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2	1	Cog. Mgr. J.G. Kristofzski JK 2/1/96			
2	1	QA Tzu L. Tung 2/2/96			
		Safety			
2	1	~~ENVI~~ 2/2/96 AEQA E.W. Miller 2/2/96			
2	1	Program Support A.D. Rice 2-2-96			
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45-DAY SAFETY SCREENING RESULTS FOR TANK 241-AN-102, GRAB SAMPLES 2AN-95-1 THROUGH 2AN-95-6 AND 102-AN-1 THROUGH 102-AN-4.

Ruth A. Esch
Westinghouse Hanford Company, Richland, WA 99352
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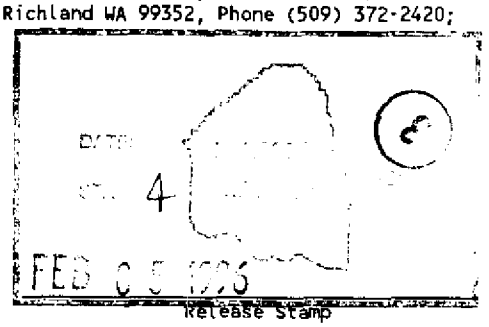

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ANALYTICAL SERVICES

45-DAY SAFETY SCREENING RESULTS FOR TANK 241-AN-102, GRAB SAMPLES 2AN-95-1 THROUGH 2AN-95-6 AND 102-AN-1 THROUGH 102-AN-4

Project Coordinator: Ruth A. Esch

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

by

Westinghouse Hanford Company
Box 1970
Richland, Washington

TABLE OF CONTENTS

Narrative 1

AN-102 Grab Sample Breakdown (Attachment 1) 14

Sample Data Summaries 19

Dome Space Flammability 31

Inorganic Analyses 33

Differential Scanning Calorimetry (DSC)
DSC Worklist # 4824 34
DSC Worklist # 4850 42
DSC Worklist # 4851 50
DSC Worklist # 4856 57
DSC Worklist # 4857 66
DSC Worklist # 5122 72
DSC Worklist # 5132 79
DSC Worklist # 5343 . . . . . 85.1
DSC Worklist # 5199 86
DSC Worklist # 5200 88
DSC Worklist # 5401 . . . . . 90.1

Thermogravimetric Analysis (TGA)
TGA Worklist # 4845 91
TGA Worklist # 4846 97
TGA Worklist # 4848 105
TGA Worklist # 4859 111
TGA Worklist # 117
TGA Worklist # 5124 123
TGA Worklist # 5125 129
TGA Worklist # 5148 132
TGA Worklist # 5196 137

This document consists of pages 1 through 140, plus pages 85.1 through 85.8, 90.1 through 90.2, 131.1 and pages 53, 54, 60 through 63 were intentionally left blank.

NARRATIVE

45 DAY SAFETY SCREENING RESULTS FOR TANK 241-AN-102 GRAB SAMPLES 2AN-95-1 THROUGH 2AN-95-6 AND 102-AN-1 THROUGH 102-AN-4

SUMMARY

Ten supernate grab samples (2AN-95-1, 2AN-95-2, 2AN-95-3, 2AN-95-4A, 2AN-95-5A, 102-AN-1, 102-AN-2, 102-AN-3(A), 102-AN-3(B), and 102-AN-4) and one field blank (2AN-95-6) were taken from tank 241-AN-102. The following analyses were performed in support of the Safety Screening program, as specified in the Tank 241-AN-102 Grab Sampling and Analysis Plan (TSAP) (reference 1): differential scanning calorimetry (DSC), thermogravimetric analysis (TGA), density by specific gravity (Sp.G.), and total alpha activity (AT). The results for DSC and AT were compared to the safety screening limits at a confidence level of 95%.

Based on the results of vapor monitoring prior to sampling, the vapor in tank AN-102 dome space is far below the lower flammability limits (LFL) stated in the TSAP.

Eleven out of fourteen of the samples had DSC exotherms that exceeded the action limit of 480 joules/g (dry weight basis) stated in the TSAP and the Safety Screening Data Quality Objective (references 1 & 2). These high energetics results were expected for this tank, since tank 241-AN-102 is known to contain complexed waste. Appropriate notifications were made and total organic carbon (TOC) analyses were requested. The need for RSST analysis will be determined after review of the TOC results.

The accuracy and precision criteria was satisfied for most of the sample analyses. The following did not meet the specified precision criterion of ±10%: for DSC analysis, four of ten supernate samples, and one of four sludge samples; and for AT analysis one of four sludge samples.

None of the data indicate that the tank is "unsafe" when compared to the criteria in the Safety Screening Data Quality Objective (reference 2) with the exception of the energetics. However, with the high moisture content of 50%, the tank may be considered "conditionally" safe.

SCOPE

This document serves as the 45 day report deliverable for the tank 241-AN-102 grab samples collected during three sampling events. Two samples were collected on October 21, 1994, three on February 15, 1995, and five on November 30, 1995. Two additional samples and a field blank were collected December 14, 1995 to complete the November 1995 sampling event. All of the samples were subsampled and analyzed in accordance with the TSAP (reference 1). This document summarizes sample handling with respect to each sampling event. The analytical results from each sampling event are presented in separate summary tables. The analytical results section of this report provides an overall summary of the results from all ten samples.

Attachment 1 is provided as a cross-reference for relating the tank farm customer ID numbers with the 222-S Laboratory LABCORE sample numbers. The samples are arranged with respect to the sampling event in which they were collected. The subsamples that were generated in the laboratory for analysis are also identified in these diagrams.

Included in this report are the tank dome space flammability screening and primary safety screening results. Copies of the DSC and TGA raw data are also included.

Waste Compatibility analyses were performed on the samples that were collected in the third sampling event. The results from these and any required secondary analyses will be reported in a revision to this document.

TANK DOME SPACE FLAMMABILITY SCREENING

The dome space was sampled and analyzed for the presence of flammable gases prior to sampling tank AN-102. The results of the combustible gas monitoring inside riser 21A are presented in Table 1. Although the TSAP indicates that the results shall be reported as a percentage of the lower flammability limit (%LFL), the instrumentation used to collect the data reports as a percentage of the lower explosive limit (%LEL). For the purpose of screening the tank dome space, the %LEL is an acceptable substitute for %LFL, since the two values are used interchangably in reference to the physical properties of chemical hazards (reference 3).

Table 1: Characteristics of Vapor Space as Determined by Combustible Gas Monitoring
Tank 241-AN-102, Dome Space in Riser 21A

Vapor Characteristic Measured	Results
Flammable vapor concentration as percent of lower explosion limit (LEL)	0%
Volume percent oxygen gas	20.9%
Concentration of ammonia gas	300 ppm
Concentration of total organic carbon vapor	19 ppm

ppm = parts per million

APPEARANCE AND SAMPLE HANDLING

October 21, 1994 Sampling Event

Appearance

Two grab samples (102-AN-3(A) and 102-AN-4) were removed from tank 241-AN-102 riser 22A on October 21, 1994. The (A) was appended to sample number 102-AN-3 by the project coordinator to differentiate this sample from the sample with the same number collected On February 15, 1995.

Table 2 summarizes the appearance information for the samples for this sampling event. The reported sampling depths were recorded from the tank farm sample labels attached to the sample containers.

Table 2: Appearance for Tank 241-AN-102 Liquid Grab Samples from October 21,1994

CUSTOMER ID	LAB ID	SAMP DEPTH (IN.)	APPEARANCE			
			Color	Clarity	Org Layer	Solids
102-AN-3(A)	S96T000001	666	Dark yellow/brown	Translucent	None	74.1% Red/tan settled
102-AN-4	S95T003926	622	Dark yellow/brown	Translucent	None	Trace settled

Subsampling

These two samples were collected on October 21, 1994, but were archived at the 222-S Laboratory until they were subsampled for analysis on January 8, 1996.

For sample 102-AN-4, one unfiltered subsample was recovered for safety screening analyses only.

For sample 102-AN-3(A), first the volume percent settled solids was measured. The result is listed in Table 2. The supernate above the settled solids was then removed, and the remaining sludge was transferred to two centrifuge cones for volume percent solids by centrifugation determination, and for separation of solids from remaining liquids. Bulk densities of both the solid alone and the liquid alone were determined. Subsamples were created from both the centrifuged solid and decanted liquid portions and identical analyses were performed on each.

A summary of the analytical results for these two samples is presented in Table 3.

February 15, 1995 Sampling Event

Appearance

Three grab samples (102-AN-1, 102-AN-2, and 102-AN-3(B)) were removed from tank 241-AN-102 riser 22A on February 15, 1995. The (B) was appended to sample number 102-AN-3 by the project coordinator to differentiate this sample from the sample with the same number collected on October 21, 1994.

Table 4 summarizes the appearance information for the samples for this sampling event. The reported sampling depths were recorded from the tank farm sample labels attached to the sample containers.

Table 4: Appearance for Tank 241-AN-102 Liquid Grab Samples from February 15,1995

CUSTOMER ID	LAB ID	SAMP DEPTH (IN.)	APPEARANCE			
			Color	Clarity	Org Layer	Solids
102-AN-1	S95T003924	388	Dark yellow/brown	Translucent	None	Trace settled
102-AN-2	S95T003925	576	Dark yellow/brown	Translucent	None	Trace settled
102-AN-3(B)	S96T000002	603	Dark yellow/brown	Translucent	None	18.8% Red/tan settled

Subsampling

These three samples were collected on February 15, 1995, but were archived at the 222-S Laboratory until they were subsampled for analysis on January 8, 1996.

For samples 102-AN-1 and 102-AN-2, one unfiltered subsample was recovered from each of the two samples for safety screening analyses only.

For sample 102-AN-3(B), first the volume percent settled solids was measured. The result is listed in Table 4. The supernate above the settled solids was then removed, and the remaining sludge was transferred to a centrifuge cone

for volume percent solids by centrifugation determination, and for separation of solids from remaining liquids. Bulk densities of both the solid alone and the liquid alone were determined. Subsamples were created from both the centrifuged solid and decanted liquid portions and identical analyses were performed on each.

A summary of the analytical results for these three samples is presented in Table 5.

November 30 thru December 14, 1995 Sampling Event

Appearance

A third sampling event took place November 30, 1995. Three supernates (2AN-95-1, 2AN-95-2 and 2AN-95-3) and two sludge samples (2AN-95-4 and 2AN-95-5) were taken from tank 241-AN-102 riser 21A during this sampling event. Visual observation in the 222-S Laboratory indicated that there were no solids in the two sludge samples. Therefore, it was decided that one more sampling event was needed. During the final sampling event, on December 14, 1995, two sludge samples (2AN-95-4A and 2AN-95-5A) and a field blank (2AN-95-6) were collected from riser 21A. Since the samples were clearly related and recovered from the same riser, these two sampling events will be treated as one.

Table 6 summarizes the appearance information for the samples for this sampling event. The reported sampling depths were recorded from the tank farm sample labels attached to the sample containers. Note that the sampling depth for samples 2AN-95-2 and 2AN-95-3 were switched. This change was confirmed on the sample label, as well as by notes on the chain-of-custody forms. No solids were present in 2AN-95-4 and 2AN-95-5, and no analysis was performed on these samples.

Table 6: Appearance for Tank 241-AN-102 Liquid Grab Samples from November 30 thru December 14, 1995

CUSTOMER ID	LAB ID	SAMP DEPTH (IN.)	APPEARANCE			
			Color	Clarity	Org Layer	Solids
2AN-95-1	S95T003864	370	Dark yellow/brown	Translucent	None	None
2AN-95-2	S95T003865	460	Dark yellow/brown	Translucent	None	Trace settled
2AN-95-3	S95T003866	550	Dark yellow/brown	Translucent	None	None
2AN-95-6 Field Blank	S95T003961	240	Dark yellow/brown	Translucent	None	None
2AN-95-4A	S95T003959	654	Dark yellow/brown	Translucent	None	61.5% tan settled
2AN-95-5A	S95T003960	667	Dark yellow/brown	Translucent	None	61.5% tan settled

Subsampling

These six samples were collected on November 30 and December 14, 1995 and were subsampled for analysis between January 5 and 11, 1996.

For samples 2AN-95-1, 2AN-95-2, and 2AN-95-3, two unfiltered subsamples were recovered from each for safety screening and compatibility analyses, and one from each for archive.

For samples 2AN-95-4A and 2AN-95-5A, first the volume percent settled solids was measured. The results are listed in Table 6. The samples were then shaken to suspend the settled solids. The resulting slurry for each sample was then transferred to three centrifuge cones for volume percent solids by

centrifugation determination, and for separation of solids from liquids. Bulk densities of the wet sludge, the solid alone and the liquid alone were determined. Subsamples were created from both the centrifuged solid and decanted liquid portions and identical analyses were performed on each.

A summary of the analytical results for the six acceptable samples is presented in Table 7.

ANALYTICAL RESULTS

Differential Scanning Calorimetry (DSC)

The energetics determination was performed by DSC using procedures LA-514-114 Rev. C-1 and LA-514-113 Rev. C-1. The two procedures are for the Perkin-Elmer and Mettler DSC instruments, respectively. The analysis was performed in duplicate on direct samples. The exothermic energy based on a dry weight of sample was calculated for all samples except the field blank, which did not exhibit any exotherms. The average of two TGA results (sample and duplicate) was used in the dry weight correction for all but one sample. For sample 2AN-95-2, the dry weight calculation used an average of three TGA results (sample, duplicate, and triplicate) in the calculation.

Twelve of the fourteen samples collected from this tank exhibited exotherms. Ten of the dry weight results were in the range of 389.2 joules/g to 720.0 joules/g. One sample (2AN-95-2) had a significantly larger dry weight exotherm of 1201 joules/g. The results for the remaining three samples were less than 60 joules/g.

Nine out of the fourteen wet weight results exceeded the action limit of 480 joules/g. These high results were expected based on the knowledge of the presence of a high concentration of total organic carbon (TOC) in this tank.

An interference was observed with two of the fourteen samples (2AN-95-1 and 102-AN-3(A)) analyzed for DSC that created unacceptable baseline curvature which biased the integration. These samples were reanalyzed on a different instrument and a better baseline was observed. The second instrument yielded results that were more consistant with those obtained for the other samples analyzed, therefore the first set of results were not used in this report. However, the raw data scans for these two samples are attached at the end of the document, and marked as "Data Not Used in Package".

The relative percent difference (RPD) between the sample and duplicate results for four supernate samples and one sludge sample was outside of the criterion of ±10%. The RPDs were: sample 102-AN-4 (S95T003984), RPD = 12.4%; sample 102-AN-1 (S95T003982), RPD = 11.0%; sample 102-AN-2 (S95T003983), RPD = 25.0%; sample 102-AN-3(B) (S96T000006) RPD = 200.0%; and 2AN-95-5A (S95T004139), RPD = 14.5%. Typically a triplicate sample is analyzed when the RPD is greater than 10%. However, no additional analyses were performed for sample 102-AN-3(B) because the results were well below the action limit. For the other samples, statistics show that with a third analysis, the 95% upper confidence limit would still be above the action limit.

The 95% upper confidence limit was calculated for each sample. The upper limit for eleven of the fourteen samples was greater than the action limit of 480 joules/g. The results are presented in Table 8.

Table 8: Comparison of Dry Weight DSC Results at a Confidence Level of 95%

Customer ID	Sample Result	Duplicate Result	Mean	Standard Deviation	95% Upper Confidence Limit (mean)
SUPERNATES	joules/g	joules/g	joules/g		joules/g
102-AN-1	563.6	629.4	596.5	46.5	804.2
102-AN-2	720.3	560.2	640.3	113.2	1145.7
102-AN-4	440.8	389.2	415.0	36.5	577.9
2AN-95-1	558.2	558.4	558.3	0.14	558.9
2AN-95-2	1201	1088	1145	79.9	1501
2AN-95-3	555.3	566.1	560.7	7.6	594.8
2AN-95-6 Field Blank	0.00	0.00	0.00	0.00	0.00
SLUDGES					
Decanted Supernates	joules/g	joules/g	joules/g		joules/g
102-AN-3(A)	465.6	452.3	459.0	9.4	500.9
102-AN-3(B)	0.00	52.21	26.10	36.9	190.9
2AN-95-4A	487.1	475.9	481.5	7.9	516.9
2AN-95-5A	556.5	597.5	577.0	29.0	706.4
Centrifuged Solids	joules/g	joules/g	joules/g		joules/g
102-AN-3(A)	0.00	0.00	0.00	0.00	0.00
102-AN-3(B)	0.00	0.00	0.00	0.00	0.00
2AN-95-4A	488.1	458.2	473.2	21.1	567.5
2AN-95-5A	492.1	569.1	530.6	54.4	773.7

Thermogravimetric Analysis (TGA)

The percent moisture content was determined by TGA using procedures LA-514-114 Rev. C-1 and LA-560-112 Rev. B-1. The procedures are for the Perkin-Elmer and Mettler TGA instruments, respectively. The analysis was performed in duplicate on direct samples.

Results for the supernates and decanted supernates were in the range of 47.39 to 50.13 percent moisture. The field blank gave an average result of 100.0 percent moisture. Most of the samples (except for the field blank) produced more than one weight loss step between approximately 50° C to 400° C. Any weight less steps that occurred beyond 200 to 250° C were not included in the calculation of the final results. The relative percent difference (RPD) between sample and duplicate results for all supernate samples were within the criterion of ±10%.

The results for the centrifuged solids were in the range of 35.60 to 44.25 percent moisture. Here again, more than one weight loss step was seen for each of the samples, with only the weight loss occurring less than about 200 to 250° C used in the final calculations. The relative percent difference (RPD) between sample and duplicate results for all of the centrifuged solid samples were within the criterion of ±10%.

Density

The density measurements obtained for the sludge samples were determined by performing a bulk density analysis during subsampling, using procedure LO-160-103 Rev. B-0. A single determination was made for each phase (i.e. solids alone, liquids alone, and wet sludge (for samples 2AN-95-4A and 2AN-95-5A only)).

The densities obtained for all of the sludge samples are listed below.

102-AN-3(A)	decanted liquid	1.28 g/mL
	centrifuged solid	1.64 g/mL
102-AN-3(B)	decanted liquid	1.39 g/mL
	centrifuged solid	1.56 g/mL
2AN-95-4A	sludge	1.47 g/mL
	decanted liquid	1.35 g/mL
	centrifuged solid	1.57 g/mL
2AN-95-5A	sludge	1.50 g/mL
	decanted liquid	1.39 g/mL
	centrifuged solid	1.58 g/mL

Total Alpha (AT)

The AT determination was performed using procedure LA-508-101 Rev. D-2. The analysis was performed in duplicate on direct samples for the supernates. The solid portion of the sludge samples was prepared for analysis, in duplicate, using a fusion digest following procedure LA-549-141 Rev. D-0. The fusion digest is indicated with an "F" in the aliquot class (A#) column in the LABCORE summary tables.

The maximum result for the supernate samples was 0.202 μCi/mL. The maximum result for the supernate that was decanted off of the centrifuged solids of the sludge samples was 0.239 μCi/mL. All of the results were at least two orders of magnitude below the action limit of 61.5 μCi/mL for liquid samples. The RPDs for all supernate samples were within the criterion of ±20% for liquid samples.

The maximum result for the centrifuged solids was 0.952 μCi/g. This result is well below the action limit of 38.9 μCi/g, which is based on an average density of 1.58 g/mL for the centrifuged solids. The RPDs for all solid samples were within the criterion of ±10%, except for one (102-AN-3(B)), which had an RPD = 20.1%. This high RPD was attributed to low alpha activity in the sample. No reruns were performed because the results are significantly below the action limit, and historically, additional analyses on low activity samples have not improved the RPDs.

The 95% upper confidence limits were calculated for each sample, and are presented in Table 9. The maximum liquid result of 0.296 μCi/mL, is still well below the action limit of 61.5 μCi/mL, and 1.41 μCi/g is well below the action limit of 38.9 μCi/g for the solids.

Table 9: Comparison of Total Alpha Results at a Confidence Level of 95%

Customer ID	Sample Result	Duplicate Result	Mean	Standard Deviation	95% Upper Confidence Limit (mean)
SUPERNATES	μCi/mL	μCi/mL	μCi/mL		μCi/mL
102-AN-1	0.144	0.156	0.150	8.49e-3	0.188
102-AN-2	0.116	0.116	0.116	0.000	0.116
102-AN-4	0.159	0.174	0.167	1.06e-2	0.214
2AN-95-1	0.175	0.173	0.174	1.41e-3	0.180
2AN-95-2	0.182	0.169	0.176	9.19e-3	0.216
2AN-95-3	0.169	0.202	0.186	2.33e-2	0.290
2AN-95-6 Field Blank	<5.86e-6	<1.04e-5	n/a	n/a	n/a
SLUDGES					
Decanted Supernates	μCi/mL	μCi/mL	μCi/mL		μCi/mL
102-AN-3(A)	0.175	0.208	0.192	2.33e-2	0.296
102-AN-3(B)	0.239	0.218	0.229	1.48e-2	0.295
2AN-95-4A	0.168	0.171	0.170	2.12e-3	0.178
2AN-95-5A	0.137	0.153	0.145	1.13e-2	0.196
Centrifuged Solids	μCi/g	μCi/g	μCi/g		μCi/g
102-AN-3(A)	0.306	0.332	0.319	1.84e-2	0.401
102-AN-3(B)	0.952	0.778	0.865	1.23e-1	1.414
2AN-95-4A	0.459	0.464	0.462	3.54e-3	0.477
2AN-95-5A	0.329	0.333	0.331	2.83e-3	0.344

n/a - These calculations are not applicable with results that are less than the detection limit.

References

1. WHC-SD-WM-TSAP-065, REV. 1, "Tank 241-AN-102 Grab Sampling and Analysis Plan", dated December 6, 1995, Westinghouse Hanford Company, Richland, WA 99352.

2. WHC-SD-WM-SP-004, Rev. 2, "Tank Safety Screening Data Quality Objective", dated August 31, 1995, Westinghouse Hanford Company, Richland, WA 99352.

3. NIOSH Pocket Guide to Chemical Hazards, 1994 edition.

ATTACHMENT 1

AN-102 GRAB SAMPLE BREAKDOWN

Attachment 1 (1 of 4)

AN-102 GRAB SAMPLE BREAKDOWN

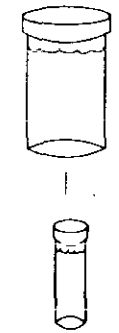
Riser 22A

October 21, 1994 Sampling Event

622 in.

102-AN-4

S95T003926



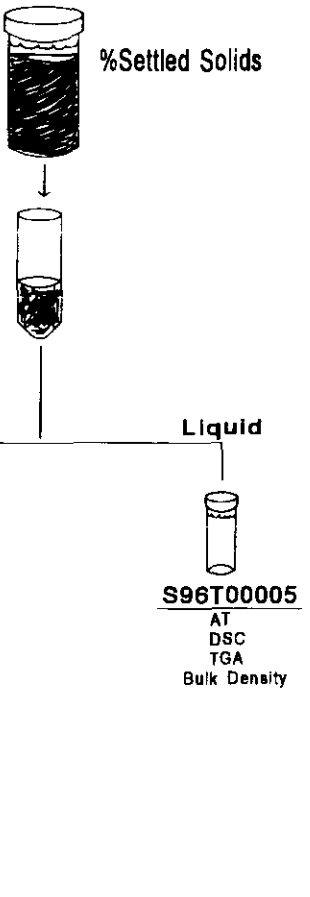
S95T003984

DSC
TGA
AT
Sp.G.

666 in.

102-AN-3(A)

S96T000001



S96T000003

DSC, TGA
Bulk Density
Vol % Solids

S96T00005

AT
DSC
TGA
Bulk Density

Fusion Digest

S96T000007

AT

Attachment 1 (2 of 4)

AN-102 GRAB SAMPLE BREAKDOWN

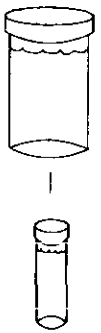
Riser 22A

February 15, 1995 Sampling Event

388 in.

102-AN-1

S95T003924



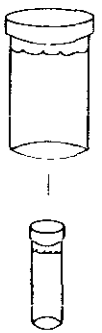
S95T003982

DSC
TGA
AT
Sp.G.

576 in.

102-AN-2

S95T003925



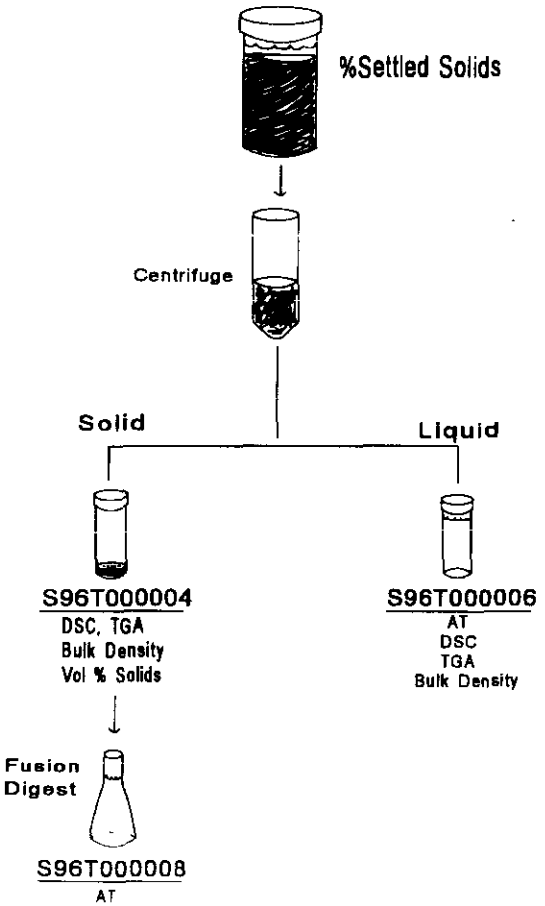
S95T003983

DSC
TGA
AT
Sp.G.

603 in.

102-AN-3(B)

S96T000002



S96T000004

DSC, TGA
Bulk Density
Vol % Solids

S96T000006

AT
DSC
TGA
Bulk Density

Fusion Digest

S96T000008

AT

Attachment 1 (3 of 4)

AN-102 GRAB SAMPLE BREAKDOWN

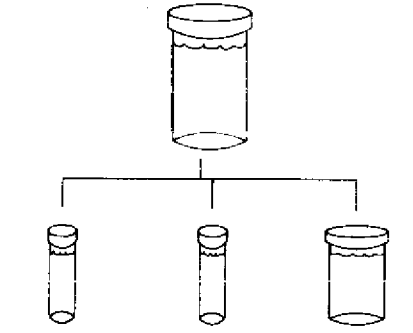
Riser 21A

November 30, 1995 Sampling Event

370 in.

2AN-95-1

S95T003864



S95T003867
DSC
TGA
TOC
TIC
ICP: Al, Fe, Na, Mn, U, Cr, Ni, Si
IC: anions
pH
OH
Sp.G

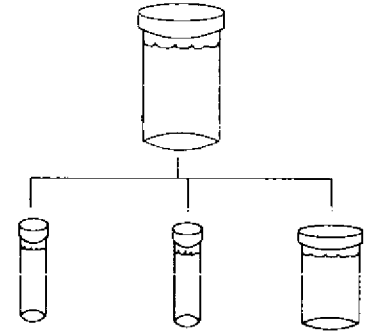
S95T003870
GEA: Cs-137
Pu-239/240
Sr-90
Am-241
AT

S95T003917
Archive

550 in.

2AN-95-2

S95T003865



S95T003868
DSC
TGA
TOC
TIC
ICP: Al, Fe, Na, Mn, U, Cr, Ni, Si
IC: anions
pH
OH
Sp.G

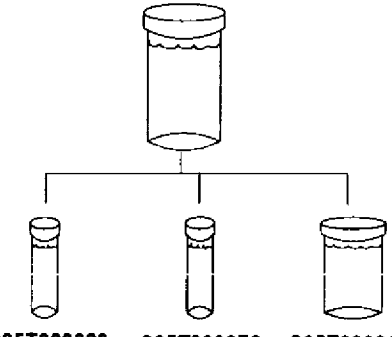
S95T003871
GEA: Cs-137
Pu-239/240
Sr-90
Am-241
AT

S95T003918
Archive

460 in.

2AN-95-3

S95T003866

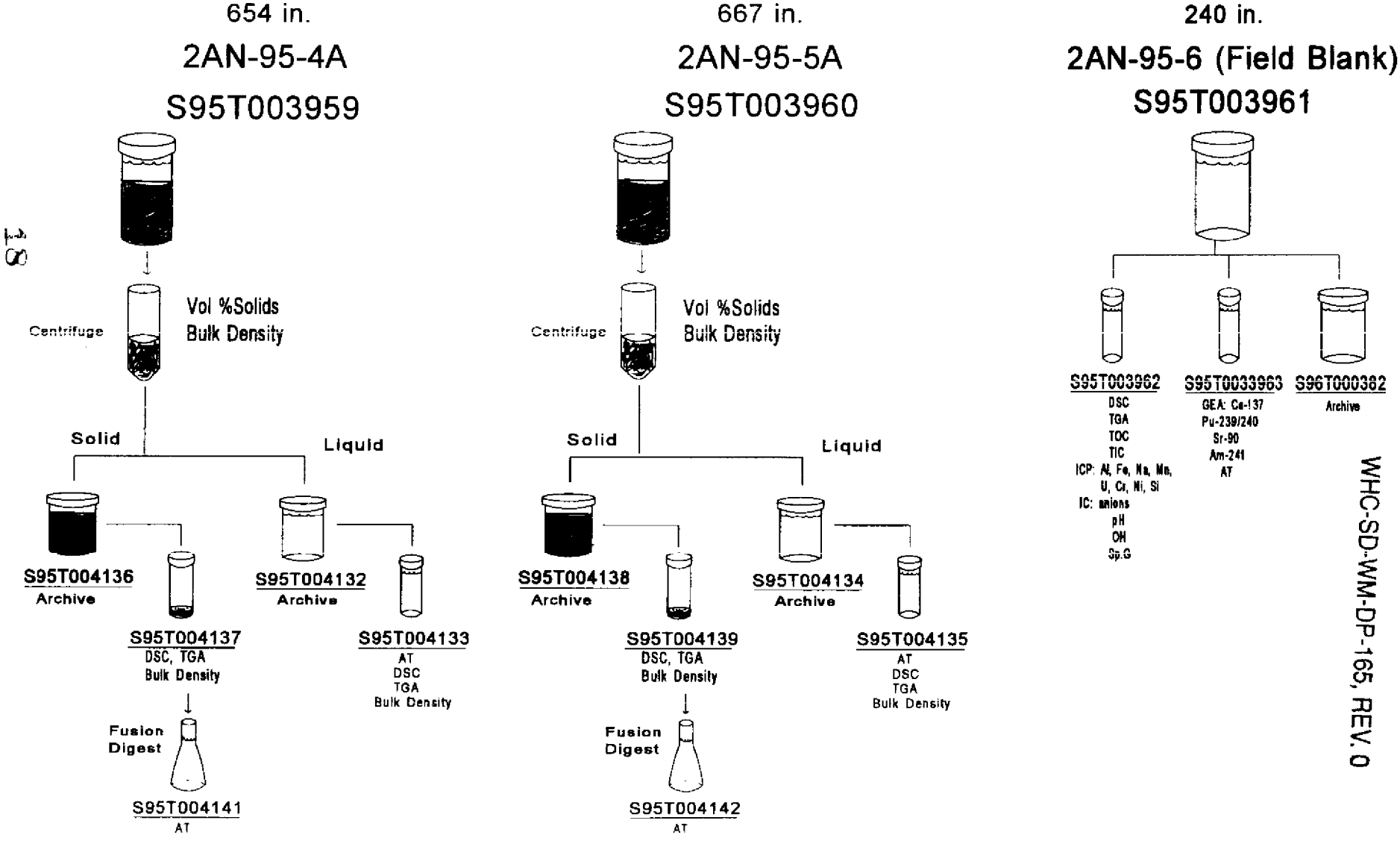


S95T003869
DSC
TGA
TOC
TIC
ICP: Al, Fe, Na, Mn, U, Cr, Ni, Si
IC: anions
pH
OH
Sp.G

S95T003872
GEA: Cs-137
Pu-239/240
Sr-90
Am-241
AT

S95T003919
Archive

Attachment 1 (4 of 4)
AN-102 GRAB SAMPLE BREAKDOWN
Riser 21A
December 14, 1995 Sampling Event



SAMPLE DATA SUMMARIES

TAble 3: Safety Screen Results for 10/21/94 Sampling Event
AN-102 GRAB

RISER: 22A
SEGMENT #: 102-AN-3(A)

SEGMENT PORTION: Decanted Supernate (Liquid Grab Sludge)

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T000005			% Water by TGA using Mettler	%	None	None	101.7	n/a	49.09	49.10	49.09	0.02	n/a	n/a	n/a
S96T000005			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	465.6	452.3	459.0	2.90	n/a	n/a	n/a
S96T000005			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	106.9	n/a	237.0	230.2	233.6	2.91	n/a	n/a	n/a
S96T000005			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.280	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T000005			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	105.2	<9.31e-03	1.75e-01	2.08e-01	1.92e-01	17.2	104.6	1.93e-02	1.89E+01

Sludge (from Liquid Grab Sample): Sludge (from Liquid Grab Sample)

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T000003			% Water by TGA using Mettler	%	None	None	102.0	n/a	35.60	35.98	35.79	1.06	n/a	n/a	n/a
S96T000003			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	101.1	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T000003			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T000003			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.640	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T000007	F		Alpha of Digested Solid	uCi/g	-1.0e+00	38.90	92.06	<1.11e-02	3.06e-01	3.32e-01	3.19e-01	8.15	80.36	3.12e-02	1.71E+01

=> Limit violated
=> Selected Limit

INTERIM

Table 3: Safety Screen Results for 10/21/94 Sampling Event
AN-102 GRAB

RISER: 22A
SEGMENT #: 102-AN-4

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T003984			% Water by TGA using Mettler	%	None	None	102.0	n/a	49.33	49.38	49.36	0.10	n/a	n/a	n/a
S95T003984			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	440.8	389.2	415.0	12.4	n/a	n/a	n/a
S95T003984			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	96.66	n/a	223.2	197.1	210.1	12.4	n/a	n/a	n/a
S95T003984			Alpha in Liquid Samples	uCi/mL	-1.0e+00	81.50	100.6	<8.88e-03	1.59e-01	1.74e-01	1.66e-01	9.01	n/a	2.17e-02	2.02E+01

=> Limit violated
=> Selected Limit

Table 5: Safety Screen Results for 02/15/95 Sampling Event
AN-102 GRAB

RISER: 22A
SEGMENT #: 102-AN-1

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T003982			% Water by TGA using Mettler	%	None	None	102.0	n/a	50.06	49.07	49.56	2.00	n/a	n/a	n/a
S95T003982			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	563.6	629.4	596.5	11.0	n/a	n/a	n/a
S95T003982			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	96.66	n/a	284.2	317.4	300.8	11.0	n/a	n/a	n/a
S95T003982			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	100.6	<8.88e-03	1.44e-01	1.56e-01	1.50e-01	8.00	100.5	2.17e-02	2.10E+01

=> Limit violated
=> Selected Limit

Table 5: Safety Screen Results for 02/15/95 Sampling Event
AN-102 GRAB

RISER: 22A
SEGMENT #: 102-AN-2

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T003983			% Water by TGA using Mettler	%	None	None	102.0	n/a	49.76	49.91	49.83	0.30	n/a	n/a	n/a
S95T003983			DSC Exotherm Dry Caiculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	720.3	560.2	640.2	25.0	n/a	n/a	n/a
S95T003983			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	96.66	n/a	361.3	281.0	321.1	25.0	n/a	n/a	n/a
S95T003983			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	100.6	<8.88e-03	1.16e-01	1.16e-01	1.16e-01	0.00	n/a	2.17e-02	2.54E+01

=> Limit violated
=> Selected Limit

INTERIM

Table 5: Safety Screen Results for 02/15/95 Sampling Event
AN-102 GRAB

RISER: 22A
SEGMENT #: 102-AN-3(B)

SEGMENT PORTION: Decanted Supernate (Liquid Grab Sludge)

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T000006			% Water by TGA using Mettler	%	None	None	101.7	n/a	47.61	47.17	47.39	0.93	n/a	n/a	n/a
S96T000006			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	99.33	n/a	0.00e+00	27.47	13.73	200	n/a	n/a	n/a
S96T000006			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	0.00e+00	52.21	26.11	200	n/a	n/a	n/a
S96T000006			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.390	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T000006			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	105.2	<9.31e-03	2.39e-01	2.18e-01	2.28e-01	9.19	n/a	1.93e-02	1.61E+01

Sludge (from Liquid Grab Sample): Sludge (from Liquid Grab Sample)

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T000004			% Water by TGA using Mettler	%	None	None	102.0	n/a	44.25	43.72	43.98	1.20	n/a	n/a	n/a
S96T000004			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	100.2	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T000004			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T000004			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.560	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T000008	F		Alpha of Digested Solid	uCi/g	-1.0e+00	38.90	92.06	<1.11e-02	9.52e-01	7.78e-01	8.65e-01	20.1	n/a	4.25e-02	1.07E+01

=> Limit violated
=> Selected Limit

Table 7: Safety Screen Results for 11/30 & 12/14/95 Events
AN-102 GRAB

RISER: 21A
SEGMENT #: 2AN-95-1

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T003867			% Water by TGA on Perkin Elmer	%	None	None	101.7	n/a	49.74	48.54	49.14	2.44	n/a	n/a	n/a
S95T003867			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	558.2	558.4	558.3	0.04	n/a	n/a	n/a
S95T003867			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	104.0	n/a	283.9	284.0	283.9	0.04	n/a	n/a	n/a
S95T003870			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	90.26	<1.17e-02	1.75e-01	1.73e-01	1.74e-01	1.15	91.07	2.71e-02	1.91E+01

=> Limit violated
=> Selected Limit

INTERIM

Table 7: Safety Screen Results for 11/30 & 12/14/95 Events
AN-102 GRAB

RISER: 21A
SEGMENT #: 2AN-95-2

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T003868			% Water by TGA using Mettler	%	None	None	102.1	n/a	48.58	49.35	48.97	1.57	n/a	n/a	n/a
S95T003868			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	1.20e+03	1.09e+03	1.15e+03	9.93	n/a	n/a	n/a
S95T003868			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	108.3	n/a	616.1	557.8	587.0	9.93	n/a	n/a	n/a
S95T003871			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	90.26	<1.17e-02	1.82e-01	1.69e-01	1.75e-01	7.41	n/a	2.71e-02	1.91E+01

=> Limit violated
=> Selected Limit

Table 7: Safety Screen Results for 11/30 & 12/14/95 Events
AN-102 GRAB

RISER: 21A
SEGMENT #: 2AN-95-3

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T003869			% Water by TGA using Mettler	%	None	None	102.5	n/a	50.13	50.02	50.08	0.22	n/a	n/a	n/a
S95T003869			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	99.75	n/a	277.2	282.6	279.9	1.93	n/a	n/a	n/a
S95T003869			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	555.3	566.1	560.7	1.93	n/a	n/a	n/a
S95T003872			Alpha in Liquid Samples	uCi/mL	-1.0e+00	41.50	90.26	<1.17e-02	1.69e-01	2.02e-01	1.85e-01	17.8	n/a	2.71e-02	2.01E+01

=> Limit violated
=> Selected Limit

Table 7: Safety Screen Results for 11/30 & 12/14/95 Events
AN-102 GRAB

RISER: 21A
SEGMENT #: 2AN-95-4A

SEGMENT PORTION: Decanted Supernate (Liquid Grab Sludge)

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T004133			% Water by TGA on Perkin Elmer	%	None	None	101.6	n/a	45.26	48.80	47.03	7.53	n/a	n/a	n/a
S95T004133			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	98.95	n/a	258.0	252.1	255.1	2.31	n/a	n/a	n/a
S95T004133			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	487.1	475.9	481.5	2.33	n/a	n/a	n/a
S95T004133			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.350	n/a	n/a	n/a	n/a	5.00e-01	n/a
S95T004133			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	97.55	<2.40e-02	1.68e-01	1.71e-01	1.70e-01	1.77	110.2	3.26e-02	2.37E+01

Sludge (from Liquid Grab Sample): Sludge (from Liquid Grab Sample)

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T003959			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.470	n/a	n/a	n/a	n/a	5.00e-01	n/a
S95T004137			% Water by TGA on Perkin Elmer	%	None	None	100.6	n/a	43.35	42.06	42.70	3.02	n/a	n/a	n/a
S95T004137			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	98.70	n/a	279.7	262.5	271.1	6.34	n/a	n/a	n/a
S95T004137			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	488.1	458.2	473.1	6.32	n/a	n/a	n/a
S95T004137			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.570	n/a	n/a	n/a	n/a	5.00e-01	n/a
S95T004141		F	Alpha of Digested Solid	uCi/g	-1.0e+00	38.90	92.06	<1.11e-02	4.59e-01	4.64e-01	4.62e-01	1.08	73.72	9.77e-03	7.17E+00

=> Limit violated
=> Selected Limit

Table 7: Safety Screen Results for 11/30 & 12/14/95 Events
AN-102 GRAB

RISER: 21A
SEGMENT #: 2AN-95-5A

SEGMENT PORTION: Decanted Supernate (Liquid Grab Sludge)

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T004135			% Water by TGA on Perkin Elmer	%	None	None	101.6	n/a	48.45	51.03	49.74	5.19	n/a	n/a	n/a
S95T004135			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	98.95	n/a	279.7	300.3	290.0	7.10	n/a	n/a	n/a
S95T004135			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	556.5	597.5	577.0	7.11	n/a	n/a	n/a
S95T004135			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.390	n/a	n/a	n/a	n/a	5.00e-01	n/a
S95T004135			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	97.55	<2.40e-02	1.37e-01	1.53e-01	1.45e-01	11.0	n/a	3.26e-02	3.06E+01

Sludge (from Liquid Grab Sample): Sludge (from Liquid Grab Sample)

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T003960			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.500	n/a	n/a	n/a	n/a	5.00e-01	n/a
S95T004139			% Water by TGA using Mettler	%	None	None	102.6	n/a	43.50	41.39	42.45	4.97	n/a	n/a	n/a
S95T004139			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	98.70	n/a	283.2	327.5	305.4	14.5	n/a	n/a	n/a
S95T004139			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+00	480.0	n/a	n/a	492.1	569.1	530.6	14.5	n/a	n/a	n/a
S95T004139			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.580	n/a	n/a	n/a	n/a	5.00e-01	n/a
S95T004142		F	Alpha of Digested Solid	uCi/g	-1.0e+00	38.90	92.06	<1.11e-02	3.29e-01	3.33e-01	3.31e-01	1.21	n/a	9.77e-03	8.44E+00

=> Limit violated
=> Selected Limit

INTERIM

Table 7: Safety Screen Results for 11/30 & 12/14/95 Events
AN-102 GRAB

RISER: 21A
SEGMENT #: 2AN-95-6

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T003962			% Water by TGA using Mettler	%	None	None	102.5	n/a	99.99	100.1	100.0	0.11	n/a	n/a	n/a
S95T003962			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	108.3	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T003963			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	97.55	<2.40e-02	<5.83E-06	<1.04E-5	n/a	n/a	n/a	1.21e-05	5.00E+02

=> Limit violated
=> Selected Limit

DOME SPACE FLAMMABILITY

WHC-SD-WM-DP-165, REV. 0

DATA SHEET 2 - IH&S VAPOR SURVEY

Tank No. AN102 Riser No. 21A

Location (Breather, (Vent), Riser, Dome Space, Breathing zone) _____

Vapor	Results
O_2	20.9% O_2
LEL	0% LEL
T.O.C	2.0 PPM
NH_3	50 PPM

Tank No. AN102 Riser No. 21A

Location (Breather, Vent, Riser, (Dome Space), Breathing zone) _____

Vapor	Results
O_2	20.9%
LEL	0% LEL
T.O.C.	19 PPM
NH_3	300 PPM

Tank No. AN102 Riser No. 21A

Location (Breather, Vent, Riser, Dome Space, (Breathing zone)) _____

Vapor	Results
O_2	20.9%
LEL	0% LEL
T.O.C.	0 PPM
NH_3	0 PPM

COMMENTS: _____

Kevin J Nuscomb 12-14-95
IH&S Signature/Date

INORGANIC ANALYSES

LABCORE Data Entry Template for Worklist# 4824

Analyst: JDS **Instrument:** DSC0 3 **Book #** 12N4B

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

Worklist Comment: Please run AN-102 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-03	SOLID	28.45	28.76	N/A	Joules/g
95000227	AN-102 GRAB	2	SAMPLE	S96T000003	0		DSC-03	SOLID	N/A	Ø		Joules/g
95000227	AN-102 GRAB	3	DUP	S96T000003	0		DSC-03	SOLID	Ø	Ø 1/24/96 BDV	N/A	Joules/g
		4	STD				DSC-03	SOLID	28.45	28.76 51	N/A	Joules/g
95000227	AN-102 GRAB	5	SAMPLE	S96T000004	0		DSC-03	SOLID	N/A	Ø		Joules/g
95000227	AN-102 GRAB	6	DUP	S96T000004	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 4824

See attached for signatures
Analyst Signature **Date** 1/24/96 BDV

Analyst Signature **Date** 1-25-96

Verified by Blandina Valenzuela 1/26/96

Data Entry Comments: S96T000003 produced a small peak at approximately 280°C this is from the instrument not the sample. It also produced an endotherm at 125.5°C with a delta H of 978.7 J/g

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

S96T000004 produced an endotherm at 118.3°C with a delta H of 1034.7 J/g

LABCORE Data Entry Template for Worklist# 4824

JDS

Analyst: ADP 1-16-96 **Instrument:** DSC0 _____ **Book #** 12N148

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

Worklist Comment: Please run AN-102 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID			N/A	Joules/g
95000227	AN-102 GRAB	2	SAMPLE	S96T000003	0		DSC-01	SOLID	N/A			Joules/g
95000227	AN-102 GRAB	3	DUP	S96T000003	0		DSC-01	SOLID			N/A	Joules/g
95000227	AN-102 GRAB	4	SAMPLE	S96T000004	0		DSC-01	SOLID	N/A			Joules/g
95000227	AN-102 GRAB	5	DUP	S96T000004	0		DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 4824

ADP 1-16-96
1-15-96

Analyst Signature **Date**

Analyst Signature **Date**

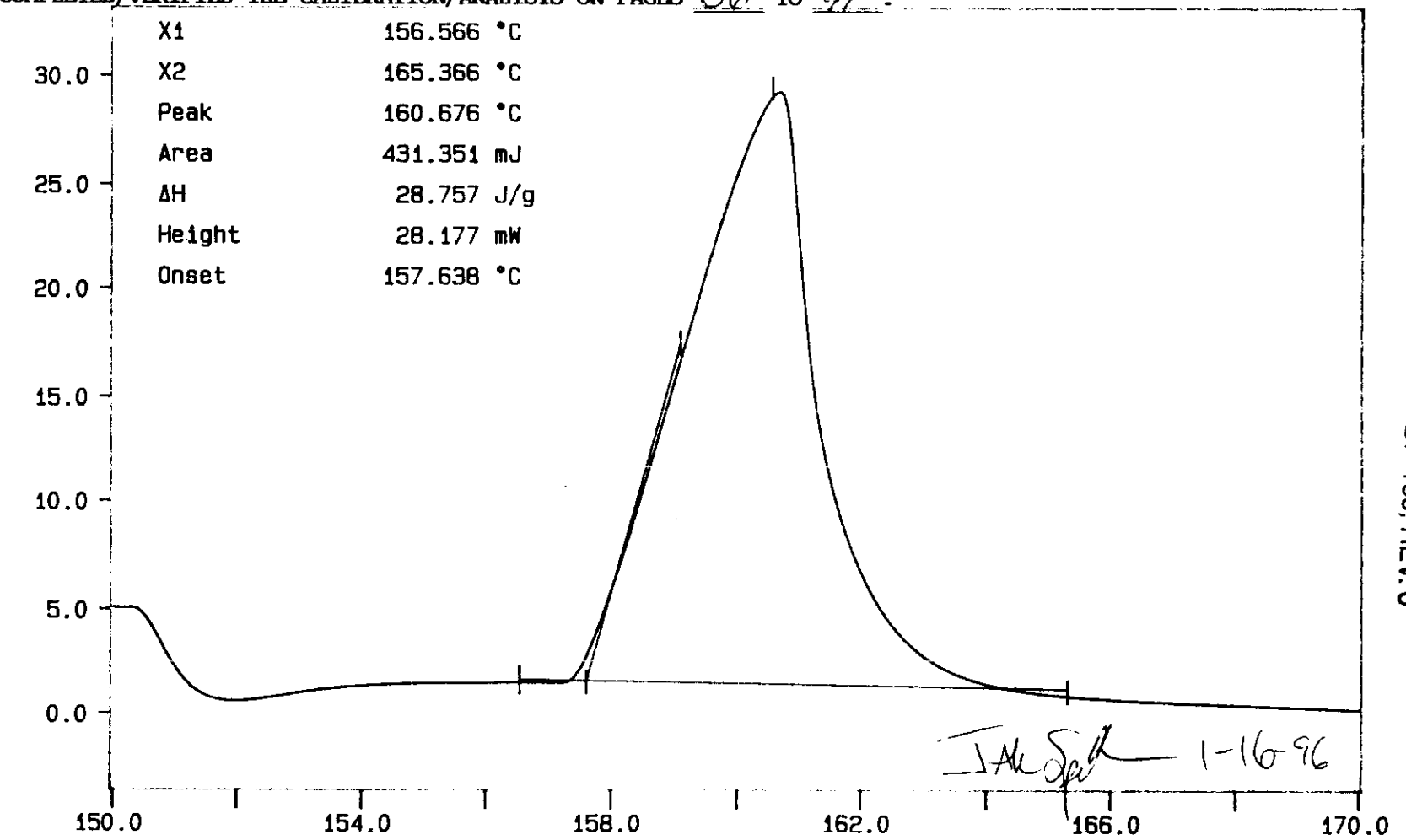
JAS 1-16-96

Data Entry Comments:

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

Curve 1: DSC
File info: IND011602 Tue Jan 16 06:53:33 1996
Sample Weight 15.000 mg
12N14B Indium at 10C/min

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 36 TO 41.



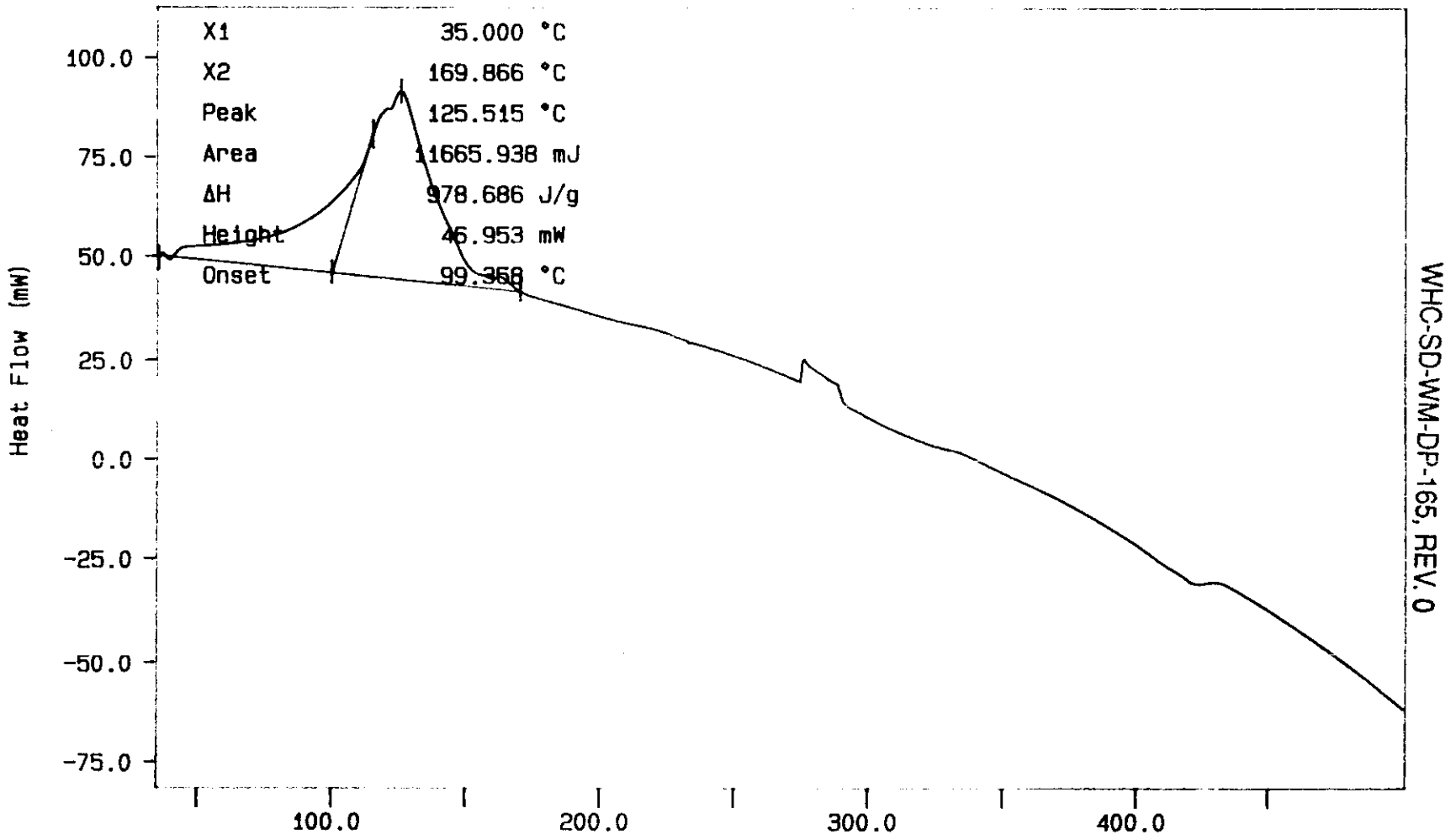
36

WHC-SD-WM-DP-165, REV. 0

N2, EXOTHERM DOWN
TEMP1: 150.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 170.0 C

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Jan 16 06:57:36 1996

Curve 1: DSC
File info: SAM011601 Tue Jan 16 09:46:56 1996
Sample Weight: 11.920 mg
S96T000003

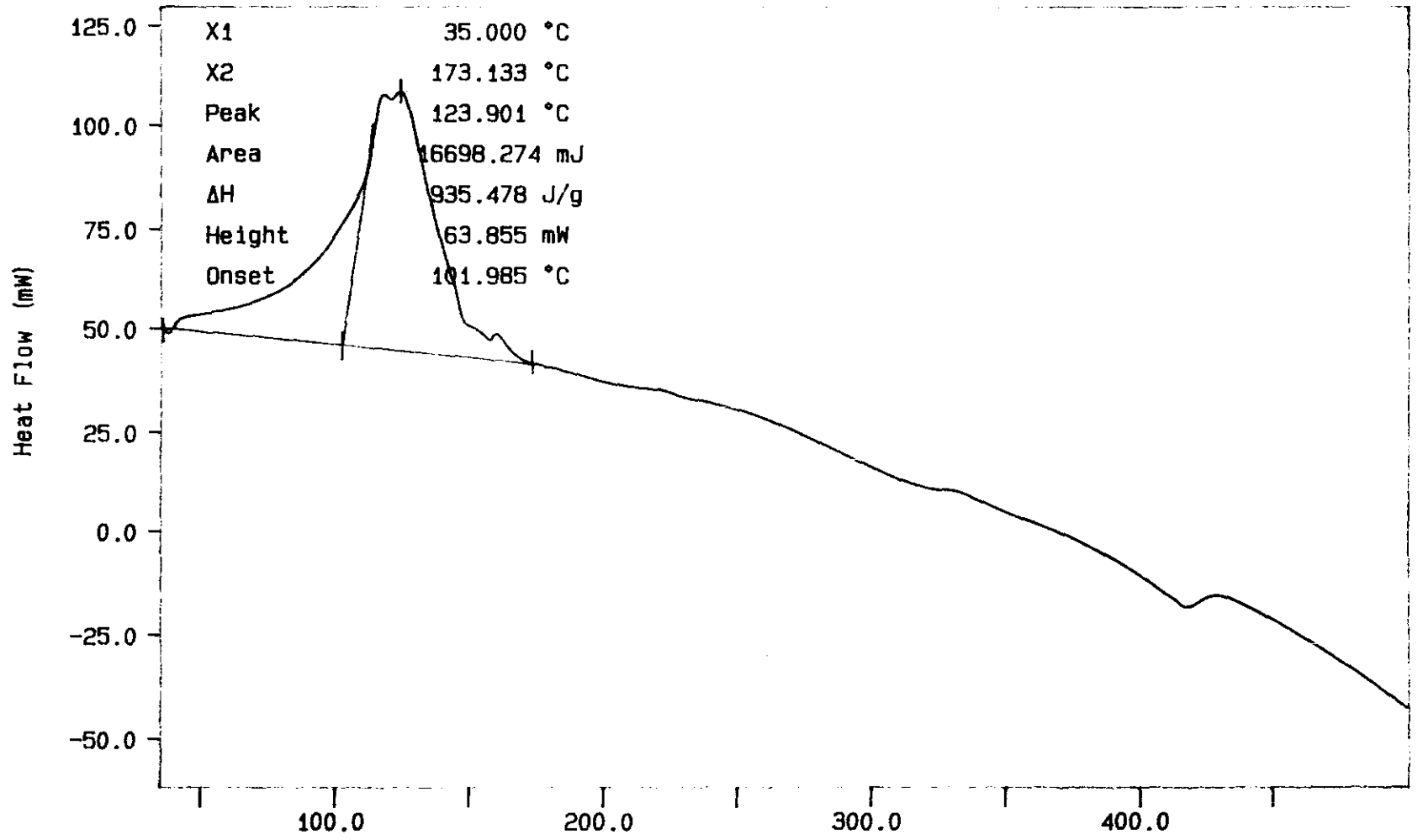


exotherm down, N2 purge gas

TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Jan 16 14:01:58 1996

Curve 1: DSC
File info: SAM011603 Tue Jan 16 13:35:52 1996
Sample Weight: 17.850 mg
S96T000003DUP



exotherm down, N2 purge gas

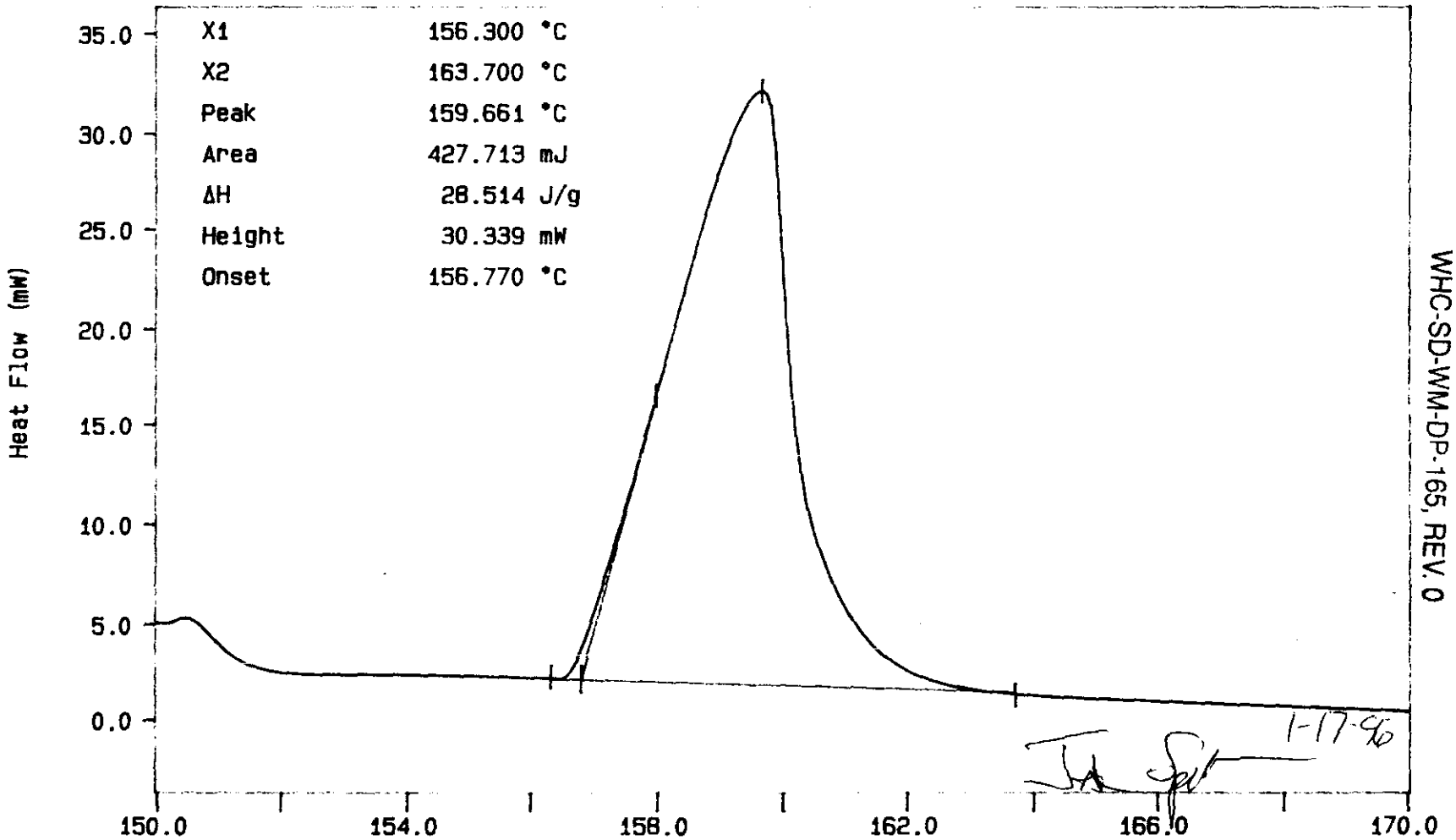
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Jan 16 13:52:33 1996

WHC-SD-WM-DP-165, REV. 0

38

Curve 1: DSC
File info: qsav2 Wed Jan 17 06:29:25 1996
Sample Weight: 15.000 mg
12N14B Indium at 10C/min

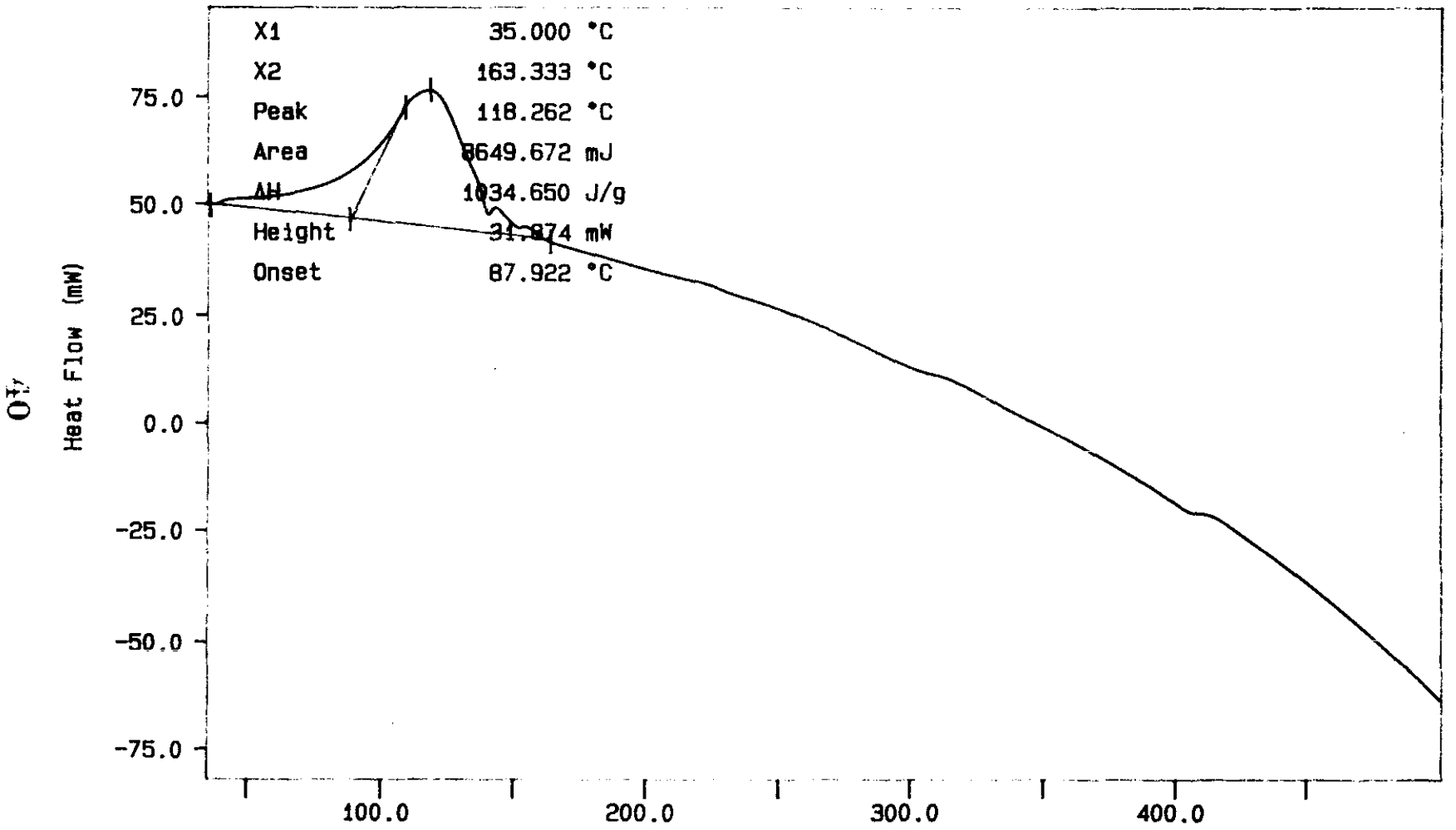


N2, EXOTHERM DOWN
Temperature (°C)
TEMP1: 150.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 170.0 C

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Jan 17 06:35:39 1996

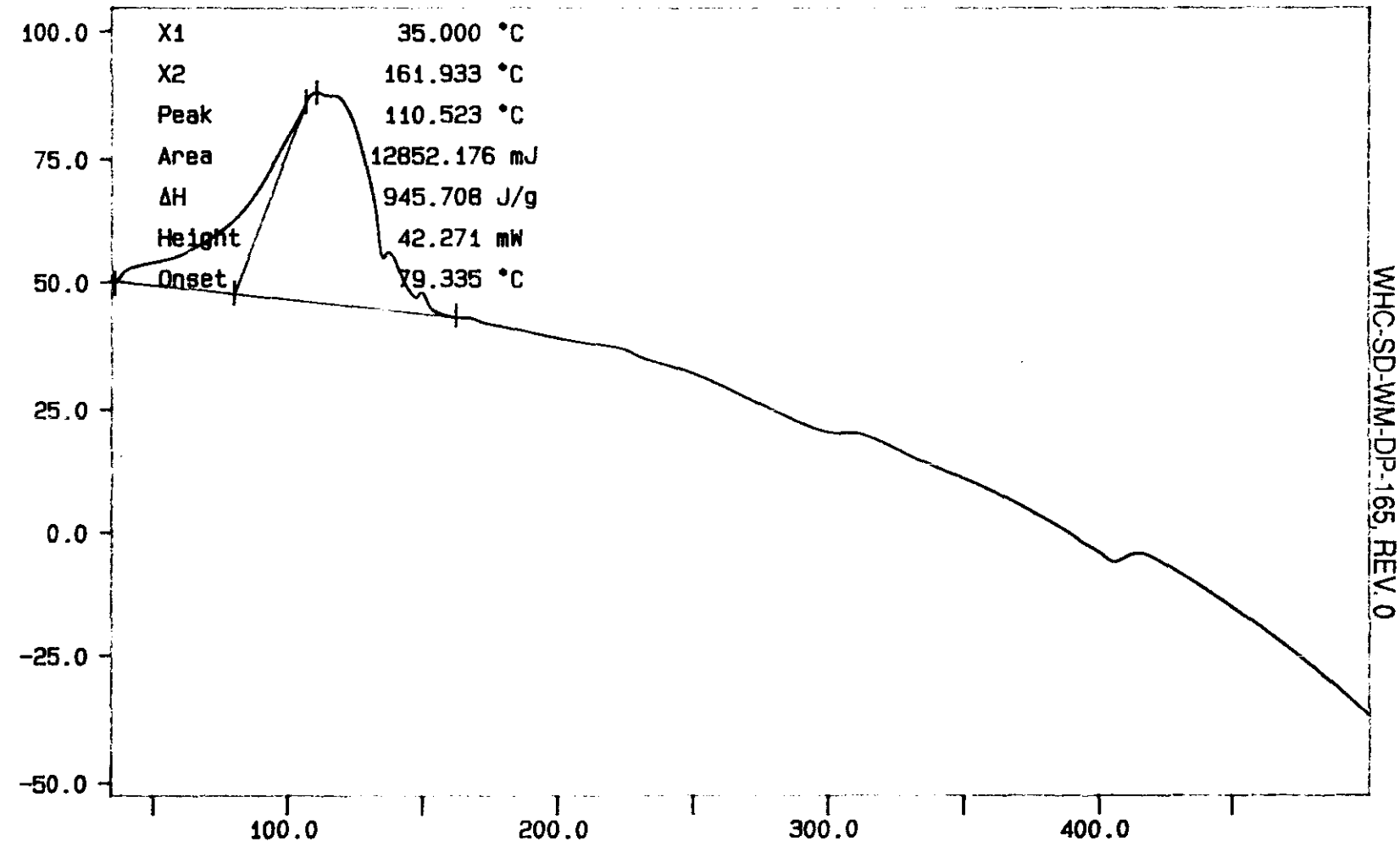
WHC-SD-WM-DP-165, REV.0

Curve 1: DSC
File info: SAM011701 Wed Jan 17 07:47:02 1996
Sample Weight: 8.360 mg
S96T000004



JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Jan 17 08:50:13 1996

Curve 1: DSC
File info: SAM011702 Wed Jan 17 09:41:51 1996
Sample Weight: 13.590 mg
S96T000004DUP



WHC-SD-WM-DP-165, REV.0

LABCORE Data Entry Template for Worklist# 4850

Analyst: AD **Instrument:** DSC0 1 **Book #** 12N14-B

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

Worklist Comment: Please run AN-102 ~~TGA~~ DSC s under N2. bdv

LAD 1-26-96

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	LIQUID	28.45	27.5	N/A	Joules/g
95000227	AN-102 GRAB	2	SAMPLE	S95T003982	0		DSC-01	LIQUID	N/A	~~272.3~~ 284.2 1/23/96 GW		Joules/g
95000227	AN-102 GRAB	3	DUP	S95T003982	0		DSC-01	GW 1/23/96 LIQUID	~~272.3~~ 284.2	317.4	N/A	Joules/g
95000227	AN-102 GRAB	4	SAMPLE	S95T003983	0		DSC-01	LIQUID	N/A	361.3		Joules/g
95000227	AN-102 GRAB	5	DUP	S95T003983	0		DSC-01	LIQUID	361.3	281.0	N/A	Joules/g
95000227	AN-102 GRAB	6	SAMPLE	S95T003984	0		DSC-01	LIQUID	N/A	223.2		Joules/g
95000227	AN-102 GRAB	7	DUP	S95T003984	0		DSC-01	LIQUID	223.2	197.1	N/A	Joules/g

Final page for worklist # 4850

[signature] 1-19-96
Analyst Signature **Date**

[signature] 1-24-96
Analyst Signature **Date**

Rac Chun Green 1-19-96

Verified by Blandina Valenzuela 1/26/96

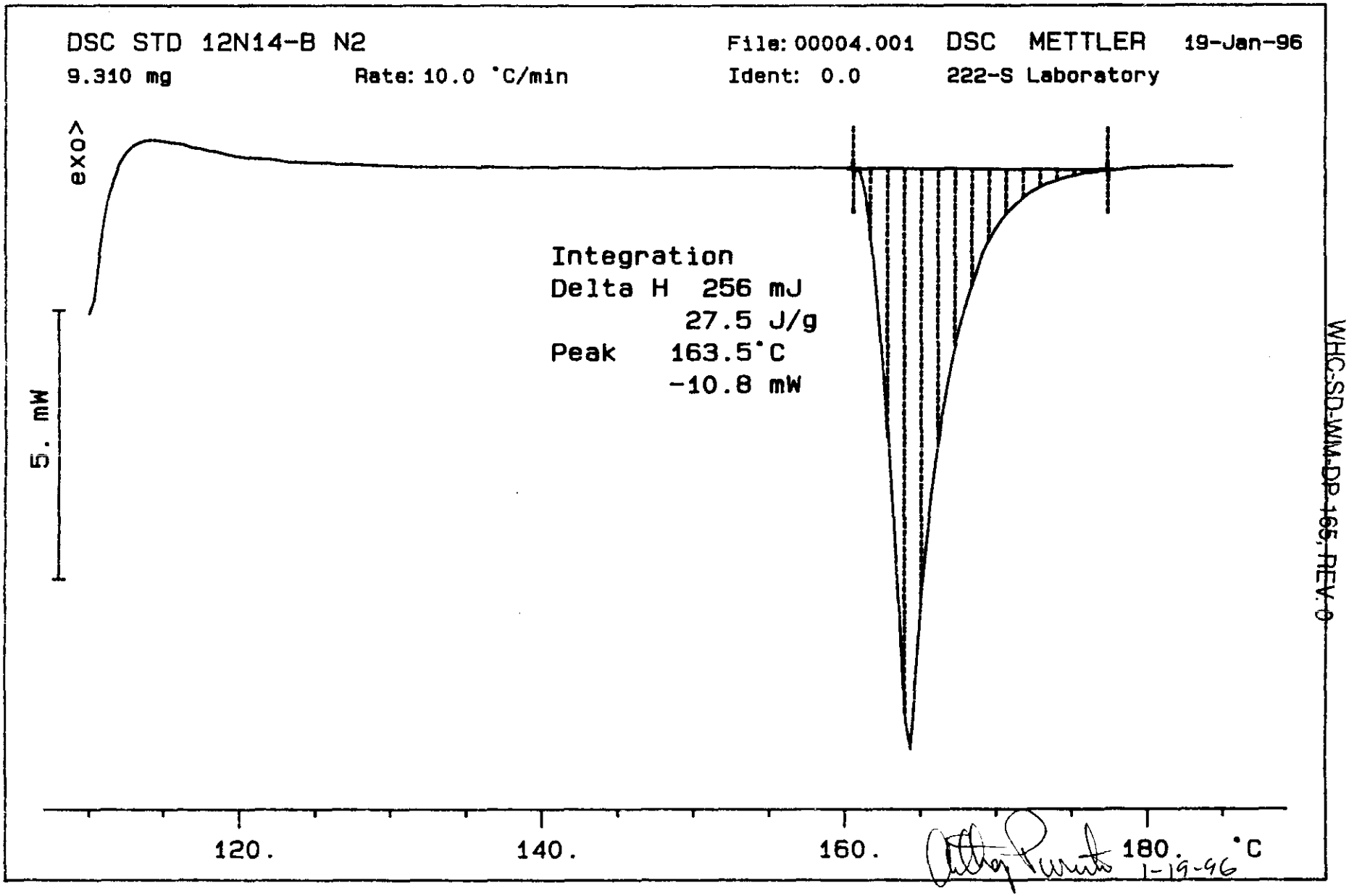
S95T003982 produced an endotherm at 133.8°C with a delta H of 900.1J/g

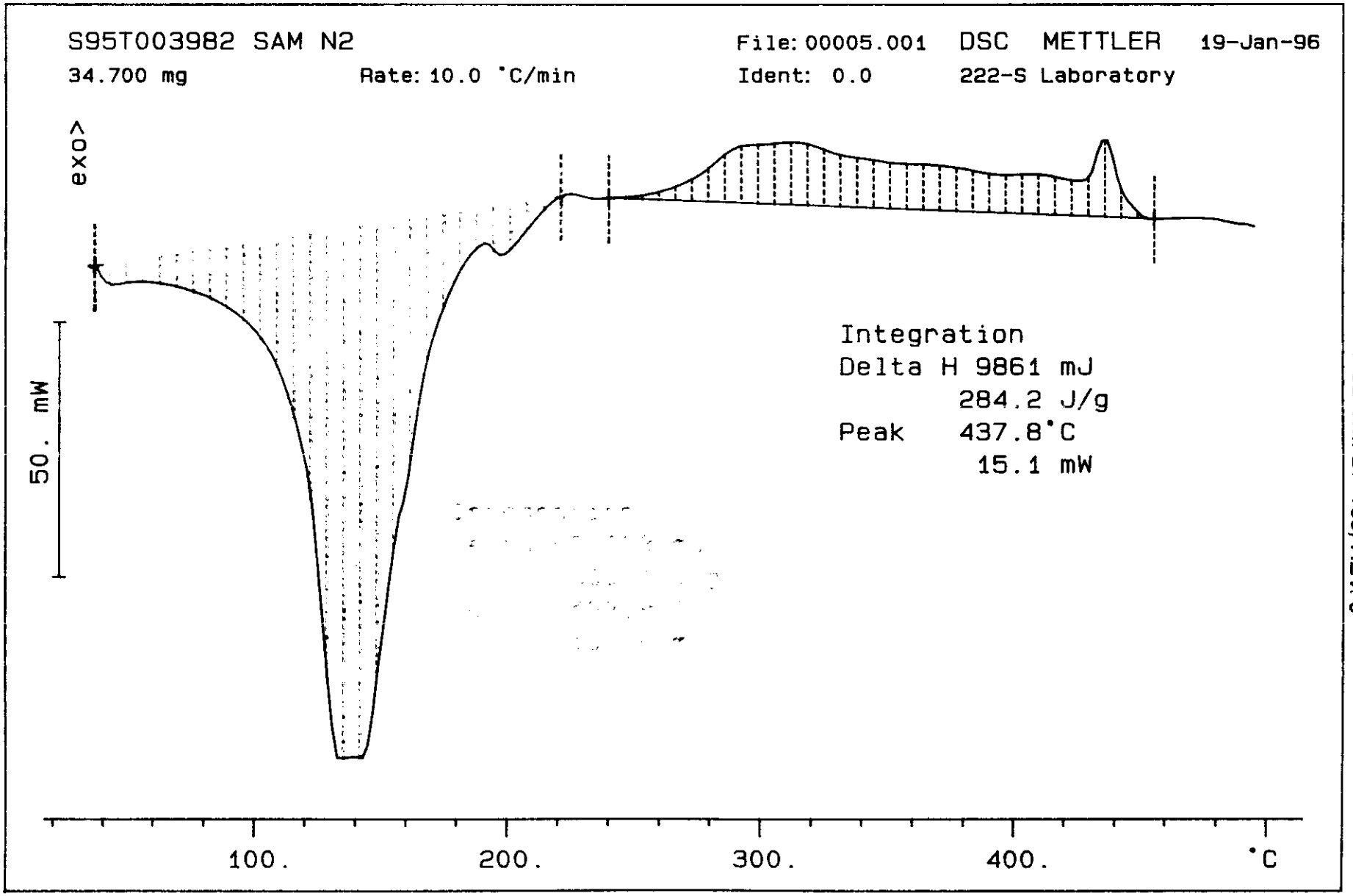
Data Entry Comments: S95T003983 produced an endotherm at 123.2 1/24/96 .1°C with a delta H of 1628.8J/g

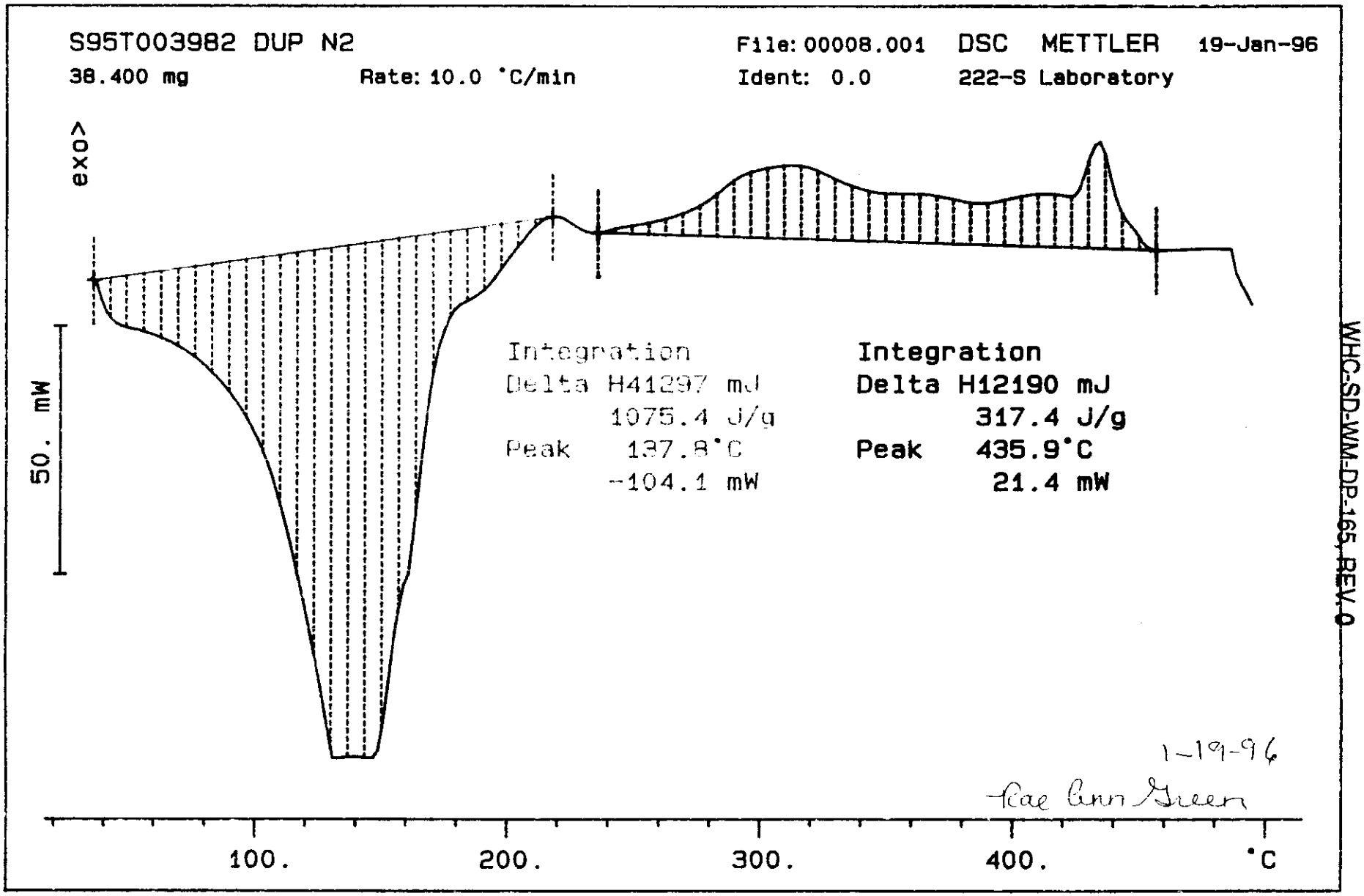
S95T003984 produced an endotherm at 127.6°C with a delta H of 863.4J/g

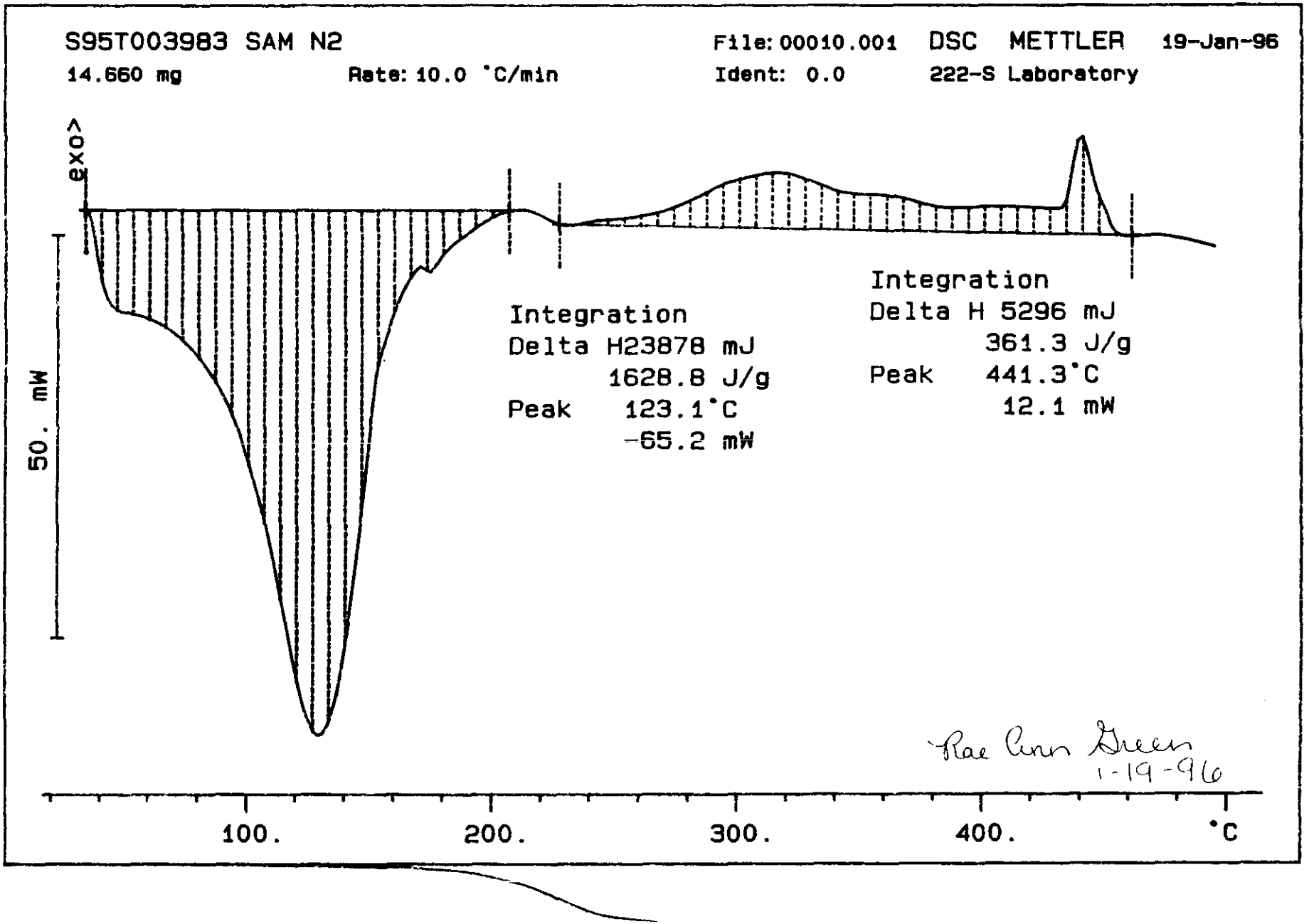
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

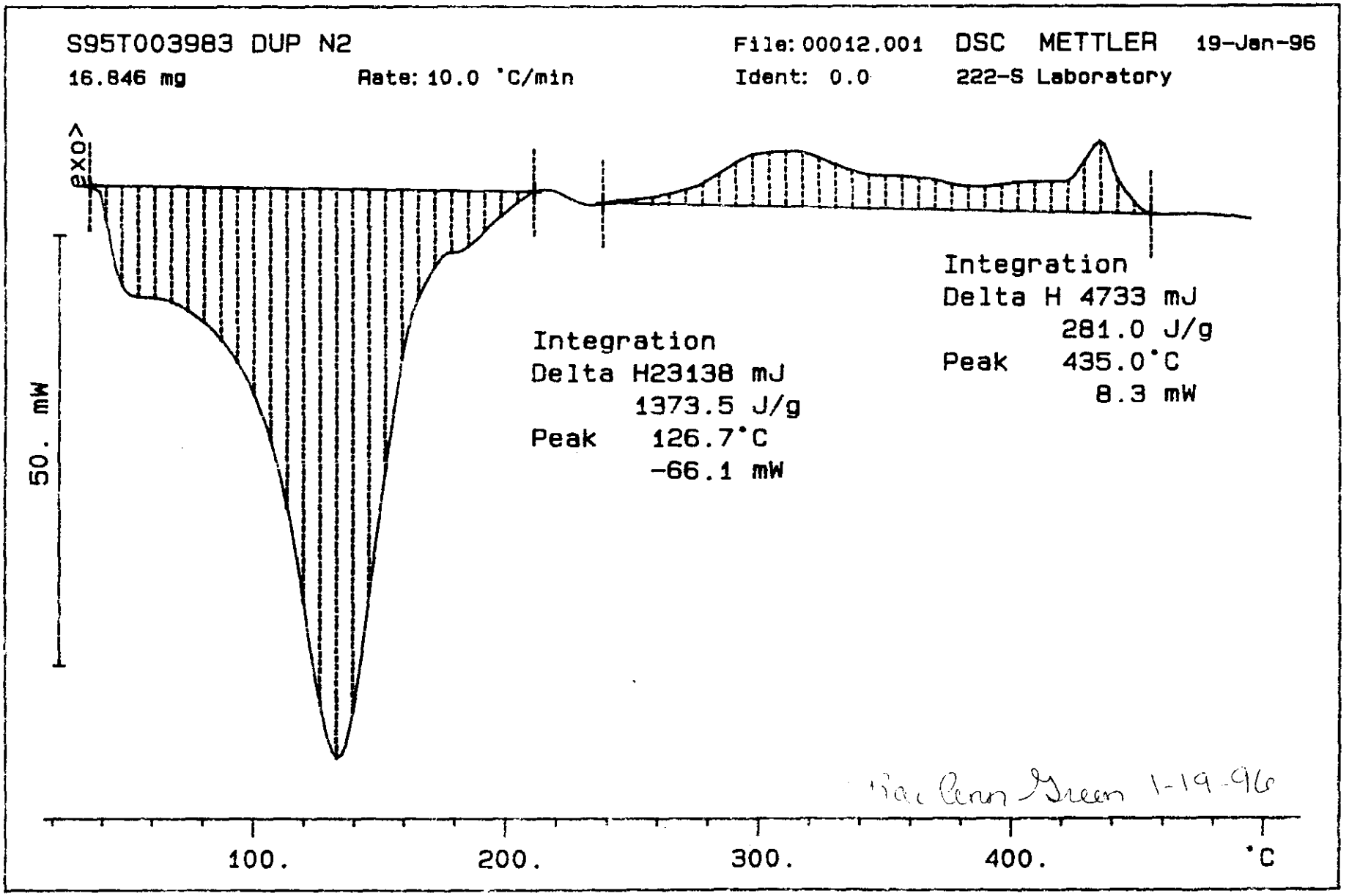
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 43 TO 49.

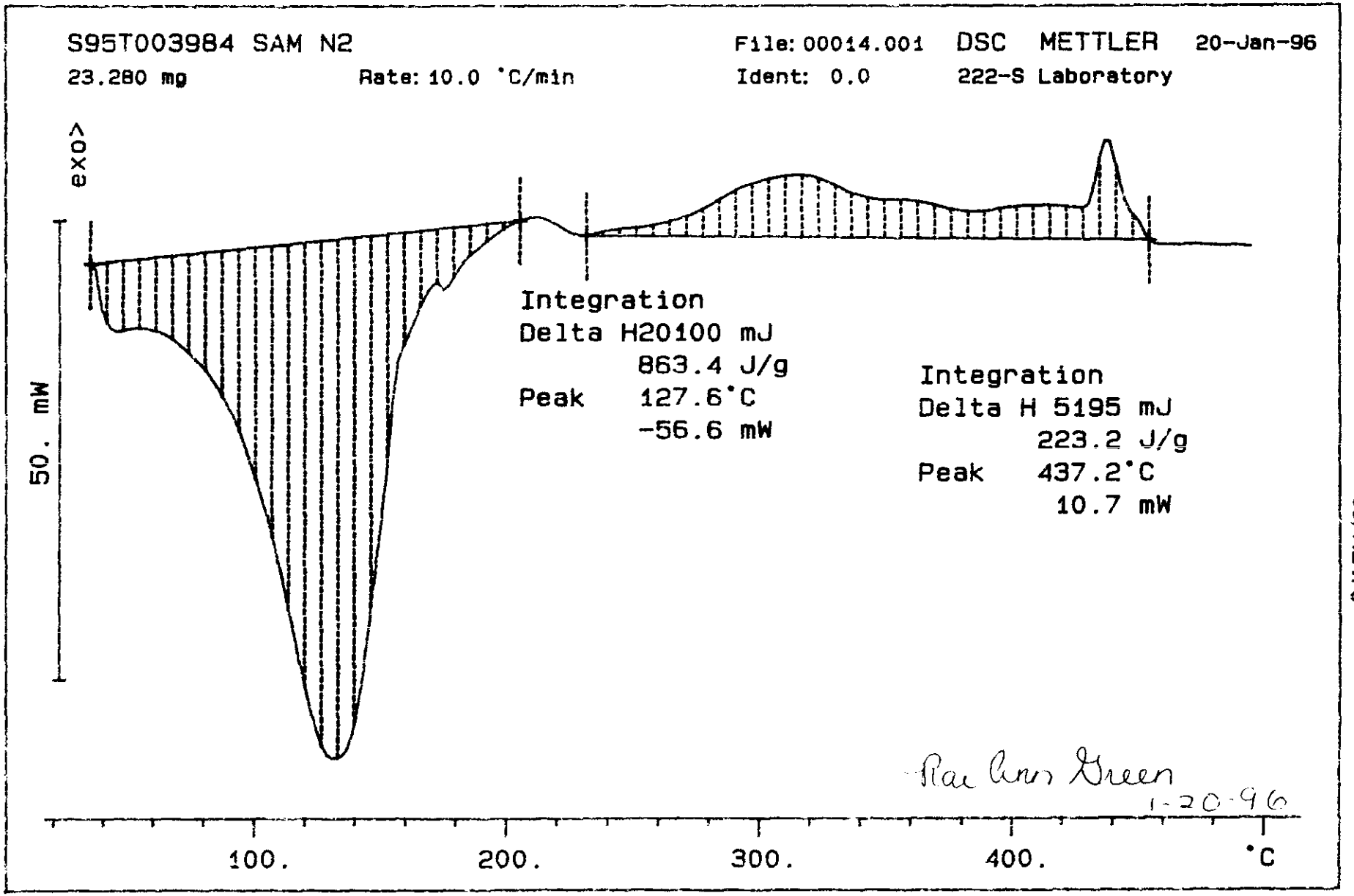


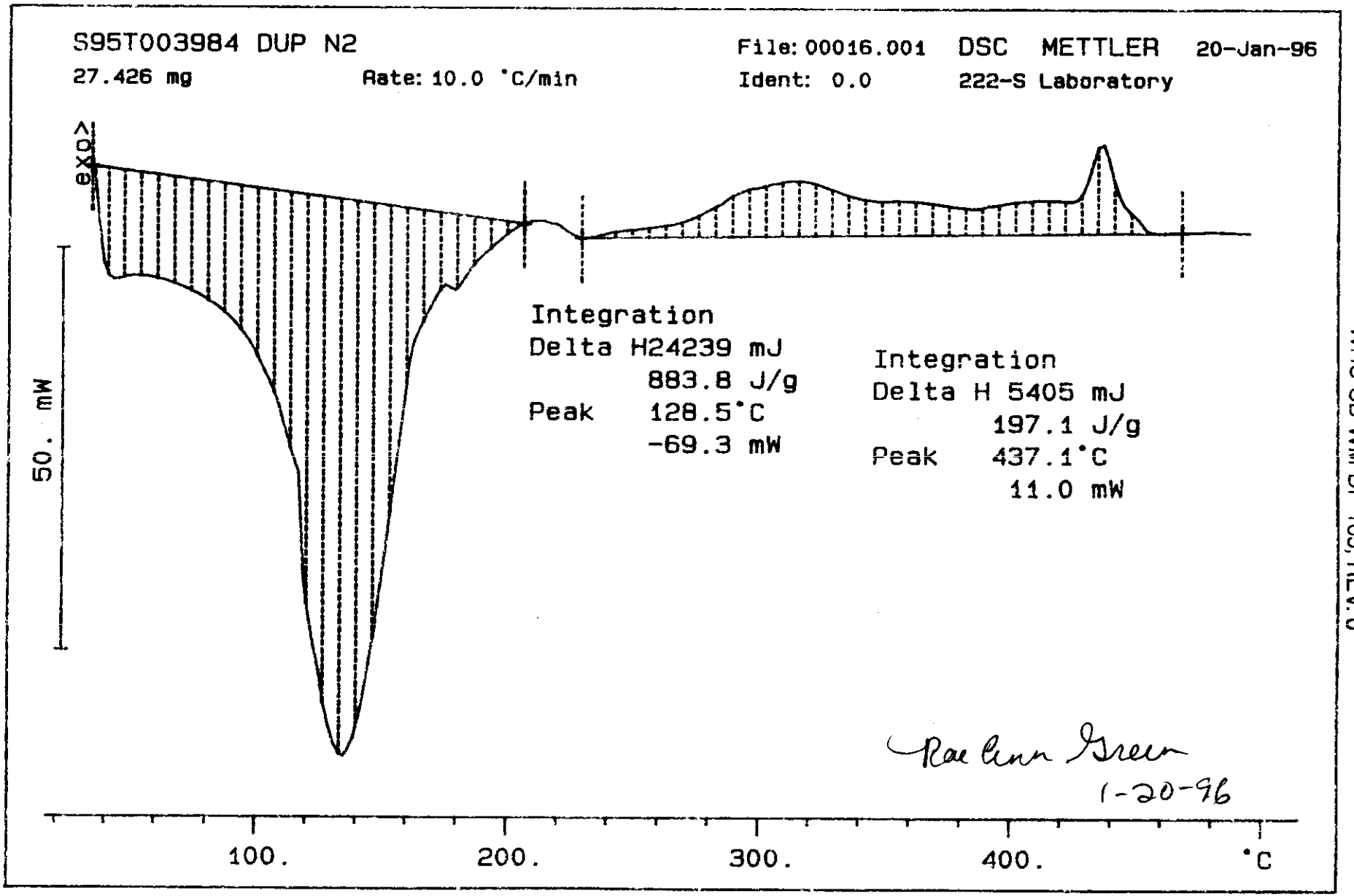

S95T003982 SAM N2
File: 00005.001 DSC METTLER 19-Jan-96
34.700 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory
exo>
50. mW
Integration
Delta H 9861 mJ
284.2 J/g
Peak 437.8°C
15.1 mW
100.
200.
300.
400.
°C


S95T003982 DUP N2
38.400 mg
Rate: 10.0 °C/min
File: 00008.001
Ident: 0.0
DSC METTLER
222-S Laboratory
19-Jan-96
exo>
50. mW
Integration
Delta H41297 mJ
1075.4 J/g
Peak 137.8°C
-104.1 mW
Integration
Delta H12190 mJ
317.4 J/g
Peak 435.9°C
21.4 mW
1-19-96
Rae Ann Green
100.
200.
300.
400.
°C


S95T003983 SAM N2
14.660 mg
Rate: 10.0 °C/min
File: 00010.001
Ident: 0.0
DSC METTLER
222-S Laboratory
19-Jan-96
exo>
50. mW
Integration
Delta H23878 mJ
1628.8 J/g
Peak 123.1°C
-65.2 mW
Integration
Delta H 5296 mJ
361.3 J/g
Peak 441.3°C
12.1 mW
Rae Ann Green
1-19-96
100.
200.
300.
400.
°C


S95T003983 DUP N2
16.846 mg
Rate: 10.0 °C/min
File: 00012.001
Ident: 0.0
DSC METTLER
222-S Laboratory
19-Jan-96
exo>
50. mW
Integration
Delta H23138 mJ
1373.5 J/g
Peak 126.7°C
-66.1 mW
Integration
Delta H 4733 mJ
281.0 J/g
Peak 435.0°C
8.3 mW
Barbara Green 1-19-96
100.
200.
300.
400.
°C


S95T003984 SAM N2
23.280 mg
Rate: 10.0 °C/min
File: 00014.001
Ident: 0.0
DSC METTLER
222-S Laboratory
20-Jan-96
exo>
50. mW
Integration
Delta H20100 mJ
863.4 J/g
Peak 127.6°C
-56.6 mW
Integration
Delta H 5195 mJ
223.2 J/g
Peak 437.2°C
10.7 mW
Rae Ann Green
1-20-96
100.
200.
300.
400.
°C


S95T003984 DUP N2
27.426 mg
Rate: 10.0 °C/min
File: 00016.001 DSC METTLER 20-Jan-96
Ident: 0.0 222-S Laboratory
exo
50. mW
Integration
Delta H24239 mJ
883.8 J/g
Peak 128.5°C
-69.3 mW
Integration
Delta H 5405 mJ
197.1 J/g
Peak 437.1°C
11.0 mW
Rae Lynn Green
1-20-96
100.
200.
300.
400.
°C

LABCORE Data Entry Template for Worklist# 4851

Analyst: SMF **Instrument:** DSC0 3 **Book #** 12N143

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

Worklist Comment: Please run AN-102 ~~TGA~~s under N2. bdv 1/25/96 BDV DSC-3

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-03	LIQUID	28.45	28.26	N/A	Joules/g
95000227	AN-102 GRAB	2 SAMPLE	S96T000005	0		DSC-03	LIQUID	N/A	15.76		Joules/g
95000227	AN-102 GRAB	3 DUP	S96T000005	0		DSC-03	LIQUID	15.76	18.15	N/A	Joules/g
95000227	AN-102 GRAB	4 SAMPLE	S96T000006	0		DSC-03	LIQUID	N/A	Ø		Joules/g
95000227	AN-102 GRAB	5 DUP	S96T000006	0		DSC-03	LIQUID	Ø	~~Ø~~ 27.47 1-31-96 BDV	N/A	Joules/g

Final page for worklist # 4851

See attached for signatures
Analyst Signature **Date** 1/25/96 BDV

Verified by Elaine Livingston 1/31/96

Linda Conlin 1/28/96
Analyst Signature **Date**

* Data for sample S96T000005 from this worklist will not be used in the report due to questionable baseline. Sample was rerun on worklist # 5343. BDE 2/2/96

Data Entry Comments: S96T000005 produced two endotherms one at 121.99°C with a delta H of 1205.5 J/g and the second at 260.5°C with a delta H of 115.7 J/g
S96T000006 produced an endotherm at 112.9°C with a delta H of 1712.8 J/g

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

LABCORE Data Entry Template for Worklist# 4851

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

Method: LA-514-~~113~~ Rev/Mod SMF 1-17-96 14

Worklist Comment: Please run AN-102 ~~TGAs~~ DSC under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-01	LIQUID			N/A	Joules/g
95000227	AN-102 GRAB	2 SAMPLE	S96T000005	0		DSC-01	LIQUID	N/A			Joules/g
95000227	AN-102 GRAB	3 DUP	S96T000005	0		DSC-01	LIQUID			N/A	Joules/g
95000227	AN-102 GRAB	4 SAMPLE	S96T000006	0		DSC-01	LIQUID	N/A			Joules/g
95000227	AN-102 GRAB	5 DUP	S96T000006	0		DSC-01	LIQUID			N/A	Joules/g

Final page for worklist # 4851

Susie M. Sutton 1-17-96
Analyst Signature **Date**

Analyst Signature **Date**

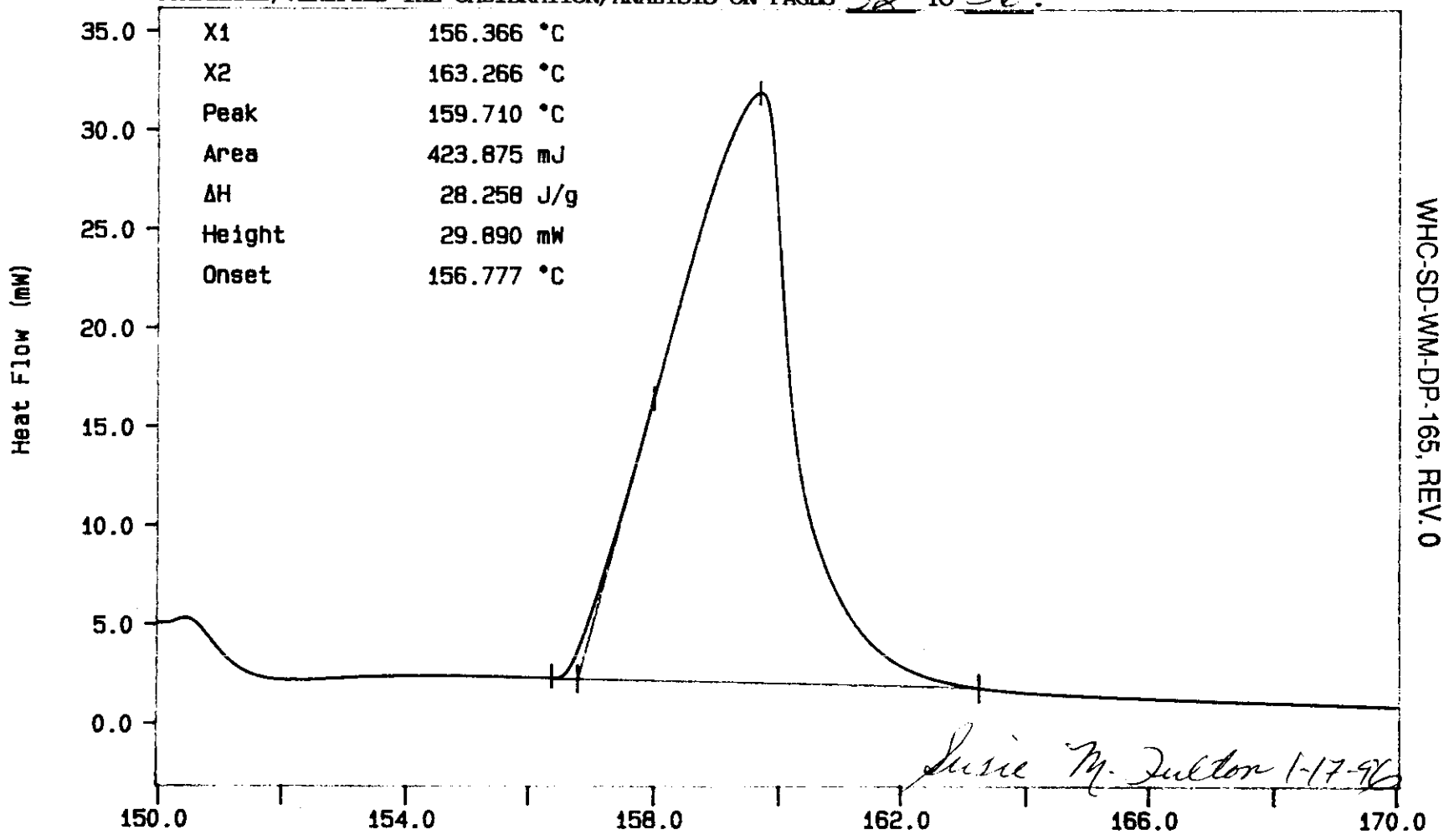
Other instruments were used. 1/29/96 BDV

Data Entry Comments:

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

Curve 1: DSC
File info: IND011701 Wed Jan 17 18:37:31 1996
Sample Weight: 15.000 mg
12N14B Indium at 10C/min

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 52 TO 56.



52

WHC-SD-WM-DP-165, REV.0

N2, EXOTHERM DOWN

Temperature (°C)

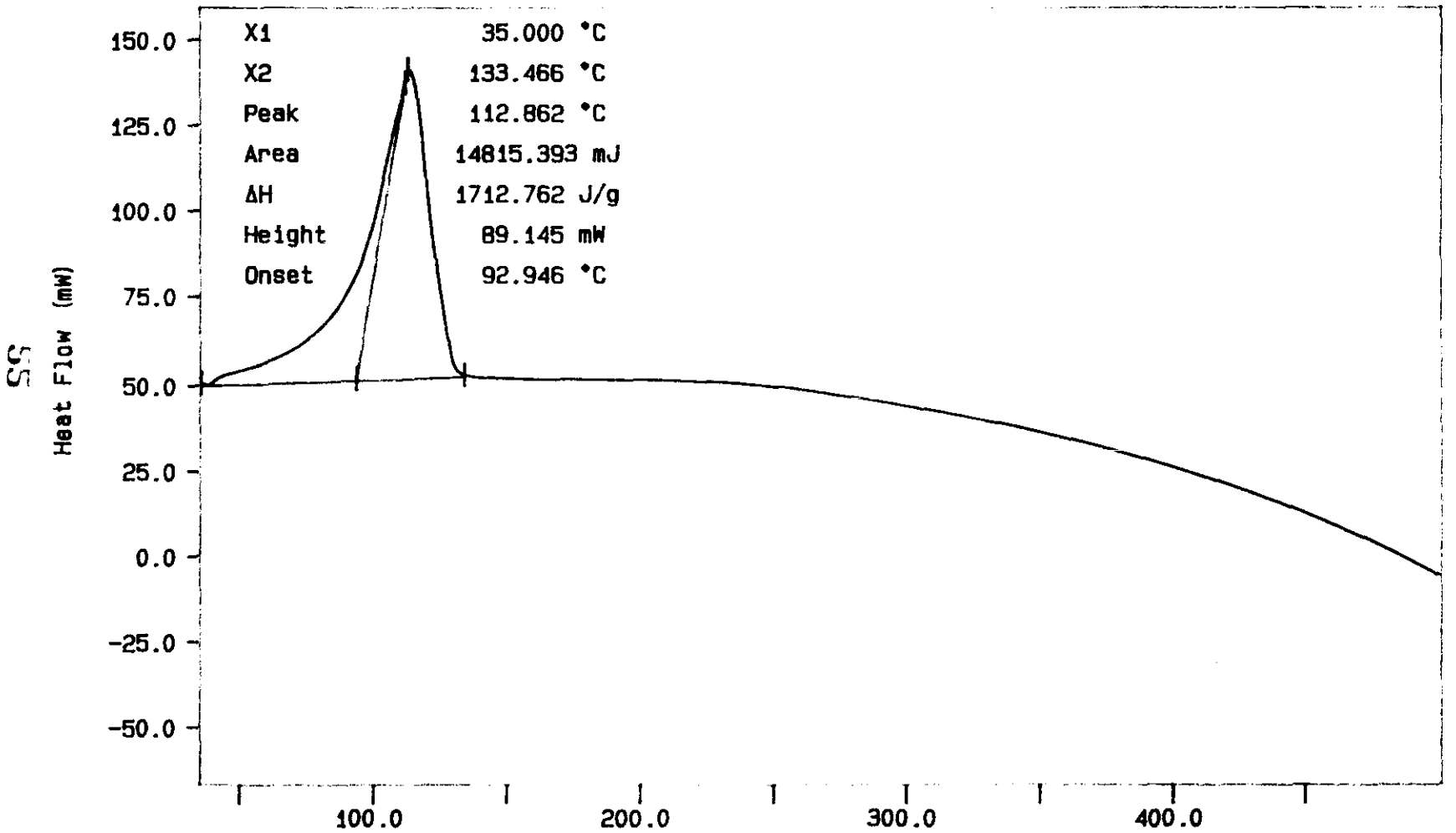
TEMP1: 150.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 170.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Jan 17 22:00:32 1996

THIS PAGE WAS INTENTIONALLY LEFT BLANK

THIS PAGE WAS INTENTIONALLY LEFT BLANK

Curve 1: DSC
File info: SAM011708 Thu Jan 18 02:28:45 1996
Sample Weight: 8.650 mg
S96T000006



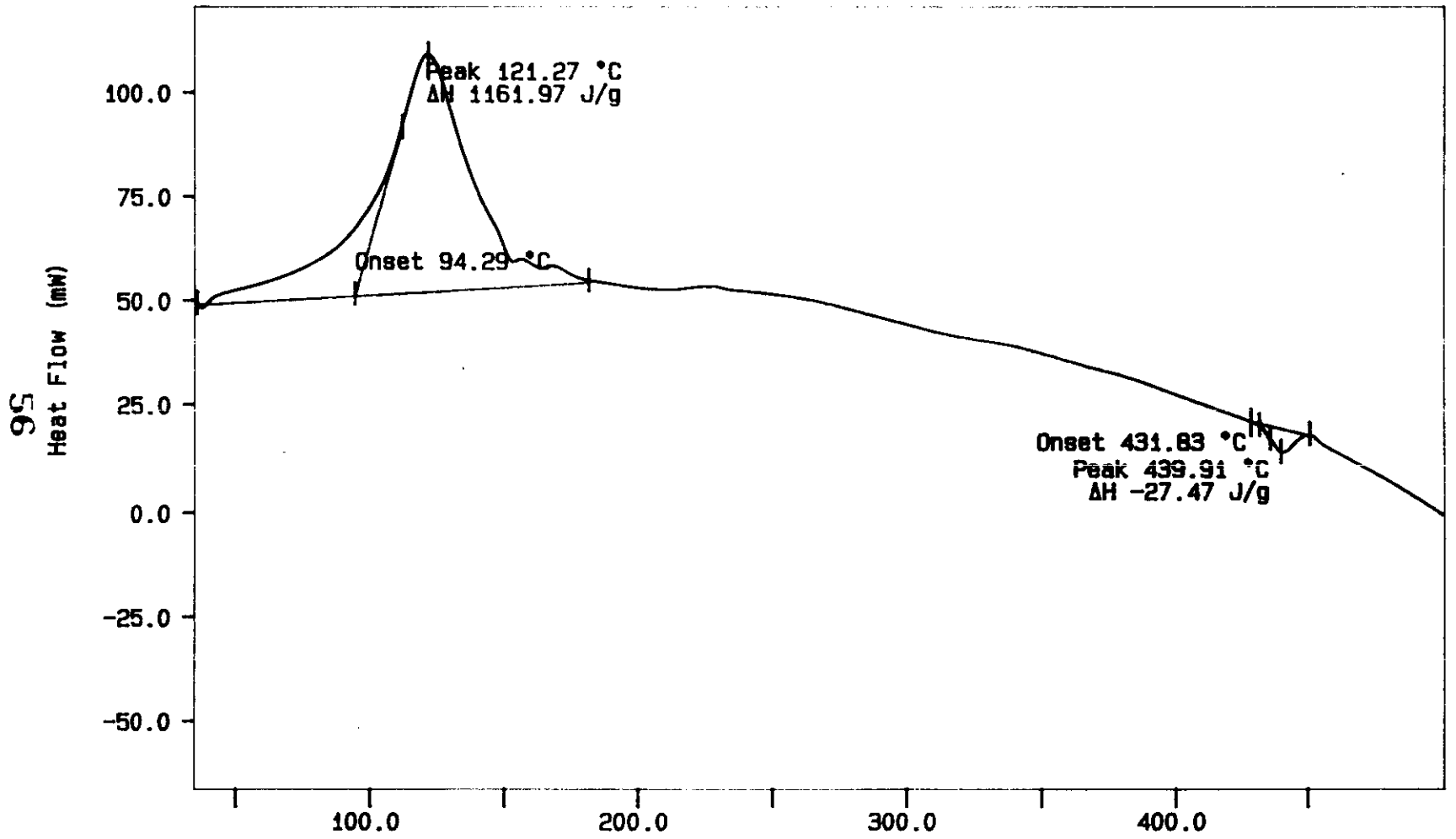
exotherm down, N2 purge gas

TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jan 18 04:01:38 1996

WHC-SD-WM-DP-165, REV. 0

Curve 1: DSC
File info: SAM011709 Thu Jan 18 04:51:27 1996
Sample Weight: 11.770 mg
S96T000006 DUP



exotherm down, N2 purge gas

TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jan 18 19:02:27 1996

WHC-SD-WM-DP-165, REV. 0

LABCORE Data Entry Template for Worklist# 4856

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

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

Worklist Comment: Please run AN-102 DSCs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-03	LIQUID	28.45	28.38	N/A	Joules/g
95000222	AN-102 GRAB	2 SAMPLE	S95T003867	0		DSC-03	LIQUID	N/A	22.14		Joules/g
95000222	AN-102 GRAB	3 DUP	S95T003867	0		DSC-03	LIQUID	22.14	22.01	N/A	Joules/g
95000222	AN-102 GRAB	4 SAMPLE	S95T003869	0		DSC-03	LIQUID	N/A	~~19.38~~ 277.2 J/g	1/29/96 BDV	Joules/g
95000222	AN-102 GRAB	5 DUP	S95T003869	0		DSC-03	LIQUID	~~19.38~~ 277.2	~~22.61~~	1/29/96 BDV N/A	Joules/g

Final page for worklist # 4856

See attached for Signatures
Analyst Signature **Date** 1.29.96 BDV

Verified by Florina Tiburcio 1/17/96

Analyst Signature Date 1/16/96

* Data for sample S95T003867 from this worklist will not be used in the report due to questionable baseline. Sample was rerun on worklist # 5343. ROC 2/2/96

Data Entry Comments: The original integration results were 19.38 J/g for sample and 22.5C J/g for duplicate.

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

LABCORE Data Entry Template for Worklist# 4856

Analyst: ADP **Instrument:** DSC0 _____ **Book #** 12N14B

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

Worklist Comment: Please run AN-102 DSCs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-0'	LIQUID			N/A	Joules/g
95000222	AN-102 GRAB	2 SAMPLE	S95T003867	0		DSC-01	LIQUID	N/A			Joules/g
95000222	AN-102 GRAB	3 DUP	S95T003867	0		DSC-01	LIQUID			N/A	Joules/g
95000222	AN-102 GRAB	4 SAMPLE	S95T003869	0		DSC-01	LIQUID	N/A			Joules/g
95000222	AN-102 GRAB	5 DUP	S95T003869	0		DSC-01	LIQUID			N/A	Joules/g

Final page for worklist # 4856

Anthony Puretin 1-12-96
Analyst Signature **Date**

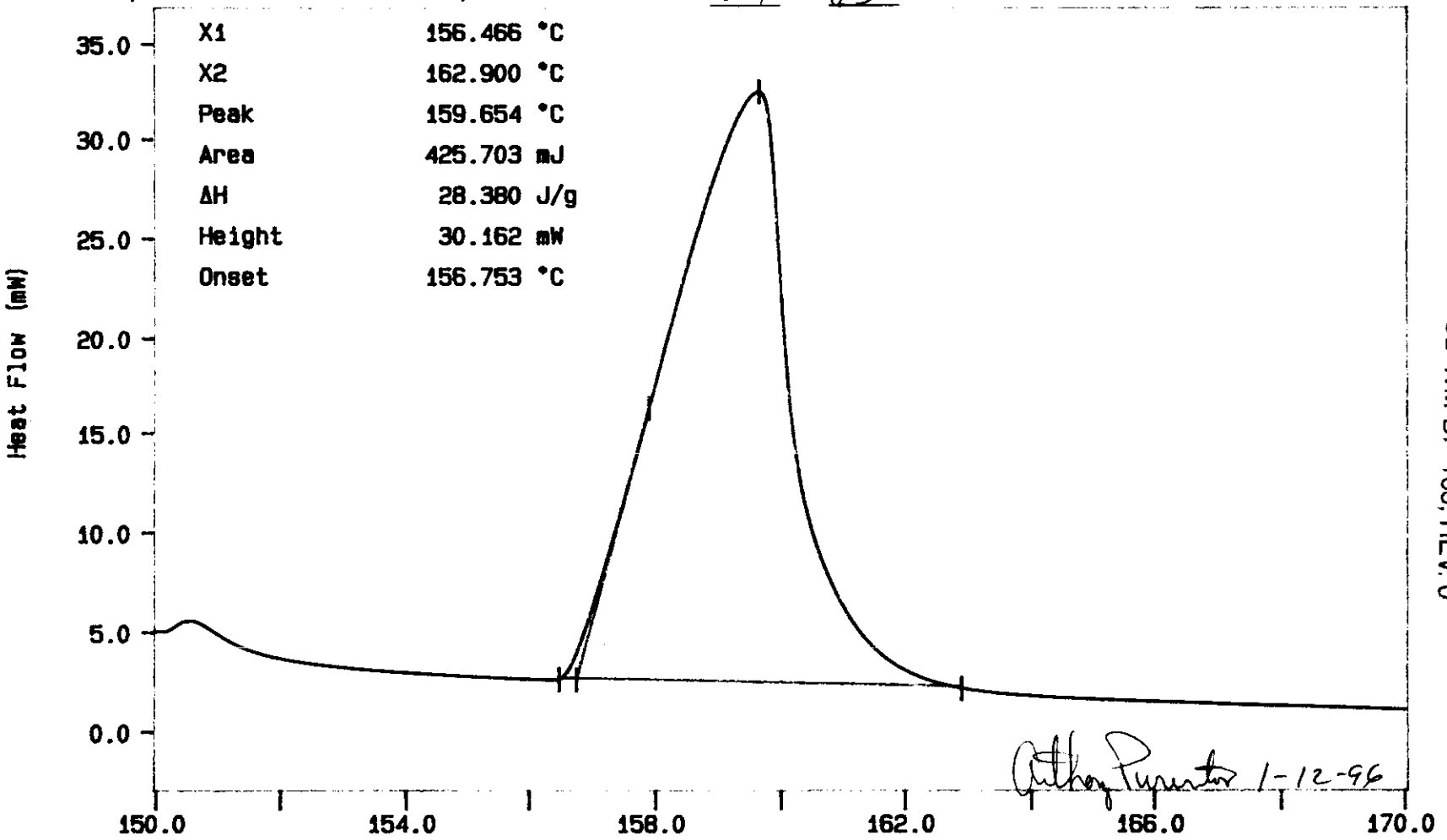
_____
Analyst Signature **Date**

Data Entry Comments:

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

Curve 1: DSC
File info: IND011202 Fri Jan 12 22:23:10 1996
Sample Weight: 15.000 mg
12N14B Indium at 10C/min

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 59 TO 65.



N2, EXOTHERM DOWN
Temperature (°C)
TEMP1: 150.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 170.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Jan 12 22:29:58 1996

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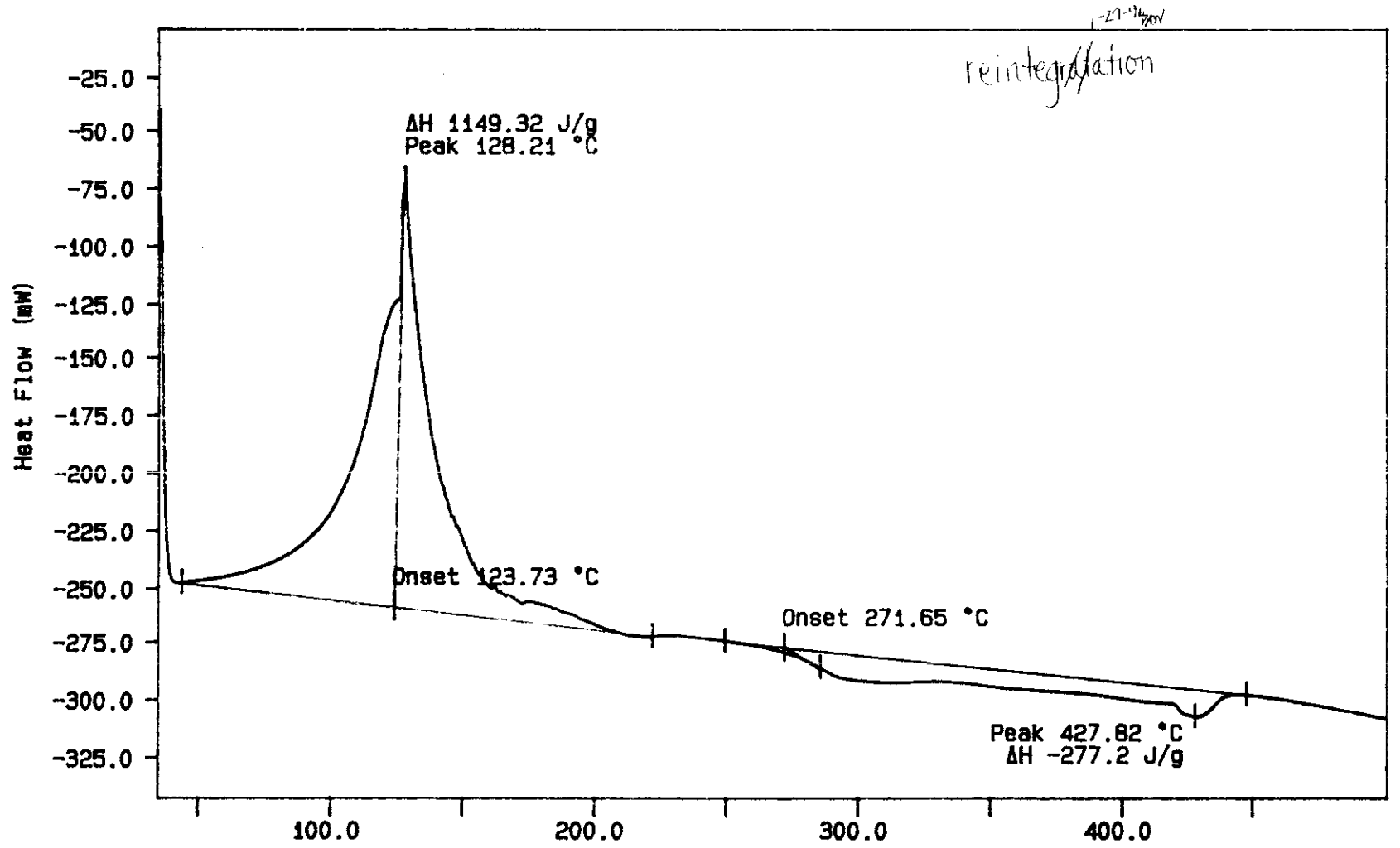
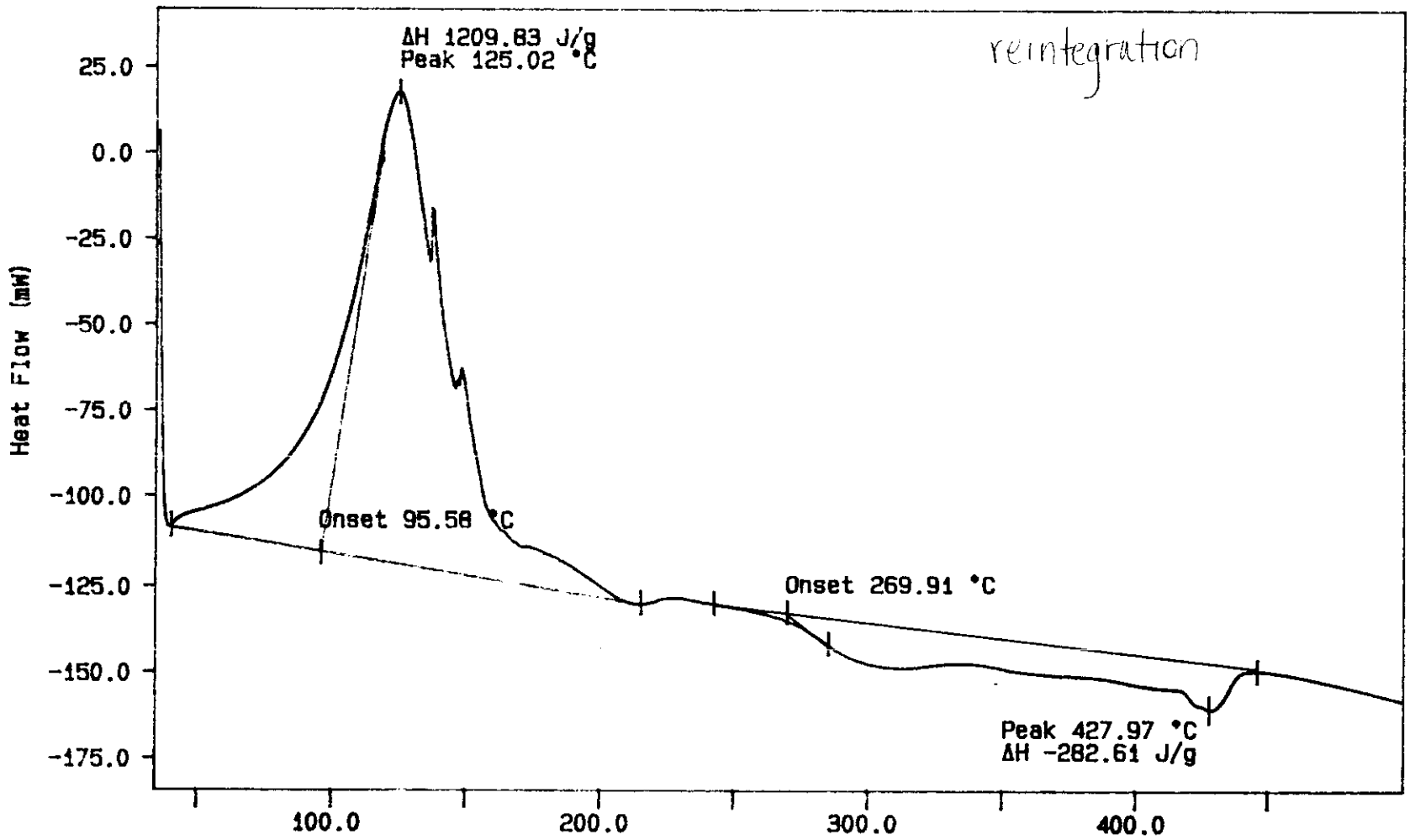
Curve 1: DSC
File info: SAM011203 Sat Jan 13 01:59:29 1996
Sample Weight: 29.770 mg
S95T003869 SAM



Curve 1: DSC
File info: SAM011204 Sat Jan 13 02:55:21 1996
Sample Weight: 32.210 mg
S95T003869 DUP



exotherm down, N2 purge gas

TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Jan 26 10:10:16 1996

LABCORE Data Entry Template for Worklist# 4857

Analyst: ADP **Instrument:** DSC0 1 **Book #** 12N143

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

Worklist Comment: Please run AN-102 DSCs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-01	LIQUID	28.45	30.8*	N/A	Joules/g
95000222	AN-102 GRAB	2 SAMPLE	S95T003868	0		DSC-01	LIQUID	N/A	616.1		Joules/g
95000222	AN-102 GRAB	3 DUP	S95T003868	0		DSC-01	LIQUID	616.1	557.8	N/A	Joules/g
95000222	AN-102 GRAB	4 SAMPLE	S95T003962	0		DSC-01	LIQUID	N/A	Ø		Joules/g
95000222	AN-102 GRAB	5 DUP	S95T003962	0		DSC-01	LIQUID	Ø	Ø	N/A	Joules/g

Final page for worklist # 4857

Anthony Punter 1-12-96
Analyst Signature **Date**

Verified by Blandina Valenzuela 1/7/96

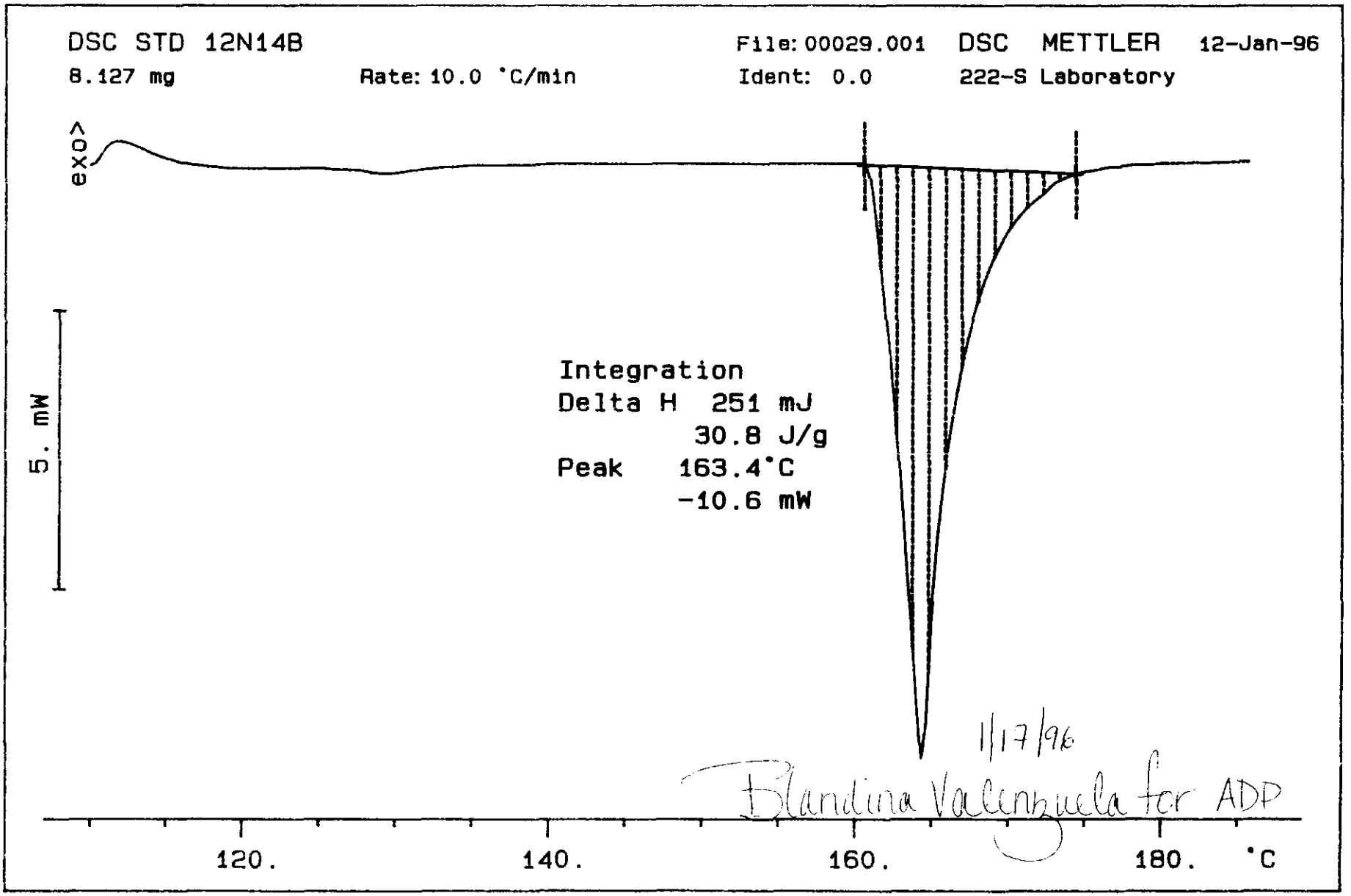
AE Wright 1/16/96
Analyst Signature **Date**

S95T003868 produced an endotherm at 133.8°C with a delta H of 914 J/g

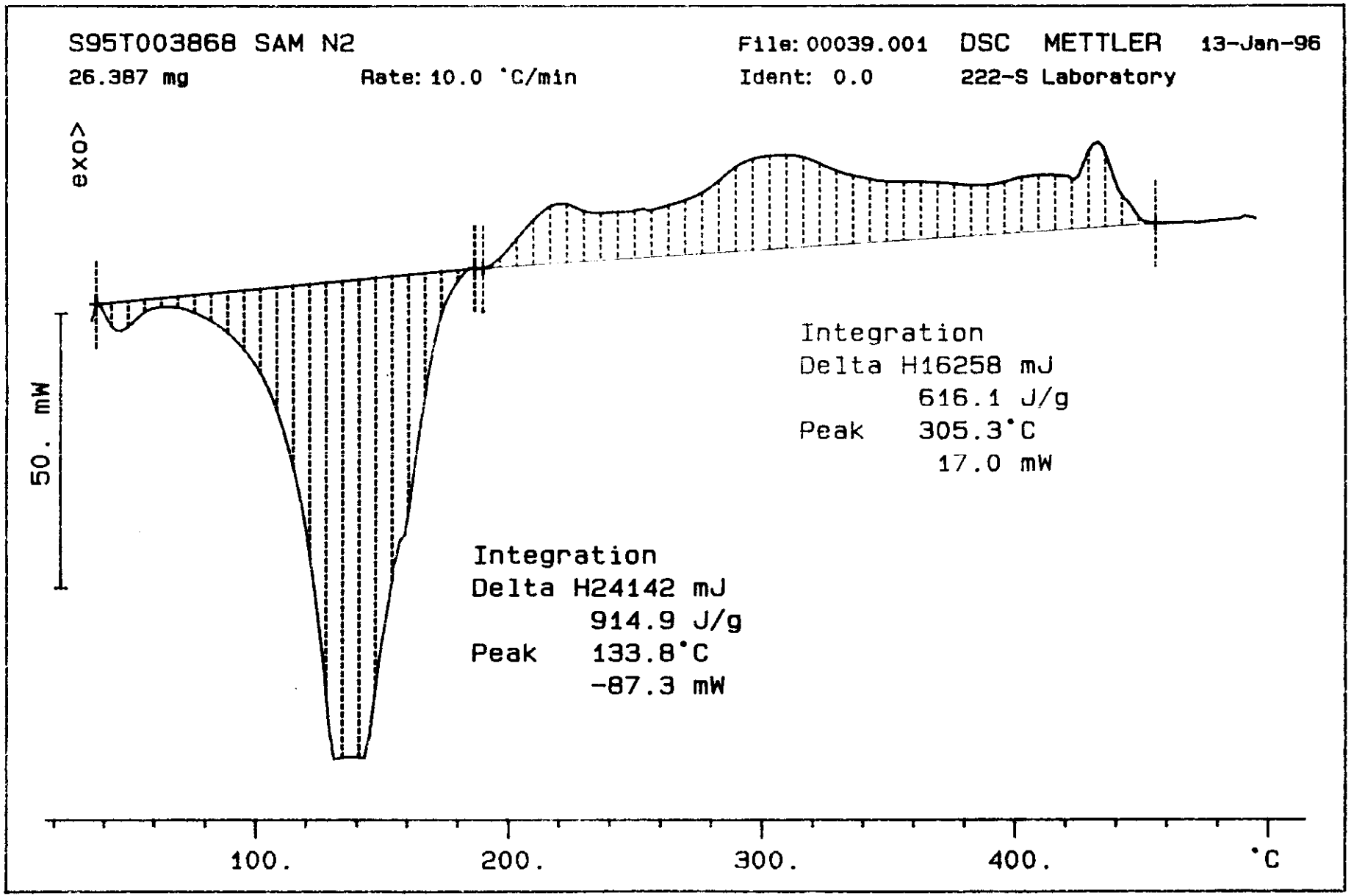
Data Entry Comments: S95T003962 produced an endotherm at 117.9°C with a delta H of 1550.7 J/g.

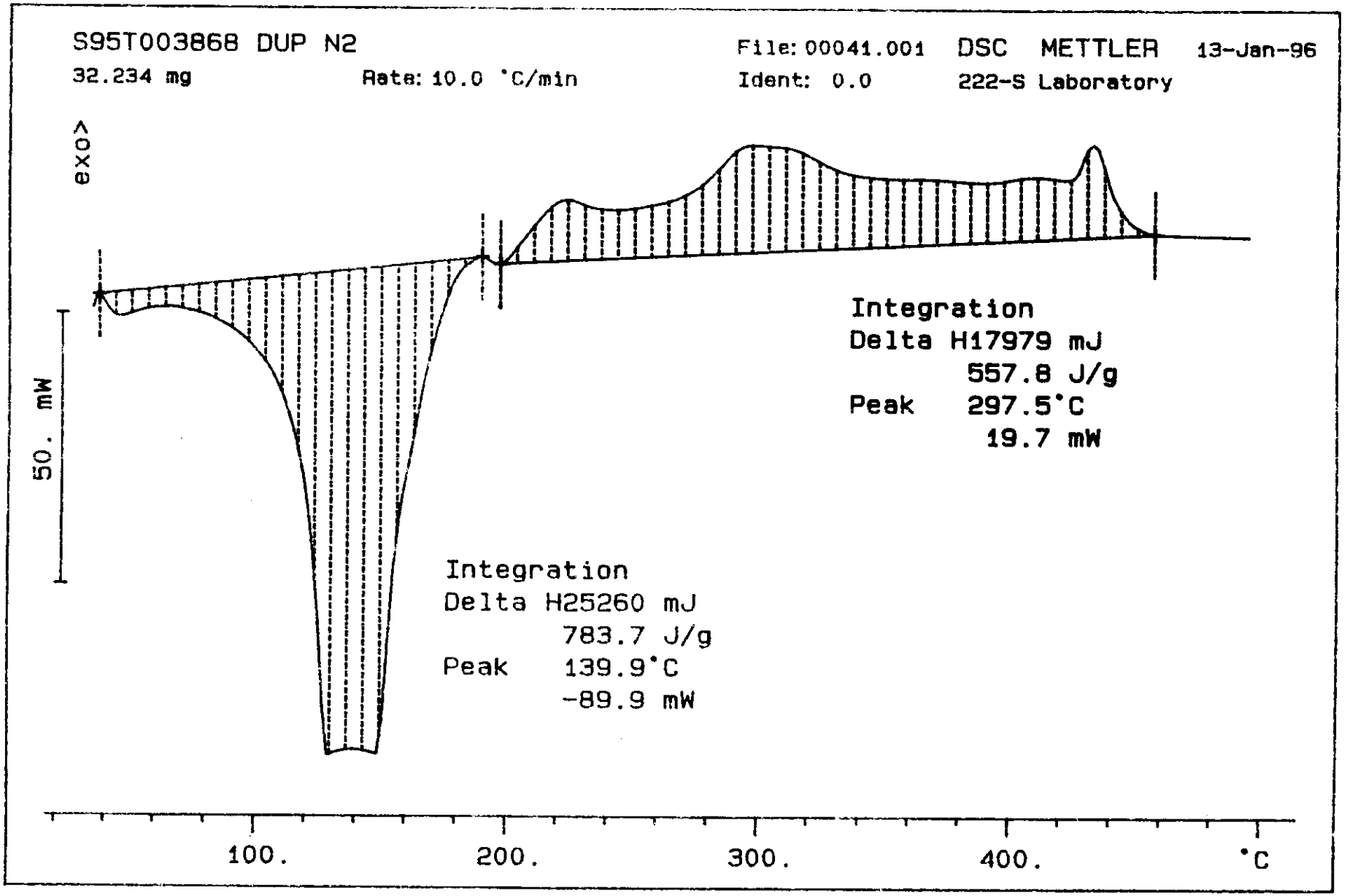
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

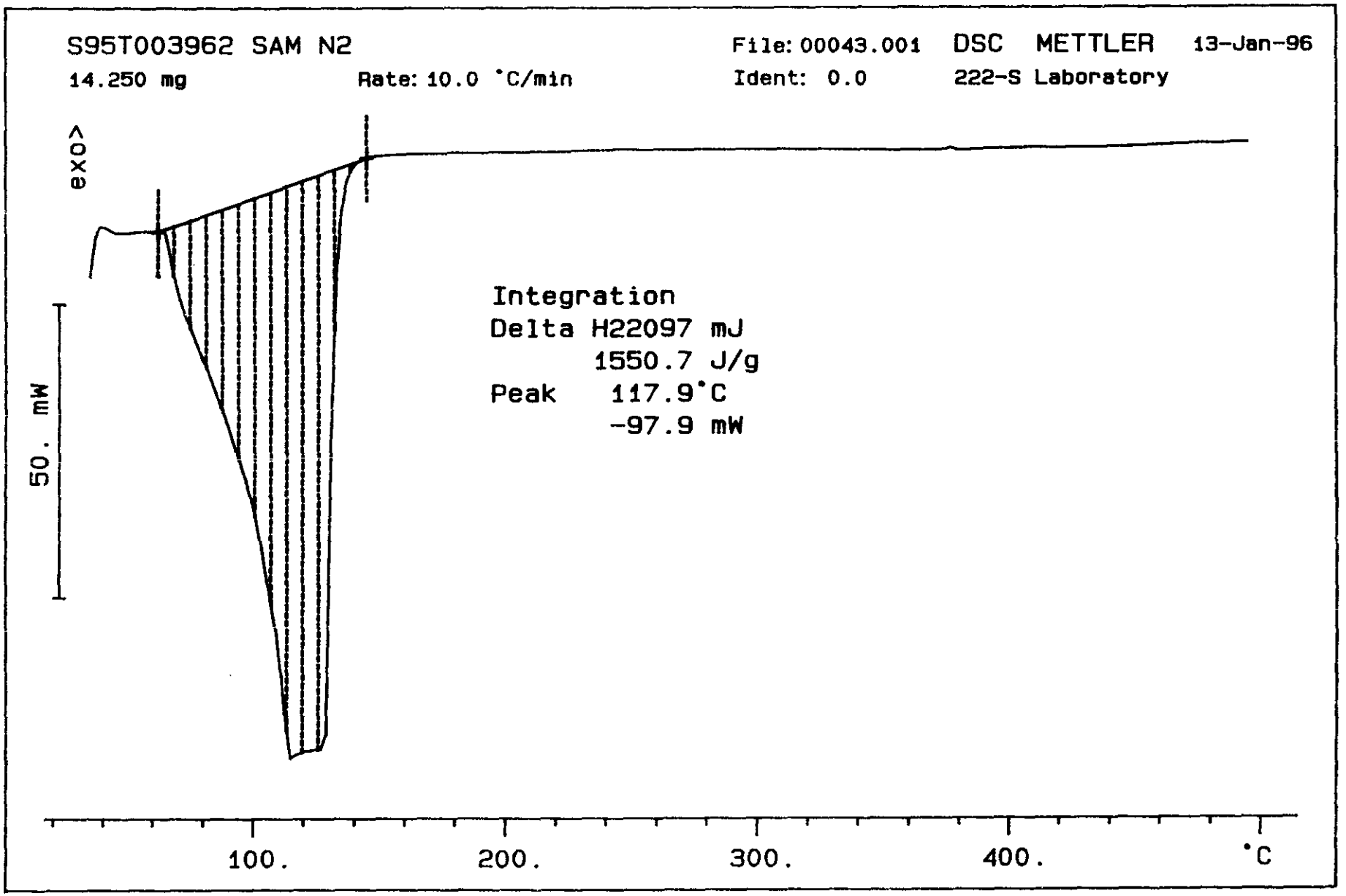
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 67 TO 71.

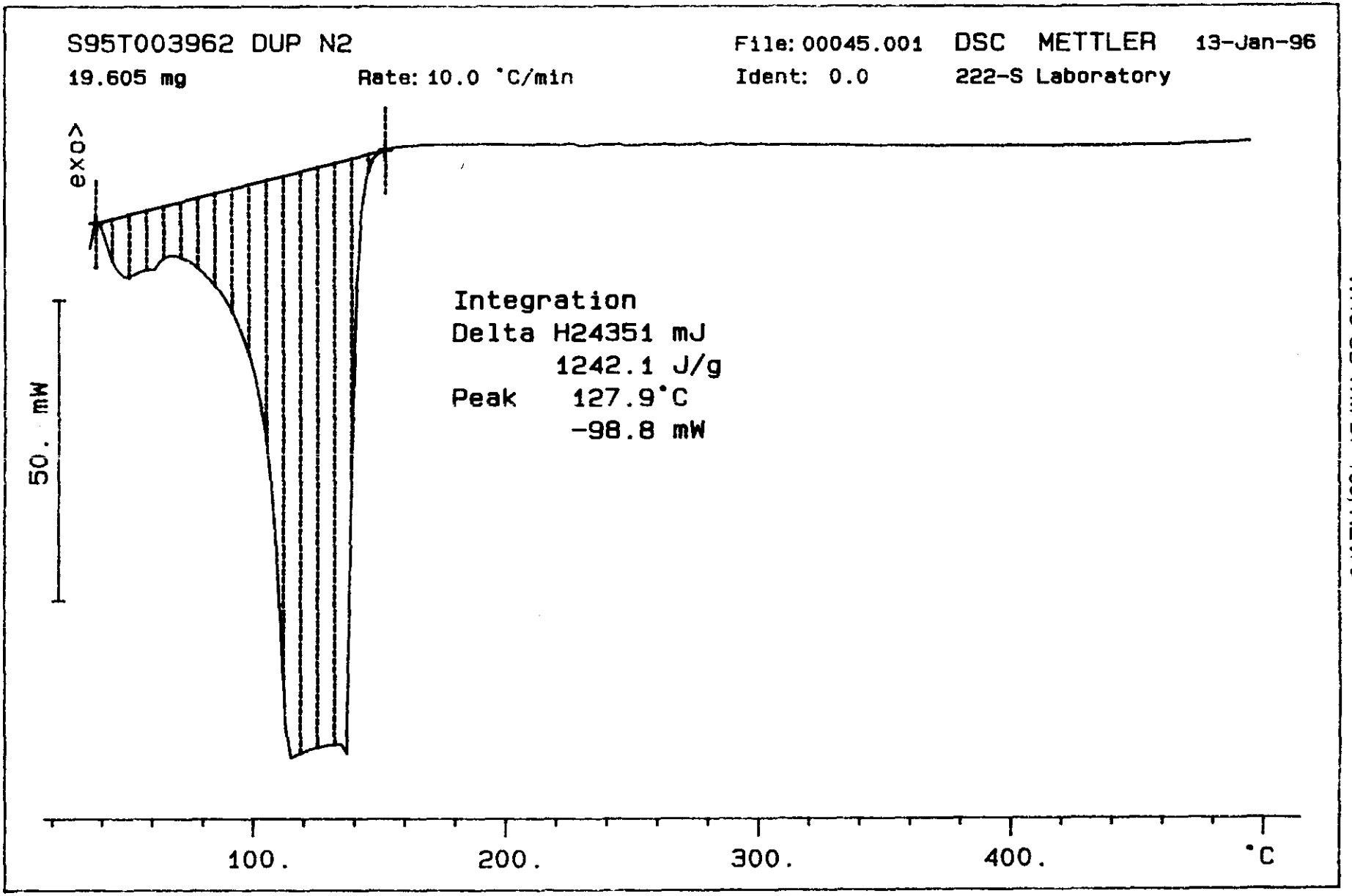


1/17/96
Blandina Valenzuela for ADP


S95T003868 SAM N2
File: 00039.001 DSC METTLER 13-Jan-96
26.387 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory
exo>
50. mW
Integration
Delta H16258 mJ
616.1 J/g
Peak 305.3°C
17.0 mW
Integration
Delta H24142 mJ
914.9 J/g
Peak 133.8°C
-87.3 mW
100.
200.
300.
400.
°C


S95T003868 DUP N2
32.234 mg
Rate: 10.0 °C/min
File: 00041.001
Ident: 0.0
DSC METTLER
222-S Laboratory
13-Jan-96
exo>
50. mW
Integration
Delta H17979 mJ
557.8 J/g
Peak 297.5°C
19.7 mW
Integration
Delta H25260 mJ
783.7 J/g
Peak 139.9°C
-89.9 mW
100.
200.
300.
400.
°C


S95T003962 SAM N2
File: 00043.001
DSC METTLER
13-Jan-96
14.250 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory
exo>
50. mW
Integration
Delta H22097 mJ
1550.7 J/g
Peak 117.9°C
-97.9 mW
100.
200.
300.
400.
°C


S95T003962 DUP N2
19.605 mg
Rate: 10.0 °C/min
File: 00045.001
Ident: 0.0
DSC METTLER
222-S Laboratory
13-Jan-96
exo>
50. mW
Integration
Delta H24351 mJ
1242.1 J/g
Peak 127.9°C
-98.8 mW
100.
200.
300.
400.
°C

LABCORE Data Entry Template for Worklist# 5122

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

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

Worklist Comment: Please run AN-102 DSCs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-03	LIQUID	28.45	28.15	N/A	Joules/g
95000222	AN-102 GRAB	2 SAMPLE	S95T004133	0		DSC-03	LIQUID	N/A	258.01		Joules/g
95000222	AN-102 GRAB	3 DUP	S95T004133	0		DSC-03	LIQUID	258.01	252.12	N/A	Joules/g
95000222	AN-102 GRAB	4 SAMPLE	S95T004135	0		DSC-03	LIQUID	N/A	279.7		Joules/g
95000222	AN-102 GRAB	5 DUP	S95T004135	0		DSC-03	LIQUID	279.7	300.3	N/A	Joules/g

Final page for worklist # 5122

See attached for signatures
Analyst Signature **Date** 1/25/96 BDV

Analyst Signature **Date** 1-29-96

Data Entry Comments: S95T004133 produced one endotherm at 125.61°C with a delta H of 1178.6 J/g

S95T004135 produced an endotherm at 128.4°C with a delta H of 1147.73

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

LABCORE Data Entry Template for Worklist# 5122

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

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

Worklist Comment: Please run AN-102 DSCs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-01	LIQUID			N/A	Joules/g
95000222	AN-102 GRAB	2 SAMPLE	S95T004133	0		DSC-01	LIQUID	N/A			Joules/g
95000222	AN-102 GRAB	3 DUP	S95T004133	0		DSC-01	LIQUID			N/A	Joules/g
95000222	AN-102 GRAB	4 SAMPLE	S95T004135	0		DSC-01	LIQUID	N/A			Joules/g
95000222	AN-102 GRAB	5 DUP	S95T004135	0		DSC-01	LIQUID			N/A	Joules/g

Final page for worklist # 5122

Anthony Turuta 1-23-96
Analyst Signature **Date**

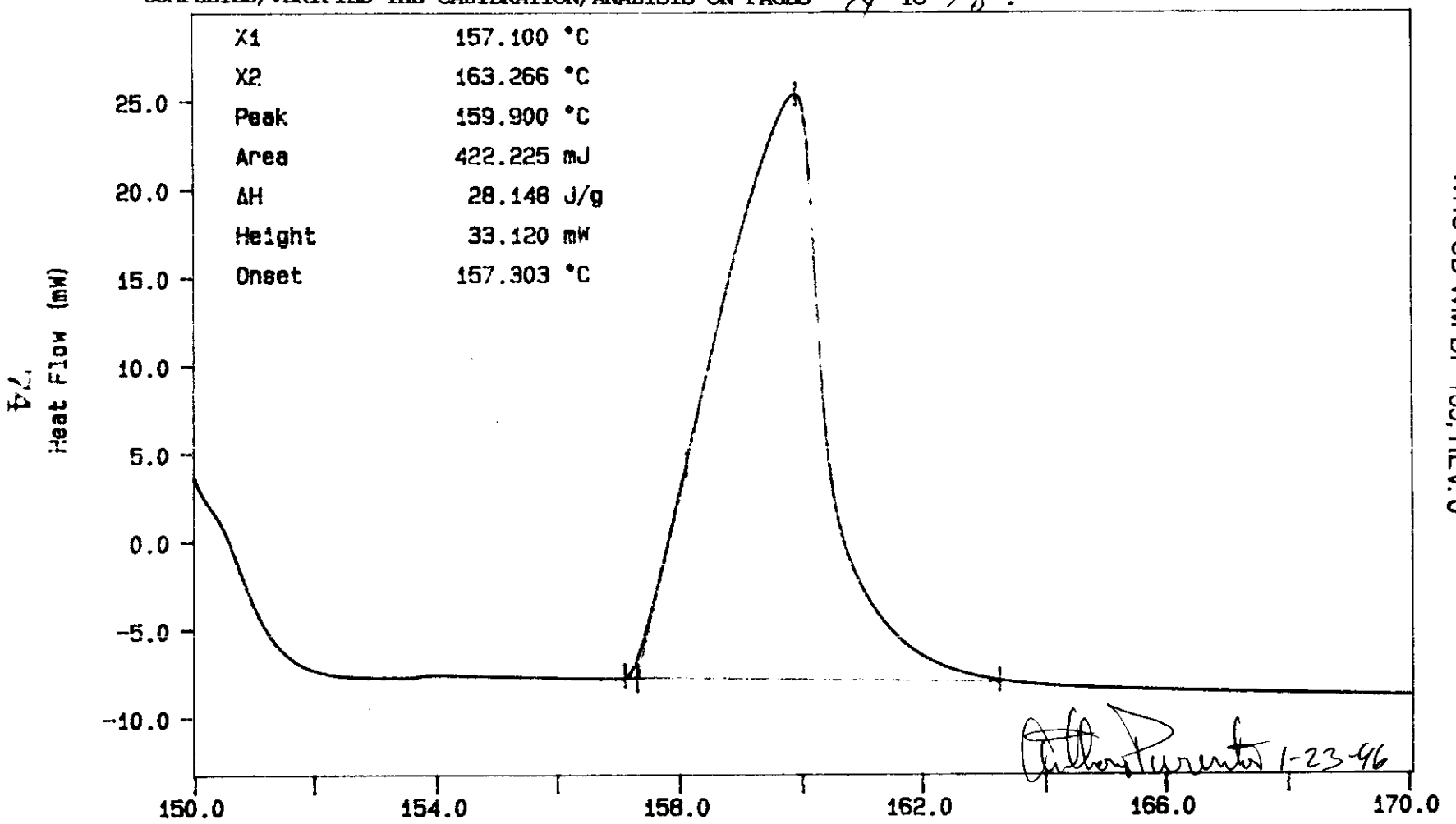
Analyst Signature **Date**

Data Entry Comments:

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

Curve 1: DSC
File info: IND012301 Tue Jan 23 18:27:37 1996
Sample Weight: 15.000 mg
12N14B Indium at 10C/min

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 74 TO 78.



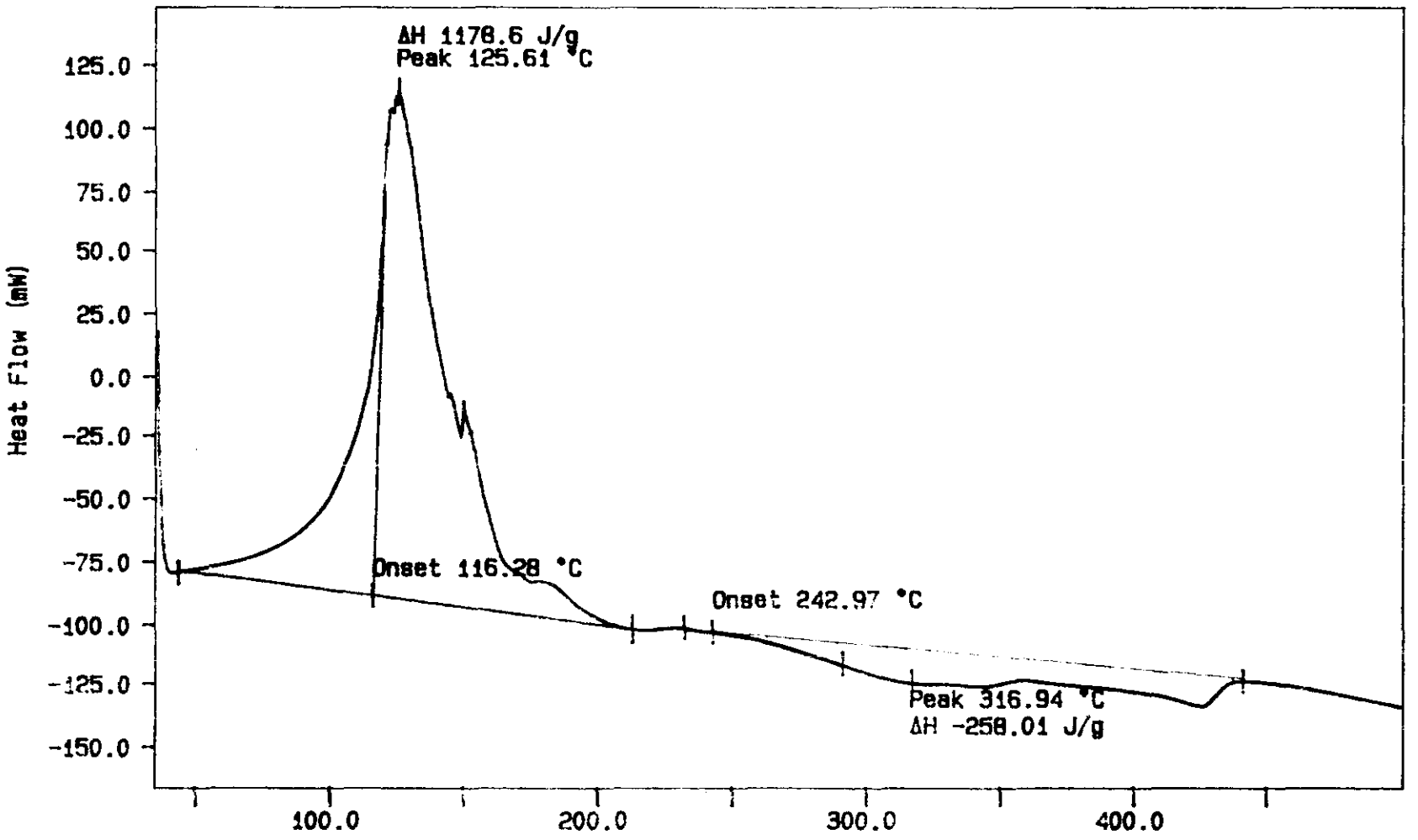
74

WHC-SD-WM-DP-165, REV. 0

N2, EXOTHERM DOWN
TEMP1: 150.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 170.0 C

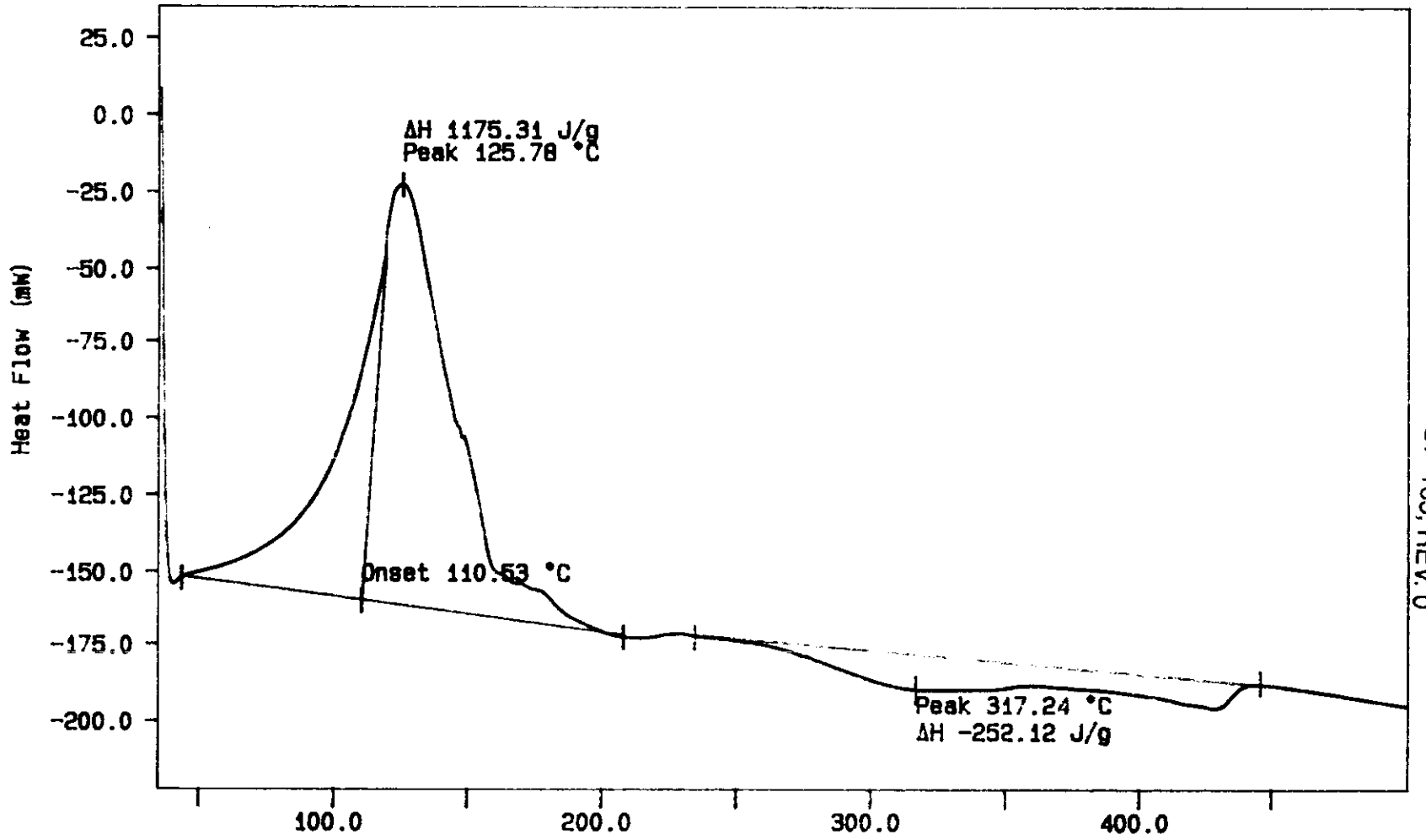
AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Jan 23 18:34:15 1996

Curve 1: DSC
File info: SAM012302 Tue Jan 23 22:12:03 1996
Sample Weight: 38.650 mg
S95T0904133 SAM



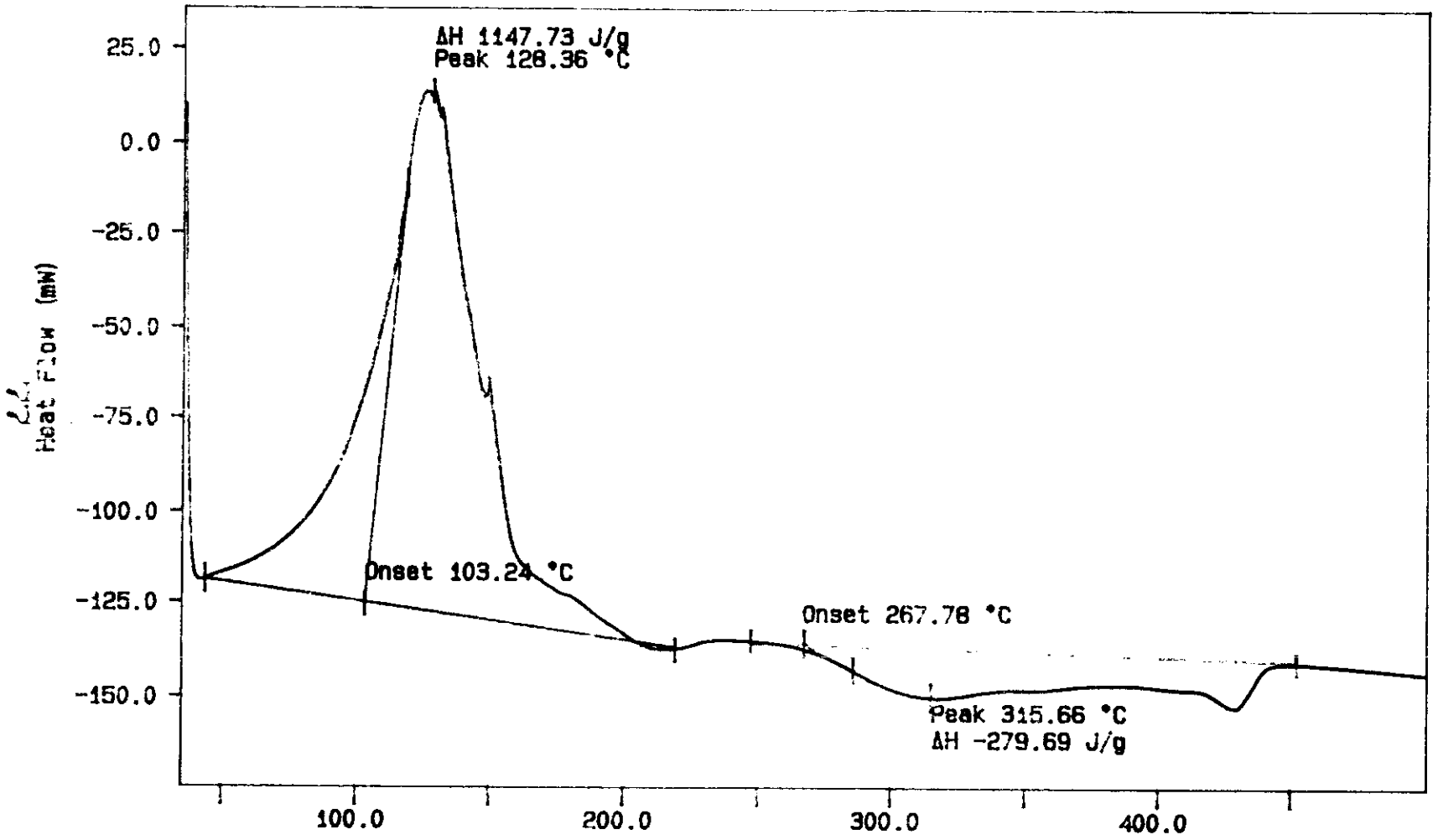
WHC-SD-WM-DP-165, REV 0

Curve 1: DSC
File info: SAM012303 Tue Jan 23 23:08:50 1996
Sample Weight: 31.990 mg
S95T004133 DUP



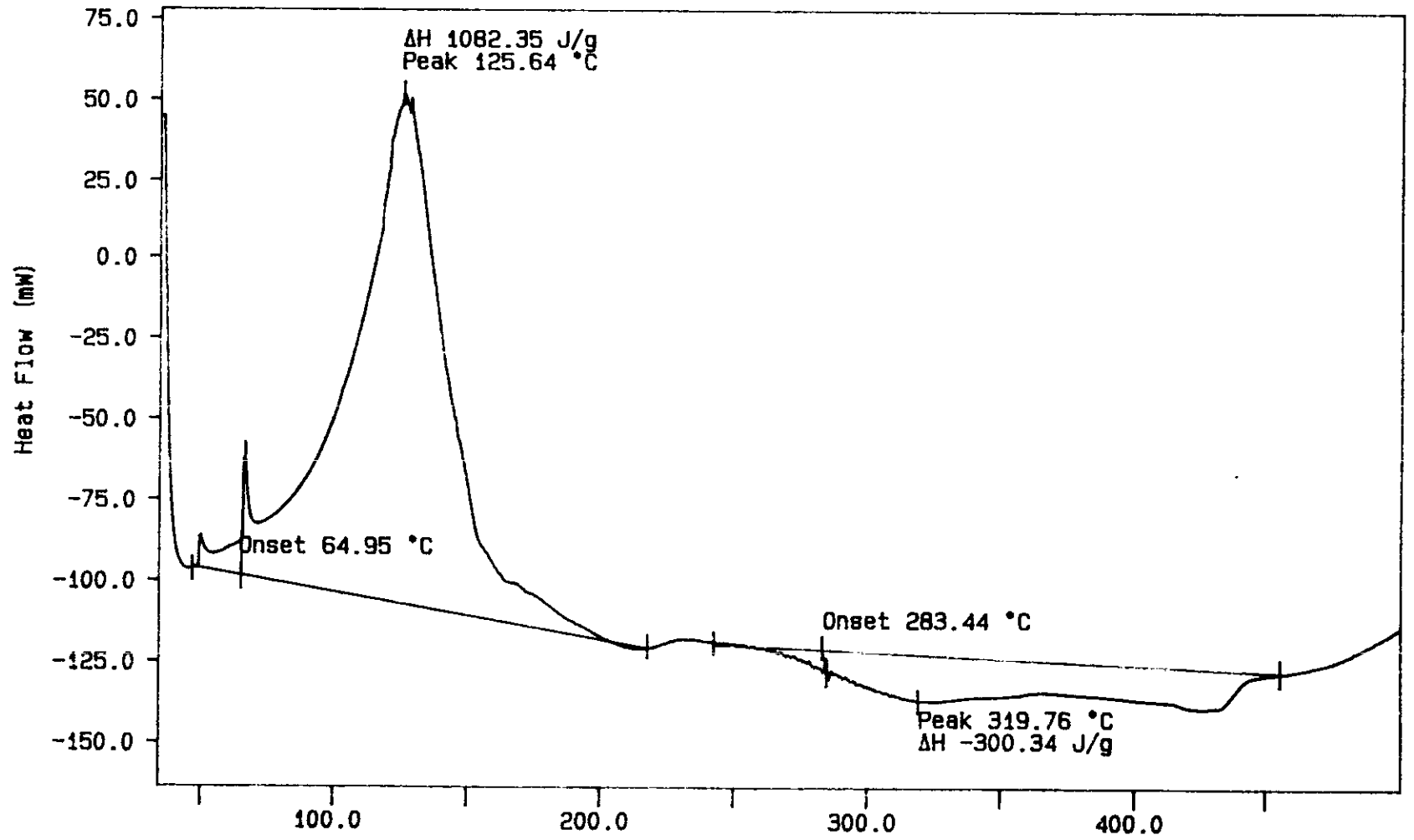
WHC-SD-WM-DP-165, REV. 0

Curve 1: DSC
File info: SAM012304 Wed Jan 24 00:09:20 1996
Sample Weight: 34.370 mg
S95T004135 SAM



WHC-SD-WM-DP-165, REV.0

Curve 1: DSC
File info: SAM012405 Wed Jan 24 01:55:10 1996
Sample Weight: 37.630 mg
S95T004135 DUP



exotherm down, N2 purge gas

TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jan 25 11:27:38 1996

LABCORE Data Entry Template for Worklist# 5132

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

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

Worklist Comment: Please run AN-102 DSCs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-03	SOLID	28.45	28.08	N/A	Joules/g
95000222	AN-102 GRAB	2 SAMPLE	S95T004137	0		DSC-03	SOLID	N/A	279.65		Joules/g
95000222	AN-102 GRAB	3 DUP	S95T004137	0		DSC-03	SOLID	279.65	262.5	N/A	Joules/g
95000222	AN-102 GRAB	4 SAMPLE	S95T004139	0		DSC-03	SOLID	N/A	283.2		Joules/g
95000222	AN-102 GRAB	5 DUP	S95T004139	0		DSC-03	SOLID	283.2	327.5	N/A	Joules/g

Final page for worklist # 5132

See attached for Signatures
Analyst Signature **Date** 1/25/96 CDV

Verified by Blandina Talamantes 1/26/96 BMT

Analyst Signature **Date** 1-26-95

Data Entry Comments: S95TCC4137 produced an ~~second trig~~ endotherm at 130.17°C with a Delta H of 991.8J/g 1/26/96 BMT

S95TCC4139 produced an endotherm at 131.73C with a Delta H of 1037.1J/g

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

worklistrpt Version 2.1 05/15/95
01/24/96 07:57

LABCORE Data Entry Template for Worklist# 5132

Analyst: _____ **Instrument:** DSC0 _____ **Book #** _____

Method: LA-514-113 Rev/Mod _____

Worklist Comment: Please run AN-102 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID	_____	_____	N/A	Joules/g
95000222	AN-102 GRAB	2	SAMPLE	S95T004137	0		DSC-01	SOLID	N/A	_____	_____	Joules/g
95000222	AN-102 GRAB	3	DUP	S95T004137	0		DSC-01	SOLID	_____	_____	N/A	Joules/g
95000222	AN-102 GRAB	4	SAMPLE	S95T004139	0		DSC-01	SOLID	N/A	_____	_____	Joules/g
95000222	AN-102 GRAB	5	DUP	S95T004139	0		DSC-01	SOLID	_____	_____	N/A	Joules/g

Final page for worklist # 5132

_____ _____
Analyst Signature **Date**

_____ _____
Analyst Signature **Date**

Data Entry Comments:

_____

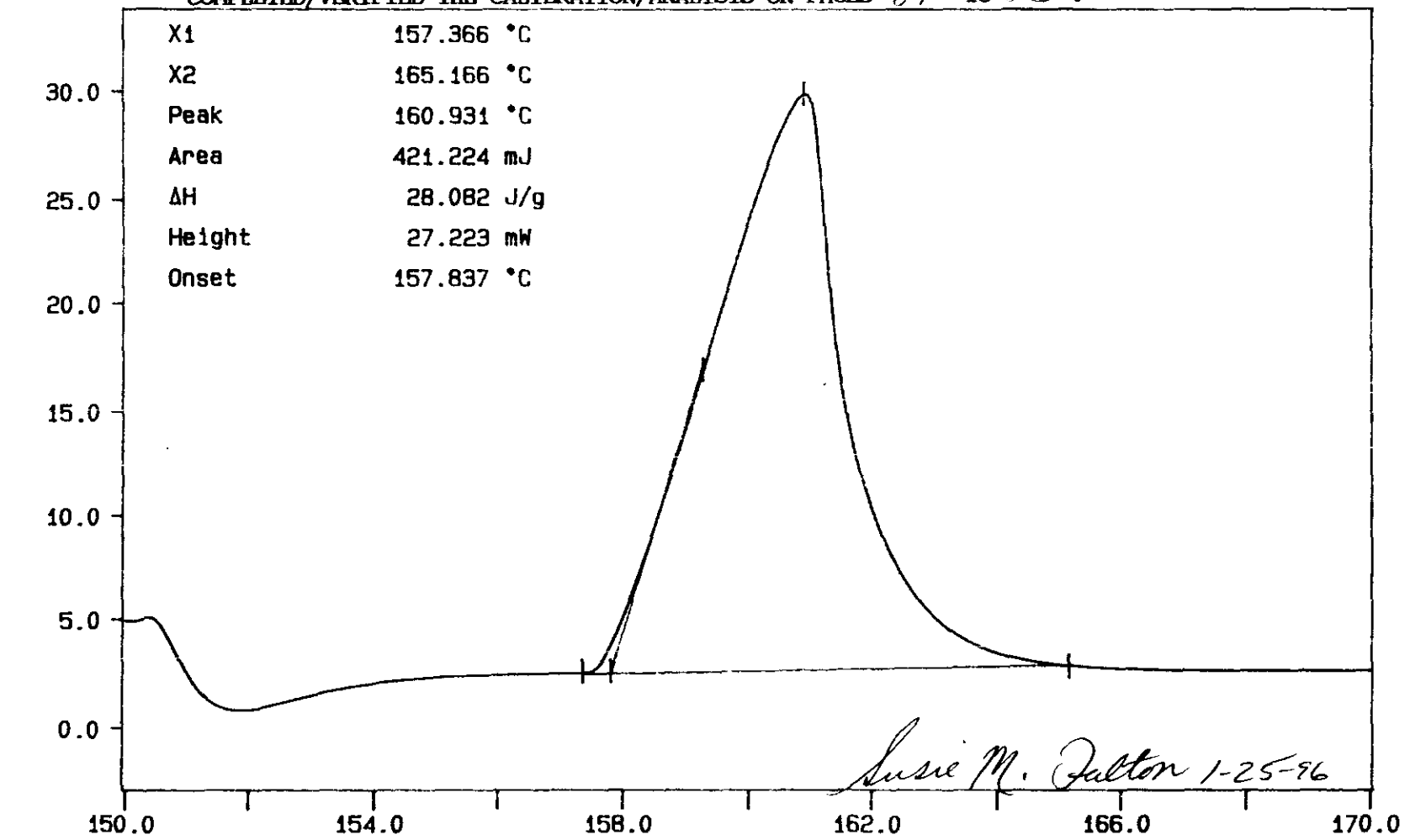
_____

_____

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

Curve 1: DSC
File info: IND012501 Thu Jan 25 06:14:44 1996
Sample Weight: 15.000 mg
12N14B Indium at 10C/min

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 81 TO 85.

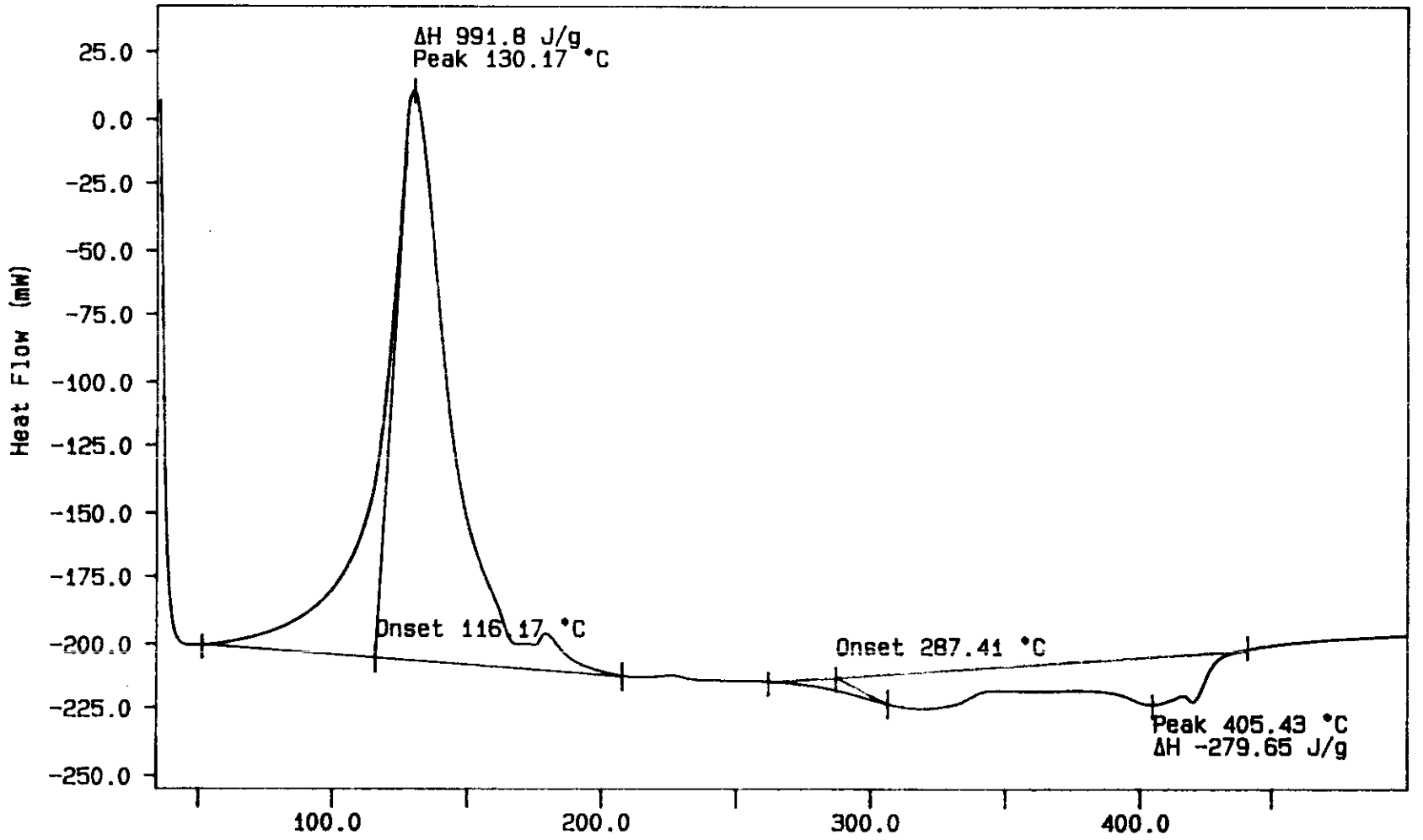


N2, EXOTHERM DOWN
Temperature (°C)
TEMP1: 150.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 170.0 C

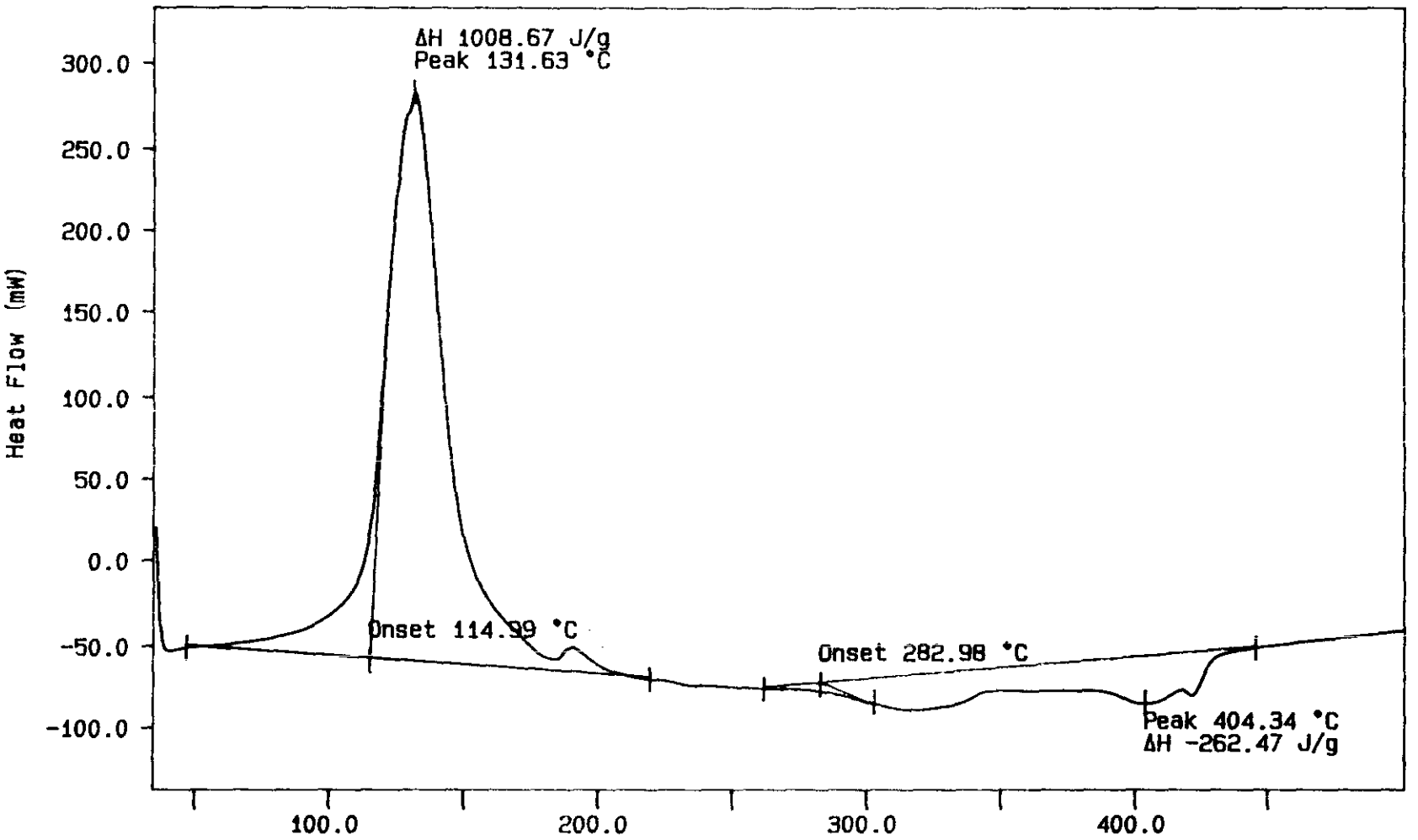
SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jan 25 06:25:13 1996

81

Curve 1: DSC
File info: SAM012401 Wed Jan 24 23:30:19 1996
Sample Weight: 39.350 mg
S95T004137 SAM



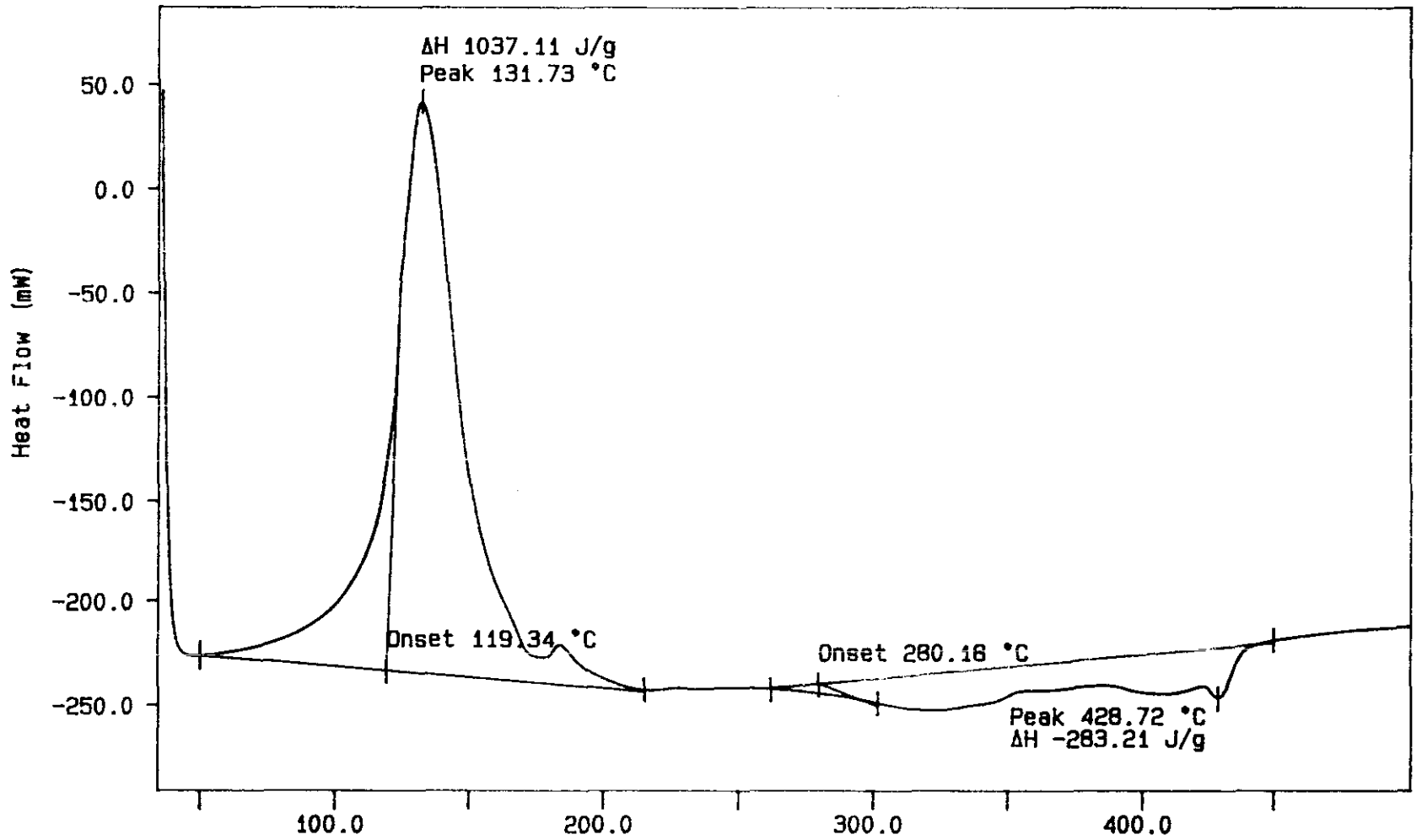
Curve 1: DSC
File info: SAM012402 Thu Jan 25 00:39:54 1996
Sample Weight: 59.970 mg
S95T004137 DUP



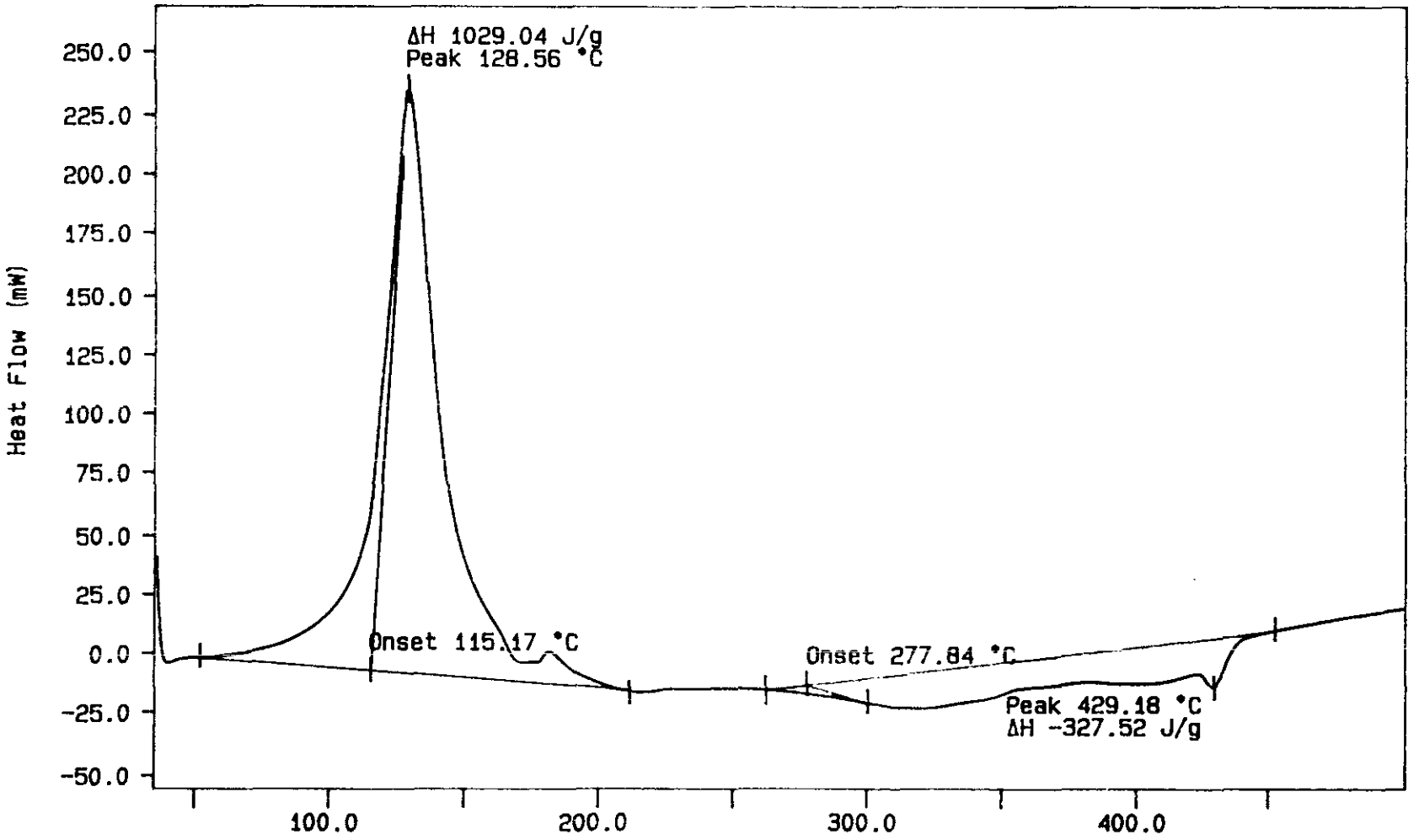
AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jan 25 15:14:37 1996

WHC-SD-WM-DP-165, REV. 0

Curve 1: DSC
File info: SAM012403 Thu Jan 25 01:39:29 1996
Sample Weight: 51.900 mg
S95T004139 SAM



Curve 1: DSC
File info: SAM012409 Thu Jan 25 02:50:03 1996
Sample Weight: 39.120 mg
S95T004139 DUP



exotherm down, N2 purge gas

TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jan 25 15:21:09 1996

worklistrpt Version 2.1 05/15/95
02/01/96 15:21

LABCORE Data Entry Template for Worklist# 5343

Analyst: ADP **Instrument:** DSC01 **Book #** 12N14B

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

Worklist Comment: Run AN-102 DSCs on Mettler under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-01	LIQUID	28.45	30.4	N/A	Joules/g
95000227	AN-102 GRAB	2 SAMPLE	S96T000005	0		DSC-01	LIQUID	N/A	237.0		Joules/g
95000227	AN-102 GRAB	3 DUP	S96T000005	0		DSC-01	LIQUID	237.0	230.2	N/A	Joules/g
		4 STD				DSC-01	LIQUID	28.45	29.6	N/A	Joules/g
95000222	AN-102 GRAB	5 SAMPLE	S95T003867	0		DSC-01	LIQUID	N/A	283.9		Joules/g
95000222	AN-102 GRAB	6 DUP	S95T003867	0		DSC-01	LIQUID	283.9	284.0	N/A	Joules/g

Final page for worklist # 5343

See attached for Signatures
Analyst Signature **Date**

See attached for signatures
Analyst Signature **Date**

Verified by Blandina Valenzuela
2/2/96

Data Entry Comments: S96T000005 produced two endotherms one at 159.7°C with a delta H of 111.2 J/g and second at 333.0°C with a delta H of 26.1 J/g
S95T003867 produced an endotherm at 130.5°C with a delta H of 122.7 J/g

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

worklistrpt Version 2.1 05/15/95
01/31/96 13:56

LABCORE Data Entry Template for Worklist# 5343

Analyst: ADP **Instrument:** DSC01 **Book #** 12N14-B

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

Worklist Comment: Run AN-102 DSCs on Mettler under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-01	LIQUID			N/A	Joules/g
95000227	AN-102 GRAB	2 SAMPLE	S96T000005	0		DSC-01	LIQUID	N/A			Joules/g
95000227	AN-102 GRAB	3 DUP	S96T000005	0		DSC-01	LIQUID			N/A	Joules/g
95000222	AN-102 GRAB	4 SAMPLE	S95T003867	0		DSC-0'	LIQUID	N/A			Joules/g
95000222	AN-102 GRAB	5 DUP	S95T003867	0		DSC-0'	LIQUID			N/A	Joules/g

Final page for worklist # 5343

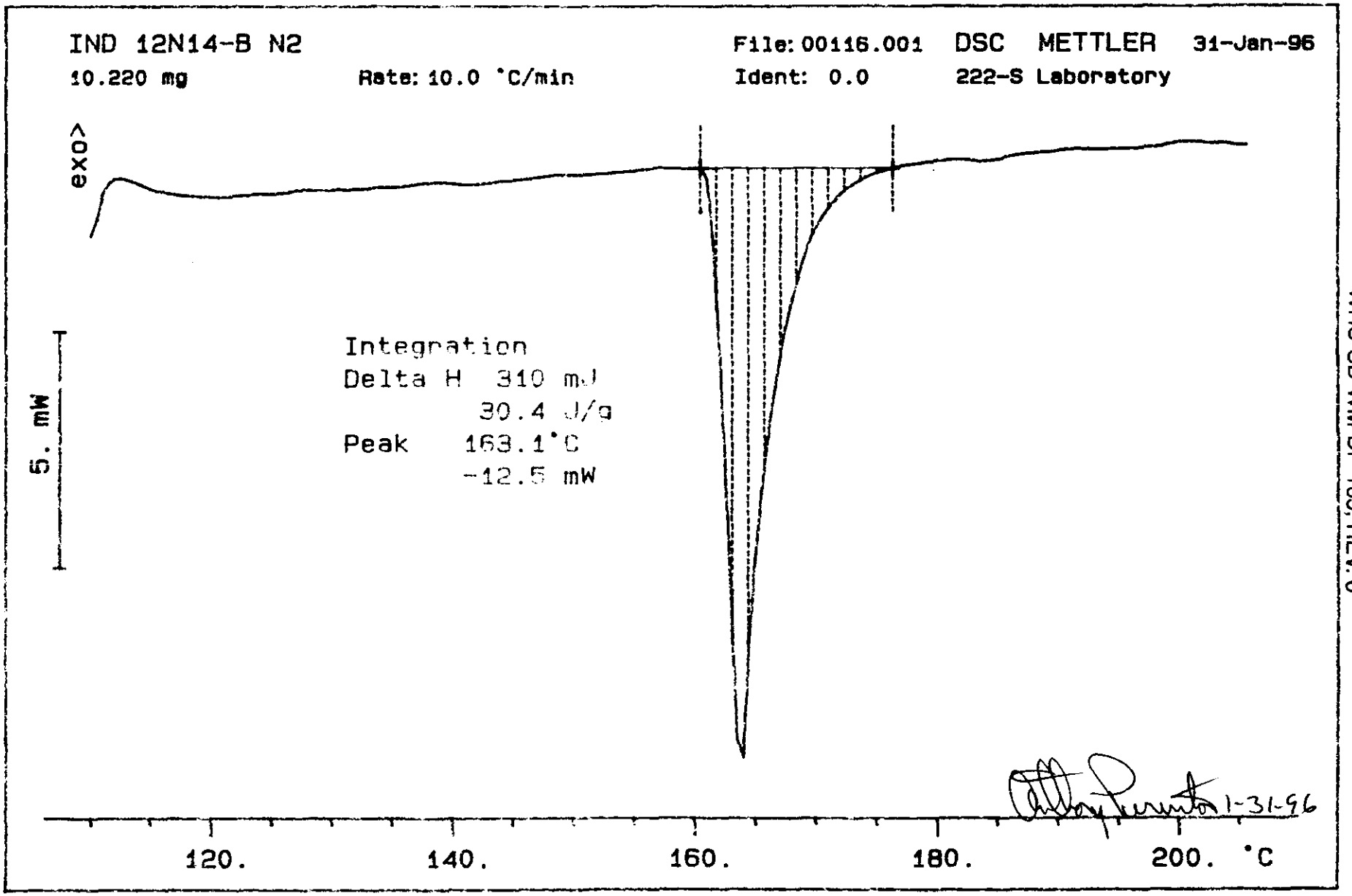
Analyst Signature Date 1-31-96

Analyst Signature Date 2/2/96

Data Entry Comments:

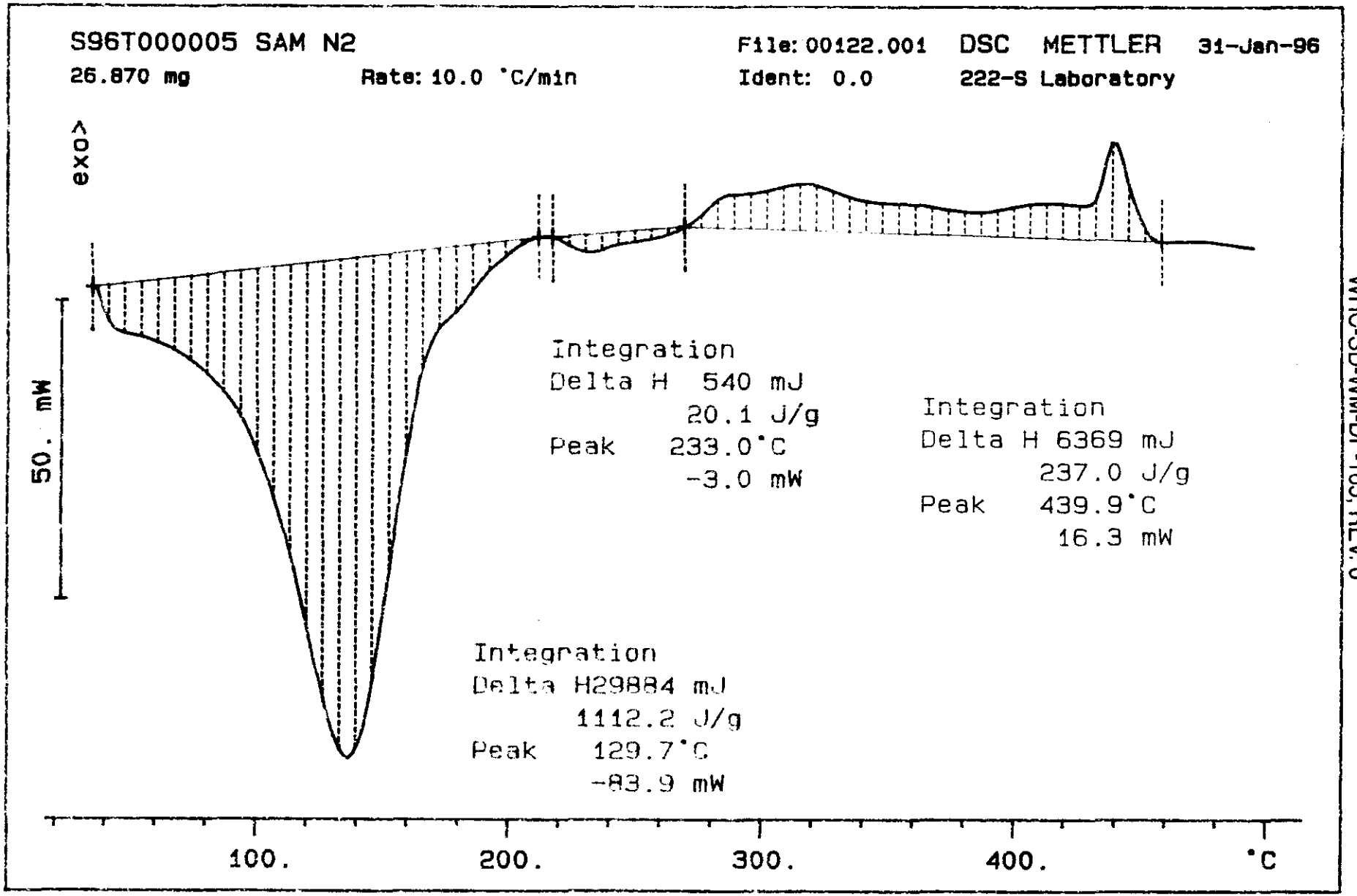
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

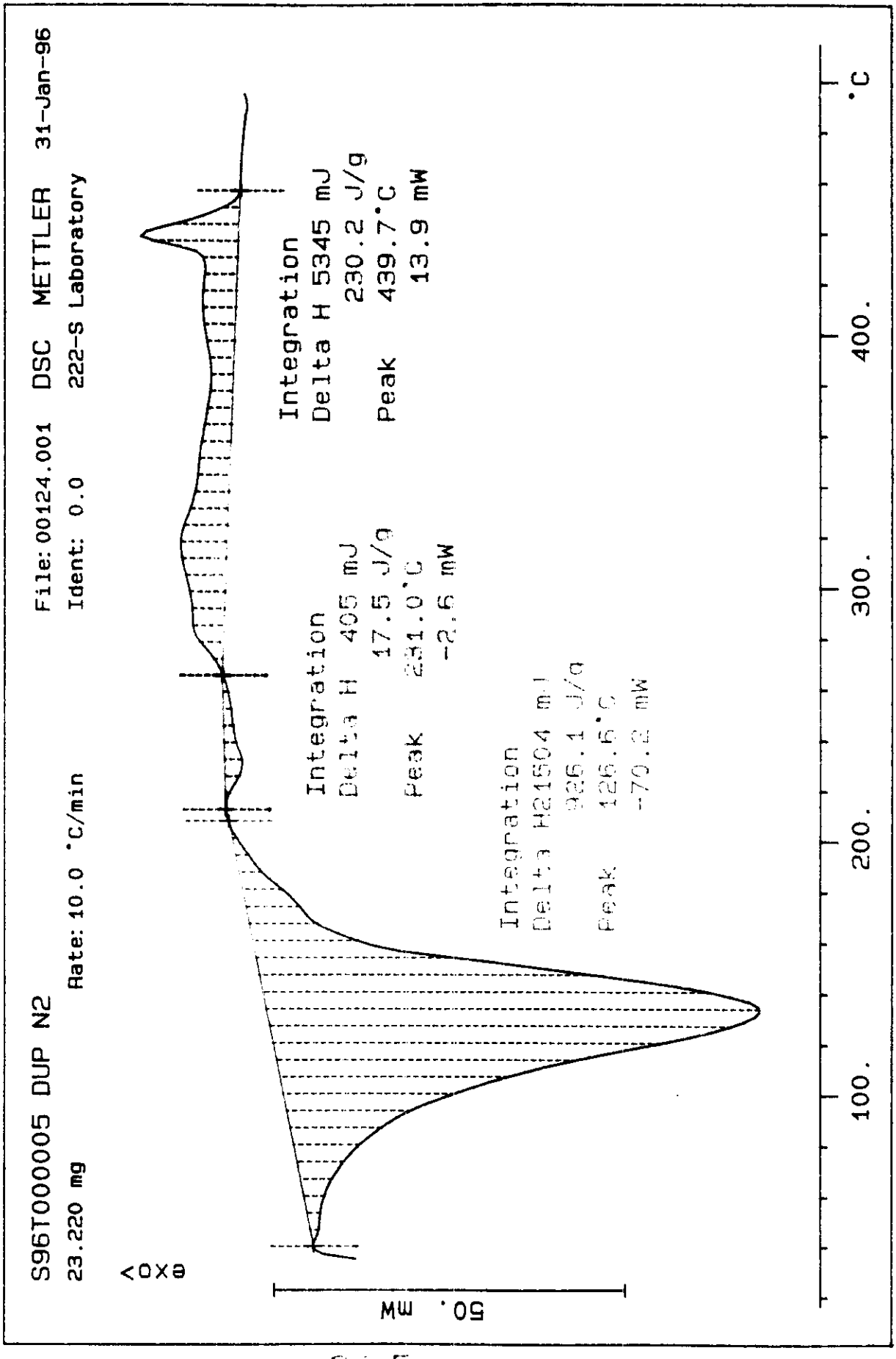
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 853 TO 858.

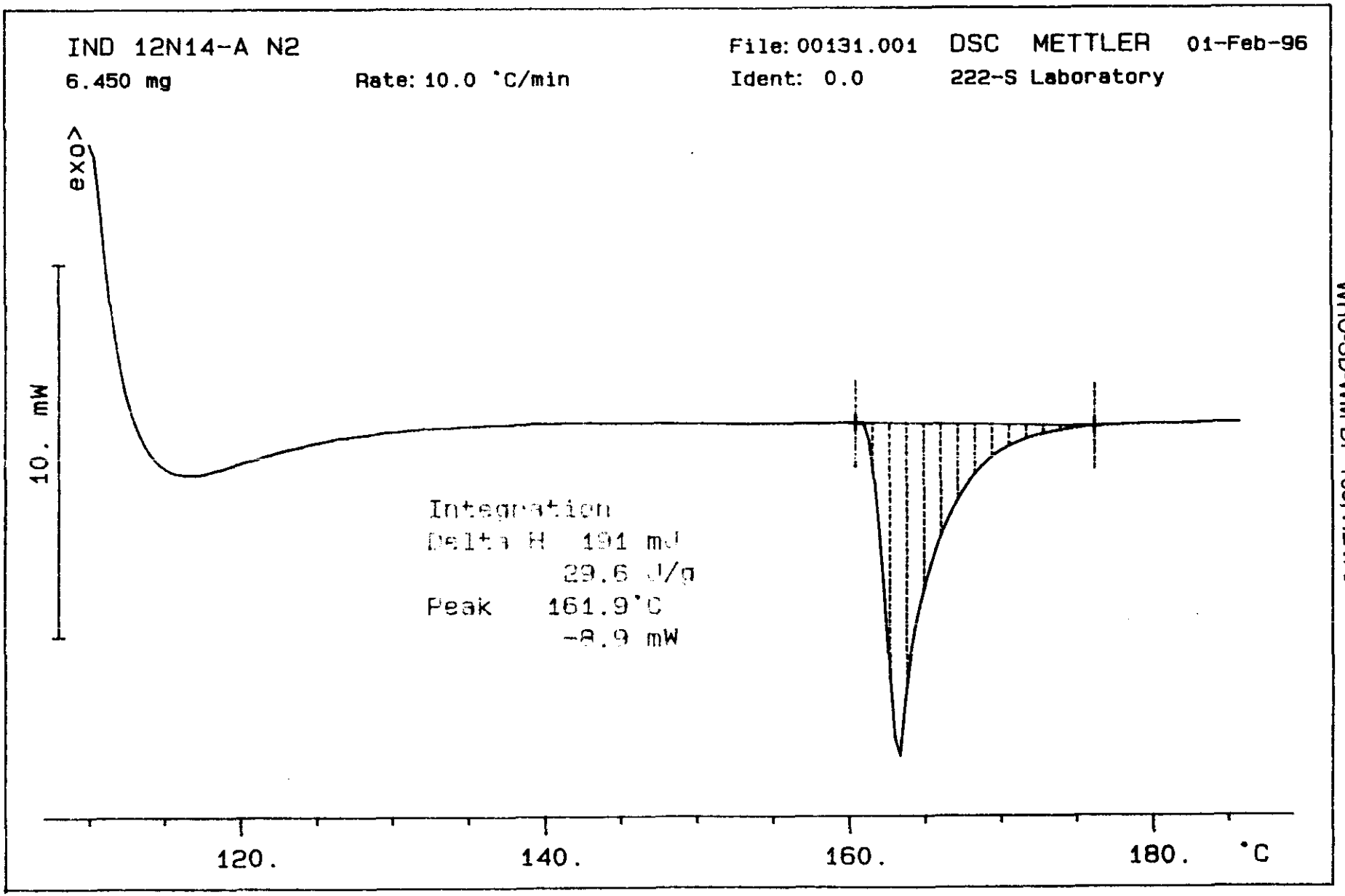


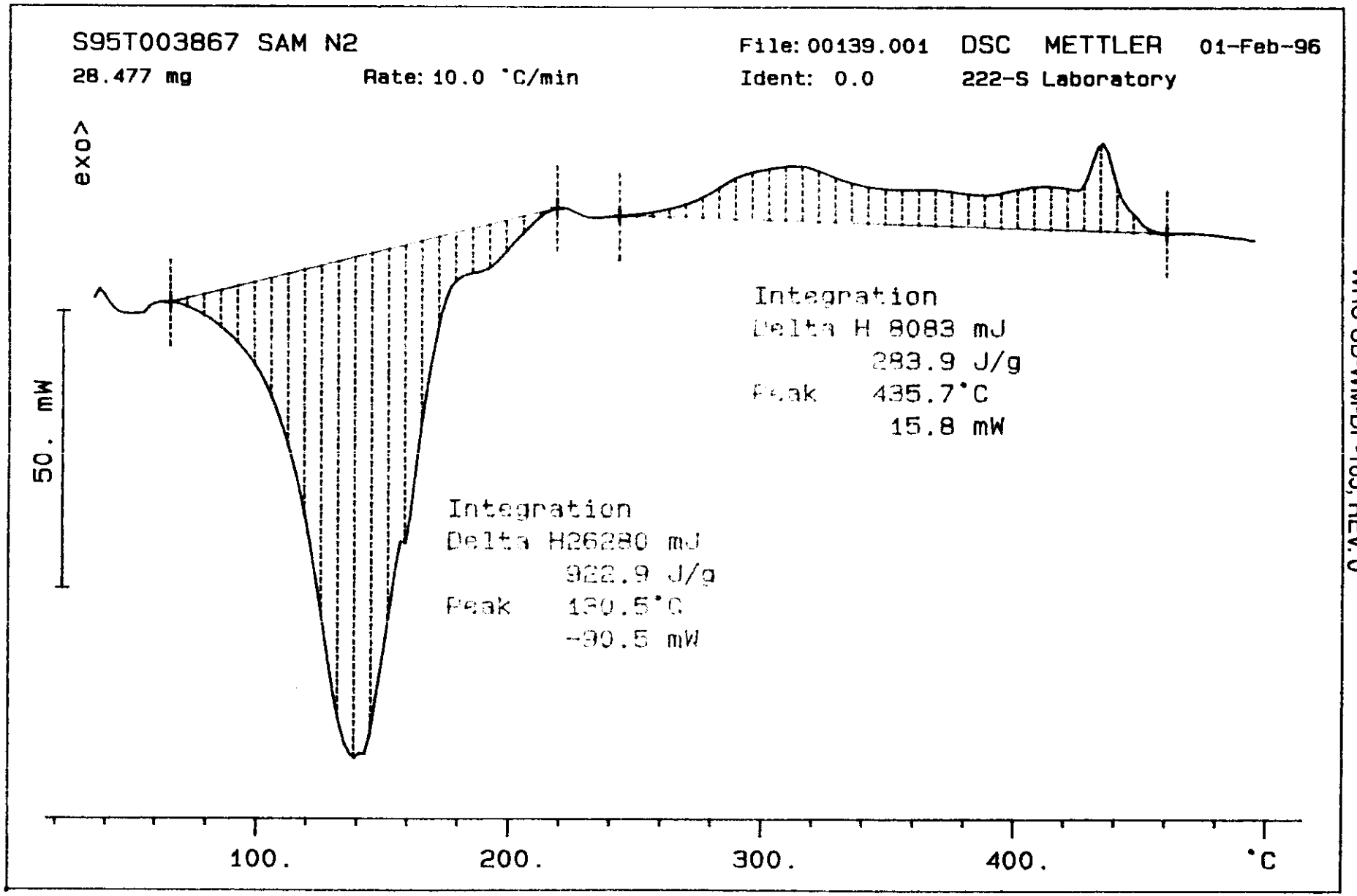
8.0.3

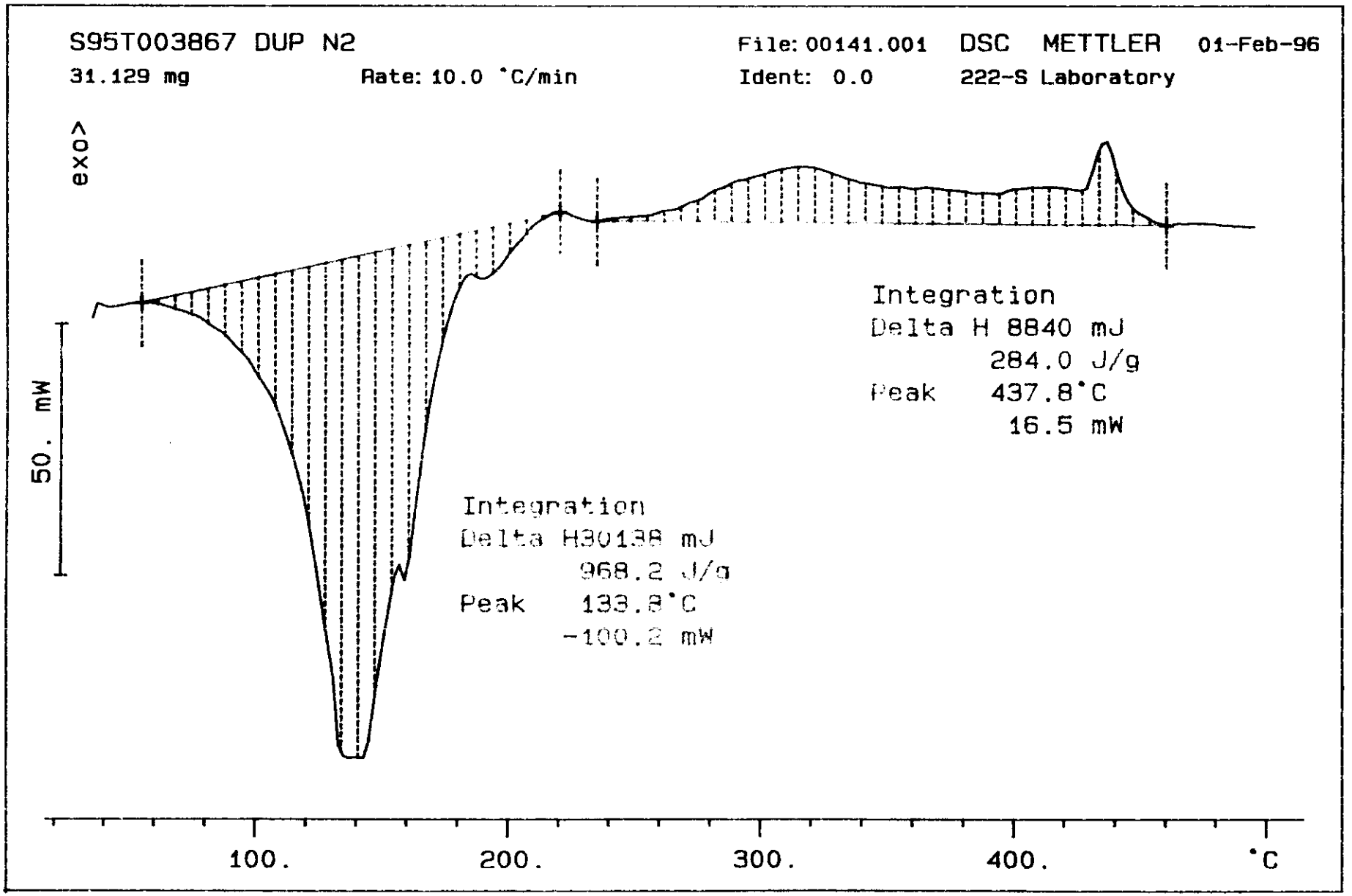
WHC-SD-WM-DP-165, REV. 0


S96T000005 SAM N2
26.870 mg
Rate: 10.0 °C/min
File: 00122.001
Ident: 0.0
DSC METTLER
222-S Laboratory
31-Jan-96
exo
50. mW
Integration
Delta H 540 mJ
20.1 J/g
Peak 233.0°C
-3.0 mW
Integration
Delta H 6369 mJ
237.0 J/g
Peak 439.9°C
16.3 mW
Integration
Delta H29884 mJ
1112.2 J/g
Peak 129.7°C
-83.9 mW
100.
200.
300.
400.
°C


S96T000005 DUP N2
23.220 mg
Rate: 10.0 °C/min
File: 00124.001 DSC METTLER 31-Jan-96
Ident: 0.0 222-S Laboratory
Integration
Delta H 5345 mJ
230.2 J/g
Peak 439.7°C
13.9 mW
Integration
Delta H 405 mJ
17.5 J/g
Peak 231.0°C
-2.6 mW
Integration
Delta H21504 mJ
926.1 J/g
Peak 126.5°C
-70.2 mW
50. mW
exo>
100.
200.
300.
400.
°C


IND 12N14-A N2
6.450 mg
Rate: 10.0 °C/min
File: 00131.001
Ident: 0.0
DSC METTLER 01-Feb-96
222-S Laboratory
exo>
10. mW
Integration
Delta H 191 mJ
29.6 J/g
Peak 161.9°C
-8.9 mW
120.
140.
160.
180.
°C


S95T003867 SAM N2
28.477 mg
Rate: 10.0 °C/min
File: 00139.001
Ident: 0.0
DSC METTLER
01-Feb-96
222-S Laboratory
exo>
50. mW
Integration
Delta H 8083 mJ
283.9 J/g
Peak 435.7°C
15.8 mW
Integration
Delta H26280 mJ
922.9 J/g
Peak 130.5°C
-90.5 mW
100.
200.
300.
400.
°C



8223

WHC-SD-WM-DP-165, REV. 0

LABCORE Data Entry Template for Worklist# 5199

Analyst: BDV **Instrument:** DSC01 **Book #** —

Method: LA-514-113 Rev/Mod —

Worklist Comment: Dry DSC for AN-102. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
95000227	AN-102 GRAB	1 SAMPLE	S96T000003	0		DSC-02	SOLID	N/A	Ø		Joules/g Dry
95000227	AN-102 GRAB	2 DUP	S96T000003	0		DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
95000227	AN-102 GRAB	3 SAMPLE	S96T000004	0		DSC-02	SOLID	N/A	Ø		Joules/g Dry
95000227	AN-102 GRAB	4 DUP	S96T000004	0		DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
95000222	AN-102 GRAB	5 SAMPLE	S95T004137	0		DSC-02	SOLID	N/A	488.1		Joules/g Dry
95000222	AN-102 GRAB	6 DUP	S95T004137	0		DSC-02	SOLID	488.1	458.2	N/A	Joules/g Dry
95000222	AN-102 GRAB	7 SAMPLE	S95T004139	0		DSC-02	SOLID	N/A	492.1		Joules/g Dry
95000222	AN-102 GRAB	8 DUP	S95T004139	0		DSC-02	SOLID	492.1	561.1	N/A	Joules/g Dry

Data entered + verified by

Final page for worklist # 5199

Blanchina Valenzuela 1-29-96
Analyst Signature **Date**

Analyst Signature **Date**

Data Entry Comments:

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

AN-102 (sclid)

CALCULATED DRY DSC			
SAMPLE NO.	DSC RESULT (J/g)	TGA RESULT (% water)	DRY DSC RESULT
296T000005	∅	—	∅
C3D	∅	—	∅
C4	∅	—	∅
04D	∅	—	∅
S95T004137	279.65	42.71	488.1
4137D	262.5	42.71	458.2
4139	282.3	42.45	492.1
4139D	327.5	42.45	569.1

LABCORE Data Entry Template for Worklist# 5200

Analyst: BDV **Instrument:** DSC01 **Book #** —

Method: LA-514-113 Rev/Mod —

Worklist Comment: Dry DSC for AN-102. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
95000222	AN-102 GRAB	1	SAMPLE	S95T004133	0		DSC-02	LIQUID	N/A	487.1		Joules/g Dry
95000222	AN-102 GRAB	2	DUP	S95T004133	0		DSC-02	LIQUID	487.1	475.9	N/A	Joules/g Dry
95000222	AN-102 GRAB	3	SAMPLE	S95T004135	0		DSC-02	LIQUID	N/A	556.5		Joules/g Dry
95000222	AN-102 GRAB	4	DUP	S95T004135	0		DSC-02	LIQUID	556.5	597.5	N/A	Joules/g Dry
95000222	AN-102 GRAB	5	SAMPLE	S95T003867	0		DSC-02	LIQUID	N/A	4353		Joules/g Dry
95000222	AN-102 GRAB	6	DUP	S95T003867	0		DSC-02	LIQUID	4353	4328	N/A	Joules/g Dry
95000222	AN-102 GRAB	7	SAMPLE	S95T003868	0		DSC-02	LIQUID	N/A	1201 ~~540.5~~	1-30-96 BDV	Joules/g Dry
95000222	AN-102 GRAB	8	DUP	S95T003868	0		DSC-02	LIQUID	~~546.5~~ 1201	1088 ~~551.6~~	1-30-96 N/A BDV	Joules/g Dry
95000222	AN-102 GRAB	9	SAMPLE	S95T003869	0		DSC-02	LIQUID	N/A	555.3 ~~1234~~	1-30-96 BDV	Joules/g Dry
95000222	AN-102 GRAB	10	DUP	S95T003869	0		DSC-02	LIQUID	555.3 ~~1234~~	566.1 ~~1117~~	1-30-96 BDV N/A	Joules/g Dry
95000227	AN-102 GRAB	11	SAMPLE	S95T003982	0		DSC-02	LIQUID	N/A	573.6		Joules/g Dry
95000227	AN-102 GRAB	12	DUP	S95T003982	0		DSC-02	LIQUID	573.6	624.4	N/A	Joules/g Dry
95000227	AN-102 GRAB	13	SAMPLE	S95T003983	0		DSC-02	LIQUID	N/A	720.3		Joules/g Dry
95000227	AN-102 GRAB	14	DUP	S95T003983	0		DSC-02	LIQUID	720.3	570.2	N/A	Joules/g Dry
95000227	AN-102 GRAB	15	SAMPLE	S95T003984	0		DSC-02	LIQUID	N/A	440.8		Joules/g Dry
95000227	AN-102 GRAB	16	DUP	S95T003984	0		DSC-02	LIQUID	440.8	389.2	N/A	Joules/g Dry
95000227	AN-102 GRAB	17	SAMPLE	S96T000005	0		DSC-02	LIQUID	N/A	30.96		Joules/g Dry
95000227	AN-102 GRAB	18	DUP	S96T000005	0		DSC-02	LIQUID	30.96	35.66	N/A	Joules/g Dry

Data Entry Comments:

Dry DSC results for samples S95T003867 and S96T000005 for this worklist will NOT be included in the report due to a DSC rerun. Recalculated results are on worklist # 5401

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

roe 2/2/96

LABCORE Data Entry Template for Worklist# 5200

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
95000227	AN-102 GRAB	19	SAMPLE	S96T000006	0		DSC-02	LIQUID	N/A	Ø		Joules/g Dry
95000227	AN-102 GRAB	20	DUP	S96T000006	0		DSC-02	LIQUID	Ø	Ø 52.21 RPZ 1/30/96	N/A	Joules/g Dry

Final page for worklist # 5200

Data entered + verified by
F. Blandina Valenzuela 1/29/96

Analyst Signature **Date**

Analyst Signature **Date**

Data Entry Comments:

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

CALCULATED DRY DSC			
SAMPLE NO.	DSC RESULT (J/g)	TGA RESULT (% water)	DRY DSC RESULT
S95TC04133	258.0	47.03	487.1
4133D	252.1	47.03	475.9
4135	279.7	49.74	556.5
4135D	300.3	49.74 ROE 2/2/96	597.5
3867	22.14	~~49.14~~ 49.14	43.53
3867D	22.01	49.14	43.28
3868	~~277.2~~ 616.1	48.71	~~540.5~~ 1201
3868D	~~223.61~~ 557.8	48.71	~~551.0~~ 1088
3869	~~616.1~~ 277.2	50.08	~~1224~~ 555.3
3869D	~~557.2~~ 323.61	50.08	~~1117~~ 566.1
3873	224.2	49.57	5[illegible].6
3873D	317.4	49.57	6[illegible].4
3875	361.3	49.84	720.3
3875D	221.0	41.24	560.2
3954	223.2	49.36	[illegible]
3954D	197.1	49.36	39[illegible]
ROE 2/2/96 S95TC00005	15.76	49.10	[illegible]
00005D	18.15	49.10	35.66
00	—	—	
00D	ROE 1-30-96 ~~—~~ 27.47	— 47.39	52.21 ROE 1-30-96

LABCORE Data Entry Template for Worklist# 5401

Analyst: BVD **Instrument:** DSC01 **Book #** N/A

Method: LA-514-113 Rev/Mod ———

Worklist Comment: Dry DSC RERUN for AN-102. rae

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
95000227	AN-102 GRAB	1 SAMPLE	S96T000005	0		DSC-02	LIQUID	N/A	465.6		Joules/g Dry
95000227	AN-102 GRAB	2 DUP	S96T000005	0		DSC-02	LIQUID	465.6	452.3	N/A	Joules/g Dry
95000222	AN-102 GRAB	3 SAMPLE	S95T003867	0		DSC-02	LIQUID	N/A	558.2		Joules/g Dry
95000222	AN-102 GRAB	4 DUP	S95T003867	0		DSC-02	LIQUID	558.2	558.4	N/A	Joules/g Dry

Data entered + verified by

Final page for worklist # 5401

Blandina Valenzuela 2/2/96

Analyst Signature **Date**

Analyst Signature **Date**

Data Entry Comments:

Dry DSC was recalculated because of a rerun. Used results from worklist # 5343. rae 2/2/96

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

CALCULATED DRY DSC			
SAMPLE NO.	*DSC RESULT (J/g)	TGA RESULT (%water)	DRY DSC RESULT
S96T000005	237.0	49.10	465.6
05D	230.2	49.10	452.3
S95T003867	283.9	49.14	558.2
3867D	284.0	49.14	558.4

* DSC results are from worklist # 5343. ROE 2/2/96

LABCORE Data Entry Template for Worklist# 4845

Analyst: ADP **Instrument:** TGA0 1 **Book #** 75N8A

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

Worklist Comment: Please run AN-102 TGAs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID	59.2	60.36	N/A	%
95000227	AN-102 GRAB	2 SAMPLE	S96T000003	0		TGA-01	SOLID	N/A	35.6		%
95000227	AN-102 GRAB	3 DUP	S96T000003	0		TGA-01	SOLID	35.6	35.98	N/A	%
95000227	AN-102 GRAB	4 SAMPLE	S96T000004	0		TGA-01	SOLID	N/A	44.25		%
95000227	AN-102 GRAB	5 DUP	S96T000004	0		TGA-01	SOLID	44.25	43.72	N/A	%

Final page for worklist # 4845

[signature] 1-20-96
Analyst Signature **Date**

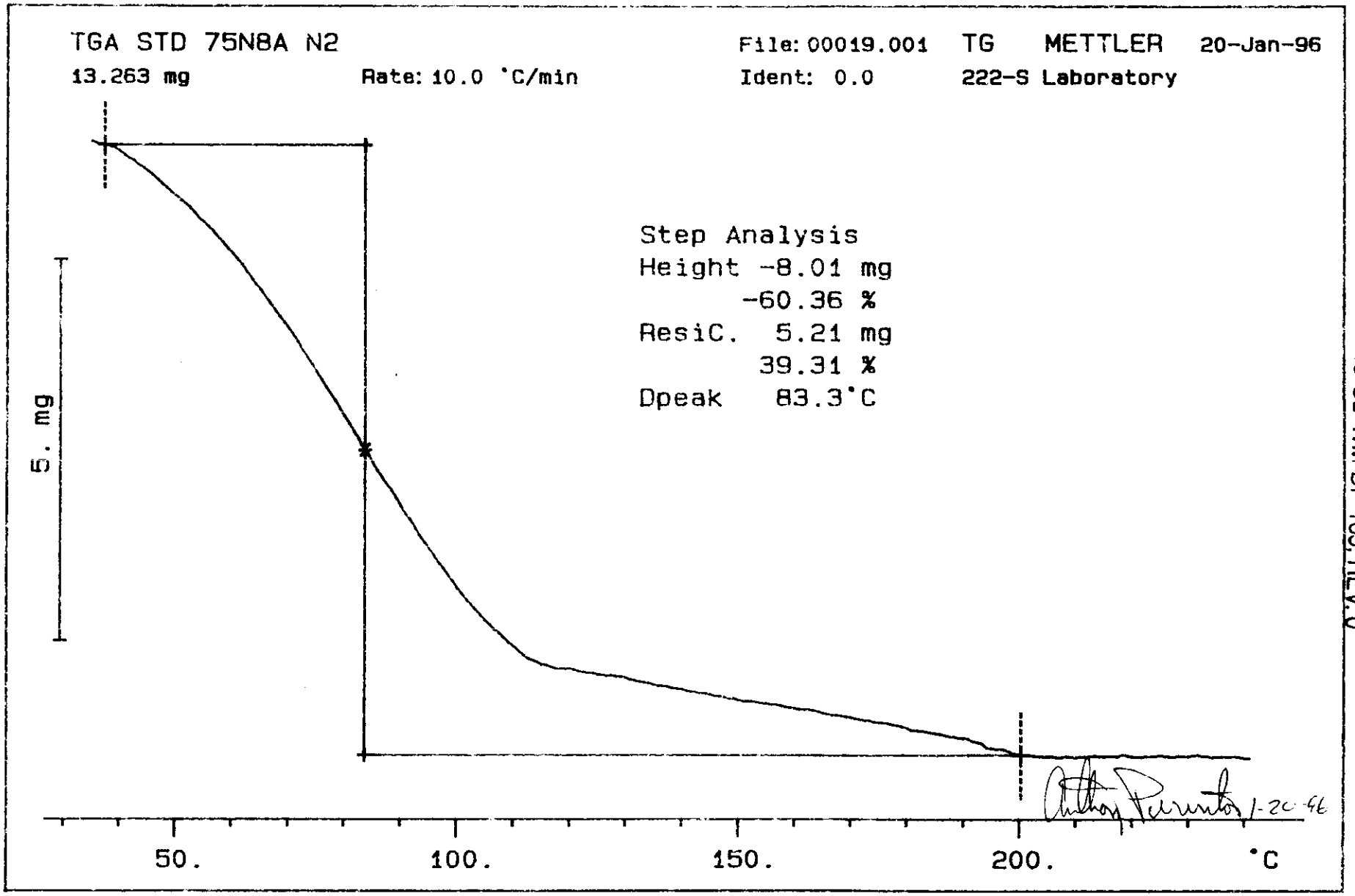
[signature] 1/24/96
Analyst Signature **Date**

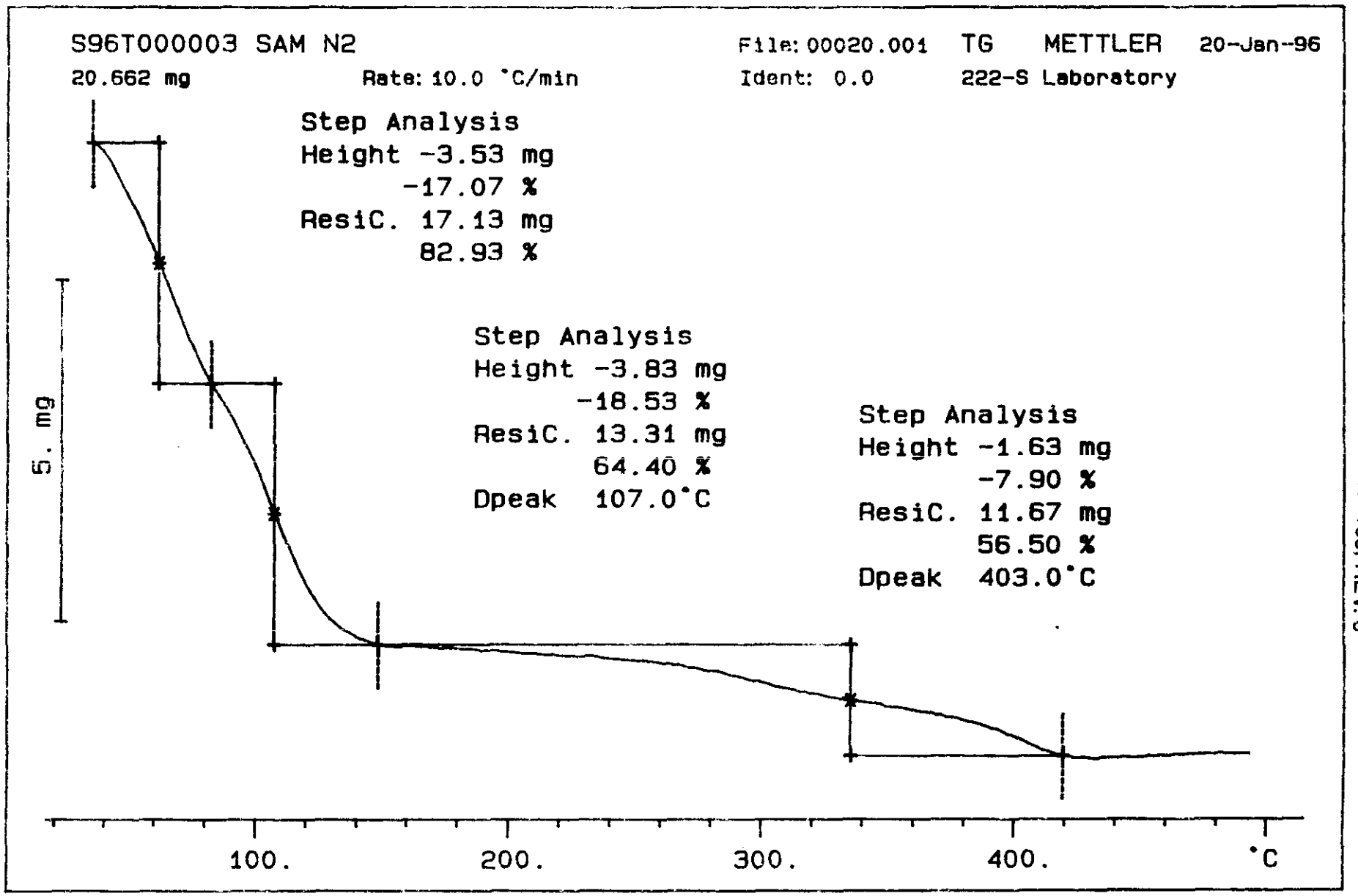
Verified by Blandina Valenzuela 1/26/96

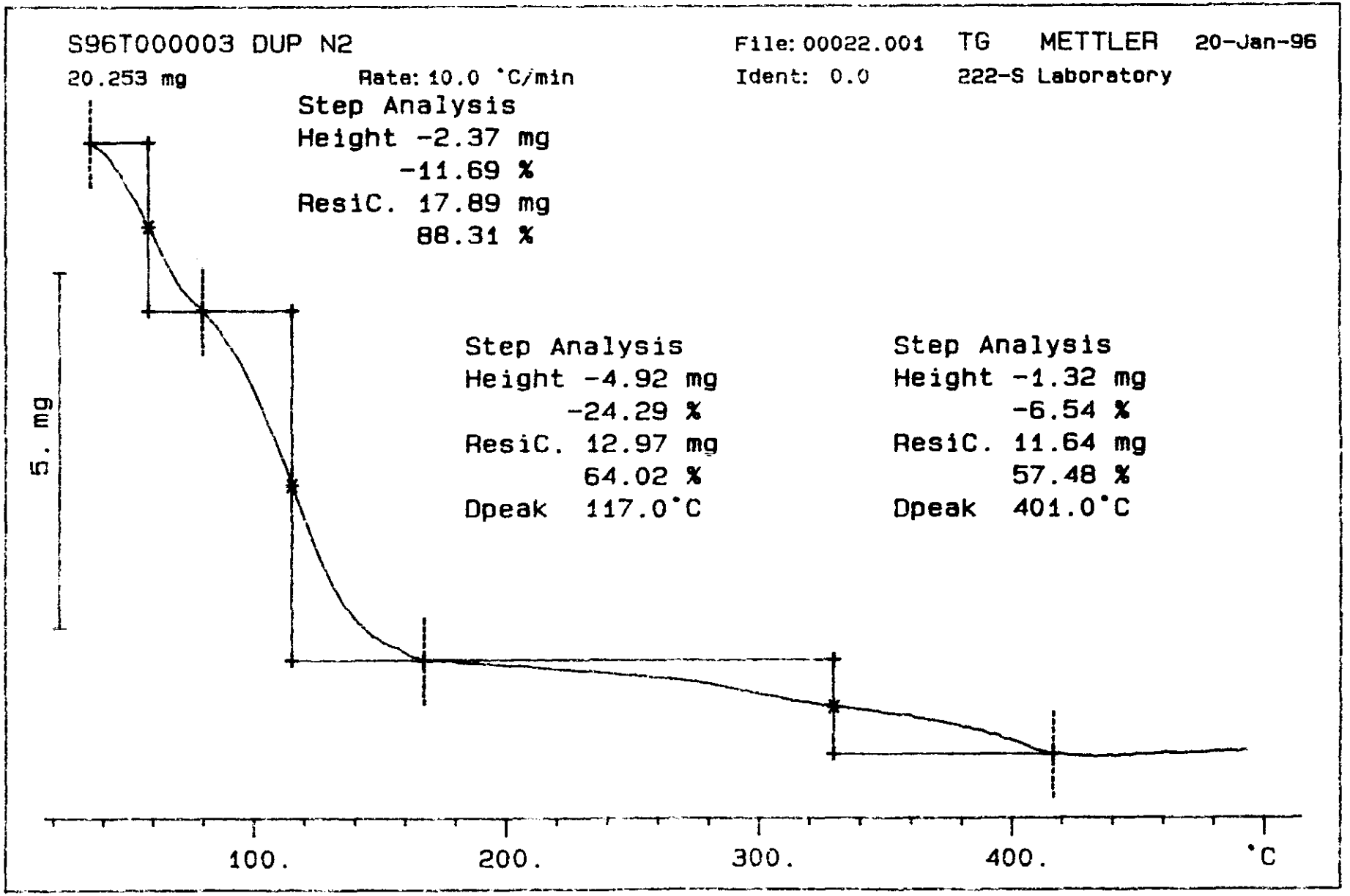
Data Entry Comments: S96T000003 produced weight loss of 7.90% at approximately 320°C. The results given are the sum of two weight loss steps. S96T000004 produced two additional weight loss of 3.65% and 4.38%

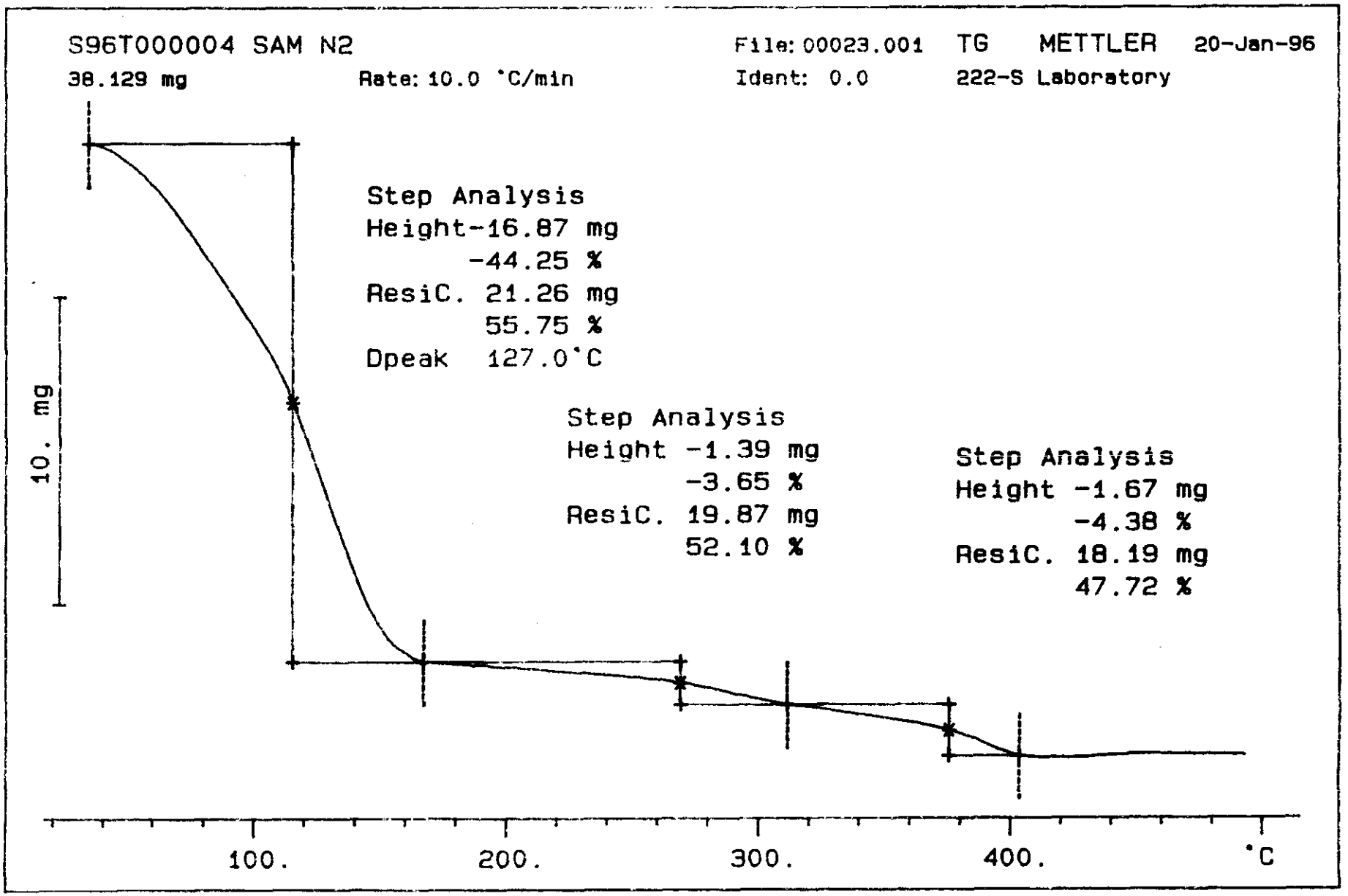
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

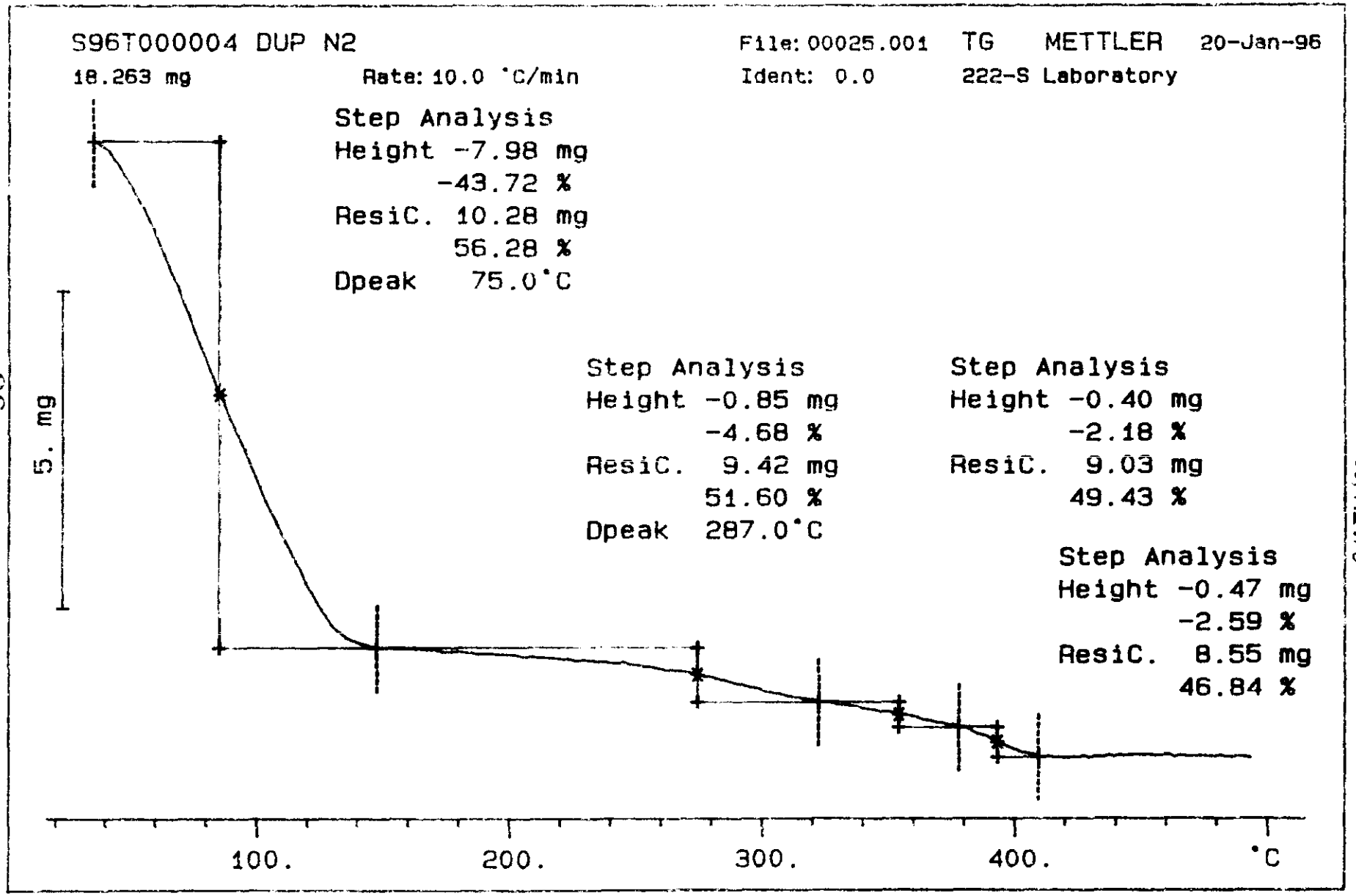
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 92 TO 96.




S96T000003 SAM N2
20.662 mg
Rate: 10.0 °C/min
File: 00020.001
Ident: 0.0
TG METTLER 20-Jan-96
222-S Laboratory
Step Analysis
Height -3.53 mg
-17.07 %
ResiC. 17.13 mg
82.93 %
Step Analysis
Height -3.83 mg
-18.53 %
ResiC. 13.31 mg
64.40 %
Dpeak 107.0°C
Step Analysis
Height -1.63 mg
-7.90 %
ResiC. 11.67 mg
56.50 %
Dpeak 403.0°C
dm/dt mg
100.
200.
300.
400.
°C


S96T000003 DUP N2
20.253 mg
Rate: 10.0 °C/min
File: 00022.001 TG METTLER 20-Jan-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height -2.37 mg
-11.69 %
ResiC. 17.89 mg
88.31 %
Step Analysis
Height -4.92 mg
-24.29 %
ResiC. 12.97 mg
64.02 %
Dpeak 117.0°C
Step Analysis
Height -1.32 mg
-6.54 %
ResiC. 11.64 mg
57.48 %
Dpeak 401.0°C
5. mg
100.
200.
300.
400.
°C


S96T000004 SAM N2
38.129 mg
Rate: 10.0 °C/min
File: 00023.001
Ident: 0.0
TG METTLER 20-Jan-96
222-S Laboratory
Step Analysis
Height -16.87 mg
-44.25 %
ResiC. 21.26 mg
55.75 %
Dpeak 127.0°C
Step Analysis
Height -1.39 mg
-3.65 %
ResiC. 19.87 mg
52.10 %
Step Analysis
Height -1.67 mg
-4.38 %
ResiC. 18.19 mg
47.72 %
10. mg
100.
200.
300.
400.
°C


S96T000004 DUP N2
File: 00025.001 TG METTLER 20-Jan-96
18.263 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory
Step Analysis
Height -7.98 mg
-43.72 %
ResiC. 10.28 mg
56.28 %
Dpeak 75.0°C
Step Analysis
Height -0.85 mg
-4.68 %
ResiC. 9.42 mg
51.60 %
Dpeak 287.0°C
Step Analysis
Height -0.40 mg
-2.18 %
ResiC. 9.03 mg
49.43 %
Step Analysis
Height -0.47 mg
-2.59 %
ResiC. 8.55 mg
46.84 %
96
5. mg
100.
200.
300.
400.
°C

LABCORE Data Entry Template for Worklist# 4846

Analyst: ADP **Instrument:** TGA0 1 **Book #** 15N46 A

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

Worklist Comment: Please run AN-102 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	LIQUID	59.2	60.38	N/A	%
95000227	AN-102 GRAB	2	SAMPLE	S95T003982	0		TGA-01	LIQUID	N/A	50.06		%
95000227	AN-102 GRAB	3	DUP	S95T003982	0		TGA-01	LIQUID	50.06	49.07	N/A	%
95000227	AN-102 GRAB	4	SAMPLE	S95T003983	0		TGA-01	LIQUID	N/A	49.76		%
95000227	AN-102 GRAB	5	DUP	S95T003983	0		TGA-01	LIQUID	49.76	49.91	N/A	%
95000227	AN-102 GRAB	6	SAMPLE	S95T003984	0		TGA-01	LIQUID	N/A	49.33		%
95000227	AN-102 GRAB	7	DUP	S95T003984	0		TGA-01	LIQUID	49.33	49.38	N/A	%

Final page for worklist # 4846

Anthony Puranto 1-19-96
Analyst Signature **Date**

Stan Pitts 1/24/96
Analyst Signature **Date**

Rae Ann Green 1-19-96

Verified by Blandina Valenzuela 1/26/96

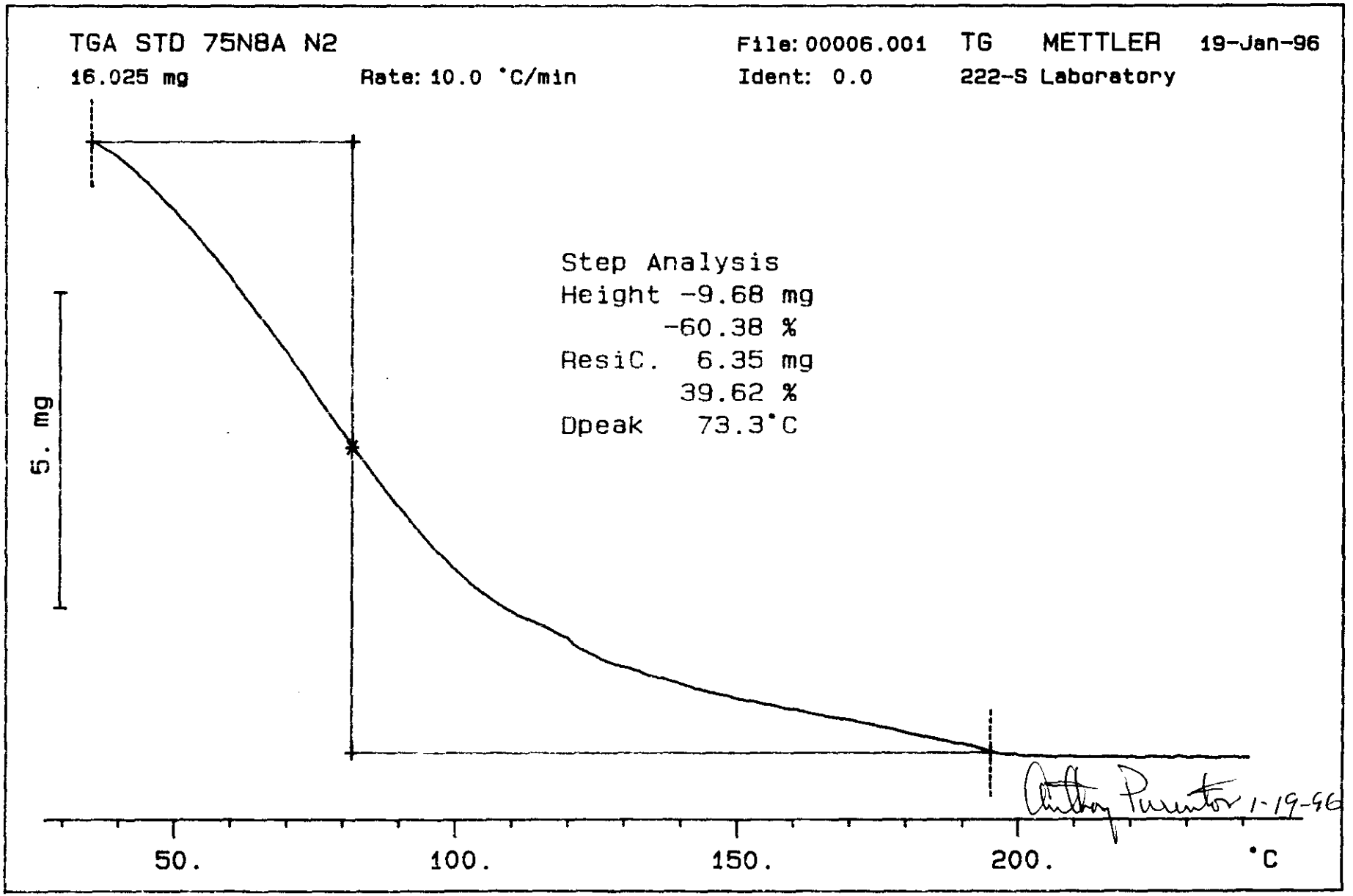
Data Entry Comments: S95T003982 produced a second weight loss step of 5.38% at approximately 330°C.

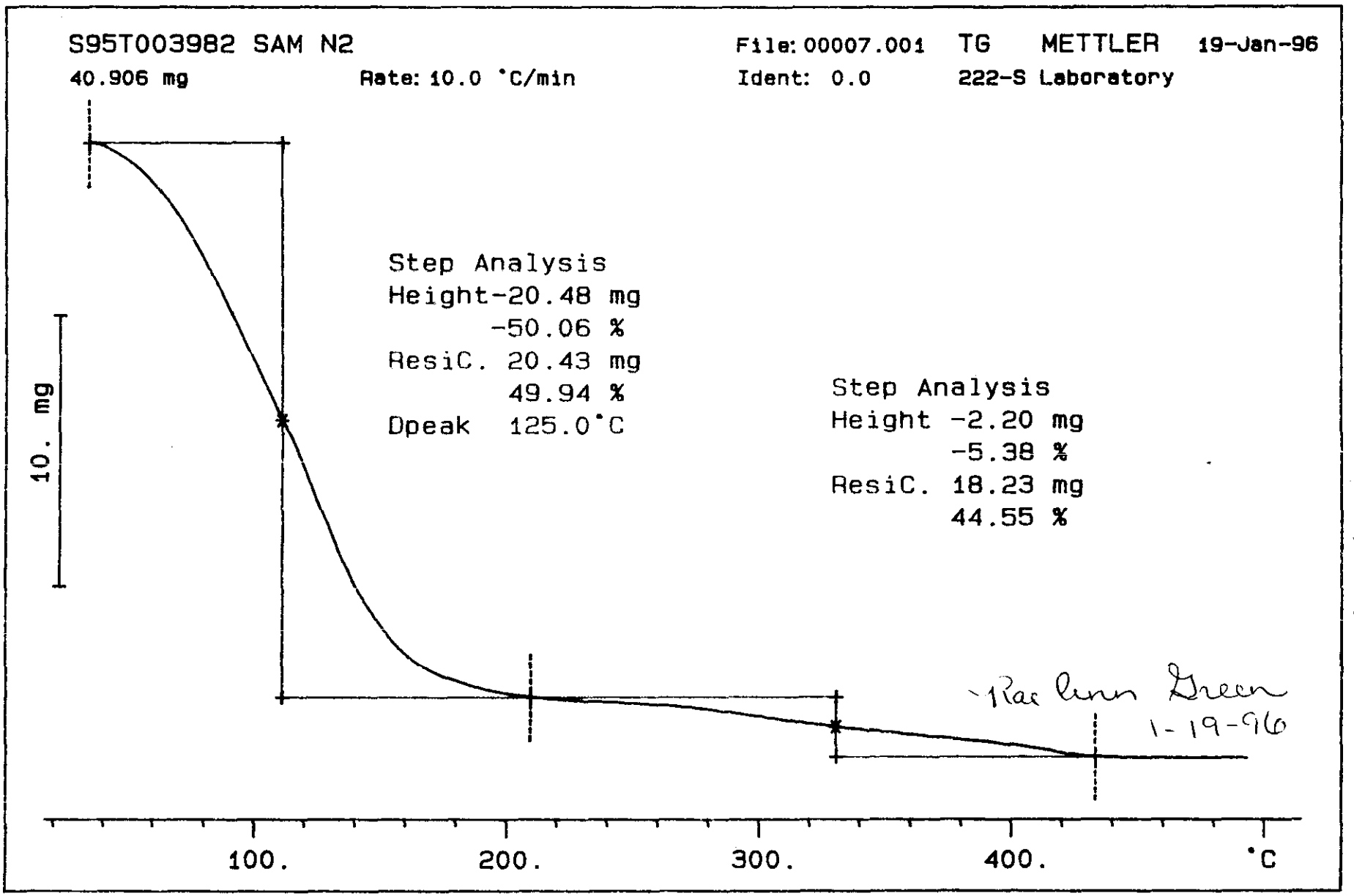
S95T003983 produced a second weight loss step of 5.50% at approximately 340°C

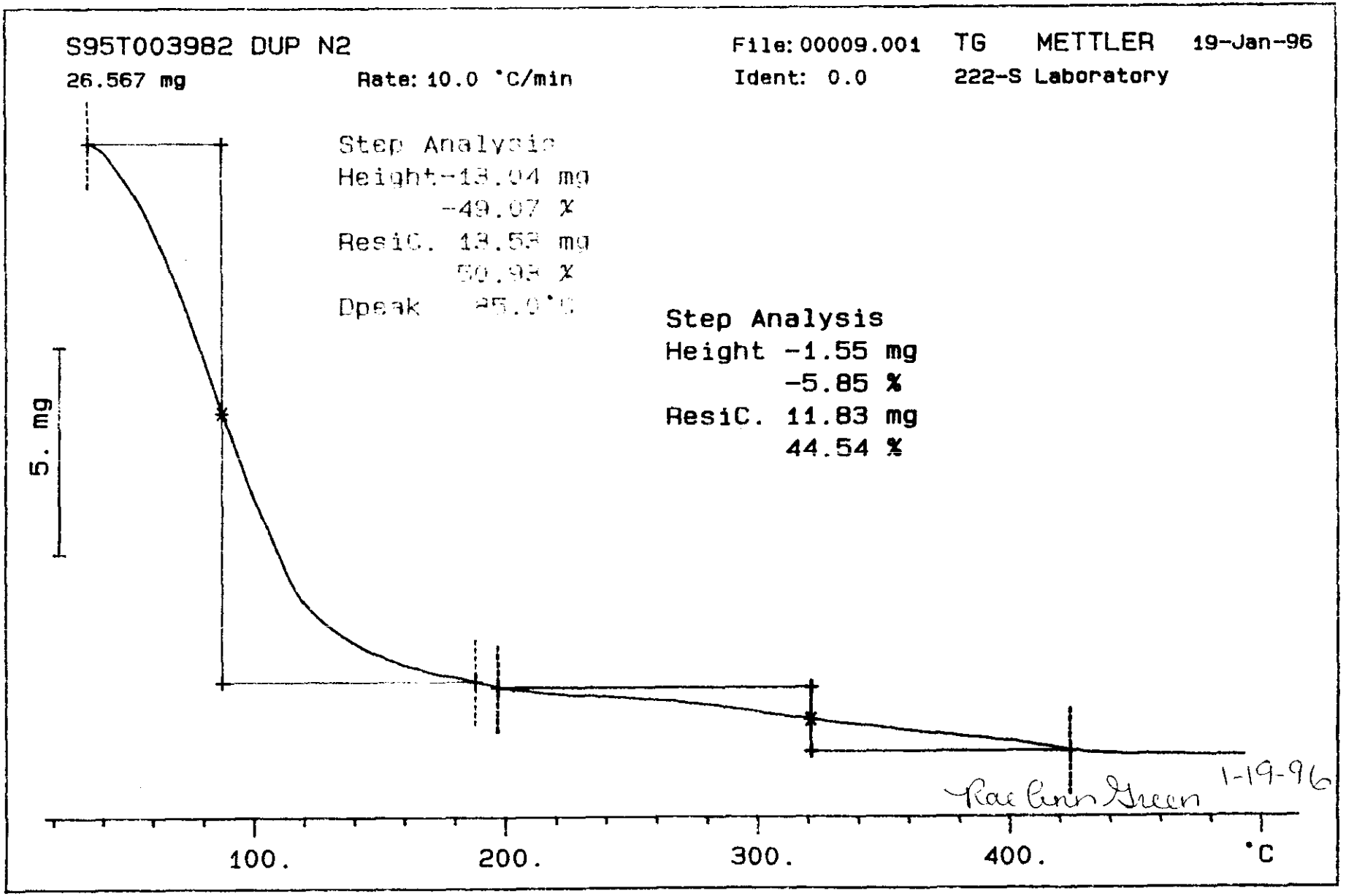
S95T003984 produced a second weight loss step at approximately 6.40% ~~at 320°C~~

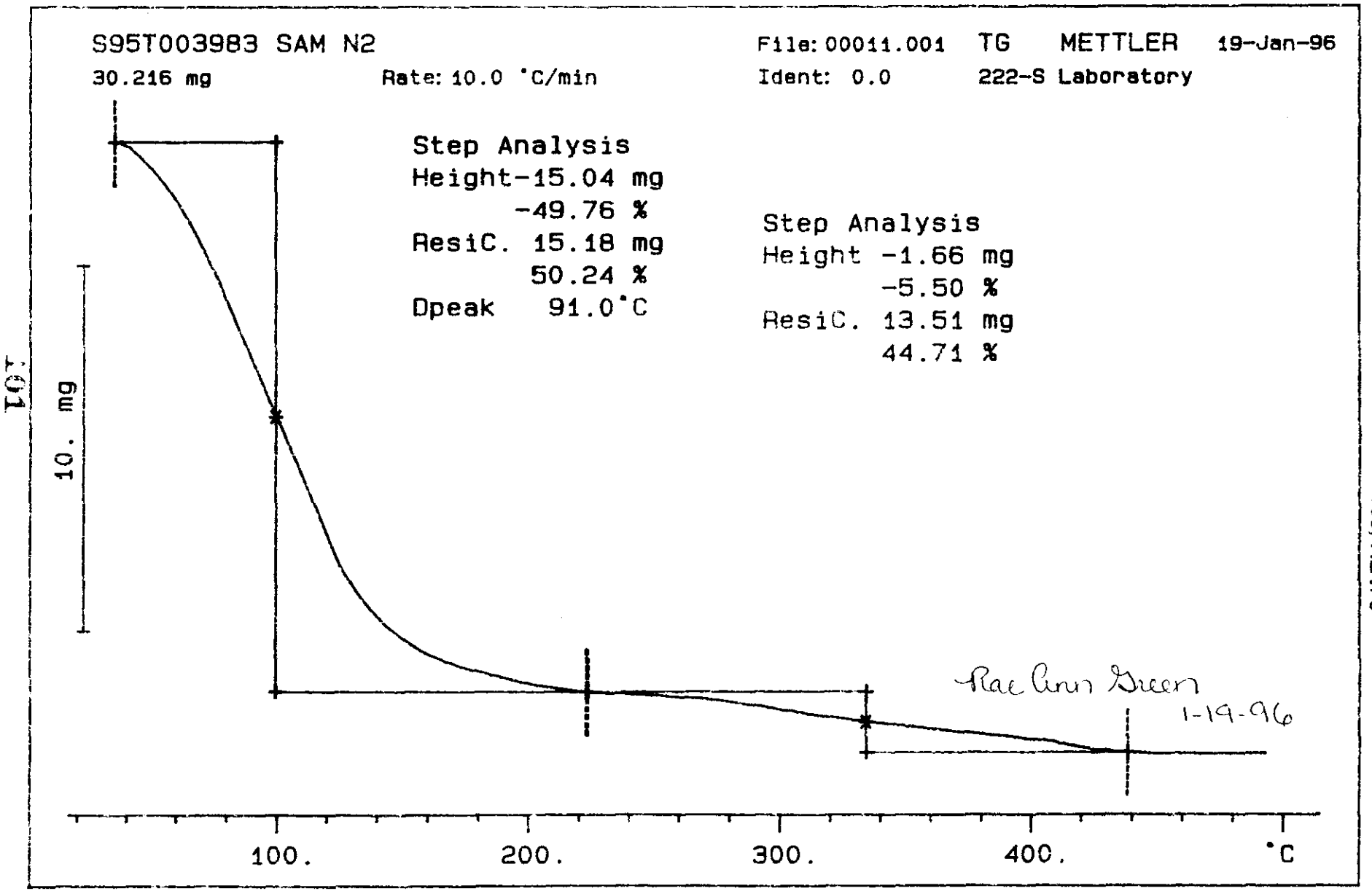
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

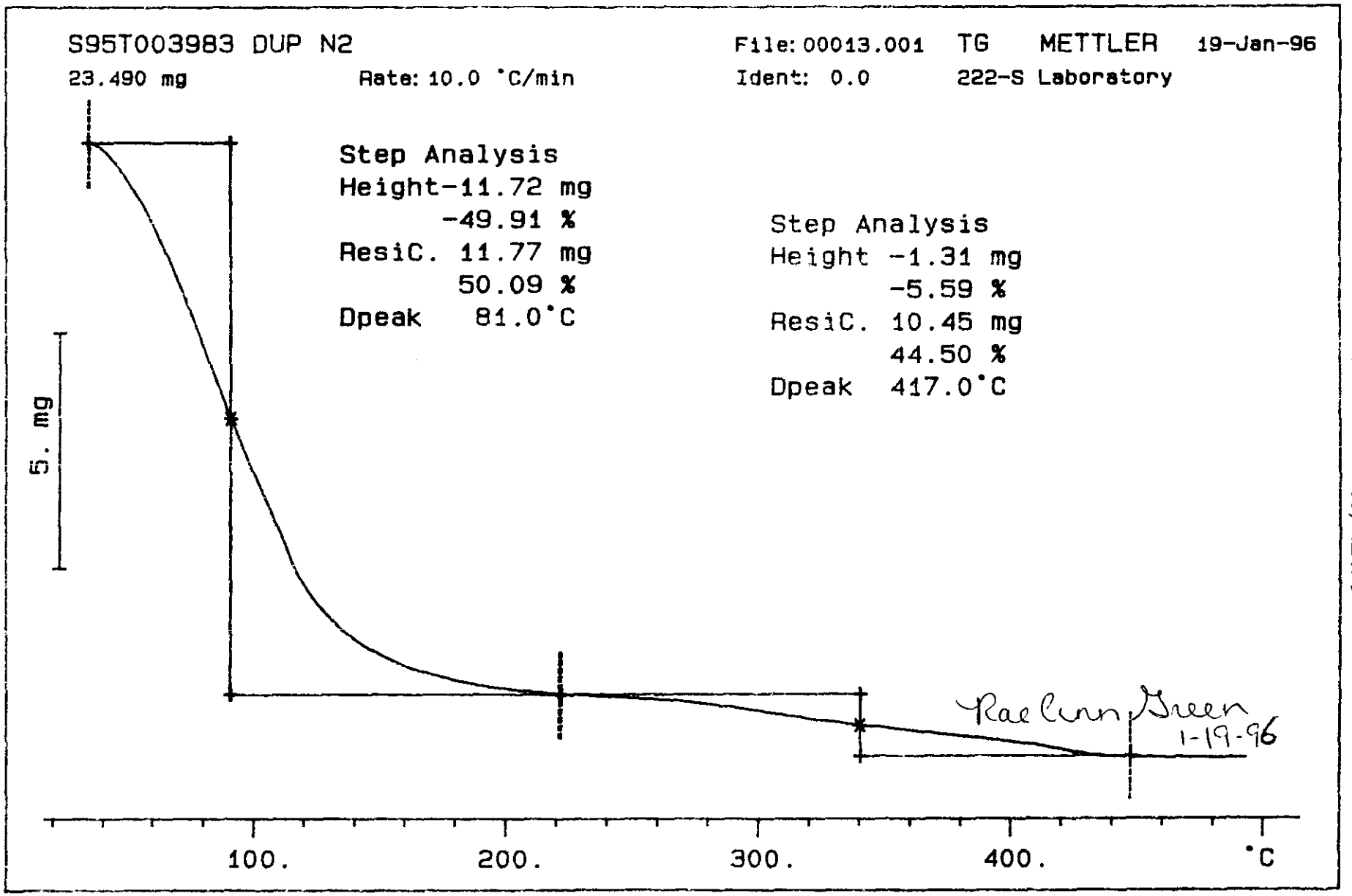
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 98 TO 114.

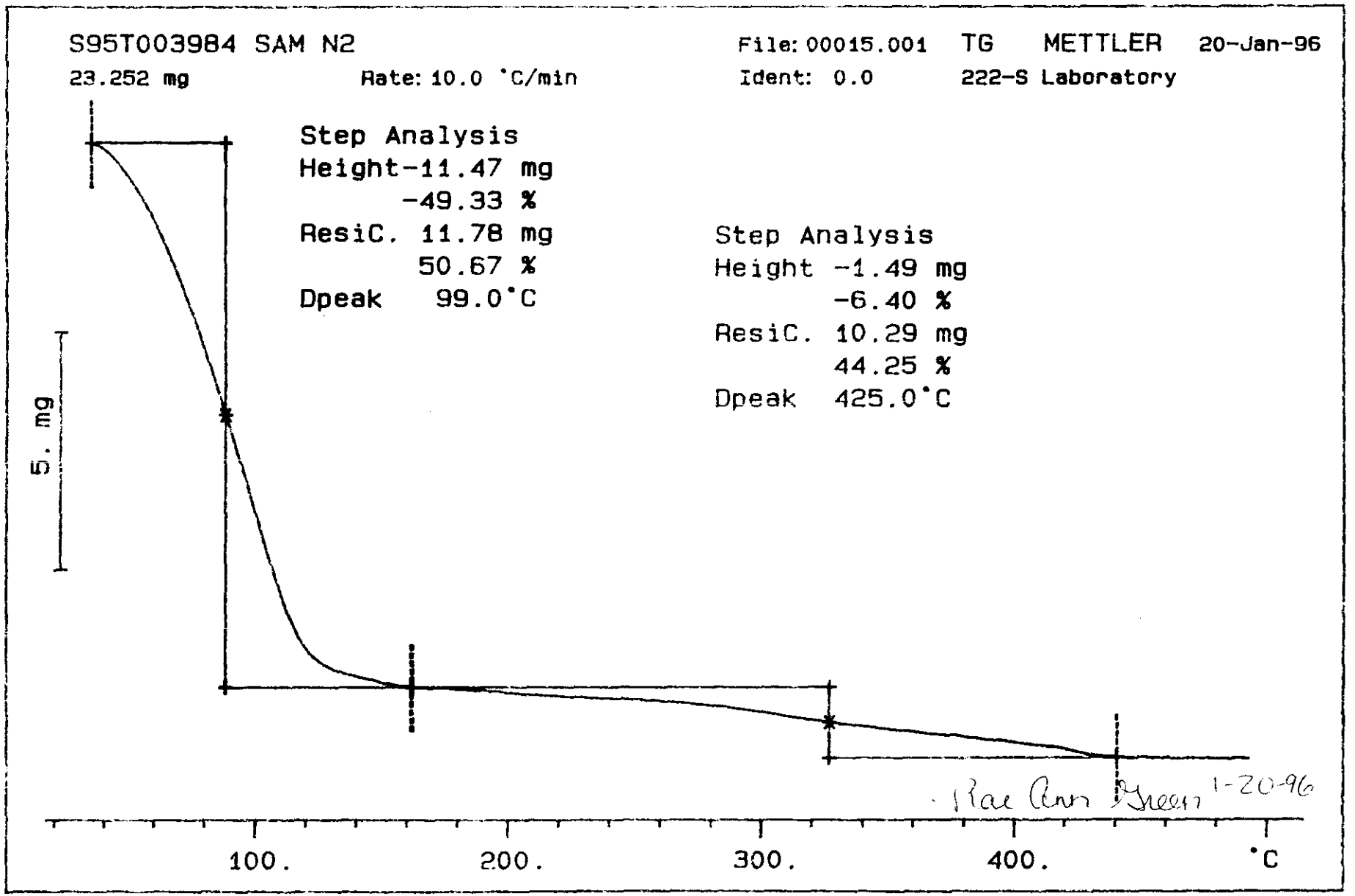


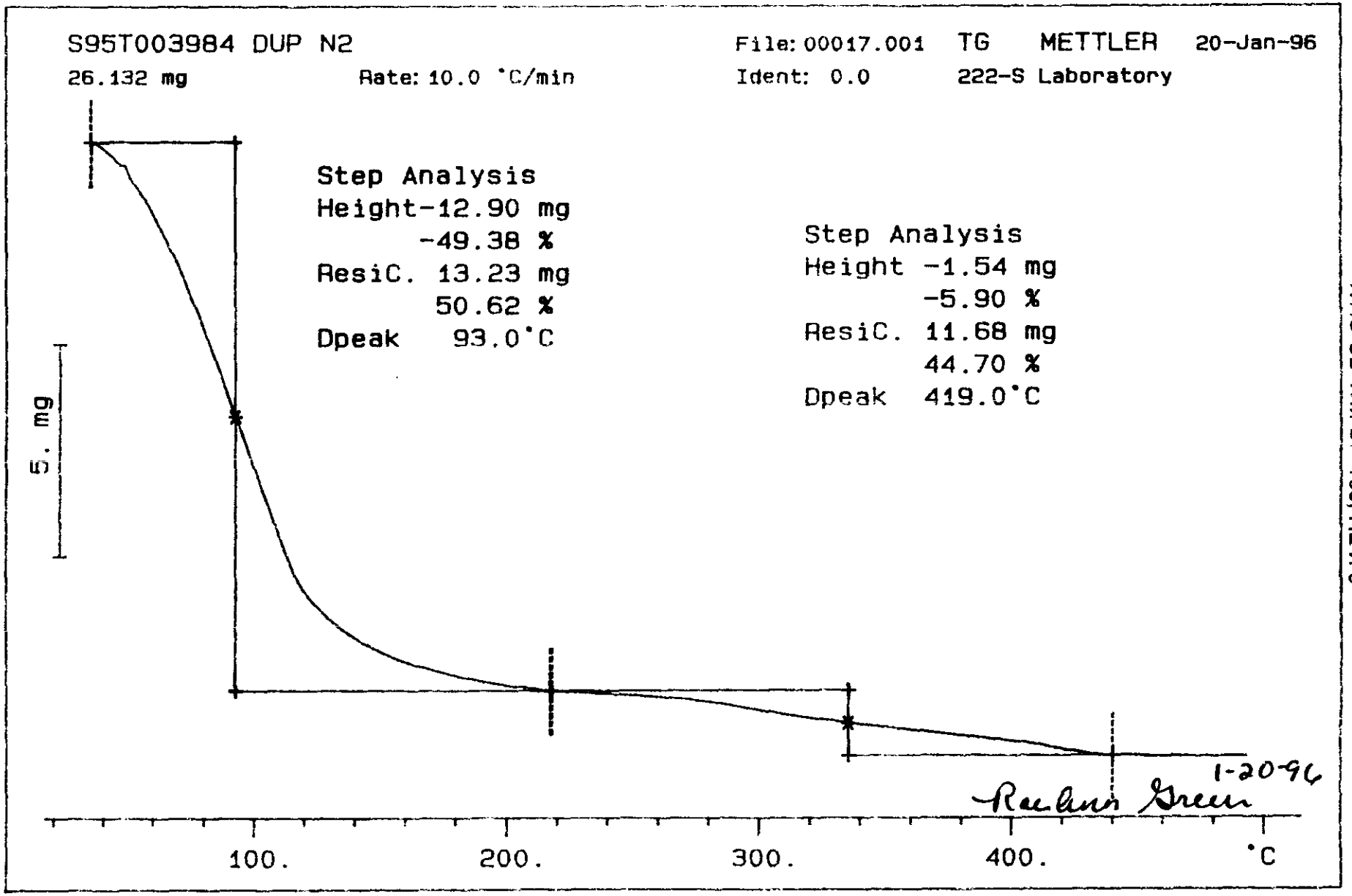

S95T003982 SAM N2
40.906 mg
Rate: 10.0 °C/min
File: 00007.001
Ident: 0.0
TG METTLER 19-Jan-96
222-S Laboratory
Step Analysis
Height -20.48 mg
-50.06 %
ResiC. 20.43 mg
49.94 %
Dpeak 125.0°C
Step Analysis
Height -2.20 mg
-5.38 %
ResiC. 18.23 mg
44.55 %
10. mg
100.
200.
300.
400.
°C
Rae Ann Green
1-19-96




S95T003983 SAM N2
30.216 mg
Rate: 10.0 °C/min
File: 00011.001 TG METTLER 19-Jan-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height -15.04 mg
-49.76 %
ResiC. 15.18 mg
50.24 %
Dpeak 91.0°C
Step Analysis
Height -1.66 mg
-5.50 %
ResiC. 13.51 mg
44.71 %
10. mg
TG1
Rae Ann Green
1-19-96
100.
200.
300.
400.
°C


S95T003983 DUP N2
23.490 mg
Rate: 10.0 °C/min
File: 00013.001 TG METTLER 19-Jan-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height -11.72 mg
-49.91 %
ResiC. 11.77 mg
50.09 %
Dpeak 81.0°C
Step Analysis
Height -1.31 mg
-5.59 %
ResiC. 10.45 mg
44.50 %
Dpeak 417.0°C
20.
5. mg
Rae Lynn Green
1-19-96
100.
200.
300.
400.
°C


S95T003984 SAM N2
23.252 mg
Rate: 10.0 °C/min
File: 00015.001 TG METTLER 20-Jan-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height -11.47 mg
-49.33 %
ResiC. 11.78 mg
50.67 %
Dpeak 99.0°C
Step Analysis
Height -1.49 mg
-6.40 %
ResiC. 10.29 mg
44.25 %
Dpeak 425.0°C
5. mg
100.
200.
300.
400.
°C
Rae Ann Green 1-20-96


S95T003984 DUP N2
26.132 mg
Rate: 10.0 °C/min
File: 00017.001 TG METTLER 20-Jan-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height -12.90 mg
-49.38 %
ResiC. 13.23 mg
50.62 %
Dpeak 93.0°C
Step Analysis
Height -1.54 mg
-5.90 %
ResiC. 11.68 mg
44.70 %
Dpeak 419.0°C
5. mg
100.
200.
300.
400.
°C
1-20-96

LABCORE Data Entry Template for Worklist# 4848

Analyst: RS **Instrument:** TGA0 1 **Book #** 15N8-A

Method: LA-560-112 Rev/Mod B 2-1
LAD-1-26-96

Worklist Comment: Please run AN-102 TGAs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	LIQUID	59.2	60.22	N/A	%
95000227	AN-102 GRAB	2 SAMPLE	S96T000005	0		TGA-01	LIQUID	N/A	49.09		%
95000227	AN-102 GRAB	3 DUP	S96T000005	0		TGA-01	LIQUID	49.09	49.10	N/A	%
95000227	AN-102 GRAB	4 SAMPLE	S96T000006	0		TGA-01	LIQUID	N/A	47.61		%
95000227	AN-102 GRAB	5 DUP	S96T000006	0		TGA-01	LIQUID	47.61	47.17	N/A	%

Final page for worklist # 4848

Rae Ann Dean 1-22-96
Analyst Signature **Date**

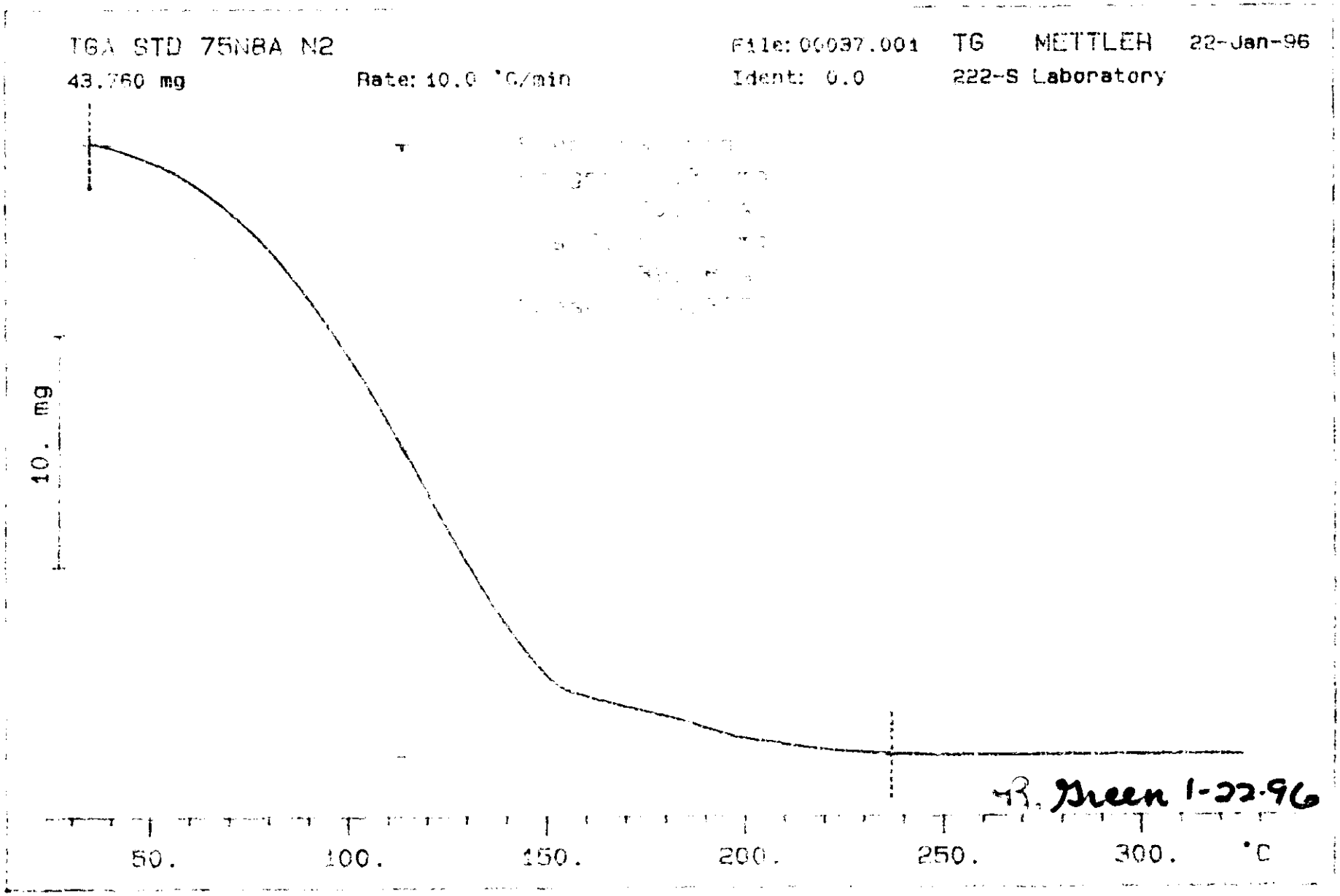
1-24-96
Analyst Signature **Date**

Verified by Blandina Valenzuela
1-26-96

Data Entry Comments: S96T000005 produced a second weight loss step of 6.35%.
S96T000006 produced a second weight loss step of 6.50%.

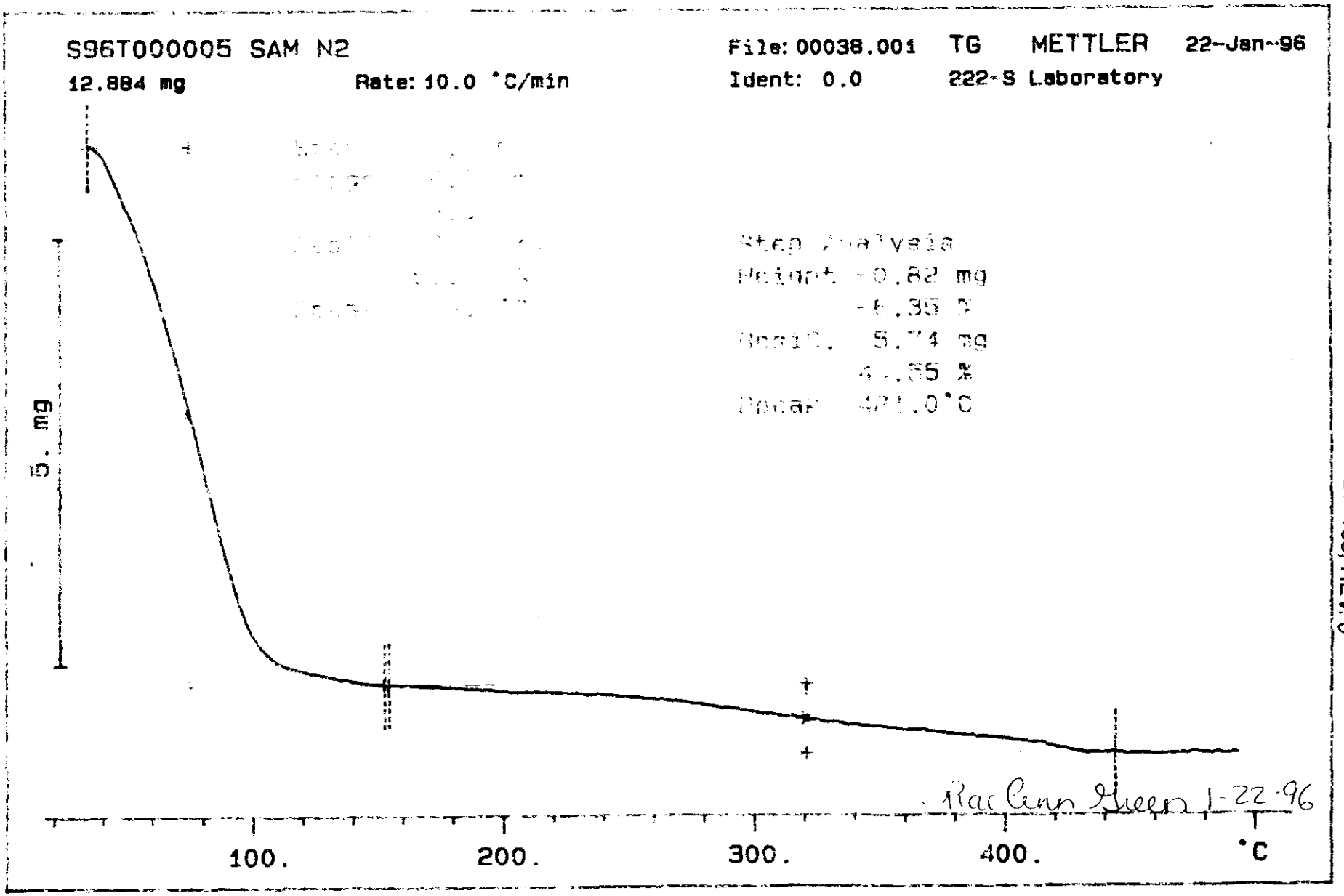
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 106 TO 110.



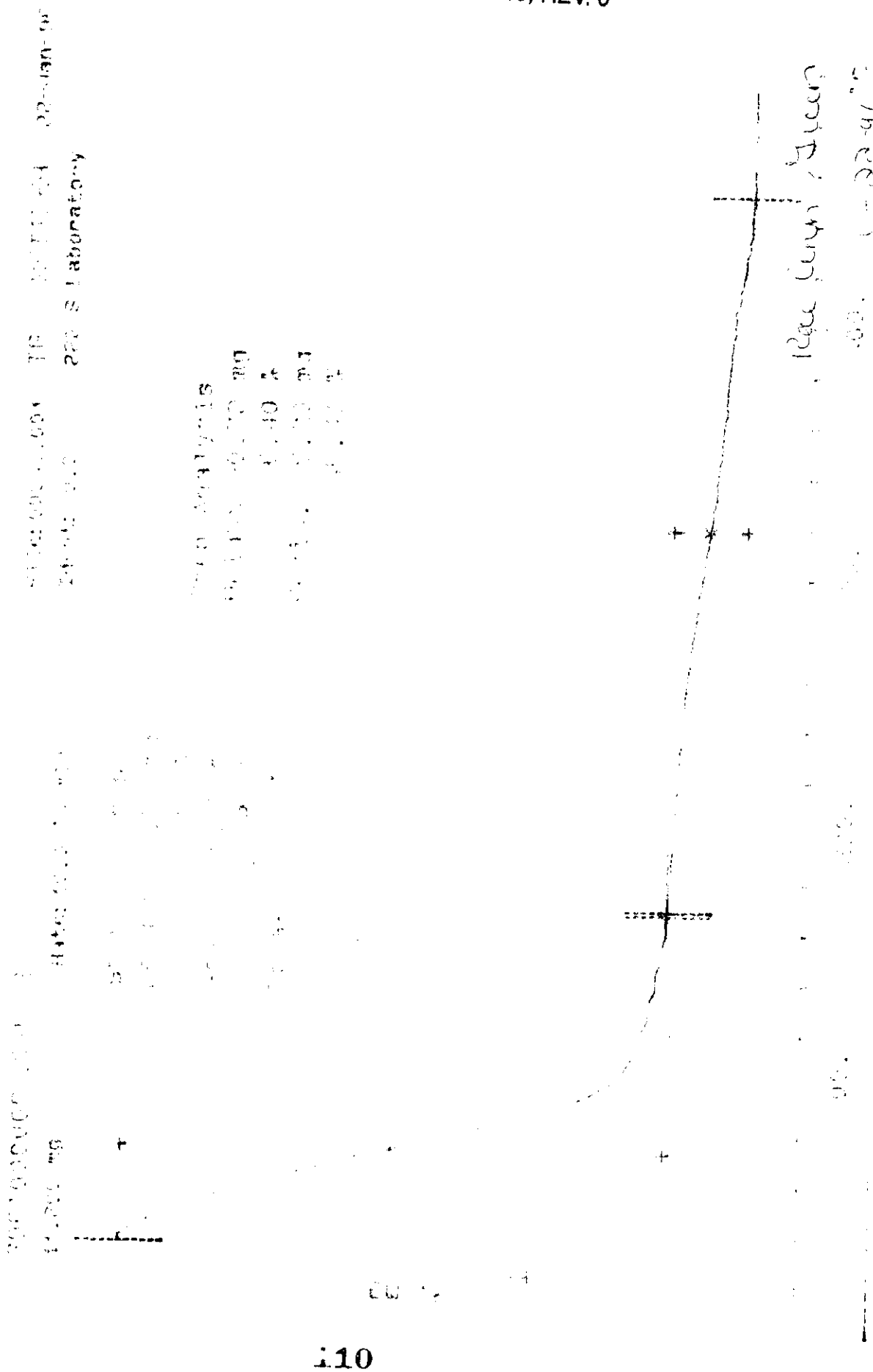
907

R. Green 1-22-96



Rae Ann Green
1-22-96

Rae Ann Green
1-22-96



LABCORE Data Entry Template for Worklist# 4859

Analyst: ADP **Instrument:** TGA0 **Book #** 75NEA

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

Worklist Comment: Please run AN-102 TGAs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	LIQUID	59.2	60.43	N/A	%
95000222	AN-102 GRAB	2 SAMPLE	S95T003868	0		TGA-01	LIQUID	N/A	~~24.29~~ 48.58	1/24/96	%
95000222	AN-102 GRAB	3 DUP	S95T003868	0		TGA-01	LIQUID	~~46.43~~ 48.58	49.35	N/A	%
95000222	AN-102 GRAB	4 TRIPL	S95T003868	0		TGA-01	LIQUID	48.58	48.2	N/A	%

Final page for worklist # 4859

Sent to Hanford for Signatures

Analyst Signature **Date** 1/24/96

Verified by Blandina Valenzuela 1/26/96

Analyst Signature **Date**

Data Entry Comments: Sample produced an additional weight loss step of 7.49% up to 800°C. The results reported are the sum of the weight loss steps.

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

LABCORE Data Entry Template for Worklist# 4859

Analyst: ADP **Instrument:** TGA0 **Book #** 75N87

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

Worklist Comment: Please run AN-102 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	LIQUID			N/A	%
95000222	AN-102 GRAB	2	SAMPLE	S95T003867	0		TGA-01	LIQUID	N/A			%
95000222	AN-102 GRAB	3	DUP	S95T003867	0		TGA-01	LIQUID			N/A	%
95000222	AN-102 GRAB	4	SAMPLE	S95T003868	0		TGA-01	LIQUID	N/A			%
95000222	AN-102 GRAB	5	DUP	S95T003868	0		TGA-01	LIQUID			N/A	%

Final page for worklist # 4859

Anthony Turner 1-12-96

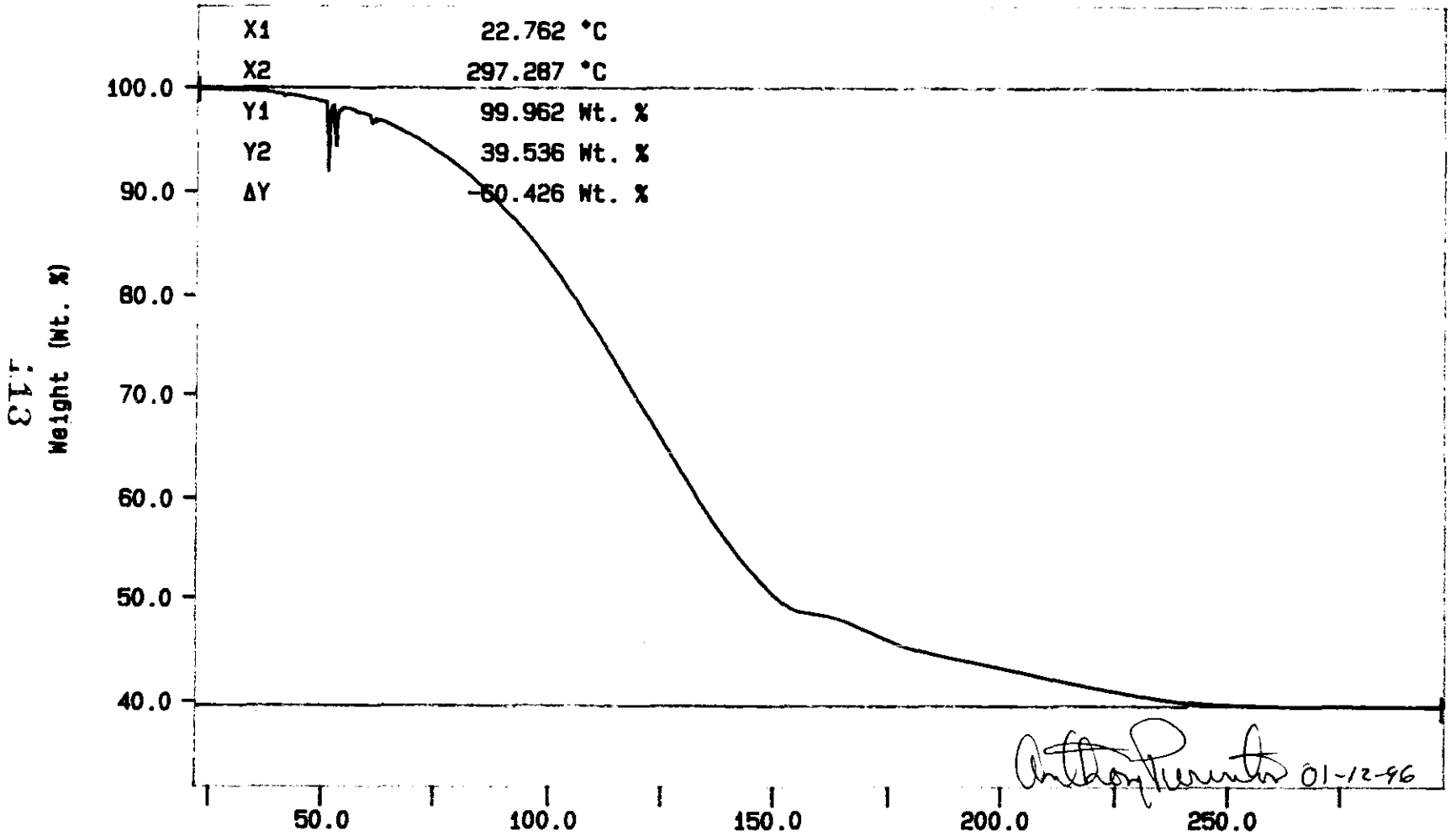
Analyst Signature **Date**

Analyst Signature **Date**

Data Entry Comments:

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

Curve 1: TGA
File info: TER011201 Fri Jan 12 22:38:29 1996
Sample Weight: 14.491 mg
65N8-A Terliq
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 5 TO 116.



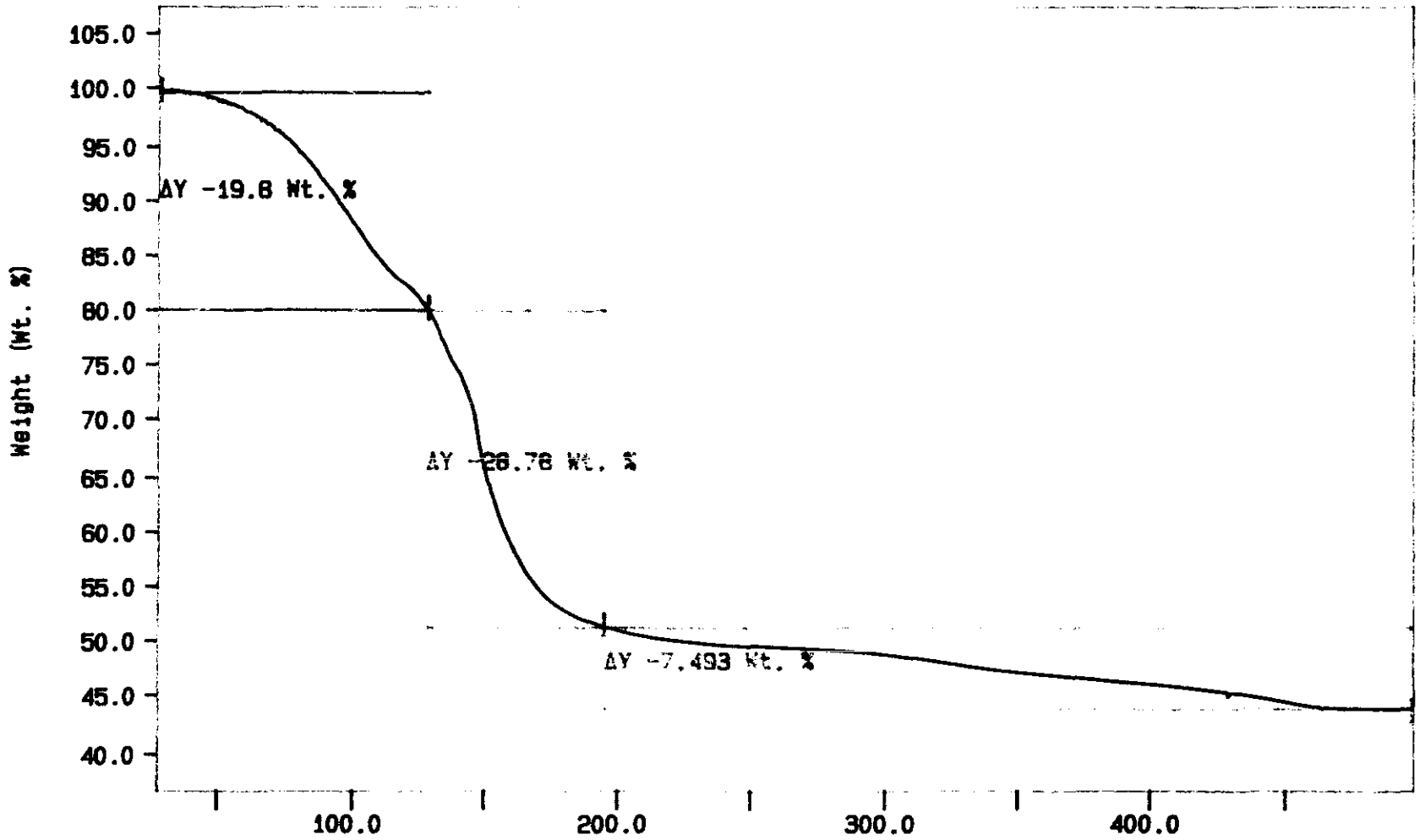
N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Jan 12 22:57:18 1996

WHC-SD-WM-DP-165, REV. 0

.13

Curve 1: TGA
File info: SAM011294 Sat Jan 13 03:16:11 1996
Sample Weight: 17.921 mg
S95T003868 SAM

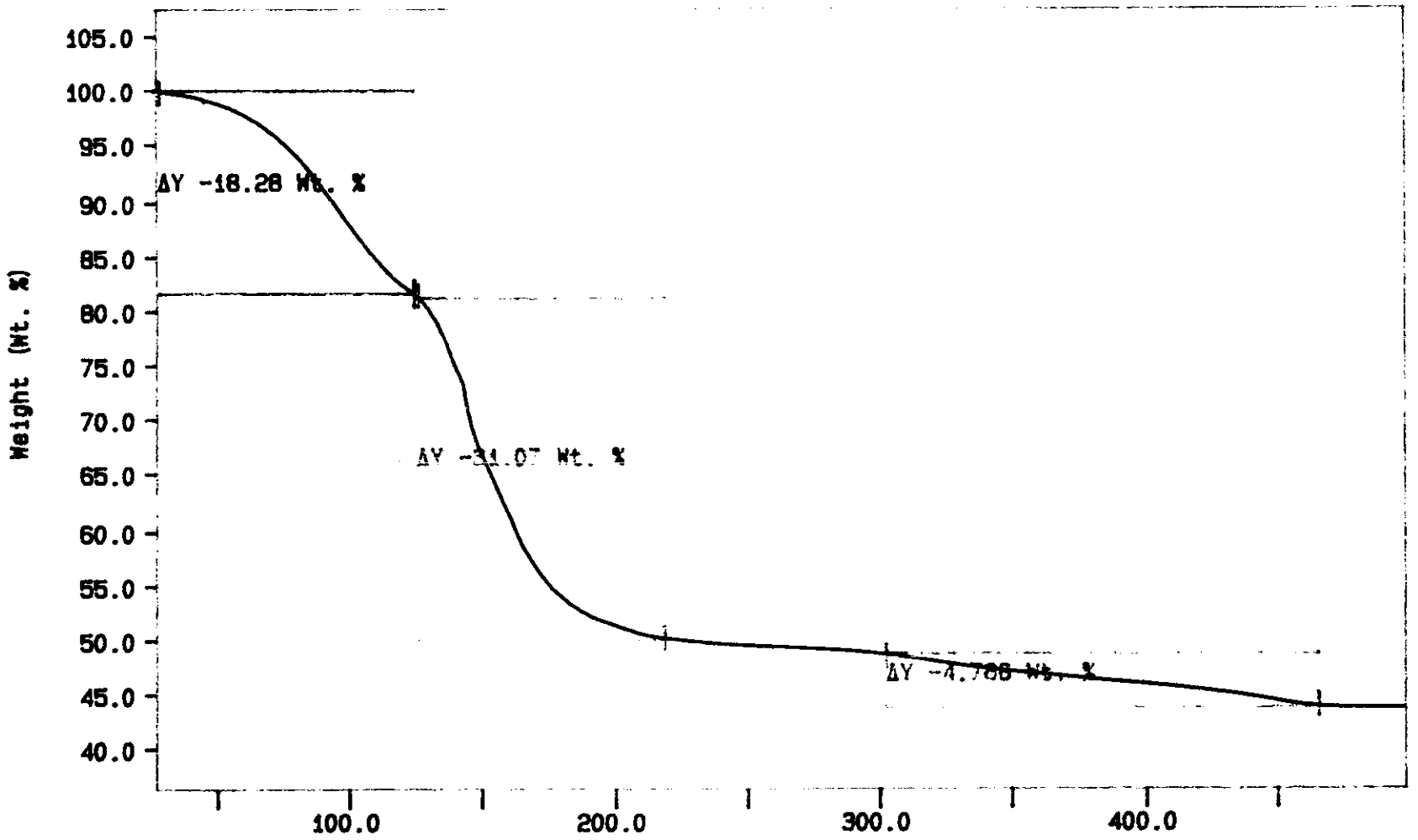


10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Jan 13 03:19:02 1996

WHC-SD-WM-DP-165, REV.0

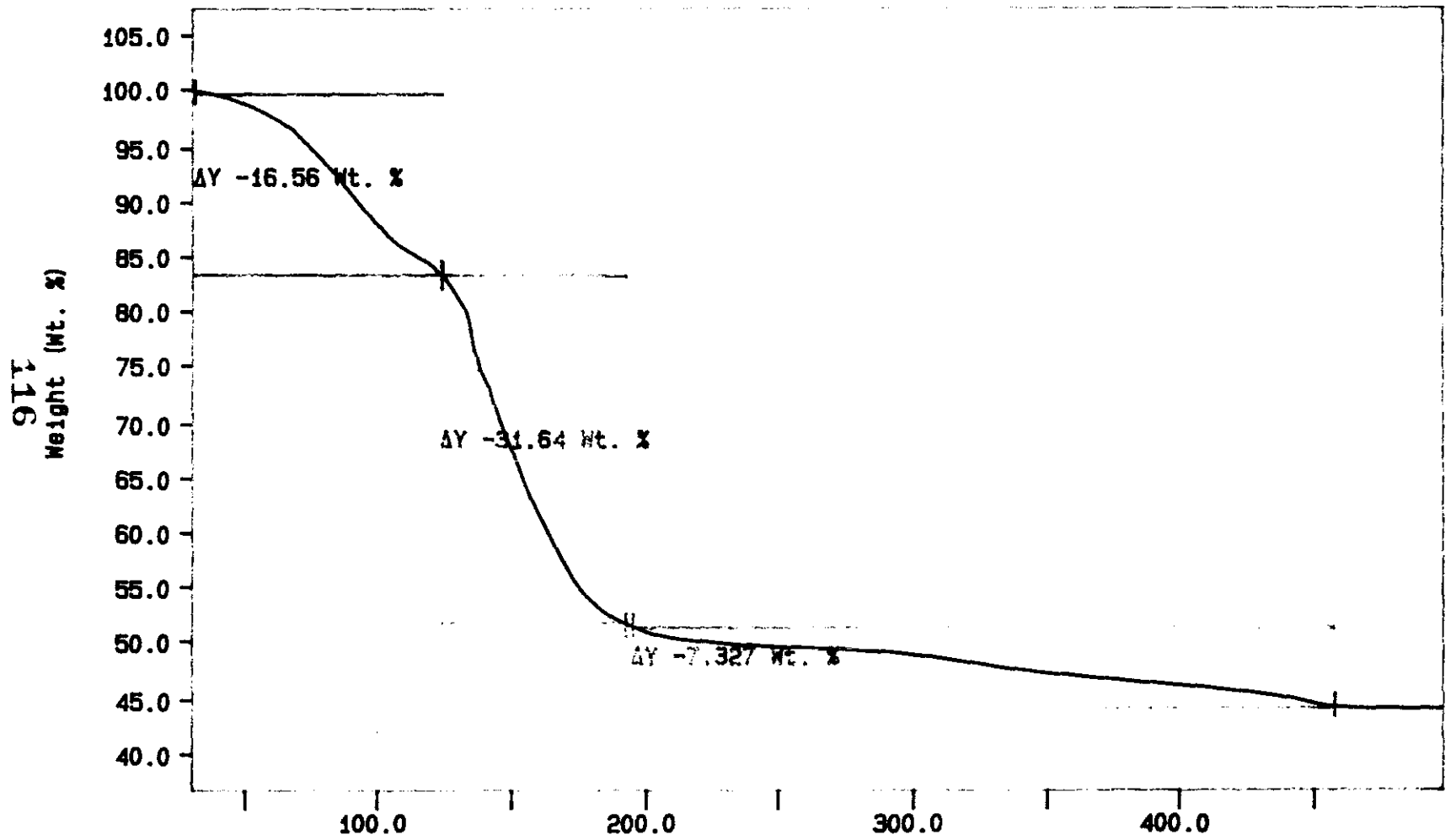
Curve 1: TGA
File info: SAM011206 Sat Jan 13 05:32:27 1996
Sample Weight: 20.596 mg
S95T003868 DUP



10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Jan 13 06:58:26 1996

Curve 1: TGA
File info: SAM011205 Sat Jan 13 04:22:07 1996
Sample Weight: 19.627 mg
S95T00386X TRP
8 pot 1/30/96



T16

10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Jan 13 04:26:29 1996

LABCORE Data Entry Template for Worklist# 4860

Analyst: ADP **Instrument:** TGA0 1 **Book #** 75N8A

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

Worklist Comment: Please run AN-102 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	LIQUID	59.2	60.68*	N/A	%
95000222	AN-102 GRAB	2	SAMPLE	S95T003869	0		TGA-01	LIQUID	N/A	50.13		%
95000222	AN-102 GRAB	3	DUP	S95T003869	0		TGA-01	LIQUID	50.13	50.02	N/A	%
95000222	AN-102 GRAB	4	SAMPLE	S95T003962	0		TGA-01	LIQUID	N/A	99.99		%
95000222	AN-102 GRAB	5	DUP	S95T003962	0		TGA-01	LIQUID	99.99	100.09	N/A	%

Final page for worklist # 4860

Cathy Purnell 1-12-96
Analyst Signature **Date**

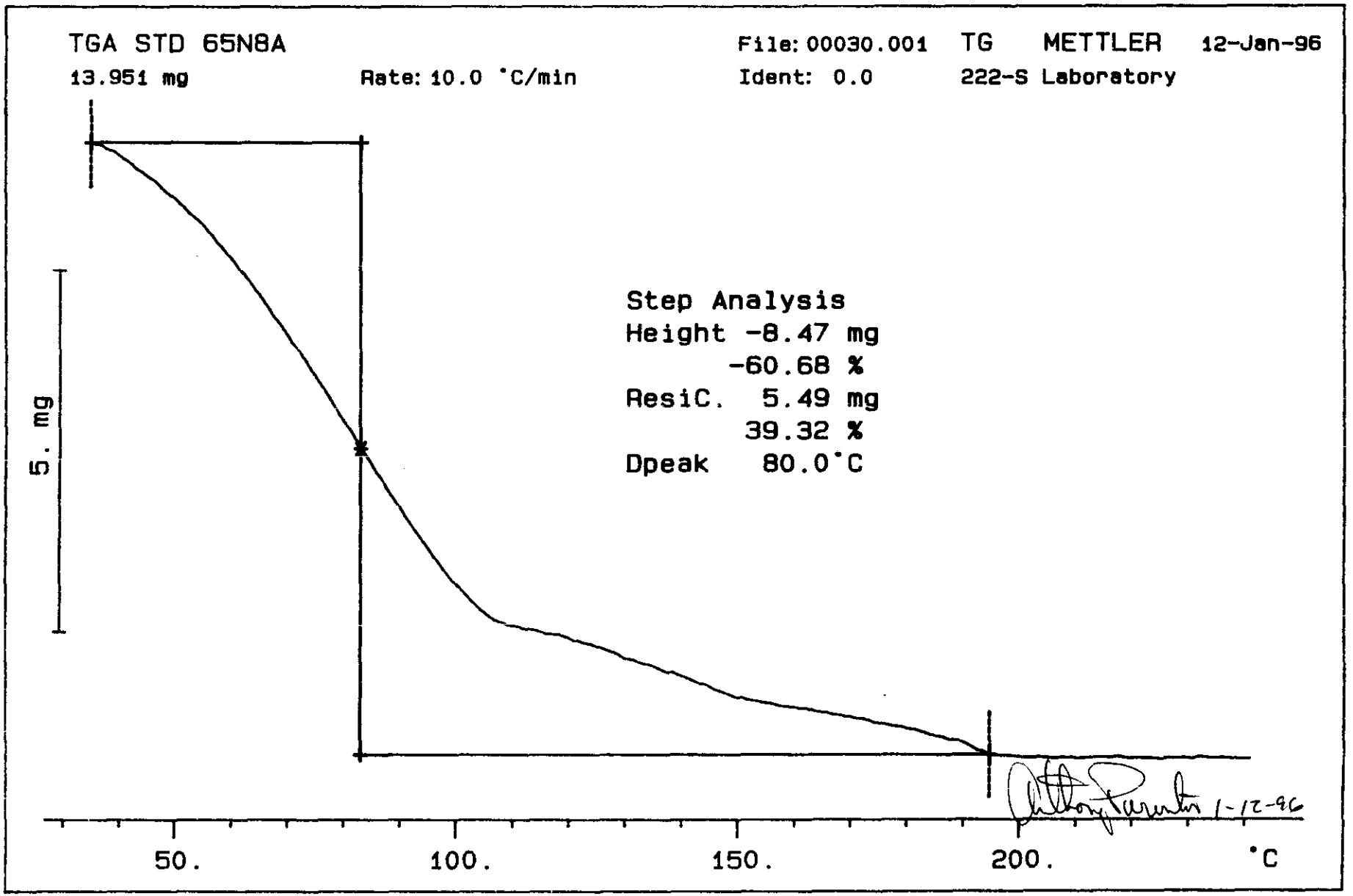
K H Wade 1-16-96
Analyst Signature **Date**

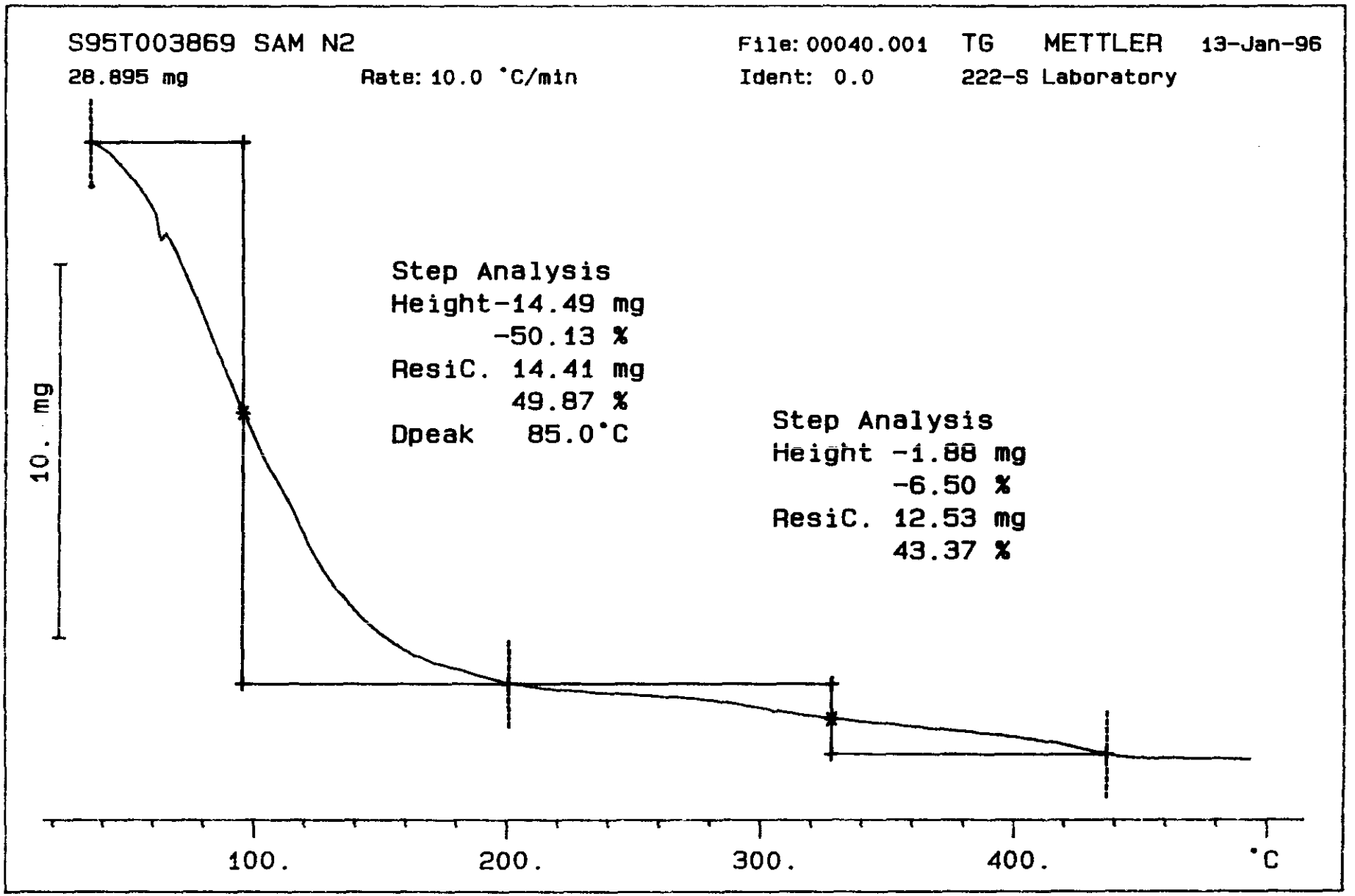
Verified by Blandina Velazquez 1/17/96

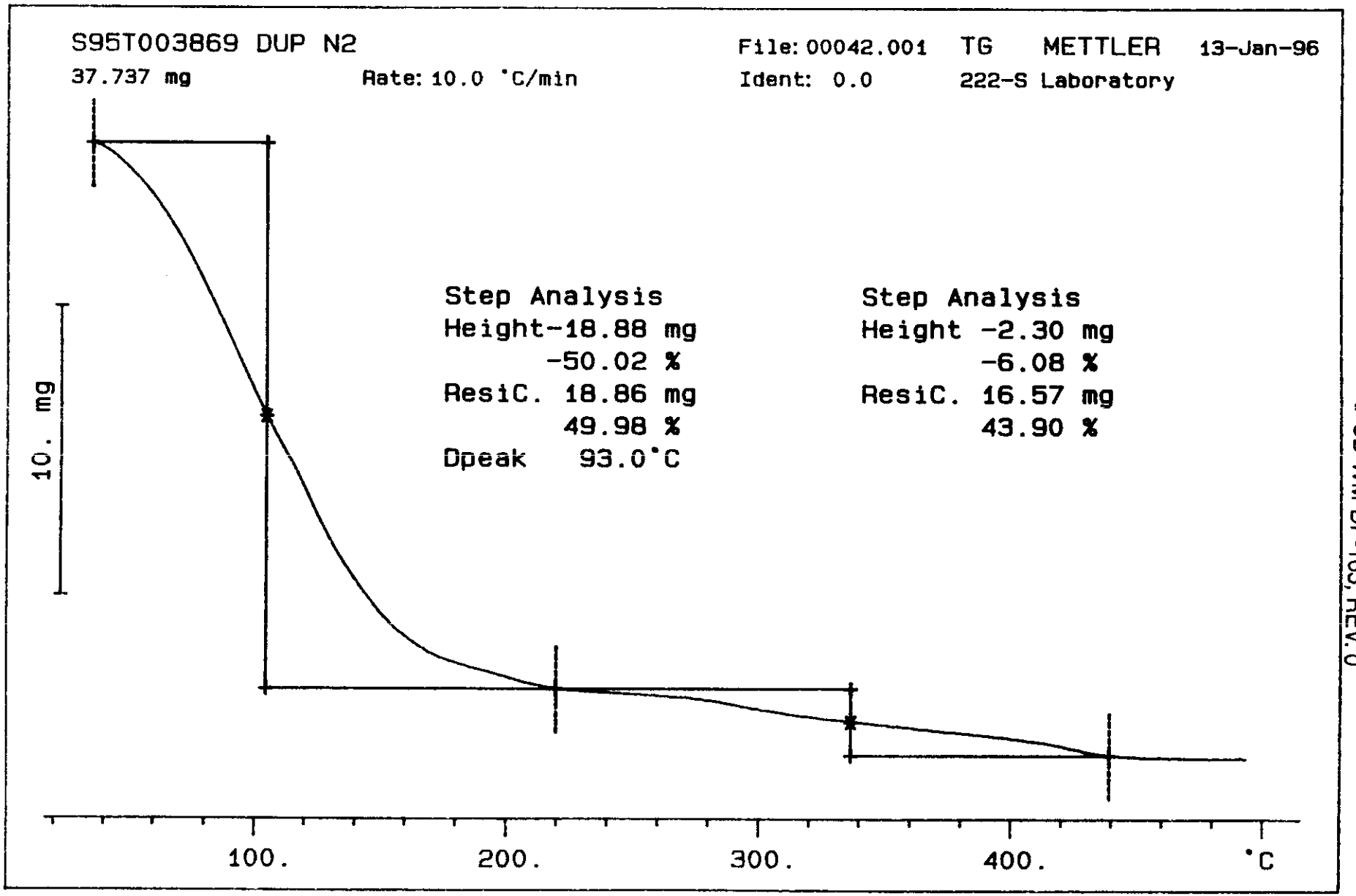
Data Entry Comments:

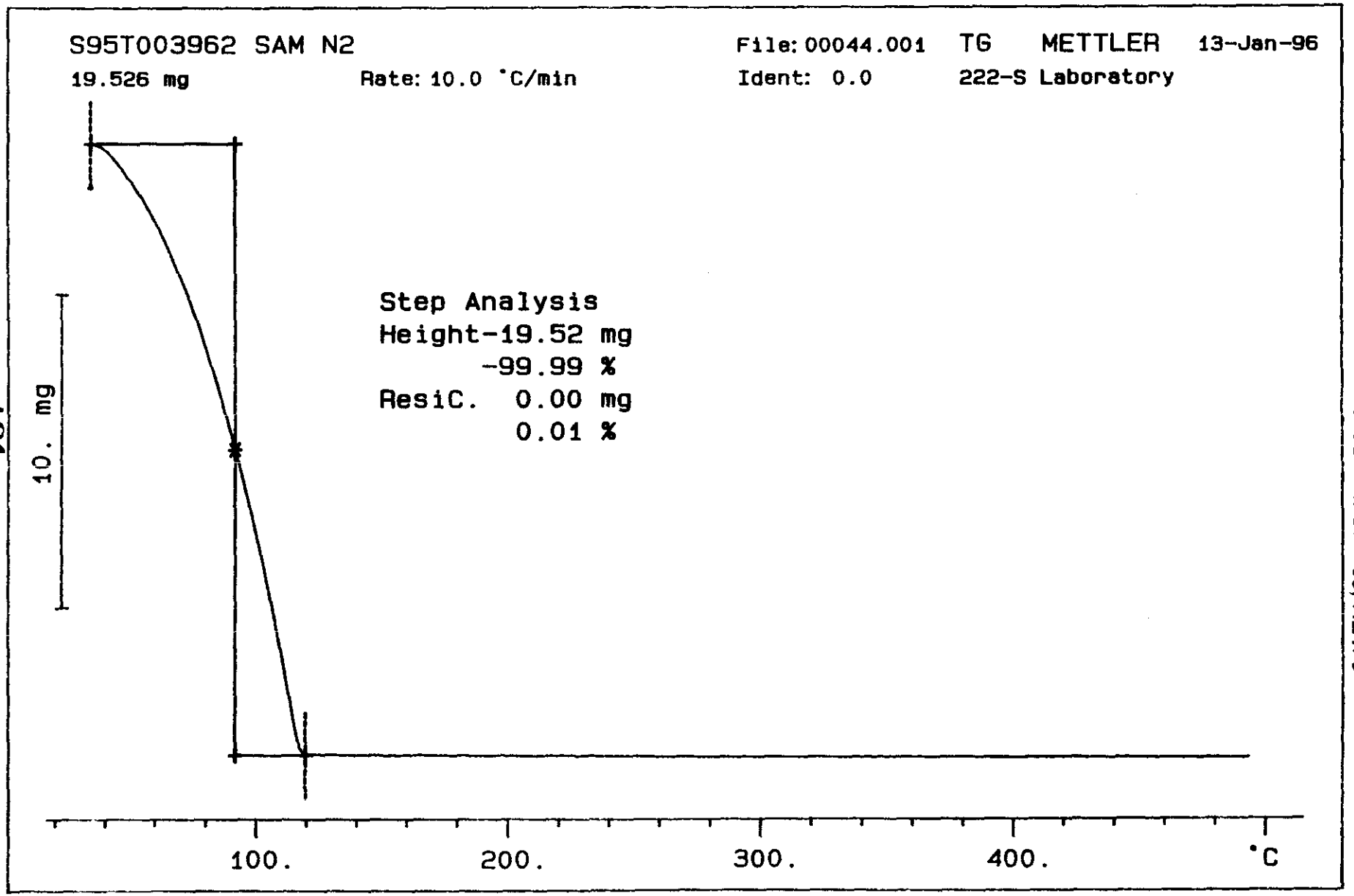
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

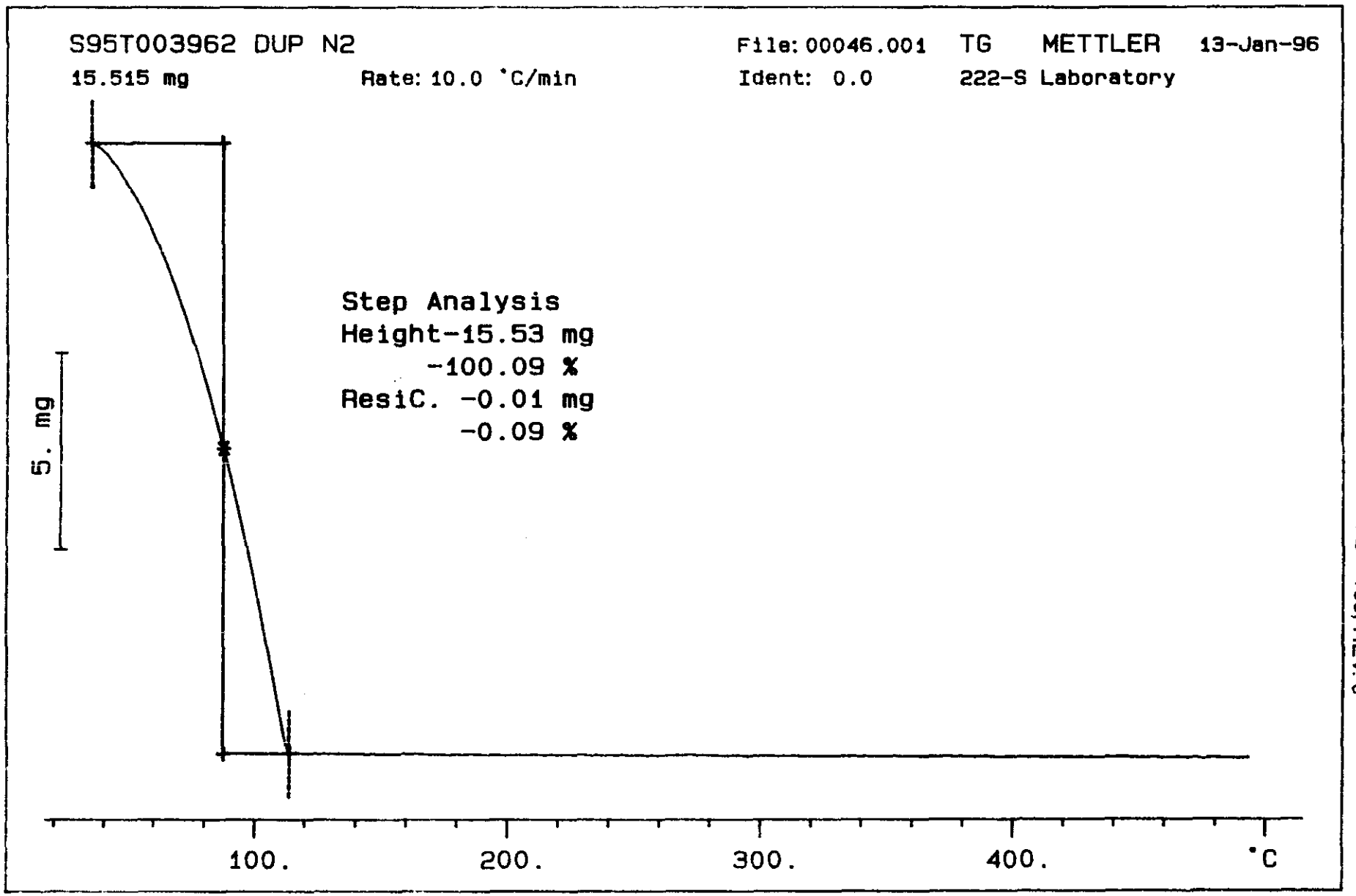
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 118 TO 132.




S95T003869 SAM N2
28.895 mg
Rate: 10.0 °C/min
File: 00040.001
Ident: 0.0
TG METTLER 13-Jan-96
222-S Laboratory
Step Analysis
Height -14.49 mg
-50.13 %
ResiC. 14.41 mg
49.87 %
Dpeak 85.0°C
Step Analysis
Height -1.88 mg
-6.50 %
ResiC. 12.53 mg
43.37 %
10. mg
100.
200.
300.
400.
°C


S95T003869 DUP N2
37.737 mg
Rate: 10.0 °C/min
File: 00042.001 TG METTLER 13-Jan-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height -18.88 mg
-50.02 %
ResiC. 18.86 mg
49.98 %
Dpeak 93.0°C
Step Analysis
Height -2.30 mg
-6.08 %
ResiC. 16.57 mg
43.90 %
10. mg
100.
200.
300.
400.
°C


S95T003962 SAM N2
19.526 mg
Rate: 10.0 °C/min
File: 00044.001
Ident: 0.0
TG METTLER 13-Jan-96
222-S Laboratory
Step Analysis
Height-19.52 mg
-99.99 %
ResiC. 0.00 mg
0.01 %
10. mg
100.
200.
300.
400.
°C


S95T003962 DUP N2
File: 00046.001 TG METTLER 13-Jan-96
15.515 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory
Step Analysis
Height-15.53 mg
-100.09 %
ResiC. -0.01 mg
-0.09 %
5. mg
100.
200.
300.
400.
°C

LABCORE Data Entry Template for Worklist# 5124

Analyst: SMF **Instrument:** TGA0 3 **Book #** 75N8-A

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

Worklist Comment: Please run AN-102 TGAs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-03	LIQUID	59.2	60.16	N/A	%
95000222	AN-102 GRAB	2 SAMPLE	S95T004133	0		TGA-03	LIQUID	N/A	45.26		%
95000222	AN-102 GRAB	3 DUP	S95T004133	0		TGA-03	LIQUID	45.26	48.80	N/A	%
95000222	AN-102 GRAB	4 SAMPLE	S95T004135	0		TGA-03	LIQUID	N/A	48.45		%
95000222	AN-102 GRAB	5 DUP	S95T004135	0		TGA-03	LIQUID	48.95	51.03	N/A	%

Final page for worklist # 5124

Blandina Valenzuela for SMF 1/26/96
Analyst Signature **Date**

Verified by Blandina Valenzuela 1/26/96

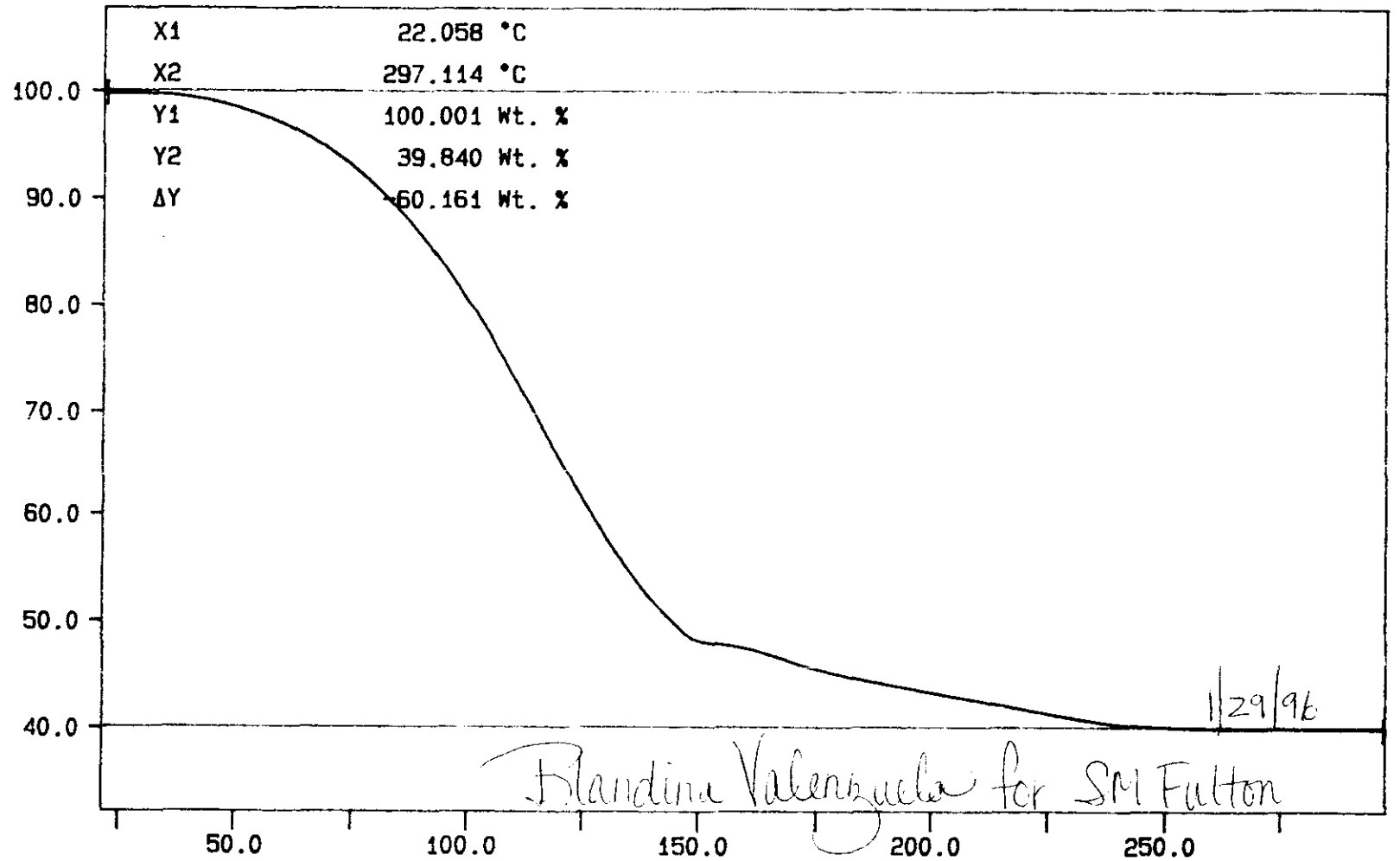
Linda Conley 1/26/96
Analyst Signature **Date**

Data Entry Comments: S95T004133 produced a second weight loss step of 10.87%
S95T004135 ~~produced~~ 1/26/96 BDV results were the sum of 3 weight loss steps.

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

Curve 1: TGA
File info: TER012501 Thu Jan 25 06:37:00 1996
Sample Weight: 10.981 mg
Terliq 75N8-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 124 TO 128.

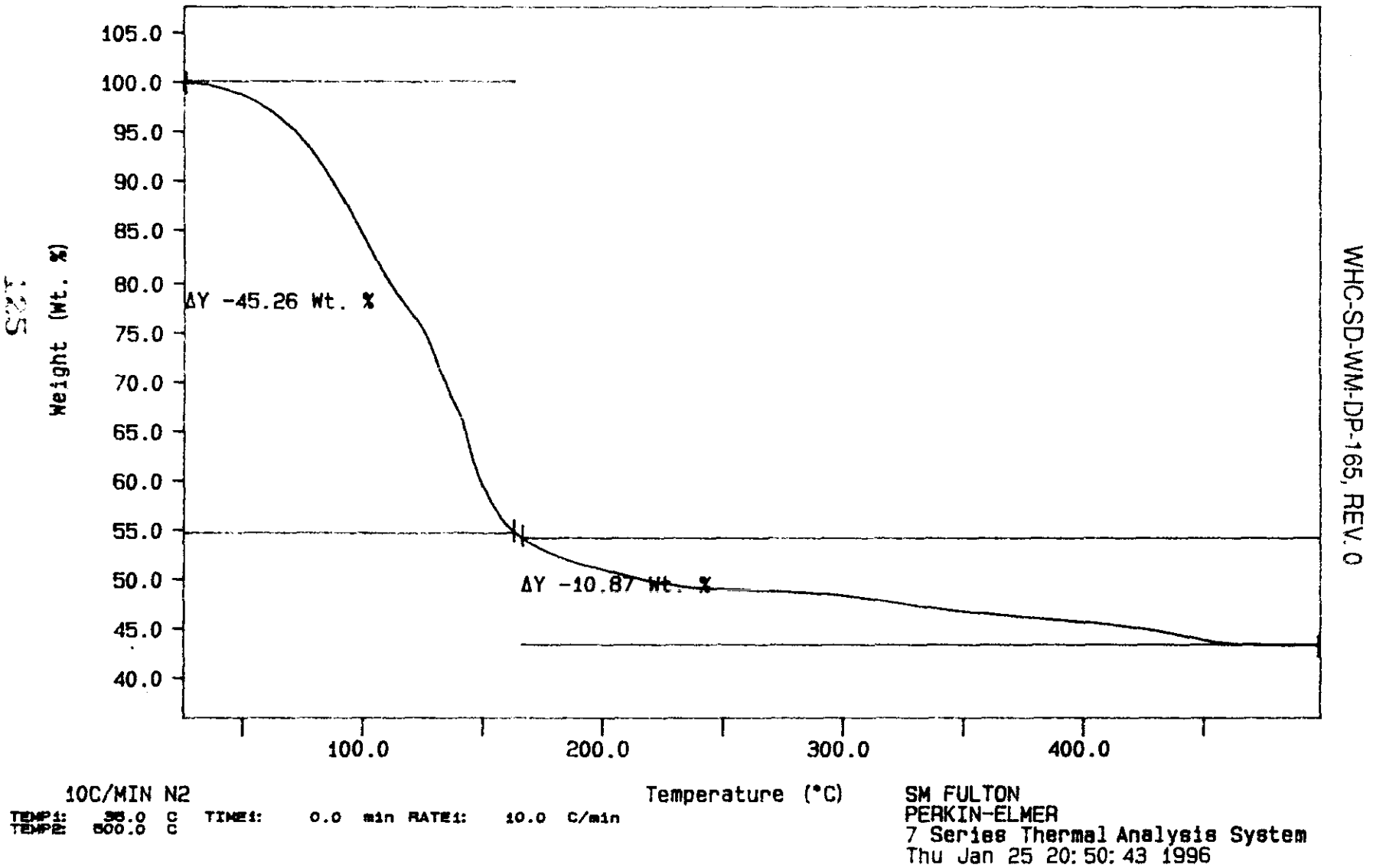


N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jan 25 06:45:22 1996

124

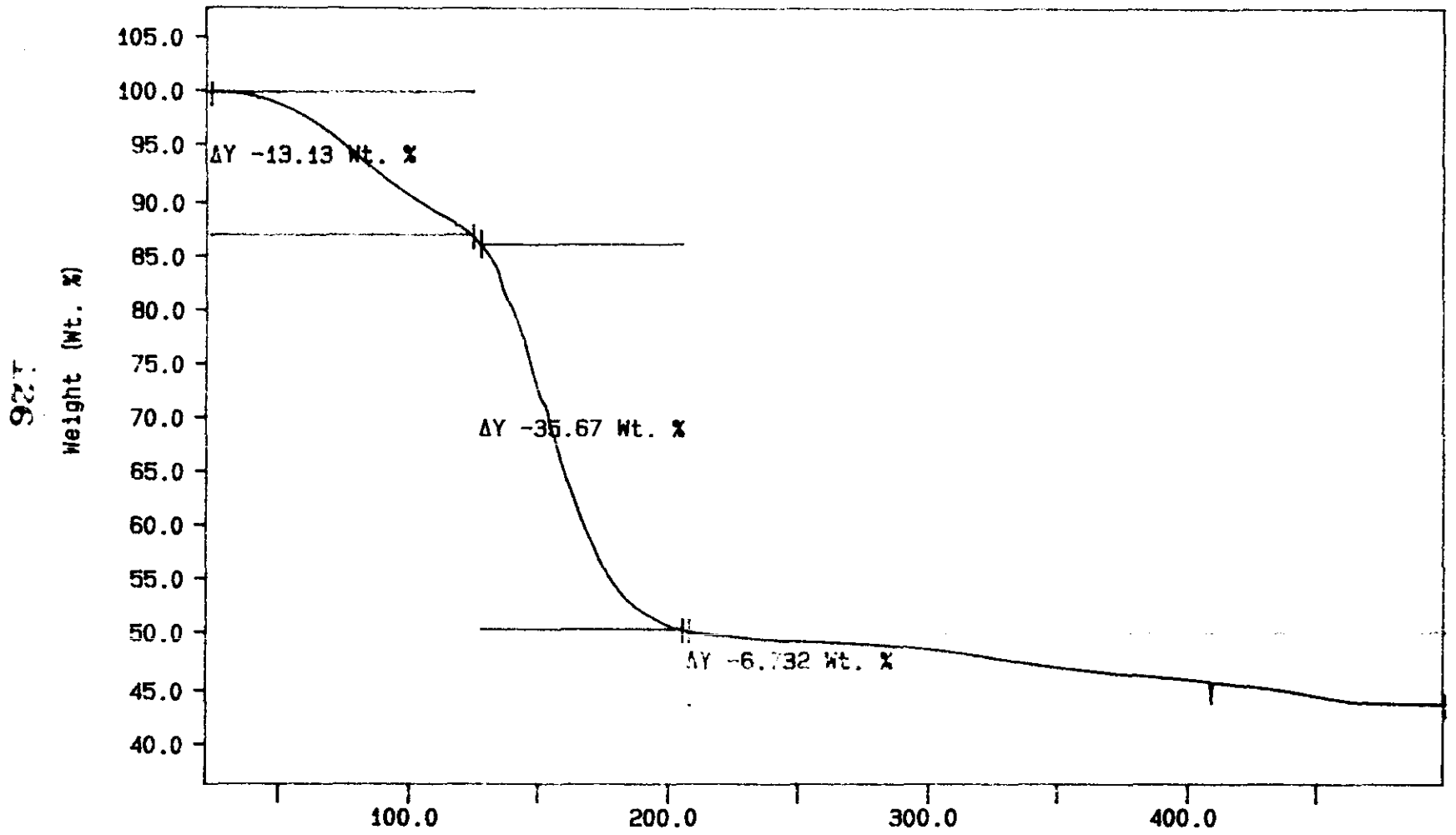
Curve 1: TGA
File info: SAM012503 Thu Jan 25 16:38:36 1996
Sample Weight: 13.406 mg
S95T004133



10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jan 25 20:50:43 1996

Curve 1: TGA
File info: SAM012504 Thu Jan 25 22:19:37 1996
Sample Weight: 23.238 mg
S95T004133 DUP



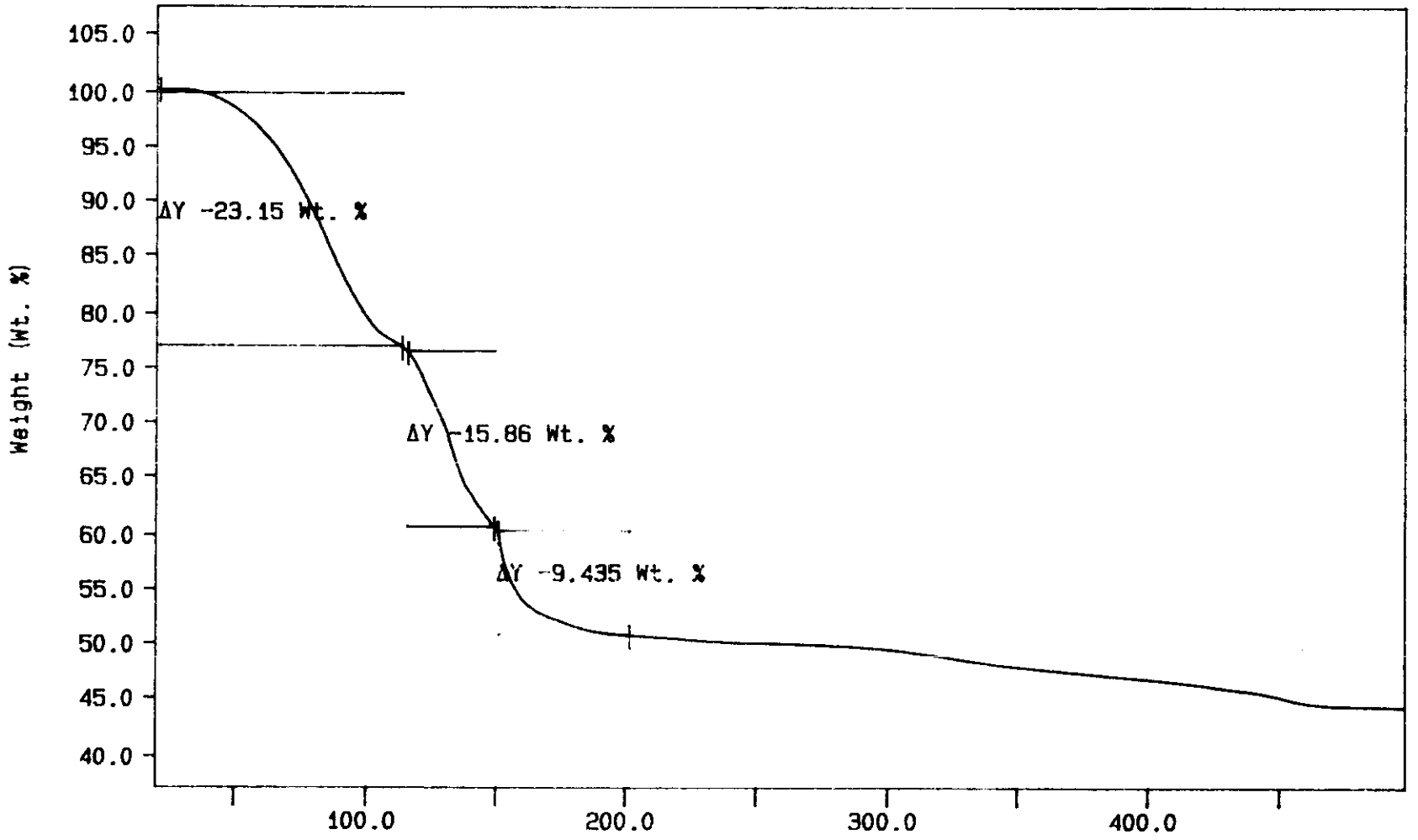
92.26

WHC-SD-WM-DP-165, REV. 0

10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jan 25 23:32:29 1996

Curve 1: TGA
File info: SAM012501 Thu Jan 25 13:27:51 1996
Sample Weight: 7.865 mg
S95T004135

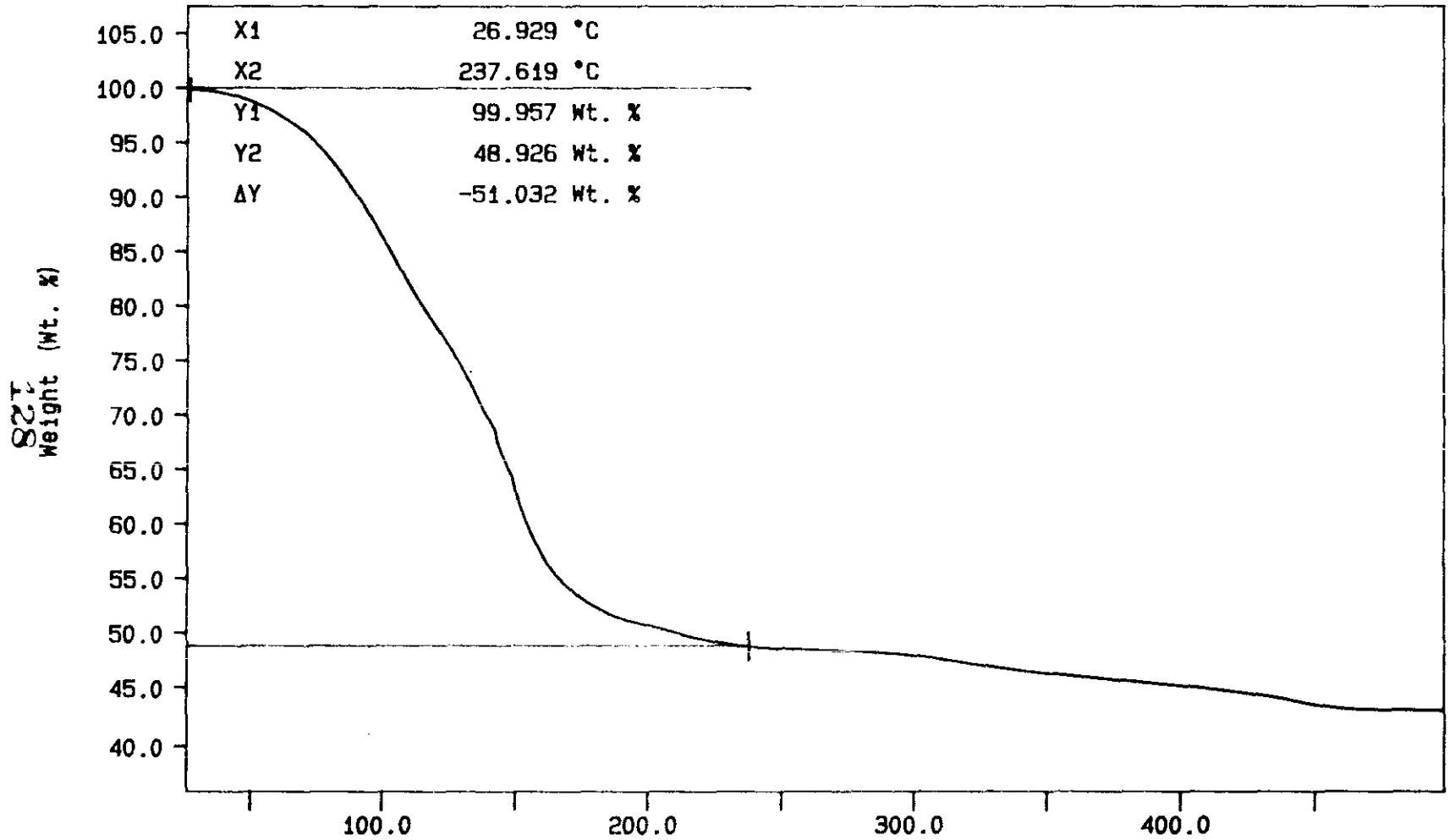


10C/MIN N2
TEMP1: 95.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jan 25 13:29:43 1996

WHC-SD-WM-DP-165, REV 0

Curve 1: TGA
File info: SAM012502 Thu Jan 25 14:38:14 1996
Sample Weight: 16.941 mg
S95T004135 DUP



10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jan 25 15:44:20 1996

LABCORE Data Entry Template for Worklist# 5125

Analyst: ADP **Instrument:** TGA0 3 **Book #** 75N8.A

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

Worklist Comment: Please run AN-102 TGAs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-03	LIQUID	59.2	60.20	N/A	%
95000222	AN-102 GRAB	2 SAMPLE	S95T003867	0		TGA-03	LIQUID	N/A	49.74		%
95000222	AN-102 GRAB	3 DUP	S95T003867	0		TGA-03	LIQUID	49.74	48.54	N/A	%

Final page for worklist # 5125

Blinaina Valenzuela for ADP
Analyst Signature **Date**

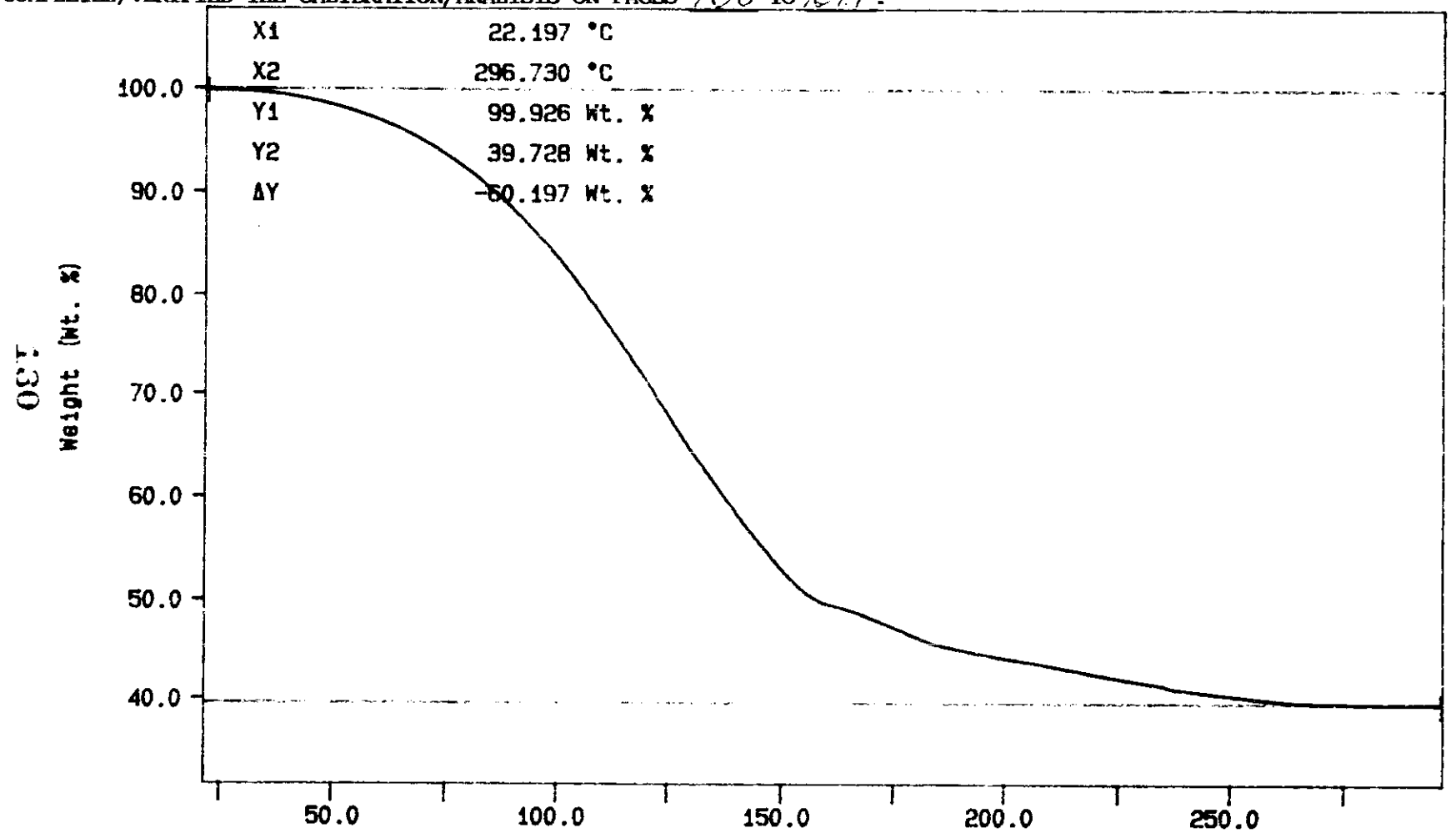
Analyst Signature **Date**

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

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

Curve 1: TGA
File info: TER011901 Fri Jan 19 07:43:54 1996
Sample Weight: 17.367 mg
Terliq 75N8-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 130 TO 131.



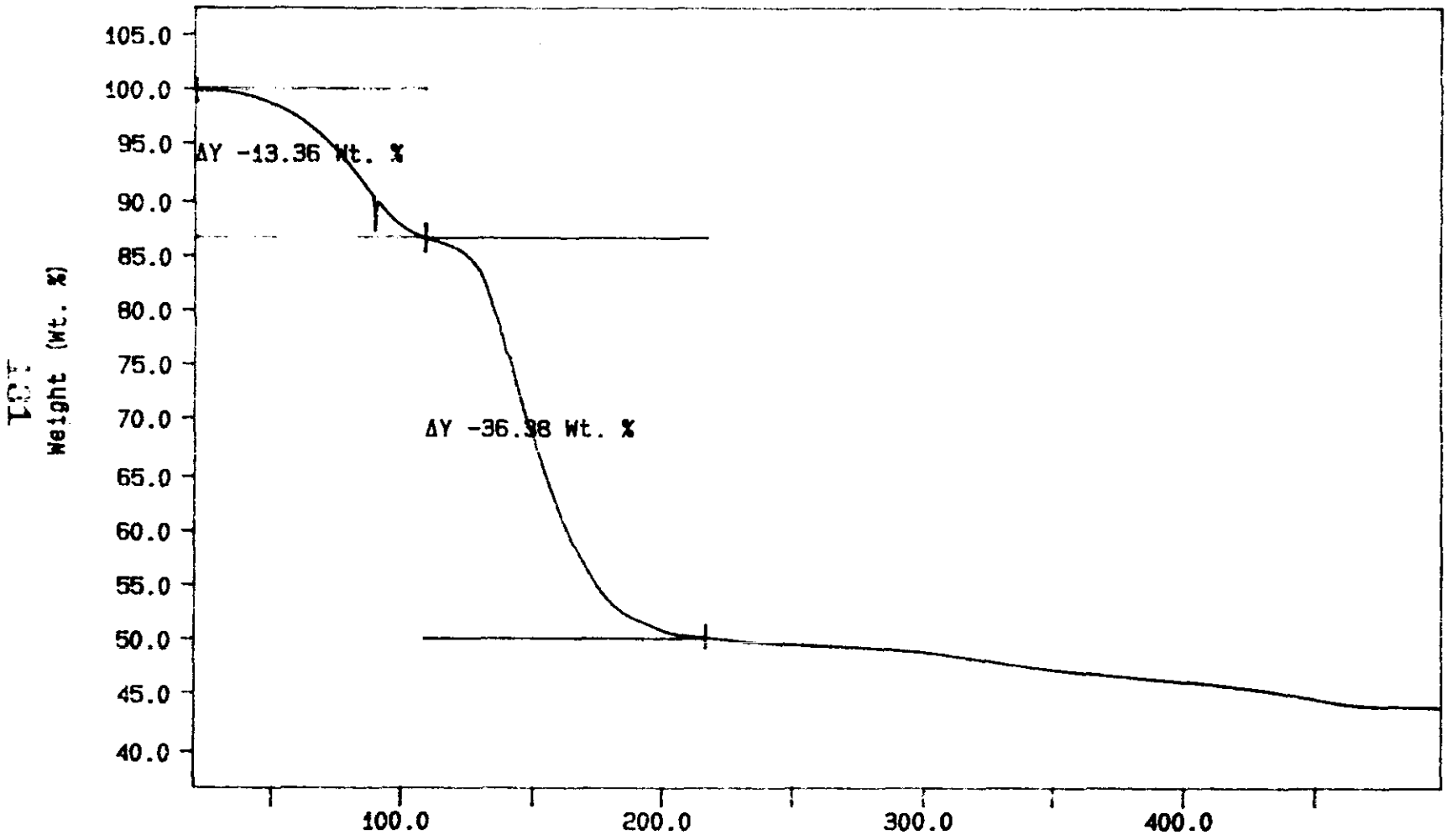
130

N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Jan 29 09:29:25 1996

WHC-SD-WM-DP-165, REV. 0

Curve 1: TGA
File info: SAM011901 Fri Jan 19 14:00:43 1996
Sample Weight: 18.617 mg
S95T003867 SAM

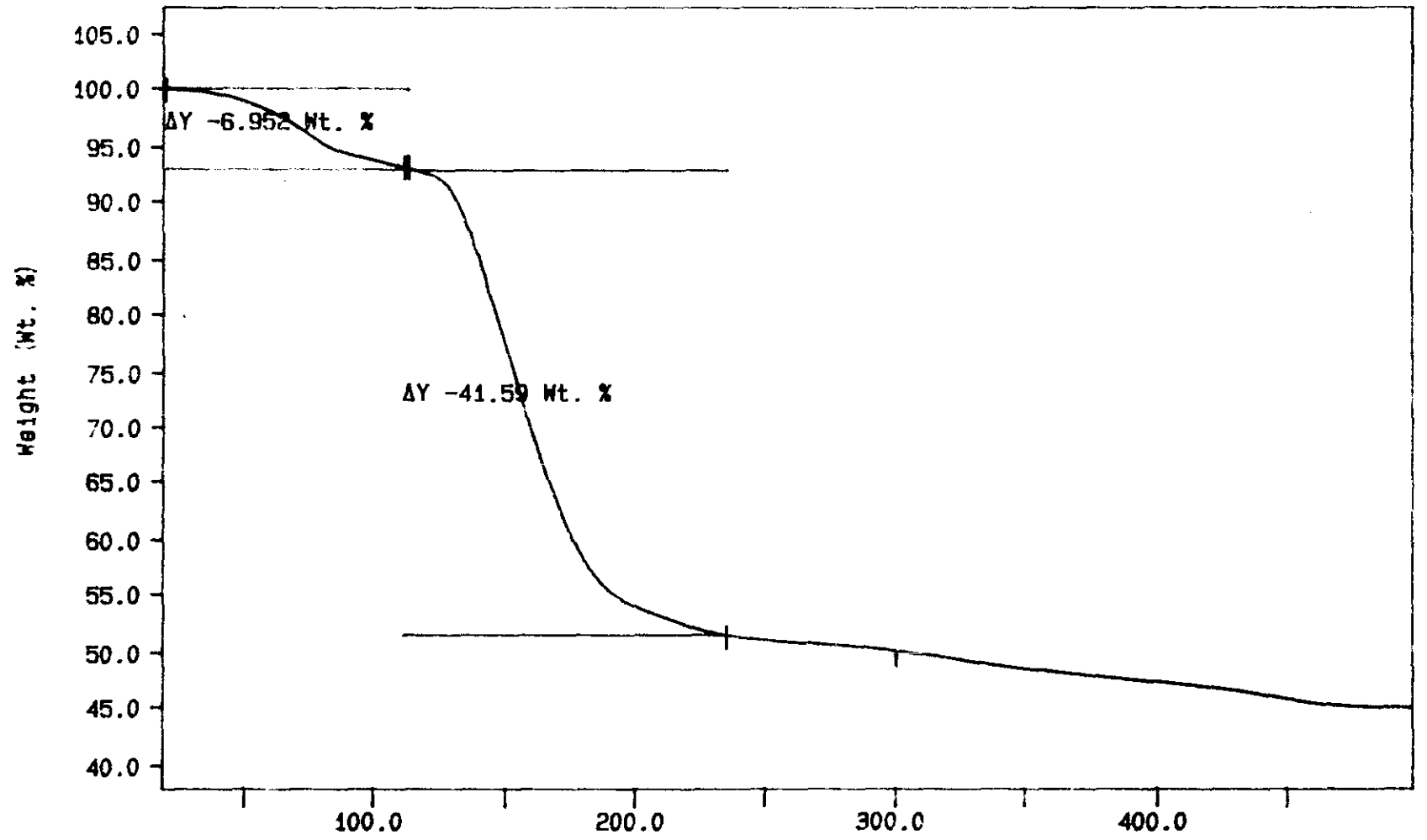


10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Jan 29 09:41:49 1996

WHC-SD-WM-DP-165, REV 0

Curve 1: TGA
File info: SAM011902 Fri Jan 19 15:57:24 1996
Sample Weight: 26.500 mg
S95T003867 DUP



10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Jan 29 09:50:11 1996

131.1

WHC-SD-WM-DP-165, REV 0

LABCORE Data Entry Template for Worklist# 5148

Analyst: ADP **Instrument:** TGA0 3 **Book #** 75N8A

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

Worklist Comment: Please run AN-102 TGAs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-03	SOLID	59.2	59.55	N/A	%
95000222	AN-102 GRAB	2 SAMPLE	S95T004137	0		TGA-03	SOLID	N/A	43.35		%
95000222	AN-102 GRAB	3 DUP	S95T004137	0		TGA-03	SOLID	43.35	42.06	N/A	%

Final page for worklist # 5148

See attached for signatures
Analyst Signature **Date** 1-25-96 BDV

Analyst Signature 1-26-96 **Date**

Verified by Pandora Pacheco 1/26/96

Data Entry Comments: Sample produced a second weight loss step of 7.58%

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

LABCORE Data Entry Template for Worklist# 5148

Analyst: ADP **Instrument:** TGA0 _____ **Book #** 100 N 2

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

Worklist Comment: Please run AN-102 TGAs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID			N/A	%
95000222	AN-102 GRAB	2 SAMPLE	S95T004137	0		TGA-01	SOLID	N/A			%
95000222	AN-102 GRAB	3 DUP	S95T004137	0		TGA-01	SOLID			N/A	%
95000222	AN-102 GRAB	4 SAMPLE	S95T004139	0		TGA-01	SOLID	N/A			%
95000222	AN-102 GRAB	5 DUP	S95T004139	0		TGA-01	SOLID			N/A	%

Final page for worklist # 5148

Analyst Signature **Date**

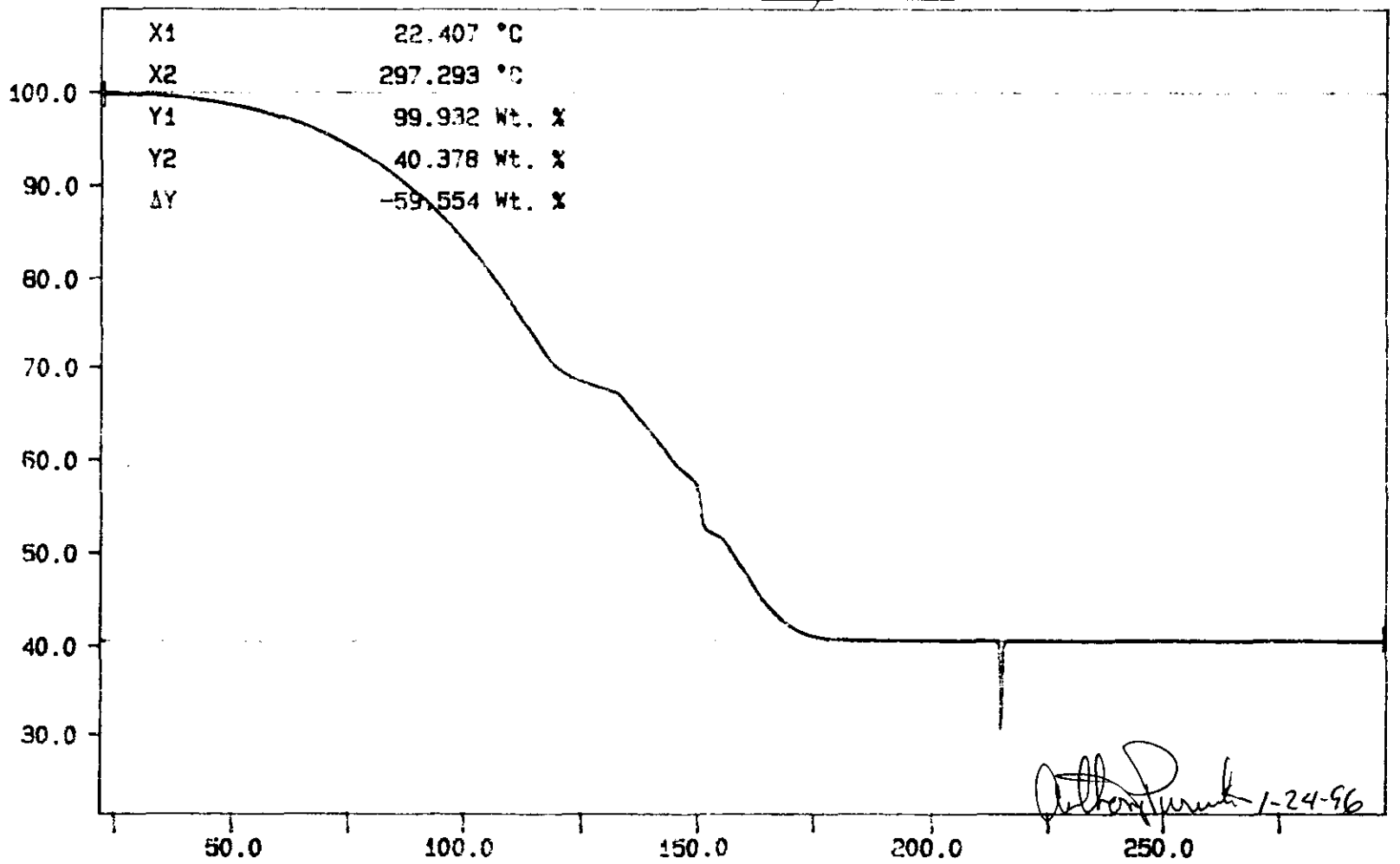
Analyst Signature **Date**

Data Entry Comments:

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

Curve 1: TGA
File info: TER012401 Wed Jan 24 21:17:08 1996
Sample Weight: 14.645 mg
Terliq 75N8-A

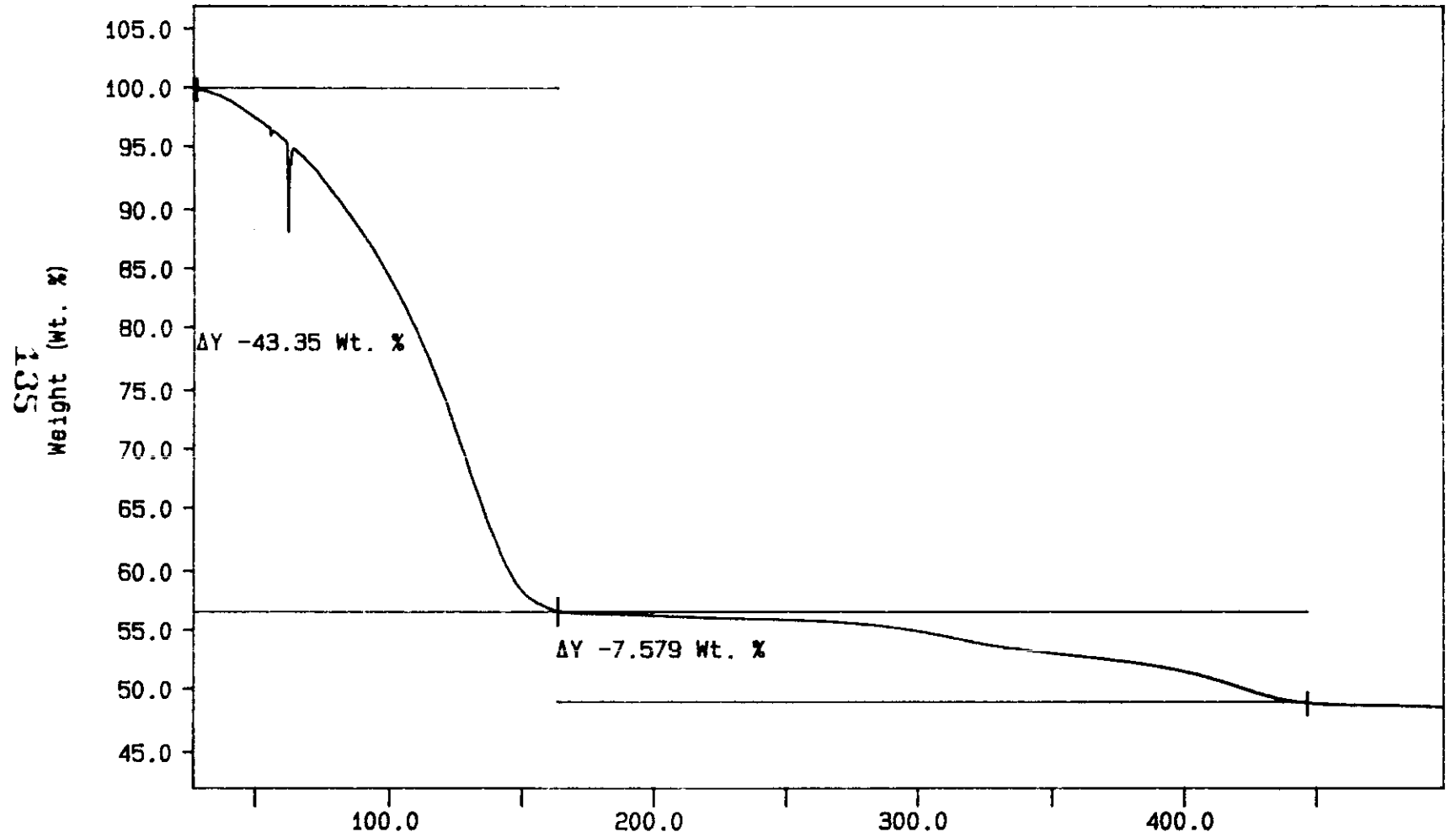
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 134 TO 136.



N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Jan 24 22:18:20 1996

Curve 1: TGA
File info: SAM012402 Thu Jan 25 00:36:35 1996
Sample Weight: 15.096 mg
S95T004137 SAM

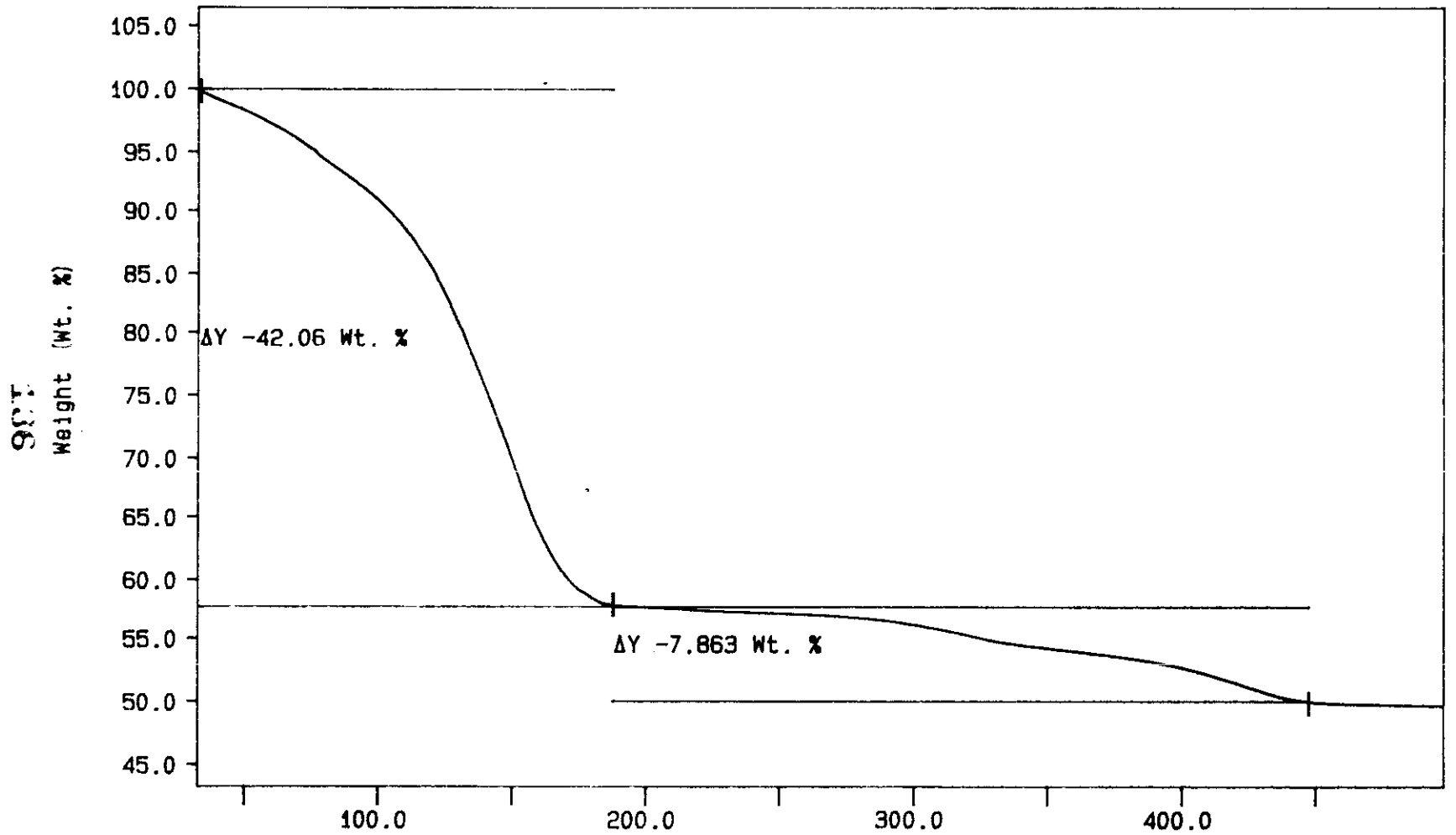


10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jan 25 00:39:16 1996

WHC-SD-WM-DP-165, REV. 0

Curve 1: TGA
File info: SAM012405 Thu Jan 25 01:50:16 1996
Sample Weight: 21.428 mg
S95T004137 DUP



10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Jan 25 01:59:36 1996

WHC-SD-WM-DP-165, REV. 0

LABCORE Data Entry Template for Worklist# 5196

Analyst: SMF **Instrument:** TGA0 1 **Book #** 75N8-A

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

Worklist Comment: Please run AN-102 TGAs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID	59.2	60.76	* N/A	%
95000222	AN-102 GRAB	2 SAMPLE	S95T004139	0		TGA-01	SOLID	N/A	43.50		%
95000222	AN-102 GRAB	3 DUP	S95T004139	0		TGA-01	SOLID	43.50	41.39	N/A	%

Final page for worklist # 5196

Susie M. Sutton 1-25-96 1625
Analyst Signature **Date**

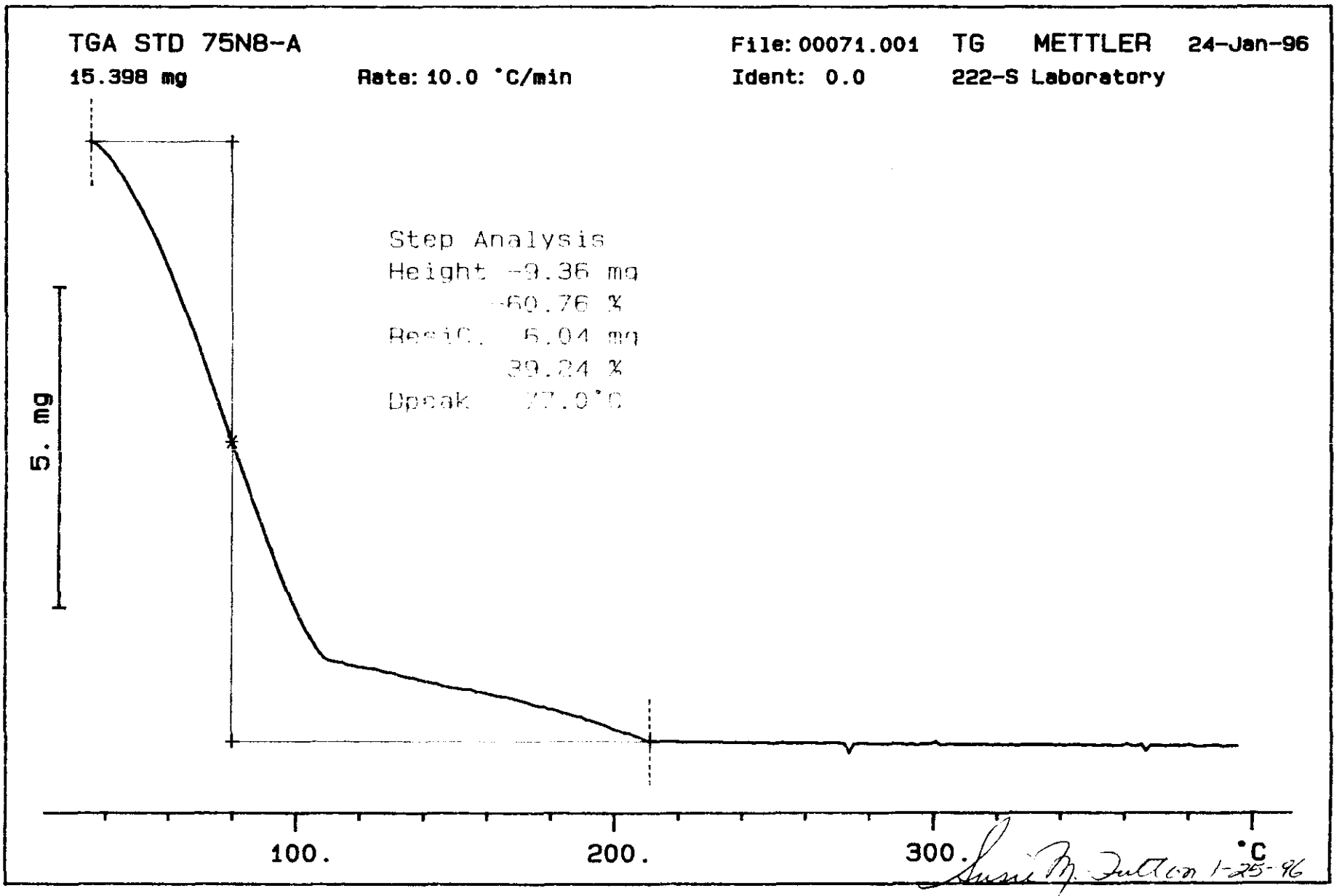
Linda Conlin 1/26/96
Analyst Signature **Date**

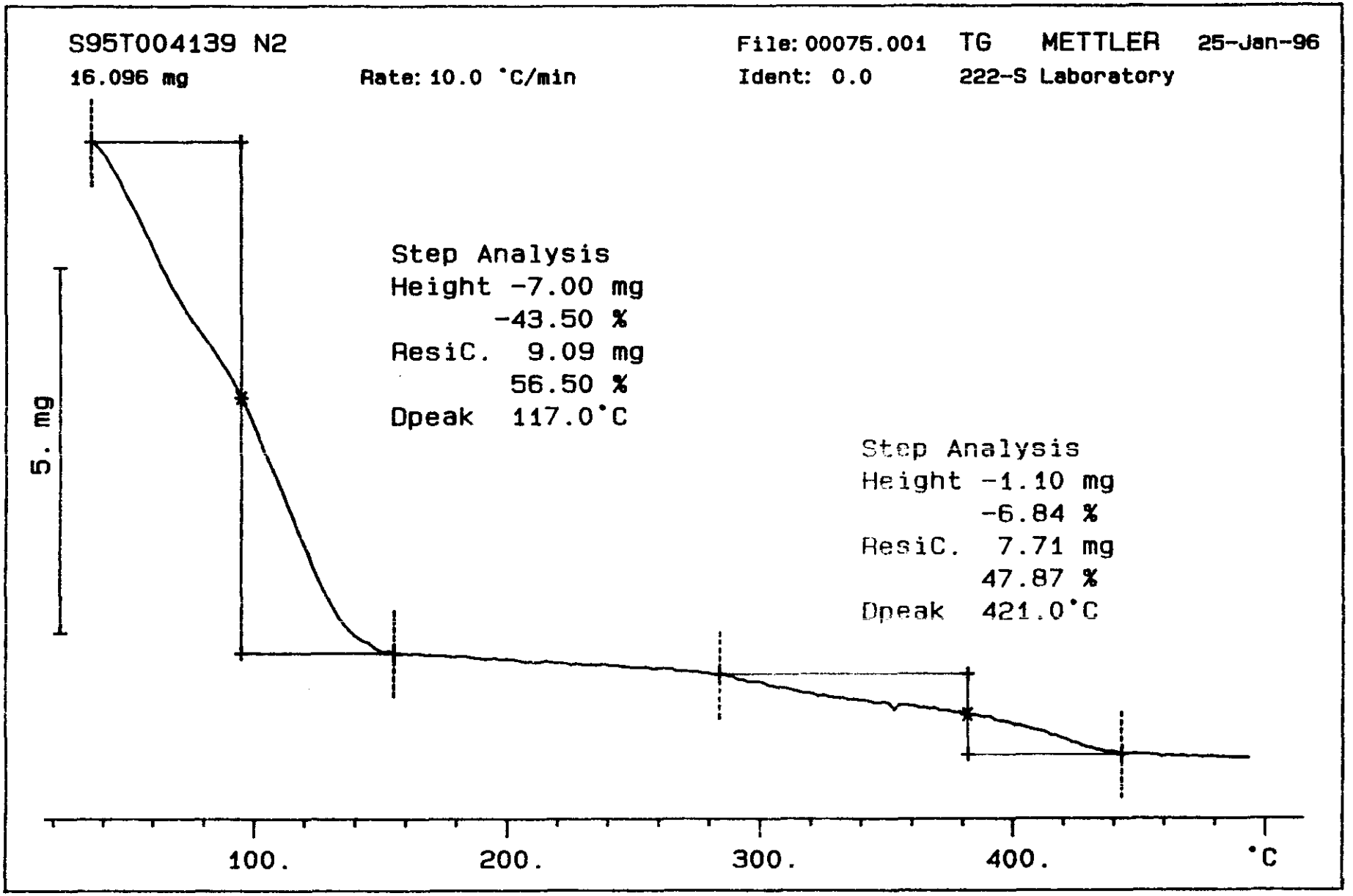
Verified by Florine Lawrence 1/31/96

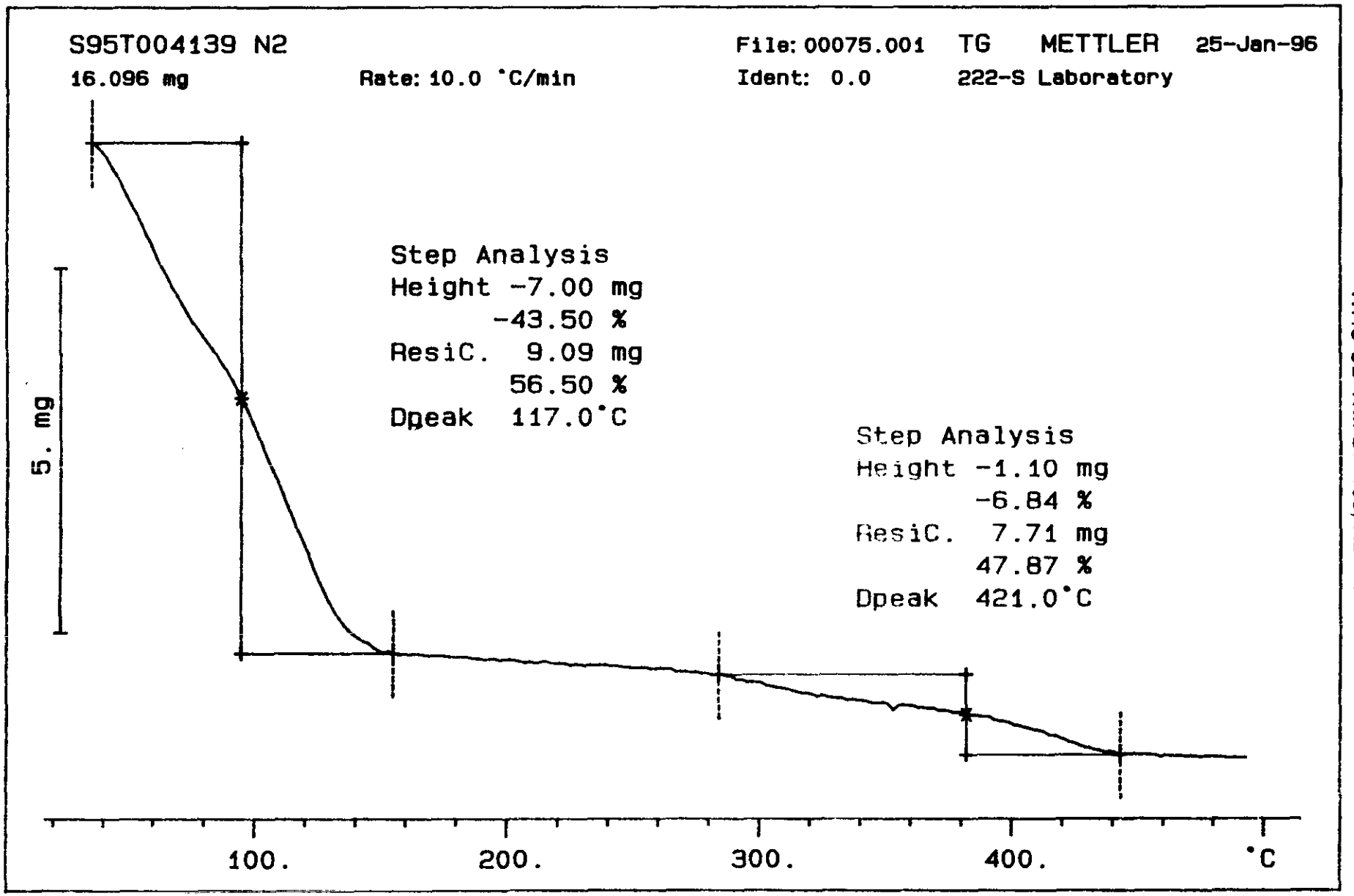
Data Entry Comments: Sample produced a second weight loss step of 6.24% at approximately 380C.

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 138 TO 146.




S95T004139 N2
16.096 mg
Rate: 10.0 °C/min
File: 00075.001
Ident: 0.0
TG METTLER 25-Jan-96
222-S Laboratory
Step Analysis
Height -7.00 mg
-43.50 %
ResiC. 9.09 mg
56.50 %
Dpeak 117.0°C
Step Analysis
Height -1.10 mg
-6.84 %
ResiC. 7.71 mg
47.87 %
Dpeak 421.0°C
5. mg
100.
200.
300.
400.
°C


S95T004139 N2
16.096 mg
Rate: 10.0 °C/min
File: 00075.001
Ident: 0.0
TG
METTLER
222-S Laboratory
25-Jan-96
Step Analysis
Height -7.00 mg
-43.50 %
ResiC. 9.09 mg
56.50 %
Dpeak 117.0°C
Step Analysis
Height -1.10 mg
-6.84 %
ResiC. 7.71 mg
47.87 %
Dpeak 421.0°C
5. mg
100.
200.
300.
400.
°C

DISTRIBUTION SHEET

To Distribution	From Production Planning and Control	Page 1 of 1 Date: 01-22-96
Project Title/Work Order WHC-SD-WM-DP-165, Rev. 0, "45-Day Safety Screening Results for Tank 241-AN-102, Grab Samples 2AN-95-1 through 2AN-95-6 and 102-AN-1 through 102-AN-4."		EDT NO.: 614770 ECN NO.: N/A

Name	MSIN	Text With all Attach	EDT/ECN ONLY
Pacific Northwest Laboratory			
J. R. Gormsen	K7-28		X
S. J. Harris	K7-22	X	
K. L. Silvers	P7-27		X
U.S. Department of Energy, RL			
C. A. Babel	S7-54	X	
Westinghouse Hanford Company			
J. N. Appel	G3-21		X
H. Babad	S7-30	X	
R. A. Esch	T6-06	X	
G. D. Forehand	S7-31		X
V. W. Hall	T6-03	X	
D. C. Hetzer	S6-31		X
J. E. Hyatt	S3-31	X	
L. Jensen	R2-12	X	
N. W. Kirch	R2-11	X	
M. J. Kupfer	H5-49	X	
J. E. Meacham	S7-15	X	
P. M. Morant	H4-25	X	
L. W. Shelton	H5-49	X	
B. C. Simpson	R2-12		X
L A. Tusler	R2-11	X	
J. A. Voogd	H5-03		X
Central Files	A3-88	2	
EDMC	H6-08	X	
LTIC	T6-03		X
TCRC	R2-12	X	
TFIC (Tank Farm Information Center)	R1-20		X
Washington State Department of Ecology			
Single-Shell Tank Unit Manager			
A. B. Stone	B5-18	X	
U. S. Department of Energy			
Jim Poppiti 12800 Middlebrook Rd. Trevion II, EM-36 Germantown, MD 20874			X
Los Alamos Technical Associates			
T. T. Tran 309 Bradley Blvd. Richland, WA 99352		X	