

DISTRIBUTION SHEET

To DISTRIBUTION	From ANALYTICAL SERVICES	Page 1 of 2
		Date: 12/15/94
Project Title/Work Order WHC-SD-WM-DP-080, Rev. 0, "45-Day Safety Screening for Tank 241-C-103 Push Mode Sample, Riser 2"		EDT NO.: EDT-140748
		ECN NO.: N/A

Name	MSIN	Text With all Attach	Addendum 1A Only	EDT/ECN Only
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J. R. Gormsen	K7-28	X		
S. J. Harris	K7-22			X
P. G. Heasler	K5-12			X
S. G. McKinley	P7-22			X
J. L. Scott	R3-87			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	S7-15			X
J. L. Deichman	H4-19			X
C. DeFigh-Price	X3-71			X
S. J. Eberlein	S7-31			X
C. E. Golberg	H5-49			X
J. M. Henderson	R3-85			X
D. C. Hetzer	S6-31			X
J. G. Hill	K7-97			X
L. Jensen	T6-07	X		
T. J. Kelley	S7-30			X
N. W. Kirch	R2-11			X
J. G. Kristofzski	T6-06			X
E. J. Mcaffee	K7-22			X
N. G. McDuffie	S7-15			X
P. M. Morant	H4-25			X
A. F. Noonan	K9-81	X		
P. Sathyanarayana	R2-12			X
R. D. Schreiber	R2-12			X
B. C. Simpson	R2-12			X
D. A. Turner	S7-15			X
J. A. Voogd	R4-01			X
O. S. Wang	S7-15			X
E. T. Weber	H5-27			X
W. I. Winters	T6-50			X
Central Files	L8-04	2		
EDMC	H6-08	X		
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ONSITE

<u>Westinghouse Hanford Company Cont.</u> TFIC (Tank Farm Information Center)	R1-20			X
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OFFSITE

<u>Washington State Department of Ecology</u> Single-Shell Tank Unit Manager S. E. McKinney P.O. Box 47600 Olympia, Washington 98504-7600				X
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<u>Environmental Protection Agency</u> Single-Shell Tank Unit Manager D. R. Sherwood 712 Swift Boulevard, Suite 5 Richland, Washington 99352				X
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DEC 16 1994
55 Sta 5

ENGINEERING DATA TRANSMITTAL

Page 1 of 1
1. EDT 140748

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) Program Support	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: Tank 241-C-103/Waste Management/PS/AS	6. Cog. Engr.: Kevin E. Bell	7. Purchase Order No.: N/A
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		12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: 12/15/94

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	WHC-SD-WM-DP-080	N/A	0	45-Day Safety Screening for Tank 241-C-103 Push Mode Sample, Riser 2	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	1. Approved	4. Reviewed no/comment
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17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)											
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Reason	Disp.									Reason	Disp.
2	1	Cog.Eng.	K. E. Bell	<i>K. E. Bell</i>	12-15-94	TL-04					
2	1	Cog. Mgr.	J. G. Kristofzski	<i>J.G. Kristofzski</i>	12/15/94	TL-06					
2	1	QA	J. C. Langford	<i>J.C. Langford</i>	12-15-94	TL-03					
		Safety									
		Env.									

18. A.E. Young <i>A.E. Young</i> 12-15-94 Signature of EDT Originator -Date	19. _____ Authorized Representative Date for Receiving Organization	20. <i>J.G. Kristofzski</i> 12/15/94 J.G. Kristofzski Cognizant Manager Date	21. DOE APPROVAL (if required) Ctrl. No. <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments
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RELEASE AUTHORIZATION

Document Number: WHC-SD-WM-DP-080, REV 0

Document Title: 45-Day Safety Screening for Tank 241-C-103 Push Mode Sample, Riser 2

Release Date: 12/15/94

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

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:


Kara M. Broz

December 15, 1994

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SUPPORTING DOCUMENT		1. Total Pages 19
2. Title 45-Day Safety Screening for Tank 241-C-103 Push Mode Sample, Riser 2	3. Number WHC-SD-WM-DP-080	4. Rev No. 0
5. Key Words 45-Day Report, Safety Screening, 45-Day Safety Screening, Tank 241-C-103, C-103, Push Mode Sample, Riser 2 <i>KMB 12/15/94</i>	6. Author Name: Kevin E. Bell Signature: <i>Kevin E. Bell</i> Organization/Charge Code 8E480/MDR2D APPROVED FOR PUBLIC RELEASE	
7. Abstract N/A		
		8. RELEASE STAMP <div style="border: 1px solid black; padding: 5px; text-align: center;"> OFFICIAL RELEASE BY WHC DATE DEC 16 1994 55 <i>Sta 5</i> </div>



Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

WHC-SD-WM-DP-080, REV. 0

ANALYTICAL SERVICES

**Project: 45-DAY SAFETY SCREENING
FOR C-103 PUSH MODE SAMPLE, RISER 2**

Tank: 241-C-103

Date Printed: DECEMBER 13, 1994

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MASTER

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This document consists of pages 1 through 17.

WHC-SD-WM-DP-080, REV. 0

NARRATIVE

From: Program Support
Phone: 373-4739 T6-06
Date: December 13, 1994
Subject: 45-DAY DELIVERABLE FOR TANK 241-C-103, PUSH MODE SAMPLE; RISER 2

8E480-94-114

To: D. R. Bratzel S7-31

cc: H. Habad S7-30
J. L. Deichman H4-19
S. J. Eberlein S7-31
N. W. Kirch R2-11
R. D. Schreiber R2-12
P. Sathyanarayana R2-12
D. A. Turner S7-15
JGK-File/LB

References: (1) WHC-SD-WM-TP-207, Rev. 0, "Tank 241-C-103
Characterization Plan," dated October 3, 1994,
Westinghouse Hanford Company, Richland, WA 99352

This is the 45-Day report for the tank 241-C-103 (C-103) push-mode core sampling characterization effort. Problems encountered with the push-mode sampling truck following removal of the first segment from riser 2 resulted in a long delay before resumption of sampling, therefore it was decided to begin the 45-day clock and issue a report based on receipt of this first segment. If subsequent segments are removed from tank C-103, a revision of this report or a new report will be issued to include any new data.

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. Other pertinent documentation will be included in the C-103 216-day report.

C-103 Analytical Summary

One segment obtained by push-mode core sampling was removed from riser 2 of single-shell tank C-103. This first segment consisted entirely of drainable liquid. There was a separable, presumably organic, layer. The organic layer was separated and the lower, presumably aqueous, layer was analyzed for DSC, TGA, and lithium (Li) as prescribed in Reference 1. Analytical results were tracked and reported using the laboratory information management system known as LabCore.

The TGA percent moisture results are well above the safety criteria limit of 17% and no exotherms were observed in the DSC scans. Verbal and written notifications due to the presence of a separable organic layer were made as prescribed in Reference 1. Analysis for Li showed the concentration to be roughly 150 times below the action limit of 100 ug/mL.

Sample Receipt and Extrusion

C-103 Riser 2

The 19 inch push-mode segment SP-94-008 was removed from riser 2 of tank C-103 on 10/28/94 at 1226 hours. The sample was shipped to the 222-S Laboratory on 10/31/94 at 1120 hours and received at the laboratory on 10/31/94 at 1200 hours. Loading and extrusion of the sample in the hot cell took place on 11/04/94. No problems were noted in extruding the auger sample.

Approximately 5 mL of liner liquid was collected prior to extrusion, but was not analyzed. Segment 1 consisted entirely of drainable liquid. A total of approximately 220 mL of liquid was collected. There was a separable, presumably organic, dark brown, layer of roughly 20 mL floating on top of a light brown, presumably aqueous, layer. Verbal and written immediate notifications due to the presence of the floating liquid were made as prescribed in Reference 1. Copies of the immediate notifications are reproduced in a following attachment.

The top liquid layer was removed into a separate container and a subsample of the lower, aqueous layer was taken and submitted for safety-screening and Li analysis. No analytical requests have been made for the organic layer.

Analytical Results

The safety screening analytical results are presented in Table 1, which includes the LabCore sample number. It also includes the upper or lower action limits as defined in the tank characterization plan. The limit selected for immediate notification is highlighted in greybar. Column 2 of Table 1 indicates the sample preparation used, if any. As shown, Li analysis is marked with "D" indicating direct analysis (no sample digestion), although the sample was acidified prior to analysis per the analytical procedure.

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 well above the notification limit of 17% averaging 88.43% water.

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 the sample and duplicate of the aqueous liquid, therefore no exotherms are calculated on a dry weight basis. Because the DSC action limit is associated with the calculated value, Table 1 does not show the action limit for the wet DSC analyses.

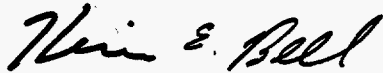
Total Alpha

Total alpha analyses are not required by (1) for liquid samples and were not performed.

Li by ICP

Analysis for Li was performed on the aqueous liquid according to procedure LA-505-151, Rev. D-1. The sample was acidified prior to analysis. The amount of Li in the sample is very low, averaging 0.657 ug/mL for the sample and duplicate determinations. This is roughly 150 times below the action limit.

Sincerely,



Kevin E. Bell,
C-103 Project Coordinator

keb

- Attachments
1. Sample Data Summary (2-Pages)
 2. Immediate Notification Documentation (2-Pages)
 3. DSC and TGA scans (9-Pages)

WHC-SD-WM-DP-080, REV. 0

SAMPLE DATA SUMMARY

A-0002-0

Table 1. Analytical Summary Table for C-103, Core 63.

C-103

CORE NUMBER: 63

SEGMENT #: 1

SEGMENT PORTION: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits		Standard/%	Prep Blk	Result	Duplicate	Average	RPD/%	Spk Rec/%	Det Limit	Count	Err/%
					Lower	Upper										
S94T000200			% Water by TGA using Mettler	%	17.000	n/a	99.56	n/a	88.29	88.57	88.43	0.32	n/a	0.000		n/a
S94T000200			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	481.000	n/a	n/a		n/a	n/a	n/a	n/a	0.100		n/a
S94T000200			DSC Exotherm using Mettler	Joules/g	n/a	n/a	94.90	n/a	0	0	0.000	n/a	n/a	0.000		n/a
S94T000200	D		Lithium-ICP-Acid Dil.	ug/mL	n/a	100.000	n/a	n/a	0.6708	0.6424	0.657	4.33	n/a	0.110		n/a

=> Limit violated

=> Selected Limit

WHC-SD-WM-DP-080, REV. 0

WHC-SD-WM-DP-080, REV. 0

C-103 IMMEDIATE NOTIFICATION DOCUMENTATION

[23] From: Kevin E Bell at ~WHC225 11/7/94 1:49PM (1392 bytes: 13 ln)
To: David A Turner at ~WHC129, Harry Babad at ~WHC142, Ruth D Schreiber at
~WHC163, Susan J Eberlein at ~WHC163, David R Bratzel at ~WHC268,
Pratap Sathyanarayana at ~WHC140, Nicholas W (Nick) Kirch at ~WHC140
cc: John G Kristofzski at ~WHC168, John L Deichman at ~WHC321, Kevin E Bell,
Troy F Dale at ~WHC32
Subject: SAFETY LIMIT EXCEEDED ON C-103

WHC-SD-WM-DP-080, REV. 0

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

Core 63, Segment 1 of tank C-103 was extruded on 11/4/94. As required by the C-103 TCP (WHC-SD-WM-TP-207, Rev. 0), an immediate notification was made by T. F. Dale of the 222-S Laboratory to the East Farm Shift Manager at 1510 hours on 11/4/94 due to the presence of a separable liquid layer; presumably an organic liquid. This cc:Mail is the required follow-up written notification of that initial notification.

Approximately 220 mL of drainable liquid was recovered from segment 1, core 63 of C-103. The upper, presumably organic, layer was approximately 20 mL in volume and was dark brown in color.

WHC-SD-WM-DP-080, REV. 0

UNDIGESTED SAMPLE ANALYSES - DIRECT

LABCORE Data Entry Template for Worklist# 163

Analyst: DWS Instrument: DSC01 Method: LA-514-113 B-1

Worklist Comment: S94T000200, please run under N2. JMF C-103 PM AQLIA DIR

Seg Type	Sample#	Rep Al	Test	Matrix	Actual	Found	DL	Unit
1 STD	12N14-A		DSC-01	LIQUID	28.45	27.0	N/A	Joule
2 SAMPLE	S94T000200	0	DSC-01	LIQUID	N/A	0		Joule
3 DUP	S94T000200	0	DSC-01	LIQUID	0	0	N/A	Joule

Final page for worklist # 163


Analyst Signature

11-17-94
Date

WHC-SD-WM-DP-080, REV. 0

Verified 11/28/94. J. M. Foye

Data Entry Comments:

S94T000200 has an endotherm of 1537.79 J/g at 110.7°C;

duplicate has an endotherm of 1630.79 J/g at 117.5°C JMF
11/21/94

DSC STD
6.571 mg

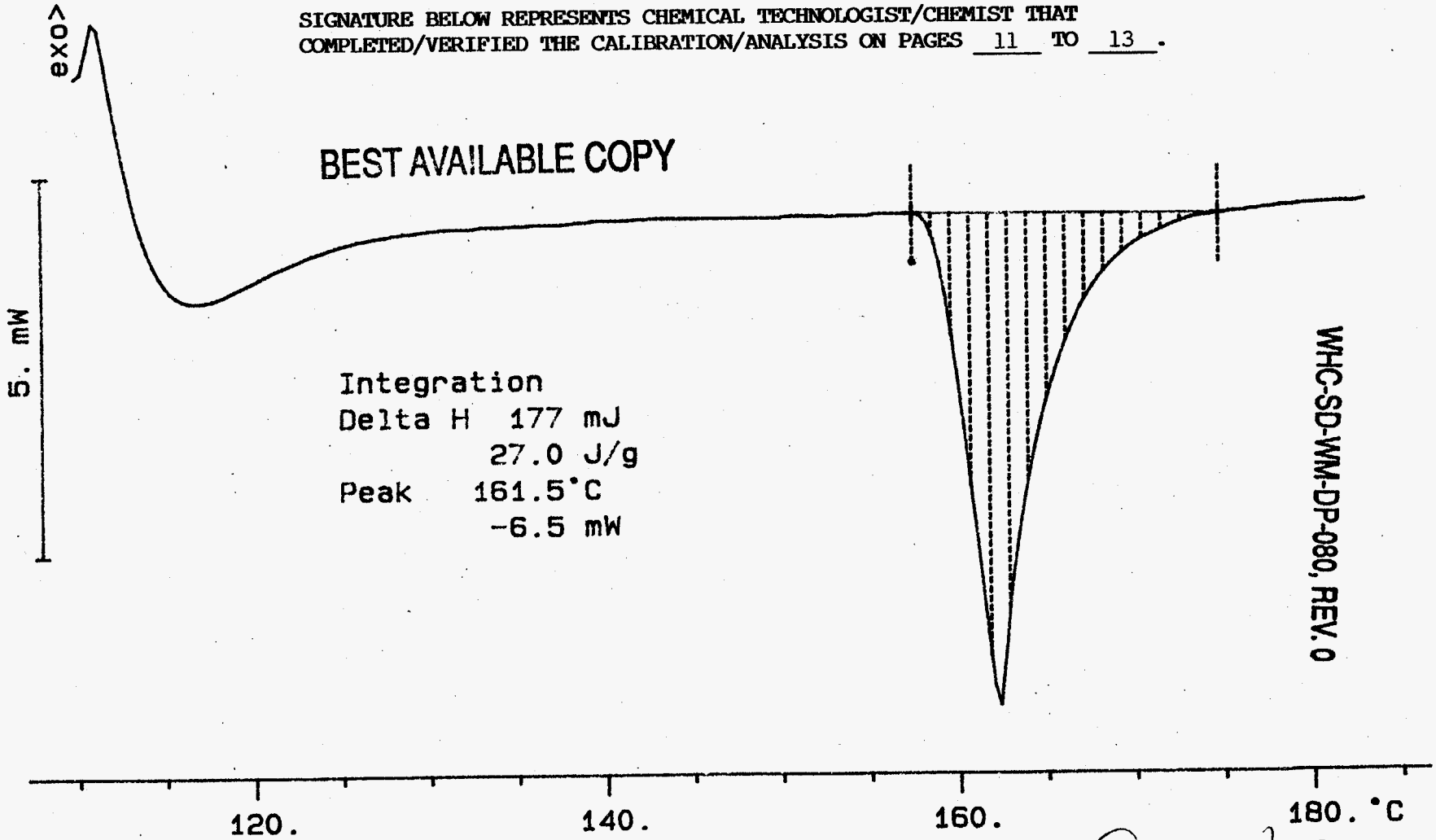
Rate: 10.0 °C/min

File: 00106.001
Ident: 0.0

DSC METTLER 17-Nov-94
222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 11 TO 13.

BEST AVAILABLE COPY



11

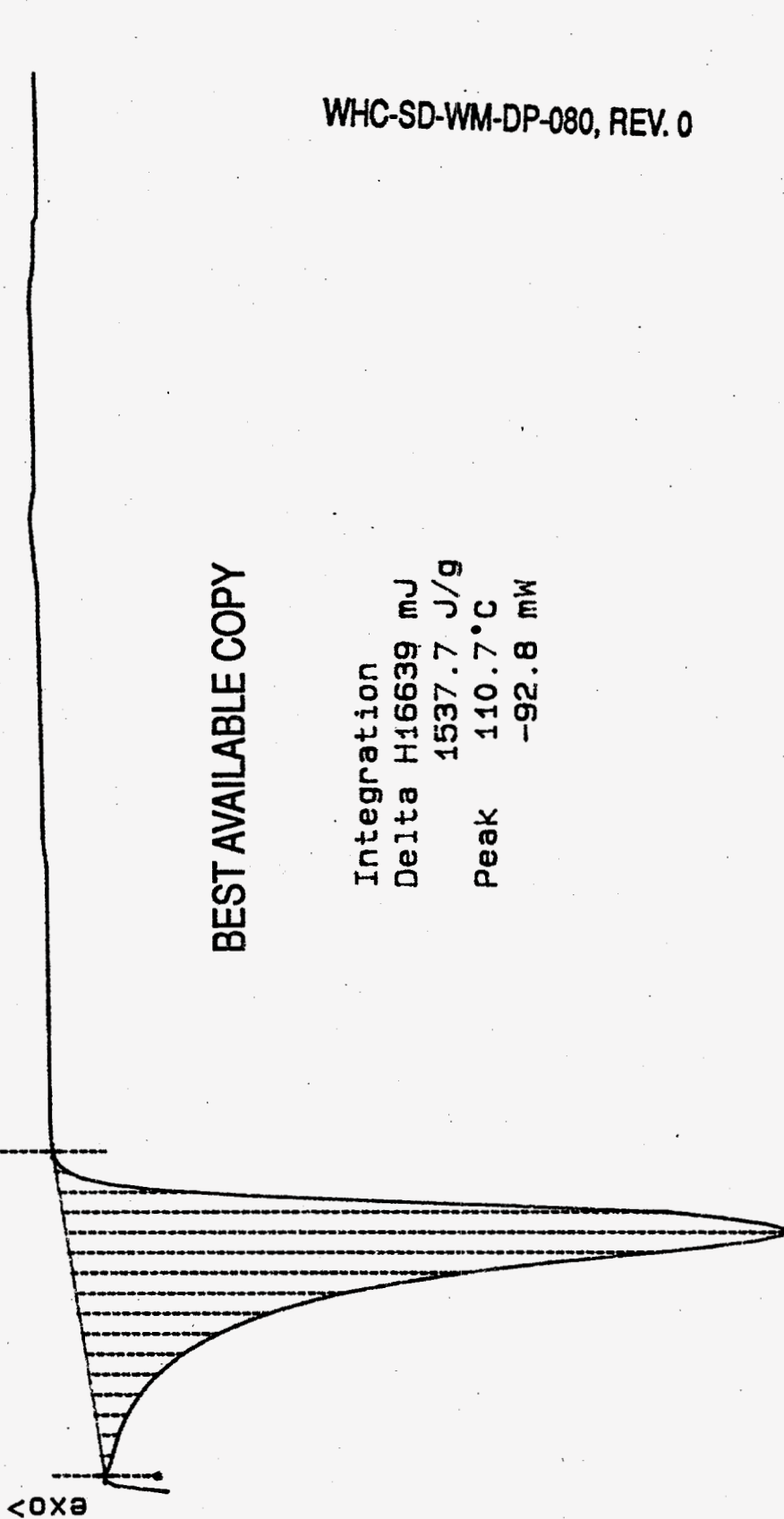
[Handwritten signature]
11-30-94
11-29-94

S94T000200 N2
10.821 mg

Rate: 10.0 °C/min

File: 00107.001

DSC METTLER 17-Nov-94
222-S Laboratory



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50. mW

WHC-SD-WM-DP-080, REV. 0

Integration
Delta H16639 mJ
Peak 1537.7 J/g
110.7 °C
-92.8 mW

100. 200. 300. 400. °C

S94T000200 N2 (DUP)
11.305 mg

Rate: 10.0 °C/min

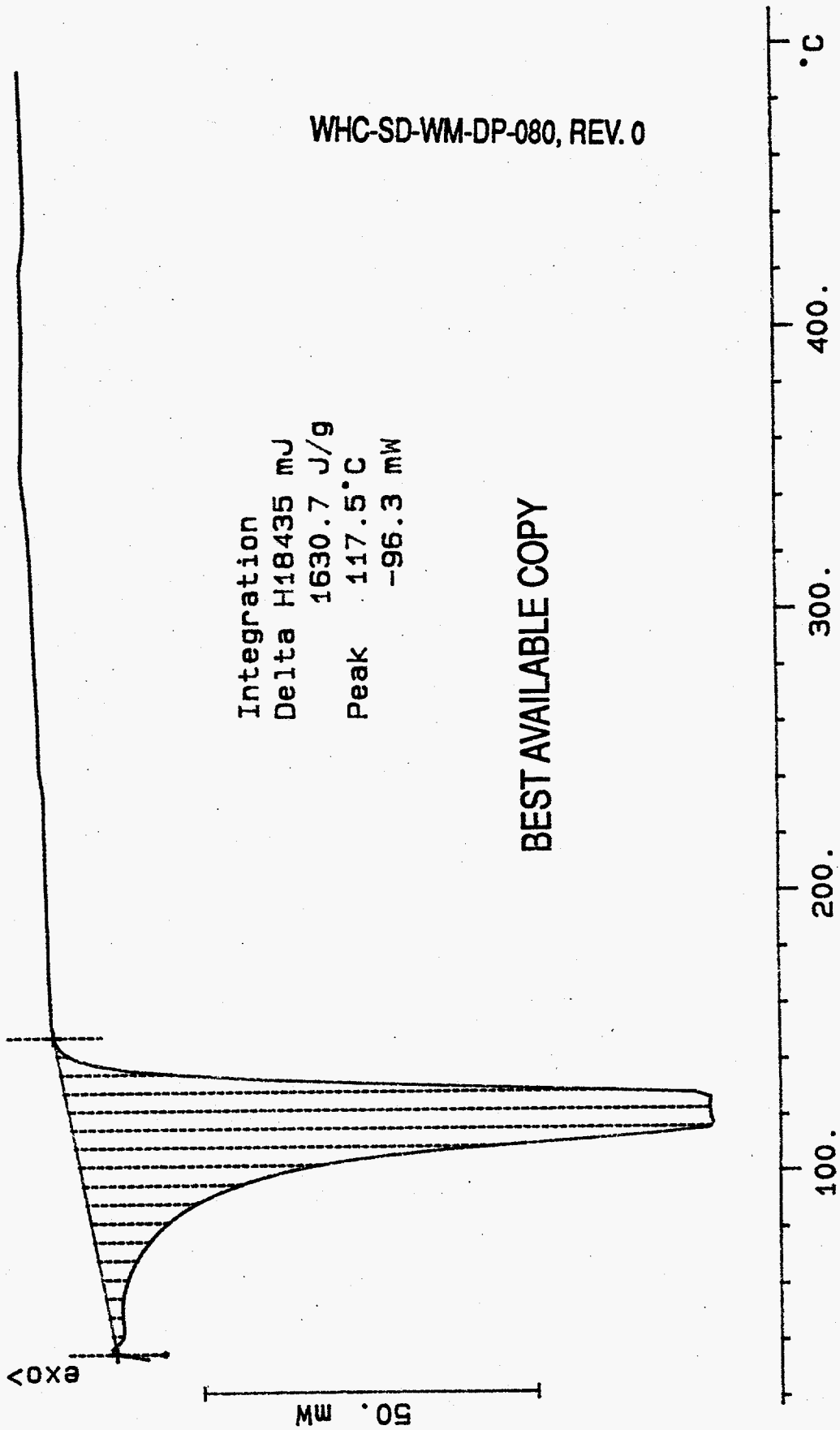
DSC METTLER
222-S Laboratory

17-Nov-94

File: 00108.001

Ident: 0.0

WHC-SD-WM-DP-080, REV. 0



Integration
Delta H18435 mJ
Peak 117.5°C
-96.3 mW

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LABCORE Data Entry Template for Worklist# 162

Analyst: KLV Instrument: TGA01 _____ Method: LA-560-112 A-2

Worklist Comment: S94T000200, please run under N2, JMF. **WHC-SD-WM-DP-080, REV. 0**

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	<u>42 N8A</u>			TGA-01	LIQUID	<u>59.19</u>	<u>58.93</u>	<u>99.6%</u> N/A	%
2	SAMPLE	S94T000200	0		TGA-01	LIQUID	<u>N/A</u>	<u>88.29%</u>		%
3	DUP	S94T000200	0		TGA-01	LIQUID	<u>88.29</u>	<u>88.57</u>	N/A	%

Final page for worklist # 162



Analyst Signature

11/22/94

Date

Data Entry Comments:

DATA Entered 11/27/94 GJM

Verified 11/28/94 J.M. Faye

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

Page: 1

22-Nov-94

METTLER

TG

File: 00002.001

222-S Laboratory

Ident: 0.0

Rate: 10.0 °C/min

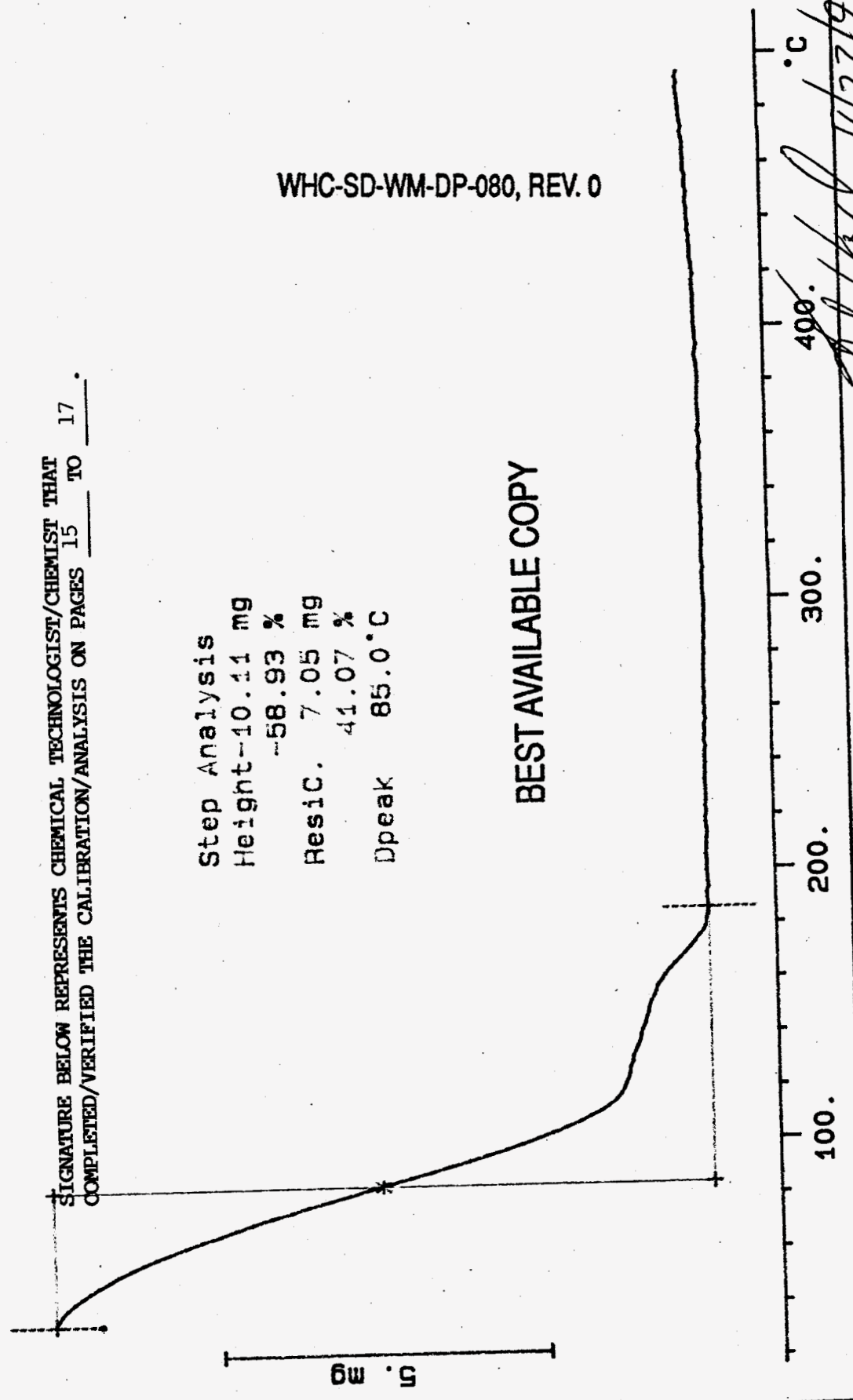
TGA STD
17.158 mg

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 15 TO 17.

WHC-SD-WM-DP-080, REV. 0

Step Analysis
Height-10.11 mg
-58.93 %
Resic. 7.05 mg
41.07 %
Dpeak 85.0 °C

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[Handwritten Signature]
11/22/94

S94T000200 N2

10.981 mg

File: 00005.001 TG METTLER 22-Nov-94

Ident: 0.0 222-S Laboratory

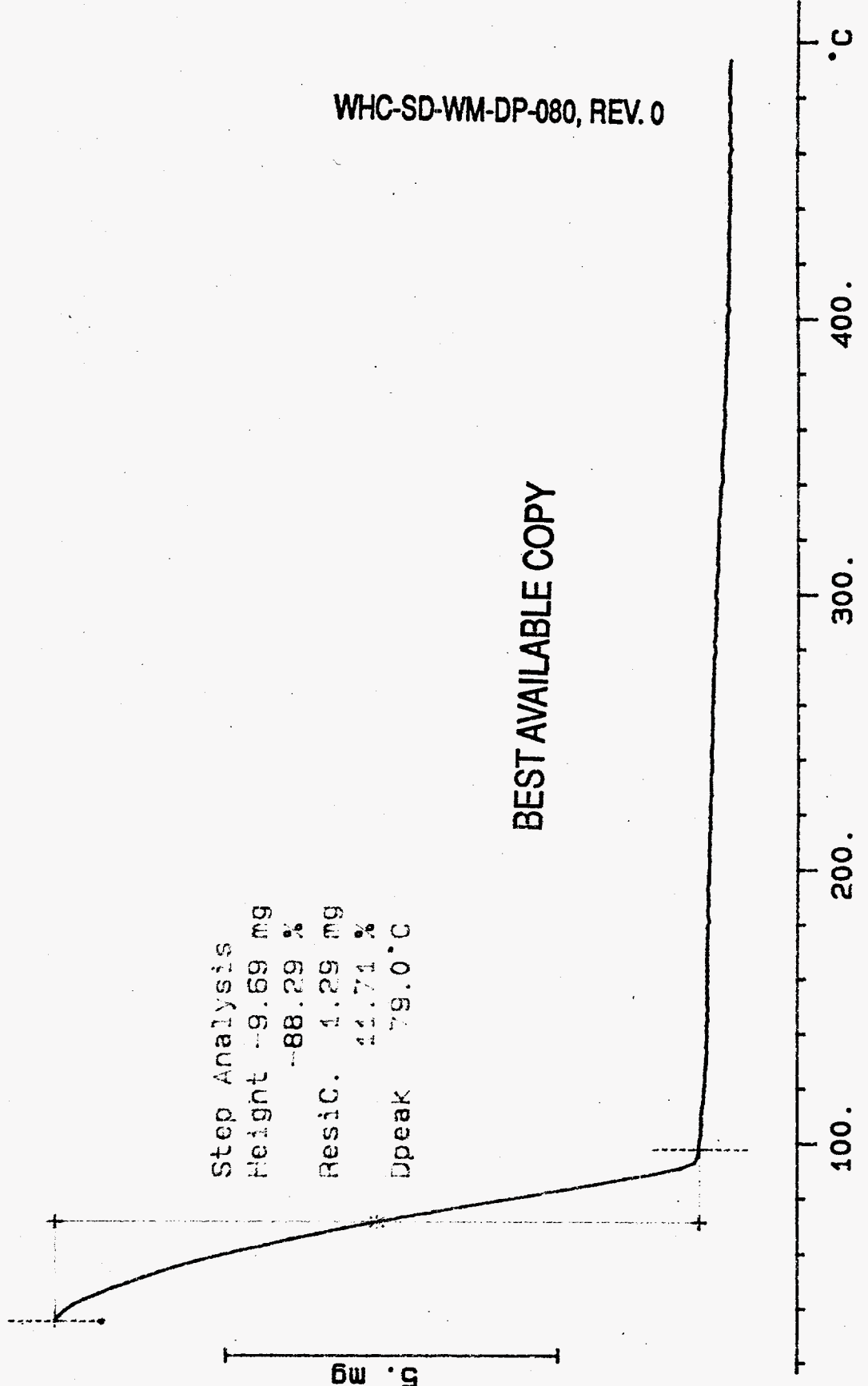
Rate: 10.0 °C/min

Step Analysis
 Height --9.69 mg
 --88.29 %
 Resid. 1.29 mg
 11.71 %
 Dpeak 79.0 °C

5. mg

WHC-SD-WM-DP-080, REV. 0

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S94T000200 (DUP) N2
17.534 mg

Rate: 10.0 °C/min

File: 00006.001 TG METTLER 22-Nov-94
Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-080, REV. 0

Step Analysis
Height-15.53 mg
-88.57 %
Resid. 2.00 mg
11.43 %
Dpeak 95.0 °C

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