DISTRIBUTION SHEET

To	From	Page 1 of 2
DISTRIBUTION	ANALYTICAL SERVICES	Date: 11/17/94
Project Title/Work Order WHC-SD-WM-DP-076, Rev. 0 45-Day Deliverable for Tank 241-BX-105 Auger Samples, Risers 2 and 6		EDT NO.: EDT-140744 ECN NO.: N/A

Name	MSIN	Text With all Attach	Addendum 1A Only	EDT/ECN Only
ONSITE				
Pacific Northwest Laboratory				
S. F. Bobrowski	K7-28			X
S. J. Harris	K7-22			X
P. G. Heasler	K7-34			X
S. G. McKinley	P7-22			X
J. L. Scott	K1-22			X
U.S. Department of Energy, RL				
J. M. Clark	S7-54			X
J. Noble-Dial	S7-54			X
Westinghouse Hanford Company				
J. N. Appel	G3-21			X
H. Babad	S7-30			X
K. E. Bell	T6-06			X
D. R. Bratzel	S7-31			X
R. J. Cash	R2-78			X
C. DeFigh-Price	X3-71			X
J. L. Deichman	H4-19			X
S. J. Eberlein	S7-31			X
C. E. Golberg	H5-49			X
J. M. Henderson	S6-12			X
D. C. Hetzer	S6-30			X
J. G. Hill	K7-97	X		
L. Jensen	T6-07	X		
T. J. Kelly	S7-30			X
N. W. Kirch	R2-11			X
J. G. Kristofzski	T6-06			X
P. M. Morant	H4-19			X
A. F. Noonan	B1-40	X		
A. D. Rice	T6-06			X
P. Sathyanarayana	R2-12			X
R. D. Schreiber	R2-12			X
B. C. Simpson	R2-12			X
M. J. Sutey	T4-07			X
D. A. Turner	R2-78			X
J. A. Voogd	R4-01			X
O. S. Wang	R2-78			X
E. T. Weber	G6-08			X
W. I. Winters	T6-50			X
Central Files	L8-04	2		
EDMC	H6-08	X		
LTIC	T6-06			X
OSTI	L8-07	2		

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

DISTRIBUTION SHEET CONTINUED

To	From	Page 2 of 2
DISTRIBUTION	ANALYTICAL SERVICES	Date: 11/17/94
Project Title/Work Order WHC-SD-WM-DP-076, Rev. 0 45-Day Deliverable for Tank 241-BX-105 Auger Samples, Risers 2 and 6		EDT NO.: EDT-140744 ECN NO.: N/A

Name	MSIN	Text With all Attach	Addendum 1A Only	EDT/ECN Only
Westinghouse Hanford Company				
TFIC (Tank Farm Information Center)	R1-20			X
OFFSITE				
Washington State Department of Ecology				
Single-Shell Tank Unit Manager S. E. McKinney P.O. Box 47600 Olympia, Washington 98504-7600				X
Environmental Protection Agency				
Single-Shell Tank Unit Manager D. R. Sherwood 712 Swift Boulevard, Suite 5 Richland, Washington 99352				X

NOV 22 1994
55 Sta.5

ENGINEERING DATA TRANSMITTAL

1. EDT 140744

2. To: (Receiving Organization)	3. From: (Originating Organization)	4. Related EDT No.:
Distribution	Program Support	N/A
5. Proj./Prog./Dept./Div.:	**6. Cog. Engr.:**	**7. Purchase Order No.:**
Tank 241-BX-105/Waste Management/PS/AS	Kevin E. Bell	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: N/A

11. Receiver Remarks:
For Release.

12. Major Assm. Dwg. No.: N/A

13. Permit/Permit Application No.: N/A

14. Required Response Date: 11/18/94

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	WHC-SD-WM-DP-076	N/A	0	45-Day Deliverable for Tank 241-BX-105 Auger Samples, Risers 2 and 6	Q	2	1	

16. KEY

Approval Designator (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 2. Release 5. Post-Review 3. Information 6. Dist. (Receipt Acknow. Required)	1. Approved 4. Reviewed no/comment 2. Approved w/comment 5. Reviewed w/comment 3. Disapproved w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Approval Designator for required signatures)

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.
2	1	Cog.Eng. K. E. Bell	Kevin Bell	11/21/94	TL-04						
2	1	Cog. Mgr. J. G. Kristofzski	[signature]	11/22/94	TL-04						
2	1	QA J. C. Langford	J C Langford	11/21/94	TL-03						
		Safety									
		Env.									

18. A.E. Young — Signature of EDT Originator — Date: 11-18-94

19. Authorized Representative for Receiving Organization — Date

20. J.G. Kristofzski — Cognizant Manager — Date: 11/22/94

21. DOE APPROVAL (if required) Ctrl. No.
- ☐ Approved
- ☐ Approved w/comments
- ☐ Disapproved w/comments

BD-7400-172-2 (04/94) GEF097

RELEASE AUTHORIZATION

Document Number:	WHC-SD-WM-DP-076, REV.0
Document Title:	45-Day Deliverable for Tank 241-BX-105 Auger Samples, Risers 2 and 6
Release Date:	November 22, 1994

This document was reviewed following the procedures described in WHC-CM-3-4 and is:

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

BY Tamara Kohm, for C. Willingham — November 22, 1994

SUPPORTING DOCUMENT

1. Total Pages 111

2. Title	3. Number	4. Rev No.
45-Day Deliverable for Tank 241-BX-105 Auger Samples, Risers 2 and 6	WHC-SD-WM-DP-076	0

5. Key Words

45-Day Deliverable, Tank 241-BX-105, BX-105, Auger Samples, Riser 2, Riser 6

APPROVED FOR PUBLIC RELEASE

CW 11/22/94

6. Author

Name: Kevin E. Bell

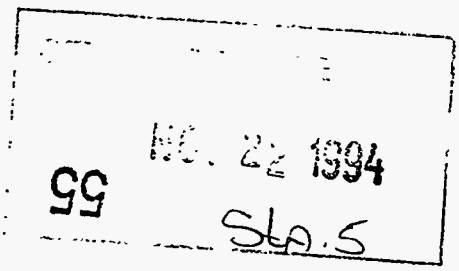
Signature

Organization/Charge Code 8E480/MDR2D

7. Abstract

N/A

8. RELEASE STAMP



Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

WHC-SD-WM-DP-076, REV. 0

ANALYTICAL SERVICES

Project: SINGLE SHELL TANK
WASTE CHARACTERIZATION
45-DAY SAFETY SCREENING FOR TANK
241-BX-105 AUGER SAMPLES, RISERS 2 & 6

Date Printed: NOVEMBER 16, 1994

DISCLAIMER

TABLE OF CONTENTS

This document consists of pages 1 through 107, plus page 6.1 and 63.1.

WHC-SD-WM-DP-076, REV. 0

NARRATIVE

From: Program Support 9457804
Phone: 373-1604 T6-06
Date: November 16, 1994
Subject: 45-DAY DELIVERABLE FOR TANK 241-BX-105 AUGER SAMPLES; RISERS 2 & 6

TO: D. R. Bratzel R2-18

cc: H. Babad S7-31
C. Defigh-Price X3-71
J. L. Deichman H4-19
N. W. Kirch R2-11
R. D. Schrieber R2-12
JGK File/LB

References: (1) WHC-SD-WM-TP-239, Rev. 0, "Tank 241-BX-105, Tank Characterization Plan," dated August 11, 1994, Westinghouse Hanford Company, Richland, WA 99352

This is the final report for the fiscal year 1995 BX-105 auger sample characterization effort. Included are copies of the differential scanning calorimetry (DSC) and thermogravimetric analysis (TGA) scans as requested in Reference 1. Also included is a copy of any immediate notification documentation, chain of custody forms, the hot cell work plan, extruded segment [auger] description sheets, and total alpha data.

BX-105 Analytical Summary

Two auger samples from single-shell tank 241-BX-105 (BX-105) were extruded, broken down, and analyzed for DSC, TGA, and total alpha as prescribed in Reference 1 except where noted below. Analytical results were tracked and reported using the laboratory information management system known as LabCore. In this system, each sample is assigned a unique sample number.

The TGA percent moisture results are below the safety criteria limit of 17% in samples from risers 2 and 6. Verbal and written notifications were made as prescribed in Reference 1. There are no DSC exotherms associated with any of the samples. Total alpha results are from 69 to 423 times below the action limit of 41 uCi/g. In some cases, the tank characterization plan (TCP) accuracy and precision criteria are not met. If a re-run was not performed when a TCP quality control limit was not met, reasons for not performing the re-run are provided.

Sample Receipt and Extrusion

BX-105 Riser 2

The 20 inch auger sample 94-AUG-008 was removed from riser 2 of tank BX-105 on 9/30/94 at 1230 hours. The sample was shipped to the 222-S Laboratory on 10/3/94 at 1045 hours and received at the laboratory on 10/3/94 at 1140 hours. Loading and extrusion of the sample in the hot cell took place on 10/6/94. No problems were noted in extruding the auger sample.

A total of 60.00 g of sample was collected. Sample material was present on all flutes of the auger, ranging in color from medium brown on flutes 1 through 7, a mixture of brown and off-white material on flutes 7 through 9, and gray and white material on flutes 9 through 19. There was very little material on flutes 1 through 7. A 20 inch auger has 19 flutes. The flutes are numbered such that flute 1 begins at the auger shaft and flute 19 ends at the tip of the auger bit. The spaces between the flutes were not filled, rather the sample adhered to the flutes and auger shaft. Although no drainable liquid was present, some creamy, grey, mud-like material fell onto the auger tray during extrusion and some remained on the tip of the auger. No liner liquid was present, but a portion of the liner was coated with what appeared to be the same material that fell onto the extrusion tray. The visible moisture content of this auger sample was variable. The tray material was runny while other material appeared dry and would flake off the auger when being subsampled.

Subsamples of this auger sample were taken as follows. Sample S94T000139 (139) for DSC/TGA analysis with a mass of 4.90 g was removed from flutes 15 and 16 approximately five minutes after extrusion. This subsample was grayish to white in color and appeared moist with a paste-like consistency. Some flaking occurred during removal. A second subsample (15.10 g) was collected for DSC/TGA analysis from the soft, brown, mud-like material on the auger tray. Some material for archiving was removed from the vial containing this subsample. The vial was later broken during sample loadout from the hotcell. Because the amount of time between breakage and discovery of the break was unknown, it was decided that the remaining sample had been compromised for its intended purpose and it was discarded. Two subsamples for safety screening were taken from the upper half (flutes 1-9) and lower half (flutes 9-19) of the auger.

The subsamples taken originally and described above are not necessarily the samples used for analysis. For ALARA reasons, smaller aliquots are usually loaded out of the hot cell. See Table 1 for additional subsampling information. Columns 3 and 4 of Table 1 respectively give the vial or jar number, in which the subsample was originally placed, and the weight of that subsample. If a smaller aliquot was subsequently removed from the original jar or vial, the identity of the new container and the aliquot weight are recorded in columns 5 and 6.

BX-105 Riser 6

The 20 inch auger sample 94-AUG-009 was removed from riser 6 of tank BX-105 on 10/5/94 at 1100 hours. The sample was shipped to the 222-S Laboratory on 10/6/94 at 1015 hours and received at the laboratory on 10/6/94 at 1130 hours. Loading and extrusion of the sample in the hot cell took place on 10/7/94. No problems were noted in extruding the auger sample.

A total of 319.25 g of sample was collected, the majority of which was grayish-white, thick, pasty material on flutes 11-15, although all flutes of the auger contained some sample. Approximately 5 mL of liner liquid was present and was not retained. Also, a small amount of material fell onto the auger tray and was not retained. The description of material on flutes 1-11 and 16-19 matches that of material on flutes 11-15 except that the material on flutes 11-15 was crusty. This may have been due to sample drying in the hot cell.

The following subsamples were taken from this auger. Sample 146 (5.81 g) for DSC/TGA analysis was removed from flutes 11-15 approximately five minutes after extrusion. The two subsamples for the safety screening analysis were removed from the upper half (flutes 1-10) and lower half (flutes 11-19) of the auger. See Table 1 for additional subsampling information.

Analytical Results

The safety screening analytical results are presented in Table 2. The table includes the LabCore sample number, which may be cross-referenced with Table 1. It also includes the upper or lower action limits as defined in the TCP. The limit selected for immediate notification is highlighted in greybar. A lower density greybar is used to indicate where action limits were exceeded. Column 2 of Table 2 indicates the sample preparation used, if any. As shown, total alpha analyses are marked with "F" indicating a fusion preparation was performed on the sample before analysis.

TGA (Moisture Content)

Weight percent water by TGA was performed under a nitrogen atmosphere using procedure LA-560-112, Rev. A-1. Analytical results are below the notification limit of 17% for all subsamples in riser 2, and the upper half and lower half subsamples of riser 6. Copies of the immediate notifications are reproduced in a following attachment. Sample 139, removed for TGA analysis shortly after extrusion, has an average moisture content 3.9 percentage points lower than sample 143, which was also taken from the lower half of the auger 30 to 45 minutes later. The TGA scan for sample 139 was integrated to approximately 90° C, while the 143 sample was integrated to approximately 200° C, therefore the percent moisture for the 139 sample is probably biased low relative to sample 143. Nevertheless, there does not appear to be an extreme amount of sample drying during extrusion. Results

for samples from riser 6 also support this conclusion. Sample 148 from the lower half of the auger contained an average of 15.48% water, and sample 146 taken 5 minutes after extrusion from the same location contained an average of 18.87% water.

Standard recoveries are very good ranging from 97.4% to 99.5%. The duplicate precision acceptance criteria of 10% was achieved with samples 146 and 148, but was not achieved with the remaining samples. Sample 143 was re-run with some improvement in precision. The sample was not re-run a second time. The other samples were not re-run because both sample and duplicate results are below the notification limit and there was reason to believe the disparities are most likely due to sample heterogeneity.

DSC (Energetics Content)

Analyses for DSC were performed under a nitrogen atmosphere using procedure LA-514-113, Rev B-1. No exotherms are observed for any of the samples run, therefore no exotherms are calculated on a dry weight basis. Because the DSC action limit is associated with the calculated value, Table 2 does not show the action limit for the DSC analyses. Samples 139 and 146 were run up to 450° C and not 500° C as mandated by the TCP because the samples appeared similar to those from tank SY-103 that damaged the DSC sensor. No exotherms are expected beyond 450° C since the baseline was decreasing prior to reaching 450° C and none of the other samples from BX-105 displayed exotherms.

Total Alpha

Analyses for total alpha were performed on an alpha proportional counter according to procedure LA-508-101, Rev. D-2. Standard recoveries are very good, demonstrating that the instrument is in control and functioning properly. All spike recoveries are outside the 90-110% range however. No spike was performed on sample 150 since Reference 1 requires a spike once per matrix and samples 149 and 150 appear to be of the same matrix. Re-runs were performed on samples 142 and 144. The spike recovery improved for 142, but worsened for 144. However, the total alpha values are very similar between the two runs. The TCP limit of ±10% for relative percent difference (RPD) on duplicate runs was not met for samples 144 and 150. No further re-runs were performed for two reasons: 1) The chemist noted that the poor spike recoveries are due to a high amount of dissolved solids. This could also effect the RPD on duplicate runs. When the fused sample is dried on the planchet, a relatively large amount of solids will attenuate the alpha

detection by self-absorption. 2) The highest total alpha result found was still 69 times below the action limit.

Sincerely,

Kevin E. Bell

Kevin E. Bell,
BX-105 Project Coordinator

keb

Attachments
1. Summary Data Report (3 pages)
2. Immediate Notification Documentation (4 pages)
3. Sampling and Custody Data (8 pages)
4. Analyses for DSC, TGA, and Total Alpha (86 pages)

Table 1. Subsampling and Sample Load-Out Information

Riser	Subsample Location	Original Vial or Jar	wt (g)	Transferred to vial or jar	Load-out wt (g)	LabCore Sample #
2	flutes 15, 16	vial 6171	4.90	no transfer	4.90	S94T000139
2	tray material	vial 6175	15.10	vial 6175[1]	7.0	S94T000140
2	flutes 1-9	vial 6173	2.33	no transfer	2.33	S94T000141/142
2	flutes 9-19	jar 6109	37.67	vial 6178	5.78	S94T000143/144
2	archive	jar 6109 and vial 6175	[2]	vial 6168	26.42	S94T000151
6	flutes 11-15	vial 6170	5.81	no transfer	5.81	S94T000146
6	flutes 11-19	jar 6119	260.85	vial 6177	7.70	S94T000148/150
6	flutes 1-10	jar 6124	52.59	vial 6176	5.82	S94T000147/149
6	archive	jar 6119 and jar 6124[3]	50.60 +11.21	vial 7019	61.71	S94T000152

[1] Vial 6175 was broken while being loaded out of the hot cell. However, 7.10 g of sample had been transferred into vial 6109 before the breakage.

[2] Following removal of an aliquot for analysis from vial 6109, 7.10 g of sample from vial 6175 was added and the material homogenized before being transferred into vial 6168.

[3] Added to vial 7019 was 50.60 g from jar 6119 and 11.21 g from jar 6124.

WHC-SD-WM-DP-076, REV. 0

SAMPLE DATA SUMMARY

14-nov-1994 07:53:10
A-0002-0

Table 2. Analytical Summary Table for BX-105 Auger Samples.
BX-105

CORE NUMBER: 94-AUG-008
SEGMENT #: 1

SEGMENT PORTION: Immediate Sampling (to check moisture loss)

				Action Limits										
Sample#	R	A#	Analyte	Unit	Lower	Upper	Standard/%	Prep Blk	Result	Duplicate	Average	RPD/%	Spk Rec/%	Det Limit	Count Err/%
S94T000139			% Water by TGA using Mettler	%	17.000	n/a	99.50	n/a	9.86	11.53	10.70	15.6	n/a	0.010	n/a
S94T000139			DSC Exotherm using Mettler	Joules/g	n/a	n/a	100.9	n/a	0	0	0.000	n/a	n/a	0.000	n/a

SEGMENT PORTION: L Lower Half of Segment

				Action Limits										
Sample#	R	A#	Analyte	Unit	Lower	Upper	Standard/%	Prep Blk	Result	Duplicate	Average	RPD/%	Spk Rec/%	Det Limit	Count Err/%
S94T000143			% Water by TGA using Mettler	%	17.000	n/a	98.87	n/a	15.74	13.43	14.59	15.8	n/a	0.010	n/a
S94T000143			DSC Exotherm using Mettler	Joules/g	n/a	n/a	100.2	n/a	0	0	0.000	n/a	n/a	0.000	n/a
S94T000144	F		Alpha of Digested Solid	uCi/g	n/a	41.000	97.90	<4.00e-03	3.37e-1	2.03e-1	2.70e-01	49.6	70.10	0.007	9.0

SEGMENT PORTION: U Upper Half of Segment

				Action Limits										
Sample#	R	A#	Analyte	Unit	Lower	Upper	Standard/%	Prep Blk	Result	Duplicate	Average	RPD/%	Spk Rec/%	Det Limit	Count Err/%
S94T000141			% Water by TGA using Mettler	%	17.000	n/a	98.23	n/a	13.76	7.24	10.50	62.1	n/a	0.010	n/a
S94T000141			DSC Exotherm using Mettler	Joules/g	n/a	n/a	100.9	n/a	0	0	0.000	n/a	n/a	0.000	n/a
S94T000142	F		Alpha of Digested Solid	uCi/g	n/a	41.000	97.90	<4.00e-03	5.96e-1	5.83e-1	5.89e-01	2.21	77.80	0.007	6.8

=> Limit violated
=> Selected Limit

14-nov-1994 07:53:27
A-0002-0

Table 2. Analytical Summary Table for BX-105 Auger Samples.
BX-105

CORE NUMBER: 94-AUG-009
SEGMENT #: 1

SEGMENT PORTION: Immediate Sampling (to check moisture loss)

				Action Limits										
Sample#	R	A#	Analyte	Unit	Lower	Upper	Standard/%	Prep Blk	Result	Duplicate	Average	RPD/%	Spk Rec/%	Det Limit	Count Err/%
S94T000146			% Water by TGA using Mettler	%	17.000	n/a	99.50	n/a	18.97	18.77	18.87	1.06	n/a	0.010	n/a
S94T000146			DSC Exotherm using Mettler	Joules/g	n/a	n/a	100.9	n/a	0	0	0.000	n/a	n/a	0.000	n/a

SEGMENT PORTION: L Lower Half of Segment

				Action Limits										
Sample#	R	A#	Analyte	Unit	Lower	Upper	Standard/%	Prep Blk	Result	Duplicate	Average	RPD/%	Spk Rec/%	Det Limit	Count Err/%
S94T000148			% Water by TGA using Mettler	%	17.000	n/a	99.00	n/a	16.18	14.78	15.48	9.04	n/a	0.010	n/a
S94T000148			DSC Exotherm using Mettler	Joules/g	n/a	n/a	104.0	n/a	0	0	0.000	n/a	n/a	0.000	n/a
S94T000150	F		Alpha of Digested Solid	uCi/g	n/a	41.000	96.33	<2.00e-03	1.32e-2	9.69e-3	1.10e-02	30.7	n/a	0.004	34.6

SEGMENT PORTION: U Upper Half of Segment

				Action Limits										
Sample#	R	A#	Analyte	Unit	Lower	Upper	Standard/%	Prep Blk	Result	Duplicate	Average	RPD/%	Spk Rec/%	Det Limit	Count Err/%
S94T000147			% Water by TGA using Mettler	%	17.000	n/a	97.40	n/a	4.91	5.54	5.225	12.1	n/a	0.010	n/a
S94T000147			DSC Exotherm using Mettler	Joules/g	n/a	n/a	100.2	n/a	0	0	0.000	n/a	n/a	0.000	n/a
S94T000149	F		Alpha of Digested Solid	uCi/g	n/a	41.000	96.33	<2.00e-03	1.15e-2	1.17e-2	1.20e-02	1.72	84.10	0.005	42.4

=> Limit violated
=> Selected Limit

WHC-SD-WM-DP-076, REV. 0

BX-105 IMMEDIATE NOTIFICATION DOCUMENTATION

[32] From: Kevin E Bell at ~WHC225 11/9/94 4:46PM (1918 bytes: 23 ln)
To: Cherri DeFigh-Price at ~WHC79, David R Bratzel at ~WHC268, Harry Babad at ~WHC142, B C (Brad) Carpenter at ~WHC140, Ruth D Schreiber at ~WHC163, John L Deichman at ~WHC321, Nicholas W (Nick) Kirch at ~WHC140
cc: Kevin E Bell, John G Kristofzski at ~WHC168, Don B Hardy at ~WHC28, Susan J Eberlein at ~WHC163, Andrew D Rice at ~WHC168
Subject: SAFETY LIMIT EXCEEDED ON ~~C-103~~ BX-105 11/9/94
---------- Message Contents ----------

As required by the BX-105 TCP (WHC-SD-WM-TP-239, Rev. 0), an immediate notification was made at 1130 hours on 11/9/94 by D. Hardy, the 222-S on-duty Shift Manager, to S. Waltari, the East Tank Farms Shift Manager, regarding thermal gravimetric analysis (TGA) measurements indicating <17% water in auger samples from tank BX-105. Also as required, a phone call was made to S. Eberlein of the Characterization Program at 1338 hours on 11/9/94 relaying the information below. This cc:Mail is the required follow-up written notification of the initial, verbal notifications.

1) Tank BX-105, Riser 2, Upper half of auger: %water by TGA yields 13.76% for sample and 7.24% for duplicate sample.

2) Tank BX-105, Riser 6, Upper half of auger: %water by TGA yields 4.91% for sample and 5.54% for duplicate sample.

3) Tank BX-105, Riser 6, Lower half of auger: %water by TGA yields 16.18% for sample and 14.78% for duplicate sample.

Please address any questions to K. Bell @ 373-1629.

[21] From: Kevin E Bell at ~WHC225 11/10/94 1:06PM (2071 bytes: 27 ln)
To: Harry Babad at ~WHC142, David R Bratzel at ~WHC268, Cherri DeFigh-Price at ~WHC79, John L Deichman at ~WHC321, Vernon W Hall at ~WHC321, Thomas J (Tom) Kelley at ~WHC396, Nicholas W (Nick) Kirch at ~WHC140, John G Kristofzski at ~WHC168, Andrew D Rice at ~WHC168, Ruth D Schreiber at ~WHC163
cc: Kevin E Bell
Subject: SAFETY LIMIT EXCEEDED ON BX-105

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

As required by the BX-105 TCP (WHC-SD-WM-TP-239, Rev. 0), an immediate notification was made at 850 hours on 11/10/94 by C. Clark, the 222-S on-duty Shift Manager, to the East Tank Farms Shift Manager, regarding thermal gravimetric analysis (TGA) measurements indicating <17% water in an auger sample from tank BX-105. Also as required, a phone call was made to D. Bratzel of the Characterization Program at 1128 hours on 11/10/94 relaying the information below. This cc:Mail is the required follow-up written notification of the initial, verbal notifications.

1) Tank BX-105, Riser 2, Immediate Sample to Check Moisture Loss: %water by TGA yields 9.86% for sample and 11.53% for duplicate sample.

This sample was taken from flutes 15 and 16 approximately 5 minutes after extrusion. There was no exotherm by DSC associated with this sample. The auger sample contained no drainable liquid and the sample was pasty rather than crystalline.

Note that the subject of yesterday's immediate written notification for BX-105 was incorrectly titled for C-103.

Please address any questions to K. Bell @ 373-1629.

[13] From: Kevin E Bell at ~WHC225 11/14/94 7:16AM (2451 bytes: 33 ln)
To: Harry Babad at ~WHC142, David R Bratzel at ~WHC268, Cherri DeFigh-Price at ~WHC79, John L Deichman at ~WHC321, Vernon W Hall at ~WHC321, Thomas J (Tom) Kelley at ~WHC396, Nicholas W (Nick) Kirch at ~WHC140, John G Kristofzski at ~WHC168, Andrew D Rice at ~WHC168, Ruth D Schreiber at ~WHC163, B C (Brad) Carpenter at ~WHC140
cc: Kevin E Bell
Subject: SAFETY LIMIT EXCEEDED ON BX-105 AND B-102 WHC-SD-WM-DP-076, REV. 0
---------- Message Contents ----------

As required by the BX-105 TCP (WHC-SD-WM-TP-239, Rev. 0) and the B-102 TCP (WHC-SD-WM-TP-226, Rev. 0), an immediate notification was made at 1402 hours on 11/11/94 by C. Clark, the 222-S on-duty Shift Manager, to the East Tank Farms Shift Manager, regarding thermal gravimetric analysis (TGA) measurements indicating <17% water in auger samples from tanks BX-105 and B-102. This cc:Mail is the required follow-up written notification of the initial, verbal notification.

1) Tank BX-105, Riser 2, Lower half of auger: %water by TGA yields 15.74% for sample and 13.43% for duplicate. There was no exotherm by DSC associated with this sample. The auger sample contained no drainable liquid and the sample was pasty rather than crystalline.

2) Tank B-102, Riser 1, Immediate sample to check moisture loss: %water by TGA yields 16.98% for sample. The duplicate result was not below the notification limit. This sample was taken approximately 5 minutes after extrusion. There is an exotherm of 168.4 J/g in the DSC associated with this sample. This exotherm has not yet been calculated on a dry weight basis.

3) Tank B-102, Riser 1, Lower half of auger: %water by TGA yields 13.07% for sample and 15.15 for duplicate. The DSC for this sample has not been reported at the time of writing.

Please address any questions to K. Bell @ 373-1629.

SAMPLING AND CUSTODY DATA

COPY

CHAIN-OF-CUSTODY RECORD FOR AUGER SAMPLING

(1) Shipment Number 52098 (2) Sample Number 94-AUG-008 (3) Supervisor Bob PRAZNIK

(4) Tank BX105 (5) Riser 2 (6) Cask Serial Number C 1029

Radiation Survey Data:	(7) FIELD	(31) LABORATORY
Over Top Dose Rate	.5 mr/hr	5 mr/hr
Side Dose Rate	7 mr/hr	7 mr/hr
Bottom Dose Rate	4.5 mr/hr	4 mr/hr
Smearable Contamination	<20 (Alpha)	<20 (Alpha)
	<1000 (Beta-Gamma)	<1000 (Beta-Gamma)
RCT*	(Signature) 10-3-94	RCT* (Signature)

(8) Shipment Description

A. Work Package Number	2E-94-00570-W
B. Cask Seal Number	3679
C. Date and Time Sample Removed from Tank	9-30-94 / 12:30pm
D. Expected Liquid Content	20%
E. Expected Solid Content	80%
F. Dose Rate Through Drill String	200 mr/hr
G. Expected Sample Length	20"

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

(10) Field Comments

(32) Laboratory Comments

WHC-SD-WM-DP-076, REV. 0

(11) Point of Origin	(12) Destination	(13) Sender Name (Sign and PRINT)	(14) Date/Time	(15) Sender Comments
BX105 Riser #2	222S LAB	PRAZNIK	10-3-94 / 1014	
(17) Relinquished By (Sign and PRINT)	**(18) Received By (Sign and PRINT)**		**(19) Date/Time**	**(20) Receiver Comments**
P A KATSEL	Charles E. Byrd		10-3-94 11:15	
(21) Relinquished By (Sign and PRINT)	**(22) Received By (Sign and PRINT)**		**(23) Date/Time**	**(24) Receiver Comments**
Charles E. Byrd			10-3-94 1140	
(25) Relinquished By (Sign and PRINT)	**(26) Received By (Sign and PRINT)**		**(27) Date/Time**	**(28) Receiver Comments**

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

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Waste Tank Sampling, F7-12 Goldenrod - Tank Farm Operations, T4-01 BC-6001-326 (03/94)

CHAIN-OF-CUSTODY RECORD FOR AUGER SAMPLING

COPY

(1) Shipment Number 200W-08-TF (2) Sample Number 94-AUG-009 (3) Supervisor Bob Praznik

(4) Tank BX-105 (5) Riser 6 (6) Cask Serial Number C-1042

Radiation Survey Data:	(7) FIELD	(31) LABORATORY
Over Top Dose Rate	<0.5 mr/hr	<.05 mr/hr
Side Dose Rate	~~<0.5~~ 9 mr/hr	9 mr/hr
Bottom Dose Rate	~~25 mr/hr~~ 3 mr/hr	3.5 mr/hr
Smearable Contamination	~~LD<20 dpm/100 cm²~~ (Alpha)	<20 (Alpha)
	~~LD<1K dpm/100 cm²~~ (Beta-Gamma)	<1900 (Beta-Gamma)
RCT*	(Signature)	RCT* (Signature)

RMPratz

DJ Haimes

(8) Shipment Description

A. Work Package Number	2E-94-00570-W
B. Cask Seal Number	3681
C. Date and Time Sample Removed from Tank	10-5-94 / 1100hrs
D. Expected Liquid Content	20%
E. Expected Solid Content	80%
F. Dose Rate Through Drill String	200 mR/h
G. Expected Sample Length	20"

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

16

(10) Field Comments

(32) Laboratory Comments

WHC-SD-WM-DP-076, REV. 0

(11) Point of Origin	(12) Destination	(13) Sender Name (Sign and PRINT)	(14) Date/Time	(15) Sender Comments
BX105-R6	222S LAB	R.J. PRAZNIK	10-6-94 / 10:15hrs	
(17) Relinquished By (Sign and PRINT)		(18) Received By (Sign and PRINT)	(19) Date/Time	(20) Receiver Comments
R.J. Praznik		Thomas R. Fletcher	10-6-94 / 10:20	
(21) Relinquished By (Sign and PRINT)		(22) Received By (Sign and PRINT)	(23) Date/Time	(24) Receiver Comments
Thomas R. Fletcher		Sandra Cobb Sandra Cobb	10-06-94 1130	
(25) Relinquished By (Sign and PRINT)		(26) Received By (Sign and PRINT)	(27) Date/Time	(28) Receiver Comments

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

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Waste Tank Sampling, F7-12 Goldenrod - Tank Farm Operations, T4-01 BC-6001-326 (03/94)

Tank 241-BX-105
Hot Cell Work Plan

I. Overview

A. Waste tank 241-BX-105 sampling will consist of 2 auger samples. Two 20 inch augers will be used to sample risers 2 and 6. This is an exception to the TCP referenced below.

B. This hot cell work plan (HCWP) is based upon Tank 241-BX-105 Tank Characterization Plan (WHC-SD-WM-TP-239 Rev. 0). If discrepancies occur between the HCWP and TCP, the TCP will take precedence, except where noted above. For specifics on QA/QC, refer to section 4.0 of the TCP.

C. Auger samples will be loaded into 1-E2 hot cell in accordance with procedure LO-160-101, **Core Segment Receipt and Preparation.** The auger sample will be prepared for the 222-S Laboratory in accordance with procedure LO-160-103, **Core Segment Extrusion Process and Sample Preparation** and this work plan.

II. General Comments

A. The cognizant scientist may deviate from this hot cell work plan should unforseen circumstances arise. All deviations shall 1) be recorded in the laboratory notebook **WHC-N-1028** and 2) relayed to the project coordinator.

B. According to the TCP, Hot Cell operations will separate drainable liquid (if any) from sample. Hot Cell operations will isolate dry crust material (if any). Hot Cell operations will separate remaining sample into two equal subsamples.

III. Pre-job Preparation

1. Hot cell technicians will ensure that vials are tare weighed.

2. Hot cell technicians will apply labels with next available jar number. Clear tape will be used to cover and protect the labels on jars. Use appropriate outer covering on jars to minimize decontamination efforts when loaded out of the hot cell.

3. Hot Cell technicians will log all appropriate information about jars into logbook WHC-N-754. Record the date, jar number, jar size, tare weight, tank number, and customer I.D. after the jar contains the sample.

4. Hot Cell technicians will log all appropriate information on archive samples in logbook WHC-N-755. Record the date, jar number, jar size, tare weight, tank number, and customer I.D. after the jar contains the sample.

5. Check out video equipment and ensure battery is charged.

6. Obtain new Super-VHS tape and label 241-BX-105.

IV. Sample Preparation, Extrusion and Breakdown

A. Sample Preparation

1. Perform section A (Preparation of 1E Laboratory for Cask Disassembly) of procedure LO-160-101.

2. Perform section B (Cask Receipt and Preparation of Sampler for Load-in into 1E-2 Hot Cell) of procedure LO-160-101.

Note: Contact Kevin Bell, Norton G. McDuffie (373-2653) and John Johnson before performing the next step.

3. Perform section C (Loading of Sampler into 1E-2) of procedure LO-160-101.

B. Sample Extrusion

1. Perform section I (Authorization and Preliminary Setup) of procedure LO-160-103.

NOTE: Position the auger liner so drainable liquid will not be lost during the removal of the auger.

2. Remove the rubber stopper.

3. Using the auger extraction tool, remove auger sample and sleeve from the liner.

4. Place the auger assembly on the auger stand.

5. Disconnect auger extraction tool from auger assembly.

NOTE: If video camera is available, video the process of removing the sleeve.

6. Remove sleeve from the auger sample.

7. Video sample on the auger.

8. Subsample auger as follows:

a. Inspect the top portion of the auger sample for a hard dry layer. If present, separate the hard dry layer and retain as a subsample. Place subsample in an appropriate size vial or jar.

b. Separate remaining auger sample into equal subsamples. Place each subsample into an appropriate size jar or vial.

9. Collect the liner liquid into an appropriate size collection vessel or jar.

10. Clean auger, auger stand, and hot cell as required before processing the next sample.

11. Prior to submitting samples to the laboratory for analyses, perform the following steps:

a. Homogenize each subsample individually

b. If any, filter the aqueous sample thru a 0.45 micron filter. Retain liquid subsample for safety screening analyses.

c. Remove aliquots of each sample according to the TCP.

d. Have project coordinator generate laboratory numbers and labels for all samples to be submitted to the laboratory.

Cognizant Scientist _____ Date 10/6/94

Project Coordinator _____ Date 10/6/94

Hot Cell Temp - 81.2°F
%o Humidity - 20%

Oct. 06, 1994

WHC-SD-WM-DP-076, REV. 0

Tank 241-BX-105

Extruded Segment Description Sheet

20 grams = 19.98
500 grams = 499.90

Sample 94-AUG-008 Riser 2 Core Auger Segment

General Description of Sample:
(1) 1037. used auger extraction tool to remove auger from liner. observed no liner liquid.
(2) Subsampled for DSC/TGA vial 6171# from Flutes 16# & 15# Net weight @ ~~5.90~~ 4.90 grams AOB 10-06-94
(3) vial# 6175-15.10 grams very soft mud from trays.
(4) vial ~~#6169~~ AOD 10-6-94 = Flutes 9 to Flute 16 Net wt = 37.67 grams (125ml) white flaky material. AOB 10-6-94
(5) vial# 6173 Flutes 9 to 1 Net wt = 2.33 gm (@8ml) Brown Flaky material.

Sketch:

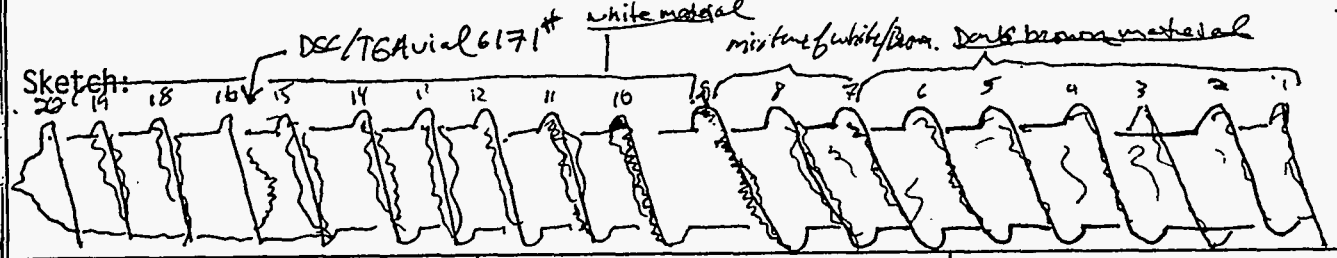


Photo	Sampler Efficiency	Drainable Liquid Density
PROJECT: BX-105 | S94T000138 GROUP: 94000003 | PRESERVATIVE: NONE CUST ID: AUGER 008, RISER 2 ANALYSIS: DLIQVOL1, DLIQWT01, RST.G/ML, EXTRUD01, LLIQWT01, NOTEBOOK, ORGVOL01, SLDVOL01, SLDWT-01	Volume of Sampler N/a %Volume of Air %Volume of Liquid %Volume of Solids Comments: Auger Sampler	Total Weight NA Total Volume Density Turbidity Comments: None

Solids	Liner Liquid	Drainable Liquid
Color Brown / white	Collection Jar 6122	Collection Jar NA
Consistency flaky to crumbly crusty to creamy	Gross Wt.	Gross Wt.
Homogeneity inhomogeneous	Tare Wt.	tare Wt.
Texture crusty to moist.	Net Wt. None	Net Wt.
Penetrometer NA	No. Phases NA	No. Phases

Cognizant Scientist: Tyler B Barney Oct 6, 1994

Reviewed By: Keith Fuller

Oct. 07, 1994 13

TEMPERTURE INSIDE HOTCELL: 80.2 °F
% Humidity : 20.0 %

Tank 241-BX-105

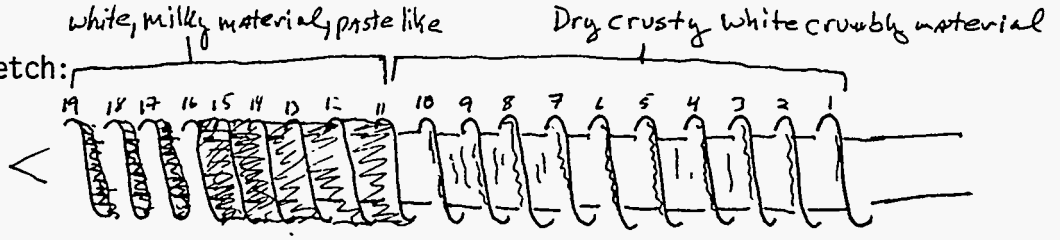
Extruded Segment Description Sheet

20 grams - 20.01
500 grams. 499.70

Sample 94-AUG-009 Riser -6 Core Auger Segment

General Description of Sample:
1. 1335 used auger extraction tool to remove Auger from Liner.
2. 1340 remove sleeve from auger. white milky material, paste like consistency starting from Flutes 19 through 11. (Flutes 1-11 thin white translucent cover)
3. 6170# vial for DSC/TGA - 5.81 grams. 1350 hrs. Flutes (15) through (9).
4. 6119# JAR (250ml) - 260.85 grams (Tare weighed w/o CAP) Flutes (9) through (1).
5. 6124# JAR (125ml) - 52.59 grams (Tare weighed w/o CAP) Flutes (11) through (1).
6. 6122# JAR (250ml) less than 5ml of Liner Liquid, Did not retain.

Sketch:



Photo

PROJECT: BX-105 | S94T000145
GROUP: 94000004 | PRESERVATIVE: NONE
CUST ID: AUGER 009, RISER 6
ANALYSIS: DLIQVOL1, DLIQWT01, EST.G/ML, EXTRUD01, LLIQWT01, NOTEBOOK, ORGVOL01, SLDVOL01, SLDWT-01

Sampler Efficiency

Volume of Sampler NA
%Volume of Air
%Volume of Liquid
%Volume of Solids
Comments: Auger Sampler

Drainable Liquid Density

Total Weight NA
Total Volume
Density
Turbidity
Comments: NONE

Solids

Color white
Consistency Cream (dump)
Homogeneity Homogenous
Texture smooth
Penetrometer NA

Liner Liquid

Collection Jar 6122
Gross Wt. < 5ml
Tare Wt.
Net Wt. N/A
No. Phases

Drainable Liquid

Collection Jar NA
Gross Wt.
tare Wt.
Net Wt.
No. Phases

Cognizant Scientist: Oct 04 94

Reviewed By: Keith Fuller 21

UNDIGESTED SAMPLE ANALYSES-DIRECT

Page 1 of 5

LABCORE Data Entry Template for Worklist# 109

Analyst: KLV **Instrument:** DSC01 **Method:** LA-514-113 B-1 KV 11/14/94

Worklist Comment: Please use N2 purge. JMF

WHC-SD-WM-DP-076, REV. 0

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	STD				DSC-01	SOLID	28.45	28.7	100.9 N/A	Joule
2	SAMPLE	S94T000139	0		DSC-01	SOLID	N/A	~~100.~~ 0 g mf 10/31/94		Joule
3	DUP	S94T000139	0		DSC-01	SOLID	0	0	N/A	Joule
4	SAMPLE	S94T000146	0		DSC-01	SOLID	N/A	0		Joule
5	DUP	S94T000146	0		DSC-01	SOLID	0	0	N/A	Joule

Final page for worklist # 109

KL Bell
Analyst Signature

10/29/94
Date

Std # 12N14A (Ind.vm)

Entered and approved. J M. Luge 11/1/94

Data Entry Comments:

S94T000139 has 2 endotherms 459.5 J/g at 117.5 °C, 498.0 J/g at 283.1 °C

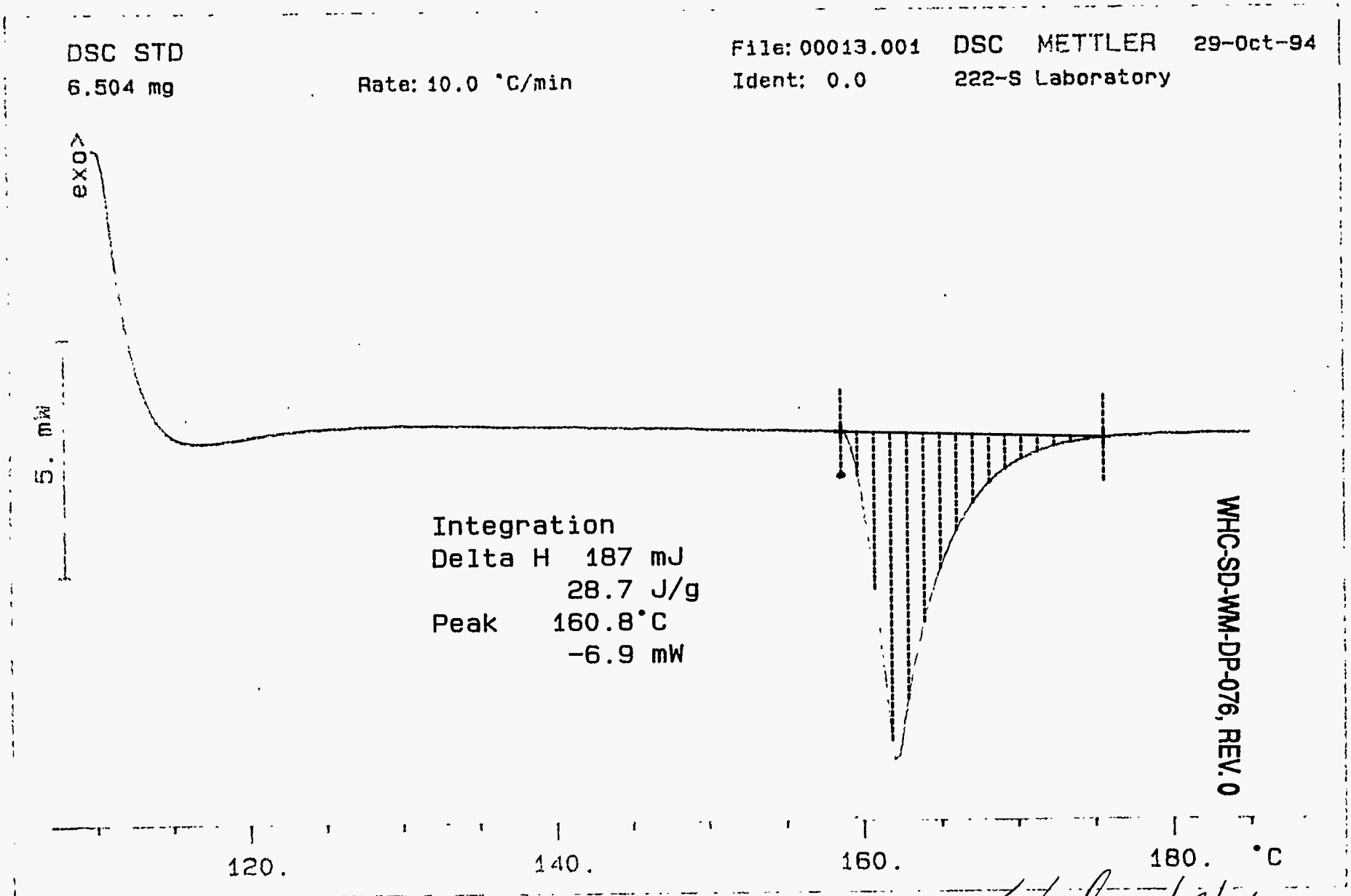
Duplicate: 386.8 J/g at 116.1 °C and 516.9 J/g at 291.3 °C

Sample S94T000146 has 2 endotherms of 507.9 J/g at 122.3 °C and 547.2 J/g at 283.7 °C; Duplicate has 441.4 J/g at 122.9 °C and 470.0 J/g at 285.8 °C.

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

James Luge
10/31/94

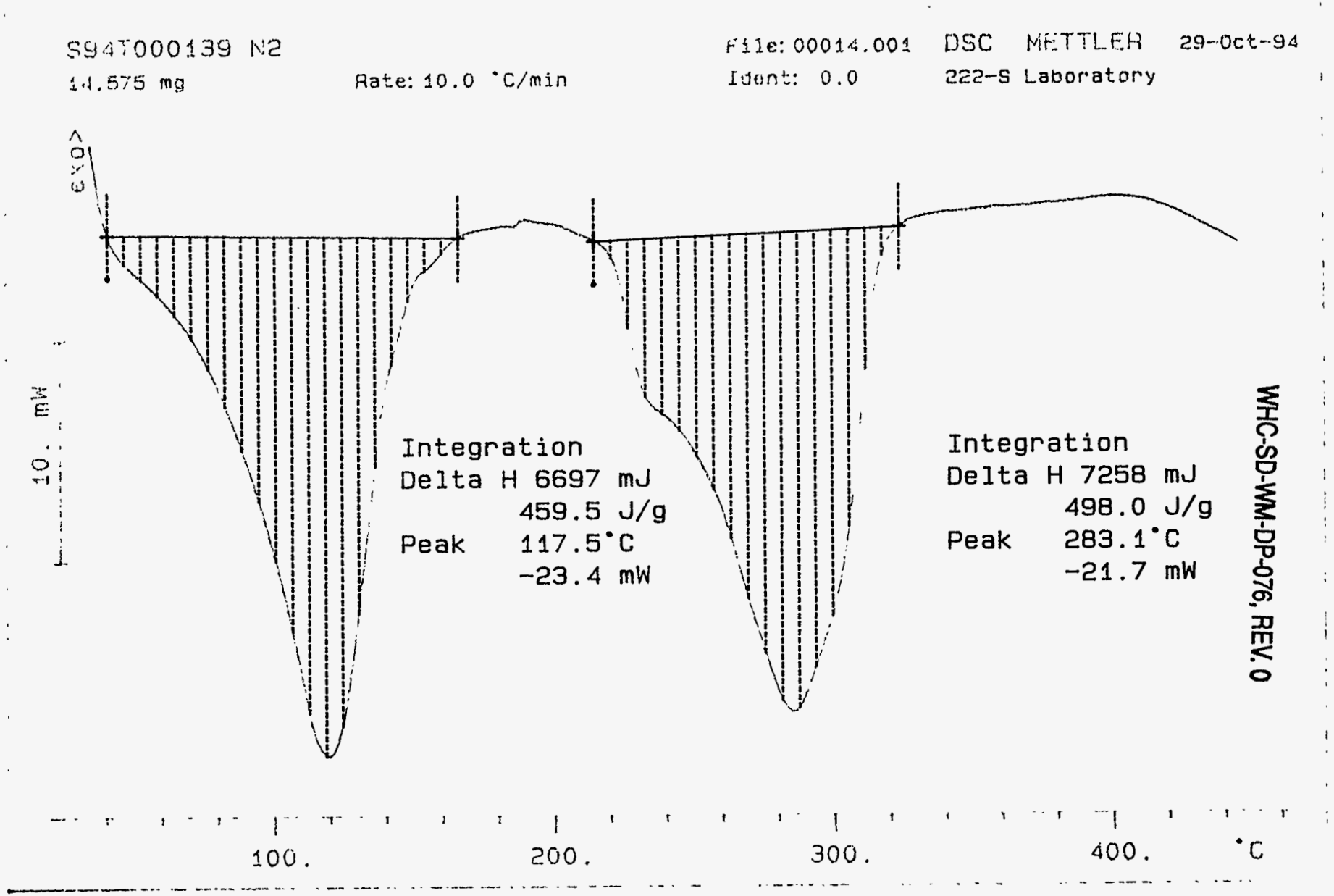
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 24 TO 28 .



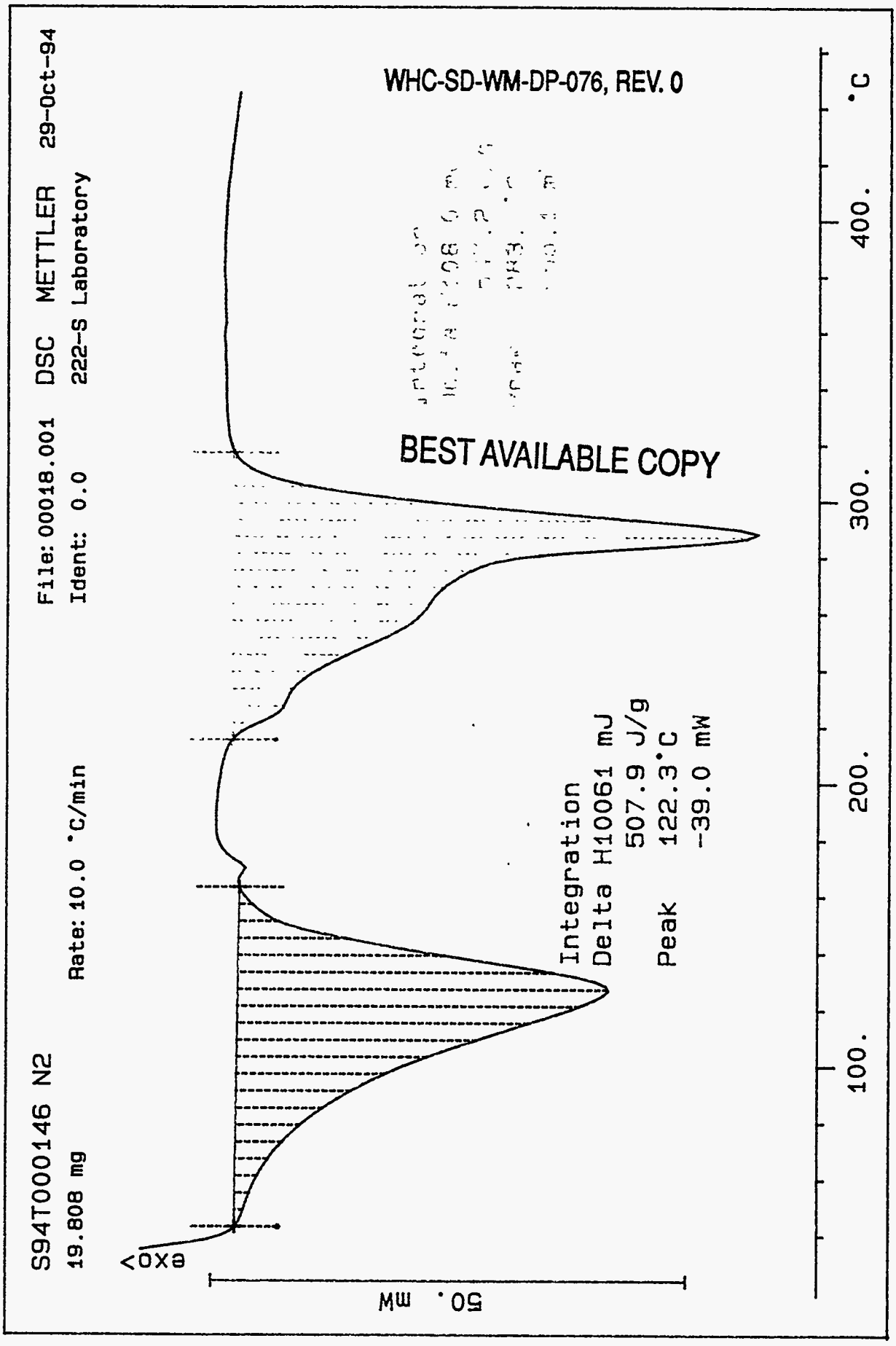
WHC-SD-WM-DP-076, REV. 0

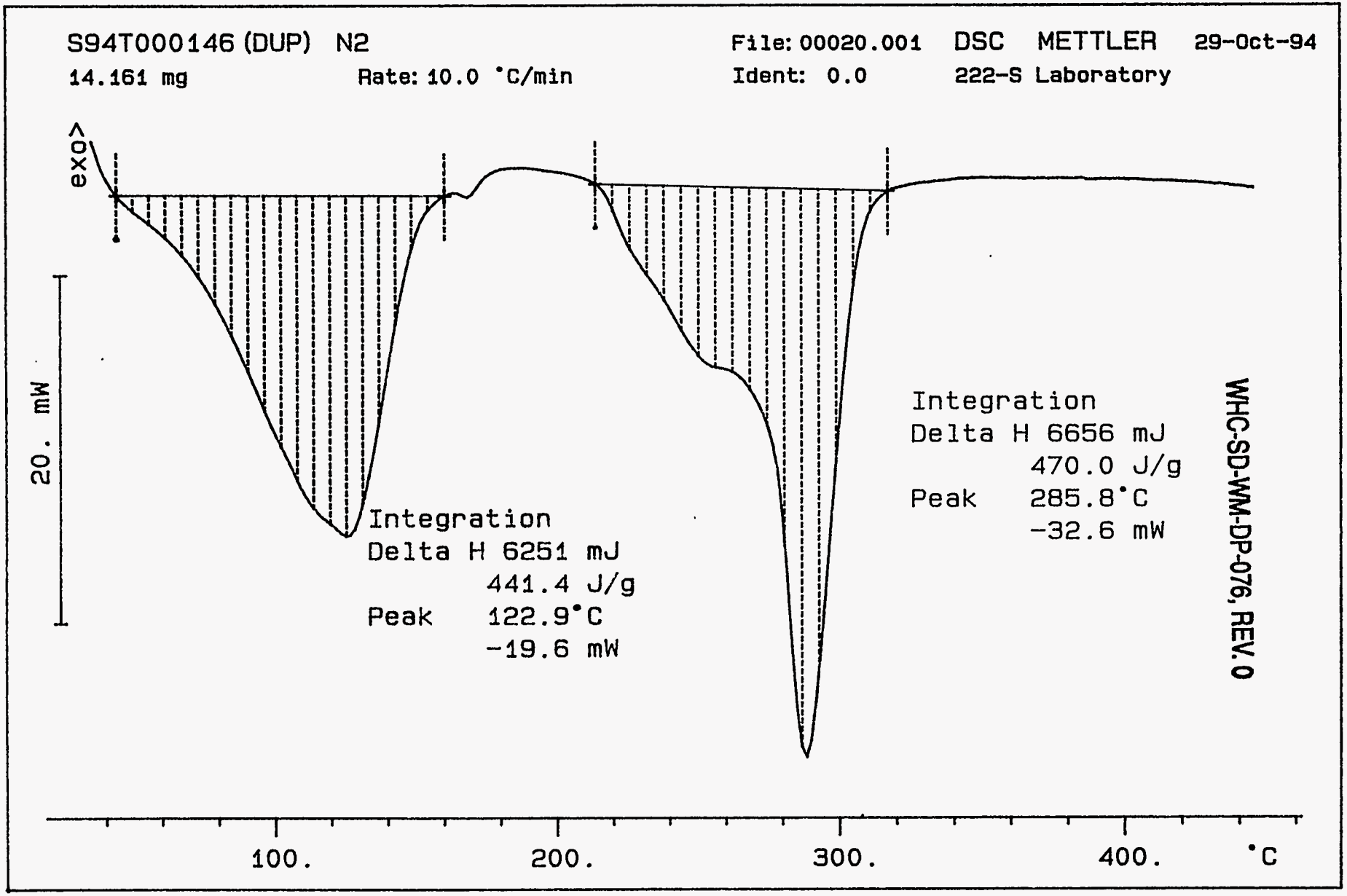
24

10/29/94


S94T000139 N2
14.575 mg
Rate: 10.0 °C/min
File: 00014.001
Ident: 0.0
DSC METTLER 29-Oct-94
222-S Laboratory
EXO>
10. mW
Integration
Delta H 6697 mJ
459.5 J/g
Peak 117.5°C
-23.4 mW
Integration
Delta H 7258 mJ
498.0 J/g
Peak 283.1°C
-21.7 mW
100.
200.
300.
400.
°C

Integration
Delta H 5777 mJ
516.9 J/g
Peak 291.3°C
-18.7 mW
Integration
Delta H 4323 mJ
386.8 J/g
Peak 116.1°C
-16.0 mW
222-S Laboratory
DSC
Rate: 10.0 °C/min
°C




S94T000146 (DUP) N2
14.161 mg
Rate: 10.0 °C/min
File: 00020.001
Ident: 0.0
DSC METTLER 29-Oct-94
222-S Laboratory
exo>
20. mW
Integration
Delta H 6251 mJ
441.4 J/g
Peak 122.9°C
-19.6 mW
Integration
Delta H 6656 mJ
470.0 J/g
Peak 285.8°C
-32.6 mW
100.
200.
300.
400.
°C
WHC-SD-WM-DP-076, REV.0

Nug. 594

LABCORE Data Entry Template for Worklist# 111

Analyst: KLV **Instrument:** DSC01 **Method:** LA-514-113 B-1 KV 11/14/94

WHC-SD-WM-DP-076, REV. 0

Worklist Comment: Please run using N2 purge.JMF

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	STD				DSC-01	SOLID	28.45	28.5	100.2 J/g Rec. N/A	Joul
2	SAMPLE	S94T000143	0		DSC-01	SOLID	N/A	0		Joul
3	DUP	S94T000143	0		DSC-01	SOLID	0	0	N/A	Joul
4	SAMPLE	S94T000147	0		DSC-01	SOLID	N/A	0		Joul
5	DUP	S94T000147	0		DSC-01	SOLID	0	0	N/A	Joul

Final page for worklist # 111

Analyst Signature

10/30/94
Date

Std # 12N14A (Indium)

Entered and approved. J. M. Fuge 11/1/94

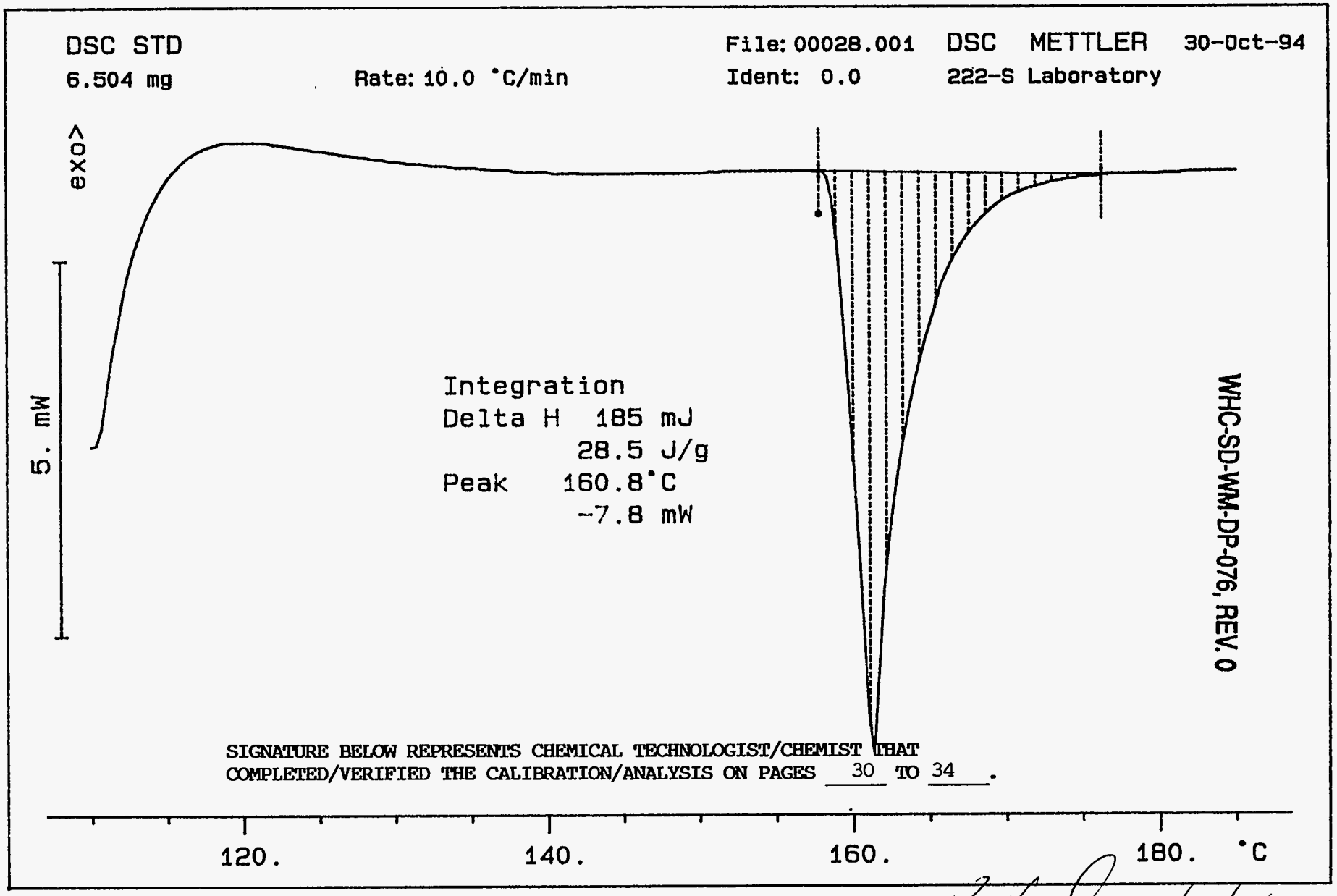
Data Entry Comments:

S94T000143 has two endotherms of 487.9 J/g at 131.3°C and 523.5 J/g at 289.0°C; Duplicate has 472.2 J/g at 109.5°C and 625.5 J/g at 289.1

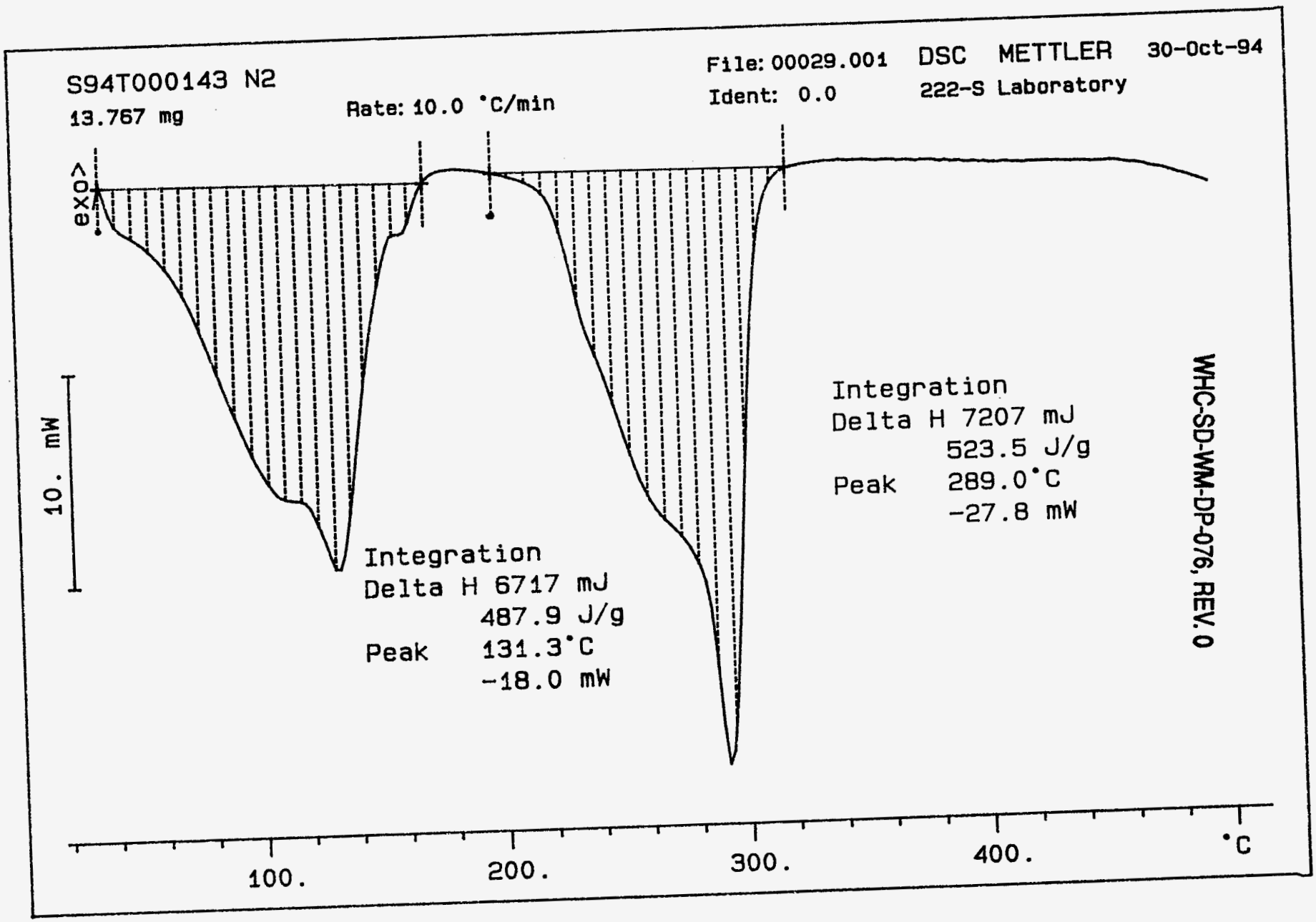
S94T000147 has two endotherms of 217.3 J/g at 106.0°C and 732.1 J/g at 286.7°C; Duplicate has 256.4 J/g at 107.8°C and 742.0 J/g at 284.6°C

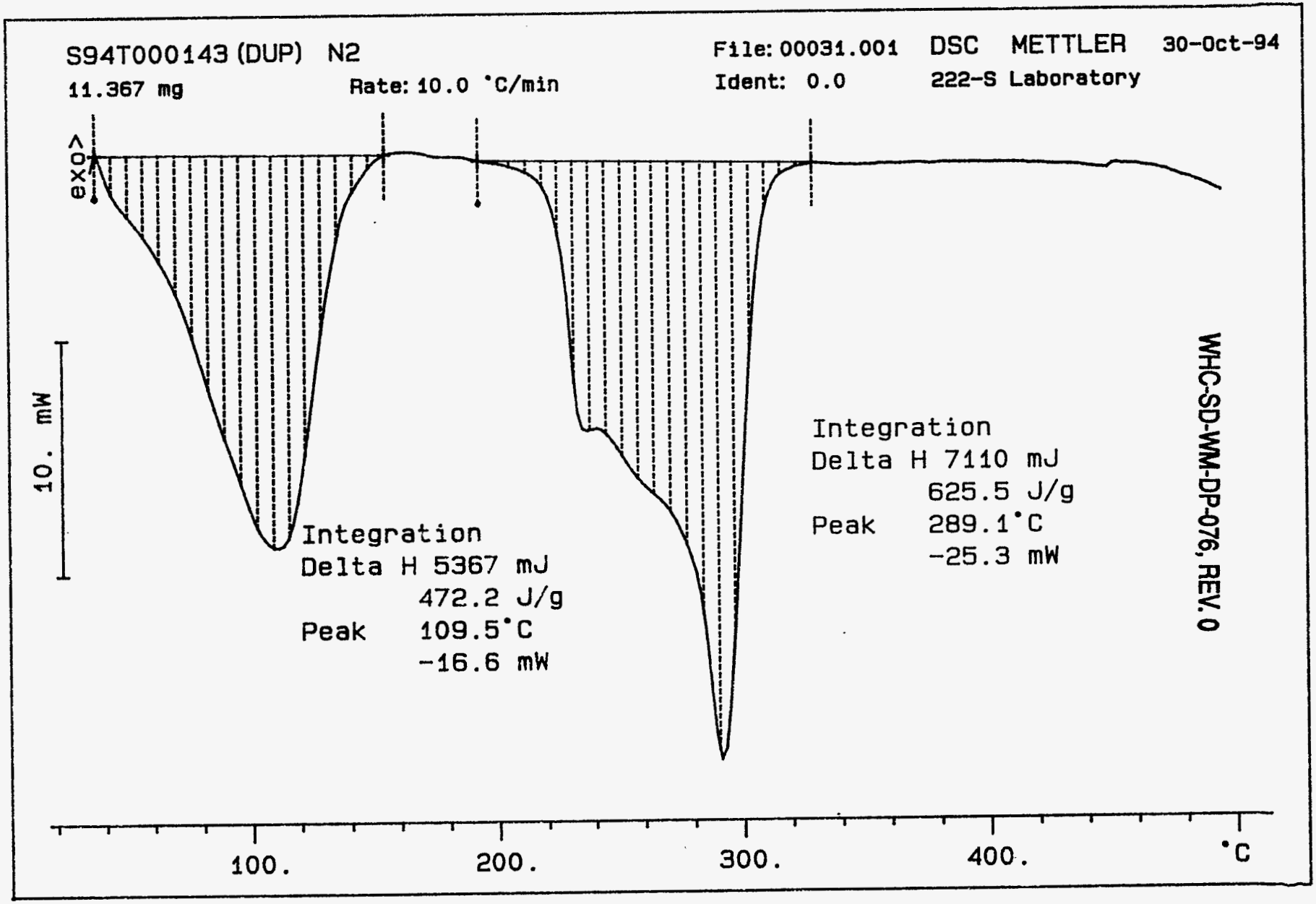
Units shown for QC (SPK) may not reflect the actual units.

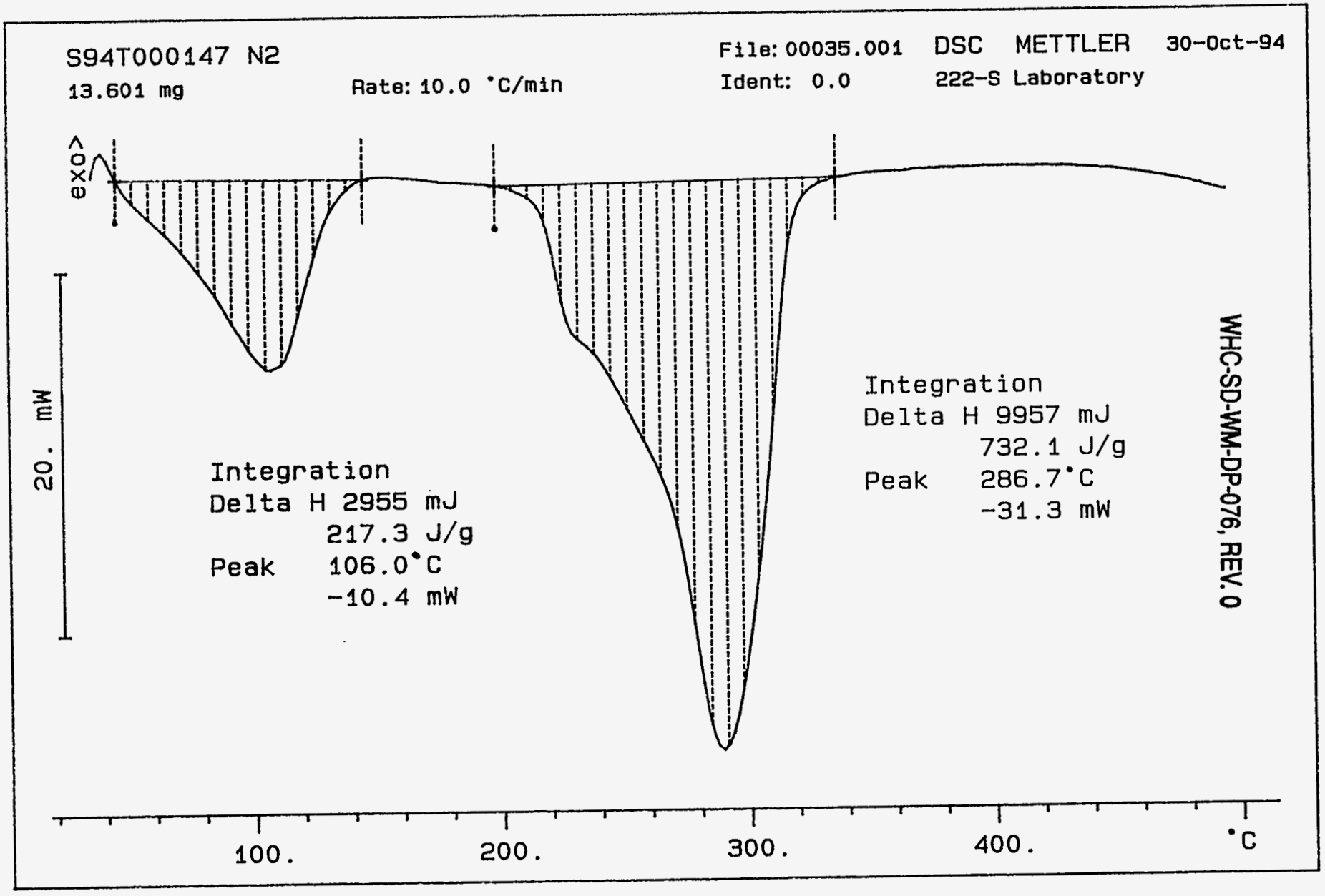
Jean Fuge 11/1/94

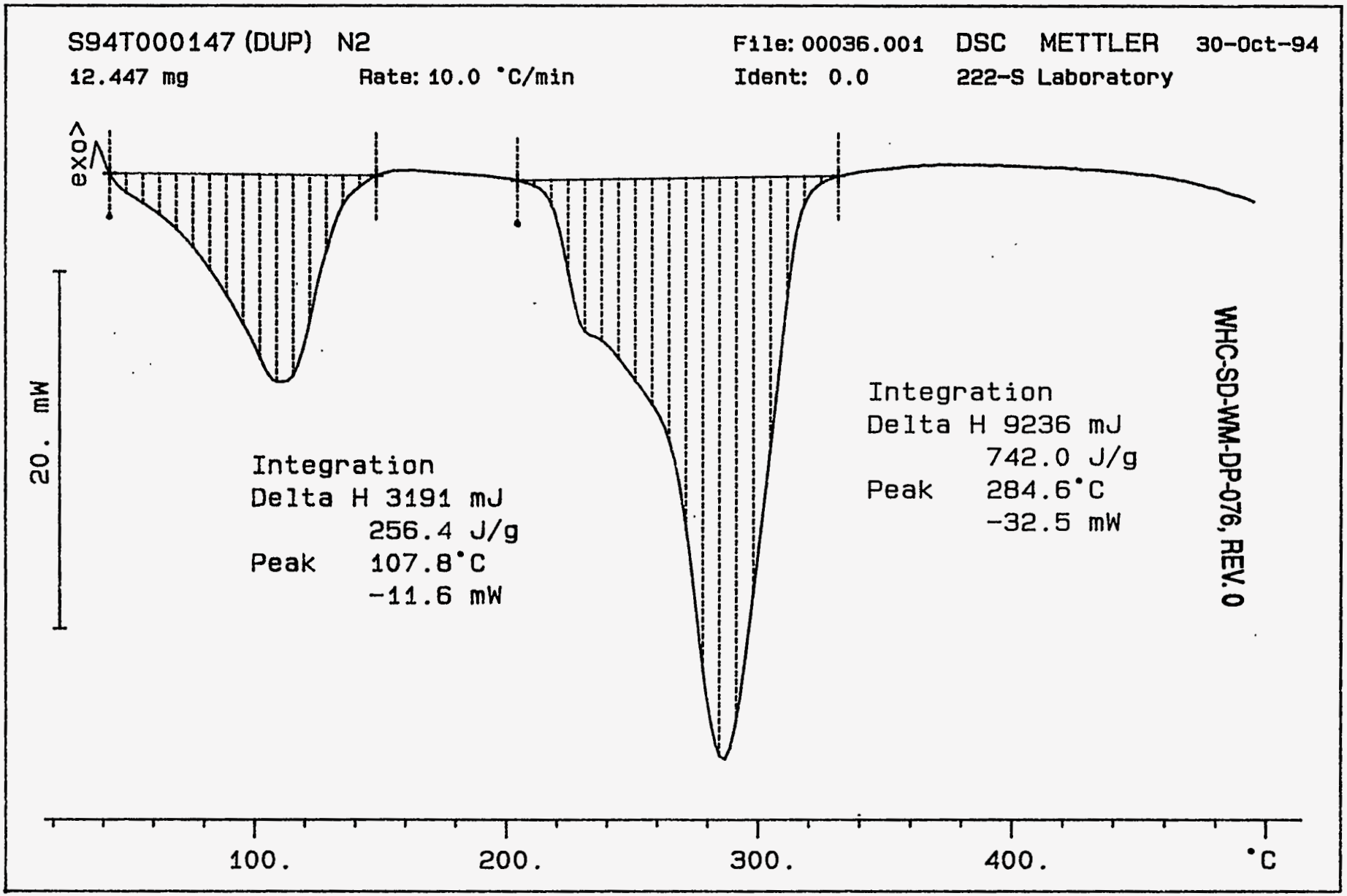

DSC STD
6.504 mg
Rate: 10.0 °C/min
File: 00028.001
Ident: 0.0
DSC METTLER
222-S Laboratory
30-Oct-94
exo>
5. mW
Integration
Delta H 185 mJ
28.5 J/g
Peak 160.8°C
-7.8 mW
WHC-SD-WM-DP-076, REV. 0
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 30 TO 34.
120.
140.
160.
180.
°C

10/30/94


S94T000143 N2
13.767 mg
Rate: 10.0 °C/min
File: 00029.001
Ident: 0.0
DSC METTLER
222-S Laboratory
30-Oct-94
exo>
10. mW
Integration
Delta H 6717 mJ
487.9 J/g
Peak 131.3°C
-18.0 mW
Integration
Delta H 7207 mJ
523.5 J/g
Peak 289.0°C
-27.8 mW
WHC-SD-WM-DP-076, REV.0
100.
200.
300.
400.
°C


S94T000143 (DUP) N2
11.367 mg
Rate: 10.0 °C/min
File: 00031.001
Ident: 0.0
DSC METTLER
30-Oct-94
222-S Laboratory
exo>
10. mW
Integration
Delta H 5367 mJ
472.2 J/g
Peak 109.5°C
-16.6 mW
Integration
Delta H 7110 mJ
625.5 J/g
Peak 289.1°C
-25.3 mW
100.
200.
300.
400.
°C
WHC-SD-WM-DP-076, REV. 0


S94T000147 N2
13.601 mg
Rate: 10.0 °C/min
File: 00035.001
Ident: 0.0
DSC METTLER
222-S Laboratory
30-Oct-94
exo>
20. mW
Integration
Delta H 2955 mJ
217.3 J/g
Peak 106.0°C
-10.4 mW
Integration
Delta H 9957 mJ
732.1 J/g
Peak 286.7°C
-31.3 mW
100.
200.
300.
400.
°C
WHC-SD-WM-DP-076, REV.0


S94T000147 (DUP) N2
12.447 mg
Rate: 10.0 °C/min
File: 00036.001 DSC METTLER 30-Oct-94
Ident: 0.0
222-S Laboratory
exo>
20. mW
Integration
Delta H 3191 mJ
256.4 J/g
Peak 107.8°C
-11.6 mW
Integration
Delta H 9236 mJ
742.0 J/g
Peak 284.6°C
-32.5 mW
WHC-SD-WM-DP-076, REV.0
100.
200.
300.
400.
°C

Aliquots 9 + 10

CA 1

LABCORE Data Entry Template for Worklist# 112

Analyst: KLV **Instrument:** DSC01 **Method:** LA-514-113 B-1 KV 11/14/94

Worklist Comment: Please use N2 purge.JMF WHC-SD-WM-DP-076, REV. 0

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL 104.0% Rec	Unit
1	STD				DSC-01	SOLID	28.45	29.6	N/A	Joule
2	SAMPLE	S94T000148	0		DSC-01	SOLID	N/A	0		Joule
3	DUP	S94T000148	0		DSC-01	SOLID	0	0	N/A	Joule
4	SAMPLE	S94T000190	0		DSC-01	SOLID	N/A	168.4		Joule
5	DUP	S94T000190	0		DSC-01	SOLID	168.4	144.1	N/A	Joule

Final page for worklist # 112

Analyst Signature

10/31/94
Date

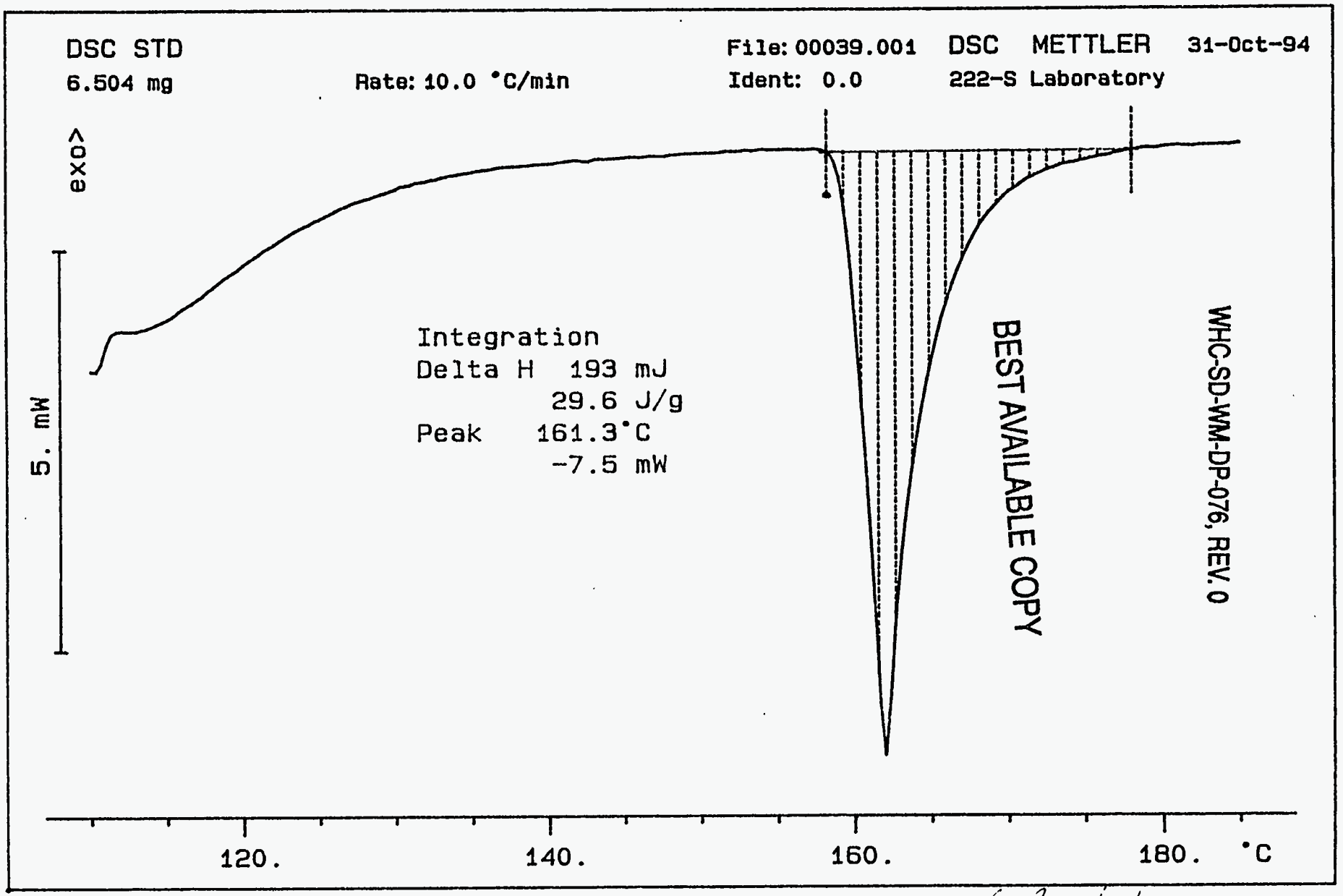
Std # 12N14A (Indium)
Entered and approved 11/1/94. J. M. Fuye

Data Entry Comments:
S94T000148 has no exotherms but has two endotherms of 661.1 J/g at 118.8°C and 667.4 J/g at 285°C; duplicate has endotherms of 693.9 J/g at 108.7°C and 669.5 J/g at 285.0°C. S94T000190 also has two endotherms of 669.2 J/g at 115.4°C and 284.2 J/g at 287.9°C ~~+ 1 exo~~ endotherms of, the exotherm at 381.3°C; duplicate has endotherms of 609.6 J/g at 122.1°C and 237.2 J/g at 290.0°C, and the exotherm at 379.6°C.

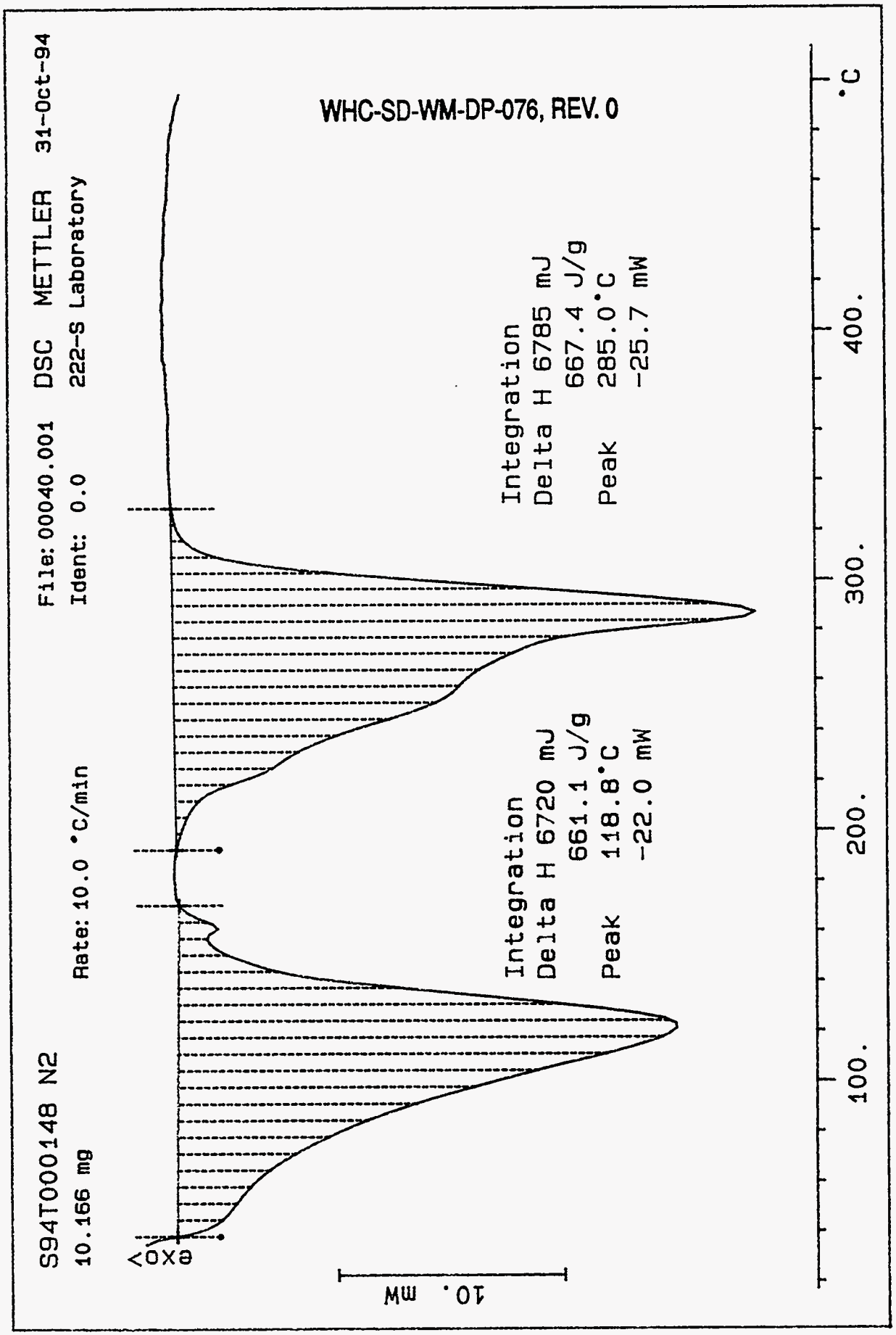
Jean Fuye
11/1/94

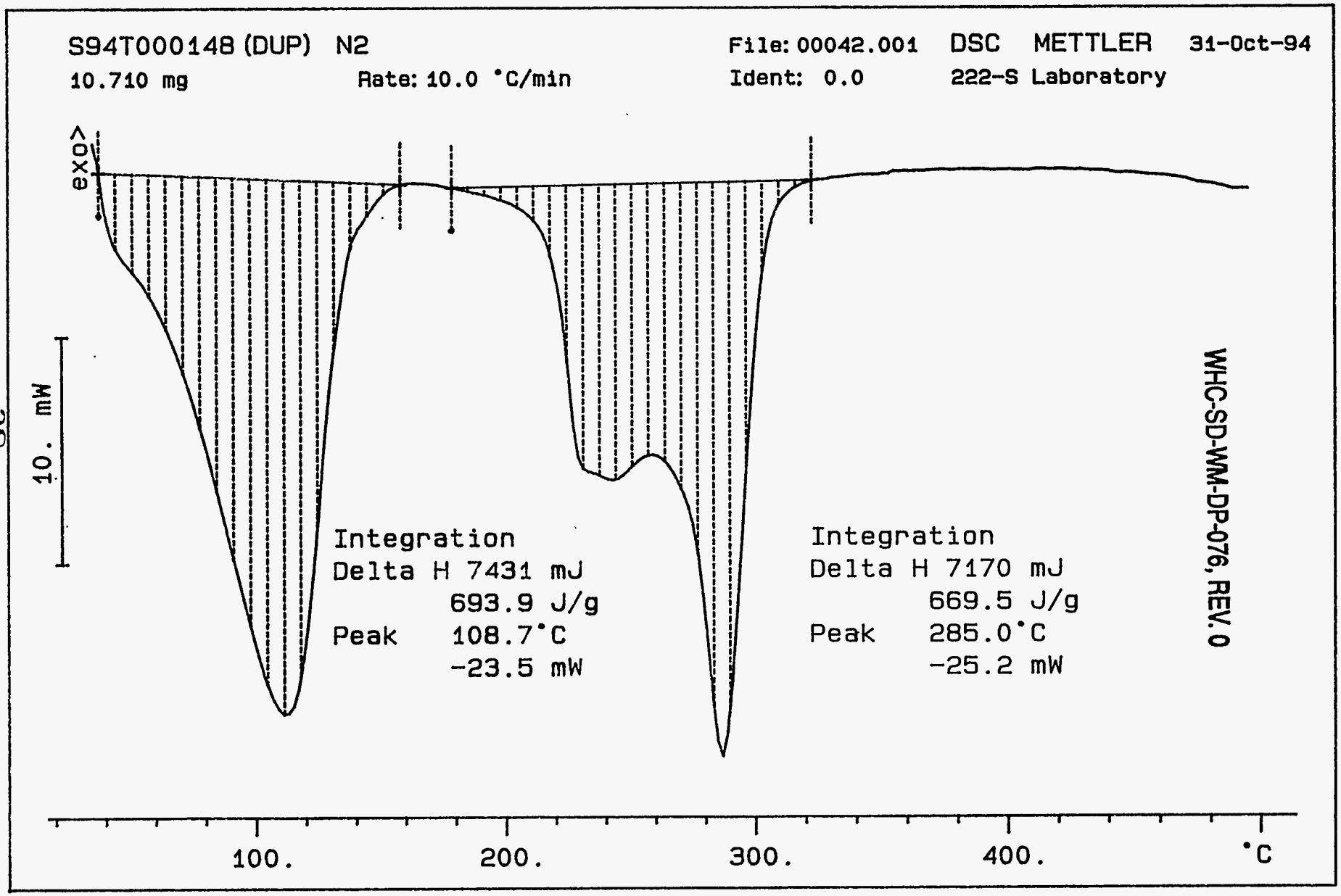
Units shown for QC (SPK) may not reflect the actual units.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 36 TO 38 .



10/31/94


WHC-SD-WM-DP-076, REV. 0
S94T000148 N2
10.166 mg
File: 00040.001 DSC METTLER 31-Oct-94
Ident: 0.0 222-S Laboratory
Rate: 10.0 °C/min
Integration
Delta H 6720 mJ
661.1 J/g
Peak 118.8°C
-22.0 mW
Integration
Delta H 6785 mJ
667.4 J/g
Peak 285.0°C
-25.7 mW
exo>
10. mW
100.
200.
300.
400.
°C


S94T000148 (DUP) N2
10.710 mg
Rate: 10.0 °C/min
File: 00042.001 DSC METTLER 31-Oct-94
Ident: 0.0 222-S Laboratory
exo>
10. mW
Integration
Delta H 7431 mJ
693.9 J/g
Peak 108.7°C
-23.5 mW
Integration
Delta H 7170 mJ
669.5 J/g
Peak 285.0°C
-25.2 mW
100.
200.
300.
400.
°C
WHC-SD-WM-DP-076, REV.0

LABCORE Data Entry Template for Worklist# 110

Analyst: DWS **Instrument:** DSC01 **Method:** LA-514-113 B-1 11/14/94

Worklist Comment: Please use N2 purge. JMF WHC-SD-WM-DP-076, REV. 0

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	STD				DSC-01	SOLID	28.45	28.7	N/A (100.9% Rec.)	Joule
2	SAMPLE	S94T000140	0		DSC-01	SOLID	N/A	No Sample		Joule
3	DUP	S94T000140	0		DSC-01	SOLID	no sample		N/A	Joule
4	SAMPLE	S94T000141	0		DSC-01	SOLID	N/A	0		Joule
5	DUP	S94T000141	0		DSC-01	SOLID	0	0	N/A	Joule

Final page for worklist # 110

Analyst Signature

LAD 11-16-94

~~10-7-94~~ 11-1-94
Date

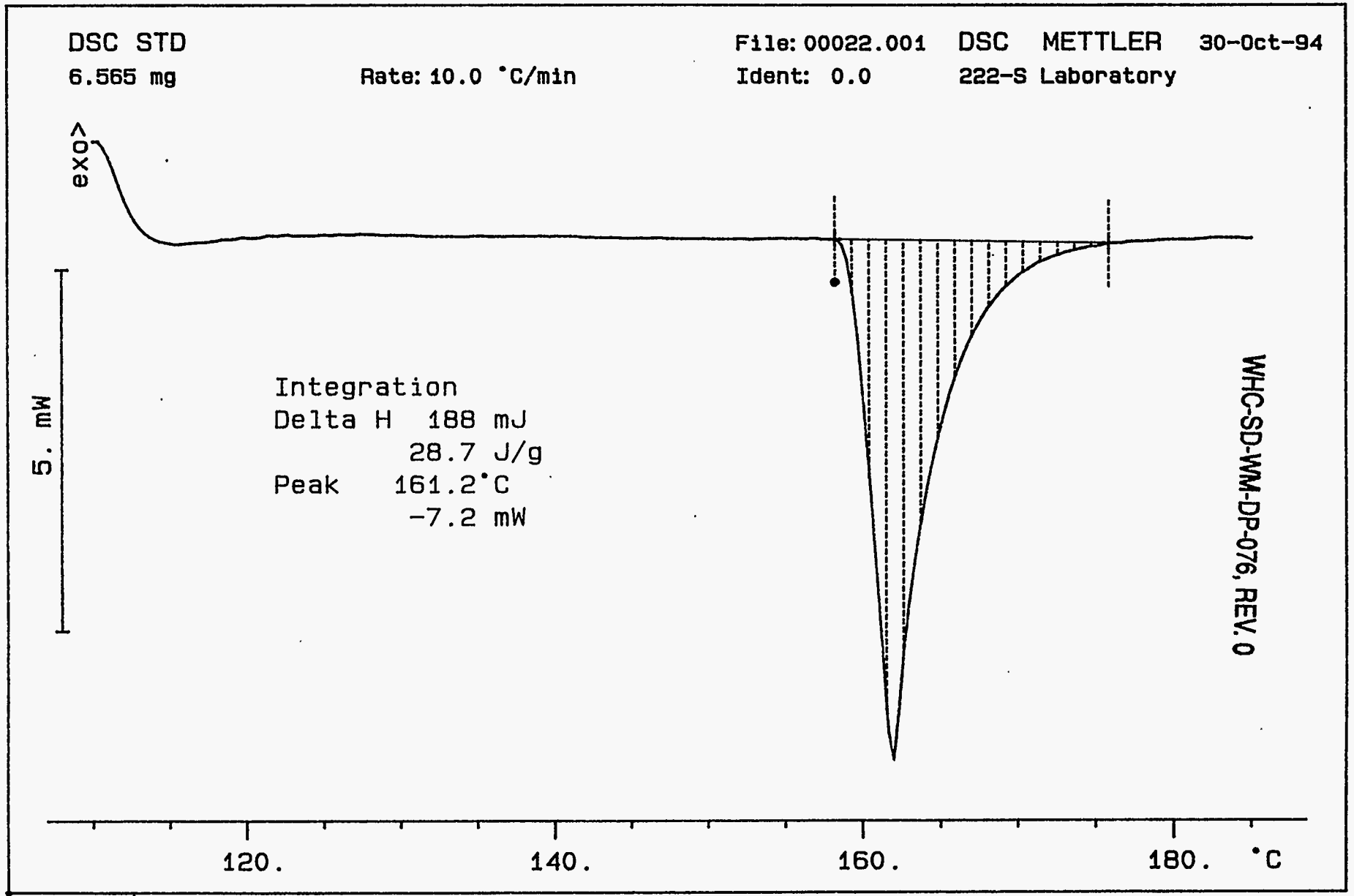
Std # 12N14A (Indium)

Entered and approved 11/1/94. JM Fuyo

Data Entry Comments:
S94T000141 has no exotherms but has two endotherms of 330.0 J/g at 116.9°C and 465.4 J/g at 289.4°C; Duplicate has 432.8 J/g at 125.6°C and 569.6 J/g at 284.4°C. Jane Fuyo 11/1/94

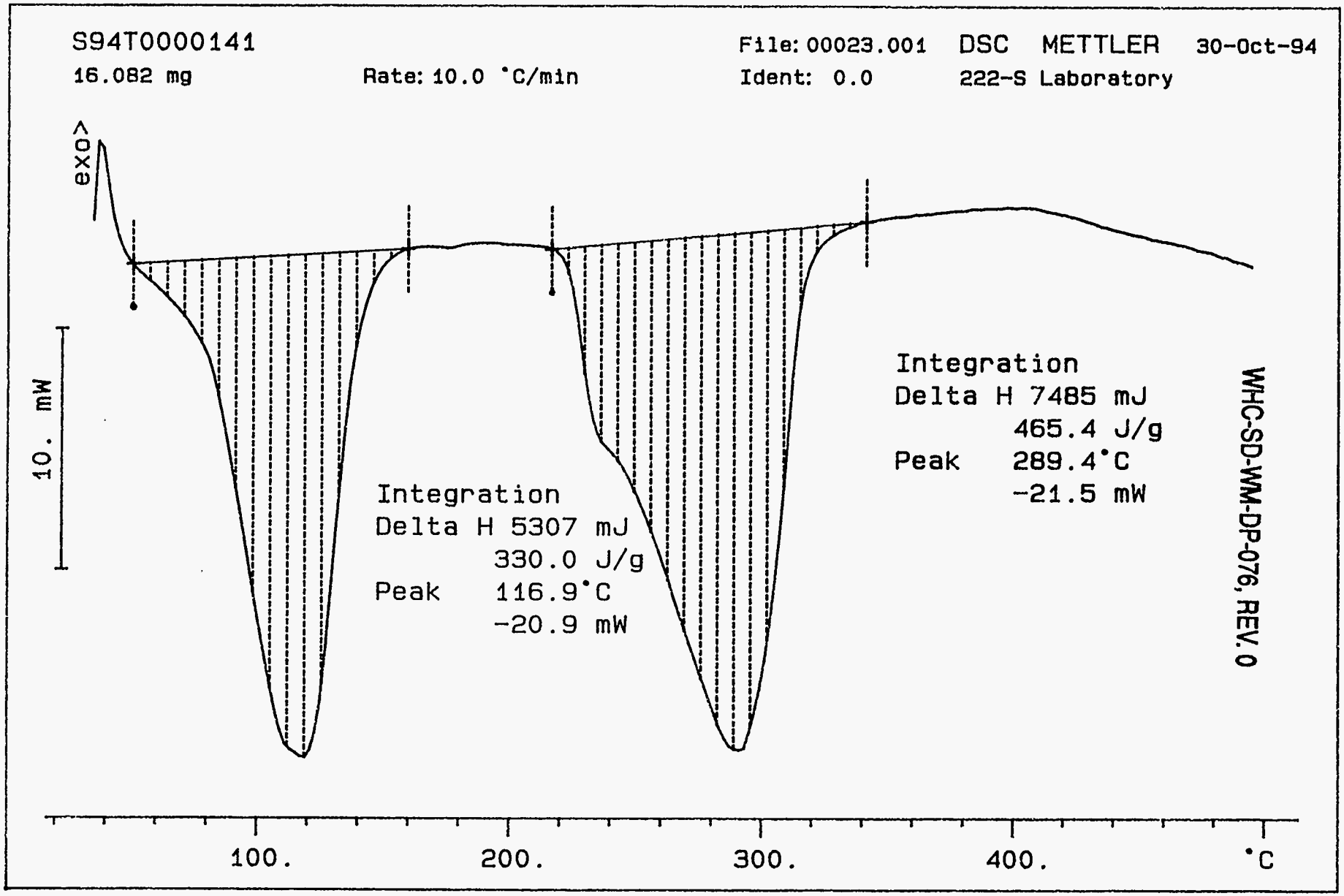
Units shown for QC (SPK) may not reflect the actual units.

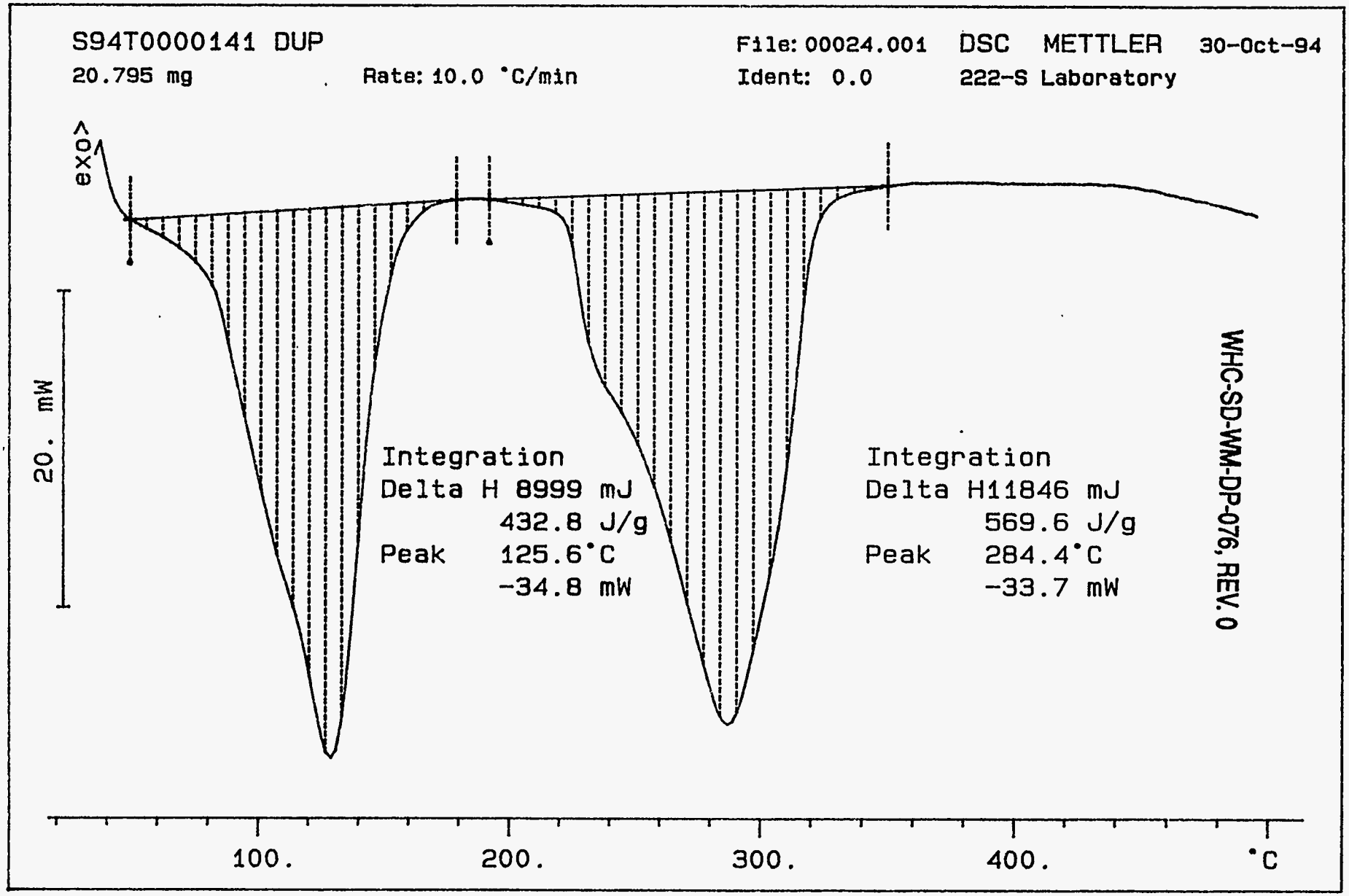
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 40 TO 42 .



40

Leslie Diaz
11-11-94


S94T0000141
16.082 mg
Rate: 10.0 °C/min
File: 00023.001 DSC METTLER 30-Oct-94
Ident: 0.0 222-S Laboratory
exo>
10. mW
Integration
Delta H 5307 mJ
330.0 J/g
Peak 116.9°C
-20.9 mW
Integration
Delta H 7485 mJ
465.4 J/g
Peak 289.4°C
-21.5 mW
WHC-SD-WM-DP-076, REV. 0
100.
200.
300.
400.
°C


S94T0000141 DUP
20.795 mg
Rate: 10.0 °C/min
File: 00024.001 DSC METTLER 30-Oct-94
Ident: 0.0
222-S Laboratory
exo>
20. mW
Integration
Delta H 8999 mJ
432.8 J/g
Peak 125.6°C
-34.8 mW
Integration
Delta H11846 mJ
569.6 J/g
Peak 284.4°C
-33.7 mW
WHC-SD-WM-DP-076, REV.0
100.
200.
300.
400.
°C

LABCORE Data Entry Template for Worklist# 106

Analyst: KLV **Instrument:** TGA01 **Method:** LA-560-112 KV 11/14/94 B-1 A-1 KV 11/14/94

Worklist Comment: Please usse N2 purge. JMF WHC-SD-WM-DP-076, REV. 0

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL 97.4% Rec	Unit
1	STD	4208A			TGA-01	SOLID	59.19	57.67	N/A	%
2	SAMPLE	S94T000143	0		TGA-01	SOLID	N/A	14.63%		%
3	DUP	S94T000143	0		TGA-01	SOLID	14.63	18.73	N/A	%
4	SAMPLE	S94T000147	0		TGA-01	SOLID	N/A	4.91		%
5	DUP	S94T000147	0		TGA-01	SOLID	4.91	5.54	N/A	%

Final page for worklist # 106

Analyst Signature

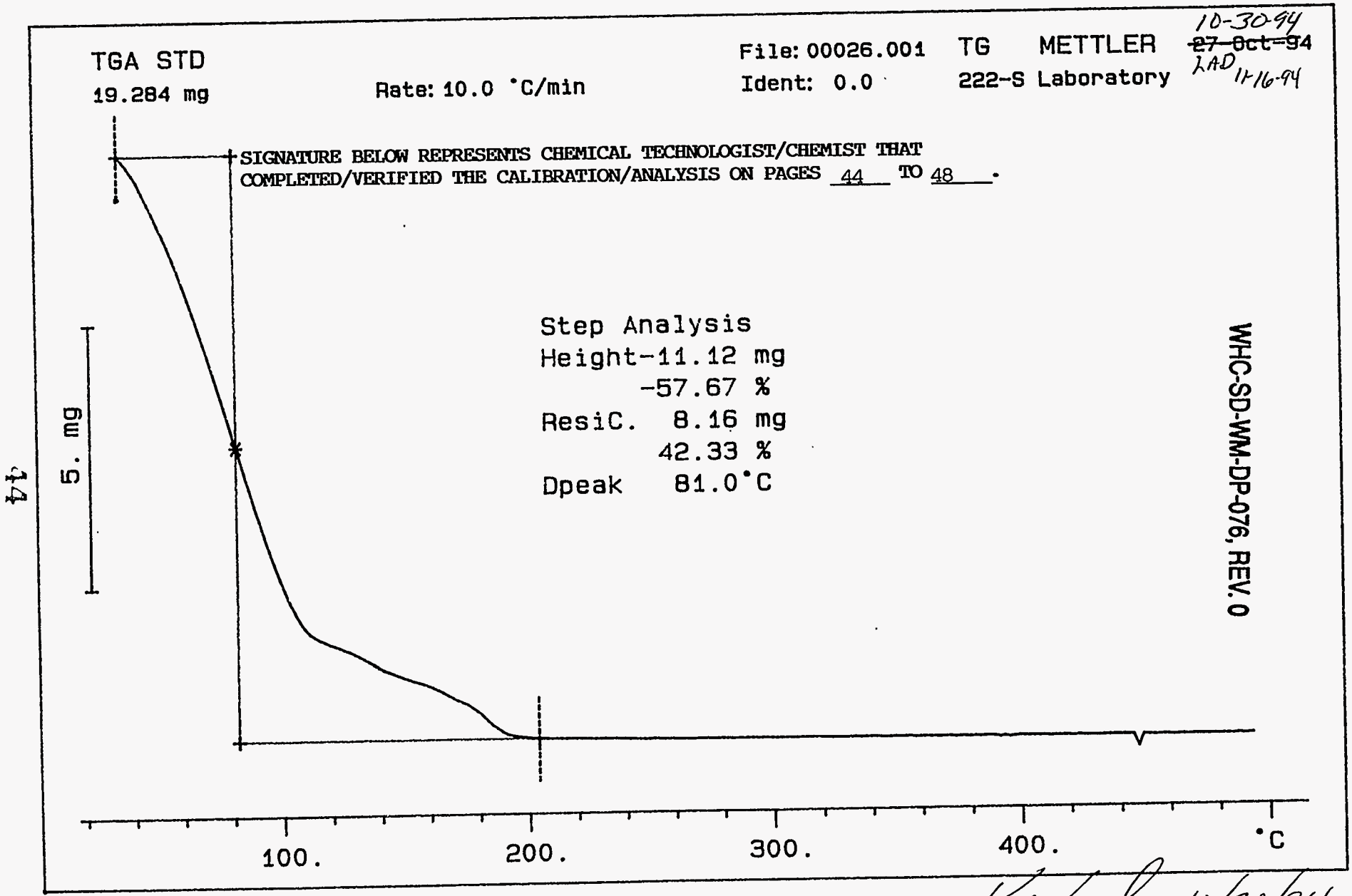
10/30/94
Date

Entered and approved 11/1/94 JMFuyo.

Data Entry Comments:
S94T000143 sample has 2nd Wt Loss of 24.76% at 277.0°C; Duplicate has 20.55% at 279.0°C

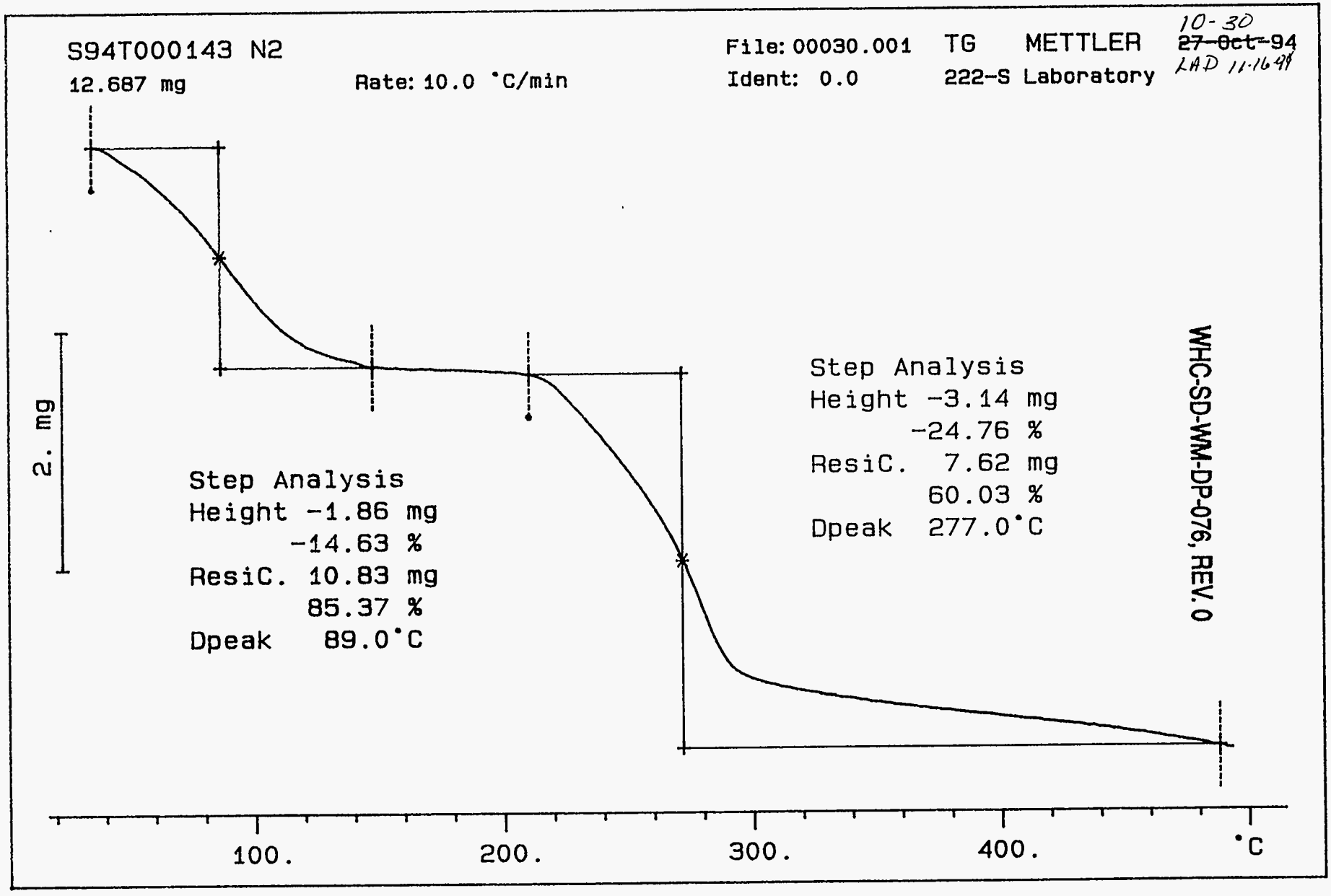
S94T000147 sample has 2nd Wt Loss of 29.22% at 273.0°C; Duplicate has 27.98% at 277.0°C

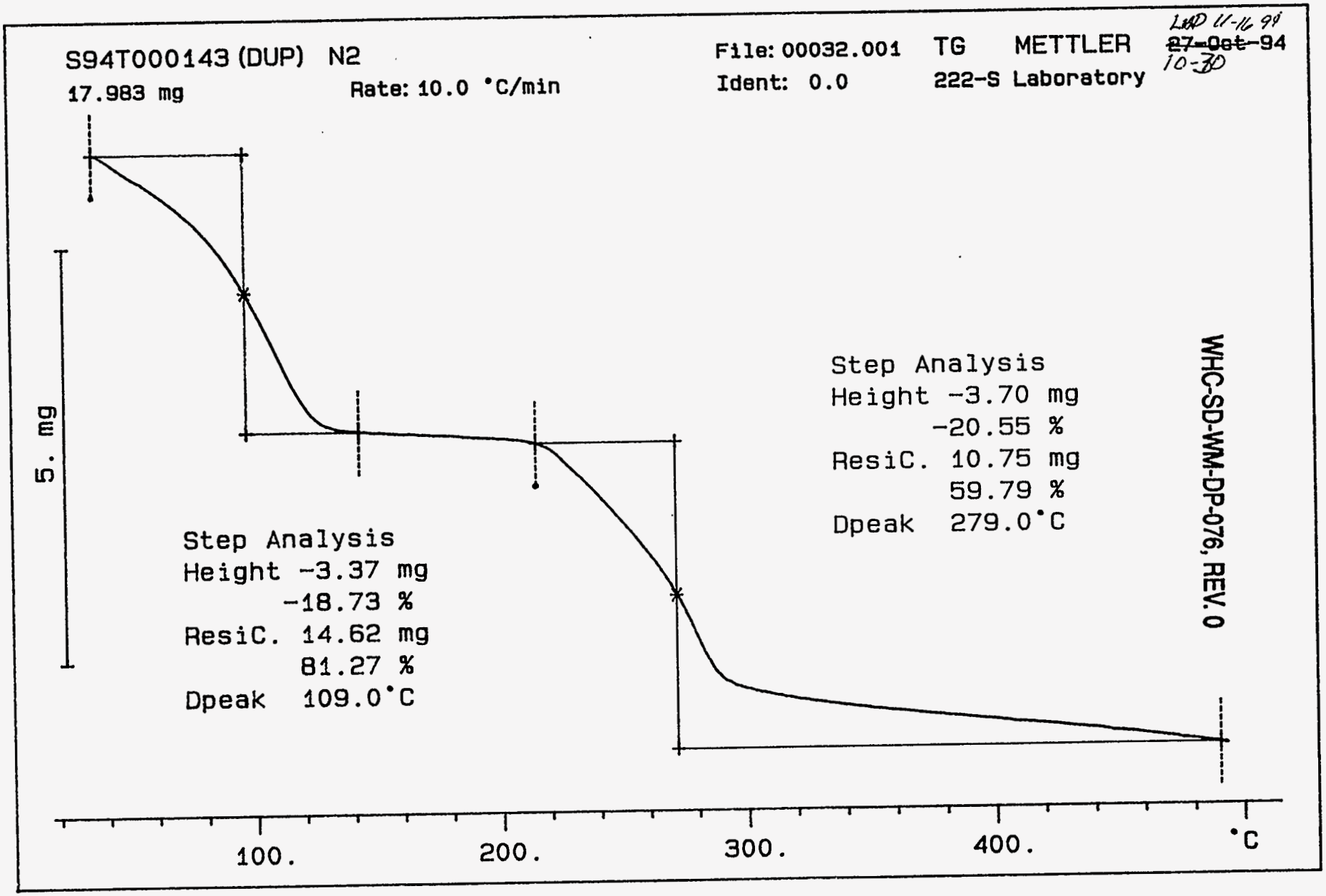
Units shown for QC (SPK) may not reflect the actual units.

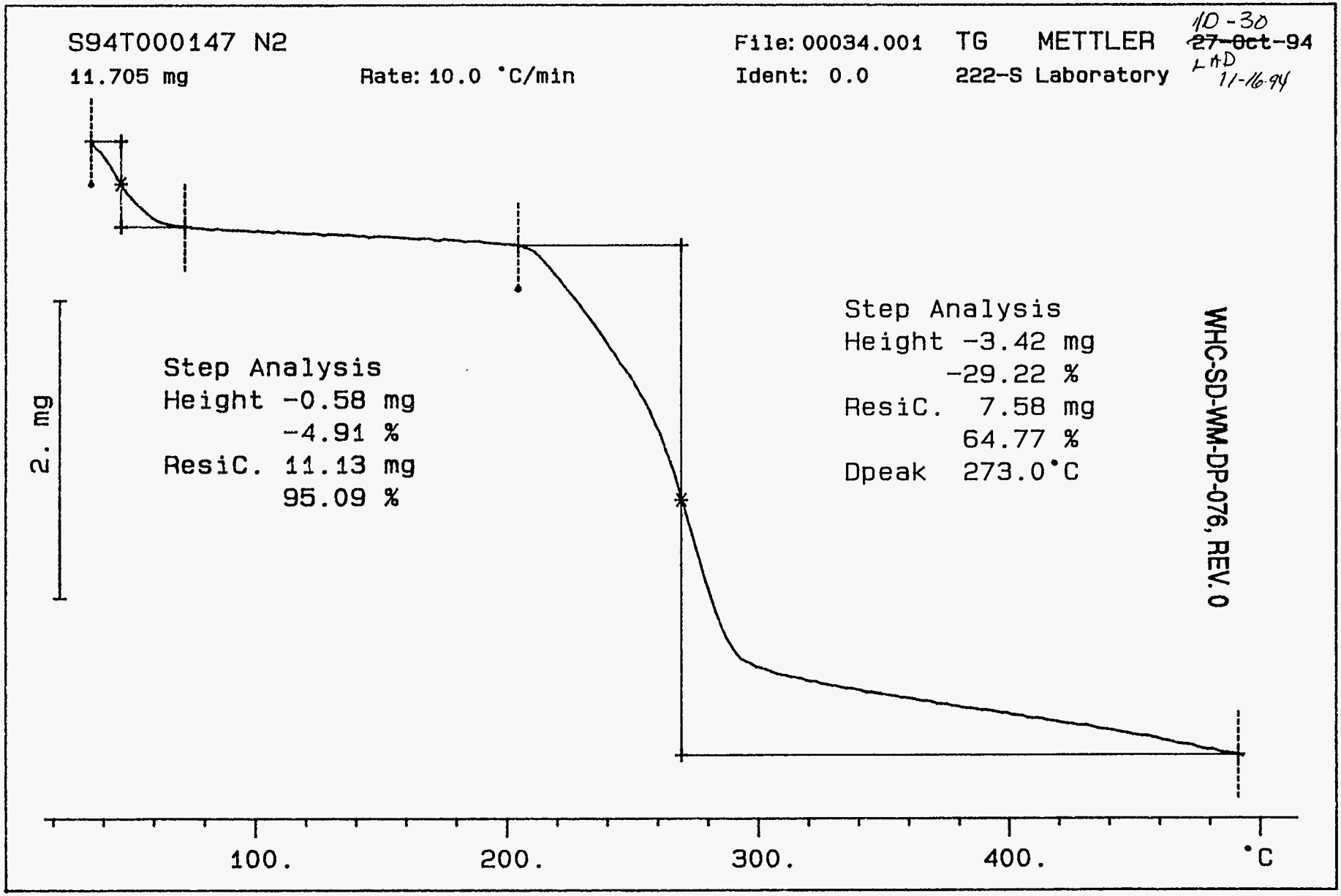

TGA STD
19.284 mg
Rate: 10.0 °C/min
File: 00026.001
Ident: 0.0
TG METTLER
222-S Laboratory
10-30-94
~~27-Oct-94~~
LAD 11-16-94
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 44 TO 48.
Step Analysis
Height -11.12 mg
-57.67 %
ResiC. 8.16 mg
42.33 %
Dpeak 81.0°C
5. mg
100.
200.
300.
400.
°C
WHC-SD-WM-DP-076, REV. 0

14

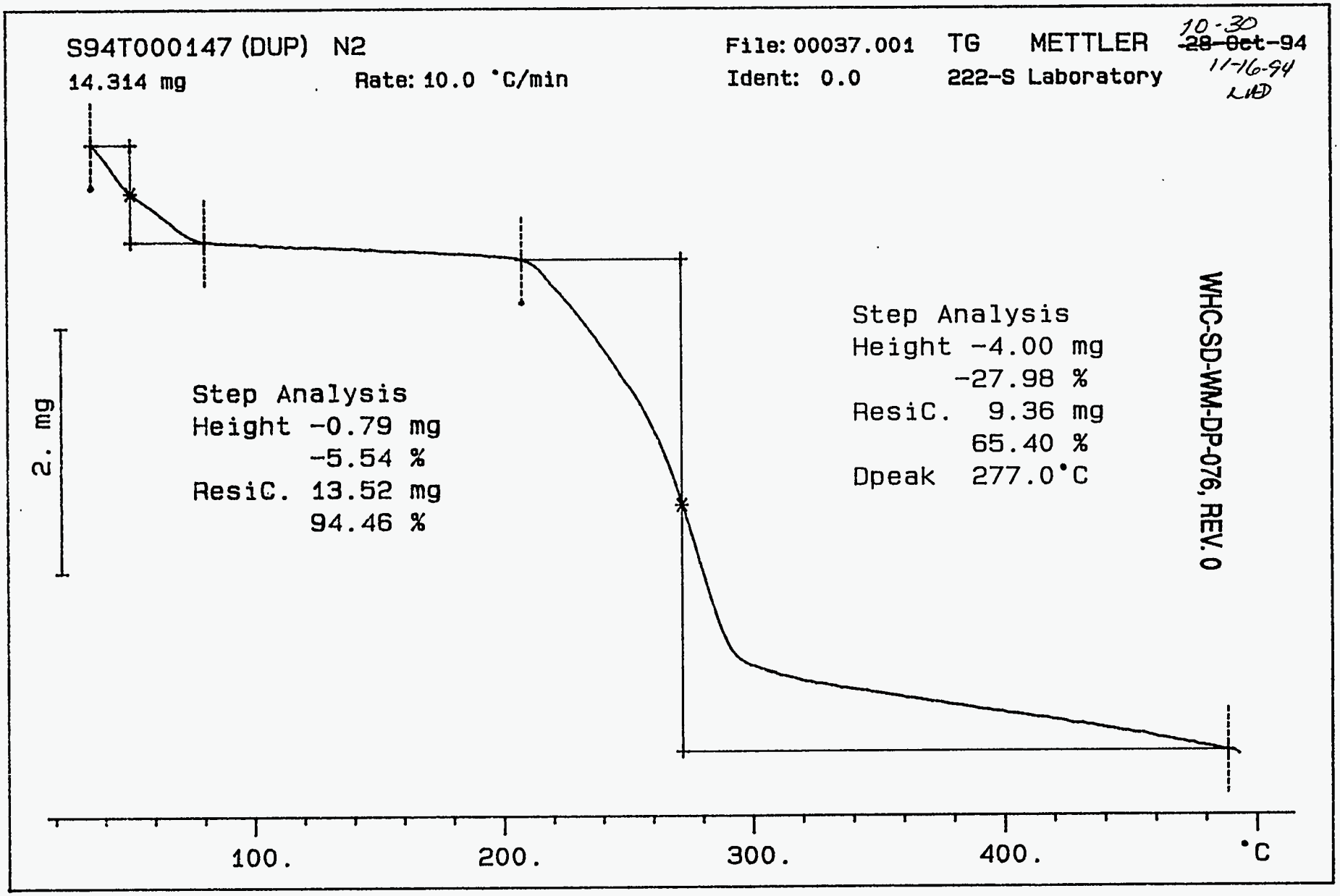
10/30/94


S94T000143 N2
12.687 mg
Rate: 10.0 °C/min
File: 00030.001 TG METTLER
Ident: 0.0 222-S Laboratory
10-30
27-Oct-94
LAD 11-16-94
2. mg
Step Analysis
Height -1.86 mg
-14.63 %
ResiC. 10.83 mg
85.37 %
Dpeak 89.0°C
Step Analysis
Height -3.14 mg
-24.76 %
ResiC. 7.62 mg
60.03 %
Dpeak 277.0°C
100.
200.
300.
400.
°C
WHC-SD-WM-DP-076, REV. 0


S94T000143 (DUP) N2
17.983 mg
Rate: 10.0 °C/min
File: 00032.001 TG METTLER
Ident: 0.0 222-S Laboratory
LMD 11-16-99
27-Oct-94
10-30
5. mg
Step Analysis
Height -3.37 mg
-18.73 %
ResiC. 14.62 mg
81.27 %
Dpeak 109.0°C
Step Analysis
Height -3.70 mg
-20.55 %
ResiC. 10.75 mg
59.79 %
Dpeak 279.0°C
100.
200.
300.
400.
°C
WHC-SD-WM-DP-076, REV.0


S94T000147 N2
11.705 mg
Rate: 10.0 °C/min
File: 00034.001
Ident: 0.0
TG
METTLER
222-S Laboratory
10-30
27-Oct-94
LAD
11-16-94
Step Analysis
Height -0.58 mg
-4.91 %
ResiC. 11.13 mg
95.09 %
Step Analysis
Height -3.42 mg
-29.22 %
ResiC. 7.58 mg
64.77 %
Dpeak 273.0°C
2. mg
100.
200.
300.
400.
°C
WHC-SD-WM-DP-076, REV.0

47


S94T000147 (DUP) N2
14.314 mg
Rate: 10.0 °C/min
File: 00037.001 TG METTLER
Ident: 0.0
222-S Laboratory
10-30
28-Oct-94
11-16-94
LMD
Step Analysis
Height -0.79 mg
-5.54 %
ResiC. 13.52 mg
94.46 %
Step Analysis
Height -4.00 mg
-27.98 %
ResiC. 9.36 mg
65.40 %
Dpeak 277.0°C
2. mg
100.
200.
300.
400.
°C
WHC-SD-WM-DP-076, REV. 0

LABCORE Data Entry Template for Worklist# 157

Analyst: DWS **Instrument:** TGA01 _____ **Method:** LA-560-112 Rev A-1
WHC-SD-WM-DP-076, REV. 0

Worklist Comment: This is a rerun for a 45 day report. please rush asap lad

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	STD	48N8A (11-4-94 MD)			TGA-01	SOLID	59.19	58.52	N/A	%
2	SAMPLE	S94T000143	0		TGA-01	SOLID	N/A	15.74		%
3	DUP	S94T000143	0		TGA-01	SOLID	15.74	13.43	N/A	%

Final page for worklist # 157

Analyst Signature

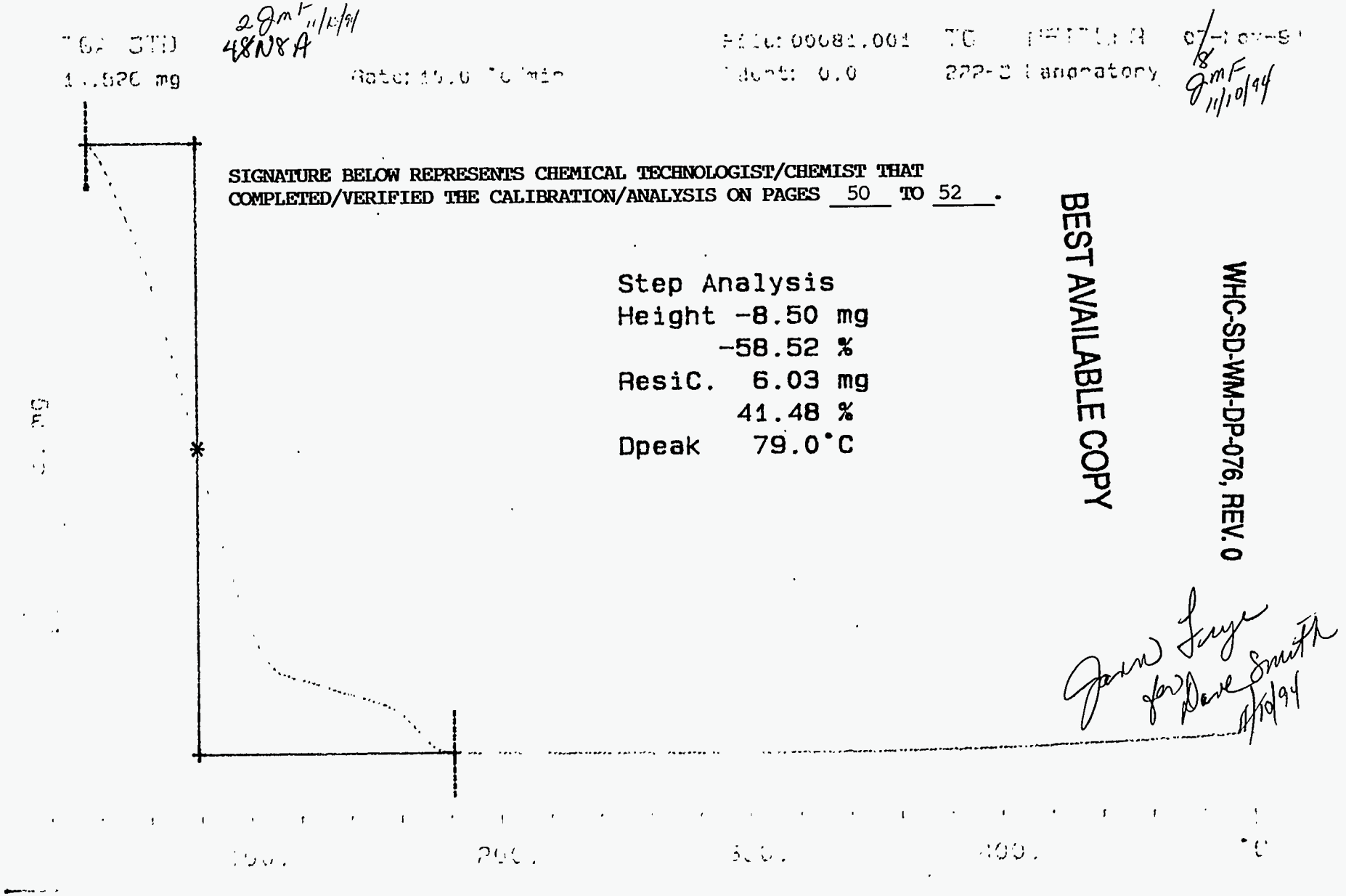
11-10-94
Date
11-10-94

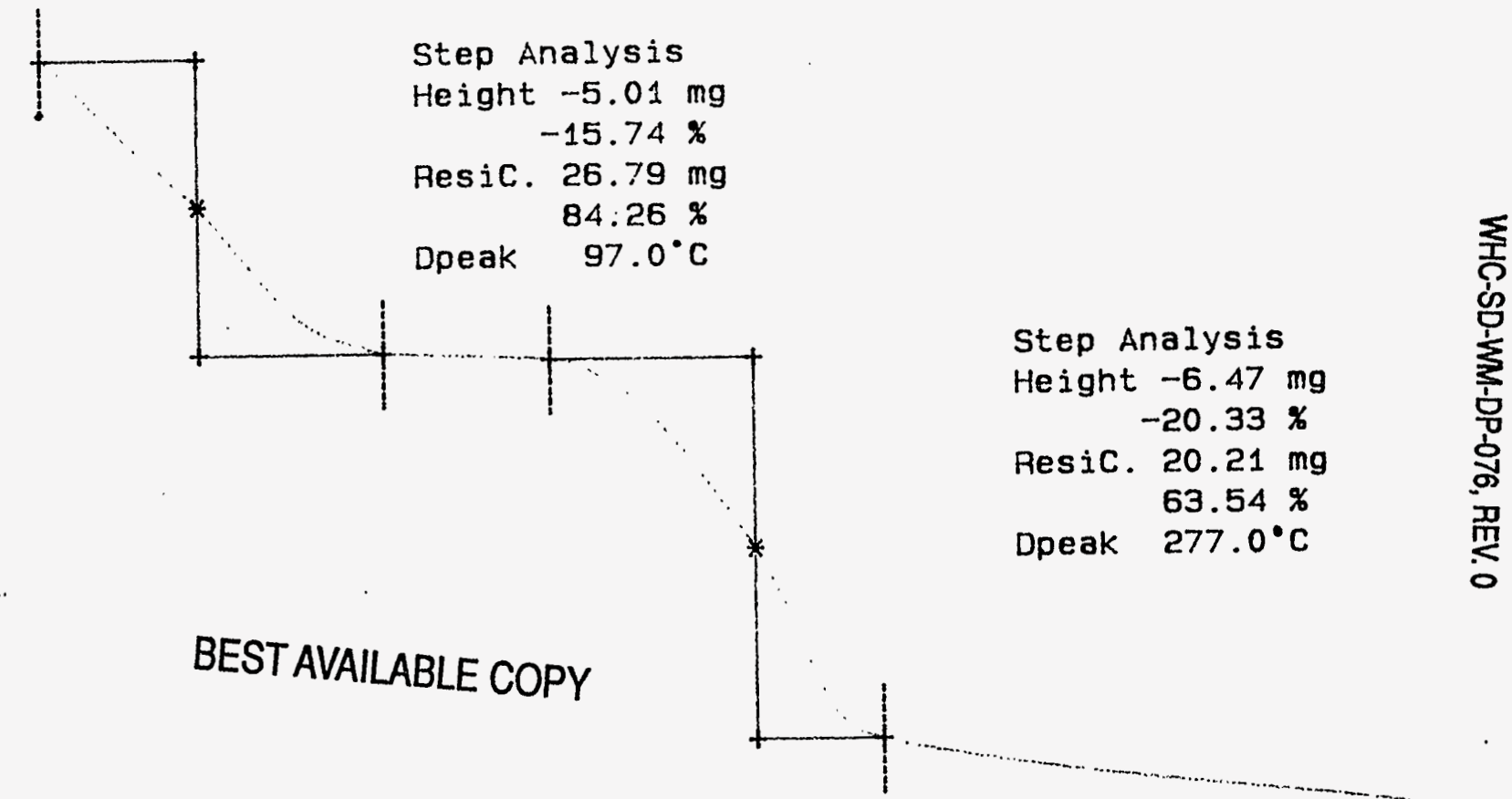
approved 11/11/94

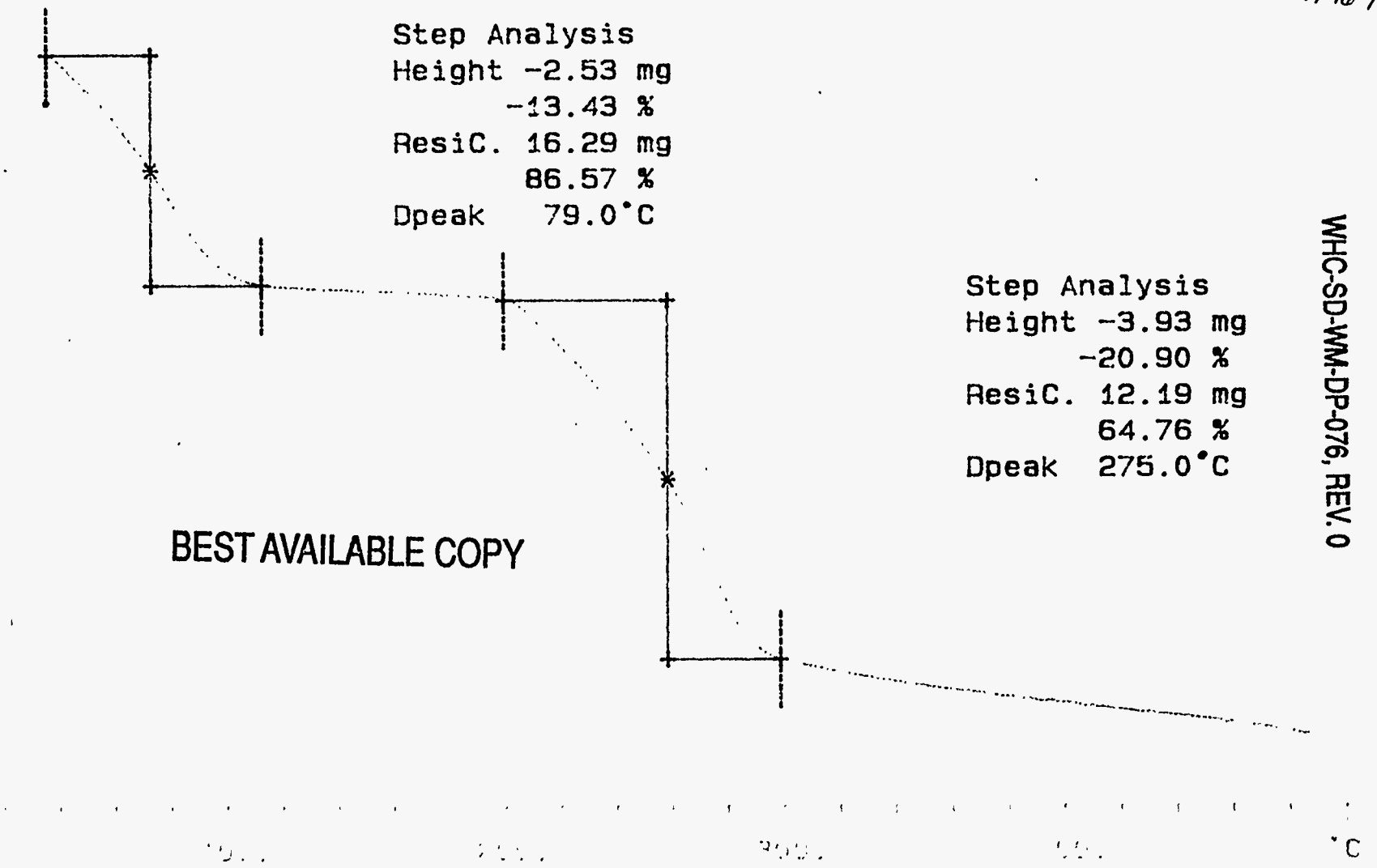
Data Entry Comments:
S94T000143 has a second weight loss step of 20.21% at 277°C and 20.90% at 275°C in the duplicate.

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

Page: 1


2gmF 11/8/94
48N8A
1..520 mg
Rate: 10.0 °C/min
Dpeak: 0.0
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 50 TO 52 .
Step Analysis
Height -8.50 mg
-58.52 %
ResiC. 6.03 mg
41.48 %
Dpeak 79.0°C
BEST AVAILABLE COPY
WHC-SD-WM-DP-076, REV. 0
Jann Lenz
for Dave Smith
11/9/94
50
°C





LABCORE Data Entry Template for Worklist# 107

Analyst: KLV **Instrument:** TGA01 **Method:** LA-560-112 A-1 KV 11/14/94
WHC-SD-WM-DP-076, REV. 0

Worklist Comment: Please use N2 purge. JMF

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	STD	42N84			TGA-01	SOLID	59.19	58.61	99.0% N/A	%
2	SAMPLE	S94T000148	0		TGA-01	SOLID	N/A	16.18		%
3	DUP	S94T000148	0		TGA-01	SOLID	16.18	14.78	N/A	%
4	SAMPLE	S94T000190	0		TGA-01	SOLID	N/A	16.98		%
5	DUP	S94T000190	0		TGA-01	SOLID	16.98	17.82	N/A	%

Final page for worklist # 107

Analyst Signature

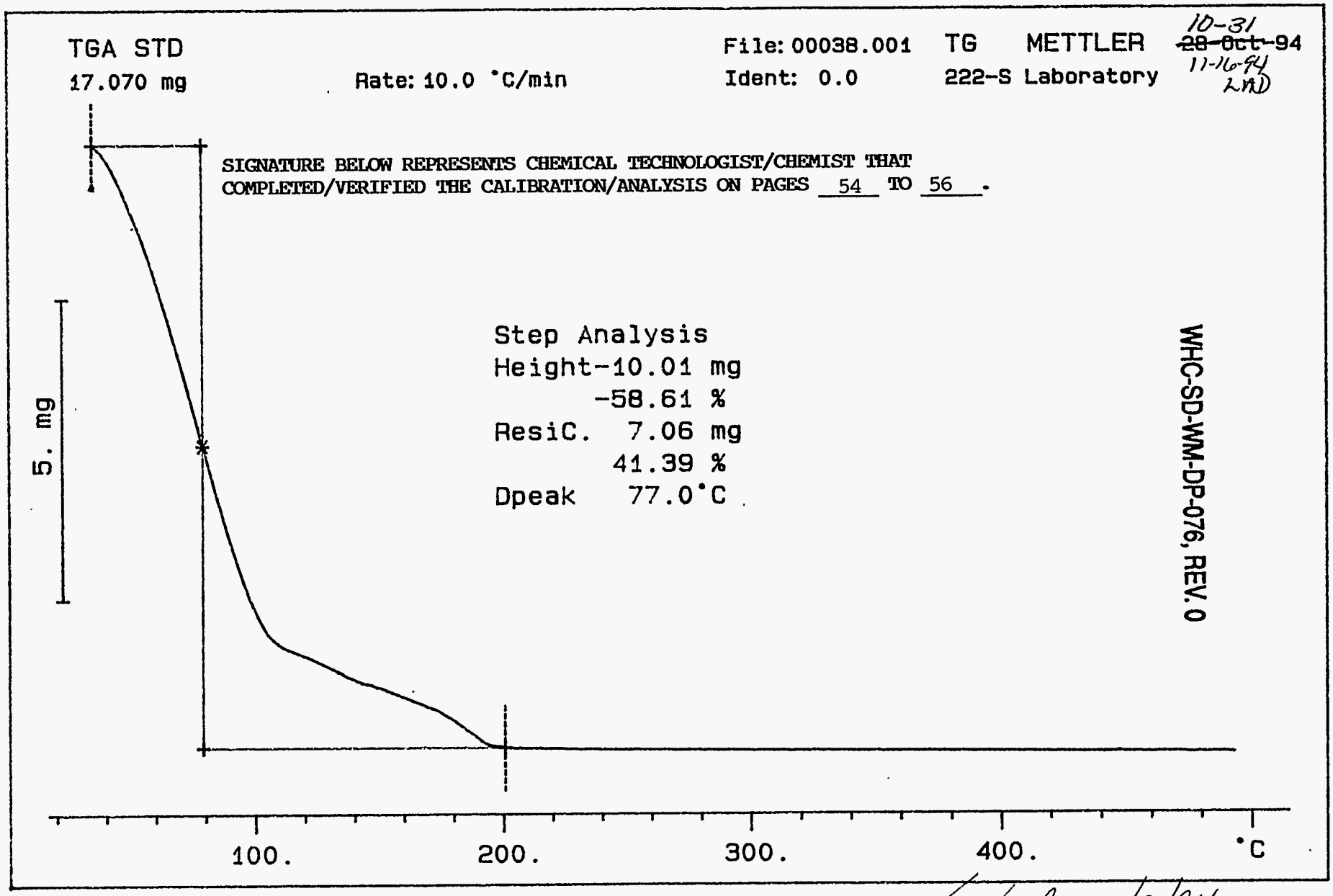
10/31/94
Date

Entered and approved. J M Fuye 11/1/94

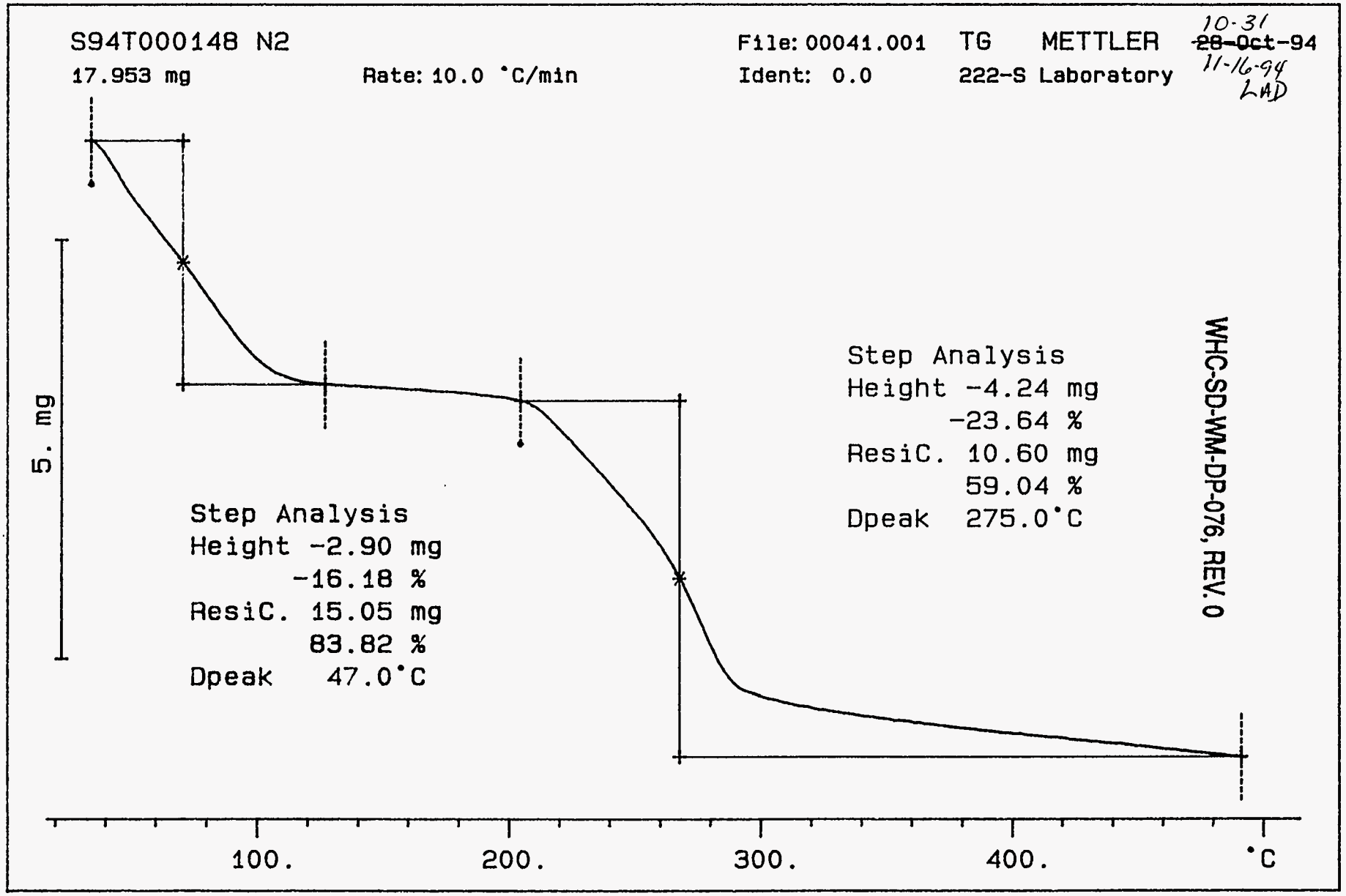
Data Entry Comments:
S94T000148 Gluey, gooey Ivory color, has 2nd Wt loss 23.64% at 275°C; dup 23.53% at 273°C. S94T000190 Rockyroad icecream consistency, has 2nd Wt loss of 24.01% at 279°C; dup 23.78% at 281°C. J. M. Fuye

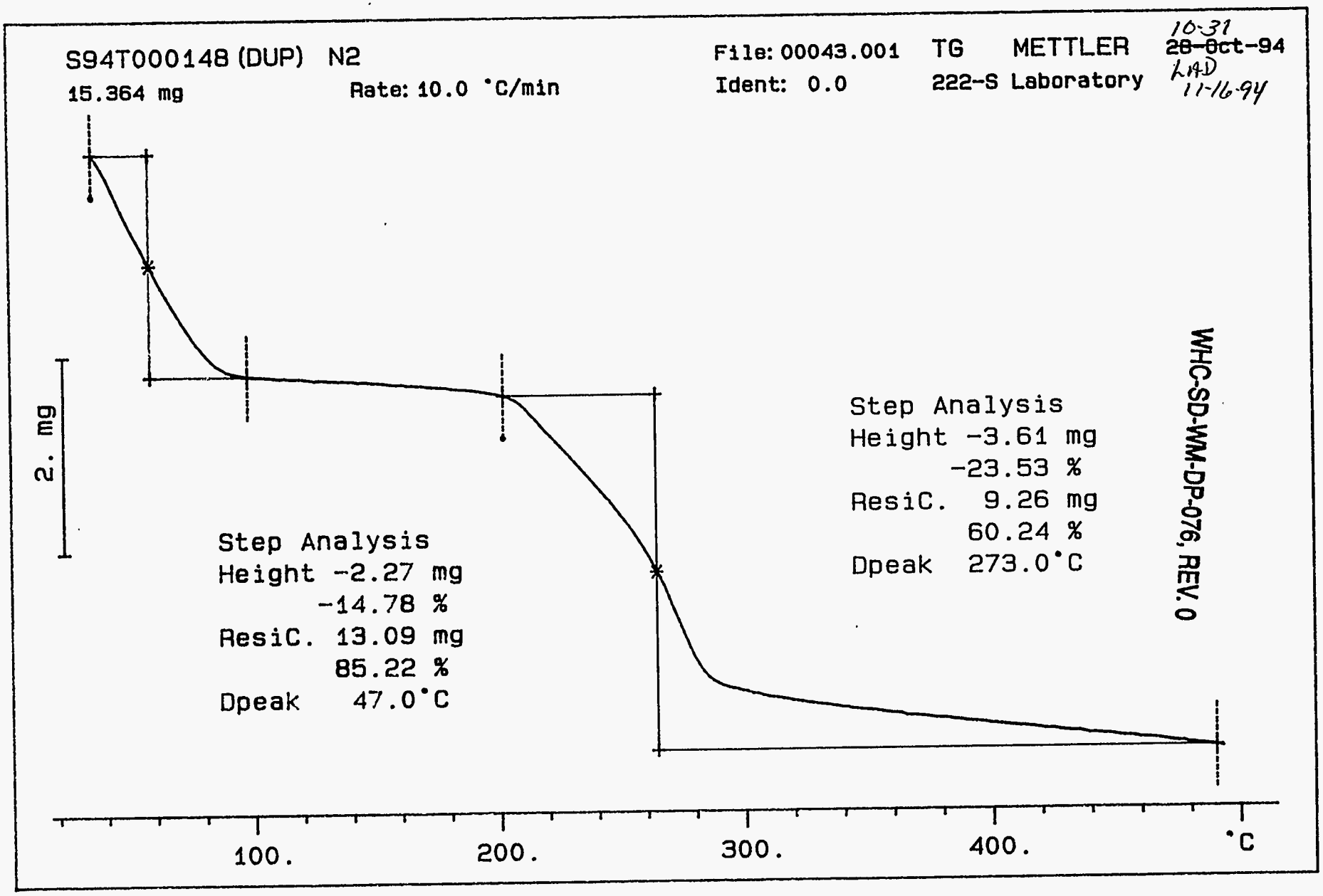
Units shown for QC (SPK) may not reflect the actual units.

10/31/94


TGA STD
17.070 mg
Rate: 10.0 °C/min
File: 00038.001
Ident: 0.0
TG METTLER
222-S Laboratory
10-31
28-Oct-94
11-16-94
2ND
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 54 TO 56 .
Step Analysis
Height-10.01 mg
-58.61 %
ResiC. 7.06 mg
41.39 %
Dpeak 77.0°C
5. mg
100.
200.
300.
400.
°C
WHC-SD-WM-DP-076, REV.0

10/31/94


S94T000148 N2
17.953 mg
Rate: 10.0 °C/min
File: 00041.001 TG METTLER
Ident: 0.0
222-S Laboratory
10-31
28-Oct-94
11-16-94
LMD
5. mg
Step Analysis
Height -2.90 mg
-16.18 %
ResiC. 15.05 mg
83.82 %
Dpeak 47.0°C
Step Analysis
Height -4.24 mg
-23.64 %
ResiC. 10.60 mg
59.04 %
Dpeak 275.0°C
WHC-SD-WM-DP-076, REV.0
100.
200.
300.
400.
°C


S94T000148 (DUP) N2
15.364 mg
Rate: 10.0 °C/min
File: 00043.001 TG METTLER
Ident: 0.0 222-S Laboratory
10-31
28-Oct-94
LAD
11-16-94
2. mg
Step Analysis
Height -2.27 mg
-14.78 %
ResiC. 13.09 mg
85.22 %
Dpeak 47.0°C
Step Analysis
Height -3.61 mg
-23.53 %
ResiC. 9.26 mg
60.24 %
Dpeak 273.0°C
WHC-SD-WM-DP-076, REV.0
100.
200.
300.
400.
°C

Pages 8

10A2

LABCORE Data Entry Template for Worklist# 104

Analyst: KLV **Instrument:** TGA01 _____ **Method:** LA-560-112 A-1 KV 11/14/94

Worklist Comment: Please use N2 purge. JMF WHC-SD-WM-DP-076, REV. 0

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	STD	42NSA			TGA-01	SOLID	59.19 ~~58.89~~ JMF 10/21/94 JMF	58.89	99.5% N/A	%
2	SAMPLE	S94T000139	0		TGA-01	SOLID	N/A	9.86		%
3	DUP	S94T000139	0		TGA-01	SOLID	9.86	11.53	N/A	%
4	SAMPLE	S94T000146	0		TGA-01	SOLID	N/A	18.97		%
5	DUP	S94T000146	0		TGA-01	SOLID	18.97	18.77	N/A	%

Final page for worklist # 104

Analyst Signature

10/29/94
Date

Entered and approved 11/1/94

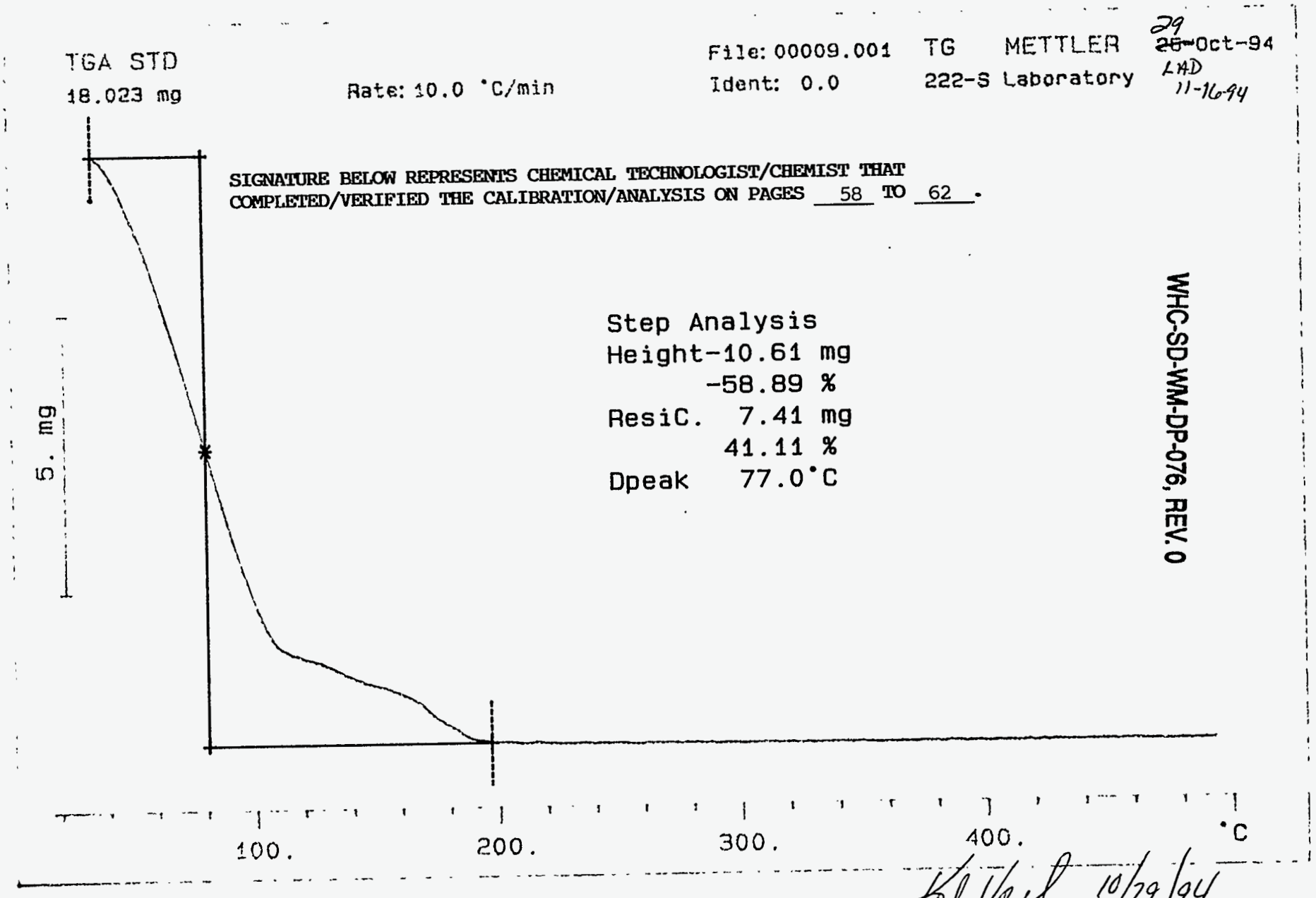
Data Entry Comments:

S94T000139 has second weight loss step 26.41% at 277.0°C; Duplicate 25.36% at 277.0°C.

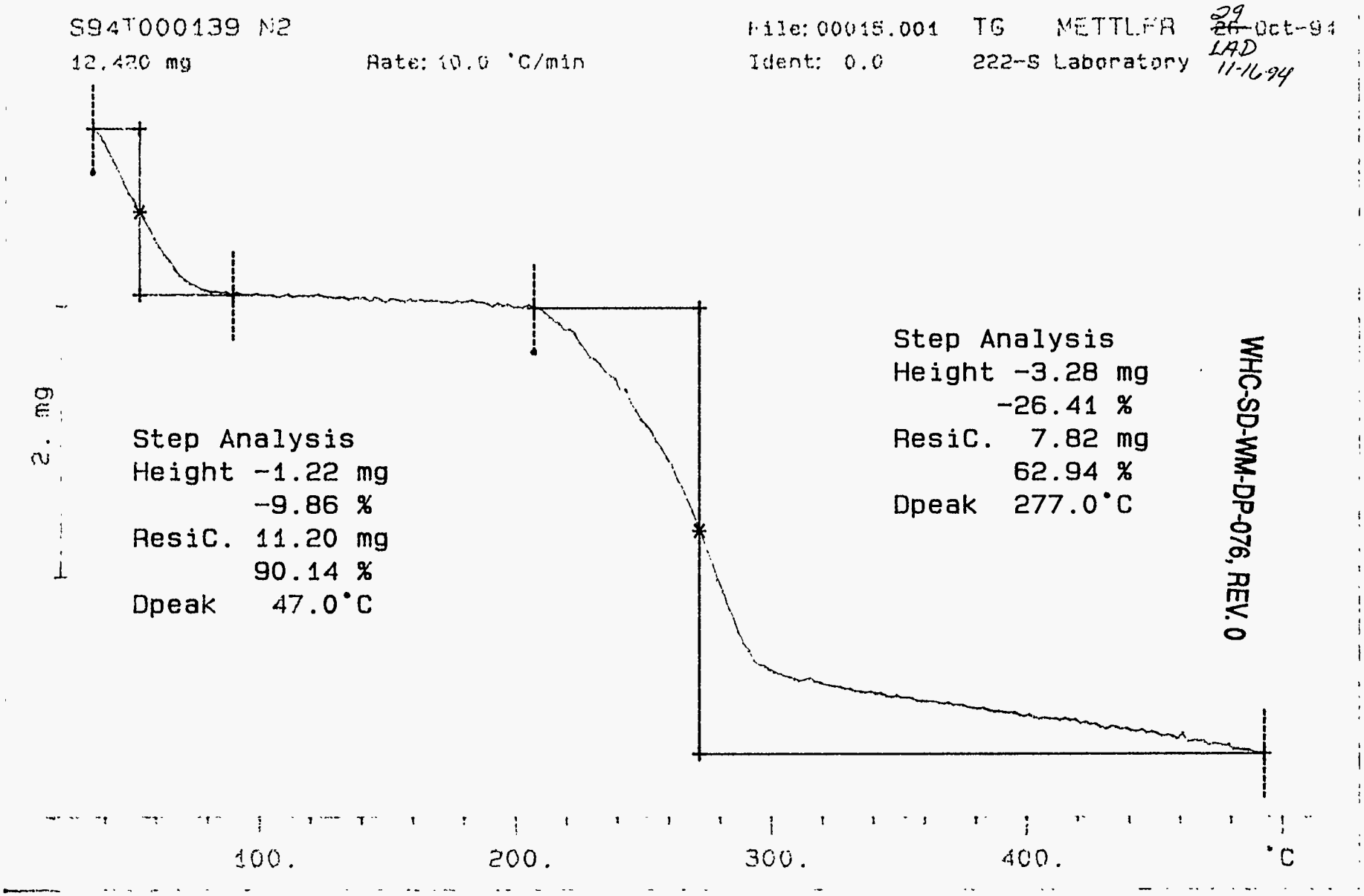
S94T000146 has second weight loss step 21.62% at 279°C, dup 21.97% at 275°C

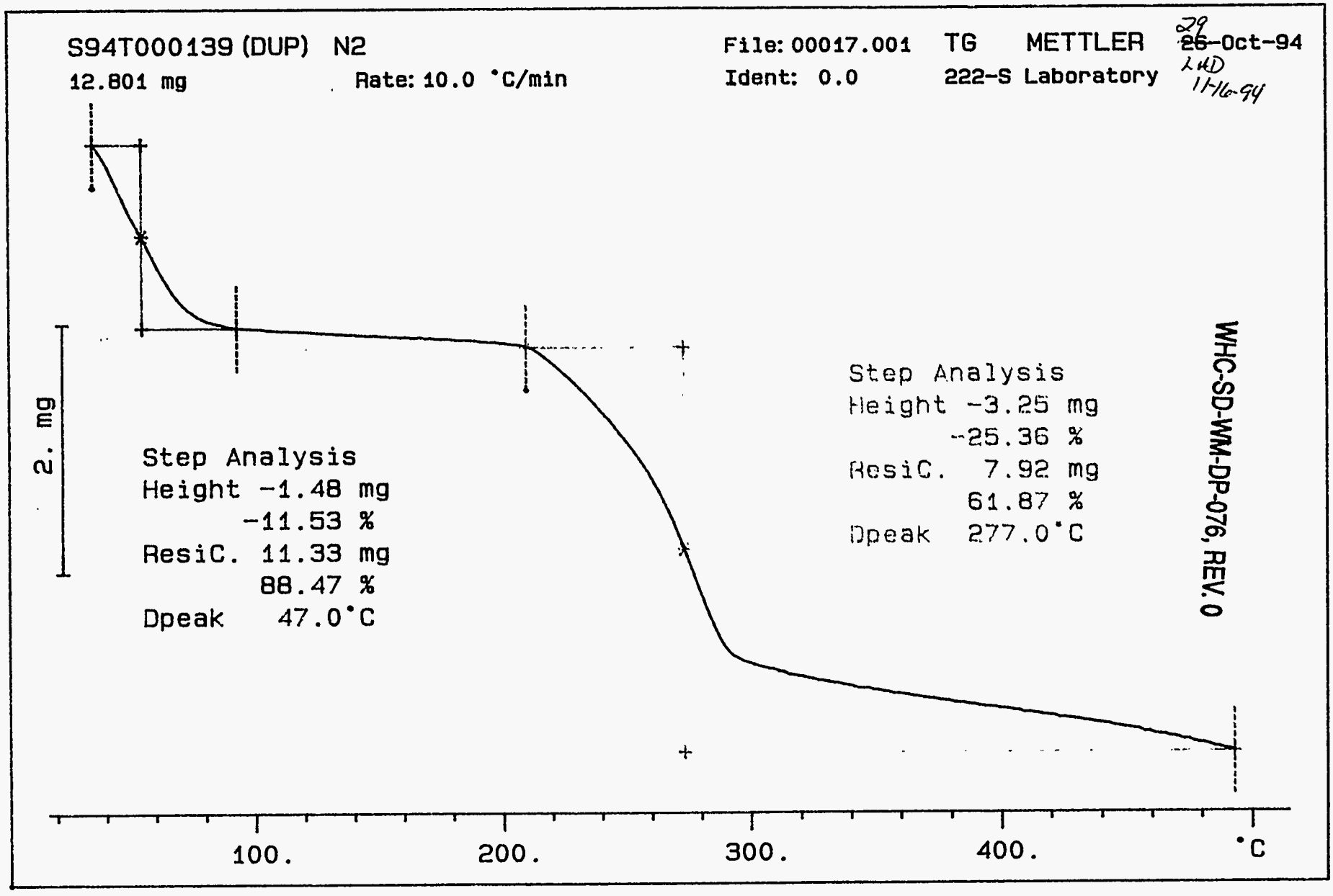
Units shown for QC (SPK) may not reflect the actual units.

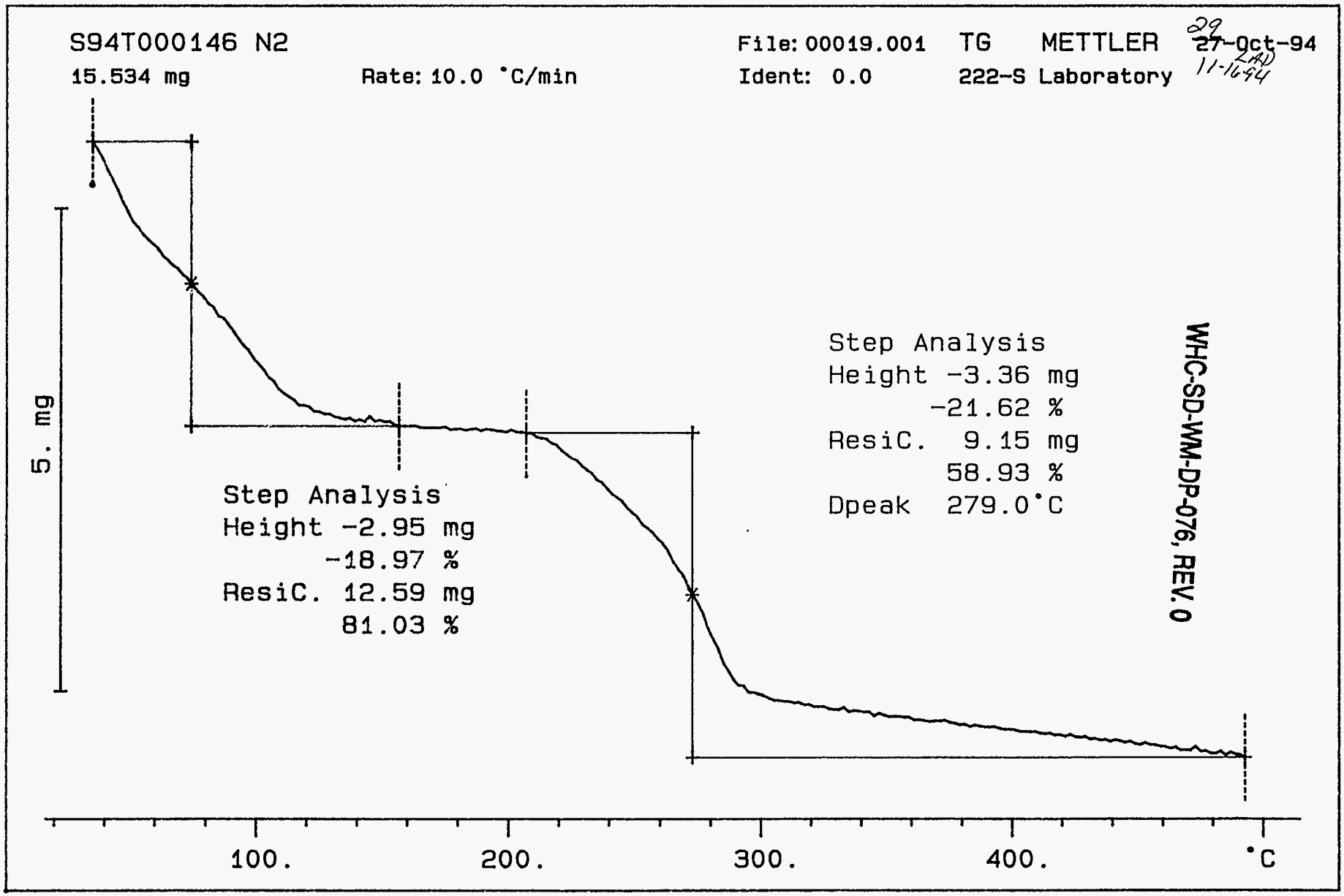
Page: 1 JMF 11/3/94

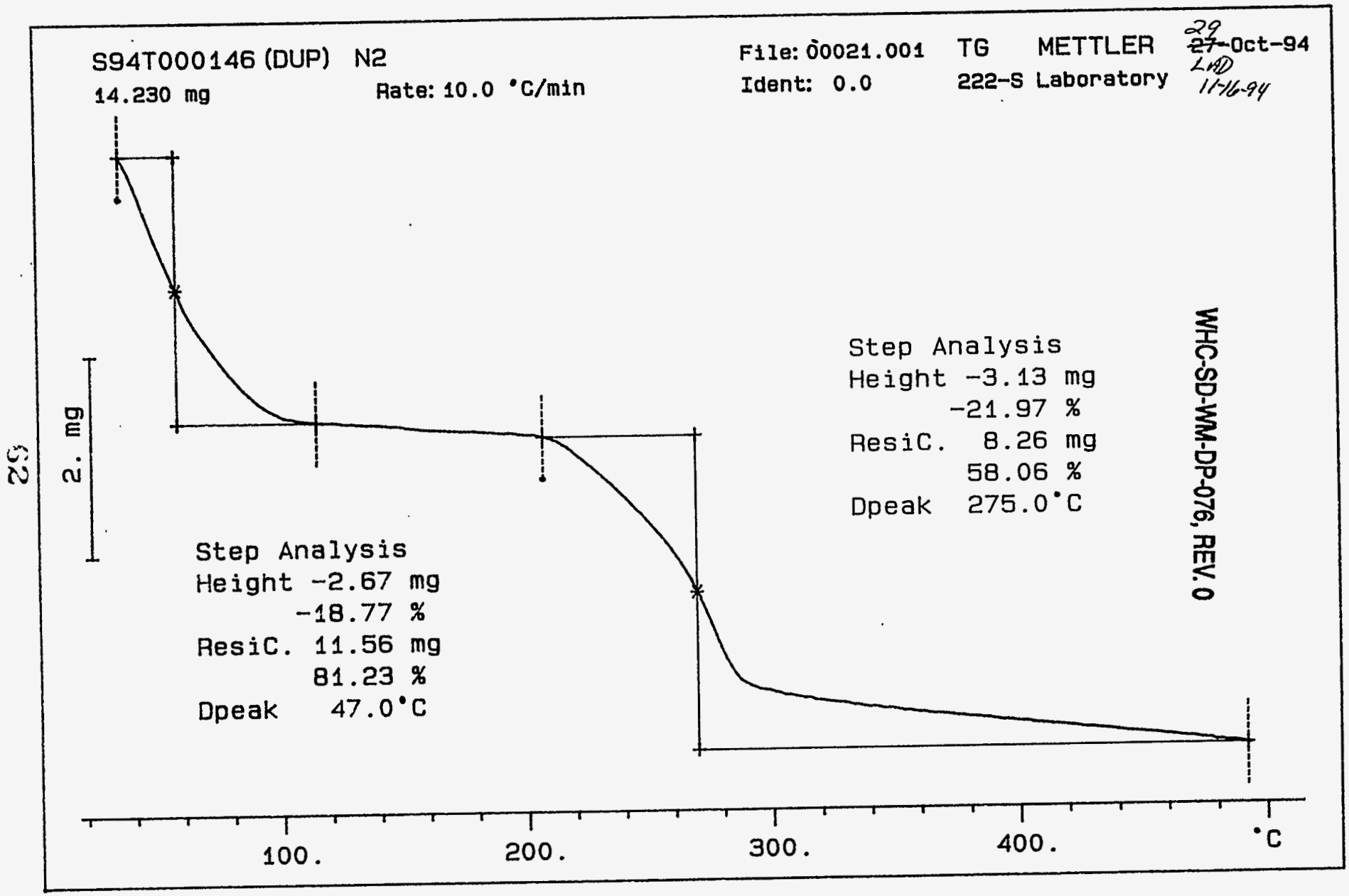


K.L. Vogt 10/29/94


S94T000139 N2
12.420 mg
Rate: 10.0 °C/min
File: 00015.001 TG METTLER
Ident: 0.0
222-S Laboratory
29-Oct-94
LAD 11-16-94
Step Analysis
Height -1.22 mg
-9.86 %
ResiC. 11.20 mg
90.14 %
Dpeak 47.0°C
Step Analysis
Height -3.28 mg
-26.41 %
ResiC. 7.82 mg
62.94 %
Dpeak 277.0°C
2. mg
100.
200.
300.
400.
°C
WHC-SD-WM-DP-076, REV. 0


S94T000139 (DUP) N2
12.801 mg
Rate: 10.0 °C/min
File: 00017.001 TG METTLER
Ident: 0.0
222-S Laboratory
29 26-Oct-94
LHD 11-16-94
2. mg
Step Analysis
Height -1.48 mg
-11.53 %
ResiC. 11.33 mg
88.47 %
Dpeak 47.0°C
Step Analysis
Height -3.25 mg
-25.36 %
ResiC. 7.92 mg
61.87 %
Dpeak 277.0°C
100.
200.
300.
400.
°C
WHC-SD-WM-DP-076, REV. 0


S94T000146 N2
15.534 mg
Rate: 10.0 °C/min
File: 00019.001 TG METTLER 27-Oct-94
Ident: 0.0 222-S Laboratory
29
11-16-94
5. mg
Step Analysis
Height -2.95 mg
-18.97 %
ResiC. 12.59 mg
81.03 %
Step Analysis
Height -3.36 mg
-21.62 %
ResiC. 9.15 mg
58.93 %
Dpeak 279.0°C
100.
200.
300.
400.
°C
WHC-SD-WM-DP-076, REV. 0


S94T000146 (DUP) N2
14.230 mg
Rate: 10.0 °C/min
File: 00021.001 TG METTLER
Ident: 0.0
222-S Laboratory
29-Oct-94
11-16-94
Step Analysis
Height -3.13 mg
-21.97 %
ResiC. 8.26 mg
58.06 %
Dpeak 275.0°C
Step Analysis
Height -2.67 mg
-18.77 %
ResiC. 11.56 mg
81.23 %
Dpeak 47.0°C
2. mg
100.
200.
300.
400.
°C
WHC-SD-WM-DP-076, REV. 0

Aug 8

LABCORE Data Entry Template for Worklist# 105

Analyst: DWS **Instrument:** TGA01 _____ **Method:** LA-560-112 A-1 KV 11/14/94

Worklist Comment: Please use N2 purge. JMF

WHC-SD-WM-DP-076, REV. 0

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	STD	42N8A			TGA-01	SOLID	59.19	58.14	N/A	%
2	SAMPLE	S94T000140	0		TGA-01	SOLID	N/A	Sample broken		%
3	DUP	S94T000140	0		TGA-01	SOLID	sample	broken	N/A	%
4	SAMPLE	S94T000141	0		TGA-01	SOLID	N/A	13.76		%
5	DUP	S94T000141	0		TGA-01	SOLID	13.76	7.24	N/A	%

Final page for worklist # 105

Analyst Signature

11-1-94
Date

Entered + approved 11/3/94. J. M. Fuyi

Data Entry Comments: S94T000141 has a second weight loss of 17.27% at 275°C its duplicate has 22.02% at 279.0°C. J. M. Fuyi 11/3/94

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

LABCORE Data Entry Template for Worklist# 165

Analyst: JMF **Instrument:** DSC01 _____ **Method:** LA-514-113

Worklist Comment: Dry DSC BX-105. JMF WHC-SD-WM-DP-076, Rev. 0

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	SAMPLE	S94T000139	0		DSC-02	SOLID	N/A	0		Joule
2	DUP	S94T000139	0		DSC-02	SOLID	0	0	N/A	Joule
3	SAMPLE	S94T000146	0		DSC-02	SOLID	N/A	0		Joule
4	DUP	S94T000146	0		DSC-02	SOLID	0	0	N/A	Joule
5	SAMPLE	S94T000141	0		DSC-02	SOLID	N/A	0		Joule
6	DUP	S94T000141	0		DSC-02	SOLID	0	0	N/A	Joule
7	SAMPLE	S94T000143	0		DSC-02	SOLID	N/A	0		Joule
8	DUP	S94T000143	0		DSC-02	SOLID	0	0	N/A	Joule
9	SAMPLE	S94T000147	0		DSC-02	SOLID	N/A	0		Joule
10	DUP	S94T000147	0		DSC-02	SOLID	0	0	N/A	Joule
11	SAMPLE	S94T000148	0		DSC-02	SOLID	N/A	0		Joule
12	DUP	S94T000148	0		DSC-02	SOLID	0	0	N/A	Joule

Final page for worklist # 165

Analyst Signature _____ Date 11/14/94

Entered & reviewed 11/14/94. JMF

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 105

Analyst: _____ **Instrument:** TGA01 _____ **Method:** LA-560-112

Worklist Comment: Please use N2 purge. JMF

WHC-SD-WM-DP-076, REV. 0

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	STD				TGA-01	SOLID			N/A	%
2	SAMPLE	S94T000141	0		TGA-01	SOLID	N/A			%
3	DUP	S94T000141	0		TGA-01	SOLID			N/A	%

Final page for worklist # 105

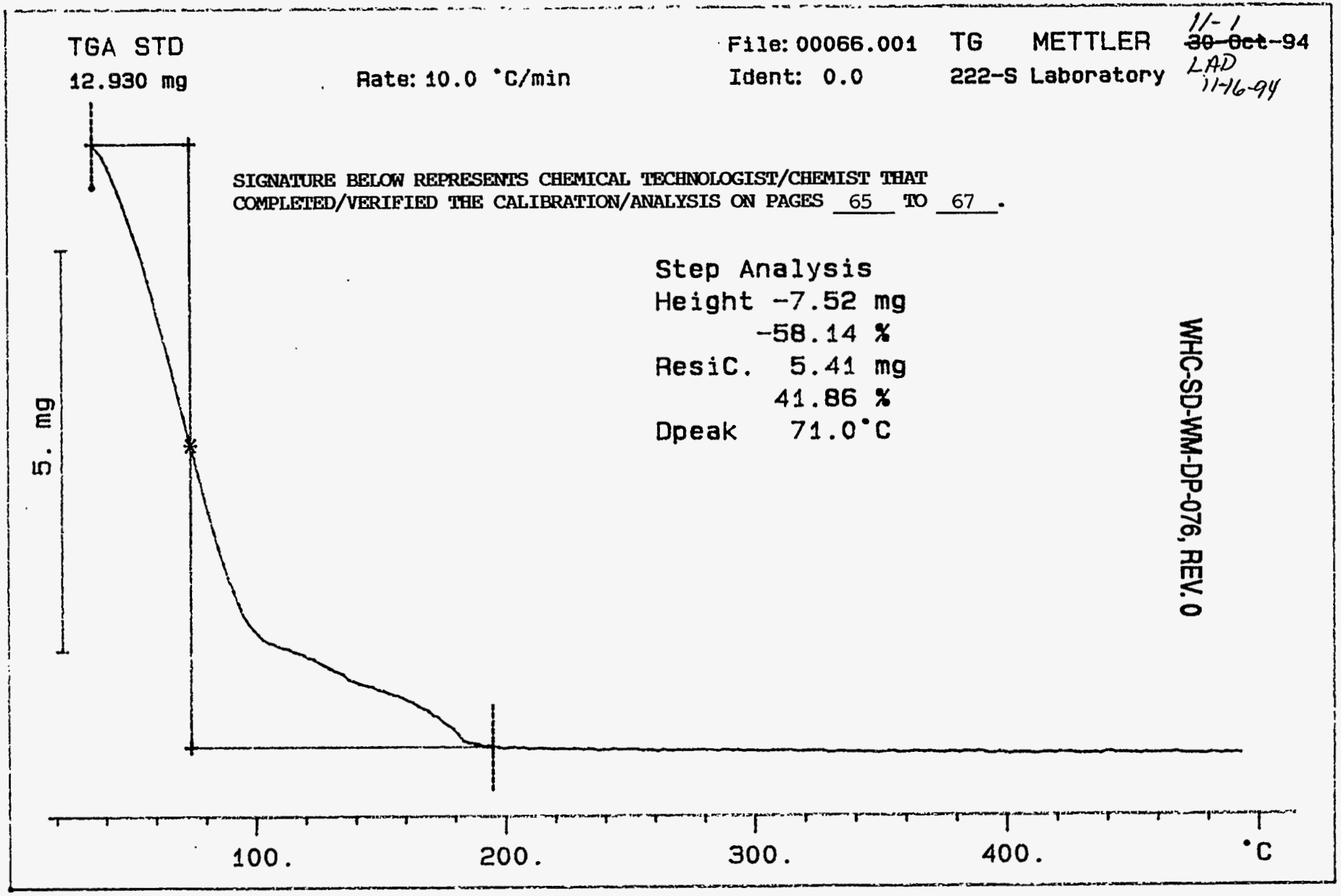
_____ _____

Analyst Signature **Date**

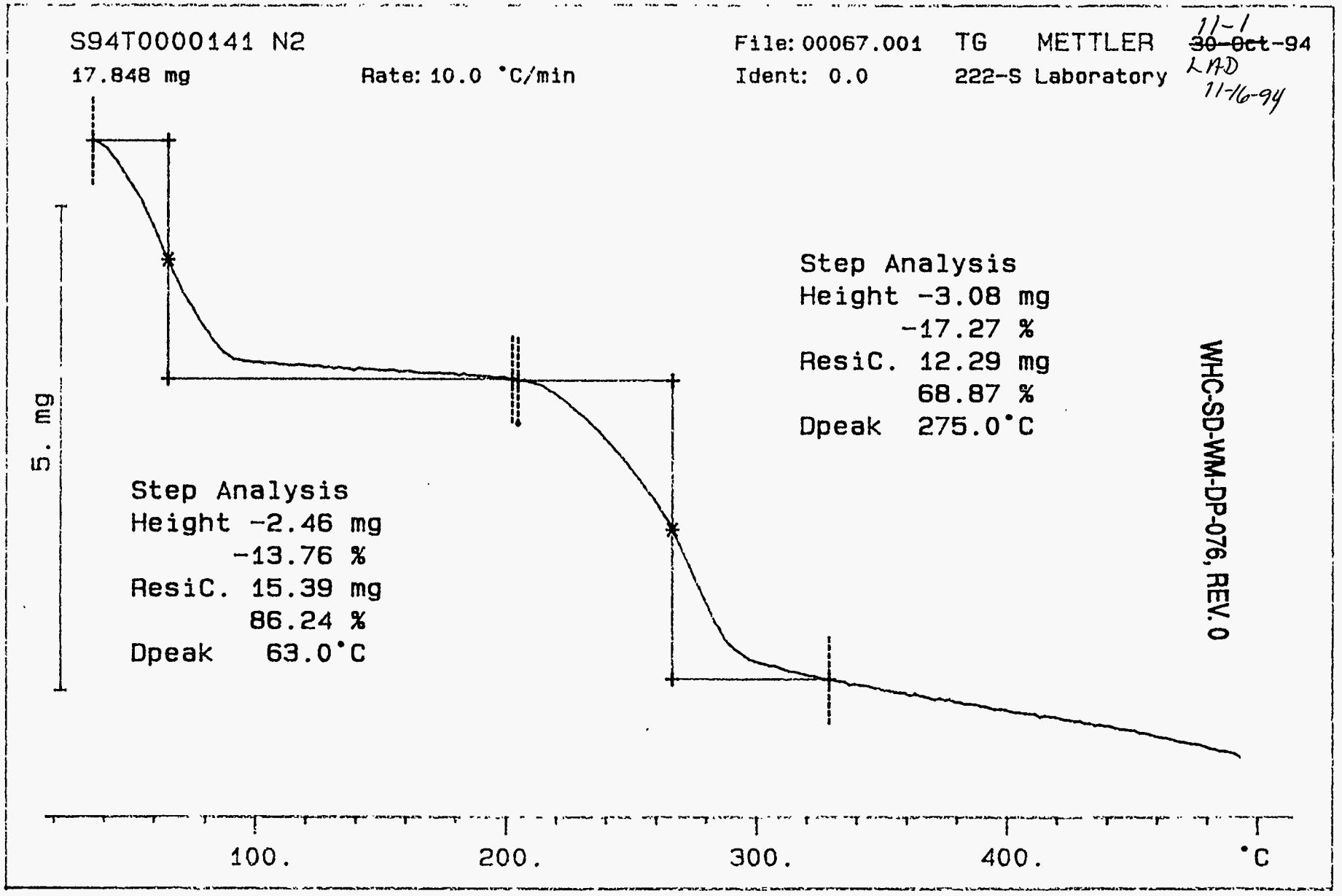
Data Entry Comments: See attached worklist for data. JMF 4/3/94

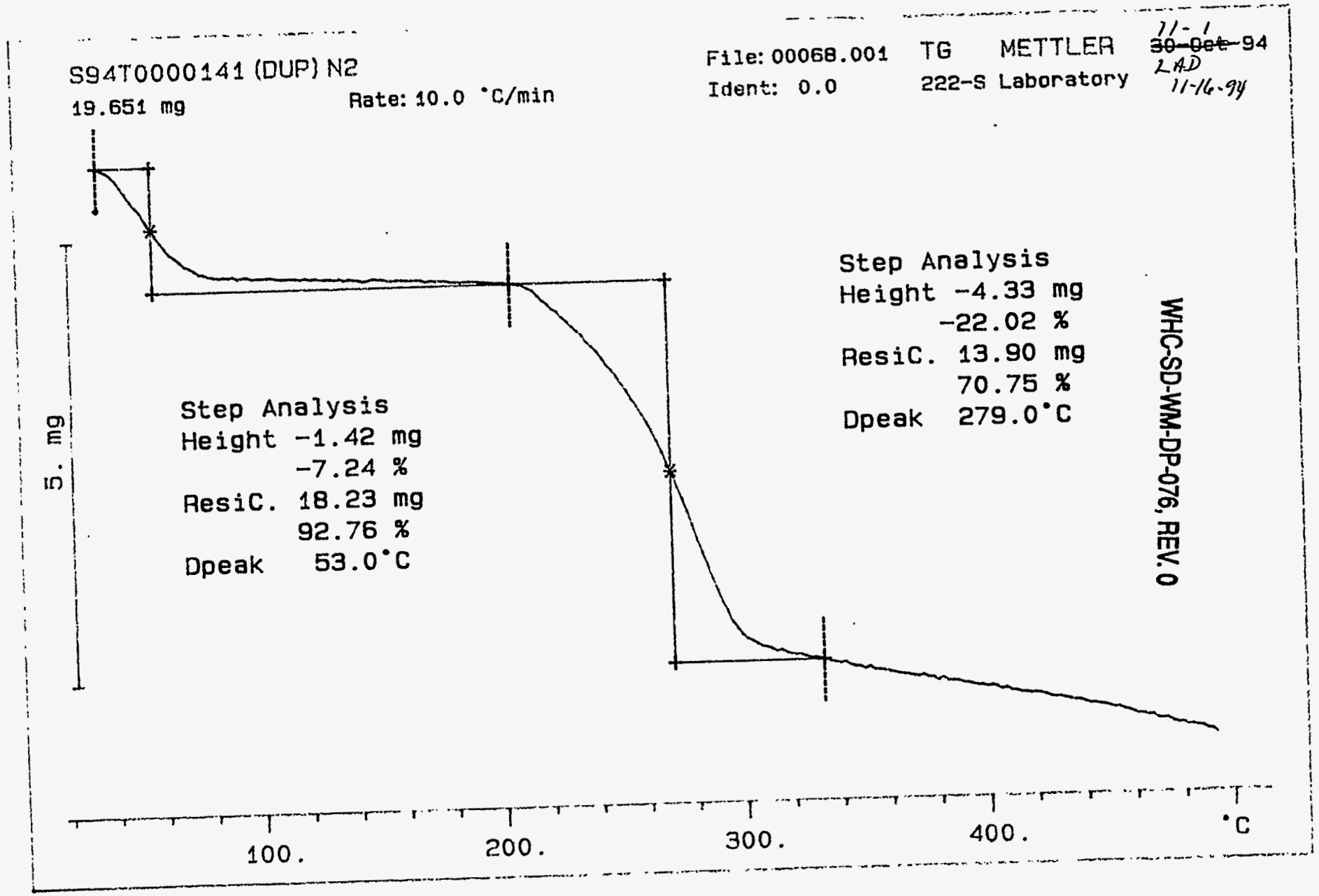
Units shown for QC (SPK) may not reflect the actual units.

Page: 1



Leslie Dian 11-16-94


S94T0000141 N2
17.848 mg
Rate: 10.0 °C/min
File: 00067.001 TG METTLER
Ident: 0.0 222-S Laboratory
11-1
30-Oct-94
LMD
11-16-94
Step Analysis
Height -3.08 mg
-17.27 %
ResiC. 12.29 mg
68.87 %
Dpeak 275.0°C
Step Analysis
Height -2.46 mg
-13.76 %
ResiC. 15.39 mg
86.24 %
Dpeak 63.0°C
5. mg
100.
200.
300.
400.
°C
WHC-SD-WM-DP-076, REV.0


S94T0000141 (DUP) N2
19.651 mg
Rate: 10.0 °C/min
File: 00068.001 TG METTLER
Ident: 0.0 222-S Laboratory
11-1 30-Oct-94 LAD 11-16-94
Step Analysis
Height -1.42 mg
-7.24 %
ResiC. 18.23 mg
92.76 %
Dpeak 53.0°C
Step Analysis
Height -4.33 mg
-22.02 %
ResiC. 13.90 mg
70.75 %
Dpeak 279.0°C
5. mg
100.
200.
300.
400.
°C
WHC-SD-WM-DP-076, REV.0

FUSION DIGESTION ANALYSES

August 8

QA 3

LABCORE Data Entry Template for Worklist# 139

Analyst: JWS **Instrument:** AB00 16 **Method:** LA-508-101 Rev 3 WHC-SD-WM-DP-076, REV. 0

Worklist Comment: Use a sample size of .050 mL and a SPK volume of .100 mL.

	Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1,2	1	BLNK-PREP				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
	1	BLNK-PREP				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct.
3,4	2	STD				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
	2	STD				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct.
5,6	3	SAMPLE	S94T000142	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
	3	SAMPLE	S94T000142	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct.
7,8	4	DUP	S94T000142	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
	4	DUP	S94T000142	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct.
9,10	5	SPK	S94T000142	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
11,12	6	SAMPLE	S94T000144	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
	6	SAMPLE	S94T000144	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct.
13,14	7	DUP	S94T000144	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
	7	DUP	S94T000144	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct.
15,16	8	SPK	S94T000144	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g

Final page for worklist # 139

Joel M Johnson
Analyst Signature

11-02-94
Date
11/3/94

M G Soloman

BEST AVAILABLE COPY

Data Entry Comments:
Low SPK recoveries are due to high dissolved solids — No rerun Needed. High RPD For Sample S94T000144 is acceptable due to low sample activity. 11/3/94

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

Page: 1

11-18-94 LAD

LA-508-101 ~~D-1~~ D2 AT: LIQUIDS/SOLIDS

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		16	
STANDARD	DISH SIZE 1, 2, or 5	(MS)	2	
Work List	TOTAL COUNTS	(TC)	1277	1346
139	COUNT TIME in MINUTES	(CT)	30	
AT or TB ?	BACKGROUND in cpm	(BKG)	.1	
AT	SAMPLE SIZE in mL	(SS)	~~.050~~ 10mL	
Test Code	DILUTION FACTOR	(DF)	1	
Alpha 01	DIGEST DILUTION FACTOR	(DDF)	1	
Matrix	EFFICIENCY FACTOR	(EFF)		
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			
Sample #	STANDARD BOOK / 61852		9.54E-3	
Instrument Code				
WB27806				
Analyst				
JVS				
Date				
11-2-94				
Time				
1500				

3,4

WHC-SD-WM-DP-076, REV. 0

D2 LAD 11-16-94

LA-508-101 ~~D-1~~ AT: LIQUIDS/SOLIDS

			BLANK	REPLICATE
Type	DETECTOR NUMBER		16	
BLANK	DISH SIZE 1, 2, or 5	(MS)	2	
	TOTAL COUNTS	(TC)	5	4
	COUNT TIME in MINUTES	(CT)	30	
AT or TB ?	BACKGROUND in cpm	(BKG)	.1	
AT 142/144	SAMPLE SIZE in mL	(SS)	.050	
	DILUTION FACTOR	(DF)	1	
	DIGEST DILUTION FACTOR	(DDF)	2.1175	
Matrix	EFFICIENCY FACTOR	(EFF)		
~~LIQUID~~ Solid	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			

1,2

Data Entry by: [signature] Date: 11-2-94

Data Entry by: [signature] Date: 11/3/94

508101_C

LA-508-101,D-1	AT: LIQUIDS/SOLIDS	SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16	
SAMPLE	DISH SIZE 1, 2, or 5 (MS)	2	
Work List	TOTAL COUNTS (TC)	844	930
139	COUNT TIME in MINUTES (CT)	30	
AT or TB ?	BACKGROUND in cpm (BKG)	.1	
AT	SAMPLE SIZE in mL (SS)	.050	
Test Code	DILUTION FACTOR (DF)	1	
Alpha 01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.1175	
Matrix	EFFICIENCY FACTOR (EFF)		
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		
Sample #			
594T000142			
Instrument Code			
WB27806			
Analyst			
JLS			
Date			
11-2-94			
Time			
1500			

5,6

WHC-SD-WM-DP-076, REV. 0

LAD 11-16-94

LA-508-101 D-1	AT: LIQUIDS/SOLIDS	DUPLICATE	REPLICATE
Type	DETECTOR NUMBER	16	
DUPLICATE	DISH SIZE 1, 2, or 5 (MS)	2	
	TOTAL COUNTS (TC)	859	882
	COUNT TIME in MINUTES (CT)	30	
AT or TB ?	BACKGROUND in cpm (BKG)	.1	
AT	SAMPLE SIZE in mL (SS)	.050	
	DILUTION FACTOR (DF)	1	
	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.1235	
Matrix	EFFICIENCY FACTOR (EFF)		
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		

7,8

Data Entry by: JM Lockett Date: 11-2-94

Data Entry by: M B Sturm Date: 11-3-94

508101_C

LA-508-101 D-2AT: SPIKED SAMPLE

Type	DETECTOR NUMBER		SPIKE	REPLICATE
SPIKE	DISH SIZE 1, 2, or 5	(MS)	2	
Work List	TOTAL COUNTS	(TC)	43264	37915
139	COUNT TIME in MINUTES	(CT)	30	
AT or TB ?	BACKGROUND in cpm	(BKG)	.1	
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	.050	
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	
Alpha 01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1175	
Matrix	SPIKE VOLUME in mL	(SVol)	.100	
Soil	SPIKE DILUTION FACTOR	(SDF)	1	
Sample #	SPIKE VALUE in µCi/L	(SVal)	36.4	
S94T000142	INSTRUMENT EFFICIENCY FACTOR	(EFF)		
Instrument Code	SAMPLE + SPIKE µCi/g	(S+S)		
WB27806	AVERAGE or MAXIMUM µCi/g from FORM C		5.96E-1	
Analyst	SPIKE BOOK # 94843		36.4	
JJS				
Date				
11-2-94				
Time				
1500				

Data Entry by: [signature] Date: 11-2-94

508101_X

[signature] 11-3-94

WHC-SD-WM-DP-076, REV. 0

LA-508-101 D-2TB: SPIKED SAMPLE

Type	DETECTOR NUMBER		SPIKE	REPLICATE
SPIKE	DISH SIZE 1, 2, or 5	(MS)		
	TOTAL COUNTS	(TC)		
	COUNT TIME in MINUTES	(CT)		
	BACKGROUND in cpm	(BKG)		
	SAMPLE VOLUME in mL (Spiked Vial)	(SS)		
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)		
	DIGEST GRAMS of SOLIDS/L	(Dg/L)		
	SPIKE VOLUME in mL	(SVol)		
	SPIKE DILUTION FACTOR	(SDF)		
	SPIKE VALUE in µCi/L	(SVal)		
	INSTRUMENT EFFICIENCY FACTOR	(EFF)		
	SAMPLE + SPIKE µCi/g	(S+S)		
	AVERAGE or MAXIMUM µCi/g from FORM C			
	SPIKE BOOK #			

Data Entry by: Date:

Data Entry by: Date:

508101_X

LA-508-101 ~~D-1~~ D-2 LAD 11-16-94 AT: LIQUIDS/SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16	
SAMPLE	DISH SIZE 1, 2, or 5 (MS)	2	
Work List	TOTAL COUNTS (TC)	487	522
139	COUNT TIME in MINUTES (CT)	30	
AT or TB ?	BACKGROUND in cpm (BKG)	.1	
AT	SAMPLE SIZE in mL (SS)	.050	
Test Code	DILUTION FACTOR (DF)	1	
Alpha 01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.1215	
Matrix	EFFICIENCY FACTOR (EFF)		
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		
Sample #			
594T000144			
Instrument Code			
WB27806			
Analyst			
JVS			
Date			
11-2-94			
Time			
1500			

11,12

LAD 11-16-94

LA-508-101 ~~D-1~~ AT: LIQUIDS/SOLIDS

		DUPLICATE	REPLICATE
Type	DETECTOR NUMBER	16	
DUPLICATE	DISH SIZE 1, 2, or 5 (MS)	2	
	TOTAL COUNTS (TC)	298	312
	COUNT TIME in MINUTES (CT)	30	
AT or TB ?	BACKGROUND in cpm (BKG)	.1	
AT	SAMPLE SIZE in mL (SS)	.050	
	DILUTION FACTOR (DF)	1	
	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.1190	
Matrix	EFFICIENCY FACTOR (EFF)		
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		

13,14

Data Entry by: [signature] Date: 11-2-94

Data Entry by: [signature] Date: 11-3-94

508101_C

15, 16

LA-508-101 D2 AT: SPIKED SAMPLE

Type	DETECTOR NUMBER		SPIKE	REPLICATE
SPIKE	DISH SIZE 1, 2, or 5	(MS)	2	
Work List	TOTAL COUNTS	(TC)	39274	33219
139	COUNT TIME in MINUTES	(CT)	30	
AT or TB ?	BACKGROUND in cpm	(BKG)	.1	
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	.050	
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	
Alpha 01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1215	
Matrix	SPIKE VOLUME in mL	(SVol)	.100	
solid	SPIKE DILUTION FACTOR	(SDF)	1	
Sample #	SPIKE VALUE in µCi/L	(SVal)	36.4	
594T000144	INSTRUMENT EFFICIENCY FACTOR	(EFF)		
Instrument Code	SAMPLE + SPIKE µCi/g	(S+S)		
WB27806	AVERAGE or MAXIMUN µCi/g from FORM C		3.37E-1	
Analyst	SPIKE BOOK # 94843			
JJS				
Date				
11-2-94				
Time				
1500				

WHC-SD-WM-DP-076, REV. 0

Data Entry by: [signature] Date: 11-2-94

508101_X

[signature] 11-3-94

LA-508-101 D2 TB: SPIKED SAMPLE

Type	DETECTOR NUMBER		SPIKE	REPLICATE
SPIKE	DISH SIZE 1, 2, or 5	(MS)		
	TOTAL COUNTS	(TC)		
	COUNT TIME in MINUTES	(CT)		
	BACKGROUND in cpm	(BKG)		
	SAMPLE VOLUME in mL (Spiked Vial)	(SS)		
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)		
	DIGEST GRAMS of SOLIDS/L	(Dg/L)		
	SPIKE VOLUME in mL	(SVol)		
	SPIKE DILUTION FACTOR	(SDF)		
	SPIKE VALUE in µCi/L	(SVal)		
	INSTRUMENT EFFICIENCY FACTOR	(EFF)		
	SAMPLE + SPIKE µCi/g	(S+S)		
	AVERAGE or MAXIMUN µCi/g from FORM C			
	SPIKE BOOK #			

Data Entry by: Date:

Data Entry by: Date:

508101_X

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) LIQUIDS

Type			STANDARD	REPLICATE
STANDARD	DETECTOR NUMBER		16	16
Work List	DISH SIZE 1 , 2 , or 5	(MS)	2	2
139	TOTAL COUNTS	(TC)	1277	1346
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.1	0.1
Test Code	SAMPLE SIZE in mL	(SS)	10.000	10.000
ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST DILUTION FACTOR	(DDF)	1	1
LIQUID	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Sample #	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		42.467	44.767
	Sample Concentration in µCi/L		9.09E-03	
	Replicate Concentration in µCi/L		9.58E-03	
Instrument Code				
WB27806	Average Concentration in µCi/L		9.3380E-03	
Analyst				
JMV	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
11/02/94	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
03:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

				DETECTION LEVEL
ALPHA TOTAL	in µCi/mL	(Average) =	9.34E-06	
RELATIVE COUNTING ERROR		=	5.5%	7.71E-08 µCi/mL

Data Entry by: M [illegible] Date: 11/03/94

Approved by: [signature] Date: 11/3/94

Form 508101_C Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SOLIDS

Type			BLANK	REPLICATE
BLANK	DETECTOR NUMBER		16	16
Work List	DISH SIZE 1 , 2 , or 5	(MS)	2	2
139	TOTAL COUNTS	(TC)	5	4
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.1	0.1
Test Code	SAMPLE SIZE in mL	(SS)	0.050	0.050
ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1175	2.1175
SOLID	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Sample #	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.222	0.179
142,144	Sample Concentration in µCi/g	<	4.49E-03	
Instrument Code	Replicate Concentration in µCi/g	<	3.62E-03	
WB27806	Maximum Concentration in µCi/g	<	4.4938E-03	
Analyst				
JMV	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
11/02/94				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
03:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/g (Maximum) =	< 4.49E-03	
	LESS THAN Value was Determined from Rmax.		7.28E-03 µCi/g
RELATIVE COUNTING ERROR	=	500.0%	

Data Entry by: M A Sieczkowski Date: 11/03/94

Approved by: [signature] Date: 11/3/94

Form 508101_C Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SOLIDS

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		16	16
Work List	DISH SIZE 1 , 2 , or 5	(MS)	2	2
139	TOTAL COUNTS	(TC)	844	930
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.1	0.1
Test Code	SAMPLE SIZE in mL	(SS)	0.050	0.050
ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1175	2.1175
SOLID	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Sample #	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		28.033	30.900
S94T000142	Sample Concentration in µCi/g		5.67E-01	
Instrument Code	Replicate Concentration in µCi/g		6.25E-01	
WB27806	Average Concentration in µCi/g		5.9585E-01	
Analyst				
JMV	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
11/02/94				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
03:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/g (Average) =	5.96E-01	
RELATIVE COUNTING ERROR	=	6.8%	7.28E-03 µCi/g

Data Entry by: [signature] Date: 11/03/94

Approved by: [signature] Date: 11/3/94

Form 508101_C Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
DUPLICATE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	859	882
139	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1235	2.1235
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		28.533	29.300

Sample #	Sample Concentration in µCi/g 5.75E-01
S94T000142	Replicate Concentration in µCi/g 5.91E-01
Instrument Code	
WB27806	Average Concentration in µCi/g 5.8308E-01
Analyst	
JMV	Rs (Sample Count Rate) = (TC / CT) - BKG
Date	ALPHA TOTAL µCi/g = Rs • 1000mL/L • DF / (EFF • SS • Dg/L • 2220000dpm/µCi)
11/02/94	
Time	Relative Counting Error = [|(The Square Root of TC + BKG • CT) / (TC - BKG • CT)|] • 1.96 • 100
03:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/g (Average) =	5.83E-01	
RELATIVE COUNTING ERROR	=	6.7%	7.26E-03 µCi/g

Data Entry by: [signature] Date: 11/03/94

Approved by: [signature] Date: 11/3/94

Form 508101_C Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		16	16
SPIKE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	43264	37915
139	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.050	0.050
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1175	2.1175
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Sample #	SPIKE VALUE in µCi/L	(SVal)	36.4	36.4
S94T000142	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Instrument Code	SAMPLE + SPIKE µCi/g	(S+S)	2.92E+01	2.56E+01
WB27806	AVERAGE or MAXIMUM µCi/g from FORM C		5.9600E-01	

Analyst
JMV
Date
11/02/94
Time
03:00 PM

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

PERCENT SPIKE RECOVERY = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal)*100

RESULT AVG. PERCENT SPIKE RECOVERY = 77.8%

Data Entry by:		Date:	03-Nov-94
Approved by:		Date:	11/3/94

Form 508101_X Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SOLIDS

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		16	16
Work List	DISH SIZE 1 , 2 , or 5	(MS)	2	2
139	TOTAL COUNTS	(TC)	487	522
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.1	0.1
Test Code	SAMPLE SIZE in mL	(SS)	0.050	0.050
ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1215	2.1215
SOLID	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Sample #	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		16.133	17.300
S94T000144	Sample Concentration in µCi/g		3.26E-01	
Instrument Code	Replicate Concentration in µCi/g		3.49E-01	
WB27806	Average Concentration in µCi/g		3.3739E-01	
Analyst				
JMV	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
11/02/94				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
03:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	3.37E-01	DETECTION LEVEL
				7.27E-03
RELATIVE COUNTING ERROR		=	9.0%	µCi/g

Data Entry by:		Date:	11/03/94
Approved by:		Date:	11/3/94

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SOLIDS

Type	DETECTOR NUMBER		SAMPLE	REPLICATE
DUPLICATE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	298	312
139	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.119	2.119
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9.833	10.300

Sample #	Sample Concentration in µCi/g	1.99E-01
S94T000144	Replicate Concentration in µCi/g	2.08E-01
Instrument Code		
WB27806	Average Concentration in µCi/g	2.0342E-01

Analyst	
JMV	Rs (Sample Count Rate) = (TC / CT) - BKG
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
11/02/94	
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
03:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	2.03E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	11.5%	7.28E-03 µCi/g

Data Entry by:	M Sieg	Date:	11/03/94
Approved by:	[signature]	Date:	11/3/94

Form 508101_C Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SPIKED SAMPLE

Type	DETECTOR NUMBER		SPIKE	REPLICATE
SPIKE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	39274	33219
139	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.050	0.050
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1215	2.1215
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Sample #	SPIKE VALUE in µCi/L	(SVal)	36.4	36.4
S94T000144	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Instrument Code	SAMPLE + SPIKE µCi/g	(S+S)	2.64E+01	2.23E+01
WB27806	AVERAGE or MAXIMUM µCi/g from FORM C		3.3700E-01	
Analyst				
JMV	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
11/02/94	PERCENT SPIKE RECOVERY = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal)*100			
Time				
03:00 PM				

RESULT | AVG. PERCENT SPIKE RECOVERY = 70.1%

Data Entry by:	Date:	03-Nov-94
Approved by:	Date:	11/3/94

Form 508101_X Rev. 1.1

LABCORE Data Entry Template for Worklist# 114

Analyst: KRM **Instrument:** AB00 15 **Method:** LA-508-101 D-2

WHC-SD-WM-DP-076, REV. 0

Worklist Comment: Run 1 STD for worlist. Determine SS using ludlum detector

	Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	1	BLNK-PREP				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
2	1	BLNK-PREP				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct.
3	2	STD				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
4	2	STD				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct.
5	3	SAMPLE	S94T000142	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
6	3	SAMPLE	S94T000142	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct.
7	4	DUP	S94T000142	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
8	4	DUP	S94T000142	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct.
9-10	5	SPK	S94T000142	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
11	6	SAMPLE	S94T000144	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
12	6	SAMPLE	S94T000144	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct.
13	7	DUP	S94T000144	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
14	7	DUP	S94T000144	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct.
15-16	8	SPK	S94T000144	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
17	9	BLNK-PREP				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
18	9	BLNK-PREP				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct.
—	10	STD				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
—	10	STD				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct.
19	11	SAMPLE	S94T000149	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
20	11	SAMPLE	S94T000149	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct.

Data Entry Comments:

Rerun for samples S94T000142, 144 requested due to poor SPK recovery

LAD 11-16-94

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

Page: 1

LABCORE Data Entry Template for Worklist# 114

Analyst: KRM **Instrument:** AB00 _____ **Method:** LA-508-101
WHC-SD-WM-DP-076, REV. 0

Worklist Comment: Run 1 STD for worlist. Determine SS using ludlum detector

	Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
21	12	DUP	S94T000149	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
22	12	DUP	S94T000149	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct.
23-24	13	SPK	S94T000149	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
25	14	SAMPLE	S94T000150	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
26	14	SAMPLE	S94T000150	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct.
27	15	DUP	S94T000150	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
28	15	DUP	S94T000150	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct.

Final page for worklist # 114

Analyst Signature

10-30-94
Date
10/31/94

Data Entry Comments:

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

Page: 2

D-2 LAD 11-16-94

LA-508-101 ~~D-1~~ AT: LIQUIDS/SOLIDS

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		15	
STANDARD	DISH SIZE 1, 2, or 5	(MS)	2	
Work List	TOTAL COUNTS	(TC)	1454	1477
114	COUNT TIME in MINUTES	(CT)	30	
AT or TB ?	BACKGROUND in cpm	(BKG)	.3	
AT	SAMPLE SIZE in mL	(SS)	10	
Test Code	DILUTION FACTOR	(DF)	1	
Alpha01	DIGEST DILUTION FACTOR	(DDF)	1	
Matrix	EFFICIENCY FACTOR	(EFF)		
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			
Sample #	STANDARD BOOK 1 9.54E-3		61B52	
Instrument Code				
WB26872				
Analyst				
KRMONTEITH				
Date				
10-30-94				
Time				
06:00				

3-4

WHC-SD-WM-DP-076, REV. 0

D-2 11-16-94

LA-508-101 ~~D-1~~ AT: LIQUIDS/SOLIDS

			BLANK	REPLICATE
Type	DETECTOR NUMBER		15	
BLANK	DISH SIZE 1, 2, or 5	(MS)	2	
	TOTAL COUNTS	(TC)	18	20
	COUNT TIME in MINUTES	(CT)	30	
AT or TB ?	BACKGROUND in cpm	(BKG)	.3	
AT 142/144	SAMPLE SIZE in mL	(SS)	.100	
	DILUTION FACTOR	(DF)	1	
	DIGEST DILUTION FACTOR	(DDF)	2.1175	
Matrix	EFFICIENCY FACTOR	(EFF)		
~~LIQUID~~ Solid	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			

1-2

85

Data Entry by: [signature] Date: 10-30-94

Data Entry by: [signature] Date: 10-31-94

LA-508-101 ~~D-1~~ LAD D2 AT: 11-16-94 LIQUIDS/SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	
SAMPLE	DISH SIZE 1, 2, or 5	(MS)	2	
Work List	TOTAL COUNTS	(TC)	2098	1805
114	COUNT TIME in MINUTES	(CT)	30	
AT or TB ?	BACKGROUND in cpm	(BKG)	.3	
AT	SAMPLE SIZE in mL	(SS)	.100	
Test Code	DILUTION FACTOR	(DF)	1	
Al-27-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1175	
Matrix	EFFICIENCY FACTOR	(EFF)		
SOLID	Ic, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			
Sample #				
5948000142				
Instrument Code				
WB26872				
Analyst				
KR MONTEITH				
Date				
10-30-94				
Time				
06:00				

5-6

WHC-SD-WM-DP-076, REV. 0

D2 11-16-94
LA-508-101 ~~D-1~~ AT: LIQUIDS/SOLIDS

			DUPLICATE	REPLICATE
Type	DETECTOR NUMBER		15	
DUPLICATE	DISH SIZE 1, 2, or 5	(MS)	2	
	TOTAL COUNTS	(TC)	1938	2168
	COUNT TIME in MINUTES	(CT)	30	
AT or TB ?	BACKGROUND in cpm	(BKG)	.3	
AT	SAMPLE SIZE in mL	(SS)	.100	
	DILUTION FACTOR	(DF)	1	
	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1235	
Matrix	EFFICIENCY FACTOR	(EFF)		
SOLID	Ic, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			

7-8

Data Entry by: [signature] Date: 10-30-94

Data Entry by: [signature] Date: 10-31-94

508101_C

9-10

LA-508-101 D-2AT: SPIKED SAMPLE

Type		SPIKE	REPLICATE
SPIKE	DETECTOR NUMBER	15	
	DISH SIZE 1, 2, or 5 (MS)	2	
Work List	TOTAL COUNTS (TC)	35230	34062
1147	COUNT TIME in MINUTES (CT)	30	
AT or TB ?	BACKGROUND in cpm (BKG)	.3	
AT	SAMPLE VOLUME in mL (Spiked Vial) (SS)	.100	
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)	1	
Alpha 01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.1175	
Matrix	SPIKE VOLUME in mL (SVol)	.100	
solids	SPIKE DILUTION FACTOR (SDF)	1	
Sample #	SPIKE VALUE in µCi/L (SVal)	36.4	
WB26872	INSTRUMENT EFFICIENCY FACTOR (EFF)		
Instrument Code	SAMPLE + SPIKE µCi/g (S+S)		
S94T000142	AVERAGE or MAXIMUM µCi/g from FORM C		
Analyst	SPIKE BOOK I	93B43	
KR MONTEITH			
Date			
10-30-94			
Time			
0600			

Data Entry by: Date:

508101_X

LA-508-101 D-2TB: SPIKED SAMPLE

Type		SPIKE	REPLICATE
SPIKE	DETECTOR NUMBER		
	DISH SIZE 1, 2, or 5 (MS)		
	TOTAL COUNTS (TC)		
	COUNT TIME in MINUTES (CT)		
	BACKGROUND in cpm (BKG)		
	SAMPLE VOLUME in mL (Spiked Vial) (SS)		
	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)		
	DIGEST GRAMS of SOLIDS/L (Dg/L)		
	SPIKE VOLUME in mL (SVol)		
	SPIKE DILUTION FACTOR (SDF)		
	SPIKE VALUE in µCi/L (SVal)		
	INSTRUMENT EFFICIENCY FACTOR (EFF)		
	SAMPLE + SPIKE µCi/g (S+S)		
	AVERAGE or MAXIMUM µCi/g from FORM C		
	SPIKE BOOK I		

Data Entry by: Date: 10-30-94

Data Entry by: Date: 10-31-94

508101_X

LAD 11-16-94

LA-508-101 ~~B-1~~ D2 AT: LIQUIDS/SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	
SAMPLE	DISH SIZE 1, 2, or 5	(MS)	2	
Work List	TOTAL COUNTS	(TC)	987	1002
114	COUNT TIME in MINUTES	(CT)	30	
AT or TB ?	BACKGROUND in cpm	(BKG)	.3	
AT	SAMPLE SIZE in mL	(SS)	.100	
Test Code	DILUTION FACTOR	(DF)	1	
Alpha 01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1215	
Matrix	EFFICIENCY FACTOR	(EFF)		
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			
Sample #				
S94T0004 44				
Instrument Code				
W826872				
Analyst				
KR MONTEITH				
Date				
10-30-94				
Time				
0610 0				

11-12

WHC-SD-WM-DP-076, REV. 0

D2 11-16-94

LA-508-101 ~~D-1~~ AT: LIQUIDS/SOLIDS

			DUPLICATE	REPLICATE
Type	DETECTOR NUMBER		15	
DUPLICATE	DISH SIZE 1, 2, or 5	(MS)	2	
	TOTAL COUNTS	(TC)	779	734
	COUNT TIME in MINUTES	(CT)	30	
AT or TB ?	BACKGROUND in cpm	(BKG)	.3	
AT	SAMPLE SIZE in mL	(SS)	.100	
	DILUTION FACTOR	(DF)	1	
	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1190	
Matrix	EFFICIENCY FACTOR	(EFF)		
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			

13-14

Data Entry by: [signature] Date: 10-30-94

Data Entry by: [signature] Date: 10-31-94

508101_C

LA-508-101 D-2

Type	DETECTOR NUMBER		
SPIKE	DISH SIZE 1, 2, or 5 (MS)	2	
Work List	TOTAL COUNTS (TC)	47501	43667
114	COUNT TIME in MINUTES (CT)	30	
AT or TB ?	BACKGROUND in cpm (BKG)	.03	
AT	SAMPLE VOLUME in mL (Spiked Vial) (SS)	.100	
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)	1	
Alpha-01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.1215	
Matrix	SPIKE VOLUME in mL (SVol)	.100	
soil	SPIKE DILUTION FACTOR (SDF)	1	
Sample #	SPIKE VALUE in pCi/L (SVal)	36.4	
594T000144	INSTRUMENT EFFICIENCY FACTOR (EFF)		
Instrument Code	SAMPLE + SPIKE pCi/g (S+S)		
LB26872	AVERAGE or MAXIMUM pCi/g from FORM C	~~93B43~~ KM 10-30-94	
Analyst	SPIKE BOOK #	93B43	
KR MONTEITH			
Date			
10-30-94			
Time			
06:00			

15-16

WHC-SD-WM-DP-076, REV. 0

Data Entry by:	Date:

508101_X

LA-508-101 D-2 TB: SPIKED SAMPLE

Type	DETECTOR NUMBER	SPIKE	REPLICATE
SPIKE	DISH SIZE 1, 2, or 5 (MS)		
	TOTAL COUNTS (TC)		
	COUNT TIME in MINUTES (CT)		
	BACKGROUND in cpm (BKG)		
	SAMPLE VOLUME in mL (Spiked Vial) (SS)		
	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)		
	DIGEST GRAMS of SOLIDS/L (Dg/L)		
	SPIKE VOLUME in mL (SVol)		
	SPIKE DILUTION FACTOR (SDF)		
	SPIKE VALUE in pCi/L (SVal)		
	INSTRUMENT EFFICIENCY FACTOR (EFF)		
	SAMPLE + SPIKE pCi/g (S+S)		
	AVERAGE or MAXIMUM pCi/g from FORM C		
	SPIKE BOOK #		

Data Entry by:	Date: 10-30-94
Data Entry by:	Date: 10-31-94

508101_X

LAD 11-16-94

LA-508-101 ~~D-1~~ D-2 **AT: LIQUIDS/SOLIDS**

		STANDARD	REPLICATE
Type	DETECTOR NUMBER		
STANDARD	DISH SIZE 1, 2, or 5 (MS)		
Work List	TOTAL COUNTS (TC)		
	COUNT TIME in MINUTES (CT)		
AT or TB ?	BACKGROUND in cpm (BKG)		
AT	SAMPLE SIZE in mL (SS)		
Test Code	DILUTION FACTOR (DF)		
	DIGEST DILUTION FACTOR (DDF)		
Matrix	EFFICIENCY FACTOR (EFF)		
LIQUID	lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		
Sample #	STANDARD BOOK I		
Instrument Code			
Analyst			
Date			
Time			

WHC-SD-WM-DP-076, REV. 0

LAD 11-16-94

LA-508-101 ~~D-1~~ D-2 **AT: LIQUIDS/SOLIDS**

		BLANK	REPLICATE
Type	DETECTOR NUMBER	15	
BLANK	DISH SIZE 1, 2, or 5 (MS)	2	
	TOTAL COUNTS (TC)	3	4
	COUNT TIME in MINUTES (CT)	30	
AT or TB ?	BACKGROUND in cpm (BKG)	.03	
AT 149 /150	SAMPLE SIZE in mL (SS)	.100	
	DILUTION FACTOR (DF)	1	
	DIGEST DILUTION FACTOR (DDF)	2.2860	
Matrix	EFFICIENCY FACTOR (EFF)		
~~LIQUID~~ Solid	lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		

17-18

Data Entry by: [signature] Date: 10-30-94

Data Entry by: [signature] Date: 10-31-94

508101_C

LA-508-101 ~~B-1~~ D-2 **AT: LIQUIDS/SOLIDS**

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	
SAMPLE	DISH SIZE 1, 2, or 5	(MS)	2	
Work List	TOTAL COUNTS	(TC)	42	59
114	COUNT TIME in MINUTES	(CT)	30	
AT or TB ?	BACKGROUND in cpm	(BKG)	.03	
AT	SAMPLE SIZE in mL	(SS)	.100	
Test Code	DILUTION FACTOR	(DF)	1	
Aph. 01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.2860	
Matrix	EFFICIENCY FACTOR	(EFF)		
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			
Sample #				
S94T000149				
Instrument Code				
WB26872				
Analyst				
K.R MONTEITH				
Date				
10-30-94				
Time				
0600				

19-20

LA-508-101 ~~B-1~~ D-2 11-16-94 **AT: LIQUIDS/SOLIDS**

			DUPLICATE	REPLICATE
Type	DETECTOR NUMBER		15	
DUPLICATE	DISH SIZE 1, 2, or 5	(MS)	2	
	TOTAL COUNTS	(TC)	57	46
	COUNT TIME in MINUTES	(CT)	30	
AT or TB ?	BACKGROUND in cpm	(BKG)	.3	
AT	SAMPLE SIZE in mL	(SS)	.100	
	DILUTION FACTOR	(DF)	1	
	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.2935	
Matrix	EFFICIENCY FACTOR	(EFF)		
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			

21-22

Data Entry by: [signature] Date: 10-30-94

Data Entry by: [signature] Date: 10/31/94

508101_C

LA-508-101 D-2AT: SPIKED SAMPLE

Type		SPIKE	REPLICATE
SPIKE	DETECTOR NUMBER	15	
	DISH SIZE 1, 2, or 5 (MS)	2	
Work List	TOTAL COUNTS (TC)	47068	50883
114	COUNT TIME in MINUTES (CT)	30	
AT or TB ?	BACKGROUND in cpm (BKG)	.3	
AT	SAMPLE VOLUME in mL (Spiked Vial) (SS)	.100	
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)	1	
Alpha 01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.2860	
Matrix	SPIKE VOLUME in mL (SVol)	.100	
Soil	SPIKE DILUTION FACTOR (SDF)	1	
Sample #	SPIKE VALUE in µCi/L (SVal)	36.4	
S94T000149	INSTRUMENT EFFICIENCY FACTOR (EFF)		
Instrument Code	SAMPLE + SPIKE µCi/g (S+S)		
WB26872	AVERAGE or MAXIMUM µCi/g from FORM C		
Analyst	SPIKE BOOK #	43843	
KRMONTEITH			
Date			
10-30-94			
Time			
06:00			

23-24

Data Entry by: Date:

508101_X

LA-508-101 D-2TB: SPIKED SAMPLE

Type		SPIKE	REPLICATE
SPIKE	DETECTOR NUMBER		
	DISH SIZE 1, 2, or 5 (MS)		
	TOTAL COUNTS (TC)		
	COUNT TIME in MINUTES (CT)		
	BACKGROUND in cpm (BKG)		
	SAMPLE VOLUME in mL (Spiked Vial) (SS)		
	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)		
	DIGEST GRAMS of SOLIDS/L (Dg/L)		
	SPIKE VOLUME in mL (SVol)		
	SPIKE DILUTION FACTOR (SDF)		
	SPIKE VALUE in µCi/L (SVal)		
	INSTRUMENT EFFICIENCY FACTOR (EFF)		
	SAMPLE + SPIKE µCi/g (S+S)		
	AVERAGE or MAXIMUM µCi/g from FORM C		
	SPIKE BOOK #		

Data Entry by: Date: 10-30-94

Data Entry by: Date: 10/31/94

508101_X

LA-508-101 ~~D-1~~ D-2 LAD 11/10/94 AT: LIQUIDS/SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	15	
SAMPLE	DISH SIZE 1, 2, or 5 (MS)	2	
Work List	TOTAL COUNTS (TC)	63	54
114	COUNT TIME in MINUTES (CT)	30	
AT or TB ?	BACKGROUND in cpm (BKG)	.3	
AT	SAMPLE SIZE in mL (SS)	.100	
Test Code	DILUTION FACTOR (DF)	1	
Alpha 01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.3725	
Matrix	EFFICIENCY FACTOR (EFF)		
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		
Sample #			
S94T000150			
Instrument Code			
WB26872			
Analyst			
KR MONTEITH			
Date			
10-30-94			
Time			
0600			

25-26

WHC-SD-WM-DP-076, REV. 0

LA-508-101 ~~D-1~~ D2 11-16-94 LAD AT: LIQUIDS/SOLIDS

		DUPLICATE	REPLICATE
Type	DETECTOR NUMBER	15	
DUPLICATE	DISH SIZE 1, 2, or 5 (MS)	2	
	TOTAL COUNTS (TC)	42	49
	COUNT TIME in MINUTES (CT)	30	
AT or TB ?	BACKGROUND in cpm (BKG)	.3	
AT	SAMPLE SIZE in mL (SS)	.100	
	DILUTION FACTOR (DF)	1	
	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.3775	
Matrix	EFFICIENCY FACTOR (EFF)		
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		

27-28

Data Entry by: M G Sherman Date: 11/3/94

Data Entry by: Date:

508101_C

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) LIQUIDS

Type		STANDARD	REPLICATE
STANDARD	DETECTOR NUMBER	15	15
Work List	DISH SIZE 1 , 2 , or 5 (MS)	2	2
114	TOTAL COUNTS (TC)	1454	1477
AT or TB ?	COUNT TIME in MINUTES (CT)	30	30
AT	BACKGROUND in cpm (BKG)	0.3	0.3
Test Code	SAMPLE SIZE in mL (SS)	10.000	10.000
ALPHA01	DILUTION FACTOR (DF)	1	1
Matrix	DIGEST DILUTION FACTOR (DDF)	1	1
LIQUID	EFFICIENCY FACTOR (EFF)	0.2380	0.2380
Sample #	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	48.167	48.933
	Sample Concentration in µCi/L	9.12E-03	
Instrument Code	Replicate Concentration in µCi/L	9.26E-03	
WB26872	Average Concentration in µCi/L	9.1888E-03	
Analyst			
KRM	Rs (Sample Count Rate) = (TC / CT) - BKG		
Date	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)		
10/30/94	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L		
Time	Relative Counting Error = [ ](The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100		
06:00 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/mL (Average) =	9.19E-06	
RELATIVE COUNTING ERROR	=	5.2%	1.05E-07 µCi/mL

Data Entry by: [signature] Date: 10/31/94

Approved by: [signature] Date: 10/3/94

Form 508101_C Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SOLIDS

			BLANK	REPLICATE
Type	DETECTOR NUMBER		15	15
BLANK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	18	20
114	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1175	2.1175
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.300	0.367

Sample #	Sample Concentration in µCi/g	2.68E-03
142,144	Replicate Concentration in µCi/g	3.28E-03
Instrument Code		
WB26872	Average Concentration in µCi/g	2.9794E-03
Analyst		
KRM	Rs (Sample Count Rate) = (TC / CT) - BKG	
Date	ALPHA TOTAL µCi/g = Rs • 1000mL/L • DF / (EFF • SS • Dg/L • 2220000dpm/µCi)	
10/30/94		
Time	Relative Counting Error = [|(The Square Root of TC + BKG • CT) / (TC - BKG • CT)|] • 1.96 • 100	
06:00 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.	

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	2.98E-03	DETECTION LEVEL
				4.98E-03 µCi/g
RELATIVE COUNTING ERROR		=	113.2%	

Data Entry by:		Date:	10/31/94
Approved by:		Date:	10/31/94

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	2098	1805
114	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1175	2.1175
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		69.633	59.867

Sample #	Sample Concentration in µCi/g	6.22E-01
S94T000142	Replicate Concentration in µCi/g	5.35E-01
Instrument Code		
WB26872	Average Concentration in µCi/g	5.7874E-01

Analyst	
KRM	Rs (Sample Count Rate) = (TC / CT) - BKG
Date	ALPHA TOTAL µCi/g = Rs • 1000mL/L • DF / (EFF • SS • Dg/L • 2220000dpm/µCi)
10/30/94	
Time	Relative Counting Error = [|(The Square Root of TC + BKG • CT) / (TC - BKG • CT)|] • 1.96 • 100
06:00 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	5.79E-01	DETECTION LEVEL
				4.98E-03 µCi/g
RELATIVE COUNTING ERROR		=	4.6%	

Data Entry by:		Date:	10/31/94
Approved by:		Date:	10/31/94

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
DUPLICATE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	1938	2168
114	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1235	2.1235
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		64.300	71.967
Sample #	Sample Concentration in µCi/g		5.73E-01	
S94T000142	Replicate Concentration in µCi/g		6.41E-01	
Instrument Code				
WB26872	Average Concentration in µCi/g		6.0726E-01	
Analyst				
KRM	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs • 1000mL/L • DF / (EFF • SS • Dg/L • 2220000dpm/µCi)			
10/30/94				
Time	Relative Counting Error = [ ](The Square Root of TC + BKG • CT) / (TC - BKG • CT)|] • 1.96 • 100			
06:00 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

				DETECTION LEVEL
ALPHA TOTAL	in µCi/g	(Average) =	6.07E-01	
RELATIVE COUNTING ERROR		=	4.5%	4.97E-03 µCi/g

Data Entry by: [signature] Date: 10/31/94

Approved by: [signature] Date: 10/31/94

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SPIKED SAMPLE

Type	DETECTOR NUMBER		SPIKE	REPLICATE
SPIKE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	35230	34062
114	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1175	2.1175
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Sample #	SPIKE VALUE in µCi/L	(SVal)	36.4	36.4
S94T000142	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
Instrument Code	SAMPLE + SPIKE µCi/g	(S+S)	1.05E+01	1.01E+01
WB26872	AVERAGE or MAXIMUM µCi/g from FORM C		5.7900E-01	
Analyst				
KRM	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
10/30/94	PERCENT SPIKE RECOVERY = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal)*100			
Time				
06:00 AM				

RESULT AVG. PERCENT SPIKE RECOVERY = 56.7%

Data Entry by: _____ Date: 31-Oct-94

Approved by: _____ Date: 10/31/94

Form 508101_X Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	987	1002
114	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1215	2.1215
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		32.600	33.100
Sample #	Sample Concentration in µCi/g		2.91E-01	
S94T000144	Replicate Concentration in µCi/g		2.95E-01	
Instrument Code				
WB26872	Average Concentration in µCi/g		2.9306E-01	
Analyst				
KRM	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs • 1000mL/L • DF / (EFF • SS • Dg/L • 2220000dpm/µCi)			
10/30/94				
Time	Relative Counting Error = [|(The Square Root of TC + BKG • CT) / (TC - BKG • CT)|] • 1.96 • 100			
06:00 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/g (Average) =	2.93E-01	
RELATIVE COUNTING ERROR	=	6.3%	4.97E-03 µCi/g

Data Entry by: [signature] Date: 10/31/94

Approved by: [signature] Date: 10/31/94

Form 508101_C Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SOLIDS

Type			SAMPLE	REPLICATE
DUPLICATE	DETECTOR NUMBER		15	15
Work List	DISH SIZE 1 , 2 , or 5	(MS)	2	2
114	TOTAL COUNTS	(TC)	779	734
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.3	0.3
Test Code	SAMPLE SIZE in mL	(SS)	0.100	0.100
ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.119	2.119
SOLID	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
Sample #	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		25.667	24.167

Sample Concentration in µCi/g	2.29E-01
Replicate Concentration in µCi/g	2.16E-01
Average Concentration in µCi/g	2.2255E-01

Instrument Code	
WB26872	
Analyst	
KRM	
Date	
10/30/94	
Time	
06:00 AM	

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs • 1000mL/L • DF / (EFF • SS • Dg/L • 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG • CT) / (TC - BKG • CT)|] • 1.96 • 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	2.23E-01	DETECTION LEVEL
				4.98E-03 µCi/g
RELATIVE COUNTING ERROR		=	7.4%	

Data Entry by:		Date:	10/31/94
Approved by:		Date:	10/31/94

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SPIKED SAMPLE

Type			SPIKE	REPLICATE
SPIKE	DETECTOR NUMBER		15	15
Work List	DISH SIZE 1 , 2 , or 5	(MS)	2	2
114	TOTAL COUNTS	(TC)	47501	43668
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.3	0.3
Test Code	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
ALPHA01	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
Matrix	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1215	2.1215
SOLID	SPIKE VOLUME in mL	(SVol)	0.100	0.100
Sample #	SPIKE DILUTION FACTOR	(SDF)	1	1
S94T000144	SPIKE VALUE in µCi/L	(SVal)	36.4	36.4
Instrument Code	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
WB26872	SAMPLE + SPIKE µCi/g	(S+S)	1.41E+01	1.30E+01
Analyst	AVERAGE or MAXIMUM µCi/g from FORM C		2.9306E-01	
KRM				
Date				
10/30/94				
Time				
06:00 AM				

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

PERCENT SPIKE RECOVERY = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal)*100

RESULT AVG. PERCENT SPIKE RECOVERY = 77.3%

Data Entry by:		Date:	31-Oct-94
Approved by:		Date:	10/31/94

Form 508101_X Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SOLIDS

			BLANK	REPLICATE
Type	DETECTOR NUMBER		15	15
BLANK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	3	4
114	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.286	2.286
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.233	0.233
Sample #	Sample Concentration in µCi/g	<	1.93E-03	
149,150	Replicate Concentration in µCi/g	<	1.93E-03	
Instrument Code				
WB26872	Maximum Concentration in µCi/g	<	1.9319E-03	
Analyst				
KRM	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
10/30/94				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
06:00 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

				DETECTION LEVEL
ALPHA TOTAL	in µCi/g	(Maximum) =	< 1.93E-03	
LESS Than Value was Determined from Lc.				4.61E-03 µCi/g
RELATIVE COUNTING ERROR		=	141.3%	

Data Entry by:		Date:	10/31/94
Approved by:		Date:	10/31/94

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SOLIDS

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		15	15
Work List	DISH SIZE 1 , 2 , or 5	(MS)	2	2
114	TOTAL COUNTS	(TC)	42	59
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.3	0.3
Test Code	SAMPLE SIZE in mL	(SS)	0.100	0.100
ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.286	2.286
SOLID	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
Sample #	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.100	1.667
S94T000149	Sample Concentration in µCi/g		9.11E-03	
Instrument Code	Replicate Concentration in µCi/g		1.38E-02	
WB26872	Average Concentration in µCi/g		1.1453E-02	
Analyst				
KRM	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
10/30/94				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
06:00 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g (Average) =	1.15E-02	DETECTION LEVEL
			4.61E-03 µCi/g
RELATIVE COUNTING ERROR	=	42.4%	

Data Entry by: _____ Date: 10/31/94

Approved by: _____ Date: 10/31/94

Form 508101_C Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SOLIDS

Type			SAMPLE	REPLICATE
DUPLICATE	DETECTOR NUMBER		15	15
Work List	DISH SIZE 1 , 2 , or 5	(MS)	2	2
114	TOTAL COUNTS	(TC)	57	46
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.3	0.3
Test Code	SAMPLE SIZE in mL	(SS)	0.100	0.100
ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.2935	2.2935
SOLID	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
Sample #	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.600	1.233
S94T000149	Sample Concentration in µCi/g		1.32E-02	
Instrument Code	Replicate Concentration in µCi/g		1.02E-02	
WB26872	Average Concentration in µCi/g		1.1691E-02	
Analyst				
KRM	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs • 1000mL/L • DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
10/30/94				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
06:00 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	1.17E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	39.3%	4.60E-03 µCi/g

Data Entry by:	[signature]	Date:	10/31/94
Approved by:	[signature]	Date:	10/31/94

Form 508101_C Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SPIKED SAMPLE

Type			SPIKE	REPLICATE
SPIKE	DETECTOR NUMBER		15	15
Work List	DISH SIZE 1 , 2 , or 5	(MS)	2	2
114	TOTAL COUNTS	(TC)	47068	50883
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.3	0.3
Test Code	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
ALPHA01	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
Matrix	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.286	2.286
SOLID	SPIKE VOLUME in mL	(SVol)	0.100	0.100
Sample #	SPIKE DILUTION FACTOR	(SDF)	1	1
S94T000149	SPIKE VALUE in µCi/L	(SVal)	36.4	36.4
Instrument Code	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
WB26872	SAMPLE + SPIKE µCi/g	(S+S)	1.30E+01	1.40E+01
Analyst	AVERAGE or MAXIMUM µCi/g from FORM C		1.1453E-01	
KRM				
Date				
10/30/94				
Time				
06:00 AM				

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

PERCENT SPIKE RECOVERY = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal)*100

RESULT AVG. PERCENT SPIKE RECOVERY = 84.1%

Data Entry by:		Date:	31-Oct-94
Approved by:		Date:	10/31/94

Form 508101_X Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SOLIDS

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		15	15
Work List	DISH SIZE 1 , 2 , or 5	(MS)	2	2
114	TOTAL COUNTS	(TC)	63	54
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.3	0.3
Test Code	SAMPLE SIZE in mL	(SS)	0.100	0.100
ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.3725	2.3725
SOLID	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
Sample #	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.800	1.500
S94T000150	Sample Concentration in µCi/g		1.44E-02	
Instrument Code	Replicate Concentration in µCi/g		1.20E-02	
WB26872	Average Concentration in µCi/g		1.3163E-02	
Analyst				
KRM	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
10/30/94				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
06:00 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	1.32E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	34.6%	4.45E-03 µCi/g

Data Entry by: _____ Date: 10/31/94

Approved by: _____ Date: 10/31/94

Form 508101_C Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-076, REV. 0

AT : LA-508-101 (D-2) SOLIDS

Type			SAMPLE	REPLICATE
DUPLICATE	DETECTOR NUMBER		15	15
Work List	DISH SIZE 1 , 2 , or 5	(MS)	2	2
114	TOTAL COUNTS	(TC)	42	49
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.3	0.3
Test Code	SAMPLE SIZE in mL	(SS)	0.100	0.100
ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.3775	2.3775
SOLID	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
Sample #	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.100	1.333
S94T000150	Sample Concentration in µCi/g		8.76E-03	
Instrument Code	Replicate Concentration in µCi/g		1.06E-02	
WB26872	Average Concentration in µCi/g		9.6855E-03	
Analyst				
KRM	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
10/30/94				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
06:00 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g (Average) =	9.69E-03	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	42.4%	4.44E-03 µCi/g

Data Entry by: [signature] Date: 10/31/94

Approved by: [signature] Date: 10/31/94

Form 508101_C Rev. 1.1