SEP 09 1996

ENGINEERING DATA TRANSMITTAL

Page 1 of 1
1. EDT 617494

2. To: (Receiving Organization) Distribution		3. From: (Originating Organization) Production Planning and Support		4. Related EDT No.: N/A	
5. Proj./Prog./Dept./Div.: Tank 241-BY-107/Waste Management/PPS/AS		6. Design Authority/ Design Agent/Cog. Engr.: Larry L. Fritts		7. Purchase Order No.: N/A	
8. Originator Remarks: This document is being released into the supporting document system for retrievability purposes.				9. Equip./Component No.: N/A	
				10. System/Bldg./Facility: 241-BY-107	
11. Receiver Remarks: 11A. Design Baseline Document? ☐ Yes ☒ No For release.				12. Major Assm. Dwg. No.: N/A	
				13. Permit/Permit Application No.: N/A	
				14. Required Response Date: 09/09/96	

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designer	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	WHC-SD-WM-DP-197	N/A	0	Tank 241-BY-107, Cores 151 and 161, Analytical Results for the 45 Day Report	Q	2	1	1

16. KEY					
Approval Designer (F)		Reason for Transmittal (G)		Disposition (H) & (I)	
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)		1. Approval	4. Review	1. Approved	4. Reviewed no/comment
		2. Release	5. Post-Review	2. Approved w/comment	5. Reviewed w/comment
		3. Information	6. Dist. (Receipt Acknow. Required)	3. Disapproved w/comment	6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Approval Designer for required signatures)											
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BD-7400-172-2 (05/96) GEF097

Tank 241-BY-107, Cores 151 and 161, Analytical Results for the 45 Day Report

Larry L. Fritts

Westinghouse Hanford Company, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

EDT/ECN: EDT-617494 UC: 2070
Org Code: 75725 Charge Code: MD378
B&R Code: EW 3120074 Total Pages: 264

Key Words: Tank 241-BY-107, Tank BY-107, BY-107, BY Farm, Core 151, Core 161, Analytical Results, 45-Day

Abstract: N/A

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ANALYTICAL SERVICES

**TANK 241-BY-107, CORES 151 AND 161,
ANALYTICAL RESULTS FOR THE 45 DAY REPORT**

Project Coordinator: Larry L. Fritts

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

by

**Westinghouse Hanford Company
Box 1970
Richland, Washington**

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Narrative

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222-S ANALYTICAL SERVICES

TANK 241-BY-107, CORES 151 AND 161,
ANALYTICAL RESULTS FOR THE 45 DAY REPORT

This document is the 45-day laboratory report for tank 241-BY-107. Push mode core segments were removed from risers 8 and 9B between June 5, 1996, and July 26, 1996. Segments were received and extruded at the 222-S Analytical Laboratory. Analyses were performed in accordance with *Tank 241-BY-107 Push Mode Core Sampling and Analysis Plan* (TSAP) (McCain, 1996) and the Safety Screening Data Quality Objective (DQO) (Dukelow, et al., 1995).

None of the subsamples submitted for Total Alpha Activity (AT) analysis or Differential Scanning Calorimetry (DSC) exceeded the notification limits as stated in the DQO. Statistical evaluation of results by calculating the 95% upper confidence limit is not performed by the 222-S Laboratory and is not considered in this report.

Primary safety screening results are included in the data summary table (Table 1). The raw data from DSC and TGA analyses are included in this report.

Appearance and Sample Handling

Two cores of six segments were expected from this tank. Segments labeled one through four were received by the 222-S Laboratory. The tank coordinator has indicated these are believed to be complete cores.

Attachment 1 is a cross reference to relate the tank farm identification numbers to the 222-S Laboratory LabCore sample numbers. The subsamples generated in the laboratory for analysis are identified in these diagrams with their sources shown.

Core 151

Five push mode core segments were removed from tank 241-BY-107 riser 8 between June 5, 1996, and June 12, 1996. All segments were received by the 222-S Laboratory between June 11, 1996, and June 13, 1996. Table 2 summarizes the extrusion information.

Core 161

Six push mode core segments were removed from tank 241-BY-107 riser 9B between July 19, 1996, and July 26, 1996. All segments were received by the 222-S Laboratory between July 29, 1996, and August 6, 1996. Table 3 summarizes the extrusion information.

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Field Blank

A field blank was not provided to the 222-S Laboratory.

Hydrostatic Head Fluid Blank

There is no indication of the use of hydrostatic head fluid in procuring these samples. A blank was not provided to the 222-S Laboratory.

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Table 2. Sample Receipt and Extrusion Information for Tank 241-BY-107, Core 151.

Customer Id	Segment	Date Sampled	Date Received	Date Extruded	Inches Extruded*	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-247	1	6/5/96	6/11/96	6/19/96	1.0	321.4--drainable	41.5--lower half	The drainable liquid was green and opaque. The solids were gray and resembled a wet saltcake.
96-247-A	1A	6/5/96	6/11/96	6/19/96	1.0	153.6--drainable	21.0--lower half	The drainable liquid was greenish-yellow and opaque. The solids were dark gray and resembled a wet saltcake.
96-248	2	6/10/96	6/11/96	6/20/96	10.0	142.7--drainable	104.6--upper half 108.4--lower half	The drainable liquid was brown and opaque. The solids were dark gray. The upper half solids resembled a wet saltcake; the lower half solids resembled a sludge slurry.
96-249	3	6/11/96	6/13/96	6/20/96	14.0	0.0	218.2--upper half 153.8--lower half	The solids were dark brown and resembled a mixture of saltcake slurry and sludge slurry.
96-250	4	6/12/96	6/13/96	6/20/96	15.0	0.0	181.4--upper half 193.2--lower half	The upper half solids were dark brown with the top two inches being gray and resembled a mixture of saltcake slurry and sludge slurry. The lower half solids had a reddish-brown center with a dark brown outside with the lower three inches being just reddish-brown and resembled a wet sludge.

*Approximate Inches Extruded

Table 3. Sample Receipt and Extrusion Information for Tank 241-BY-107, Core 161.

Customer	ID	Segment	Date Sampled	Date Received	Date Extruded	Extruder	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-387	1		7/19/96	7/29/96	7/31/96	4.0	203.2--drainable	112.9--lower half	The drainable liquid was green and opaque. The solids were gray in color and resembled a wet salicake.
96-388	2		7/19/96	7/29/96	7/31/96	7.0	157.8--drainable	27.3--qtr seg: A 36.3--qtr seg: B 39.6--qtr seg: C	The drainable liquid was green and opaque. Quarter segment A was dark gray and resembled a wet sludge (as noted in the logbook). Quarter segment B was dark gray and resembled a wet salicake. Quarter segment C was white with large well defined crystals and resembled a wet salicake.
96-388A	2A		7/19/96	7/29/96	7/31/96	10.0	179.1--drainable	26.8--upper half 99.0--lower half	The drainable liquid was green and opaque. The solids were gray and resembled a mixture of wet sludge and wet salicake.
96-389	3		7/25/96	8/6/96	8/12/96	5.0	76.5--drainable	110.2--lower half	The drainable liquid was gray and opaque. The solids were gray and 1/2" in length.
96-389A	3A		7/25/96	8/2/96	8/8/96	Unmeasurable	193.5--drainable	60.2--filtered solids	The drainable liquid was green and opaque. The solids were gray and resembled a salt slurry. The solids were added to the drainable liquid. After filtering, the filtered solids were analyzed as a lower half solid.
96-390	4		7/26/96	8/6/96	8/12/96	11.0	57.8--drainable	64.4--upper half 262.2--lower half	The drainable liquid was gray and opaque. The lower half solids were reddish-brown and resembled a wet sludge.

Approximate Inches Extruded

Analytical Results Summary

The data summary table (Table 1) included in this report compiles the safety screening analytical results and applicable notification limits associated with each subsample submitted.

Core 161, segment 2, quarter segment C (S96T004215) contained hard crystals that made it difficult to homogenize. This sample may not have been completely homogenized.

Differential Scanning Calorimetry (DSC)

None of the subsamples submitted for Differential Scanning Calorimetry (DSC) exceeded the notification limits as stated in the TSAP. Statistical evaluation of the results by calculating the 95% upper confidence limit is not performed by the 222-S Laboratory and is not considered in this report.

The DSC analyses were performed in duplicate on direct subsamples. The exothermic energy based on dry weight of subsample was calculated for all subsamples. The average of the thermogravimetric analysis (TGA) results for each subsample was used in the dry weight correction for that subsample.

Relative percent differences (RPD) greater than 30% were reported for eight of the twenty-seven subsamples. The results for these subsamples were near the detection limit for the instrument and resulted in a decrease in precision. No further analysis for six of these subsamples was requested. A second analysis of core 151, segment 2, drainable liquid (S96T003872) and core 161, segment 2A, drainable liquid (S96T004232) was performed (denoted by a 1 in the replicate (R) column of table 1). The duplicate thermogram for these two subsamples showed a sharp exotherm at a low temperature (177.89°C and 219.2°C, respectively). The sample result for S96T003872 showed the same behavior as the duplicate from the original run. The results for S96T004232 did not exhibit the same sharp exotherm. Further analyses of these subsamples by DSC would not provide any more information.

Four segments were the result of two exotherms: core 161, segment 2, quarter segment A (S96T004219); core 161, segment 2A, drainable liquid (S96T004232); core 161, segment 3, drainable liquid (S96T004411); and core 161, segment 4, drainable liquid (S96T004412).

Standard recovery criterion as stated in the TSAP was met for all subsamples.

Thermogravimetric Analysis (TGA)

The TGA analyses were performed in duplicate on direct subsamples. Typically results were determined by summing weight loss steps below 200°C but may be extended to 250°C; weight loss steps above this were not used to determine the result. Core 161, segment 1, lower half (S96T004218) thermogram shows a second weight loss step that ends at approximately 380°C. The chemist noted that the thermogram indicates the sample lost weight up to this temperature and was probably due to the strong attraction between hydrated salts. The results reported for this subsample include this second weight loss step. More information may be obtained by examining the raw data.

An RPD greater than 30% was reported for one of the twenty-seven subsamples. Core 151, segment 1, lower half (S96T003506) was reported with an RPD of 44.5%. The result for this subsample was near the detection level of the instrument and resulted in a decrease in precision. A second analysis of core 151, segment 2, upper half (S96T003535) was performed (denoted by a 1 in the replicate (R) column of table 1) due to differences in appearance of the thermograms between the sample and duplicate sample. These differences were not seen in the second analysis. The results for both analyses are presented in table 1.

Standard recovery criterion as stated in the TSAP was met for all subsamples.

Density

Bulk density analysis was performed for eight of the eighteen solid subsamples. As required by the TSAP, the analysis was only requested on lower half segments. Segment 2 of core 161 was subsampled into "quarter segments" and the bulk density analysis was requested for the lower two subsegments. Three requested bulk densities could not be performed due to the dryness and hardness of the subsample: core 151, segment 1, lower half (S96T003506); core 161, segment 2, quarter segment C (S96T004215); and core 161, segment 3, lower half (S96T004391). The bulk density of core 161, segment 2, quarter segment B (S96T004214) was noted as difficult to perform due to the hard crystal/slurry mixture.

The results of the bulk density test ranged from 1.57 g/mL to 1.91 g/mL. The highest bulk density of 1.91 g/mL was used to calculate the solid total alpha activity notification limit for this tank (32.2 $\mu\text{Ci/g}$).

Total alpha results for liquids do not require correction for density. The specific gravity results for the liquid subsamples will be reported in a revision to this document.

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Total Alpha (AT)

The 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 32.2 $\mu\text{Ci/g}$ (based on a bulk density of 1.91 g/mL).

The AT analyses were performed in duplicate on direct subsamples for the liquids. Solid subsamples were prepared for analysis by performing a fusion digest in duplicate. The fusion digest is indicated with an "F" in the aliquot class (A#) column in the data summary table (Table 1). As required by the TSAP, the analysis was only requested on lower half segments. Segment 2 of core 161 was subsampled into "quarter segments" and the AT analysis was requested for the lower two subsegments.

RPDs greater than 20% were reported for five of the twenty-four subsamples. Count replicate results shows this was the result of low sample alpha activity and sample heterogeneity. Continuing reruns were not requested.

A spike recovery of 74.1% was reported for core 151, segment 1A, lower half (S96T003511). This is a result of self-absorption from dissolved solids in the sample. A rerun analysis was not requested. The result for this sample may be biased low.

Standard criterion as stated in the TSAP was met for all subsamples.

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Procedures

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

Table 4. Analytical Procedures

Analysis	Sample Portion	Preparation Procedures	Analysis Reference
DSC	Solid/Liquid	N/A	LA-514-113, Rev. C-1 LA-514-114, Rev. C-1
TGA	Solid/Liquid	N/A	LA-514-114, Rev. C-1 LA-560-112, Rev. B-1
AT	Solid Liquid	LA-549-141, Rev. F-0 N/A	LA-508-101, Rev. D-2
Bulk Density	Solid	N/A	LO-160-103, Rev. B-0

Notes:

+ = preparation procedure is for fusion digest on solid

Abbreviations:

N/A = not applicable (these are direct subsamples)

DSC = differential scanning calorimetry

TGA = thermogravimetric analysis

AT = total alpha activity

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References

Dukelow, G. T., J. W. Hunt, H. Babad, and J. E. Meacham, 1995, *Tank Safety Screening Data Quality Objective*, WHC-SD-WM-SP-004, Rev. 2, Westinghouse Hanford Company, Richland, WA 99352.

McCain, D. J., 1996, *Tank 241-BY-107 Push Mode Core Sampling and Analysis Plan*, WHC-SD-WM-TSAP-098, Rev. 0-A, Westinghouse Hanford Company, Richland, WA 99352.

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SAMPLE DATA SUMMARY

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Table 1. Data Summary Table
BY-107

CORE NUMBER: 151
SEGMENT #: 1

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T003506			Bulk Density of Sample	g/mL	None	None	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T003507			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T003507			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	101.5	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T003507			% Water by TGA on Perkin Elmer	%	None	None	99.81	n/a	12.28	7.810	10.04	44.5	n/a	n/a	n/a
S96T003843	F		Alpha of Digested Solid	uCi/g	-1.0e+00	32.20	87.50	<1.10e-03	<1.91e-03	<2.82E-3	n/a	n/a	n/a	3.00e-03	1.84e+02

Drainable Liquid: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T003847			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	103.3	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T003847			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T003847			% Water by TGA using Mettler	%	None	None	99.86	n/a	48.75	49.08	48.91	0.67	n/a	n/a	n/a
S96T003847			Alpha in Liquid Samples	uCi/mL	-1.0e+00	31.58	116.4	<1.94e-02	<1.18e-02	<1.18E-2	n/a	n/a	108.9	3.20e-02	5.00e+02

=> Limit violated

=> Selected Limit

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Table 1. Data Summary Table
BY-107

CORE NUMBER: 151
SEGMENT #: 1A

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T003510			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T003510			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	101.5	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T003510			% Water by TGA on Perkin Elmer	%	None	None	99.81	n/a	28.90	29.55	29.23	2.22	n/a	n/a	n/a
S96T003511	F		Alpha of Digested Solid	uCi/g	-1.0e+00	12.28	87.50	<1.10e-03	8.35e-03	9.97e-03	9.16e-03	17.7	74.09	3.00e-03	5.15E+01

Drainable Liquid: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T003871			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	103.3	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T003871			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T003871			% Water by TGA using Mettler	%	None	None	99.86	n/a	48.82	50.49	49.66	3.36	n/a	n/a	n/a
S96T003871			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.38	116.4	<1.94e-02	<1.18e-02	<1.56E-2	n/a	n/a	n/a	3.20e-02	5.00E+02

=> Limit violated
=> Selected Limit

WHC-SD-WM-DF-197, REV. 0

Table 1. Data Summary Table
BY-107

CORE NUMBER: 151
SEGMENT #: 2

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T003535			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T003535			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	102.0	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T003535			% Water by TGA on Perkin Elmer	%	None	None	100.5	n/a	46.85	36.03	41.44	26.1	n/a	n/a	n/a
S96T003535 1			% Water by TGA on Perkin Elmer	%	None	None	99.86	n/a	36.18	36.50	36.34	0.88	n/a	n/a	n/a
S96T003850	F		Alpha of Digested Solid	uCi/g	-1.0e+00	32.20	94.53	<1.07e-02	1.68e-02	<3.20E-2	n/a	n/a	78.55	2.60e-02	1.25E+02

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T003517			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.730	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T003526			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	104.4	n/a	28.10	26.00	27.05	7.76	n/a	n/a	n/a
S96T003526			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	50.49	46.71	48.60	7.78	n/a	n/a	n/a
S96T003526			% Water by TGA using Mettler	%	None	None	99.16	n/a	41.75	46.92	44.34	11.7	n/a	n/a	n/a
S96T003849	F		Alpha of Digested Solid	uCi/g	-1.0e+00	32.20	87.50	<1.10e-03	4.08e-02	3.14e-02	3.61e-02	26.0	n/a	1.10e-02	4.14E+01

Drainable Liquid: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T003872			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	0.00e+00	48.00	24.00	200	n/a	n/a	n/a
S96T003872 1			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	24.50	0.00e+00	12.25	200	n/a	n/a	n/a
S96T003872			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	101.9	n/a	0.00e+00	24.80	12.40	200	n/a	n/a	n/a
S96T003872 1			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	93.81	n/a	12.63	0.00e+00	6.315	200	n/a	n/a	n/a
S96T003872			% Water by TGA on Perkin Elmer	%	None	None	99.66	n/a	48.26	48.47	48.36	0.43	n/a	n/a	n/a
S96T003872			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	116.4	<1.94e-02	<2.31e-02	<1.94E-2	n/a	n/a	n/a	3.20e-02	5.00E+02

=> Limit violated
=> Selected Limit

Table 1. Data Summary Table
BY-107

CORE NUMBER: 151
SEGMENT #: 3

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T003537			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T003537			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	101.4	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T003537			% Water by TGA on Perkin Elmer	%	None	None	99.32	n/a	48.93	47.10	48.02	3.81	n/a	n/a	n/a
S96T003852	F		Alpha of Digested Solid	uCi/g	-1.0e+00	32.20	94.53	<1.07e-02	1.89e-02	1.53e-02	1.71e-02	21.1	n/a	2.50e-02	1.13e+02

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T003515			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.840	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T003527			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	104.4	n/a	14.70	40.40	27.55	93.3	n/a	n/a	n/a
S96T003527			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	27.90	76.67	52.28	93.3	n/a	n/a	n/a
S96T003527			% Water by TGA using Mettler	%	None	None	99.16	n/a	48.36	46.25	47.30	4.46	n/a	n/a	n/a
S96T003851	F		Alpha of Digested Solid	uCi/g	-1.0e+00	32.20	94.53	<1.07e-02	1.44e-02	<2.31E-2	n/a	n/a	n/a	2.50e-02	1.13e+02

=> Limit violated

=> Selected Limit

Table 1. Data Summary Table
BY-107

CORE NUMBER: 151
SEGMENT #: 4

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T003538			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	64.10	64.58	64.34	0.75	n/a	n/a	n/a
S96T003538			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	101.4	n/a	44.52	44.85	44.69	0.74	n/a	n/a	n/a
S96T003538			% Water by TGA on Perkin Elmer	%	None	None	99.32	n/a	31.24	29.86	30.55	4.52	n/a	n/a	n/a
S96T003854	F		Alpha of Digested Solid	uCi/g	-1.0e+00	32.20	94.53	<1.07e-02	<4.22e-02	6.37e-02	n/a	n/a	n/a	6.00e-02	2.30E+02

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T003516			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.870	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T003528			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T003528			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	102.0	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T003528			% Water by TGA on Perkin Elmer	%	None	None	100.5	n/a	36.44	36.79	36.61	0.96	n/a	n/a	n/a
S96T003853	F		Alpha of Digested Solid	uCi/g	-1.0e+00	32.20	94.53	<1.07e-02	1.16e-01	1.58e-01	1.37e-01	30.7	n/a	1.17e-01	7.92E+01

=> Limit violated

=> Selected Limit

Table 1. Data Summary Table
BY-107

CORE NUMBER: 161
SEGMENT #: 1

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T004212			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.610	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T004218			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	105.4	n/a	56.80	45.40	51.10	22.3	n/a	n/a	n/a
S96T004218			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	99.00	79.10	89.05	22.3	n/a	n/a	n/a
S96T004218			% Water by TGA using Mettler	%	None	None	99.14	n/a	42.80	42.40	42.60	0.94	n/a	n/a	n/a
S96T004240	F		Alpha of Digested Solid	uCi/g	-1.0e+00	32.20	104.7	2.00e-03	3.07e-02	3.20e-02	3.14e-02	4.15	79.11	3.00e-03	2.18e+01

Drainable Liquid: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T004230			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	107.6	n/a	5.400	5.100	5.250	5.71	n/a	n/a	n/a
S96T004230			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	10.70	10.10	10.40	5.77	n/a	n/a	n/a
S96T004230			% Water by TGA using Mettler	%	None	None	99.39	n/a	49.47	49.60	49.53	0.26	n/a	n/a	n/a
S96T004230			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	93.75	<5.79e-03	<2.94e-03	<6.71E-3	n/a	n/a	n/a	8.00e-03	5.00E+02

=> Limit violated
=> Selected Limit

Table 1. Data Summary Table
BY-107

CORE NUMBER: 161
SEGMENT #: 2

SEGMENT PORTION: A Top Quarter of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T004219			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	105.4	n/a	69.50	67.90	68.70	2.33	n/a	n/a	n/a
S96T004219			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	1.09e+02	106.0	107.5	2.79	n/a	n/a	n/a
S96T004219			% Water by TGA using Mettler	%	None	None	99.14	n/a	36.70	35.70	36.20	2.76	n/a	n/a	n/a

B Second Quarter of Segment: B Second Quarter of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T004214			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.910	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T004220			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	105.4	n/a	0.00e+00	8.100	4.050	200	n/a	n/a	n/a
S96T004220			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	0.00e+00	13.10	6.550	200	n/a	n/a	n/a
S96T004220			% Water by TGA using Mettler	%	None	None	99.12	n/a	36.94	39.45	38.20	6.57	n/a	n/a	n/a
S96T004241	F		Alpha of Digested Solid	uCi/g	-1.0e+00	32.20	104.7	2.00e-03	8.12e-03	6.89e-03	7.51e-03	16.4	n/a	3.00e-03	3.90E+01

C Third Quarter of Segment: C Third Quarter of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T004215			Bulk Density of Sample	g/mL	None	None	n/a	n/a	na	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T004221			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	105.4	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T004221			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T004221			% Water by TGA using Mettler	%	None	None	99.12	n/a	24.55	19.40	21.98	23.4	n/a	n/a	n/a
S96T004242	F		Alpha of Digested Solid	uCi/g	-1.0e+00	32.20	92.97	<2.50e-03	<4.08e-03	<3.86E-3	n/a	n/a	87.47	6.00e-03	5.00E+02

Drainable Liquid: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T004231			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	103.3	n/a	4.400	3.300	3.850	28.6	n/a	n/a	n/a
S96T004231			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	8.790	6.590	7.690	28.6	n/a	n/a	n/a
S96T004231			% Water by TGA using Mettler	%	None	None	99.12	n/a	50.08	49.81	49.95	0.54	n/a	n/a	n/a
S96T004231			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.30	93.75	<5.79e-03	<4.85e-03	<1.38E-2	n/a	n/a	83.01	8.00e-03	5.00E+02

=> Limit violated
=> Selected Limit

Table 1. Data Summary Table
BY-107

CORE NUMBER: 161
SEGMENT #: 2A

SEGMENT PORTION: U Upper Half of Segment

Sample#	R A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
				Lower	Upper									
S96T004222		DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.8	n/a	n/a	89.90	39.80	64.85	77.3	n/a	n/a	n/a
S96T004222		DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.8	97.19	n/a	63.20	28.00	45.60	77.2	n/a	n/a	n/a
S96T004222		% Water by TGA on Perkin Elmer	%	None	None	99.75	n/a	33.65	25.75	29.70	26.6	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
				Lower	Upper									
S96T004217		Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.860	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T004223		DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.8	n/a	n/a	12.20	0.00e+00	6.100	200	n/a	n/a	n/a
S96T004223		DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.8	97.19	n/a	7.820	0.00e+00	3.910	200	n/a	n/a	n/a
S96T004223		% Water by TGA on Perkin Elmer	%	None	None	99.75	n/a	31.25	40.98	36.11	26.9	n/a	n/a	n/a
S96T004243	F	Alpha of Digested Solid	uCi/g	-1.0e+00	32.28	92.97	<2.50e-03	<5.00e-03	<4.41E-3	n/a	n/a	n/a	6.00e-03	1.64E+02

Drainable Liquid: Drainable Liquid

Sample#	R A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
				Lower	Upper									
S96T004232		DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.8	96.66	n/a	8.900	48.80	28.85	138	n/a	n/a	n/a
S96T004232	1	DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.8	88.22	n/a	78.80	80.10	79.45	1.64	n/a	n/a	n/a
S96T004232		DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.8	n/a	n/a	17.50	95.70	56.60	138	n/a	n/a	n/a
S96T004232	1	DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.8	n/a	n/a	1.55e+02	157.2	155.9	1.67	n/a	n/a	n/a
S96T004232		% Water by TGA using Mettler	%	None	None	99.00	n/a	49.14	48.91	49.02	0.47	n/a	n/a	n/a
S96T004232		Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.58	93.75	<5.79e-03	<2.94e-03	<3.91E-3	n/a	n/a	n/a	8.00e-03	5.00E+02

=> Limit violated
=> Selected Limit

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Table 1. Data Summary Table
BY-107

CORE NUMBER: 161
SEGMENT #: 3

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T004391			Bulk Density of Sample	g/mL	None	None	n/a	n/a	na	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T004395			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T004395			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	98.42	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T004395			% Water by TGA on Perkin Elmer	%	None	None	97.06	n/a	48.05	44.08	46.06	8.62	n/a	n/a	n/a
S96T004398	F		Alpha of Digested Solid	uci/g	-1.0e+00	32.20	107.0	2.00e-03	6.94e-03	5.59e-03	6.26e-03	21.5	n/a	4.00e-03	5.32e+01

Drainable Liquid: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T004411			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	105.1	n/a	47.30	16.30	31.80	97.5	n/a	n/a	n/a
S96T004411			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	89.10	30.70	59.90	97.5	n/a	n/a	n/a
S96T004411			% Water by TGA using Mettler	%	None	None	99.93	n/a	46.36	47.43	46.89	2.28	n/a	n/a	n/a
S96T004411			Alpha in Liquid Samples	uci/mL	-1.0e+00	61.90	83.59	<7.95e-03	<4.68e-03	<7.95E-3	n/a	n/a	n/a	1.00e-02	5.00E+02

=> Limit violated
=> Selected Limit

Table 1. Data Summary Table
BY-107

CORE NUMBER: 161
SEGMENT #: 3A

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T004348			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.570	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T004349			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	109.0	n/a	31.60	34.10	32.85	7.61	n/a	n/a	n/a
S96T004349			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	56.10	60.50	58.30	7.55	n/a	n/a	n/a
S96T004349			% Water by TGA using Mettler	%	None	None	99.21	n/a	40.89	46.34	43.62	12.5	n/a	n/a	n/a
S96T004351	F		Alpha of Digested Solid	uCi/g	-1.0e+00	32.20	107.0	2.00e-03	1.33e-02	1.63e-02	1.48e-02	20.3	76.32	4.00e-03	3.38e+01

Drainable Liquid: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S96T004346			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	96.66	n/a	20.80	1.100	10.95	180	n/a	n/a	n/a
S96T004346			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	40.20	2.120	21.16	180	n/a	n/a	n/a
S96T004346			% Water by TGA using Mettler	%	None	None	99.00	n/a	48.31	48.06	48.19	0.52	n/a	n/a	n/a
S96T004346			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.90	93.75	<5.79e-03	<3.91e-03	<3.91E-3	n/a	n/a	n/a	8.00e-03	5.00E+02

=> Limit violated
=> Selected Limit

Table 1. Data Summary Table
BY-107

CORE NUMBER: 161
SEGMENT #: 4

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
					Lower	Upper										
S96T004396			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	489.8	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S96T004396			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	489.8	98.42	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S96T004396			% Water by TGA on Perkin Elmer	%	None	None	97.06	n/a	43.68	45.41	44.55	3.88	n/a	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
					Lower	Upper										
S96T004393			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.700	n/a	n/a	n/a	n/a	5.00e-01	n/a	n/a
S96T004397			DSC Exotherm using Mettler	Joules/g	-1.0e+00	489.8	104.7	n/a	2.18e+02	246.3	232.3	12.1	n/a	n/a	n/a	n/a
S96T004397			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	489.8	n/a	n/a	3.56e+02	401.0	378.5	11.9	n/a	n/a	n/a	n/a
S96T004397			% Water by TGA using Mettler	%	None	None	99.93	n/a	38.59	38.69	38.64	0.26	n/a	n/a	n/a	n/a
S96T004400	F		Alpha of Digested Solid	uCi/g	-1.0e+00	32.20	107.0	2.00e-03	2.06e-01	2.22e-01	2.14e-01	7.48	n/a	3.90e-02	2.64E+01	n/a

Drainable Liquid: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
					Lower	Upper										
S96T004412			DSC Exotherm using Mettler	Joules/g	-1.0e+00	489.8	105.1	n/a	10.50	10.70	10.60	1.89	n/a	n/a	n/a	n/a
S96T004412			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	489.8	n/a	n/a	19.70	20.10	19.90	2.01	n/a	n/a	n/a	n/a
S96T004412			% Water by TGA using Mettler	%	None	None	99.93	n/a	45.14	48.43	46.78	7.03	n/a	n/a	n/a	n/a
S96T004412			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	83.59	<7.95e-03	<7.95e-03	<3.85E-3	n/a	n/a	81.62	1.00e-02	1.96E+02	n/a

=> Limit violated
=> Selected Limit

24

WHC-SD-WM-DP-197, REV. 0

WHC-SD-WM-DP-197, REV. 0

ATTACHMENT 1

BY-107 PUSH MODE CORE SAMPLE BREAKDOWNS

WHC-SD-WM-DP-197, REV. 0

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BY-107
Core:151
Seg: 1 (96-247)
S96T003488

Attachment 1
Page 1 of 11

Lower
Half

S96T003506

DSC
TGA
TIC/TOC

S96T003507

ARCHIVE

S96T003508

FUSION
ALPHA
ICP
U

S96T003843

H2O_DIG
IC

S96T003844

H2O_ICP

S96T003845

Drainable
Liquid

S96T003846

FILTER01

S96T003847

ARCHIV01

S96T003848

ALPHA
IC
ICP
TIC/TOC
DSC
TGA
SPG
U

WHC-SD-WM-DP-197, REV. 0

BY-107
Core:151
Seg: 1A (96-247-A)
S96T003489

Attachment 1
Page 2 of 11

WHC-SD-WM-DP-197, REV. 0

BY-107
Core:151
Seg: 2 (96-248)
S96T003490

Attachment 1
Page 3 of 11

29

WHC-SD-WM-DP-197, REV. 0

BY-107
Core:151
Seg: 3 (96-249)
S96T003500

Attachment 1
Page 4 of 11

Upper
Half

S96T003524

Lower
Half

S96T003515

S96T003537

S96T003541

S96T003527

S96T003530

S96T003852

S96T003859

S96T003866

S96T003851

S96T003858

S96T003865

30

WHC-SD-WM-DP-197, REV. 0

BY-107
Core:151
Seg: 4 (96-250)
S96T003501

Attachment 1
Page 5 of 11

WHC-SD-WM-DP-197, REV. 0

BY-107
Core:161
Seg: 1 (96-387)
S96T004119

Attachment 1
Page 6 of 11

Lower
Half

S96T004212

DSC
TGA
TIC/TOC

S96T004218

ARCHIVE

S96T004224

FUSION
ALPHA
ICP
U

S96T004240

H2O_DIG
IC

S96T004244

H2O_ICP

S96T004248

Drainable
Liquid

FILTER01

ARCHIVE01

S96T004227

S96T004233

ALPHA
IC
ICP
TIC/TOC
DSC
TGA
SPG
U

S96T004230

WHC-SD-WM-DP-197, REV. 0

BY-107
Core:161
Seg: 2 (96-388)
S96T004120

Attachment 1
Page 7 of 11

33

BY-107
Core:161
Seg: 2A (96-388A)
S96T004121

Attachment 1
Page 8 of 11

34

WHC-SD-WM-DP-197, REV. 0

BY-107
Core:161
Seg: 3 (96-389)
S96T004320

Attachment 1
Page 9 of 11

Lower
Half

HOMGNZ
BLKDN
ARCHIVE

S96T004391

DSC
TGA
TIC/TOC

S96T004395

FUSION
ALPHA
ICP
U

S96T004398

H2O_DIG
IC

S96T004401

H2O_ICP

S96T004404

Drainable
Liquid

FILTER01

ARCHIVE01

S96T004411

S96T004407

S96T004409

WHC-SD-WM-DP-197, REV. 0

The lower half solids represent the solids collected by filtering the drainable liquid.

BY-107
Core:161
Seg: 3A (96-389A)
S96T004265

Attachment 1
Page 10 of 11

36

WHC-SD-WM-DP-197, REV. 0

BY-107
Core:161
Seg: 4 (96-390)
S96T004321

Attachment 1
Page 11 of 11

WHC-SD-MM-DP-197, REV. 0

CHAIN OF CUSTODY FORMS

WHC-SD-WM-DP-197, REV. 0

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CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

COPY

(1) Shipment Number 200W-08-TF (2) Sample Number 96-247 (3) Supervisor M.C. Jones
 (4) Tank BY-107 (5) Riser 8 (6) Segment 1 (7) Core 151 (8) Cask Serial Number C-2000

Radiation Survey Data:

(9) FIELD

(33) LABORATORY

Over Top Dose Rate

210.5 m/hr

Side Dose Rate

2427 m/hr

Bottom Dose Rate

158 m/hr

Smearable Contamination

28200 dpm/gross

(Alpha)

(Alpha)

(Beta/Gamma)

(Beta/Gamma)

RCT*
(HPT)

(Signature)

RCT*
(HPT)

(Signature)

(10) Shipment Description

A. Work Package Number

2ES-96-009X ⁴¹²

B. Cask Seal Number

10438

C. Sampler Serial Number

95-0735

D. Date and Time Sampler Unseated

6-5-96/1953

E. Expected Liquid Content

10%

F. Expected Solid Content

90%

G. Dose Rate Through Drill String

1.5 R/HR

H. Expected Sample Length

5"

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

40

(12) Field Comments

Sample was only pushed 5" before it broke through a hard layer.

(34) Laboratory Comments

(13) Point of Origin

BY-107

(14) Destination

222-S

(15) Sender Name (Sign and PRINT)

W. J. Pezwick for M.C. Jones

(16) Date/Time

6-11-96/1405

(17) Sender Comments

(18) Relinquished By (Sign and PRINT)

W. J. Pezwick

(20) Received By (Sign and PRINT)

W. J. Pezwick

(21) Date/Time

6-11-96/1410

(22) Receiver Comments

(23) Relinquished By (Sign and PRINT)

W. J. Pezwick

(24) Received By (Sign and PRINT)

N. LAPIERS

(25) Date/Time

6-11-96/1455

(26) Receiver Comments

(27) Relinquished By (Sign and PRINT)

W. J. Pezwick

(28) Received By (Sign and PRINT)

N. LAPIERS

(29) Date/Time

6-11-96/1455

(30) Receiver Comments

(19) Seal Intact Upon Release?

☒ Yes☐ No

(31) Seal Intact Upon Receipt?

☒ Yes☐ No

Shipment No.

☒ Yes☐ No

(32) Seal Date Consistent with this Record?

Cask Seal No.

☒ Yes☐ No

Sample No.

☒ Yes☐ No

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

COPY

(1) Shipment Number 200W-08TF (2) Sample Number 96-247-A (3) Supervisor M.C. Jones
 (4) Tank By-107 (5) Riser 8 (6) Segment 1A (7) Core 151 (8) Cask Serial Number SV-76

Radiation Survey Data:		(33) LABORATORY	(10) Shipment Description
Over Top Dose Rate	<u>21</u>	<u>2.5 mR/hr</u>	A. Work Package Number <u>ES-96-00422</u>
Side Dose Rate	<u>14</u>	<u>2.0 mR/hr</u>	B. Cask Seal Number <u>10441</u>
Bottom Dose Rate	<u>10</u>	<u>8 mR/hr</u>	C. Sampler Serial Number <u>94-0465</u>
Smearable Contamination	<u>ED</u>	<u><20 dpm/100cm</u>	D. Date and Time Sampler Unseated <u>6-5-96/2005</u>
	(Alpha)	(Alpha)	E. Expected Liquid Content <u>0%</u>
	<u>ELK</u>	<u>5000 dpm/100cm</u>	F. Expected Solid Content <u>100%</u>
	(Beta-Gamma)	(Beta-Gamma)	G. Dose Rate Through Drill String <u>1.3 R/HR</u>
RCT* (HPT)	<u>[Signature]</u>	RCT* (HPT)	H. Expected Sample Length <u>9"</u>
	(Signature)		

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

(12) Field Comments		(13) Laboratory Comments	
41			

(13) Point of Origin <u>BY-107</u>	(14) Destination <u>222-S</u>	(15) Sender Name (Sign and PRINT) <u>W. R. Dunnington</u>	(16) Date/Time <u>6-11-96/1405</u>	(17) Sender Comments
(18) Relinquished By (Sign and PRINT) <u>[Signature]</u>	(19) Received By (Sign and PRINT) <u>[Signature]</u>	(20) Relinquished By (Sign and PRINT) <u>[Signature]</u>	(21) Date/Time <u>6-11-96/1405</u>	(22) Receiver Comments
(23) Relinquished By (Sign and PRINT) <u>[Signature]</u>	(24) Received By (Sign and PRINT) <u>[Signature]</u>	(25) Relinquished By (Sign and PRINT) <u>[Signature]</u>	(26) Date/Time <u>6-11-96/1405</u>	(27) Receiver Comments
(28) Relinquished By (Sign and PRINT) <u>[Signature]</u>	(29) Received By (Sign and PRINT) <u>[Signature]</u>	(30) Relinquished By (Sign and PRINT) <u>[Signature]</u>	(31) Date/Time <u>6-11-96/1405</u>	(32) Receiver Comments

(18) Seal Intact Upon Release? ☒ Yes ☐ No	(31) Seal Intact Upon Receipt? ☒ Yes ☐ No	(32) Seal Data Consistent with this Record? ☒ Yes ☐ No
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DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S8-85 Goldenrod - Tank Farm Operations, S4-43

RP-0000-200 01/04/01

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

COPY

(1) Shipment Number 2004-05-TE (2) Sample Number 96-248 (3) Supervisor Hartley
 (4) Tank 107B9 (5) Riser 8 (6) Segment 7 (7) Core 15 (8) Cask Serial Number C2007

Radiation Survey Data:

Over Top Dose Rate

21

Side Dose Rate

21

Bottom Dose Rate

12

Smearable Contamination

ED

(Alpha)

4K

(Beta-Gamma)

RCT*

(HPT)

(Signature)

(33) LABORATORY

4.5 mSv/hr20 mSv/hr8 mSv/hr< 20 dpm/gross

(Alpha)

400 dpm/gross

(Beta-Gamma)

RCT*

(HPT)

(Signature)

(10) Shipment Description

A. Work Package Number

ES-96-004221

B. Cask Seal Number

11450

C. Sampler Serial Number

95-0425

D. Date and Time Sampler Unseated

6-10-96, 1353

E. Expected Liquid Content

20%

F. Expected Solid Content

80%

G. Dose Rate Through Drill String

750 mSv/hr

H. Expected Sample Length

19"

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

12) Field Comments

(34) Laboratory Comments

13) Point of Origin

(14) Destination

(15) Sender Name (Sign and PRINT)

(16) Date/Time

(17) Sender Comments

19) Relinquished By (Sign and PRINT)

(20) Received By (Sign and PRINT)

(21) Date/Time

(22) Receiver Comments

3) Relinquished By (Sign and PRINT)

(24) Received By (Sign and PRINT)

(25) Date/Time

(26) Receiver Comments

7) Relinquished By (Sign and PRINT)

(28) Received By (Sign and PRINT)

(29) Date/Time

(30) Receiver Comments

(18) Seal Intact Upon Release?

(31) Seal Intact Upon Receipt?

(32) Seal Data Consistent with this Record?

Shipment No.

Cask Seal No.

Sample No.

DISTRIBUTION: White - Office of Sample Management

Yellow - Recipient of Sample

Pink - Core Sampling, S4-85

Goldenrod - Tank Farm Operations, S4-43

BR-0000 200 100000

WHC-SD-WM-DP-197, REV. 10

004

509 373 1432

08:12

06/12/96

COPY

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 200W-08-TF (2) Sample Number 96-249 (3) Supervisor Clarkey
 (4) Tank 107BY (5) Riser 8 (6) Segment 3 (7) Core 161 (8) Cask Serial Number C1076

(9) FIELD		(13) LABORATORY	(10) Shipment Description
Over Top Dose Rate	<u>1 mR/hr</u>	<u>4.5 mR/hr</u>	A. Work Package Number <u>ES-96-00422</u>
Side Dose Rate	<u>22 mR/hr</u>	<u>17 mR/hr</u>	B. Cask Seal Number <u>11451</u>
Bottom Dose Rate	<u>15 mR/hr</u>	<u>9 mR/hr</u>	C. Sampler Serial Number <u>95-0835</u>
Smearable Contamination	<u><20 dpm/100cm²</u>	<u><20 dpm LAW</u> (Alpha)	D. Date and Time Sampler Unsealed <u>6-11-96, 0958</u>
	<u>4 K/gm/100cm²</u> (Beta-Gamma)	<u><1000 dpm LAW</u> (Beta-Gamma)	E. Expected Liquid Content <u>20%</u>
RCT* (NPT)	<u>[Signature]</u> (Signature)	RCT (NPT)	F. Expected Solid Content <u>80%</u>
			G. Dose Rate Through Drill String <u>800 mR/hr</u>
			H. Expected Sample Length <u>19"</u>

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

(12) Field Comments

(13) Laboratory Comments

(11) Point of Origin <u>107BY</u>	(14) Destination <u>2225</u>	(15) Sender Name (Sign and PRINT) <u>ES-96-00422 for D. Clarkey</u>	(16) Date/Time <u>6-11-96</u>	(17) Sender Comments
(19) Relinquished By (Sign and PRINT) <u>[Signature]</u>	(20) Received By (Sign and PRINT) <u>[Signature]</u>	(21) Date/Time <u>6-12-96</u>	(22) Receiver Comments	
(23) Relinquished By (Sign and PRINT) <u>[Signature]</u>	(24) Received By (Sign and PRINT) <u>[Signature]</u>	(25) Date/Time <u>6-12-96</u>	(26) Receiver Comments	
(27) Relinquished By (Sign and PRINT)	(28) Received By (Sign and PRINT)	(29) Date/Time	(30) Receiver Comments	

(18) Seal Intact Upon Release? ☒ Yes ☐ No	(31) Seal Intact Upon Receipt? ☒ Yes ☐ No	Shipment No. ☒ Yes ☐ No	Cask Seal No. ☒ Yes ☐ No	Sample No. ☒ Yes ☐ No
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DISTRIBUTION: White - Office of Resource Management Yellow - Radiological Records Pink - Core Sampling CASE Redacted - Tank Farm Assessment 22-29

COPY

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 200W-08-TF (2) Sample Number 96-25D (3) Supervisor Hartley
 (4) Tank 107BY (5) Riser B (6) Segment 4 (7) Core 151 (8) Cask Serial Number C2002

Radiation Survey Data:		(3.3) LABORATORY	(10) Shipment Description
Over Top Dose Rate	<u>1 mR/h</u>	<u>.7 mR/hr</u>	A. Work Package Number <u>ES-96-00422/10</u>
Side Dose Rate	<u>30 mR/h</u>	<u>31 mR/hr</u>	B. Cask Seal Number <u>11464</u>
Bottom Dose Rate	<u>15 mR/h</u>	<u>33 mR/hr</u>	C. Sampler Serial Number <u>94-0545</u>
Measurable Contamination	<u><20 dpm / area²</u> (Alpha)	<u><20 dpm / area²</u> (Alpha)	D. Date and Time Sampler Uncoated <u>6-12-96, 19/8</u>
	<u><11 dpm / area²</u> (Beta-Gamma)	<u><1000 dpm / area²</u> (Beta-Gamma)	E. Expected Liquid Content <u>20%</u>
RCT* (RPT)	<u>RCT</u> (Signature)	RCT* (RPT)	F. Expected Solid Content <u>80%</u>
			G. Dose Rate Through Drill String <u>116 R/hr</u>
			H. Expected Sample Length <u>18 1/4"</u>

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

44

(12) Field Comments <u>Sludge on bottom of Sampler</u>		(13) Laboratory Comments	
(13) Point of Origin <u>107BY</u>	(14) Destination <u>2225</u>	(15) Sender Name (Sign and PRINT) <u>Cliff Hartley for D Hartley</u>	(16) Date/Time <u>6/24/96</u>
(17) Receiver Name (Sign and PRINT) <u>Cliff Hartley</u>	(18) Received By (Sign and PRINT) <u>Cliff Hartley</u>	(19) Date/Time <u>6-25-96</u>	(20) Receiver Comments
(21) Relinquished By (Sign and PRINT) <u>Cliff Hartley</u>	(22) Received By (Sign and PRINT) <u>Cliff Hartley</u>	(23) Date/Time <u>6-15-96</u>	(24) Receiver Comments
(25) Relinquished By (Sign and PRINT)	(26) Received By (Sign and PRINT)	(27) Date/Time	(28) Receiver Comments
(32) Seal Date Consistent with this Record?			
(18) Seal Intact Upon Release? ☒ Yes ☐ No	(31) Seal Intact Upon Receipt? ☒ Yes ☐ No	Shipment No. ☒ Yes ☐ No	Cask Seal No. ☒ Yes ☐ No
		Sample No. ☒ Yes ☐ No	

NOTES: White - White of Sample Measurement Yellow - Radiation of Sample Blue - Core Sample Color Red - Tank Core Measurement

SR 9600 000 000000

WHC-SD-WM-DP-197, REV. 0

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

COPY

(1) Shipment Number 200W-08-77 (2) Sample Number 96-387 (3) Supervisor M. C. Jones
 (4) Tank BY-107 (5) Riser 9B (6) Segment 1 (7) Core 161 (8) Cask Serial Number 1033

Radiation Survey Data:

(9) FIELD		(10) LABORATORY		(11) SHIPMENT DESCRIPTION	
Over Top Dose Rate	<u>< 5 MR/hr</u>	<u>< 5 MR/hr</u>		A. Work Package Number	<u>ES-96-00423</u>
Side Dose Rate	<u>30 MR/hr</u>	<u>25 MR/hr</u>		B. Cask Seal Number	<u>10202</u>
Bottom Dose Rate	<u>0 MR/hr</u>	<u>8 MR/hr</u>		C. Sampler Serial Number	<u>972694-4835</u>
Measurable Contamination	<u>< 20 DPM</u>	<u>< 20 DPM</u>		D. Date and Time Sample Unsealed	<u>7-19-96/ 234</u>
	(Alpha)	(Alpha)		E. Expected Liquid Content	<u>30%</u>
	<u>< 1000 DPM</u>	<u>< 100 DPM</u>		F. Expected Solid Content	<u>70%</u>
	(Beta-Gamma)	(Beta-Gamma)		G. Dose Rate Through Delt String	<u>1.2 R/hr</u>
ACT* (HPT)	<u>[Signature]</u>	ACT* (HPT)	<u>[Signature]</u>	H. Expected Sample Length	<u>10"</u>
	(Signature)		(Signature)		

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

(2) Field Comments

(3) Laboratory Comments

Points of Origin <u>BY-107</u>	(14) Destination <u>222-S</u>	(15) Sender Name (Sign and PRINT) <u>Tim B. Calk</u>	(16) Date/Time <u>7/19/96</u>	(17) Sender Comments
Relinquished By (Sign and PRINT) <u>Tim B. Calk</u>	(20) Received By (Sign and PRINT) <u>Steven B. Carter</u>	(21) Date/Time <u>7/19/96</u>	(22) Receiver Comments	
Relinquished By (Sign and PRINT) <u>Tim B. Calk</u>	(24) Received By (Sign and PRINT) <u>Steven B. Carter</u>	(25) Date/Time <u>7/19/96</u>	(26) Receiver Comments	
Relinquished By (Sign and PRINT) <u>Tim B. Calk</u>	(28) Received By (Sign and PRINT) <u>Steven B. Carter</u>	(29) Date/Time <u>7/19/96</u>	(30) Receiver Comments	

(1) Seal Intact Upon Release? ☒ Yes ☐ No	(3) Seal Intact Upon Receipt? ☒ Yes ☐ No	Shipment No. ☒ Yes ☐ No	Cask Seal No. ☒ Yes ☐ No	Sample No. ☒ Yes ☐ No
--	--	---	--	---

(32) Seal Data Consistent with this Record?

BUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S-6-95 Goldenrod - Tank Farm Operations, S-4-43

BC-6000-309 (02/94)

WHC-SD-WM-DP-197, REV. 0

404

509 373 1432

46

(34) Laboratory Comments

13:40

OC-6000-309 (02/24)

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

COPY

(1) Shipment Number 200W-01-7K (2) Sample Number 96-388A (3) Supervisor M. C. Jones
 (4) Tank 8X-107 (5) Riser 9B (6) Segment 2A (7) Core 161 (8) Cask Serial Number C 2012

Radiation Survey Data:		(9) FIELD	(10) LABORATORY	(11) Shipment Description
Over Top Dose Rate	<u>6.5 MR/HR</u>	<u>6.5 mR/hr</u>	A. Work Package Number	<u>ES-96-00423</u>
Side Dose Rate	<u>90 MR/HR</u>	<u>20 mR/hr</u>	B. Cask Serial Number	<u>11485</u>
Bottom Dose Rate	<u>6 MR/HR</u>	<u>4 mR/hr</u>	C. Samples Serial Number	<u>94-456-5</u>
Measurable Contamination	<u>< 20 dpm</u> (Alpha)	<u>< 20</u> (Alpha)	D. Date and Time Sampler Unloaded	<u>7-19-96 0903</u>
	<u>< 1000 dpm</u> (Beta-Gamma)	<u>< 100</u> (Beta-Gamma)	E. Expected Liquid Content	<u>20%</u>
RCT* (HPT)	<u>[Signature]</u> (Signature)	RCT* (HPT)	F. Expected Solid Content	<u>80%</u>
			G. Dose Rate Through Drill String	<u>1.1 R/HR</u>
			H. Expected Sample Length	<u>9"</u>

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

(12) Field Comments <u>Sampler Clean</u>		(13) Laboratory Comments	
(13) Point of Origin <u>107BY</u>	(14) Destination <u>222 S</u>	(15) Sender Name (Sign and PRINT) <u>Sublette STEVEN B CORNELL</u>	(16) Date/Time <u>7/29/96 10:15 AM</u>
(17) Relinquished By (Sign and PRINT) <u>STEVEN B CORNELL</u>	(18) Received By (Sign and PRINT) <u>DANIEL J KEANE</u>	(19) Date/Time <u>7/29/96 10:20</u>	(20) Receiver Comments
(21) Relinquished By (Sign and PRINT) <u>DANIEL J KEANE</u>	(22) Received By (Sign and PRINT) <u>EE DUBOIS</u>	(23) Date/Time <u>7-27-96 1102</u>	(24) Receiver Comments
(25) Relinquished By (Sign and PRINT)	(26) Received By (Sign and PRINT)	(27) Date/Time	(28) Receiver Comments
(18) Seal Intact Upon Release? ☒ Yes ☐ No	(19) Seal Intact Upon Receipt? ☒ Yes ☐ No	(20) Shipment No. ☒ Yes ☐ No	(21) Cask Seal No. ☒ Yes ☐ No
(22) Sample No. ☒ Yes ☐ No		(23) Sample No. ☒ Yes ☐ No	

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, 56-85 Goldenrod - Tank Farm Operations, 54-43

GC-8000-309 (02/94)

WHC-SD-WM-DP-197, REV. 0

COPY

Tank BY-101 (5) Riser 9B (6) Segment 3 (7) Core 161 (8) Cast Serial Number C-2002

Handwritten	Printed
1001	1001
1002	1002
1003	1003
1004	1004
1005	1005
1006	1006
1007	1007
1008	1008
1009	1009
1010	1010
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1080	1080
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1089	1089
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1091	1091
1092	1092
1093	1093
1094	1094
1095	1095
1096	1096
1097	1097
1098	1098
1099	1099
1100	1100

Side	Dose	Rate			
15	44	13	13	13	0746
15	44	13	13	13	0746

0 <u>May 10</u> Batom Dose Rate	<u>6 m/h</u> C. Sampler Serial Number	<u>44-4545</u>
------------------------------------	--	----------------

Measurable Contamination

~~20~~ 20 cpm

(Alpha)

(Alpha)

0. Date and Time Sampler Unseated

1-23-74 2:11:30

10/10/10

Drill Site	Drill Date	Drill Time	Drill Depth	Drill Type	Drill Status	Drill Notes
7001007	7/10/07	10:00	100	100	100	100

H.	Expected Sample Length
92	/ 5 X-RAY /

Formulation of a New System to Visualize Research Results

7H0

SD
8

Field	Comments	Date	Initials	Signature	Remarks
1	Field Comments	0	0		
2	Field Comments	0	0		
3	Field Comments	0	0		
4	Field Comments	0	0		
5	Field Comments	0	0		
6	Field Comments	0	0		
7	Field Comments	0	0		
8	Field Comments	0	0		
9	Field Comments	0	0		
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86	Field Comments	0	0		

4. *Quercus agrifolia*

97

RE

(17) Send comments

(10) Date/time

0930

0

Requisitioned By (Sign and PRINT)	UO/Received By (Sign and PRINT)	Date/Time	(22) Receiver Comments

Relinquished By (Sign and PRINT)	Received By (Sign and PRINT)	Date/Time	Receiver Comments
<i>[Signature]</i>	<i>[Signature]</i>		

	DATE	TIME	LOCATION	REMARKS
8-6-96	7-1	5:00 PM	STATION 11	FLYING

[illegible]

Chinua Achebe

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

Overall 500,000,000

Journal of Management Education 36(8) 907-924
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CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

COI

R. Frank Smith
 (8) Clerk Seal Number **25-C**

(12) Sample Number **96-3898**
 (13) Supervisor **161**
 (17) Core **3B**

Shipment Number **200W-04-E**
 Tag **BY-107**
 (15) NISOR **9B**
 (16) Sogwert **3B**

(10) Shipment Description	E5-96-00423
A. Work Package Number	10345
B. Cask Seal Number	95-3894
C. Sampler Seal Number	785-96/1905
D. Date and Time Sampled	30%
E. Expected Liquid Content	20%
F. Expected Solid Content	1.58
G. Dose Rate Through Drill String	9"
H. Expected Sample Length	X-Ray = 7" or 80%

(13) LABORATORY	45
A. (Alpha)	12
B. (Beta Gamma)	18
C. (Gamma)	30
D. (X-ray)	30
E. (Neutron)	12
F. (Other)	18
G. (Signature)	45

(9) FIELD	< 0.5
Over Top Dose Rate	30
Side Dose Rate	15
Bottom Dose Rate	< 20
Sealable Contamination	< 15
RPCT	15
RPCT	15
RPCT	15

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

(12) Laboratory Comments
*sample has amount of liquid drops
 and 1/2 amount from downhole drops
 sample X-rayed = 7" of waste or 80%*

(11) Seal Intact Upon Receipt? ☒ Yes ☐ No		(12) Seal Intact Upon Receipt? ☒ Yes ☐ No		(13) Seal Intact Upon Receipt? ☒ Yes ☐ No	
(14) Point of Origin R-98		(15) Date/Time 8-2-96		(16) Date/Time 8-2-96	
(17) Date/Time 8-2-96		(18) Date/Time 8-2-96		(19) Date/Time 8-2-96	
(20) Date/Time 8-2-96		(21) Date/Time 8-2-96		(22) Date/Time 8-2-96	
(23) Date/Time 8-2-96		(24) Date/Time 8-2-96		(25) Date/Time 8-2-96	
(26) Date/Time 8-2-96		(27) Date/Time 8-2-96		(28) Date/Time 8-2-96	
(29) Date/Time 8-2-96		(30) Date/Time 8-2-96		(31) Date/Time 8-2-96	
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(35) Date/Time 8-2-96		(36) Date/Time 8-2-96		(37) Date/Time 8-2-96	
(38) Date/Time 8-2-96		(39) Date/Time 8-2-96		(40) Date/Time 8-2-96	
(41) Date/Time 8-2-96		(42) Date/Time 8-2-96		(43) Date/Time 8-2-96	
(44) Date/Time 8-2-96		(45) Date/Time 8-2-96		(46) Date/Time 8-2-96	
(47) Date/Time 8-2-96		(48) Date/Time 8-2-96		(49) Date/Time 8-2-96	
(50) Date/Time 8-2-96		(51) Date/Time 8-2-96		(52) Date/Time 8-2-96	
(53) Date/Time 8-2-96		(54) Date/Time 8-2-96		(55) Date/Time 8-2-96	
(56) Date/Time 8-2-96		(57) Date/Time 8-2-96		(58) Date/Time 8-2-96	
(59) Date/Time 8-2-96		(60) Date/Time 8-2-96		(61) Date/Time 8-2-96	
(62) Date/Time 8-2-96		(63) Date/Time 8-2-96		(64) Date/Time 8-2-96	
(65) Date/Time 8-2-96		(66) Date/Time 8-2-96		(67) Date/Time 8-2-96	
(68) Date/Time 8-2-96		(69) Date/Time 8-2-96		(70) Date/Time 8-2-96	
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(77) Date/Time 8-2-96		(78) Date/Time 8-2-96		(79) Date/Time 8-2-96	
(80) Date/Time 8-2-96		(81) Date/Time 8-2-96		(82) Date/Time 8-2-96	
(83) Date/Time 8-2-96		(84) Date/Time 8-2-96		(85) Date/Time 8-2-96	
(86) Date/Time 8-2-96		(87) Date/Time 8-2-96		(88) Date/Time 8-2-96	
(89) Date/Time 8-2-96		(90) Date/Time 8-2-96		(91) Date/Time 8-2-96	
(92) Date/Time 8-2-96		(93) Date/Time 8-2-96		(94) Date/Time 8-2-96	
(95) Date/Time 8-2-96		(96) Date/Time 8-2-96		(97) Date/Time 8-2-96	
(98) Date/Time 8-2-96		(99) Date/Time 8-2-96		(100) Date/Time 8-2-96	

WHC-SD-WM-DP-197, REV. D

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

COPY

Shipment Number 200w-08-TF (2) Sample Number 96-390 (3) Supervisor R. Frank Lunt
 Tank By 107 (5) Riser 9B (6) Segment 4 (7) Core 161 (8) Cask Serial Number 260

Radiation Survey Data:

(9) FIELD	(33) LABORATORY
Over Top Dose Rate <u><0.5</u>	<u><0.5</u>
Side Dose Rate <u>24</u>	<u>24</u>
Bottom Dose Rate <u>10</u>	<u>9</u>
Smearable Contamination <u><20</u>	<u><20</u>
(Alpha)	(Alpha)
<u><1K</u>	<u><1K</u>
(Beta-Gamma)	(Beta-Gamma)
ECT* <u>[Signature]</u>	ECT* <u>[Signature]</u>
(HPT) (Signature)	(HPT) (Signature)

(10) Shipment Description

A. Work Package Number ES-96-00423
 B. Cask Seal Number 10343
 C. Sampler Serial Number 95-3055
 D. Date and Time Sampler Unsealed 7-26-95/1855
 E. Expected Liquid Content 30%
 F. Expected Solid Content 70%
 G. Dose Rate Through Drift String 1.1R
 H. Expected Sample Length 19"

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

50

WHC-SD-WM-DP-197, REV. 0

2) Field Comments

sample not X-rayed
 sampler clean - no liquid

(34) Laboratory Comments

3) Point of Origin R-9B

(14) Destination

2225 Labs

(15) Sender Name (Sign and PRINT)

James Sicks James Sicks

(16) Date/Time

8-6-96

(17) Sender Comments

9) Relinquished By (Sign and PRINT)

James Sicks James Sicks

(20) Received By (Sign and PRINT)

James L. Lunt James L. Lunt

(21) Date/Time

8-6-96

(22) Receiver Comments

(3) Relinquished By (Sign and PRINT)

James L. Lunt James L. Lunt

(24) Received By (Sign and PRINT)

EE Dubois EE Dubois

(25) Date/Time

8-6-96

(26) Receiver Comments

(7) Relinquished By (Sign and PRINT)

James L. Lunt James L. Lunt

(28) Received By (Sign and PRINT)

EE Dubois EE Dubois

(29) Date/Time

8-6-96

(30) Receiver Comments

(18) Seal Intact Upon Release?

☒ Yes ☐ No

(31) Seal Intact Upon Receipt?

☒ Yes ☐ No

Shipment No.

☒ Yes ☐ No

(32) Seal Date Consistent with this Record?

Cask Seal No.

☒ Yes ☐ No

Sample No.

☒ Yes ☐ No

WHC-SD-WM-DP-197, REV. 0

INORGANIC ANALYSES

WHC-SD-WM-DP-197, REV. 0

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LABCORE Data Entry Template for Worklist#

10919

Analyst: RWK Instrument: DSC0 3 Book # 12N14B

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>28.87</u>	<u>N/A</u>	Joules/g
96000836	BY-107	2 SAMPLE	S96T003507	0	DSC-03	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
96000836	BY-107	3 DUP	S96T003507	0	DSC-03	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g
96000836	BY-107	4 SAMPLE	S96T003510	0	DSC-03	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
96000836	BY-107	5 DUP	S96T003510	0	DSC-03	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g

Final page for worklist #

10919

See attached for signatures
Analyst Signature RWK Date 7-22-96

R. Jones 7-22-96
Analyst Signature Date

Validated by H. Anestor 7.23.96

Data Entry Comments:

LABCORE Data Entry Template for Worklist#

10919

Analyst: KK Instrument: DSC0 Book # 12014-BMethod: LA-514-113 Rev/Mod C-1

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID			N/A	Joules/g
96000836	BY-107	2 SAMPLE	S96T003507	0	DSC-01	SOLID	N/A			Joules/g
96000836	BY-107	3 DUP	S96T003507	0	DSC-01	SOLID			N/A	Joules/g
96000836	BY-107	4 SAMPLE	S96T003510	0	DSC-01	SOLID	N/A			Joules/g
96000836	BY-107	5 DUP	S96T003510	0	DSC-01	SOLID			N/A	Joules/g

Final page for worklist #

10919

KK 7/19/96
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

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

Curve 1: DSC

File info: IND071801 Thu Jul 18 05:04:42 1996

Sample Weight: 5.620 mg

12N14-B INDIUM AT 10C/MIN

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 54 TO 58.

54

WHC-SD-WM-DP-197, REV. 0

N2, EXOTHERM DOWN

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

AD PURINTON *Rob King* 7/19/96
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jul 18 05:25:02 1996

Curve 1: DSC

File info: SAM071807 Thu Jul 18 19:29:30 1996

Sample Weight: 8.440 mg

S96T003507

55

N2 10C/min

TEMP: 36.0 °C
TEMP: 500.0 °C

TIMES: 0.0 min RATE: 10.0 °C/min

Temperature (°C)

RW KING

PERKIN-ELMER

7 Series Thermal Analysis System
Thu Jul 18 21:21:57 1996

WHC-SD-WM-DP-197, REV. 0

Curve 1: DSC

File info: SAM071902 Fri Jul 19 00:59:13 1996

Sample Weight: 17.060 mg

S96T003507 IAP Dup

7-15-96

56

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

RATE: 10.0 C/min

AW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Jul 19 02:16:16 1996

WHC-SD-WM-DP-197, REV. 0

Curve 1: DSC
File info: SAM071809 Thu Jul 18 22:30:35 1996
Sample Weight: 31.120 mg
S96T003510

57

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

Temperature (°C)

RW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jul 18 22:54:40 1996

WHC-SD-WM-DP-197, REV. 0

Curve 1: DSC
 File info: SAM071901 Thu Jul 18 23:39:05 1996
 Sample Weight: 33.320 mg
 S96T003510 DUP

WHC-SD-WM-DP-197, REV. 0

TEMP: 30.0 °C TIME: 0.0 min RATE: 10.0 C/min

RW KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fri Jul 19 00:38:25 1996

LABCORE Data Entry Template for Worklist#

10921

Analyst: RDM Instrument: DSC0 1 Book # 12N148

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>32.8</u>	<u>N/A</u>	Joules/g
96000836	BY-107	2 SAMPLE	S96T003526	0	DSC-01	SOLID	<u>N/A</u>	<u>28.1</u>		Joules/g
96000836	BY-107	3 DUP	S96T003526	0	DSC-01	SOLID	<u>28.1</u>	<u>26.0</u>	<u>N/A</u>	Joules/g
96000836	BY-107	4 SAMPLE	S96T003527	0	DSC-01	SOLID	<u>N/A</u>	<u>14.7</u>		Joules/g
		5 STD			DSC-01	SOLID	<u>28.45</u>	<u>29.7</u>	<u>N/A</u>	Joules/g
96000836	BY-107	6 DUP	S96T003527	0	DSC-01	SOLID	<u>14.7</u>	<u>40.4</u>	<u>N/A</u>	Joules/g

Final page for worklist #

10921

See attached for signatures
Analyst Signature Date 7-22-96

[Signature] 7-22-96
Analyst Signature Date

Verified/Validated by
Blandina Valenzuela
7-23-96

Data Entry Comments:

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

worklist rpt Version 2.1 05/15/95
07/18/96 10:08

Page: 1

LABCORE Data Entry Template for Worklist#

10921

Analyst: PKMInstrument: DSC0 1Book # 12N14BMethod: LA-514-113 Rev/Mod C-1

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>32.8</u>	<u>7.22-16</u> ^{BY}	Joules/g
96000836	BY-107	2 SAMPLE	S96T003526	0	DSC-01	SOLID	<u>N/A</u>	<u>28.1</u>	<u>7.22-16</u> ^{BY}	Joules/g
96000836	BY-107	3 DUP	S96T003526	0	DSC-01	SOLID	<u>28.1</u>	<u>26.0</u>	<u>7.22-16</u> ^{BY}	Joules/g
96000836	BY-107	4 SAMPLE	S96T003527	0	DSC-01	SOLID	<u>N/A</u>			Joules/g
96000836	BY-107	5 DUP	S96T003527	0	DSC-01	SOLID			<u>N/A</u>	Joules/g

Final page for worklist #

10921

Analyst Signature PKMDate 7/26/96

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.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 61 TO 66.

DSC STD 12N14-B

7.171 mg

Rate: 10.0 °C/min

File: 00020.001

DSC METTLER 20-Jul-96

Ident: 0.0

222-B Laboratory

exo>

10. mW

Integration
Delta H 235 mJ
32.8 J/g
Peak 158.6°C
-17.2 mW

61

WHCSD-WM-DP-197, REV. 0

Blandina Valenzuela for RD Meyers

7-23-96

120.

140.

160.

180.

°C

S96T003526 N2
 87.360 mg
 Rate: 10.0 °C/min
 File: 00021.001 DSC METTLER 20-Jul-96
 Ident: 0.0 222-S Laboratory

S96T003526 DUP N2

50.630 mg

Rate: 10.0 °C/min

File: 00023.001

DSC METTLER 20-Jul-96

Ident: 0.0

222-S Laboratory

S96T003527 SAMPLE N2

51.410 mg

Rate: 10.0 °C/min

File: 00025.001

Ident: 0.0

DSC METTLER 20-Jul-96

222-S Laboratory

DSC STD 12N14-B

7.171 mg

Rate: 10.0 °C/min

File: 00027.001

Ident: 0.0

DSC METTLER 21-Jul-86

222-8 Laboratory

exo >

10. mW

Integration
Delta H 213 mJ
29.7 J/g
Peak 159.5°C
-11.9 mW

120.

140.

160.

180. °C

S96T003527 DUP N2

29.770 mg

Rate: 10.0 °C/min

File: 00029.001

DSC METTLER 21-Jul-86

Ident: 0.0

222-S Laboratory

LABCORE Data Entry Template for Worklist#

10923

Analyst: RDM Instrument: DSC0 3 Book # 12N14B

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	28.45	29.01 *	N/A	Joules/g
96000836	BY-107	2 SAMPLE	S96T003528	0	DSC-03	SOLID	N/A	Ø		Joules/g
96000836	BY-107	3 DUP	S96T003528	0	DSC-03	SOLID	Ø	Ø	N/A	Joules/g
96000836	BY-107	4 SAMPLE	S96T003535	0	DSC-03	SOLID	N/A	Ø		Joules/g
96000836	BY-107	5 DUP	S96T003535	0	DSC-03	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist #

10923

See attached for signatures
Analyst Signature RDM Date 7-22-96

[Signature] 7-22-96
Analyst Signature Date

Validated by H Anastas 7-23-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist#

10923

Analyst: Rom **Instrument:** DSC0 **Book #** 12N14B

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID			N/A	Joules/g
96000836	BY-107	2	SAMPLE	S96T003528	0		DSC-01	SOLID	N/A			Joules/g
96000836	BY-107	3	DUP	S96T003528	0		DSC-01	SOLID			N/A	Joules/g
96000836	BY-107	4	SAMPLE	S96T003535	0		DSC-01	SOLID	N/A			Joules/g
96000836	BY-107	5	DUP	S96T003535	0		DSC-01	SOLID			N/A	Joules/g

Final page for worklist #

10923

Rom
Analyst Signature

7/20/96
Date

Analyst Signature Date

DSC-03 instrument
was used.

7-25-96
BOR

Data Entry Comments:

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

Curve 1: DSC

File info: IND072001 Sat Jul 20 05:30:16 1996

Sample Weight: 5.620 mg

12N14-B INDIUM AT 10C/MIN

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 69 TO 73.

WHC-SD-WM-DP-197, REV.0

N2, EXOTHERM DOWN

TEMP: 140.0 °C

TIME: 0.0 min

RATE: 10.0 C/min

Temperature (°C)

RD MEYERS

PERKIN-ELMER

7 Series Thermal Analysis System

Sat Jul 20 09:11:12 1996

Curve 1: DSC

File info: SAM072002 Sat Jul 20 13:06:42 1996

Sample Weight: 33.007 mg

S96T003528

WHC-SD-MM-DP-197, REV.0

N2 10C/min
TEMP: 35.0 °C
TEMP: 500.0 °C

TIME: 0.0 min RATE: 10.0 °C/min

Temperature (°C)

rd meyers
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Jul 20 14:49:03 1996

Curve 1: DSC

File info: sam072001 Sat Jul 20 11:00:01 1996

Sample Weight: 35.870 mg

S96T003528 DUP 4-6 96
1-00

N2 10C/min
TEMP: 30.0 °C
TEMP: 500.0 °C

TIMES: 0.0 min RATES: 10.0 °C/min

Temperature (°C)

rd meyers
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Jul 20 11:51:32 1996

WHC-SD-WM1-DP-197, REV.0

Curve 1: DSC

File info: SAM072003 Sat Jul 20 15:55:14 1996

Sample Weight: 41.670 mg

S96T003535

72

N2 10C/min
TEMP: 25.0 °C
TEMP: 500.0 °C
TIMES: 0.0 min RATE: 10.0 C/min

Temperature (°C)

rd meyers
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Jul 20 19:47:58 1996

WHC-SD-WM-DP-197, REV. 0

Curve 1: DSC

File info: SAM072004 Sat Jul 20 21: 26: 49 1996

Sample Weight: 17.710 mg

S96T003535 DUP

TEMP: 35.0 °C
TEMP: 500.0 °C

TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Jul 21 02: 59: 58 1996

WHC-SD-W4-DP-197, REV. 0

LABCORE Data Entry Template for Worklist#

10924

Analyst: RDM **Instrument:** DSC0 3 **Book #** 12N14B

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>28.86</u>	<u>N/A</u>	Joules/g
96000836	BY-107	2 SAMPLE	S96T003537	0	DSC-03	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
96000836	BY-107	3 DUP	S96T003537	0	DSC-03	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g
96000836	BY-107	4 SAMPLE	S96T003538	0	DSC-03	SOLID	<u>N/A</u>	<u>44.52</u>		Joules/g
96000836	BY-107	5 DUP	S96T003538	0	DSC-03	SOLID	<u>44.52</u>	<u>44.85</u>	<u>N/A</u>	Joules/g

Final page for worklist #

10924

See attached for signatures
Analyst Signature *[Signature]* **Date** 7-22-96
BDY

[Signature] 7-22-96
Analyst Signature *[Signature]* **Date**

Verified/Validate by
Blandina
Valenzuela 7-23-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist#

10924

Analyst: RDR Instrument: DSC0 Book # 12N/4B

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID			N/A	Joules/g
96000836	BY-107	2 SAMPLE	S96T003537	0	DSC-01	SOLID	N/A			Joules/g
96000836	BY-107	3 DUP	S96T003537	0	DSC-01	SOLID			N/A	Joules/g
96000836	BY-107	4 SAMPLE	S96T003538	0	DSC-01	SOLID	N/A			Joules/g
96000836	BY-107	5 DUP	S96T003538	0	DSC-01	SOLID			N/A	Joules/g

Final page for worklist #

10924

Lusie M. Tullson
Analyst Signature Date

Analyst Signature Date

DSC-03 instrument was
used.

7-22-96

Blandina
Valenzuela

Data Entry Comments:

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

Curve 1: DSC

File info: IND072101 Sun Jul 21 14:04:30 1996

Sample Weight: 5.620 mg

12N14-B INDIUM AT 10C/MIN

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 76 TO 80.

WHC-SD-WM-DP-197, REV. 0

N2, EXOTHERM DOWN
TEMP: 140.0 & TIME: 0.0 min

RATE: 10.0 C/min

Temperature (°C)

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Jul 21 14:07:37 1996

Curve 1: DSC

File info: SAM072101 Sun Jul 21 15:01:20 1996

Sample Weight: 17.150 mg

S96T003537

N2 10C/min

TEMP: 50.0 °C
TEMP: 500.0 °C

TIME: 0.0 min

RATE: 10.0 °C/min

Temperature (°C)

rd meyers

PERKIN-ELMER

7 Series Thermal Analysis System

Sun Jul 21 15:05:44 1996

WHC-SD-WM-DP-197, REV.0

Curve 1: DSC

File info: SAM072102 Sun Jul 21 15:56:42 1996

Sample Weight: 22.030 mg

S96T003537DUP

N2 10C/min

TIME: 35.0 s

RATE: 0.0 min

RATE: 10.0 C/min

Temperature (°C)

rd meyers

PERKIN-ELMER

7 Series Thermal Analysis System

Sun Jul 21 18:17:38 1996

WHC-SD-MM-DP-197, REV.0

Curve 1: DSC

File info: SAM072104 Sun Jul 21 19:12:16 1996

Sample Weight: 23.330 mg

S96T003538

N2 10C/min

TEMP: 25.8 °C

TIMER: 0.0 min RATE: 10.0 C/min

Temperature (°C)

SM FULTON

PERKIN-ELMER

7 Series Thermal Analysis System

Sun Jul 21 20:20:44 1996

WHC-SD-WM-DP-197, REV. 0

Curve 1: DSC

File info: SAM072105 Sun Jul 21 21:02:35 1996

Sample Weight: 20.540 mg

S96T003538 DUP

N2 10C/min
TEMP: 35.0 °C
TEMP: 500.0 °C

TIME: 0.0 min RATE: 10.0 C/min

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Jul 21 21:17:13 1996

WHC-SD-WA-DP-197, REV. 0

LABCORE Data Entry Template for Worklist#

11186

Analyst: BDV Instrument: DSC01 Book # 12 ⁷⁻²⁹⁻⁹⁶ BDV

Method: LA-514-113 Rev/Mod

Worklist Comment: Dry DSCs for BY-107. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
96000836	BY-107	1 SAMPLE	S96T003507	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
96000836	BY-107	2 DUP	S96T003507	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
96000836	BY-107	3 SAMPLE	S96T003510	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
96000836	BY-107	4 DUP	S96T003510	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
96000836	BY-107	5 SAMPLE	S96T003526	0	DSC-02	SOLID	N/A	50.49		Joules/g Dry
96000836	BY-107	6 DUP	S96T003526	0	DSC-02	SOLID	50.49	46.71	N/A	Joules/g Dry
96000836	BY-107	7 SAMPLE	S96T003527	0	DSC-02	SOLID	N/A	27.90		Joules/g Dry
96000836	BY-107	8 DUP	S96T003527	0	DSC-02	SOLID	27.90	76.67	N/A	Joules/g Dry
96000836	BY-107	9 SAMPLE	S96T003528	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
96000836	BY-107	10 DUP	S96T003528	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
96000836	BY-107	11 SAMPLE	S96T003535	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
96000836	BY-107	12 DUP	S96T003535	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
96000836	BY-107	13 SAMPLE	S96T003537	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
96000836	BY-107	14 DUP	S96T003537	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
96000836	BY-107	15 SAMPLE	S96T003538	0	DSC-02	SOLID	N/A	64.10		Joules/g Dry
96000836	BY-107	16 DUP	S96T003538	0	DSC-02	SOLID	64.10	64.58	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#

11186

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
-------	---------	--------	---------	-----	----------------	--------	--------	-------	----	------

Verified + Validated by

Final page for worklist #

11186

Blandina Valenzuela 7-29-96

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.

BY-107

CALCULATED DRY DSC			
SAMPLE NO.	DSC RESULT (J/g)	TGA RESULT (% water)	DRY DSC RESULT
S96T003507	Ø	—	Ø
3507D	Ø	—	Ø
3510	Ø	—	Ø
3510D	Ø	—	Ø
3526	28.1	44.34	50.49
3526D	26.0	44.51	46.71
3527	14.7	47.5	27.90
3527D	40.4	47.5	76.67
3528	Ø	—	Ø
3528D	Ø	—	Ø
3535	Ø	—	Ø
3535D	Ø	—	Ø
3537	Ø	—	Ø
3537D	Ø	—	Ø
3532	44.55	30.55	64.10
3532D	44.85	30.55	64.59

LABCORE Data Entry Template for Worklist#

11806

Analyst:

RM

Instrument: DSC0

1

Book #

12NHB

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	LIQUID	<u>28.45</u>	<u>29.4</u>	<u>N/A</u>	Joules/g
96000836	BY-107	2 SAMPLE	S96T003847	0	DSC-01	LIQUID	<u>N/A</u>	<u>Ø</u>		Joules/g
96000836	BY-107	3 DUP	S96T003847	0	DSC-01	LIQUID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g
96000836	BY-107	4 SAMPLE	S96T003871	0	DSC-01	LIQUID	<u>N/A</u>	<u>Ø</u>		Joules/g
96000836	BY-107	5 DUP	S96T003871	0	DSC-01	LIQUID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g

Final page for worklist #

11806

Analyst Signature

Date

Analyst Signature

Date

Verified/Validated by

Blandina

Valenzuela 8-21-96

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 85 TO 89.

DSC STD 12N14-B

4.510 mg

Rate: 10.0 °C/min

File: 00070.001

Ident: 0.0

DSC METTLER 10-Aug-96

222-S Laboratory

exo

5. mW

Integration

Delta H 133 mJ

29.4 J/g

Peak 158.4 °C

-10.0 mW

Blandina Valenzuela for RD Meyers

8-21-96

120.

140.

160.

180. °C

WHC-SD-WM-DP-197, REV. 0

S96T003847 N2
20.110 mg

Rate: 10.0 °C/min

DSC METTLER
222-S Laboratory

File: 00072.001
Ident: 0.0

10-Aug-98

S96T003847 DUP N2

19.430 mg

Rate: 10.0 °C/min

File: 00074.001

DSC METTLER

10-Aug-96

Ident: 0.0

222-S Laboratory

S96T003871 DUP N2
 15.330 mg
 Rate: 10.0 °C/min
 File: 00078.001
 Ident: 0.0
 DSC METTLER
 222-S Laboratory
 11-Aug-98

LABCORE Data Entry Template for Worklist#

11807

Analyst: RDM Instrument: DSC0 3 Book # 12N148

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	LIQUID	<u>28.45</u>	<u>28.98</u>	<u>N/A</u>	Joules/g
96000836	BY-107	2 SAMPLE	S96T003872	0	DSC-03	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g
96000836	BY-107	3 DUP	S96T003872	0	DSC-03	LIQUID	<u>0</u>	<u>24.8</u>	<u>N/A</u>	Joules/g

Final page for worklist # 11807

See attached for signatures
Analyst Signature RDM Date 8-13-96

RDM 8-14-96
Analyst Signature Date

Verified/Validated by
Bardina
Valenzuela 8-14-96

Data Entry Comments:

The sharp exotherm seen within the water evaporation
suggests a decomposition of a relatively pure substance was occurring
at a very low temperature. The heat of the reaction may be quenched
some by water's evaporation.

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#

11807

Analyst:

RMM

Instrument: DSC0

Book # 12N4B

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	LIQUID			N/A	Joules/g
96000836	BY-107	2 SAMPLE	S96T003872	0	DSC-01	LIQUID	N/A			Joules/g
96000836	BY-107	3 DUP	S96T003872	0	DSC-01	LIQUID			N/A	Joules/g

Final page for worklist #

11807

Analyst Signature

Date

8/10/96

Analyst Signature

Date

*DSC-03 instrument
was used.*

8-13-96

Blandina

Valenzuela

Data Entry Comments:

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

Curve 1: DSC

File info: IND0809.01 Fri Aug 9 09:42:21 1996

Sample Weight: 8.412 mg

12N14-B INDIUM AT 10C/MIN

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

N2, EXOTHERM DOWN

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

BD VALENZUELA

PERKIN-ELMER

7 Series Thermal Analysis System

Fri Aug 9 18:15:52 1996

WHC-SD-WM-DP-197, REV. 0

Curve 1: DSC
 File Info: SAN080901 Fri Aug 9 21:51:41 1996
 Sample Weight: 25.200 mg
 S96T003672

Curve 1: DSC
File info: SAM080902 Sat Aug 10 00:51:06 1996
Sample Weight: 23.210 mg
S96T003872DUP

N2 10C/min
TIME: 88.0 s
TIME: 000.0 s
TIME: 0.0 min RATE: 10.0 C/min

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Aug 13 13:36:44 1996

W310-SD-WA1-DP-197, REV. 0

LABCORE Data Entry Template for Worklist#

12041

Analyst: SMF Instrument: DSC0 1 Book # 12N14B

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	LIQUID	<u>28.45</u>	<u>30.6*</u>	<u>N/A</u>	Joules/g
96001061	BY-107	2 SAMPLE	S96T004230 0		DSC-01	LIQUID	<u>N/A</u>	<u>5.4</u>		Joules/g
96001061	BY-107	3 DUP	S96T004230 0		DSC-01	LIQUID	<u>5.4</u>	<u>5.1</u>	<u>N/A</u>	Joules/g
		4 STD			DSC-01	LIQUID	<u>28.45</u>	<u>29.4</u>	<u>N/A</u>	Joules/g
96001061	BY-107	5 SAMPLE	S96T004231 0		DSC-01	LIQUID	<u>N/A</u>	<u>4.4</u>		Joules/g
96001061	BY-107	6 DUP	S96T004231 0		DSC-01	LIQUID	<u>4.4</u>	<u>3.3</u>	<u>N/A</u>	Joules/g

Final page for worklist # 12041

See attached for signatures
Analyst Signature Date 8-20-96 BBY

W. Honaker 8-20-96
Analyst Signature Date

Verified/Validated by
Blancina
Valenzuela
8-21-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist#

12041

Analyst: SMF Instrument: DSC0 _____ Book # 12N14B

Method: LA-514-113 Rev/Mod _____

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	LIQUID	_____	_____	N/A	Joules/g
96001061	BY-107	2 SAMPLE	S96T004230	0	DSC-01	LIQUID	N/A	_____	_____	Joules/g
96001061	BY-107	3 DUP	S96T004230	0	DSC-01	LIQUID	_____	_____	N/A	Joules/g
96001061	BY-107	4 SAMPLE	S96T004231	0	DSC-01	LIQUID	N/A	_____	_____	Joules/g
96001061	BY-107	5 DUP	S96T004231	0	DSC-01	LIQUID	_____	_____	N/A	Joules/g

Final page for worklist #

12041

Susie M. Dalton 8-18-96
Analyst Signature Date

Analyst Signature Date

Bl McCown 8/19/96

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 97 TO 108.

DSC STD 12N14-B

4.510 mg

Rate: 10.0 °C/min

File: 00079.001

DSC METTLER

18-Aug-96

Ident: 0.0

222-S Laboratory

exo>

10. mW

Integration
Delta H 138 mJ
30.6 J/g
Peak 158.6°C
-9.4 mW

120.

140.

160.

180.

°C

Susie M. Jullian 8-18-96

WNC-SD-WM-DP-197, REV. 0

S96T004230 N2

24.281 mg

Rate: 10.0 °C/min

File: 00089.001

DSC METTLER 19-Aug-86

Ident: 0.0

222-S Laboratory

DSC STD 12N14B

4.510 mg

Rate: 10.0 °C/min

File: 00093.001

Ident: 0.0

DSC METTLER 19-Aug-96

222-S Laboratory

Bl McCown 8/19/96

exo

100

mW

Integration

Delta H 133 mJ

29.4 J/g

Peak 158.6°C

-9.1 mW

120.

140.

160.

180.

°C

S96T004231 DUP N2

33.185 mg

Rate: 10.0 °C/min

File: 00005.001

Ident: 0.0

DSC METTLER

19-Aug-96

222-S Laboratory

exo

50. mW

Integration

Delta H 1316 mJ
39.7 J/g

Peak 238.1°C
-8.3 mW

Integration

Delta H 108 mJ
3.3 J/g

Peak 252.7°C
2.3 mW

Integration

Delta H 31304 mJ
943.3 J/g

Peak 127.3°C
-63.0 mW

100.

200.

300.

400.

°C

LABCORE Data Entry Template for Worklist#

12042

Analyst: QJM

Instrument: DSC0 1

Book # 12N4B

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	LIQUID	<u>28.45</u>	<u>27.5</u>	<u>N/A</u>	Joules/g
96001061	BY-107	2 SAMPLE	S96T004232	0	DSC-01	LIQUID	<u>N/A</u>	<u>8.9</u>		Joules/g
96001061	BY-107	3 DUP	S96T004232	0	DSC-01	LIQUID	<u>8.9</u>	<u>48.8</u>	<u>N/A</u>	Joules/g
96001061	BY-107	4 SAMPLE	S96T004346	0	DSC-01	LIQUID	<u>N/A</u>	<u>20.8</u>		Joules/g
96001061	BY-107	5 DUP	S96T004346	0	DSC-01	LIQUID	<u>20.8</u>	<u>1.1</u>	<u>N/A</u>	Joules/g

Final page for worklist #

12042

QJM 8-23-96
Analyst Signature Date

21/21 8-28-96
Analyst Signature Date

Verified/Validated by Blandina
Valenzuela
8-28-96

S96T004232:

Data Entry Comments:

The exotherm seen at approximately 210°C appears to be a decomposition of a pure substance, we have not seen an exotherm this low on the temperature scale.

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 104 TO 108.

DSC STD 12N14-B

4.510 mg

Rate: 10.0 °C/min

File: 00041.001

DSC METTLER

23-Aug-96

Ident: 0.0

222-S Laboratory

exo >

10. mW

Integration

Delta H 124 mJ

27.5 J/g

Peak 158.6°C

-8.6 mW

120.

140.

160.

180.

°C

Murphy, 8-23-96

S96T004232 SAM

31.804 mg

Rate: 10.0 °C/min

File: 00043.001

DSC METTLER

23-Aug-96

Ident: 0.0

222-S Laboratory

S96T004232 DUP N2

26.600 mg

Rate: 10.0 °C/min

File: 00045.001

DSC METTLER

23-Aug-96

Ident: 0.0

222-S Laboratory

Integration

Delta H20633 mJ

775.7 J/g

Peak 133.3°C

-55.6 mW

Integration

Delta H 90 mJ

3.4 J/g

Peak 250.6°C

1.8 mW

Integration

Delta H 1207 mJ

45.4 J/g

Peak 219.2°C

25.3 mW

exo

50.05

100.

200.

300.

400.

°C

106

WMO-SD-WMO-CP-197, REV. 0

S96T004346 DUP N2

14.233 mg

Rate: 10.0 °C/min

File: 00049.001

DSC METTLER

23-Aug-96

Ident: 0.0

222-S Laboratory

exo

20. mW

Integration
Delta H 14387 mJ
1010.8 J/g
Peak 125.1°C
-34.3 mW

Integration
Delta H 15 mJ
1.1 J/g
Peak 254.6°C
0.5 mW

100.

200.

300.

400.

°C

LABCORE Data Entry Template for Worklist#

12050

Analyst: DcD Instrument: DSC0 1 Book # 12N14B

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>30.0</u>	<u>N/A</u>	Joules/g
96001061	BY-107	2 SAMPLE	S96T004218	0	DSC-01	SOLID	<u>N/A</u>	<u>56.8</u>		Joules/g
96001061	BY-107	3 DUP	S96T004218	0	DSC-01	SOLID	<u>56.8</u>	<u>45.4</u>	<u>N/A</u>	Joules/g
96001061	BY-107	4 SAMPLE	S96T004219	0	DSC-01	SOLID	<u>N/A</u>	<u>69.5</u>		Joules/g
96001061	BY-107	5 DUP	S96T004219	0	DSC-01	SOLID	<u>69.5</u>	<u>67.9</u>	<u>N/A</u>	Joules/g

Final page for worklist #

12050

Daniel D. Dunham 8-19-96
Analyst Signature Date

Simon Bee 8/21/96
Analyst Signature Date

Verified/Validated by

Blandina

Valenzuela

~~8-25~~ BY
8-23-96

Data Entry Comments: S96T004219 results are the sum of two exotherms

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 110 TO 114.

DSC STD 12N14B

4.510 mg

Rate: 10.0 °C/min

File: 00001.001

DSC METTLER

19-Aug-96

Ident: 0.0

222-8 Laboratory

exo

5. mW

Integration

Delta H 135 mJ

30.0 J/g

Peak 158.7°C

-9.2 mW

David Dunham 8-19-96

120.

140.

160.

180.

°C

S96T004218 DUP N2

35.221 mg

Rate: 10.0 °C/min

File: 00009.001

DSC METTLER

19-Aug-96

Ident: 0.0

222-S Laboratory

112

S96T004219 N2

14.950 mg

Rate: 10.0 °C/min

File: 00011.001

DSC METTLER

19-Aug-86

Ident: 0.0 222-8 Laboratory

S96T004219 DUP N2
 23.056 mg
 Rate: 10.0 °C/min
 File: 00013.001
 Ident: 0.0
 DSC METTLER 19-Aug-86
 222-S Laboratory

LABCORE Data Entry Template for Worklist#

12051

Analyst: DCL Instrument: DSC0 1 Book # 12N14B

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>30.0</u>	<u>N/A</u>	Joules/g
96001061	BY-107	2 SAMPLE	S96T004220	0	DSC-01	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
96001061	BY-107	3 DUP	S96T004220	0	DSC-01	SOLID	<u>Ø</u>	<u>8.1</u>	<u>N/A</u>	Joules/g
96001061	BY-107	4 SAMPLE	S96T004221	0	DSC-01	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
96001061	BY-107	5 DUP	S96T004221	0	DSC-01	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g

Final page for worklist # 12051

See attached for signatures
Analyst Signature [Signature] Date 8-20-96

[Signature] 8/21/96
Analyst Signature Date

Verified/Validated by
Blandina Valenzuela
8-22-96

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 116 TO 120.

DSC STD 12N14B

4.510 mg

Rate: 10.0 °C/min

File: 00001.001

DSC METTLER

19-Aug-96

Ident: 0.0

222-S Laboratory

WIC-SD-WM-DP-197, REV.0

S96T004220 N2

12.056 mg

Rate: 10.0 °C/min

File: 00015.001 DSC METTLER 19-Aug-98

Ident: 0.0

222-8 Laboratory

117

S96T004220 DUP N2
 15.258 mg
 Rate: 10.0 °C/min
 File: 00017.001 DSC METTLER 20-Aug-96
 Ident: 0.0 222-S Laboratory

S96T004221 N2

32.816 mg

Rate: 10.0 °C/min

File: 00019.001

DSC METTLER

20-Aug-96

Ident: 0.0 222-S Laboratory

LABCORE Data Entry Template for Worklist# 12052

Analyst: RWK Instrument: DSC0 3 Book # 12N148

Method: LA-514-114 Rev/Mod _____

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>27.65</u>	<u>N/A</u>	Joules/g
96001061	BY-107	2 SAMPLE	S96T004222	0	DSC-03	SOLID	<u>N/A</u>	<u>63.2</u>		Joules/g
96001061	BY-107	3 DUP	S96T004222	0	DSC-03	SOLID	<u>63.2</u>	<u>28.0</u>	<u>N/A</u>	Joules/g
96001061	BY-107	4 SAMPLE	S96T004223	0	DSC-03	SOLID	<u>N/A</u>	<u>7.82</u>		Joules/g
96001061	BY-107	5 DUP	S96T004223	0	DSC-03	SOLID	<u>7.82</u>	<u>Ø</u>	<u>N/A</u>	Joules/g

Final page for worklist # 12052

See attached for signatures

Analyst Signature

Date

8-23-96

BBV

Analyst Signature

Date

8-26-96

Verified/Validated by
Blandina
Valenzuela
8-27-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist#

12052

Analyst: RLR Instrument: DSC0 Book # 12414-B

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID			N/A	Joules/g
96001061	BY-107	2 SAMPLE	S96T004222	0	DSC-01	SOLID	N/A			Joules/g
96001061	BY-107	3 DUP	S96T004222	0	DSC-01	SOLID			N/A	Joules/g
96001061	BY-107	4 SAMPLE	S96T004223	0	DSC-01	SOLID	N/A			Joules/g
96001061	BY-107	5 DUP	S96T004223	0	DSC-01	SOLID			N/A	Joules/g

Final page for worklist #

12052

RLR 8/21/96
Analyst Signature Date

Analyst Signature Date

DSC-03 instrument
was used.

8-23-96

Blandina
Valenzuela

Data Entry Comments:

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

Curve 1: DSC

File info: IND082101 Wed Aug 21 05:36:46 1996

Sample Weight: 5.320 mg

12N14-B INDIUM AT 10C/MIN

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 123 TO 127.

WHC-SD-WM-DP-197, REV. 0

N2, EXOTHERM DOWN

TIME 123.8 8

TIME 1

0.0 min RATE: 10.0 C/min

Temperature (°C)

RW KINS

PERKIN-ELMER

7 Series Thermal Analysis System

Wed Aug 21 05:45:41 1996

Curve 1: DSC

File info: SAM082102 Wed Aug 21 09:59:13 1996

Sample Weight: 30.780 mg

S96T004222

N2 10C/min
THERM 30.0 g
500.0 g

TIME: 0.0 min RATE: 10.0 C/min

RN KING
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Aug 23 09:08:50 1996

WHC-SD-WM-DP-197, REV. 0

Curve 1: DSC
 File Info: SAM082103 Wed Aug 21 10:56:21 1996
 Sample Weight: 39.270 mg
 896T004222 DUP

FW KINS
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fri Aug 23 09:28:49 1996

N2 100/min
 TIME: 00:08
 0.0 min RATE: 10.0 C/min

Curve 1: DSC
 File Info: SA0082104 Wed Aug 21 13:08:26 1996
 Sample Weight: 23.120 mg
 896T004223

FW KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fri Aug 23 08:52:47 1996

Curve 1: DSC

File info: SAM082105 Wed Aug 21 14:06:03 1996

Sample Weight: 12.730 mg

S96T004223 DUP

N2 10C/min

TEMP: 55.0 °C

TIME: 0.0 min

RATE: 10.0 C/min

RN KING

PERKIN-ELMER

7 Series Thermal Analysis System

Wed Aug 21 14:17:09 1996

WRC-SD-MM-DP-197, REV.0

LABCORE Data Entry Template for Worklist#

12054

Analyst: SMF Instrument: DSC01 _____ Book # 12N14B

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>31.0*</u>	<u>N/A</u>	Joules/g
96001061	BY-107	2 SAMPLE	S96T004349	0	DSC-01	SOLID	<u>N/A</u>	<u>31.6</u>		Joules/g
96001061	BY-107	3 DUP	S96T004349	0	DSC-01	SOLID	<u>31.6</u>	<u>34.1</u>	<u>N/A</u>	Joules/g

Final page for worklist #

12054

Susie M. Fulton 8-18-96
Analyst Signature Date

D. D. D. D. 8-20-96
Analyst Signature Date

Verified/Validated by
Blandina
Valenzuela 8-21-96

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 129 TO 131.

DSC STD 12N14-B

4.510 mg

Rate: 10.0 °C/min

File: 00079.001

DSC METTLER 18-Aug-96

Ident: 0.0

222-S Laboratory

exo

10. mW

Integration

Delta H 140 mJ

31.0 J/g

Peak 158.6°C

-9.5 mW

120.

140.

160.

180.

°C

Susie M. Jullion 8-18-96

129

WFO-SD-WM-DP-197, REV.0

LABCORE Data Entry Template for Worklist#

12150

Analyst: RLM Instrument: DSC0 1 Book # 12114-13Method: LA-514-113 Rev/Mod C-1

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	LIQUID	<u>28.45</u>	<u>29.9</u>	<u>N/A</u>	Joules/g
96001061	BY-107	2 SAMPLE	S96T004411 0		DSC-01	LIQUID	<u>N/A</u>	<u>47.3</u>		Joules/g
96001061	BY-107	3 DUP	S96T004411 0		DSC-01	LIQUID	<u>47.3</u>	<u>16.3</u>	<u>N/A</u>	Joules/g
96001061	BY-107	4 SAMPLE	S96T004412 0		DSC-01	LIQUID	<u>N/A</u>	<u>10.5</u>		Joules/g
96001061	BY-107	5 DUP	S96T004412 0		DSC-01	LIQUID	<u>10.5</u>	<u>10.7</u>	<u>N/A</u>	Joules/g

Final page for worklist # 12150

RLM 8/21/96
Analyst Signature Date

RLM 8-26-96
Analyst Signature Date

Verified/Validated by
Blandina
Valenzuela
8-27-96

Data Entry Comments:

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

133

4.510 mg

File: 00023.001

DSC METTLER

21-Aug-96

222-S Laboratory

五、

Integration

Delta H 135 mJ

29.9 J/g

Peak 158.6°C

-9.3 mW

Rob King 8/21/92

120.

140.

160.

180.

• C

S96T004411 N2

32.104 mg

File: 00025.001

21-Aug-96

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

S96T004411 DUP N2

28.925 mg

Rate: 10.0 °C/min

File: 00027.001

DSC METTLER

21-Aug-96

Ident: 0.0

222-S Laboratory

exo

50.05 mW

Integration

Delta H 36217 mJ

1252.1 J/g

Peak 133.4°C

-69.1 mW

Integration

Delta H 471 mJ

16.3 J/g

Peak 254.7°C

2.1 mW

Integration

Delta H 73 mJ

2.5 J/g

Peak 312.5°C

-0.9 mW

Not Num 8/21/96

100.

200.

300.

400.

°C

S96T004412 N2

35.850 mg

Rate: 10.0 °C/min

File: 00029.001

DSC METTLER

21-Aug-96

Ident: 0.0

222-S Laboratory

S96T004412 DUP N2

35.370 mg

Rate: 10.0 °C/min

File: 00031.001

Ident: 0.0

DSC METTLER

21-AUG-96

222-S Laboratory

exo

Rob King 8/21/96

100. 200. 300. 400. °C

LABCORE Data Entry Template for Worklist# 12151

Analyst: RDM Instrument: DSC0 3 Book # 12N14B

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>28.00*</u>	<u>N/A</u>	Joules/g
96001061	BY-107	2 SAMPLE	S96T004395	0	DSC-03	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
96001061	BY-107	3 DUP	S96T004395	0	DSC-03	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g
96001061	BY-107	4 SAMPLE	S96T004396	0	DSC-03	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
96001061	BY-107	5 DUP	S96T004396	0	DSC-03	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g

Final page for worklist # 12151

See attached for signatures
Analyst Signature Date 8-23-96 RDY

8-26-96
Analyst Signature Date

Verified/Validated by
Blandina
Valenzuela
8-27-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist#

12151

Analyst: Rom Instrument: DSC0 Book # 12N14B

Method: LA-514-113 Rev/Mod C1

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID			N/A	Joules/g
96001061	BY-107	2 SAMPLE	S96T004395	0	DSC-01	SOLID	N/A			Joules/g
96001061	BY-107	3 DUP	S96T004395	0	DSC-01	SOLID			N/A	Joules/g
96001061	BY-107	4 SAMPLE	S96T004396	0	DSC-01	SOLID	N/A			Joules/g
96001061	BY-107	5 DUP	S96T004396	0	DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 12151

Analyst Signature Rom Date 8/22/96

Analyst Signature _____ Date _____

DSC-03 instrument
was used.

8-23-96

Blandina
Valenzuela

Data Entry Comments:

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

Curve 1: DSC

File info: IND082101 Wed Aug 21 05:36:46 1996

Sample Weight: 5.320 mg

12N14-B INDIUM AT 10C/MIN

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 140 TO 144.

N2, EXOTHERM DOWN

TEMP: 140.0 8 TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

RW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Aug 21 17:22:12 1996

WHC-SD-WA-DP-197, REV. 0

Curve 1: DSC

File info: SAM082106 Wed Aug 21 19:20:47 1996

Sample Weight: 10.190 mg

S96T004395

N2 10C/min

TEMP: 25.0 °C

TIMER:

0.0 min RATE: 10.0 °C/min

Temperature (°C)

RD MEYERS

PERKIN-ELMER

7 Series Thermal Analysis System

Fri Aug 23 08:19:39 1996

WMO-SD-WM-DF-197, REV. 0

Curve 1: DSC
 File Info: SAN082107 Wed Aug 21 21:40:42 1996
 Sample Weight: 7.870 mg
 S98T0049950UP

RO MEYERS
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fri Aug 23 08:27:39 1996

N2 10C/min
 100.0 200.0 300.0 400.0
 0.0 min RATE: 10.0 C/min

Curve 1: DSC
 File Info: SANO82201 Thu Aug 22 00:30:33 1996
 Sample Weight: 15.560 mg
 S96T004396

RD MEYERS
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Thu Aug 22 01:01:25 1996

N2 100 cc/min
 THERM: 55.8 8
 TIME: 0.0 min RATE: 10.0 °C/min

Curve 1: DSC

File info: SAM082202 Thu Aug 22 01:51:06 1996

Sample Weight: 29.250 mg

S96T004396DUP

N2 10C/min

TIME: 00:08

TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

RD MEYERS

PERKIN-ELMER

7 Series Thermal Analysis System

Thu Aug 22 02:49:12 1996

WHIC-SD-WA-DF-197, REV. 0

LABCORE Data Entry Template for Worklist#

12152

Analyst:

R. M. Ryan

Instrument: DSC0

1

Book # 12N14B

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

Worklist Comment: BY-107 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>29.8*</u>	<u>N/A</u>	Joules/g
96001061	BY-107	2 SAMPLE	S96T004397	0	DSC-01	SOLID	<u>N/A</u>	<u>218.3</u>		Joules/g
96001061	BY-107	3 DUP	S96T004397	0	DSC-01	SOLID	<u>218.3</u>	<u>246.3</u>	<u>N/A</u>	Joules/g

Final page for worklist #

12152

Analyst Signature

Date

8/22/96

Analyst Signature

Date

8-26-96

Verified/Validated by

Blandina

Valenzuela

8.27.96

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 146 TO 148.

DSC STD 12N14-B

4.510 mg

Rate: 10.0 °C/min

File: 00023.001

DSC METTLER

21-Aug-96

Ident: 0.0

222-S Laboratory

exo

5 mW

Integration

Delta H 135 mJ

29.8 J/g

Peak 158.6°C

-9.3 mW

Blandina Valenzuela for RD Meyers 8-27-96

120.

140.

160.

180.

°C

WMC-SD-WM-DP-197, REV. 0

S96T004397 N2

20.010 mg

Rate: 10.0 °C/min

File: 00033.001

DSC METTLER

22-Aug-96

Ident: 0.0

222-S Laboratory

exo

MW
20

147

Integration
Delta H 15177 mJ
758.5 J/g
Peak 127.1 °C
-30.8 mW

Integration
Delta H 4368 mJ
218.3 J/g
Peak 325.3 °C
8.7 mW

100.

200.

300.

400.

°C

S96T004397 DUP N2
9.000 mg
Rate: 10.0 °C/min
File: 00035.001 DSC METTLER 22-Aug-96
Ident: 0.0 222-S Laboratory

LABCORE Data Entry Template for Worklist# 12367

Analyst: BDY Instrument: DSC01 _____ Book # _____

Method: LA-514-113 Rev/Mod _____

Worklist Comment: Dry DSC for BY-107. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
96001061	BY-107	1 SAMPLE	S96T004218	0	DSC-02	SOLID	N/A	99.0		Joules/g Dry
96001061	BY-107	2 DUP	S96T004218	0	DSC-02	SOLID	99.0	79.1	N/A	Joules/g Dry
96001061	BY-107	3 SAMPLE	S96T004219	0	DSC-02	SOLID	N/A	109		Joules/g Dry
96001061	BY-107	4 DUP	S96T004219	0	DSC-02	SOLID	109	106	N/A	Joules/g Dry
96001061	BY-107	5 SAMPLE	S96T004220	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
96001061	BY-107	6 DUP	S96T004220	0	DSC-02	SOLID	Ø	13.1	N/A	Joules/g Dry
96001061	BY-107	7 SAMPLE	S96T004221	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
96001061	BY-107	8 DUP	S96T004221	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
96001061	BY-107	9 SAMPLE	S96T004222	0	DSC-02	SOLID	N/A	89.9		Joules/g Dry
96001061	BY-107	10 DUP	S96T004222	0	DSC-02	SOLID	89.9	39.8	N/A	Joules/g Dry
96001061	BY-107	11 SAMPLE	S96T004223	0	DSC-02	SOLID	N/A	12.2		Joules/g Dry
96001061	BY-107	12 DUP	S96T004223	0	DSC-02	SOLID	12.2	Ø	N/A	Joules/g Dry
96001061	BY-107	13 SAMPLE	S96T004349	0	DSC-02	SOLID	N/A	56.1		Joules/g Dry
96001061	BY-107	14 DUP	S96T004349	0	DSC-02	SOLID	56.1	60.5	N/A	Joules/g Dry

Final page for worklist # 12367

Blandina Valenzuela 8-27-96
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.

worklistrpt Version 2.1 05/15/95
08/27/96 14:37

Page: 1

LABCORE Data Entry Template for Worklist# 12368

Analyst: BOY Instrument: DSC01 Book # _____

Method: LA-514-113 Rev/Mod _____

Worklist Comment: Dry DSC for BY-107. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
96001061	BY-107	1 SAMPLE	S96T004395	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
96001061	BY-107	2 DUP	S96T004395	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
96001061	BY-107	3 SAMPLE	S96T004396	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
96001061	BY-107	4 DUP	S96T004396	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
96001061	BY-107	5 SAMPLE	S96T004397	0	DSC-02	SOLID	N/A	356		Joules/g Dry
96001061	BY-107	6 DUP	S96T004397	0	DSC-02	SOLID	356	401	N/A	Joules/g Dry
96000836	BY-107	7 SAMPLE	S96T003847	0	DSC-02	LIQUID	N/A	Ø		Joules/g Dry
96000836	BY-107	8 DUP	S96T003847	0	DSC-02	LIQUID	Ø	Ø	N/A	Joules/g Dry
96000836	BY-107	9 SAMPLE	S96T003871	0	DSC-02	LIQUID	N/A	Ø		Joules/g Dry
96000836	BY-107	10 DUP	S96T003871	0	DSC-02	LIQUID	Ø	Ø	N/A	Joules/g Dry
96000836	BY-107	11 SAMPLE	S96T003872	0	DSC-02	LIQUID	N/A	Ø		Joules/g Dry
96000836	BY-107	12 DUP	S96T003872	0	DSC-02	LIQUID	Ø	48.0	N/A	Joules/g Dry
96001061	BY-107	13 SAMPLE	S96T004230	0	DSC-02	LIQUID	N/A	10.7		Joules/g Dry
96001061	BY-107	14 DUP	S96T004230	0	DSC-02	LIQUID	10.7	10.1	N/A	Joules/g Dry
96001061	BY-107	15 SAMPLE	S96T004231	0	DSC-02	LIQUID	N/A	8.79		Joules/g Dry
96001061	BY-107	16 DUP	S96T004231	0	DSC-02	LIQUID	8.79	6.59	N/A	Joules/g Dry
96001061	BY-107	17 SAMPLE	S96T004411	0	DSC-02	LIQUID	N/A	89.1		Joules/g Dry
96001061	BY-107	18 DUP	S96T004411	0	DSC-02	LIQUID	89.1	30.7	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# 12368

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
96001061	BY-107	19 SAMPLE	S96T004412	0	DSC-02	LIQUID	N/A	19.7		Joules/g Dry
96001061	BY-107	20 DUP	S96T004412	0	DSC-02	LIQUID	19.7	20.1	N/A	Joules/g Dry

Final page for worklist # 12368

Blandina Valenzuela
Analyst Signature

8-27-96
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# 12427

Analyst: BDV Instrument: DSC01 _____ Book #

Method: LA-514-113 Rev/Mod

Worklist Comment: Dry DSC for BY-107. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
96001061	BY-107	1 SAMPLE	S96T004232	0	DSC-02	LIQUID	<u>N/A</u>	<u>17.5</u>		Joules/g Dry
96001061	BY-107	2 DUP	S96T004232	0	DSC-02	LIQUID	<u>17.5</u>	<u>95.7</u>	<u>N/A</u>	Joules/g Dry
96001061	BY-107	3 SAMPLE	S96T004346	0	DSC-02	LIQUID	<u>N/A</u>	<u>40.2</u>		Joules/g Dry
96001061	BY-107	4 DUP	S96T004346	0	DSC-02	LIQUID	<u>40.2</u>	<u>2.12</u>	<u>N/A</u>	Joules/g Dry

Final page for worklist # 12427

Blandina Valenzuela 8-28-96
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# 12579

Analyst: DeD Instrument: DSC0 1 Book # 12N14-B

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

Worklist Comment: Please analyze BY-107 on Mettler DSC under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	LIQUID	<u>28.45</u>	<u>25.1</u>	<u>N/A</u>	Joules/g
96001061	BY-107	2 SAMPLE	S96T004232 1		DSC-01	LIQUID	<u>N/A</u>	<u>78.8</u>		Joules/g
96001061	BY-107	3 DUP	S96T004232 1		DSC-01	LIQUID	<u>78.8</u>	<u>80.1</u>	<u>N/A</u>	Joules/g

Final page for worklist # 12579

David C. Dunham
Analyst Signature

9-3-96
Date

Reidnight
Analyst Signature

9/5/96
Date

Verified/Validated by
Blandina
Valenzuela
9-6-96

Data Entry Comments: S96T004232 results are the sum of two exotherms.

The thermograms do not resemble the previously run thermograms.

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 154 TO 166.

DSC STD 12N14-B

3.120 mg

Rate: 10.0 °C/min

File: 00036.001

DSC METTLER

03-Sep-96

Ident: 0.0

222-S Laboratory

exo>

Integration

Delta H 78 mJ

25.1 J/g

Peak 158.6°C

-4.7 mW

5. mW

154

David C. Dunham 9-3-96

S96T004232 SAM N2

13.560 mg

Rate: 10.0 °C/min

File: 00038.001

DSC METTLER

03-Sep-96

Ident: 0.0 222-S Laboratory

S96T004232 DUP N2

18.081 mg

Rate: 10.0 °C/min

File: 00039.001 DSC METTLER 03-Sep-96

Ident: 0.0

222-S Laboratory

156

LABCORE Data Entry Template for Worklist# 12580

Analyst: DcD Instrument: DSC0 3 Book # 12N14-B

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

Worklist Comment: Please analyze BY-107 reruns on the Perkin Elmer under N2. DN

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	LIQUID	<u>28.45</u>	<u>26.69</u>	<u>N/A</u>	Joules/g
96000836	BY-107	2 SAMPLE	S96T003872	1	DSC-03	LIQUID	<u>N/A</u>	<u>12.63</u>		Joules/g
96000836	BY-107	3 DUP	S96T003872	1	DSC-03	LIQUID	<u>12.63</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 12580

Daniel D. Duhon 9-3-96
Analyst Signature Date

Ne Wright 9/5/96
Analyst Signature Date

Verified/Validated by
Blandina
Valenzuela
9-6-96

Data Entry Comments:

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

Curve 1: DSC

File info: IND090301 Tue Sep 3 09:10:05 1996

Sample Weight: 5.320 mg

12N14-B INDIUM AT 10C/MIN

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 158 TO 160.

N2, EXOTHERM DOWN

TIME: 122.8 s

TIME: 0.0 min

RATE: 10.0 °C/min

Temperature (°C)

DC DUNHAM

PERKIN-ELMER

7 Series Thermal Analysis System

WHC-SD-WM-DP-197, REV. 0

Curve 1: DSC
 File Info: SAM090301 Tue Sep 3 13:16:49 1986
 Sample Weight: 12.300 mg
 896T003872

N2 100/min
 TIME 55.88
 0.0 min RATE 10.0 °C/min
 DC DUNHAM
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Mod 500

Curve 1: DSC
 File Info: SAM090302 Tue Sep 3 15:50:14 1996
 Sample Weight: 14.420 mg
 996T003872 DUP

N2 10C/min
 THERM 58.8 g
 TIME 11 0.0 min RATE 10.0 C/min
 DC DUNHAM
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Tue Sep 3 15:50:14 1996

LABCORE Data Entry Template for Worklist# 12698

Analyst: BDV Instrument: DSC01 Book # _____

Method: LA-514-113 Rev/Mod _____

Worklist Comment: Dry DSC for BY-107 (reruns). bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
96000836	BY-107	1 SAMPLE	S96T003872	1		DSC-02	LIQUID	N/A	24.5 ⁵ ₁₆	9-6-96 ⁷⁶ BDV	Joules/g Dry
96000836	BY-107	2 DUP	S96T003872	1		DSC-02	LIQUID	24.5	Ø	N/A	Joules/g Dry
96001061	BY-107	3 SAMPLE	S96T004232	1		DSC-02	LIQUID	N/A	154.6		Joules/g Dry
96001061	BY-107	4 DUP	S96T004232	1		DSC-02	LIQUID	154.6	157.2	N/A	Joules/g Dry

Final page for worklist # 12698

Blandina Valenzuela 9-6-96
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#

10910

Analyst: RWK **Instrument:** TGA0 3 **Book #** 82N8A

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

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	SOLID	<u>59.2</u>	<u>59.09</u> *	<u>N/A</u>	%
96000836	BY-107	2 SAMPLE	S96T003507	0	TGA-03	SOLID	<u>N/A</u>	<u>12.28</u>		%
96000836	BY-107	3 DUP	S96T003507	0	TGA-03	SOLID	<u>12.28</u>	<u>7.81</u>	<u>N/A</u>	%
96000836	BY-107	4 SAMPLE	S96T003510	0	TGA-03	SOLID	<u>N/A</u>	<u>28.9</u>		%
96000836	BY-107	5 DUP	S96T003510	0	TGA-03	SOLID	<u>28.9</u>	<u>29.55</u>	<u>N/A</u>	%

Final page for worklist #

10910

See Attached for Signatures
Analyst Signature **Date**

[Signature] 7-22-96
Analyst Signature **Date**

Validated by HAnastis 7.23.96

Data Entry Comments:

S96T003507 is the sum of two weight loss steps.

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

LABCORE Data Entry Template for Worklist#

10910

Analyst: MLK Instrument: TGA0 Book # 82084

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID			N/A	%
96000836	BY-107	2	SAMPLE	S96T003507	0		TGA-01	SOLID	N/A			%
96000836	BY-107	3	DUP	S96T003507	0		TGA-01	SOLID			N/A	%
96000836	BY-107	4	SAMPLE	S96T003510	0		TGA-01	SOLID	N/A			%
96000836	BY-107	5	DUP	S96T003510	0		TGA-01	SOLID			N/A	%

Final page for worklist #

10910

Not King 7/19/96
Analyst Signature Date

Analyst Signature Date

TGA
DSC-03 instrument was used.
7-25-96
DPV

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: TER071802 Thu Jul 18 05:17:48 1996

Sample Weight: 24.475 mg

TGA STD 82N8-A

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

164

Weight (Wt. %)

N2 10C/MIN

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

Temperature (°C)

AD-PURINTON *Rob King*
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jul 18 05:54:13 1996

WHS-SD-WHS-DP-197, REV. 0

Curve 1: TGA

File info: SAM071807 Thu Jul 18 19:23:46 1996

Sample Weight: 20.689 mg

S96T003507

10C/MIN N2

TEMP: 85.0 C

TIME: 0.0 min

RATE: 10.0 C/min

Temperature (°C)

RW KING

PERKIN-ELMER

7 Series Thermal Analysis System

Thu Jul 18 21:15:24 1996

WMO-SD-WM-DR-197, REV.0

Curve 1: TGA

File info: SAM071808 Thu Jul 18 21:00:34 1996

Sample Weight: 17.942 mg

S96T003507 DUP

10C/MIN N2

TEMP: 35.0 °C
TEMP: 500.0 °C

TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

RW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jul 18 21:47:59 1996

WHS-SD-WM-DP-197, REV. 0

Curve 1: TGA

File info: SAM071809 Thu Jul 18 22:23:12 1996

Sample Weight: 20.879 mg

S96T003510

W:\C-SD-W\18-DP-197, REV. 0

167

Curve 1: TGA

File info: SAM071901 Thu Jul 18 23:32:55 1996

Sample Weight: 21.650 mg

S96T003510 DUP

168

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

RW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Jul 19 00:13:53 1996

WMO-SD-WP-DR-197, REV.0

LABCORE Data Entry Template for Worklist#

10911

Analyst: RDM Instrument: TGA0 1 Book # 82N8A

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID	<u>59.2</u>	<u>59.2</u>	<u>N/A</u>	%
96000836	BY-107	2	SAMPLE	S96T003526	0		TGA-01	SOLID	<u>N/A</u>	<u>41.75</u>		%
96000836	BY-107	3	DUP	S96T003526	0		TGA-01	SOLID	<u>41.75</u>	<u>46.92</u>	<u>N/A</u>	%
96000836	BY-107	4	SAMPLE	S96T003527	0		TGA-01	SOLID	<u>N/A</u>	<u>48.36</u>		%
		5	STD				TGA-01	SOLID	<u>59.2</u>	<u>58.7</u>	<u>N/A</u>	%
96000836	BY-107	6	DUP	S96T003527	0		TGA-01	SOLID	<u>48.36</u>	<u>46.25</u>	<u>N/A</u>	%

Final page for worklist #

10911

See Attached for Signatures
Analyst Signature Date

R. Jones 7-22-96
Analyst Signature Date

Verified/Validated by

Blandina

Valenzuela

7-23-96

Data Entry Comments:

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

worklistrpt Version 2.1 05/15/95
07/18/96 09:51

Page: 1

LABCORE Data Entry Template for Worklist#

10911

Analyst: RDM Instrument: TGA0 Book # 82NBAMethod: LA-560-112 Rev/Mod B-1

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID			N/A	%
96000836	BY-107	2 SAMPLE	S96T003526	0	TGA-01	SOLID	N/A			%
96000836	BY-107	3 DUP	S96T003526	0	TGA-01	SOLID			N/A	%
96000836	BY-107	4 SAMPLE	S96T003527	0	TGA-01	SOLID	N/A			%
96000836	BY-107	5 DUP	S96T003527	0	TGA-01	SOLID			N/A	%

Final page for worklist # 10911

RDM 7/20/96
 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.

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

TGA STD 82N8-A

13.970 mg

Rate: 10.0 °C/min

File: 00019.001

TG

METTLER

20-Jul-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height -8.27 mg

-59.20 %

ResidC. 5.70 mg

40.80 %

Dpeak 80.8°C

S96T003526 N2

27.208 mg

Rate: 10.0 °C/min

File: 00022.001

Ident: 0.0

TG METTLER 20-Jul-96

222-S Laboratory

Step Analysis

Height-11.36 mg

-41.75 %

Resid. 15.85 mg

58.25 %

Dpeak 89.0 °C

S96T003526 DUP N2

42.500 mg

Rate: 10.0 °C/min

File: 00024.001

Ident: 0.0

TG METTLER 20-Jul-96

222-8 Laboratory

Step Analysis

Height-19.94 mg

-46.92 %

Resid. 22.54 mg

53.04 %

Dpeak 113.0°C

S96T003527 SAMPLE N2

33.803 mg

Rate: 10.0 °C/min

File: 00026.001

TG

METTLER

20-Jul-96

Ident: 0.0

222-S Laboratory

14.598 mg

Rate: 10.0 °C/min

FILE: 00028.001 TG METTLER 21-JUL-96

Ident: 0.0 222-8 Laboratory

Alvinista for RDMeyers 7-22-96

S96T003527 DUP N2

32.341 mg

Rate: 10.0 °C/min

File: 00030.001 TG METTLER 21-Jul-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height-14.96 mg

-46.25 %

Resid. 17.38 mg

53.75 %

Dpeak 104.2°C

LABCORE Data Entry Template for Worklist#

10912

Analyst: RDM Instrument: TGA0 3 Book # 82N8A

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

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	SOLID	<u>59.2</u>	<u>59.5</u>	<u>N/A</u>	%
96000836	BY-107	2 SAMPLE	596T003528	0	TGA-03	SOLID	<u>N/A</u>	<u>36.44</u>		%
96000836	BY-107	3 DUP	596T003528	0	TGA-03	SOLID	<u>36.44</u>	<u>36.79</u>	<u>N/A</u>	%
96000836	BY-107	4 SAMPLE	596T003535	0	TGA-03	SOLID	<u>N/A</u>	<u>46.85</u>		%
96000836	BY-107	5 DUP	596T003535	0	TGA-03	SOLID	<u>46.85</u>	<u>36.026</u>	<u>N/A</u>	%

Final page for worklist #

10912

See attached for Signatures
Analyst Signature

Date

ES Jones 7-22-96
Analyst Signature Date

Validated by HAnastro 7-23-96

Data Entry Comments:

596T003535 will be rerun due to high RPDs

+ differences in the thermogram.

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#

10912

Analyst: Rpm Instrument: TGA0 Book # 82W8A

Method: LA-560-112 Rev/Mod C-1

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID			N/A	%
96000836	BY-107	2 SAMPLE	S96T003528	0	TGA-01	SOLID	N/A			%
96000836	BY-107	3 DUP	S96T003528	0	TGA-01	SOLID			N/A	%
96000836	BY-107	4 SAMPLE	S96T003535	0	TGA-01	SOLID	N/A			%
96000836	BY-107	5 DUP	S96T003535	0	TGA-01	SOLID			N/A	%

Final page for worklist # 10912

Rpm 7/20/96
Analyst Signature Date

Analyst Signature Date

TGA-03 instrument was used.

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: TER072001 Sat Jul 20 05:58:45 1996

Sample Weight: 17.334 mg

TGA STD 82N8-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 179 TO 183.

179

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

Temperature (°C)

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Jul 20 09:24:51 1996

WHC-SD-WA-DP-197, REV. 0

Curve 1: TGA

File info: SAM072001 Sat Jul 20 11:05:17 1996

Sample Weight: 12.787 mg

S96T003528

180

10C/MIN N2

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

Temperature (°C)

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Jul 20 12:00:25 1996

WMO-SD-WM-DF-197, REV. 0

Curve 1: TGA

File info: SAM072002 Sat Jul 20 13:11:34 1996

Sample Weight: 3.764 mg

S96T003528DUP

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Jul 20 14:55:45 1996

WMO-SD-WM-DP-197, REV.0

Curve 1: TGA

File info: SAM072023 Sat Jul 20 16:00:21 1996

Sample Weight: 8.863 mg

S96T003535

10C/MIN N2

TEMP: 55.0 °C

TIME: 0.0 min

RATE: 10.0 C/min

Temperature (°C)

RD MEYERS

PERKIN-ELMER

7 Series Thermal Analysis System

Sat Jul 20 18:28:51 1996

WMO-SD-WM-07-197, REV.0

Curve 1: TGA

File info: SAM072004 Sat Jul 20 21:32:37 1996

Sample Weight: 17.397 mg

S96T003535 DUP

10C/MIN N2
TEMP: 25.0 C
TEMP: 500.0 C
TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Jul 21 01:32:32 1996

WMO-SD-WM-DP-197, REV.0

LABCORE Data Entry Template for Worklist#

10914

Analyst: RDM Instrument: TGA0 3 Book # 82N8AMethod: LA-514-114 Rev/Mod C-1

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-03	SOLID	<u>59.2</u>	<u>58.8</u>	<u>N/A</u>	%
96000836	BY-107	2	SAMPLE	S96T003537	0		TGA-03	SOLID	<u>N/A</u>	<u>48.93</u>		%
96000836	BY-107	3	DUP	S96T003537	0		TGA-03	SOLID	<u>48.93</u>	<u>47.10</u>	<u>N/A</u>	%
96000836	BY-107	4	SAMPLE	S96T003538	0		TGA-03	SOLID	<u>N/A</u>	<u>31.24</u>		%
96000836	BY-107	5	DUP	S96T003538	0		TGA-03	SOLID	<u>31.24</u>	<u>29.86</u>	<u>N/A</u>	%

Final page for worklist # 10914

See Attached for Signatures
Analyst Signature DateRDM 7-22-96
Analyst Signature DateVerified/Validated by
Blandina
Valenzuela 7-23-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist#

10914

Analyst: R. M. M. Instrument: TGA0 _____ Book # 02N9AMethod: LA-560-112 Rev/Mod C-1

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	_____	_____	N/A	%
96000836	BY-107	2 SAMPLE	S96T003537	0	TGA-01	SOLID	N/A	_____	_____	%
96000836	BY-107	3 DUP	S96T003537	0	TGA-01	SOLID	_____	_____	N/A	%
96000836	BY-107	4 SAMPLE	S96T003538	0	TGA-01	SOLID	N/A	_____	_____	%
96000836	BY-107	5 DUP	S96T003538	0	TGA-01	SOLID	_____	_____	N/A	%

Final page for worklist #

10914

Analyst Signature R. M. M. Date 7/21/96

Analyst Signature _____ Date _____

Susie M. Julton

TGA-03 Instrument was used.

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: TER072101 Sun Jul 21 09:01:19 1996

Sample Weight: 15.977 mg

TGA STD 82N8-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 186 TO 190.

186
Weight (Wt. %)

N2 10C/MIN
TEMP: 25.0 °C
TIME: 300.0 s

TIME: 0.0 min RATE: 10.0 °C/min

Temperature (°C)

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Jul 21 14:00:54 1996

WMO-SD-WM-DP-197, REV. 0

Curve 1: TGA

File info: SAM072101 Sun Jul 21 15:05:45 1996

Sample Weight: 10.015 mg

S96T003537

187

10C/MIN N2
TEMP: 25.0 °C
TEMP: 500.0 °C

TIME: 0.0 min RATE: 10.0 °C/min

Temperature (°C)

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Jul 21 15:11:39 1996

1010-SD-WM-DD-197, REV.0

Curve 1: TGA

File info: SAM072102 Sun Jul 21 16:15:59 1996

Sample Weight: 16.400 mg

S96T003537DUP

188

10C/MIN N2
TEMP: 25.0 °C
TIME: 0.0 min RATE: 10.0 °C/min

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Jul 21 16:08:49 1996

W110-SD-W110-02-197, REV. 0

Curve 1: TGA

File info: SAM072104 Sun Jul 21 19:14:10 1996

Sample Weight: 23.083 mg

~~896T003538~~ SMF 7/21/96

S96T003538

189

10C/MIN N2

TEMP: 33.8 °C

TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Jul 21 20:07:31 1996

SMF-SD-WM-ET-197, REV.0

Curve 1: TGA

File info: SAM072105 Sun Jul 21 21:04:30 1996

Sample Weight: 30.065 mg

S96T003538 DUP

10C/MIN N2

TEMP: 30.0 °C
TEMP: 500.0 °C

TIMES: 0.0 min RATE: 10.0 C/min

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Jul 21 21:23:54 1996

SMCSD-WM-DF-197, REV.0

LABCORE Data Entry Template for Worklist#

11076

Analyst: KRM Instrument: TGA0 3 Book # 82N8AMethod: LA-514-114 Rev/Mod C-1

Worklist Comment: BY-107 TGA Reruns. RUN UNDER N2. hla

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	SOLID	<u>59.2</u>	<u>59.12*</u>	<u>N/A</u>	%
96000836	BY-107	2 SAMPLE	S96T003535	1	TGA-03	SOLID	<u>N/A</u>	<u>36.18</u>		%
96000836	BY-107	3 DUP	S96T003535	1	TGA-03	SOLID	<u>36.18</u>	<u>36.50</u>	<u>N/A</u>	%

Final page for worklist #

11076

[Signature] 7-3-96
 Analyst Signature Date

[Signature] 8-6-96
 Analyst Signature Date

Verified/Validated by
Blandina
Valepinela 8-7-96

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 192 TO 194.

TGA STD 82N8-A

16.580 mg

Rate: 10.0 °C/min

File: 00004.001

TG

METTLER

31-Jul-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height -9.80 mg

-59.12 %

ResidC. 6.78 mg

40.86 %

Dpeak 81.7°C

192

WIC-SD-WIN-DF-197, REV. 0

[Handwritten Signature]

S96T003535 DUP N2

7.071 mg

Rate: 10.0 °C/min

File: 00022.001

TG

METTLER

01-Aug-86

Ident: 0.0

222-S Laboratory

Step Analysis

Height -2.58 mg

-36.50 %

Resid. 4.49 mg

63.50 %

Dpeak 49.0 °C

worklistrpt Version 2.1 05/15/95
08/09/96 10:17

Page: 1

LABCORE Data Entry Template for Worklist#

11803

Analyst:

RDM

Instrument: TGA0

1

Book #

82N8A

Method: LA-560-112 Rev/Mod

B-1

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	LIQUID	<u>59.2</u>	<u>59.12</u>	<u>N/A</u>	<u>%</u>
96000836	BY-107	2 SAMPLE	S96T003847	0	TGA-01	LIQUID	<u>N/A</u>	<u>48.75</u>		<u>%</u>
96000836	BY-107	3 DUP	S96T003847	0	TGA-01	LIQUID	<u>48.75</u>	<u>49.08</u>	<u>N/A</u>	<u>%</u>
96000836	BY-107	4 SAMPLE	S96T003871	0	TGA-01	LIQUID	<u>N/A</u>	<u>48.82</u>		<u>%</u>
96000836	BY-107	5 DUP	S96T003871	0	TGA-01	LIQUID	<u>48.82</u>	<u>50.49</u>	<u>N/A</u>	<u>%</u>

Final page for worklist #

11803

Analyst Signature

Date

Analyst Signature

Date

Verified/Validated by
Blandina
Valenzuela
8.14.96

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 196 TO 200

TGA STD 82N8-A

9.122 mg

Rate: 10.0 °C/min

File: 00071.001

TG - METTLER

10-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height -5.39 mg

-59.12 %

ResidC. 3.73 mg

40.88 %

Dpeak 62.5 °C

2. mg

196

WMO-SD-WM-OP-197, REV. 0

Blandina Valenzuela for RD Meyers

8-14-96

50.

100.

150.

200.

°C

S96T003847 N2

22.385 mg

Rate: 10.0 °C/min

File: 00073.001 TG METTLER 10-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height -9.04 mg

-40.40 %

Resid. 13.34 mg

59.60 %

Dpeak 93.0 °C

Step Analysis

Height -1.87 mg

-8.35 %

Resid. 11.42 mg

51.03 %

197

S96T003847 DUP N2

19.065 mg

Rate: 10.0 °C/min

File: 00075.001

TG

METTLER

10-Aug-96

Ident: 0.0

222-8 Laboratory

Step Analysis

Height -7.80 mg

-40.91 %

ResiC. 11.26 mg

59.09 %

Dpeak 87.0 °C

Step Analysis

Height -1.56 mg

-8.17 %

ResiC. 9.68 mg

50.76 %

Dpeak 185.0 °C

S96T003871 N2

17.923 mg

Rate: 10.0 °C/min

File: 00077.001

TG

METTLER

11-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis
Height -6.94 mg
-38.73 %
Res1C. 10.98 mg
61.27 %
Dpeak 81.0°C

Step Analysis
Height -1.81 mg
-10.09 %
Res1C. 9.13 mg
50.95 %
Dpeak 183.0°C

S96T003871 DUP N2

12.875 mg

Rate: 10.0 °C/min

File: 00079.001

TG

METTLER

11-Aug-96

Ident: 0.0

222-8 Laboratory

Step Analysis

Height -5.45 mg

-42.32 %

Resid. 7.43 mg

57.68 %

Dpeak 75.0 °C

Step Analysis

Height -1.05 mg

-8.17 %

Resid. 6.33 mg

49.16 %

Dpeak 181.0 °C

200

LABCORE Data Entry Template for Worklist#

11804

Analyst: RDM Instrument: TGA0 3 Book # 82N8A

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

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	LIQUID	59.2	58.00 <small>8-13-96 DM</small>	N/A	%
96000836	BY-107	2 SAMPLE	S96T003872	0	TGA-03	LIQUID	N/A	48.26		%
96000836	BY-107	3 DUP	S96T003872	0	TGA-03	LIQUID	48.26	48.47	N/A	%

Final page for worklist #

11804

See attached for signatures
Analyst Signature Date 8-13-96

R. Jones 8-14-96
Analyst Signature Date

Verified/Validated by
Blandina
Valenzuela 8-14-96

Data Entry Comments:

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

worklist rpt Version 2.1 05/15/95
08/09/96 10:18

Page: 1

LABCORE Data Entry Template for Worklist#

11804

Analyst:

RDM

Instrument: TGA0

Book # 82NBAMethod: LA-560-112 Rev/Mod C-1

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	LIQUID			N/A	%
96000836	BY-107	2 SAMPLE	S96T003872	0	TGA-01	LIQUID	N/A			%
96000836	BY-107	3 DUP	S96T003872	0	TGA-01	LIQUID			N/A	%

Final page for worklist #

11804

Analyst Signature

Date

Analyst Signature

Date

TGA-03 instrument
was used.

8-13-96

Blandina

Valenzuela

Data Entry Comments:

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

Curve 1: TGA

File info: TER080996 Fri Aug 9 07:18:47 1996

Sample Weight: 33.107 mg

TGA STD 82N8-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 203 TO 205.

203

N2 10C/MIN

TEMP: 287.5 °C

TIME: 0.0 min

RATE: 10.0 C/min

Temperature (°C)

PJ MCCOMM

PERKIN-ELMER

7 Series Thermal Analysis System

Fri Aug 9 18:08:55 1996

LMC-SD-WM-DF-197, REV.0

Curve 1: TGA

File info: SAM080901 Fri Aug 9 21:57:14 1996

Sample Weight: 16.334 mg

S98T003872

10C/MIN N2

TEMP: 50.0 °C
TIME: 000.0 s

TIME: 0.0 min RATE: 10.0 °C/min

Temperature (°C)

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Aug 10 00:05:06 1996

W:\0-SD-WA-ED-197, REV.0

Curve 1: TGA

File info: SAM080902 Sat Aug 10 00:56:40 1996

Sample Weight: 19.224 mg

S96T003872DUP

10C/MIN N2

TIME: 55.0 s

TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Aug 10 02:41:53 1996

UNIC-SD-WM-BP-197, REV. 0

LABCORE Data Entry Template for Worklist#

12038

Analyst: SMF Instrument: TGA0 1 Book # 82N8AMethod: LA-560-112 Rev/Mod B-1

Worklist Comment: BY-107 TGA, run under N2. rcj

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	LIQUID	<u>59.2</u>	<u>58.84</u>	<u>* N/A</u>	<u>X</u>
96001061	BY-107	2 SAMPLE	S96T004230	0	TGA-01	LIQUID	<u>N/A</u>	<u>49.47</u>		<u>X</u>
96001061	BY-107	3 DUP	S96T004230	0	TGA-01	LIQUID	<u>49.47</u>	<u>49.6</u>	<u>N/A</u>	<u>X</u>
		4 STD			TGA-01	LIQUID	<u>59.2</u>	<u>58.68</u>	<u>N/A</u>	<u>X</u>
96001061	BY-107	5 SAMPLE	S96T004231	0	TGA-01	LIQUID	<u>N/A</u>	<u>50.08</u>		<u>X</u>
96001061	BY-107	6 DUP	S96T004231	0	TGA-01	LIQUID	<u>50.08</u>	<u>49.81</u>	<u>N/A</u>	<u>X</u>

Final page for worklist #

12038

See attached for signatures
 Analyst Signature _____ Date 8-20-96
EDV

Dr. H. M. H. H.
 Analyst Signature _____ Date 8-20-96

Verified/Validated by
Blandina
Valenzuela

Data Entry Comments: S96T004230 results are the sum of two weight loss steps

S96T004231 results are the sum of two weight loss steps

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

LABCORE Data Entry Template for Worklist#

12038

Analyst: SMF Instrument: TGA0 Book # 82N8-A

Method: LA-560-112 Rev/Mod _____

Worklist Comment: BY-107 TGA, run under N2. rcj

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	LIQUID	_____	_____	N/A	%
96001061	BY-107	2 SAMPLE	S96T004230	0	TGA-01	LIQUID	N/A	_____	_____	%
96001061	BY-107	3 DUP	S96T004230	0	TGA-01	LIQUID	_____	_____	N/A	%
96001061	BY-107	4 SAMPLE	S96T004231	0	TGA-01	LIQUID	N/A	_____	_____	%
96001061	BY-107	5 DUP	S96T004231	0	TGA-01	LIQUID	_____	_____	N/A	%

Final page for worklist #

12038

Lusie M. Dutton 8-18-96
Analyst Signature Date
R. McCown 8/19/96

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.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 208 TO 213.

TGA STD 82N8-A

16.768 mg

Rate: 10.0 °C/min

File: 00080.001

Ident: 0.0

TG

METTLER

18-Aug-96

222-S Laboratory

Step Analysis

Height -9.87 mg

-58.84 %

Res1C. 6.90 mg

41.16 %

Dpeak 86.7°C

208

208-SD-WA-22-197, REV.0

Susie M. Jultor 8-18-96

S96T004230 N2

24.025 mg

Rate: 10.0 °C/min

File: 00090.001

TG

METTLER

19-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height -9.96 mg

-41.44 %

ResidC. 14.07 mg

58.56 %

Dpeak 95.0 °C

Step Analysis

Height -1.93 mg

-8.03 %

ResidC. 12.14 mg

50.53 %

602

S96T004230 DUP N2

20.839 mg

Rate: 10.0 °C/min

File: 00092.001

TG

METTLER

19-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height -8.36 mg

-40.13 %

ResidC. 12.48 mg

59.87 %

Dpeak 91.0°C

Step Analysis

Height -1.97 mg

-9.47 %

ResidC. 10.50 mg

50.40 %

Dpeak 181.0°C

S96T004231 N2

25.673 mg

Rate: 10.0 °C/min

File: 00004.001

TG

METTLER

19-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height-10.51 mg

-40.92 %

Resid. 15.17 mg

59.08 %

Dpeak 99.0°C

Step Analysis

Height -2.35 mg

-9.16 %

Resid. 12.81 mg

49.91 %

Dpeak 183.0°C

212

5. mg

S96T004231 DUP N2

27.219 mg

Rate: 10.0 °C/min

File: 00006.001

TG

METTLER

19-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height-11.08 mg

-40.73 %

ResidC. 16.13 mg

59.27 %

Dpeak 99.0°C

Step Analysis

Height -2.47 mg

-9.08 %

ResidC. 13.66 mg

50.19 %

Dpeak 181.0°C

213

2000-W-0001-137, Rev. 0

LABCORE Data Entry Template for Worklist#

12039

Analyst: QAM

Instrument: TGA0 1

Book # 82N8A

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	LIQUID	<u>59.2</u>	<u>58.61</u>	<u>N/A</u>	<u>%</u>
96001061	BY-107	2	SAMPLE	S96T004232	0		TGA-01	LIQUID	<u>N/A</u>	<u>49.14</u>		<u>%</u>
96001061	BY-107	3	DUP	S96T004232	0		TGA-01	LIQUID	<u>49.14</u>	<u>48.91</u>	<u>N/A</u>	<u>%</u>
96001061	BY-107	4	SAMPLE	S96T004346	0		TGA-01	LIQUID	<u>N/A</u>	<u>48.31</u>		<u>%</u>
96001061	BY-107	5	DUP	S96T004346	0		TGA-01	LIQUID	<u>48.31</u>	<u>48.06</u>	<u>N/A</u>	<u>%</u>

Final page for worklist #

12039

QAMurphy 8-23-96
Analyst Signature Date

Rt Blk 8-27-96
Analyst Signature Date

Verified/Validated by

Blandina

Valenzuela 8-28-96

Data Entry Comments: S96T004232 results are the sum of two weight loss steps.

S96T004346 results are the sum of two weight loss steps.

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 215 TO 218.

TGA STD 82N8-A

23.070 mg

Rate: 10.0 °C/min

File: 00042.001

TG

METTLER

23-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height-13.52 mg

-58.61 %

ResidC. 9.54 mg

41.34 %

Dpeak 96.7°C

Q. Murphy 8-23-96

S96T004232 SAM

26.477 mg

Rate: 10.0 °C/min

File: 00044.001 TG METTLER 23-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis
Height -9.93 mg
-37.51 %
ResidC. 16.51 mg
62.37 %

Step Analysis
Height -3.08 mg
-11.63 %
ResidC. 13.43 mg
50.73 %

S96T004232 DUP

21.364 mg

Rate: 10.0 °C/min

File: 00046.001 TG METTLER 23-Aug-96

Ident: 0.0 222-S Laboratory

Step Analysis
Height -8.35 mg
-39.07 %
Resid. 13.02 mg
60.93 %

Step Analysis
Height -2.10 mg
-9.84 %
Resid. 10.88 mg
50.94 %
Dpeak 183.0 °C

5. mg

100. 200. 300. 400. °C

S96T004346 SAM

24.398 mg

Rate: 10.0 °C/min

File: 00048.001

TG

METTLER

23-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis
Height -9.26 mg
-37.97 %
ResidC. 15.13 mg
62.03 %

Step Analysis
Height -2.52 mg
-10.34 %
ResidC. 12.61 mg
51.68 %
Dpeak 183.0°C

S96T004346 DUP N2

17.855 mg

Rate: 10.0 °C/min

File: 00050.001

TG

METTLER

23-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height -6.96 mg

-38.98 %

ResiC. 10.90 mg

61.02 %

Dpeak 87.0°C

Step Analysis

Height -1.62 mg

-9.08 %

ResiC. 9.27 mg

51.94 %

Dpeak 183.0°C

218.1

LABCORE Data Entry Template for Worklist#

12044

Analyst: DCD Instrument: TGA0 1 Book # 82N0A

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<u>59.2</u>	<u>58.69</u>	<u>N/A</u>	%
96001061	BY-107	2 SAMPLE	S96T004218	0	TGA-01	SOLID	<u>N/A</u>	<u>42.8</u>		%
96001061	BY-107	3 DUP	S96T004218	0	TGA-01	SOLID	<u>42.8</u>	<u>42.4</u>	<u>N/A</u>	%
96001061	BY-107	4 SAMPLE	S96T004219	0	TGA-01	SOLID	<u>N/A</u>	<u>36.7</u>		%
96001061	BY-107	5 DUP	S96T004219	0	TGA-01	SOLID	<u>36.7</u>	<u>35.7</u>	<u>N/A</u>	%

Final page for worklist # 12044

David C Dunham 8-19-96
Analyst Signature Date

James Bee 8/21/96
Analyst Signature Date

Verified/Validated by

Blandina

Valenzuela 8-22-96

Data Entry Comments: S96T004218 sample thermogram produced two weight loss steps. The second had a ~~sec~~⁸⁻²⁰⁻⁹⁶ ending limit of ~~4~~⁸⁻²⁰⁻⁹⁶ ~380°C. The shape of the thermogram seemed to indicate the sample continued to lose weight until then, and probably due to strongly attraction btwn the hydrated salt.
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 220 TO 224.

TGA STD 82N8A

18.119 mg

Rate: 10.0 °C/min

File: 00002.001

TG

METTLER

19-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height -9.14 mg

-50.44 %

ResidC. 8.98 mg

49.56 %

Dpeak 82.5 °C

Step Analysis

Height -1.49 mg

-8.25 %

ResidC. 7.49 mg

41.32 %

Dpeak 185.8 °C

Blandina Valenzuela for Dave Durham 8-22-96

220

5. mg

50. 100. 150. 200. °C

WMO-SD-WM-EP-197, REV.0

S96T004218 N2

36.352 mg

Rate: 10.0 °C/min

File: 00008.001

TG

METTLER

19-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height-12.72 mg

-34.99 %

Resid. 23.63 mg

65.01 %

Step Analysis

Height -2.84 mg

-7.81 %

Resid. 20.80 mg

57.21 %

Dpeak 195.0 °C

S96T004218 DUP N2

32.329 mg

Rate: 10.0 °C/min

File: 00010.001 TG METTLER 19-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height -10.85 mg

-33.58 %

Resid. 21.47 mg

66.42 %

Step Analysis

Height -2.85 mg

-8.82 %

Resid. 18.62 mg

57.61 %

Dpeak 193.0 °C

222

S96T004219 N2

14.036 mg

Rate: 10.0 °C/min

File: 00012.001

TG

METTLER

19-Aug-96

Ident: 0.0

222-8 Laboratory

Step Analysis

Height -3.24 mg

-23.09 %

ResidC. 10.80 mg

76.91 %

Step Analysis

Height -1.91 mg

-13.61 %

ResidC. 8.89 mg

63.31 %

223

W:\NCSD-WM\DP-197, REV. 0

23.288 mg

Rate: 10.0 °C/min

File: 00014.001

Ident: 0.0

TG · METTLER

222-S Laboratory

19-Aug-96

Height -8.32 mg

-35.72 %

Res1C. 14.97 mg

64.28 %

Dpeak 79.0 °C

FD-302a (Rev. 1-25-60)

LABCORE Data Entry Template for Worklist#

12045

Analyst: DGD **Instrument:** TGA0 1 **Book #** B2NBA

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<u>59.2</u>	<u>58.68</u>	<u>N/A</u>	%
96001061	BY-107	2 SAMPLE	S96T004220	0	TGA-01	SOLID	<u>N/A</u>	<u>36.94</u>		%
96001061	BY-107	3 DUP	S96T004220	0	TGA-01	SOLID	<u>36.94</u>	<u>39.45</u>	<u>N/A</u>	%
96001061	BY-107	4 SAMPLE	S96T004221	0	TGA-01	SOLID	<u>N/A</u>	<u>24.55</u>		%
96001061	BY-107	5 DUP	S96T004221	0	TGA-01	SOLID	<u>24.55</u>	<u>19.4</u>	<u>N/A</u>	%

Final page for worklist #

12045

Daniel C. Durham 8-19-96
Analyst Signature **Date**

RCJ 8/21/96
Analyst Signature **Date**

Verified/Validated by
Blandina Valenzuela
8-22-96

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 226 TO 230

TGA STD 82N8A

18.119 mg

Rate: 10.0 °C/min

File: 00002.001

TG

METTLER

19-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height -9.15 mg

-50.51 %

ResidC. 8.97 mg

49.49 %

Dpeak 82.5°C

Step Analysis

Height -1.48 mg

-8.17 %

ResidC. 7.49 mg

41.32 %

Dpeak 185.8°C

WMO-SD-WM-197, REV. 0

S96T004220 N2

20.243 mg

Rate: 10.0 °C/min

File: 00016.001

TG

METTLER

19-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height -6.07 mg

-29.97 %

Resid. 14.18 mg

70.03 %

Step Analysis

Height -1.41 mg

-6.97 %

Resid. 12.77 mg.

63.06 %

Dpeak 179.0°C

S96T004220 DUP N2

18.611 mg

Rate: 10.0 °C/min

File: 00018.001 TG METTLER 20-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis
Height -5.91 mg
-31.75 %
ResidC. 12.70 mg
68.25 %

Step Analysis
Height -1.43 mg
-7.70 %
ResidC. 11.27 mg
60.55 %
Dpeak 175.0°C

228

W90-SD-WM-OP-197, REV. 0

S96T004221 N2

8.975 mg

Rate: 10.0 °C/min

File: 00020.001

Ident: 0.0

TG METTLER 20-Aug-86

222-S Laboratory

Step Analysis

Height -1.39 mg

-15.54 %

ResidC. 7.58 mg

84.46 %

Step Analysis

Height -0.81 mg

-9.01 %

ResidC. 6.77 mg

75.45 %

Dpeak 181.0 °C

1. mg

°C

100.

200.

300.

400.

S96T004221 DUP N2

33.620 mg

Rate: 10.0 °C/min

File: 00022.001

TG

METTLER

20-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height -3.09 mg

-9.18 %

Resid. 30.53 mg

90.82 %

Step Analysis

Height -3.44 mg

-10.22 %

Resid. 27.10 mg

80.60 %

Dpeak 191.0°C

230

LABCORE Data Entry Template for Worklist# 12046

Analyst: RWK Instrument: TGA0 3 Book # 82N8A

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

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-03	SOLID	<u>59.2</u>	<u>59.05</u>	<u>N/A</u>	<u>%</u>
96001061	BY-107	2	SAMPLE	S96T004222	0		TGA-03	SOLID	<u>N/A</u>	<u>33.65</u>		<u>%</u>
96001061	BY-107	3	DUP	S96T004222	0		TGA-03	SOLID	<u>33.65</u>	<u>25.75</u>	<u>N/A</u>	<u>%</u>
96001061	BY-107	4	SAMPLE	S96T004223	0		TGA-03	SOLID	<u>N/A</u>	<u>31.25</u>		<u>%</u>
96001061	BY-107	5	DUP	S96T004223	0		TGA-03	SOLID	<u>31.25</u>	<u>40.98</u>	<u>N/A</u>	<u>%</u>

Final page for worklist # 12046

See attached for signatures

Analyst Signature 8-23-96
Date 8-23-96

8-26-96
Analyst Signature 8-26-96
Date

Verified/Validated by
Blandina
Valenzuela
8-27-96

Data Entry Comments: S96T004222 results are the sum of two weight loss
steps

S96T004223 results are the sum of three weight loss steps.

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

LABCORE Data Entry Template for Worklist#

12046

Analyst: RA Instrument: TGA0 8-23-96 Book # 02h8-A

Method: LA-560-112 Rev/Mod ATC-1

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID			N/A	%
96001061	BY-107	2	SAMPLE	S96T004222	0		TGA-01	SOLID	N/A			%
96001061	BY-107	3	DUP	S96T004222	0		TGA-01	SOLID			N/A	%
96001061	BY-107	4	SAMPLE	S96T004223	0		TGA-01	SOLID	N/A			%
96001061	BY-107	5	DUP	S96T004223	0		TGA-01	SOLID			N/A	%

Final page for worklist #

12046

Rob King 8/21/96
Analyst Signature Date

Analyst Signature Date

TGA-03 instrument
was used.

8-23-96

Blandina
Valenzuela

Data Entry Comments:

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

Curve 1: TGA

File info: qsav1 Wed Aug 21 06: 41: 09 1996

Sample Weight: 16.415 mg

TGA STD 82N8-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 233 TO 237.

UNIC-SD-WA-CP-197, REV. 0

N2 10C/MIN

TEMP: 35.0 °C
TEMP: 300.0 °C

TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

RW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Aug 21 07: 41: 20 1996

Curve 1: TGA

File info: SAM082101 Wed Aug 21 08:38:46 1996

Sample Weight: 10.365 mg

S96T004222

10C/MIN N2

TEMP: 35.0 °C

TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

RW KING

PERKIN-ELMER

7 Series Thermal Analysis System

Wed Aug 21 09:37:03 1996

WIC-SD-WM-DF-197, REV.0

Curve 1: TGA
 File info: SAM082102 Wed Aug 21 09:54:00 1996
 Sample Weight: 15.870 mg
 S96T004222 DUP

INCO-SD-WM-DP-197, REV. 0

10C/MIN N2
 TIME: 35.0 min RATE: 10.0 C/min
 TGA: 35.0 min

RW KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Wed Aug 21 09:57:26 1996

Curve 1: TGA
 File Info: SAM082103 Wed Aug 21 11:04:25 1996
 Sample Weight: 25.679 mg
 S96T004223

10C/MIN N2
 TIME: 00:08.8

0.0 min RATE: 10.0 C/min

Temperature (°C)

HW KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Wed Aug 21 12:28:22 1996

Curve 1: TGA
 File info: SAM082104 Wed Aug 21 12:59:49 1996
 Sample Weight: 20.273 mg
 S96T004223 DUP

10C/MIN N2
 TIME: 35.8 g
 TIMES: 0.0 min RATE: 10.0 C/min

Temperature (°C)

RN KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Wed Aug 21 13:04:04 1996

WMO-SD-WA-07-197, REV.0

LABCORE Data Entry Template for Worklist#

12048

Analyst: SME Instrument: TGA01 Book # 82N8A

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	59.2	58.73*	N/A	%
96001061	BY-107	2 SAMPLE	S96T004349 0		TGA-01	SOLID	N/A	40.89		%
96001061	BY-107	3 DUP	S96T004349 0		TGA-01	SOLID	40.89	6676.34	N/A	%

Final page for worklist #

12048

Susie M. Tilton 8-18-96
Analyst Signature Date

Susie M. Tilton 8/20/96
Analyst Signature Date

Verified/Validated by
Blandina
Valenzuela 8-22-96

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 234 TO 241.

TGA STD 82N8-A

16.768 mg

Rate: 10.0 °C/min

File: 00080.001

Ident: 0.0

TG

METTLER

18-Aug-96

222-S Laboratory

Step Analysis

Height -9.85 mg

-58.73 %

ResidC. 6.92 mg

41.27 %

Dpeak 86.7°C

Lusie M. Sutton 8-18-96

S96T004349 N2

35.699 mg

Rate: 10.0 °C/min

File: 00086.001

Ident: 0.0

TG

METTLER

19-Aug-96

222-S Laboratory

Step Analysis

Height-14.60 mg

-40.89 %

Resid. 21.10 mg

59.11 %

Dpeak 97.0 °C

240

00086-001-001-197, REV. 0

S96T004349 DUP N2

43.599 mg

Rate: 10.0 °C/min

File: 00088.001

TG

METTLER

19-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height-20.20 mg

-46.34 %

Resid. 23.40 mg

53.66 %

Dpeak 115.0 °C

worklistpt Version 2.1 05/15/95
08/20/96 10:23

Page: 1

LABCORE Data Entry Template for Worklist#

12147

Analyst: R/K Instrument: TGA0 1 Book # 8278-4Method: LA-560-112 Rev/Mod 1B-1

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	LIQUID	<u>59.2</u>	<u>59.16</u>	<u>N/A</u>	<u>%</u>
96001061	BY-107	2 SAMPLE	S96T004411	0	TGA-01	LIQUID	<u>N/A</u>	<u>46.36</u>		<u>%</u>
96001061	BY-107	3 DUP	S96T004411	0	TGA-01	LIQUID	<u>46.36</u>	<u>47.43</u>	<u>N/A</u>	<u>%</u>
96001061	BY-107	4 SAMPLE	S96T004412	0	TGA-01	LIQUID	<u>N/A</u>	<u>45.14</u>		<u>%</u>
96001061	BY-107	5 DUP	S96T004412	0	TGA-01	LIQUID	<u>45.14</u>	<u>48.43</u>	<u>N/A</u>	<u>%</u>

Final page for worklist # 12147

Nob-Kmg 8/21/96
 Analyst Signature Date

R/L 8-26-96
 Analyst Signature Date

 Verified/Validated by
Blandina Valenzuela
8-27-96

 Data Entry Comments: S96T004411 results are the sum of two weight loss steps
S96T004412 results are the sum of two weight loss steps.

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 243 TO 247.

TGA STD 82N8-A

17.837 mg

Rate: 10.0 °C/min

File: 00024.001

TG

METTLER

21-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height-10.55 mg

-59.16 %

ResidC. 7.28 mg

40.84 %

Dpeak 89.2 °C

Not King 8/21/96

S96T004411 N2

22.888 mg

Rate: 10.0 °C/min

File: 00026.001

TG

METTLER

21-Aug-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -8.07 mg

-35.27 %

ResidC. 14.80 mg

64.68 %

Step Analysis

Height -2.54 mg

-11.09 %

ResidC. 12.27 mg

53.59 %

S96T004411 DUP N2

29.522 mg

Rate: 10.0 °C/min

File: 00028.001

Ident: 0.0

TG METTLER 21-Aug-86

222-S Laboratory

Step Analysis

Height-10.89 mg

-36.88 %

ResidC. 18.62 mg

63.07 %

Step Analysis

Height -3.12 mg

-10.55 %

ResidC. 15.51 mg

52.52 %

Rob King 8/21/86

S96T004412 N2

22.280 mg

Rate: 10.0 °C/min

File: 00030.001 TG METTLER 21-Aug-96

Ident: 0.0 222-S Laboratory

Step Analysis
Height -6.65 mg
-29.87 %
Res1C. 15.61 mg
70.07 %

Step Analysis
Height -3.40 mg
-15.27 %
Res1C. 12.21 mg
54.80 %

S96T004412 DUP N2

13.615 mg

Rate: 10.0 °C/min

File: 00032.001

TG

METTLER

21-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height -4.99 mg

-36.66 %

Res1C. 8.62 mg

63.34 %

Step Analysis

Height -1.60 mg

-11.77 %

Res1C. 7.02 mg

51.58 %

LABCORE Data Entry Template for Worklist# 12148

Analyst: RDM Instrument: TGA0 3 Book # 82N8AMethod: LA-514-114 Rev/Mod C-1

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	SOLID	59.2	57.46*	N/A	%
96001061	BY-107	2 SAMPLE	S96T004395	0	TGA-03	SOLID	N/A	48.05		%
96001061	BY-107	3 DUP	S96T004395	0	TGA-03	SOLID	48.05	44.08	N/A	%
96001061	BY-107	4 SAMPLE	S96T004396	0	TGA-03	SOLID	N/A	43.68		%
96001061	BY-107	5 DUP	S96T004396	0	TGA-03	SOLID	43.68	45.41	N/A	%

Final page for worklist # 12148

See attached for signatures

Analyst Signature 8-23-96
BDR

8-26-96

Analyst Signature Date

Verified/Validated by

Blandina
Valenzuela
8-27-96

Data Entry Comments: S96T004395 results are the sum of two weight loss steps

S96T004396 results are the sum of two weight loss steps.

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

LABCORE Data Entry Template for Worklist#

12148

Analyst: RMM Instrument: TGA0 _____ Book # ELN/A

Method: LA-560-112 Rev/Mod (-)

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	_____	_____	N/A	%
96001061	BY-107	2 SAMPLE	S96T004395	0	TGA-01	SOLID	N/A	_____	_____	%
96001061	BY-107	3 DUP	S96T004395	0	TGA-01	SOLID	_____	_____	N/A	%
96001061	BY-107	4 SAMPLE	S96T004396	0	TGA-01	SOLID	N/A	_____	_____	%
96001061	BY-107	5 DUP	S96T004396	0	TGA-01	SOLID	_____	_____	N/A	%

Final page for worklist #

12148

RMM 8/22/96
Analyst Signature Date

Analyst Signature Date

TGA-03 instrument
was used.
B-23-96

Blandina
Valenzuela

Data Entry Comments:

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

Curve 1: TGA

File info: TER082101 Wed Aug 21 05:54:58 1996

Sample Weight: 21.995 mg

TGA STD 82MS-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 250 TO 254.

N2 10C/MIN
TIME: 25.0 g

TIMES: 0.0 min RATE: 10.0 C/min

Temperature (°C)

RM KING
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Aug 21 17:28:02 1996

TERO-SD-WED-DF-197, REV.0

Curve 1: TGA

File info: SAM082106 Wed Aug 21 19:27:07 1996

Sample Weight: 10.693 mg

96T004395

10C/MIN N2

TIME: 55.8 8

TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

RD MEYERS

PERKIN-ELMER

7 Series Thermal Analysis System

Wed Aug 21 20:55:45 1996

WMO-SD-WM-CP-197, REV.0

Curve 1: TGA

File info: SAM082107 Wed Aug 21 21:47:20 1996

Sample Weight: 8.703 mg

S96T004395DUP

10C/MIN N2

TIME: 25.8 8

TIME: 0.0 min RATE: 10.0 C/min

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Aug 21 23:45:36 1996

WMSD-WMSD-197, REV. 0

Curve 1: TGA

File info: SAM082201 Thu Aug 22 00:35:59 1996

Sample Weight: 9.343 mg

S96T004396

TIME: 35.0 s

TIME: 0.0 min RATE: 10.0 G/min

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Aug 22 01:06:34 1996

WMO-SD-WMO-197, REV. 1

Curve 1: T8A
 File info: SAM082202 Thu Aug 22 01:57:05 1996
 Sample Weight: 15.754 mg
 S98T004396UP

10C/MIN N2
 TIME: 88.8 g
 0.0 min RATE: 10.0 C/min
 RD MEYERS
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Thu Aug 22 02:42:22 1996

LABCORE Data Entry Template for Worklist#

12149

Analyst: R. Mon Instrument: TGA0 1 Book # 02N0A

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: BY-107 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	59.2	59.16 *	N/A	%
96001061	BY-107	2 SAMPLE	S96T004397	0	TGA-01	SOLID	N/A	38.59		%
96001061	BY-107	3 DUP	S96T004397	0	TGA-01	SOLID	38.59	38.69	N/A	%

Final page for worklist # 12149

R. Mon 8/21/96
Analyst Signature Date

R. J. Schuch 8-26-96
Analyst Signature Date

Verified/Validated by
Blandina
Valenzuela 8-27-96

Data Entry Comments:

Sample results are the sum of two weight loss steps.

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 256 TO 258.

TGA STD 82N8-A

17.837 mg

Rate: 10.0 °C/min

File: 00024.001

TG METTLER

21-Aug-96

Ident: 0.0

222-S Laboratory

Step Analysis

Height-10.55 mg

-59.16 %

ResidC. 7.28 mg

40.84 %

Dpeak 89.2°C

S96T004397 N2

7.773 mg

Rate: 10.0 °C/min

File: 00034.001

Ident: 0.0

TG

METTLER

22-Aug-96

222-S Laboratory

Step Analysis

Height -2.49 mg

-32.02 %

ResiC. 5.27 mg

67.80 %

Dpeak 55.0 °C

Step Analysis

Height -0.51 mg

-6.57 %

ResiC. 4.76 mg

61.23 %

Step Analysis

Height -0.34 mg

-4.40 %

ResiC. 4.41 mg

56.79 %

257

2003-08-22 10:07:07, 222-S

S96T004397 DUP N2

18.368 mg

Rate: 10.0 °C/min

File: 00036.001

TG

METTLER

22-Aug-96

Ident: 0.0

222-S Laboratory

258

WMO-SD-WI-02-197, REV. 0

DISTRIBUTION SHEET

To Distribution	From Production Planning & Control	Page 1 of 1
		Date: 09/09/96
Project Title/Work Order WHC-SD-WM-DP-197, Rev. 0, "Tank 241-BY-107, Cores 151 and 161, Analytical Results for the 45 Day Report"		EDT NO.: EDT-617494
		ECN NO.: N/A

Name	MSIN	Text With all Attach	EDT/ECN ONLY	
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Pacific Northwest Laboratory

J. R. Gormsen	K7-28		X	
S. J. Harris	K7-22	X		
K. L. Silvers	P7-27		X	

U.S. Department of Energy, RL

C. A. Babel	S7-54	X		
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K. L. Powell	T6-04		X	
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L. R. Webb (SD COV SHT., DST. SHT, ROR)	T6-06		X *	
A. E. Young (Narrative & Sample Data Summary)	R2-12	X		
Central Files	A3-88	2		
EDMC	H6-08	X		
LTIC	T6-03		X	

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* Needs only releasing paperwork, not a copy of the released document.