ct. Error	
8 DUT	0977000120	0 2	04LPH041 ALPHAD1	SOLED	5.00E+00	6.13E+00	4.336 RPD	
9 DUT	0977000120	0 2	04LPH041 ALPHAD1	SOLED	1.00	1.57E+01	18.700	% Ct. Error
10 DUT	0977000120	0 2	04LPH041 ALPHAD1	SOLED	1.50E+00	1.80E+00	53.073	% Recovery
11 SAMPLE	0977000120	0 2	04LPH041 ALPHAD1	SOLED	N/A	4.47E+00	330.00-005	uCi/g
12 SAMPLE	0977000120	0 2	04LPH041 ALPHAD1	SOLED	N/A	1.60E+01	0.00-000	% Ct. Error
13 DUT	0977000120	0 2	04LPH041 ALPHAD1	SOLED	4.47E+00	4.47E+00	2.336 RPD	
14 DUT	0977000120	0 2	04LPH041 ALPHAD1	SOLED	1.00	1.51E+01	15.100	% Ct. Error
15 DUT	0977000120	0 2	04LPH041 ALPHAD1	SOLED	1.50E+00	2.03E+00	55.704	% Recovery
16 SAMPLE	0977000121	0 2	04LPH041 ALPHAD1	SOLED	N/A	2.00E+01	20.00-005	uCi/g
17 SAMPLE	0977000121	0 2	04LPH041 ALPHAD1	SOLED	N/A	2.00E+01	4.00-000	% Ct. Error
18 DUT	0977000121	0 2	04LPH041 ALPHAD1	SOLED	2.00E+00	3.00E+00	20.000 RPD	
19 DUT	0977000121	0 2	04LPH041 ALPHAD1	SOLED	1.00	1.75E+01	17.500	% Ct. Error

Final page for worklist# 17072

Analyst Signature Date Analyst Signature Date

Reviewer Signature Date 3/21/97

SPK recoveries are consistent with 100% 2 runs indicating that low recoveries are due to matrix interference. The RPD for 231 is acceptable due to low sample alpha activity.

No serum requested.

3/21/97

LABCORE Data Entry Template for Worklist# 17072

Analyst: SLH Instrument: AB00 16 Book# 79B56Method: LA-508-101 Rev/Mod F-0

Worklist Comment: Use .100 mL sample size. Rerun #2. SLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01 SOLID			
2	BLNK-PREP				@ALPHA01 SOLID			
3	BLNK/BKG				@ALPHA01 SOLID			
4	SAMPLE	S97T000196	0	F	@ALPHA01 SOLID		9700D083	T-110
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S97T000196	0	F	@ALPHA01 SOLID			
6	SPK	S97T000196	0	F	@ALPHA01 SOLID			
7	SAMPLE	S97T000230	0	F	@ALPHA01 SOLID		97000111	T-110
		Analytes Requested: ALPHA01 , ALPHA01E						
8	DUP	S97T000230	0	F	@ALPHA01 SOLID			
9	SPK	S97T000230	0	F	@ALPHA01 SOLID			
10	SAMPLE	S97T000231	0	F	@ALPHA01 SOLID		97000111	T-110
		Analytes Requested: ALPHA01 , ALPHA01E						
11	DUP	S97T000231	0	F	@ALPHA01 SOLID			

Final page for worklist # 17072

Analyst Signature Stephen J. Hurd
Date 3-20-97Analyst Signature Ch. Quinn
Date 3-20-97

Data Entry Comments:

WORKBOOK PAGE: STD1

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

LA-508-113 (B-0) STANDARD

	STANDARD	REPLICATE
DETECTOR NUMBER	10	10
DETR SIZE (1, 2, or 5)	(MS)	2
GROSS COUNTS	(GC)	2905
COUNT TIME in MINUTES	(CT)	30
BACKGROUND in cpm	(BKG)	0.1
SAMPLE SIZE in mL	(SS)	1.000
DILUTION FACTOR	(DF)	1
STANDARD BOOK NUMBER	(Std Bk)	70550
EFFICIENCY FACTOR	(EFF)	0.2883
Liquid, i.e. Rmct, or Ra (SAMPLE RATE) as APPROPRIATE		96.733
Standard Value in $\mu\text{Ci/mL}$		2.805-04
Concentration in $\mu\text{Ci/mL}$	=	1.82E-01
Replicate Concentration in $\mu\text{Ci/mL}$	=	1.79E-01
AVERAGE CONCENTRATION in $\mu\text{Ci/mL}$	=	1.786E-01
RA	Ra (Sample Count Rate) = $(TC / CT) - BKG$	
ALPHA TOTAL μCi	= $Ra * 1000\text{mL} * DF / (EFF * SS * 2230000\text{dpm}\mu\text{Ci})$	
ALPHA TOTAL $\mu\text{Ci/mL}$	= $ALPHA\ TOTAL\ \mu\text{Ci} / 1000\text{mL}$	
Relative Counting Error	= $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$	
Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
ALPHA TOTAL CONCENTRATION in $\mu\text{Ci/mL}$	=	1.71E-04
DETECTION LEVEL		
RELATIVE COUNTING ERROR	=	3.8%

Analyst:	CJO	Date: 20-Mar-97
Signature of Chemist:	SLF	Date: 3/21/97

STANDARD/VOL 1 Rev. 1.0

508101ML

WORKBOOK PAGE: BLANK2

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

SOLIDS

		BLNK-PREP	REPLICATE
210	DETECTOR NUMBER	18	18
BLNK-PREP	BEH SIZE (1, 2, or 5)	(MB)	2
17072	GROSS COUNTS	(GC)	9
17072	COUNT TIME in MINUTES	(CT)	30
21072	BACKGROUND is open	(BKG)	0.1
AT	SAMPLE SIZE in mL	(SB)	0.100
21072	DILUTION FACTOR	(DF)	1
CALPHAB	EDGEST GRAINS of SOLIDS / L	(DGL)	2.0512
21072	EFFICIENCY FACTOR	(EFF)	0.2683
SOLID	Lg, Rmax, or Rs (SAMPLE RATE) as APPROPRIATE	0.200	0.186
21072	Blank Concentration in $\mu\text{Ci/g}$	1.64E-03	
21072	Replicate Concentration in $\mu\text{Ci/g}$	< 1.10E-03	
0	Maximum Concentration in $\mu\text{Ci/g}$	< 1.6370E-03	
21072	MA	Rs (Sample Count Rate) = $(TC / CT) - BKG$	
21072	ALPHA TOTAL $\mu\text{Ci/g}$	= $R_s \cdot 1000\text{mL/L} \cdot DF / (EFF \cdot SS \cdot Dg/L \cdot 2220000\text{dpm}/\mu\text{Ci})$	
21072	Relative Counting Error	= $([(\text{The Square Root of } TC + BKG \cdot CT) / (TC - BKG \cdot CT)]) \cdot 1.96 \cdot 100$	
21072	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
21072	SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Maximum)	< 1.64E-03
21072	SLH	LESS THAN Value was Determined from Rs.	2.95E-03
21072	RELATIVE COUNTING ERROR	800.0%	$\mu\text{Ci/g}$
21072	Y-192		

Analyst	ALH	Date: 20-Mar-97
Signature of Chemist	SLF	Date: 3/21/97
BLANK.WB1 Rev. 1.0	50810141	

WORKBOOK PAGE: 5AMM

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

SOLIDS

		SAMPLE	REPLICATE
DETECTOR NUMBER		10	10
DISH SIZE (1, 2, or 6)	(MB)	2	2
GROSS COUNTS	(GC)	762	276
COUNT TIME in MINUTES	(CT)	30	30
BACKGROUND in cpm	(BKG)	0.1	0.1
SAMPLE SIZE in mL	(SB)	0.100	0.100
DILUTION FACTOR	(DF)	1	1
DIGEST GRAMS of SOLIDS / L	(Dp/L)	2.0612	2.0612
EFFICIENCY FACTOR	(EFF)	0.2083	0.2083
LC, Rmax, or R _s (SAMPLE RATE) as APPROPRIATE		6.300	3.077

STANDARD	Blank Concentration in µCi/g	4.34E-02
REPLICATE	Replicate Concentration in µCi/g	7.43E-02
2	Average Concentration in µCi/g	6.3766E-02

FORMULA	R_s (Sample Count Rate) = $(TC / CT) - BKG$
REMARKS	$ALPHA\ TOTAL\ \mu Ci/g = R_s * 1000mL * DF / (EFF * SS * Dp/L * 2220000dpm/\mu Ci)$
8877000186	

FORMULA	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$
WB27606	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
REMARKS	
CJO	
REMARKS	

SLP	ALPHA TOTAL in µCi/g (Average)	=	5.88E-02	DETECTION LEVEL
SLH				2.96E-03 µCi/g
02/20/97	RELATIVE COUNTING ERROR		15.8%	

03/20/97				
03/20/97				
02:15 AM				
T-110				

Analyst:	SLH	Date: 20-Mar-97
Signature of Chemist:	SLF	Date: 3/21/97
SAMPLEWB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: DUP3

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

SOLIDS

		DUP	REPLICATE
DETECTOR NUMBER		18	18
DUP	DESI SIZE (1, 2, or 6)	(MS)	2
	GROSS COUNTS	(GC)	219
17072	COUNT TIME (in MINUTES)	(CT)	30
	BACKGROUND in cpm	(BGD)	0.1
AT	SAMPLE SIZE in mL	(SS)	0.100
	DILUTION FACTOR	(DF)	1
ALPHA01	GROSS GRAMS of SOLIDS / L	(GGL)	2.0668
	EFFICIENCY FACTOR	(EFF)	0.2983
SOLID	Lc, Rmax, or Rn (SAMPLE RATE) as APPROPRIATE		7.008
Blank Concentration in $\mu\text{Ci/g}$		6.72E-02	
Replicate Concentration in $\mu\text{Ci/g}$		6.56E-02	
Average Concentration in $\mu\text{Ci/g}$		6.1392E-02	
R_s (Sample Count Rate) = $(TC / CT) - BKG$ $\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s \cdot 1000 \text{ mL/L} \cdot DF / \{ \text{EFF} \cdot SS \cdot \text{Cpl} \cdot 2220000 \text{ dpm}(\mu\text{Ci}) \}$			
Relative Counting Error = $\{ [\text{The Square Root of } (TC + BKG \cdot CT) / (TC - BKG \cdot CT)] \cdot 1.96 \cdot 100$ Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	6.14E-02	DETECTION LEVEL
SLM			2.94E-03
RELATIVE COUNTING ERROR		13.7%	$\mu\text{Ci/g}$

Analyst:	SLM	Date: 20-Mar-97
Signature of Chemist:	SLF	Date: 3/21/97
SAMPLEWB1 Rev. 1.0	508-101M1	

WORKBOOK PAGE: SPK3

AT: LA-608-101 (E-1) LA-608-113 (B-0) SPIKED SAMPLE

		SPIKE	REPLICATE
SPK	DETECTOR NUMBER	18	18
SPK	DISH SIZE 1, 2, or 6 (NB)	2	2
SPK	TOTAL COUNTS (TC)	34440	34284
17972	COUNT TIME in MINUTES (CT)	30	30
SPK	BACKGROUND in cps (BKG)	8.1	8.1
AT	SAMPLE VOLUME in mL (Spiked Vol) (SB)	0.100	0.100
SPK	SAMPLE DILUTION FACTOR (Spiked Vol) (DF)	1	1
GALFHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.0612	2.0612
SPK	SPIKE VOLUME in mL (SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR (SDF)	1	1
17972	SPIKE BOOK NUMBER (Spk Bk)	123843	123843
87000000	SPIKE VALUE in $\mu\text{Ci/mL}$ (SVol)	3.5842E-02	3.5842E-02
SPK	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2683	0.2683
2	SAMPLE + SPIKE $\mu\text{Ci/g}$ (S+S)	0.296E+00	1.38E+00
SPK	AVERAGE or MAXIMUM $\mu\text{Ci/g}$ in SAMPLE	0.275E+02	
FUSION01			
SPK			
SPK	Rs (Sample Count Rate) = $(TC / CT) \cdot BKG$		
SPK	SAMPLE + SPIKE $\mu\text{Ci/g}$ = $Rs \cdot 1000 \text{ mL} \cdot DF / ((EFF \cdot SS \cdot Dg/L) \cdot 2200000 \text{ dpm}/\mu\text{Ci})$		
SPK	QC ACTUAL = SVol		
SPK	QC FOUND = $((S+S \cdot \mu\text{Ci/g}) \cdot \text{SAMPLE } \mu\text{Ci/g}) \cdot ((SDF \cdot SVol \cdot 1000) / (DF \cdot SS \cdot Dg/L))$		
CJO	PERCENT SPIKE RECOVERY = $(QC \text{ FOUND} / QC \text{ ACTUAL}) \cdot 100$		
SPK			
SPK			
SPK			
SPK			
03/28/97	QC ACTUAL	=	3.58E-02
03/28/97	QC FOUND	=	1.98E-02
02-16 AM	AVG. PERCENT SPIKE RECOVERY	=	55.0%
AT 11:00 AM			
T-119			

Analyte	CJO	Date: 20-Mar-97
Signature of Chemist	SLF	Date: 3/21/97
SPK3-WB1 Rev. 1.0 508101ML		

WORKBOOK PAGE: 0098

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

SOLIDS

		DUP	REPLICATE
DETECTOR NUMBER		18	18
DRN SIZE (1, 2, or 3)	(BIS)	2	2
GROSS COUNTS	(GC)	157	172
COUNT TIME in MINUTES	(CT)	30	30
BACKGROUND in cpm	(BKG)	0.1	0.1
SAMPLE SIZE in mL	(SS)	0.100	0.100
DILUTION FACTOR	(DF)	1	1
DIGEST GRAMS of SOLIDS / L	(DgrL)	1.9500	1.9500
EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
L_0 , R_{max} , or R_0 (SAMPLE RATE) as APPROPRIATE		6.432	6.633

Blank Concentration in $\mu\text{Ci/g}$	4.42E-02
Applicate Concentration in $\mu\text{Ci/g}$	4.89E-02
Average Concentration in $\mu\text{Ci/g}$	4.639E-02

FUSIONH	R_0 (Sample Count Rate) = $(TC / CT) \cdot BKG$
ALPHA	$\text{ALPHA TOTAL } \mu\text{Ci/g} = R_0 \cdot 1000 \text{ mL} \cdot DF / (EFF \cdot 60 \cdot \text{DgrL} \cdot 2220000 \text{ dpm}(\mu\text{Ci}))$
RELATIVE COUNTING ERROR	$= [(\text{The Square Root of } TC + BKG \cdot CT) / (TC - BKG \cdot CT)] \cdot 1.96 \cdot 100$
DETECTION LEVEL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	4.63E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR	16.1%	3.10E-03 $\mu\text{Ci/g}$

Analyst:	SLH	Date: 20-Mar-97
Signature of Chemist:	SLF	Date: 3/21/97
SAMPLE V01 Rev. 1.0	503101M	

WIDEKROOK PAGE: 8838

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

[illegible]

Analyst:	CJO	Date: 20-Mar-97
Signature of Chemist:	SAF	Time: 7/21/97
Sample Name: Low 1.0	SHRIMP	

WORKBOOK PAGE: 54M10

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

SOLIDS

		SAMPLE	REPLICATE
DETECTOR NUMBER		18	18
SAMPLE	ORIN SIZE (1, 2, or 8)	(MS)	2
GROSS COUNTS	(GC)	186	111
COUNT TIME in MINUTES	(CT)	30	30
BACKGROUND in cps	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.100
DILUTION FACTOR	(DF)	1	1
DIGEST GRAMS of SOLIDS / L	(G/L)	2.0382	2.0383
EFFICIENCY FACTOR	(EFF)	0.2883	0.2883
SOLID	LC, Pmax, or R _s (SAMPLE RATE) as APPROPRIATE	3.480	3.680
Blank Concentration in $\mu\text{Ci/g}$ 2.80E-02			
Replicate Concentration in $\mu\text{Ci/g}$ 2.86E-02			
Average Concentration in $\mu\text{Ci/g}$ 2.83E-02			
R_s (Sample Count Rate) = $(TC / CT) - BKG$ $\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s * 1000 \text{ mL} * DF / (EFF * SS * G/L * 2220000 \text{ dpm}/\mu\text{Ci})$			
Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.86 * 100$			
Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)		2.88E-02	DETECTION LEVEL
			2.96E-03 $\mu\text{Ci/g}$
RELATIVE COUNTING ERROR		20.0%	

Analyst:	SLH	Date: 20-Mar-97
Signature of Chemist:	SLF	Date: 3/21/97
SAMPLE W61 Rev. 1.0 508101ML		

WORKBOOK NAME: DUP11

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

SOLIDS

		OUP	REPLICATE
DETECTOR NUMBER		19	79
GRAB SIZE (1, 2, or 3)	(MS)	2	2
GROSS COUNTS	(GC)	139	129
COUNT TIME in MINUTES	(CT)	30	30
BACKGROUND in cpm	(BKG)	8.1	8.1
SAMPLE SIZE in mL	(SS)	0.100	0.100
DILUTION FACTOR	(DF)	1	1
DIGEST GRAMS of SOLIDS / L	(G/L)	2.824	2.824
EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
LC, Rmax, or Rn (SAMPLE RATE) as APPROPRIATE		4.387	4.300
Blank Concentration in $\mu\text{Ci/g}$		3.82E-03	
Replicate Concentration in $\mu\text{Ci/g}$		3.48E-03	
Average Concentration in $\mu\text{Ci/g}$		3.65E-03	
Re (Sample Count Rate) = $(TC / CT) - BKG$			
ALPHA TOTAL $\mu\text{Ci/g}$ = $Rn * 1000\text{mL} * DF / (EFF * SS * Dp/L * 2220000\text{cpm}\mu\text{Ci})$			
Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$			
Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)		3.65E-03	DETECTION LEVEL
			2.99E-03
RELATIVE COUNTING ERROR		17.5%	$\mu\text{Ci/g}$

Analyst:	SLH	Date: 20-Mar-97
Signature of Chemist:	SLF	Date: 3/21/97
SAMPLE:WB1 Rev. 1.0	508101ML	

LABCORE Completed RadChem Report for Worklist#: 17005

Analyst: rwk Instrument: AB21 Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: T-110, @PU23901, Deter a.s. by Ludlum. Std: 1.0mL skn

Seq Type	Sample# R A	Test	Matrix	Actual	Found#	DL or Yield	Unit
1 STD	0	00023901 PU23901 LSC010		1.00E+01	1.01E+01	92.465	% Recovery
1 STD	0	00023901 PU23901 LSC010		1.00	1.47E+00	1.470	% Cr. Wt%
1 STD	0	00023901 PU23901 LSC010		1.00	5.50E+01	55.000	% Recovery
2 BULK	0	00023901 PU23901 LSC010		1	<1.00E+01		Wt/Lb
2 BULK	0	00023901 PU23901 LSC010		1.00	1.47E+01	14.700	% Recovery
2 BULK	0	00023901 PU23901 LSC010		1.00	1.00E+02	100.000	Wt/Lb
2 BULK	0	00023901 PU23901 LSC010		N/A	1.30E+00	33.00E+00	Wt/Lb
2 BULK	0	00023901 PU23901 LSC010		N/A	1.07E+02	0.00E+00	% Recovery
2 BULK	0	00023901 PU23901 LSC010		N/A	1.00E+02	0.00E+00	% Cr. Wt%
2 BULK	0	00023901 PU23901 LSC010		<1.00E+01	<1.00E+01		STD
2 BULK	0	00023901 PU23901 LSC010		1.00	1.47E+01	14.700	% Recovery
2 BULK	0	00023901 PU23901 LSC010		1.00	1.00E+02	100.000	% Cr. Wt%

Final page for worklist# 17005

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

John R. Wilson 18 Mar 97
Reviewer Signature Date
Validated

LABCORE Data Entry Template for Worklist# 17005

Analyst: AK Instrument: PU01 21 Book# 75 B56

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

Worklist Comment: T-110, @PU23901, Deter s.s. by Ludlum. Std: 1.0mL. skm

S Type	Sample#	R A Test	Matrix	Group#	Project
1 STD		@PU23901	LIQUID		
2 BLANK		@PU23901	LIQUID		
3 SAMPLE	897T000381 0	@PU23901	LIQUID	97000083	T-110
	Analytes Requested: PU23901, PU23901E, PU23901F				
4 DUP	897T000381 0	@PU23901	LIQUID		

Final page for worklist # 17005

W. H. King 3/15/97
Analyst Signature Date

James Z. Chene 3/17/97
Analyst Signature Date
C. J. Quinn 3/17/97

Data Entry Comments:

599

ANALYSIS DATE 3/15/97

MATRIX SOLID LIQUID EACH

ANALYSIS TIME 5.05

TRACER BK # 128843

PREPARED BY: J. L. L. L.

(př. B. 4 v přech.)

[illegible]

MINI-8D-WM-DP-238, REV. U

WORKBOOK PAGE STD1

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(A-0)

LIQUID

			STD
DATE COUNTED	MAR-18-97		0.507
STD	SAMPLE VOLUME in mL	SS 1.000	0.080
	SAMPLE DILUTION FACTOR	DF 1.000	0.472
17005	TRACER VOLUME in mL	SPKV 0.100	4865
	DILUTION FACTOR	DOF 3.000	30
PUS3801	TRACER BOOK NO	128543	BACKGROUND in cpm (Bkg)
	DETECTOR NUMBER	21	75.270
LIQUID	EFFICIENCY FACTOR	EPF 0.367	0.000
	TRACER PREPARATION DATE	11/7/99	71.090
6700128	TRACER PREPARATION VALUE (cpm/mL)	2608.000	AEA COUNT TIME
	Pu-238 DECAY CORRD VALUE (Month)	2400.329	480
0	Pu-238 TRACER VALUE (cpm/mL)	0.900	1.0056E-01
	STANDARD BOOK NO	75858	
NSA	STANDARD VALUE in $\mu\text{Ci/mL}$	1.090E-04	
wrt1006			
Decay Time = Data Counted - Tracer Preparation Date			
Pu-238 Decay Corrd Value = Pu-238 Preparation Value * $e^{-(\lambda/2) * \text{Decay Time}(\text{half life})}$			
Pu-238 Tracer Recovery = (Total AT Counts / TC - Bkg) * 100 / ((C238/100Pu-238 Decay Corrd Value * SPKV			
Pu-238 μCi = (C238/Pu-238 Decay Corrd Value)(SPKV/(1000mL/L)) / ((C238/SPKV)(2220000 dpm/Cu))			
Pu-238 dpm = ((Total AT Counts / TC) - Bkg * 100 / (C238 * (Pu-238 Tracer Value * SPKV * Pu-238 Tracer Recovery / 100)			
Pu-238 μCi = (Pu-238 dpm / (DOF * (1000mL/L))) / (Pu-238 Tracer Recovery / 100) / (2220000 dpm/ μCi)			
Relative Counting Error = Square Root of ((1/(Pu-238 cpm * min)) + (1 / (Pu-238 or 239/240 cpm * min))) * 100 %			
05/17/97	Pu-238/240 $\mu\text{Ci/mL}$	1.01E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$ Pu-238/240 6.73E-06
	Relative Counting Error	= 1.6%	
05/18/97			
06/05 AM			
T-118	Pu-238 Tracer Recovery	= 95.0%	

Analyst	RVK	Date	17-Mar-97
Signature of Operator	JFR	Date	18 Mar 97
STANDARD W81 REV 1.0	045128AL		

WORKBOOK PAGE: BLANK2

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(A-0)

LIQ

BLNK

DATE COUNTED	BLANK	BLANK	DATE COUNTED	BLANK	BLANK
SAMPLE VOLUME in mL	98	1.000	Pu 238 AEA FRAC (C238)	0.980	0.000
SAMPLE DILUTION FACTOR	DF	1.000	Pu 239 AEA FRAC (C239)	0.000	0.000
TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	2743	0.000
DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (Min)	30	0.000
TRACER BOMB NO	128843	128843	BACKGROUND in cp (Bkg)	0.200	0.000
DETECTOR NUMBER	21	Pu 238 cpm	71.700	0.000	0.000
EFFICIENCY FACTOR	EFF	0.3674	Pu 238 cpm	0.000	0.000
TRACER PREPARATION DATE	11/15/95	Pu 239 cpm	0.000	0.000	0.000
TRACER PREPARATION VALUE (dpm/mL)	2880.00	AEA COUNT TIME	480	0.000	0.000
Pu-238 DECAY CORRD VALUE (dpm/mL)	2400.33	Pu 238/240 pCi/L	<	3.48E-03	0.000
Pu-238 TRACER VALUE (dpm/mL)	0.00				

MCA

Decay Time = Cells Coated - Tracer Preparation Date

Pu-238 Decay Corrd Value = Pu-238 Preparation Value * (e to the power of {-(ln2 * Decay Time)/4048})

Pu 238 Tracer Recovery = (Total AT Counts / TC - Bkg) * (C238 * 100) / (Pu-238 Decay Corrd Value * SPKV * EFF)

Pu 238/240 pCi/L = (C239 / (Pu 238 Decay Corrd Value * SPKV * (1000 mL / (DF * DDF)) * (C239 * (\$S1) (D g/L * 2220000 dpm/pCi))

Pu 238 cpm = ((Total AT Counts / TC) - Bkg * 1.EFF * C238) - (Pu-238 Tracer Value * SPKV * (Pu 238 Tracer Recovery / 100))

Pu 238 pCi/L = ((Pu 238 dpm / (DF * DDF * (1000 mL / (DF * DDF))) / ((Pu-238 Tracer Recovery / 100) * (2220000 dpm/pCi) (D g/L) * (\$S1))

Relative Counting Error = Square Root of ((1 / (Pu 238 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))) * 1.65 * 100

Pu 238/240 pCi/mL	< 3.48E-06	DETECTION LEVELS
Relative Counting Error	= 100.0%	Is pCi/mL
NOTE: Pu 238 Result is a LESS THAN Value.		Pu 238/240
Pu 238 pCi/mL	< 3.48E-06	3.40E-06
Relative Counting Error	= 100.0%	Pu 238
Pu 238 Tracer Recovery	= 89.3%	3.40E-06

Analyst	RANK	Date	17-Mar-97
Signature of Chemist	JFR	Date	17-Mar-97

BLANK WB1 REV 1.0

945125ML

HNF-SD-WM-DP-238, REV. 0

WORKBOOK PAGE 5A00

Pu 238 and 239/240 : LA-843-128 (B-0) or LA-853-104(A-0)

LIQUID / SD

DATE COUNTED		DATE	Pu 238 AEA FRAC (C238)	SAMPLE
SAMPLE	SAMPLE VOLUME in mL	SS	1.000	Pu 238 AEA FRAC (C238)
	SAMPLE DILUTION FACTOR	DF	1.000	Pu 239 AEA FRAC (C239)
TRACER	TRACER VOLUME in mL	SPRV	0.100	TOTAL AT COUNTS
	DIGEST DILUTION FACTOR	DDF	1.000	AT COUNT TIME (hrs)
TRACER BOOK NO.		128B-43		BACKGROUND in cpm (Bkg)
DETECTOR NUMBER		20	Pu 238 cpm	
LIQUID	EFFICIENCY FACTOR	EFF	0.367	Pu 238 cpm
	TRACER PREPARATION DATE	11/18/98	Pu 239 cpm	
924080.28	TRACER PREPARATION VALUE (dpm/mL)	2000.000	AEA COUNT TIME	
	Pu-238 DECAY CORR'D VALUE (dpm/mL)	2400.329	Pu 238/240 $\mu\text{Ci/L}$ =	< 3.38E-06
0	Pu-238 TRACER VALUE (dpm/mL)	0.000		

NO.

Decay Time = Date Counted - Tracer Preparation Date

89710000.1

Pu-238 Decay Corr'd Value = Pu-238 Preparation Value $\times$ to the power of $(-1/402 \times \text{Decay Time}/1040.95)$

89710000.1

Pu-238 Tracer Recovery = $(\text{Total AT Counts} / \text{TC} - \text{Bkg}) \times \text{C238} \times 100 / (\text{Pu-238 Decay Corr'd Value} \times \text{SPRV} \times \text{EFF})$

89710000.1

Pu 238/240 $\mu\text{Ci/L}$ = $(\text{C239}/(\text{Pu-238 Decay Corr'd Value} \times \text{SPRV}) \times 1000 \text{ mL/L} \times \text{DDF}) / ((\text{C239}/(\text{C238} \times \text{SPRV} \times \text{EFF}) \times \text{Pu-238 Decay Corr'd Value} \times \text{DDF}) \times 100)$

89710000.1

Pu 238 cpm = $(\text{Total AT Counts} / \text{TC} - \text{Bkg}) \times \text{MEFF} \times \text{C238} \times (\text{Pu-238 Tracer Value} \times \text{SPRV} / \text{Pu-238 Tracer Recovery} / 100)$

89710000.1

Pu 238 $\mu\text{Ci/L}$ = $(\text{Pu-238 cpm} / \text{DDF} \times 1000 \text{ mL/L}) / (\text{Pu-238 Tracer Recovery} / 100 \times 2220000 \text{ dpm}/\mu\text{Ci} \times 10 \mu\text{L/g} \times 0.88)$

89710000.1

Relative Counting Error = $\text{Square Root of } ((1/(\text{Pu-238 cpm} \times \text{meff})) + (1/(\text{Pu-238 or 239/240 cpm} \times \text{meff}))) \times 100 \times 100$

89710000.1

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Pu 238/240 $\mu\text{Ci/mL}$ < 3.38E-06

Relative Counting Error = 100.0%

DETECTION

LEVELS

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

NOTE: Pu 238 Result is a LESS THAN Value.

Pu 238 $\mu\text{Ci/mL}$ < 3.38E-06

Relative Counting Error = 100.0%

Pu 238 Tracer Recovery = 102.5%

Pu 238/240

3.38E-06

Pu 238

3.38E-06

Analyst	RVK	Date	12/18/97
Signature of Chemist	JFR	Date	12/18/97

SAMPLE Y161 REV 1.0

643124ML

0 0020618556701091

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(A-0)

LIQUID / SO

	DATE COUNTED	MAR-15-97	Pu 238 AEA FRAC (C238)	0.964
DUP	SAMPLE VOLUME in mL	SB	1.000 Pu 238 AEA FRAC (C238)	0.080
	SAMPLE DILUTION FACTOR	DP	1.000 Pu 238 AEA FRAC (C239)	0.080
97085	TRACER VOLUME in mL	SPSV	0.440 TOTAL AT COUNTS	2863
	DIGEST DILUTION FACTOR	DDF	1.0000 AT COUNT TIME (MIN)	30
02032897	TRACER BOOK NO.	122842	BACKGROUND in cpm (Bkg)	0.280
	DETECTOR NUMBER	21	Pu 238 cpm	73.770
LIQUID	EFFICIENCY FACTOR	EFF	0.367 Pu 238 cpm	0.080
	TRACER PREPARATION DATE	11/1/89	Pu 239 cpm	0.080
9708528	TRACER PREPARATION VALUE (dpm/mL)	2600.000	AEA COUNT TIME	600
	Pu 238 DECAY CORRECTION VALUE (dpm/mL)	2400.920	Pu 238/240 μ CAL =	< 3.49E-03
0	Pu 238 TRACER VALUE (dpm/mL)	0.900		

Decay Time = Date Counted - Tracer Preparation Date

Pu 238 Decay Corrd Value = Pu 238 Preparation Value * (1 to the power of ((ln2 * Decay Time)/(60*60))

Pu 238 Tracer Recovery = (Total AT Counts / TC Bkg) * (C238*100)/(Pu 238 Decay Corrd Value * SPKV * EFF)

Pu 238/240 μ CAL = ((C239/(Pu 238 Decay Corrd Value)*(SPKV*(1000mL)/DDF)) / ((C239/(C238)*(D g/L)*(2220400 dpm/ μ CAL))

Pu 238 cpm = (Total AT Counts / TD) * (Bkg * 1EFF * C238) / (Pu 238 Tracer Value * SPKV * Pu 238 Tracer Recovery / 100)

Pu 238 μ CAL = ((Pu 238 cpm)*(DDF)*(1000mL/L)) / ((Pu 238 Tracer Recovery / 100)*(2220400 dpm/ μ CAL)*(D g/L)*(BS))

Relative Counting Error = Square Root of (((1/(Pu 238 cpm * min)) + (1 / (Pu 238 or 238/240 cpm * min))) * 1.65 * 100)

03/17/97	Pu 238/240 μ CAL	< 3.49E-03	DETECTION LEVELS in μ CAL/mL
03/18/97	Relative Counting Error	= 180.0%	
03/18/97	NOTE: Pu 238 Result is a LESS THAN Value		Pu 238/240
03/18/97	Pu 238 μ CAL	< 3.49E-03	3.49E-03
03/18/97	Relative Counting Error	= 180.0%	Pu 238
03/18/97	Pu 238 Tracer Recovery	= 86.6%	3.49E-03

Analyst	R/KC	Date	17 Mar 97
Signature of Chemist	JFR	Date	18 Mar 97
SAMPLE WBS1 REV 1.0	9451206		

HNF-SO-WM-DP-238, REV. 0
Westinghouse Hanford Co.
GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
S97T0381-DUP
File ID: 8a0937.CNF

Counted on: 3/15/97 011:59
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	1777.5	1777.5	364.764	364.764	16.000	10.746	8.000	3.794
2	41.5	41.5	292.176	291.988	16.000	13.486	8.000	2.844
3?	13.2	13.2	233.619	233.530	16.000	10.078	8.000	3.014

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	terr c/n	err %	d/m	Activity nCi/ea
			Exp.	Obs.	Diff.					
1	Cm243	0.964	5.779	5.747	0.0320.05	73.77	1.0	280.3	0.126E-03	
	Pu236		5.755	5.747	0.008			208.8	0.941E-04	
2	Th228	0.031	5.400	5.412	-0.0120.06	2.37	6.2	9.2	0.416E-05	
3		???		5.143		0.58	13.2			
Totals:			0.995	<--valid peaks only-->			76.13			

DETECTOR CALIBRATION

Energy(MeV) = 4.069 + (0.0046)*Channel
Energy range (MeV): 4.069 TO 6.424
Efficiency = 0.3605 CPM/CPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	36745.0	100.000
Smoothed	36745.0	100.000
Composite fit	36826.8	100.223
Residuals	-81.8	-0.223

Analysed by:

EMD

1 Legend: Raw = Modeled Peaks = 1,2,.., etc Display Max.: 13425.7

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New Data Dump	for ARA Spectrum:	8a8937.CNP							
1	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	1.	2.
21	0.	1.	0.	1.	1.	1.	2.	0.	0.
31	0.	2.	0.	1.	0.	0.	0.	0.	0.
41	1.	0.	2.	0.	0.	0.	0.	0.	0.
51	1.	0.	0.	1.	1.	1.	0.	2.	0.
61	1.	1.	0.	0.	0.	2.	1.	1.	0.
71	0.	2.	0.	0.	1.	1.	2.	1.	1.
81	2.	0.	0.	0.	0.	0.	1.	1.	3.
91	0.	0.	0.	0.	0.	0.	0.	0.	0.
101	0.	1.	1.	2.	0.	0.	0.	3.	2.
111	2.	0.	0.	0.	0.	0.	0.	0.	0.
121	0.	3.	1.	1.	1.	3.	2.	0.	2.
131	2.	2.	0.	0.	1.	2.	1.	1.	0.
141	0.	0.	0.	0.	0.	2.	3.	1.	0.
151	2.	1.	1.	0.	1.	1.	3.	0.	1.
161	1.	1.	1.	0.	0.	0.	1.	3.	3.
171	1.	1.	0.	1.	2.	2.	1.	3.	2.
181	0.	4.	1.	4.	0.	0.	1.	4.	1.
191	3.	1.	2.	4.	4.	4.	0.	1.	2.
201	2.	3.	2.	2.	0.	2.	4.	2.	4.
211	1.	5.	2.	3.	2.	2.	3.	1.	2.
221	7.	7.	6.	5.	5.	12.	3.	6.	7.
231	8.	16.	15.	18.	20.	16.	8.	10.	9.
241	4.	7.	4.	8.	6.	4.	1.	8.	4.
251	6.	4.	3.	1.	5.	13.	8.	7.	15.
261	4.	4.	9.	2.	8.	14.	16.	14.	6.
271	13.	20.	16.	21.	22.	16.	18.	15.	27.
281	24.	24.	31.	34.	27.	31.	31.	36.	51.
291	40.	49.	47.	40.	42.	27.	35.	19.	11.
301	22.	10.	10.	16.	19.	23.	23.	20.	27.
311	17.	14.	10.	15.	13.	19.	16.	28.	18.
321	18.	30.	28.	27.	26.	41.	42.	41.	43.
331	48.	45.	62.	74.	96.	89.	107.	122.	144.
341	149.	174.	200.	203.	272.	316.	394.	497.	554.
351	616.	749.	835.	880.	989.	1178.	1318.	1502.	1601.
361	1684.	1794.	1797.	1826.	1895.	1839.	1506.	1356.	1139.
371	908.	714.	514.	330.	299.	132.	43.	15.	14.
381	7.	6.	2.	0.	1.	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.	1.	0.	0.	1.	0.	0.
421	0.	0.	0.	1.	1.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	1.	0.
441	0.	1.	0.	1.	0.	1.	0.	1.	1.
451	0.	0.	0.	0.	0.	0.	0.	0.	1.
461	0.	0.	0.	0.	1.	0.	1.	0.	2.
471	0.	1.	3.	2.	5.	4.	2.	1.	0.
481	1.	2.	1.	7.	6.	2.	2.	2.	0.
491	1.	1.	2.	0.	1.	0.	0.	1.	0.
511	0.	0.	2.	0.	1.	0.	0.	0.	0.

Westinghouse Hanford Co.
GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
 WL17005-STD
 File ID: 6a5156.CNF

Counted on: 3/15/97 @11:57
 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	2145.9	2145.9	361.639	361.639	12.000	5.740	6.000	2.008
2?	22.3	22.3	304.108	304.108	28.000	7.195	14.000	14.293
3	48.3	48.3	287.035	286.855	14.000	8.398	7.000	4.243
4?	11.3	11.3	272.140	270.356	10.000	3.920	5.000	0.588
5	2272.1	2272.1	228.837	228.836	12.000	5.470	6.000	2.398

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate c/m	%err	d/m	Activity nCi/ea
			Exp.	Obs.	Diff.				
1	Pu236	0.507	5.755	5.747	0.0080.03	76.27	1.0	163.3	0.736E-04
2	???	???		5.482		0.59	16.8		
3	Th228	0.011	5.400	5.403	-0.0030.04	1.62	8.1	4.8	0.216E-05
4	???	???		5.337		0.53	17.1		
5	Pu239	0.472	5.147	5.136	0.0110.03	71.08	1.1	149.2	0.672E-04
	Pu240		5.144	5.136	0.008			149.2	0.672E-04
Totals:			0.990	<--valid peaks only-->			146.97		

DETECTOR CALIBRATION

Energy(MeV) = 4.083 + (0.0046)*Channel
 Energy range (MeV): 4.083 TO 6.439
 Efficiency = 0.4765 CPM/CPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	72254.0	100.000
Smoothed	72254.0	100.000
Composite fit	72045.3	99.711
Residuals	208.7	0.289

Analyzed by: _____

EMB

1 Legend: Raw = ..., Modeled Peaks = 1,2,..., etc Display Max.: 16255.6

1	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	1.	0.	0.	0.	1.
21	2.	0.	0.	2.	1.	2.	1.	0.	1.
31	0.	0.	0.	6.	0.	5.	2.	0.	1.
41	1.	1.	1.	4.	4.	0.	1.	2.	0.
51	2.	1.	3.	0.	2.	0.	2.	2.	3.
61	1.	1.	1.	0.	1.	2.	2.	2.	0.
71	2.	2.	2.	1.	1.	1.	1.	0.	2.
81	2.	3.	3.	2.	0.	2.	1.	1.	0.
91	1.	3.	3.	1.	1.	0.	2.	0.	3.
101	3.	1.	2.	3.	0.	5.	3.	4.	1.
111	4.	1.	1.	4.	5.	1.	5.	3.	4.
121	2.	5.	4.	1.	2.	3.	3.	8.	6.
131	2.	6.	3.	5.	3.	3.	6.	5.	3.
141	7.	1.	3.	3.	5.	6.	4.	4.	7.
151	2.	8.	6.	7.	10.	3.	6.	4.	5.
161	8.	7.	9.	10.	14.	8.	8.	10.	8.
171	10.	9.	12.	15.	17.	15.	10.	17.	18.
181	10.	16.	23.	27.	24.	27.	31.	22.	40.
191	30.	26.	43.	46.	53.	47.	45.	67.	60.
201	99.	83.	106.	108.	166.	137.	174.	215.	240.
211	262.	347.	404.	442.	503.	605.	674.	754.	905.
221	1160.	1313.	1460.	1542.	1917.	2162.	2323.	2481.	2566.
231	2192.	1726.	1234.	776.	448.	224.	112.	42.	25.
241	9.	4.	4.	7.	10.	4.	3.	2.	3.
251	2.	2.	3.	9.	8.	7.	6.	8.	9.
261	6.	8.	10.	9.	10.	13.	18.	16.	16.
271	23.	19.	22.	16.	16.	20.	14.	13.	25.
281	39.	32.	45.	46.	57.	48.	59.	51.	42.
291	34.	31.	21.	19.	18.	18.	28.	31.	22.
301	31.	16.	29.	30.	27.	29.	22.	12.	19.
311	15.	18.	12.	15.	22.	12.	22.	16.	31.
321	31.	31.	33.	41.	48.	51.	57.	50.	61.
331	90.	85.	84.	96.	112.	139.	147.	125.	182.
341	235.	242.	323.	349.	424.	514.	586.	662.	807.
351	1070.	1161.	1292.	1450.	1533.	1525.	1684.	1796.	1947.
361	2314.	2339.	2361.	1957.	1590.	1174.	732.	383.	188.
371	25.	10.	13.	6.	4.	3.	2.	1.	3.
381	0.	0.	1.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	1.	0.	0.	0.
411	0.	1.	0.	0.	0.	0.	0.	0.	0.
421	2.	0.	0.	0.	0.	0.	1.	1.	1.
431	0.	2.	0.	0.	0.	2.	0.	1.	0.
441	0.	0.	0.	1.	0.	0.	0.	1.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	1.	0.	1.	2.	1.	0.
471	3.	2.	4.	4.	4.	4.	5.	7.	3.
481	2.	2.	2.	0.	1.	2.	0.	0.	0.
491	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
 WL17005-BLANK
 File ID: 6a6973.CNF

Counted on: 3/15/97 @11:58
 Detector: AEA6
 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	1771.7	1771.7	360.339	360.339	16.000	9.430	8.000	3.242
2?	20.4	20.4	304.226	301.973	26.000	3.880	13.000	13.199
3	43.6	43.6	286.297	286.192	16.000	8.174	8.000	2.061
4?	15.9	15.9	228.446	228.373	16.000	7.342	8.000	2.220

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	Serr c/m	%	d/m	Activity uCi/ea
		Exp.	Obs.	Diff.	FWHM					
1	Cm243	0.960	5.779	5.741	0.0380.04	71.78	1.1	250.7	0.113E-03	
	Pu236		5.755	5.741	0.014			186.7	0.841E-04	
2		???		5.473		0.40	22.2			
3	Th228	0.027	5.400	5.400	0.0000.04	2.02	7.0	7.2	0.326E-05	
4		???		5.134		0.65	11.8			
Totals:		0.987	<--valid peaks only-->			73.79				

DETECTOR CALIBRATION

Energy(MeV) = 4.084 + (0.0046)*Channel
 Energy range (MeV): 4.084 TO 6.439
 Efficiency = 0.3922 CPM/CPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	35874.0	100.000
Smoothed	35881.1	100.020
Composite fit	35923.9	100.139
Residuals	-49.9	-0.139

Analyzed by: _____

END

HNF-SD-WM-DP-238, REV. 0

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Raw Data Dump for ARA Spectrum: 666973.CNF										HNF-SD-WMA-CP-238, REV. 0									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
31	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	2.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	1.	2.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	3.	3.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	1.	1.	1.	2.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
101	2.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
111	2.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
121	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
131	2.	2.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
141	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
151	3.	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
161	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
171	0.	0.	2.	2.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
181	1.	1.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
191	5.	5.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
201	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
211	5.	5.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.
221	14.	14.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.
231	3.	3.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
241	8.	8.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.
251	11.	11.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.
261	40.	40.	39.	39.	39.	39.	39.	39.	39.	39.	39.	39.	39.	39.	39.	39.	39.	39.	39.
281	26.	26.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.
291	20.	20.	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
301	14.	14.	18.	18.	18.	18.	18.	18.	18.	18.	18.	18.	18.	18.	18.	18.	18.	18.	18.
311	26.	26.	33.	33.	33.	33.	33.	33.	33.	33.	33.	33.	33.	33.	33.	33.	33.	33.	33.
321	92.	92.	98.	98.	98.	98.	98.	98.	98.	98.	98.	98.	98.	98.	98.	98.	98.	98.	98.
331	268.	268.	302.	302.	302.	302.	302.	302.	302.	302.	302.	302.	302.	302.	302.	302.	302.	302.	302.
341	1087.	1087.	1175.	1175.	1175.	1175.	1175.	1175.	1175.	1175.	1175.	1175.	1175.	1175.	1175.	1175.	1175.	1175.	1175.
351	1857.	1857.	1857.	1857.	1857.	1857.	1857.	1857.	1857.	1857.	1857.	1857.	1857.	1857.	1857.	1857.	1857.	1857.	1857.
361	107.	107.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	1.	1.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	2.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

Westinghouse Hanford Co.
GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
 S97T0381-SAM
 File ID: 7a7738.CNF

Counted on: 3/15/97 @11:58
 Detector: AEA7
 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	1488.8	1488.8	362.390	362.390	22.000	17.194	11.000	6.763
2	40.6	40.6	290.247	290.188	22.000	23.126	11.000	6.467
3?	12.0	12.0	228.406	228.348	18.000	15.558	9.000	5.552

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			FWHM	Count Rate c/m	terr @95	d/m	Activity uCi/ea	
			Exp.	Obs.	Diff.						
1	Cm243	0.961	5.779	5.755	0.024	0.08	69.14	1.1	1241.3	0.559E-03	
	Pu236		5.755	5.755	0.000				924.7	0.417E-03	
2	Th228	0.032	5.400	5.416	-0.016	0.11	2.33	6.3	42.9	0.193E-04	
	Am241		5.479	5.416	0.063				32.4	0.146E-04	
3		???		5.125			0.55	12.8			
Totals:			0.993	<--valid peaks only-->			71.47				

DETECTOR CALIBRATION

Energy(MeV) = 4.052 + (0.0047)*Channel
 Energy range (MeV): 4.052 TO 6.459
 Efficiency = 0.0763 CPM/CPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	34552.0	100.000
Smoothed	34553.3	100.004
Composite fit	34570.3	100.053
Residuals	-18.3	-0.053

Analyzed by:

RMB

Spectrum 7a7738.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 11054.7

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DISTRIBUTION SHEET

To Distribution	From Production Planning & Control	Page 1 of 1		
Project Title/Work Order HNF-SD-WM-DP-238, Rev. 0 "Waste Compatibility Safety Issues and Final Results for Tank 241-T-110 Push Mode Samples"		Date: 05/12/97		
		EDT NO.: EDT-620399		
		ECN NO.: N/A		
Name	NSIN	Text With all Attach	EDT/ECN ONLY	

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