July 27, 1983

TECHNICAL REPORT

for

Summit Associates
Raritan Plaza 2
Raritan Center
Edison, NJ 08837

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Time
C7373-C7374	Summit Associates	RARITANCNT				

ENVIRONMENTAL TESTING and CERTIFICATION CORPORATION

Denis C. K. Lin, Ph.D.
Vice President
Research and Operations

453194

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INTRODUCTION

This report contains the analytical results for your soil samples submitted on July 15, 1983. It is designed to satisfy the needs of your people at various levels in your organization.

The results we obtained on your samples are presented in a tabular format immediately after this page. Included with the sample results are the quality assurance data for your specific samples. The gas chromatograms and/or mass spectra generated in the analysis of your samples are included in the Appendix of this report. The chain of custody record for your samples is included at the end of this report.

The established methods we used in the analysis of your samples are described in the Methodology section.

We hope our report format is useful in assisting you to obtain pertinent information on your samples.

METHODOLOGY

The method employed for the analysis of soil samples for TCDD is the May 1983 draft revision of "Determination of 2,3,7,8-TCDD in Soil and Sediment," U.S. Environmental Protection Agency, Region VII Laboratory, Kansas City, Kansas. These samples are analyzed using an electron impact GC/MS instrument with a direct capillary interface.

The method employed for the analysis of water samples for TCDD is EPA Method 613 (Reference EPA-600/4-82-057). These samples are also analyzed using an electron impact GC/MS instrument with a direct capillary interface.

The cleanup methodology employed was Option A followed by D in the May 1983 draft revision of "Determination of 2,3,7,8-TCDD in Soil and Sediment," USEPA Region VII Laboratory, Kansas City, KS. A 60 meter SP-2340 fused silica capillary column was used for the analysis.

RESULTS

The accuracy of the analysis is directly dependent on the accuracy of the native TCDD stock solution. We used the certified standard from the EPA as the primary standard to calculate the values in the sample.

Native: 2,3,7,8 TCDD Standard- EPA (Radian Lot No. CR-82-2);
Labeled: $^{13}C_{12}$ 98+ % Standard- KOR, Inc., Lot No. JB-II-70.

TCDD Data Report - Page 1

Lab: ETC Corp.

Date: 07/24/83
GC Column: 60M SP2340
GC Column: 50M CP SIL88

ETC Number	Sample Number	E/C	Grams Wet Weight	ppb TCDD	D.L.	320/322	Surrogate Percent Accuracy	Area 320	Area 322	Area 257	Area 328+	Area 332	Area 334	Comments
MB#1	MB	J/AD	-	ND	0.03	-	95	-	-	-	8429	9880	12591	
C7537S	QA SPIKE	J/AD	10.00	1.03	-	0.77	92	6932	9040	4360	17771	20517	28351	
C7532	QA REP	J/AD	10.53	6.3	-	0.81	86	4611	5685	2397	1471	1754	2201	
C7532R	QA REP	J/AD	10.76	4.4	-	0.82	94	2798	3429	1415	1378	1477	1902	
C7373	BLDG652-E	J/AD	11.35	ND	0.02	-	86	-	-	-	5786	7371	9101	
C7374	BLDG652-W	J/AD	10.78	ND	0.02	-	86	-	-	-	3083	3984	4851	

+Corrected for contribution by native TCDD (Subtract 0.009 of m/e 322).

MB = Method Blank
P = Partial Scan
N = Native TCDD Spike
D = Duplicate (Intralab)
FB = Field Blank

H = High Resolution
ND = Not Detected
DL = Detection Limit
J = Jar Extraction
S = Soxhlet Extraction

A, B, C,D- Clean Up Option (or any combination)

CALIBRATION SUMMARY

ug/kg* TCDD	Native RRF	DATE	TIME	Surrogate RRF
1.0	0.86	7/22/83	0140 hrs.	1.00
5.0	0.76	7/22/83	0245 hrs.	0.99
25.0	0.75	7/22/83	0325 hrs.	0.97
1.0	0.85	7/23/83	1235 hrs.	0.97
1.0	0.86	7/23/83	2240 hrs.	1.08

* Assumes 10 gram sample.

QUALITY CONTROL SUMMARY

# OF DATA POINTS	MEAN ± S.D.
19	88.5+/-5.2%
1	103%
1	ND
1	5.35+/-0.95
1	Confirmed

CALIBRATION SUMMARY

ug/kg* TCDD	Native RRF	DATE	TIME	Surrogate RRF
1.0	0.90	7/19/83	1145 hrs.	1.02
5.0	0.82	7/19/83	1235 hrs.	1.01
25.0	0.81	7/19/83	1315 hrs.	1.02
1.0	0.79	7/23/83	1000 hrs.	1.02

* Assumes 10 gram sample.

QUALITY CONTROL SUMMARY

# OF DATA POINTS	MEAN ± S.D.
19	88.5+/-5.2%
1	103%
1	ND
1	5.35+/-0.95
1	Confirmed

CALIBRATION SUMMARY

ug/kg* TCDD	Native RRF	DATE	TIME	Surrogate RRF
1.0	1.06	7/21/83	0015 hrs.	1.10
5.0	0.96	7/21/83	0100 hrs.	1.09
25.0	0.93	7/21/83	0140 hrs.	1.06
1.0	0.90	7/23/83	0905 hrs.	0.99

* Assumes 10 gram sample.

QUALITY CONTROL SUMMARY

# OF DATA POINTS	MEAN ± S.D.
19	88.5+/-5.2%
1	103%
1	ND
1	5.35+/-0.95
1	Confirmed

CALIBRATION SUMMARY

ug/kg* TCDD	Native RRF	DATE	TIME	Surrogate RRF
1.0	0.83	7/23/83	2130 hrs.	1.02
5.0	0.77	7/23/83	2300 hrs.	1.03
25.0	0.78	7/23/83	2340 hrs.	1.05

* Assumes 10 gram sample.

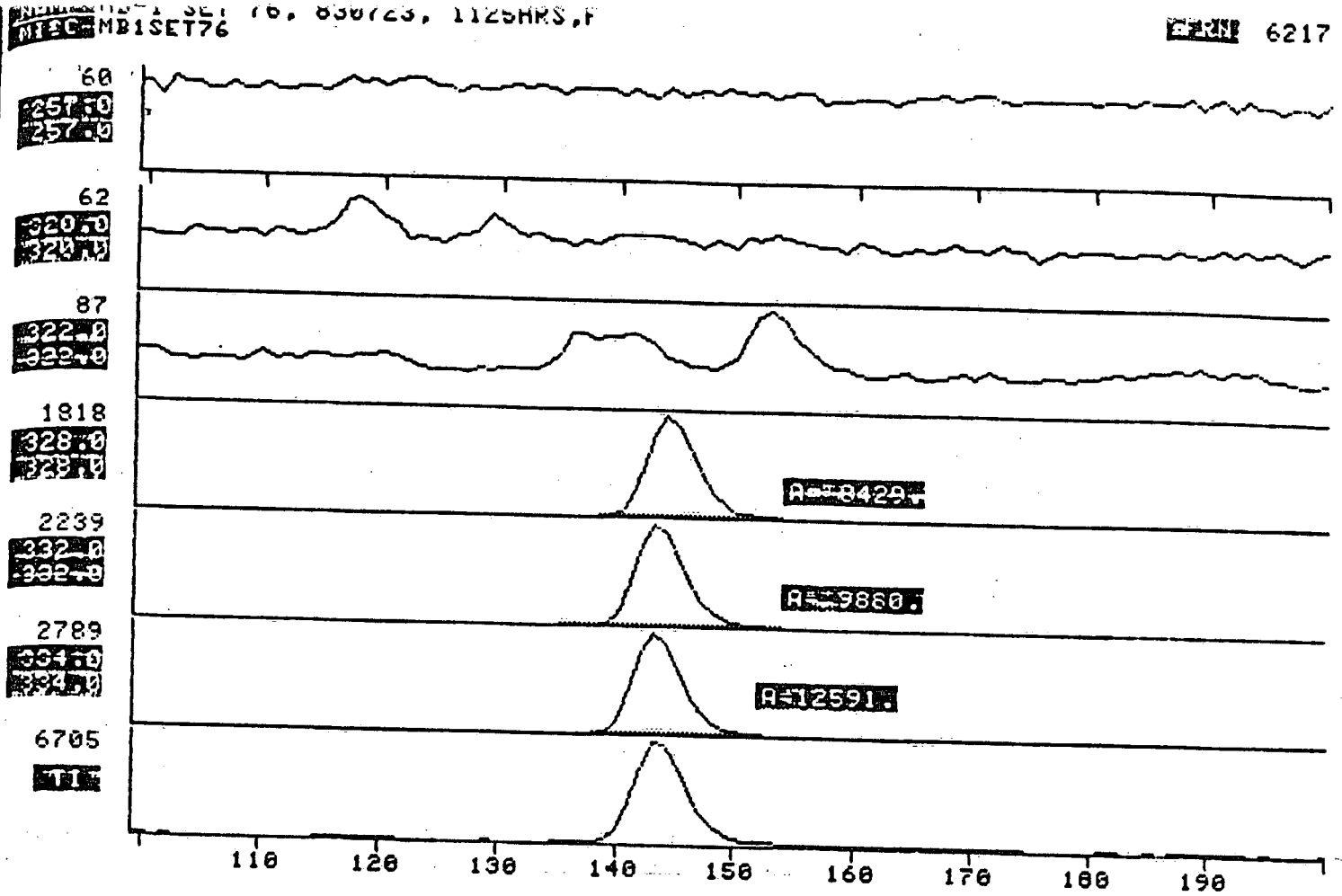
QUALITY CONTROL SUMMARY

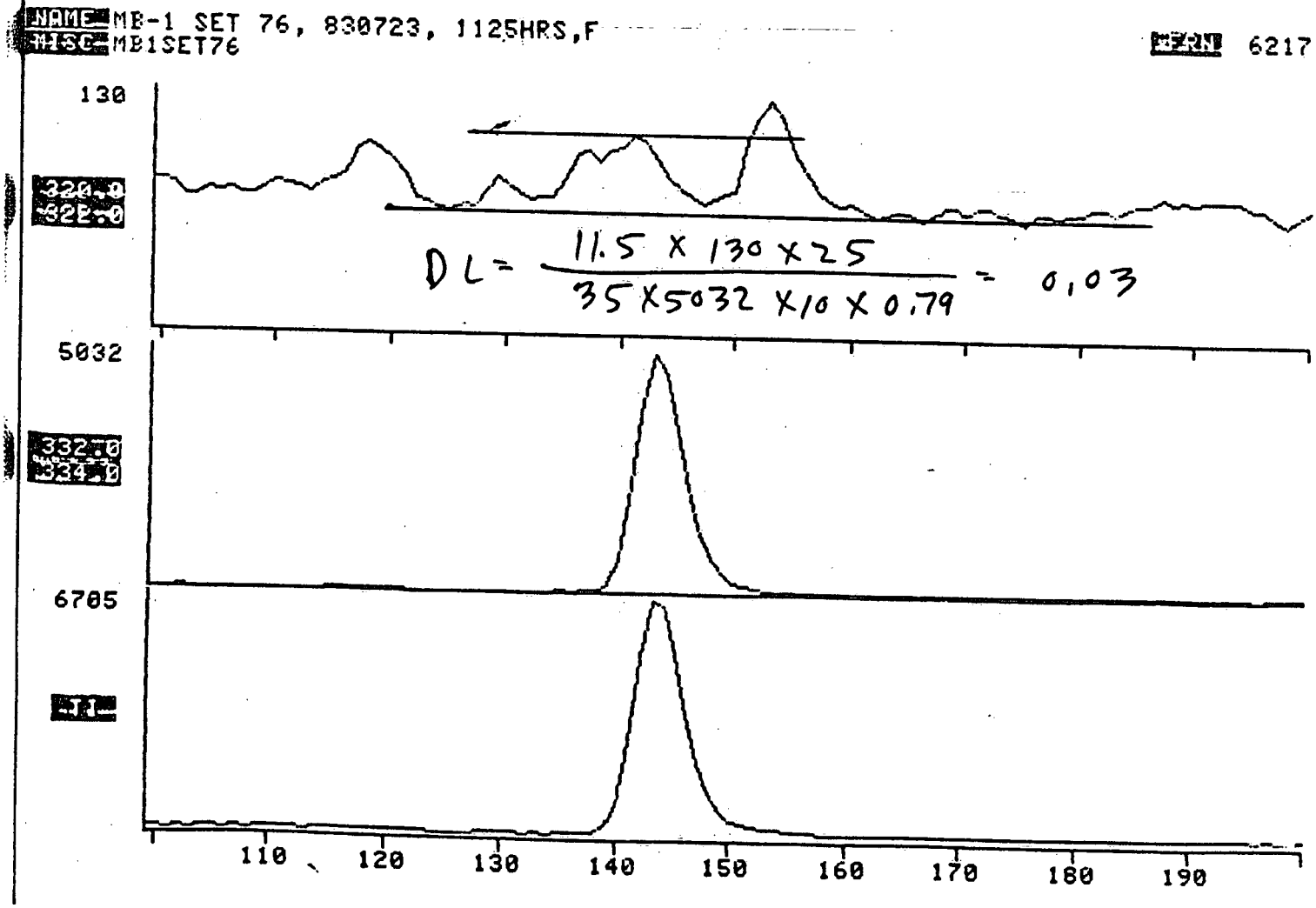
# OF DATA POINTS	MEAN ± S.D.
19	88.5+/-5.2%
1	103%
1	ND
1	5.35+/-0.95
1	Confirmed

Partial Scan Confirmation

ETC Number	Sample Number	Response Ratios			% Relative Abundances*							
		320/324	257/259	194/196	160	161	194	196	257	259	320	324
C7562 (formerly C6495)	-P	1.54	1.01	1.43	5.8	9.8	14.2	9.9	32.1	31.9	76.8	49.9

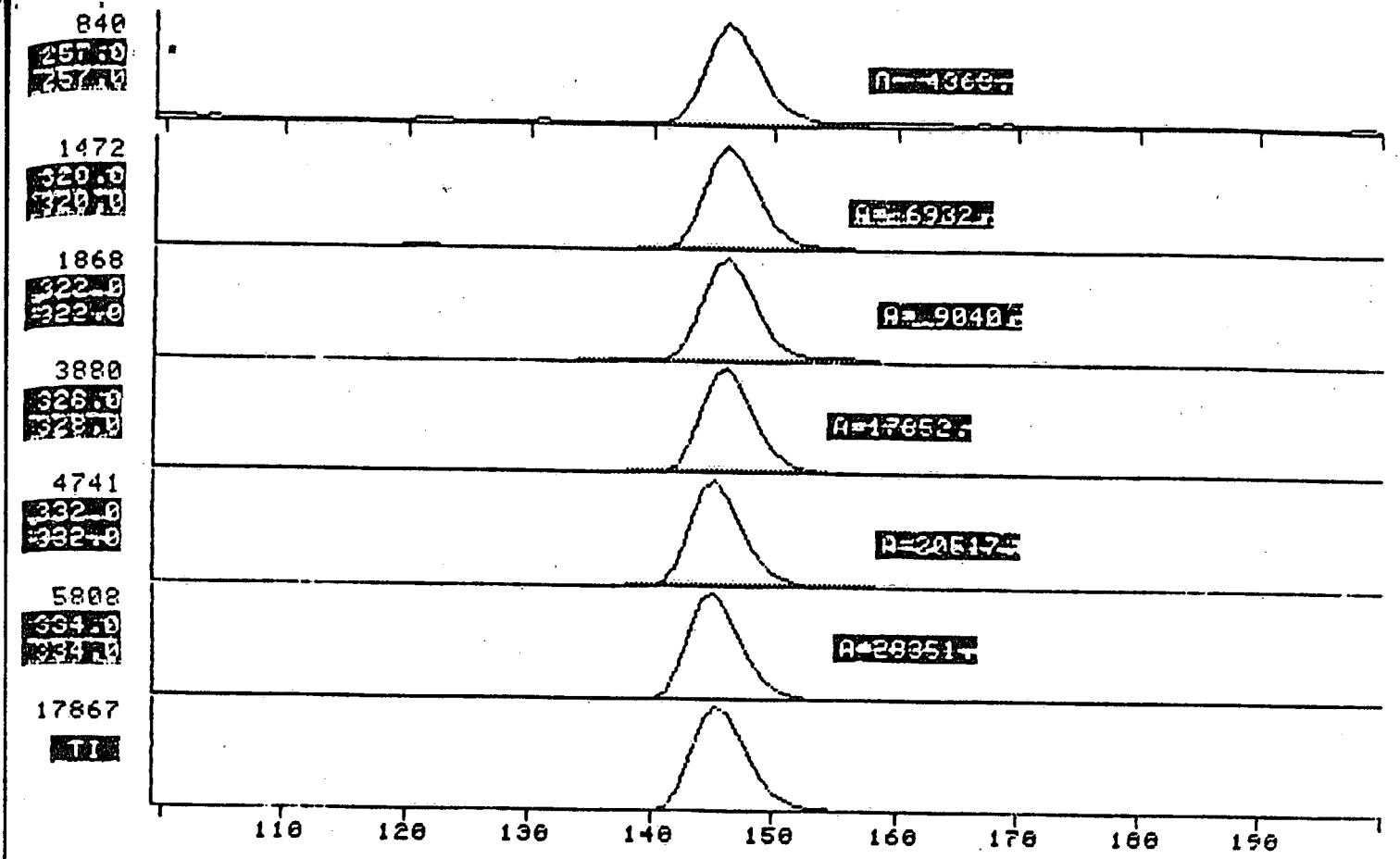
* Relative to m/e 322.



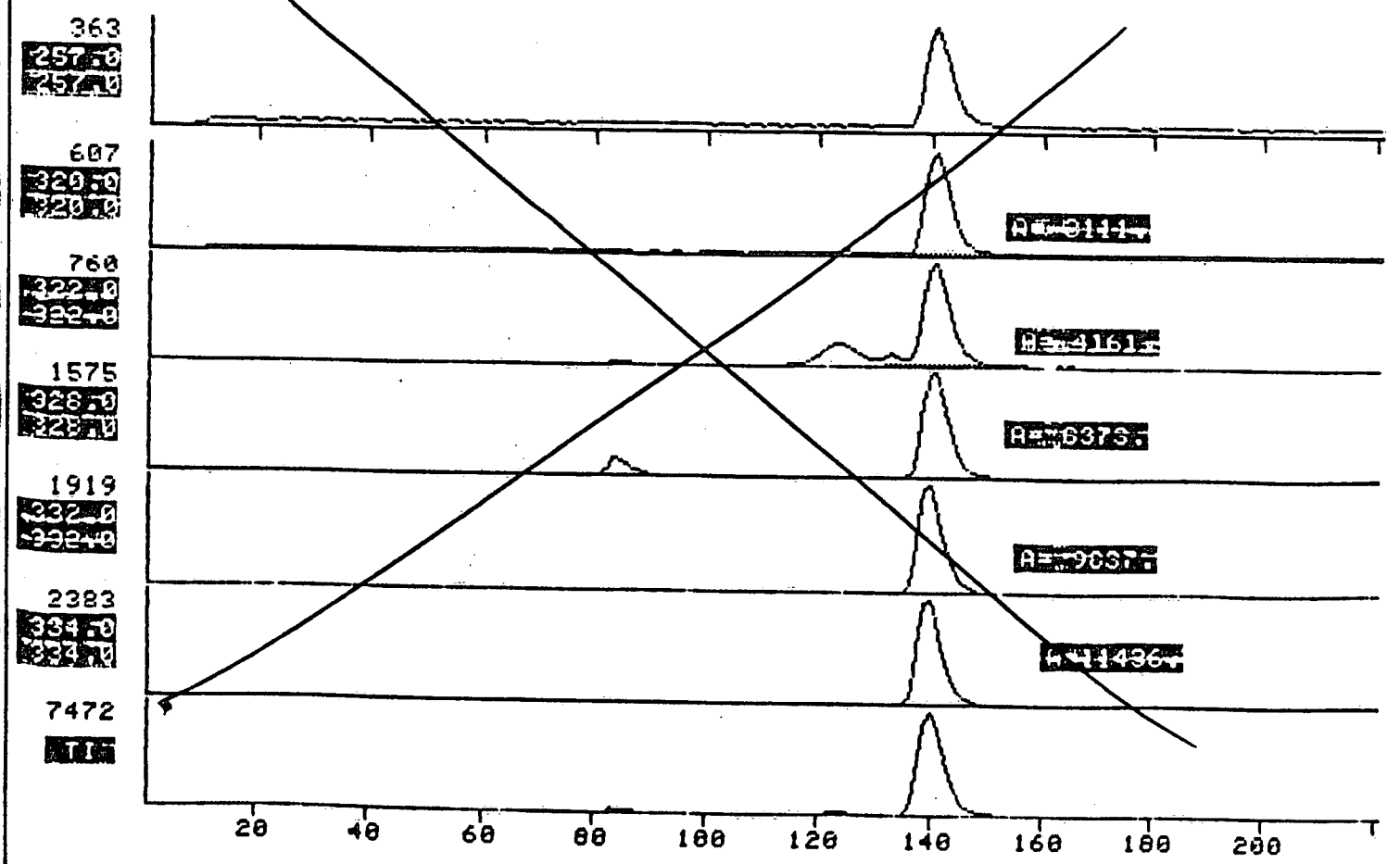


$$DL = \frac{11.5 \times 130 \times 25}{35 \times 5032 \times 10 \times 0.79} = 0.03$$

NAME C7537 SPIKE, TCDDC FRACTION, 830723, 1205HRS, F SCAN 6218
MISC C7537S

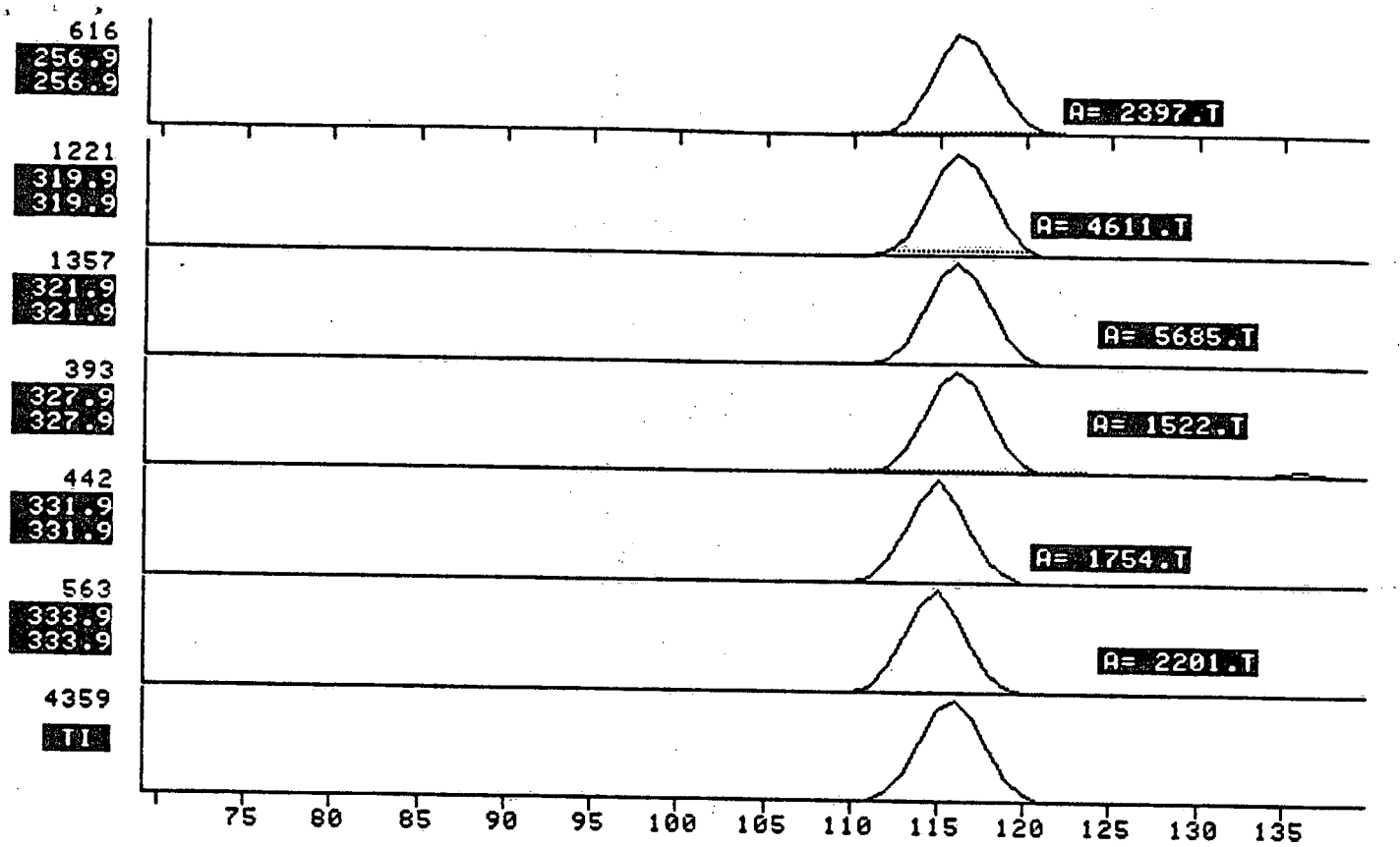


NAME 1PPB TCDD STD, 830723, 1235HRS, F SCAN 6219
MISC 1PPB TCDD SRD



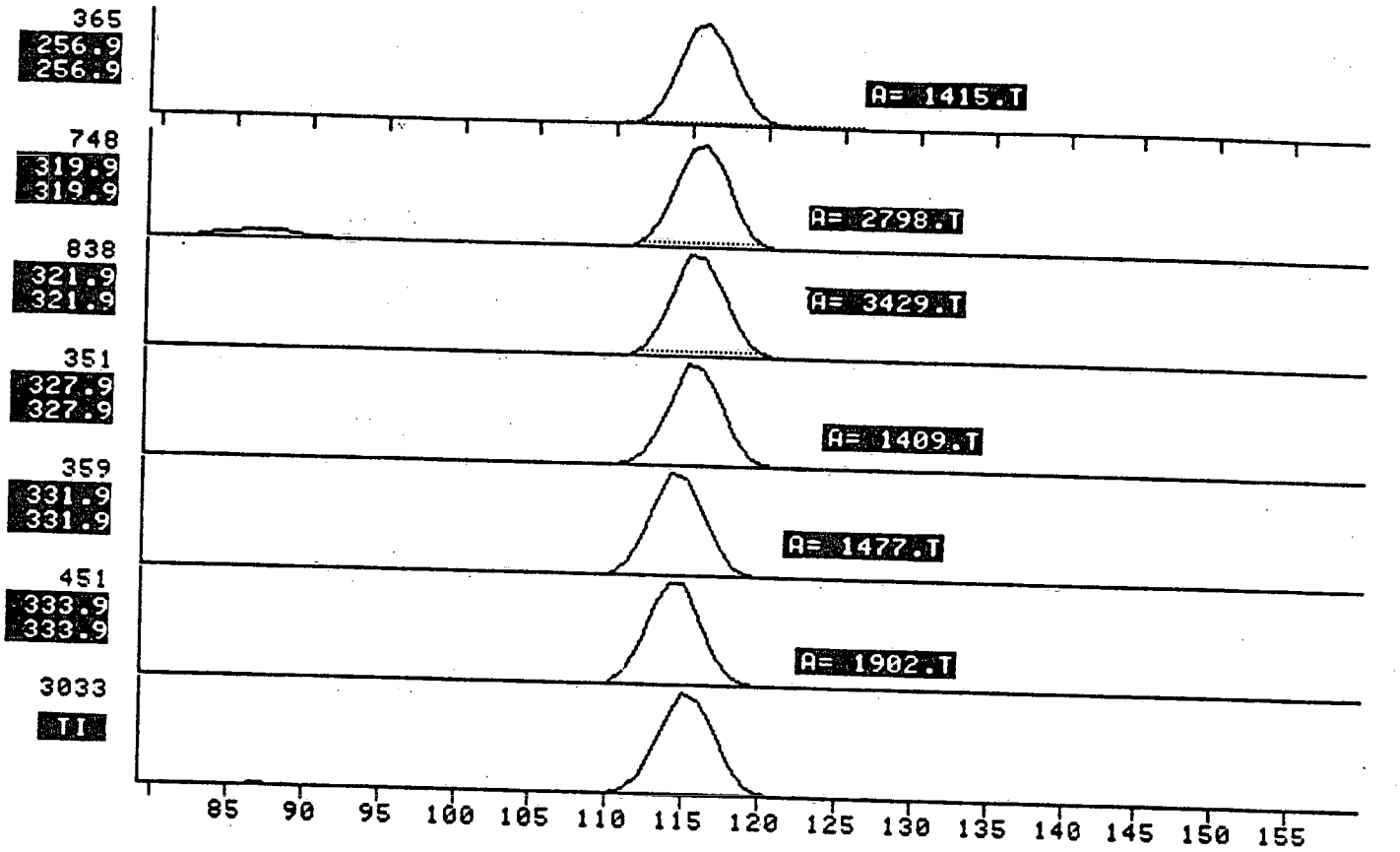
NAME C7532 TCDD FRACTION, 830723, 1250HRS, H
MISC C7532T

FRN 15959

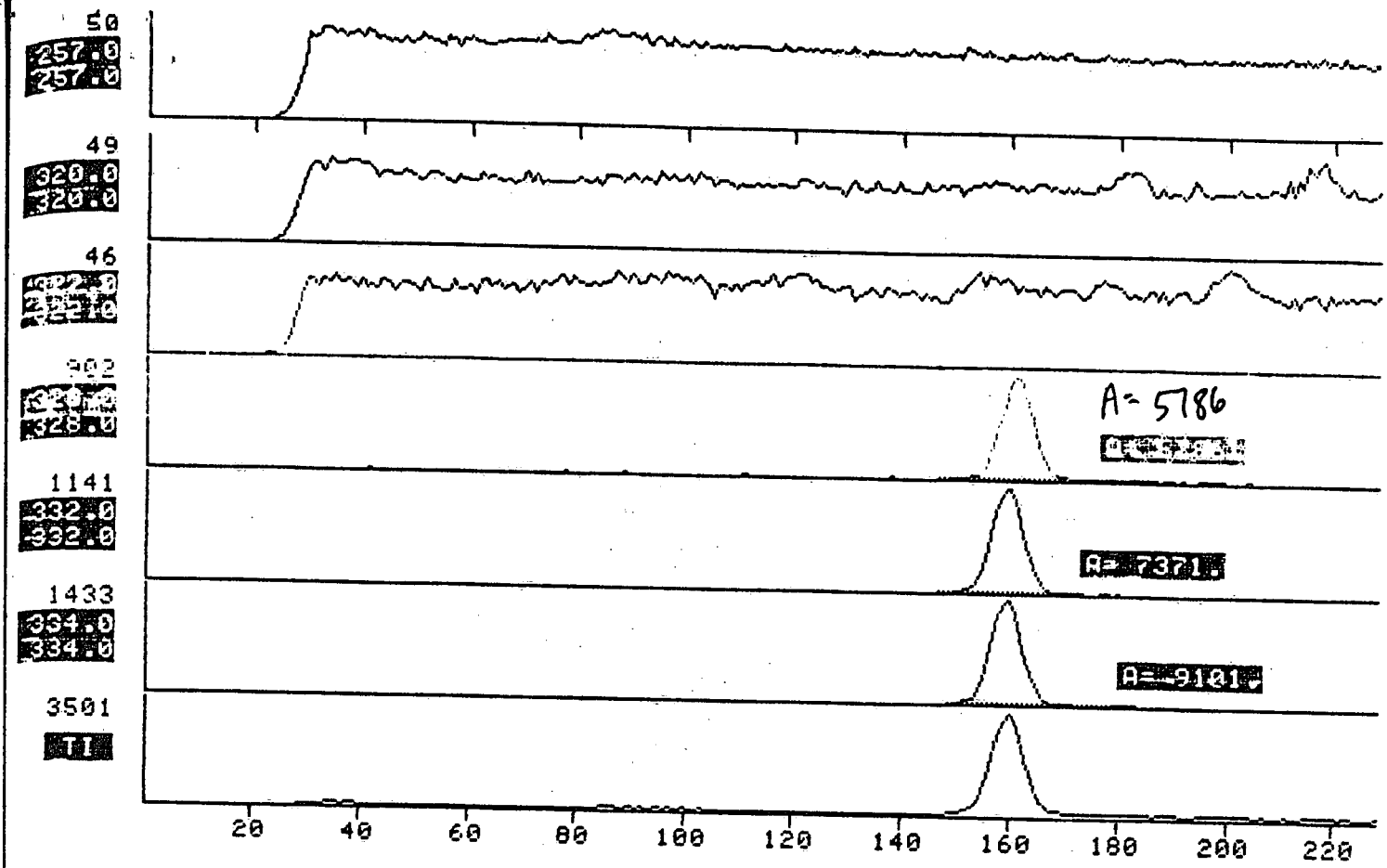


NAME C7532 REP TCDD FRACTION, 830723, 1325HRS, H
MISC C7532R

FRN 15960



NAME C7373 TCDD FRACTION, 830723, 1330HRS, G
MISC C7373T
FRN 12028



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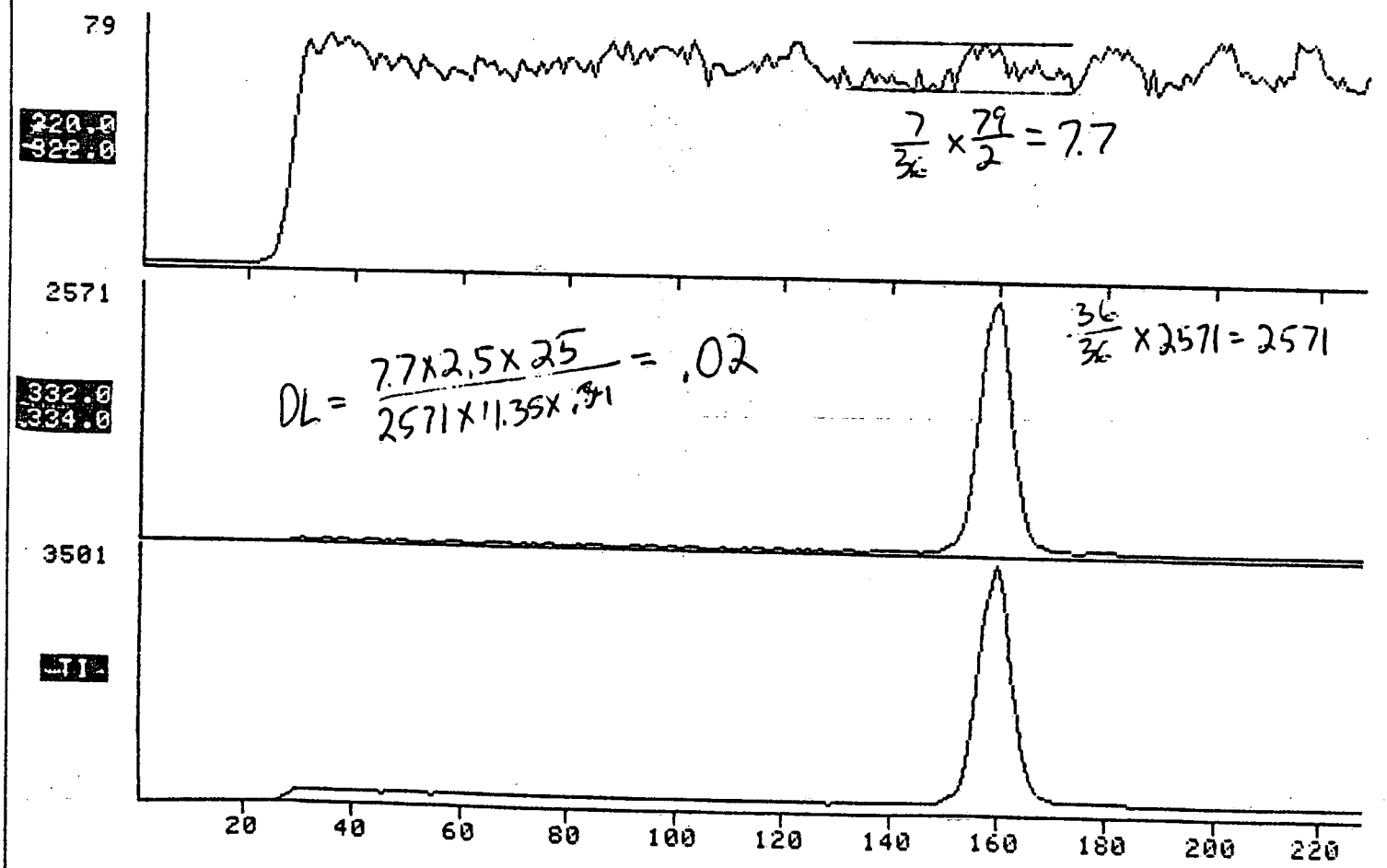
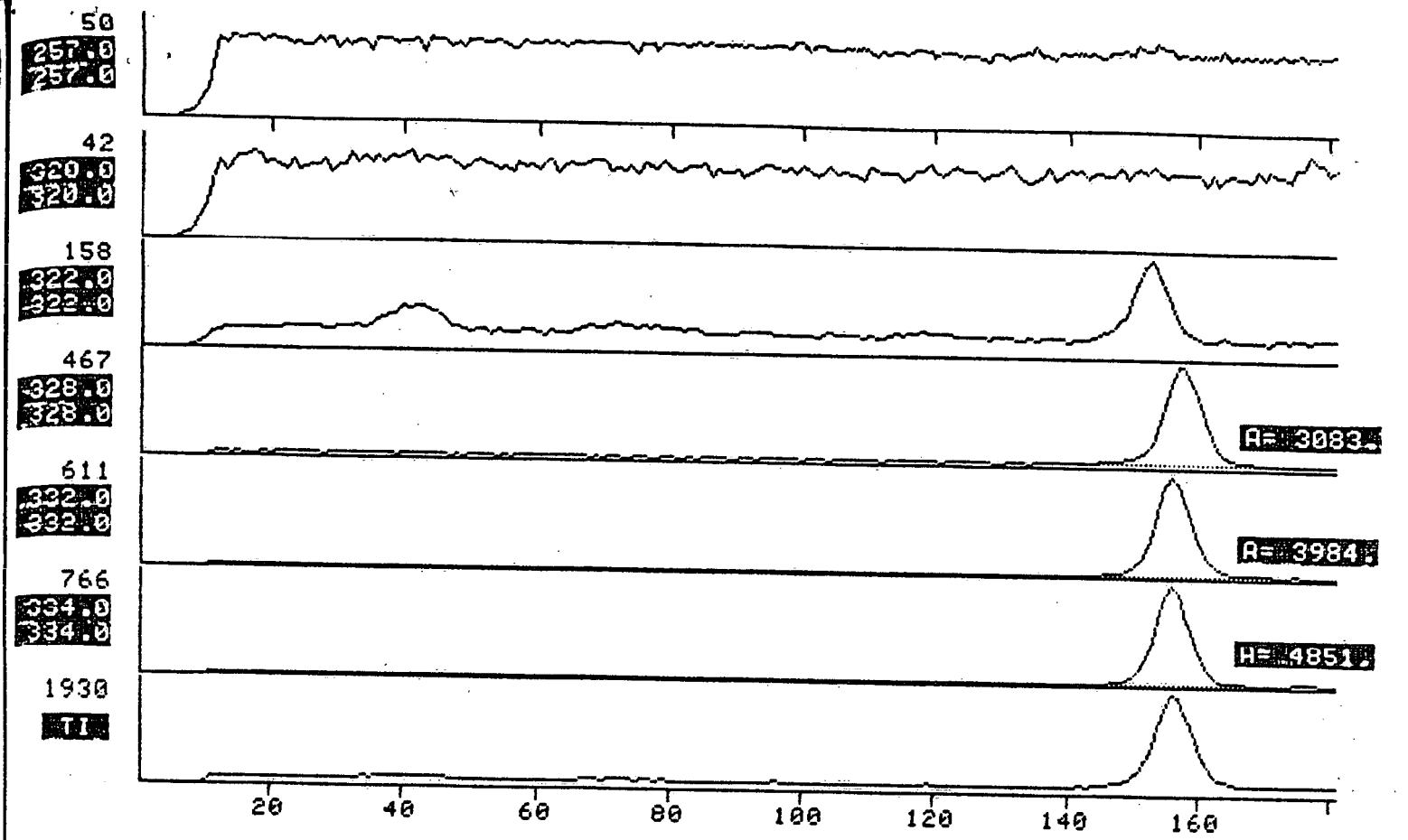
MISC C7373T
FRN 12028



MISC C7374T TCDD FRACTION, 830723, 1430HRS, G

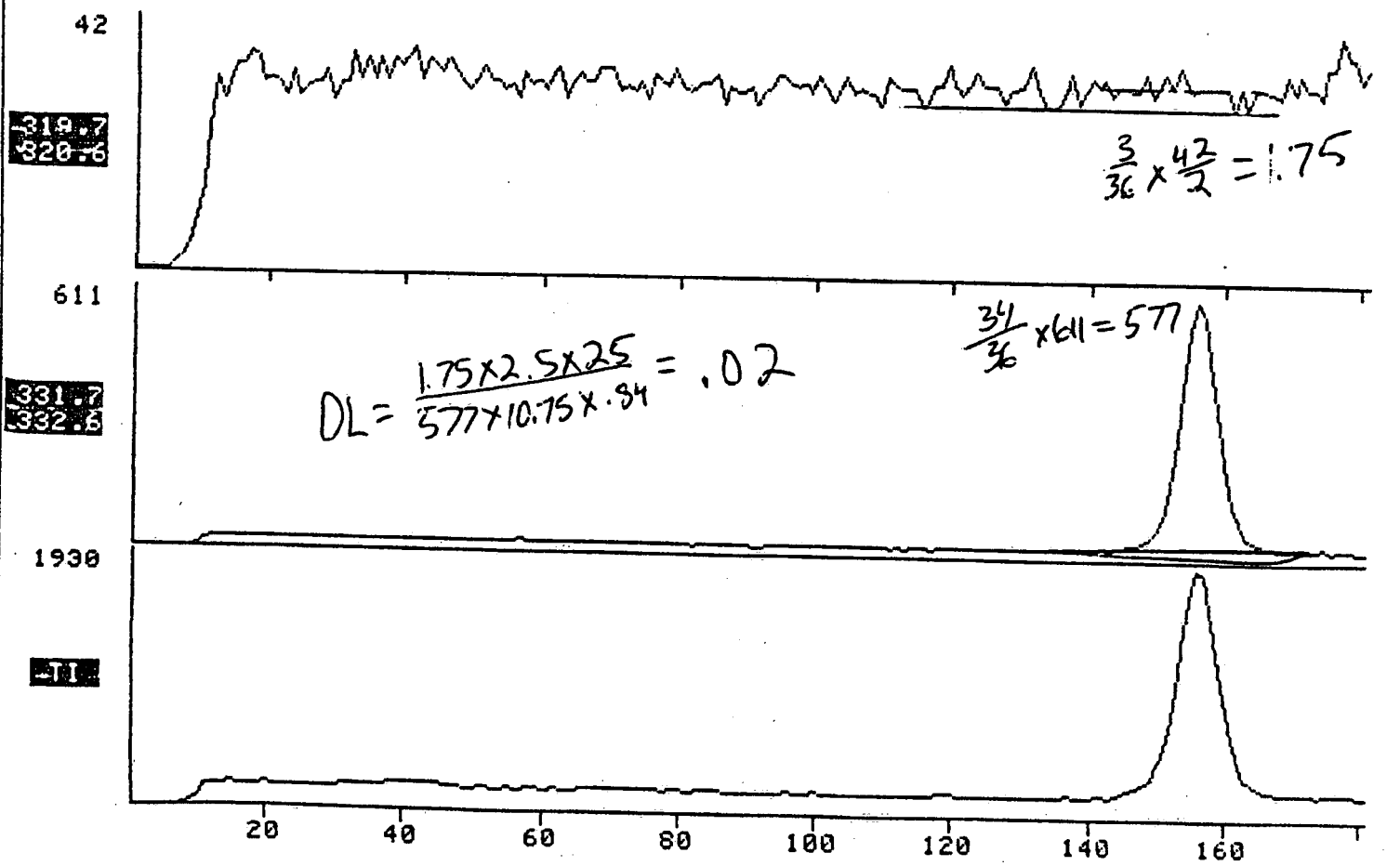
FRN 12029

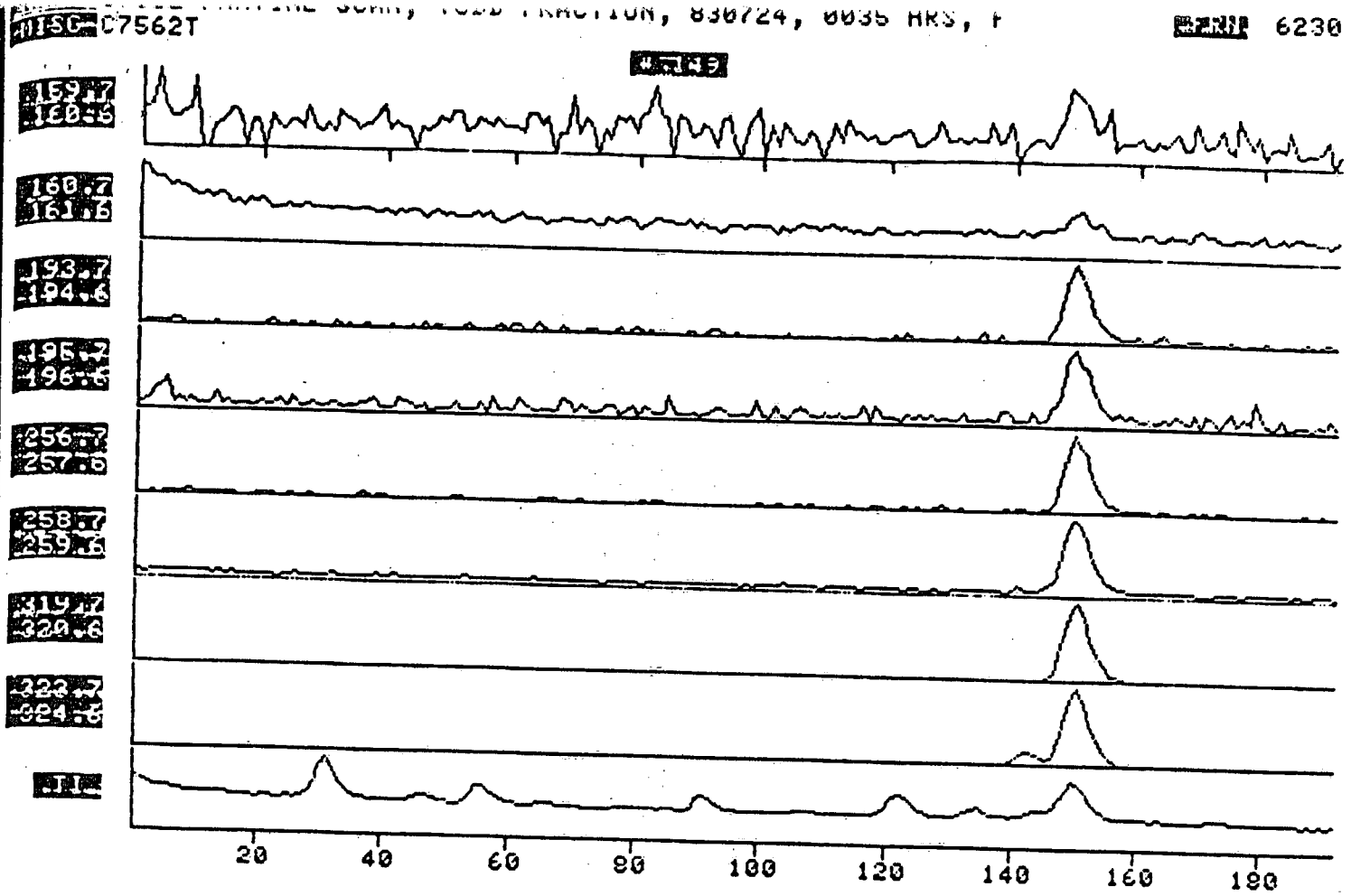


NAME C7374 TCDD FRACTION, 830723, 1430HRS, G

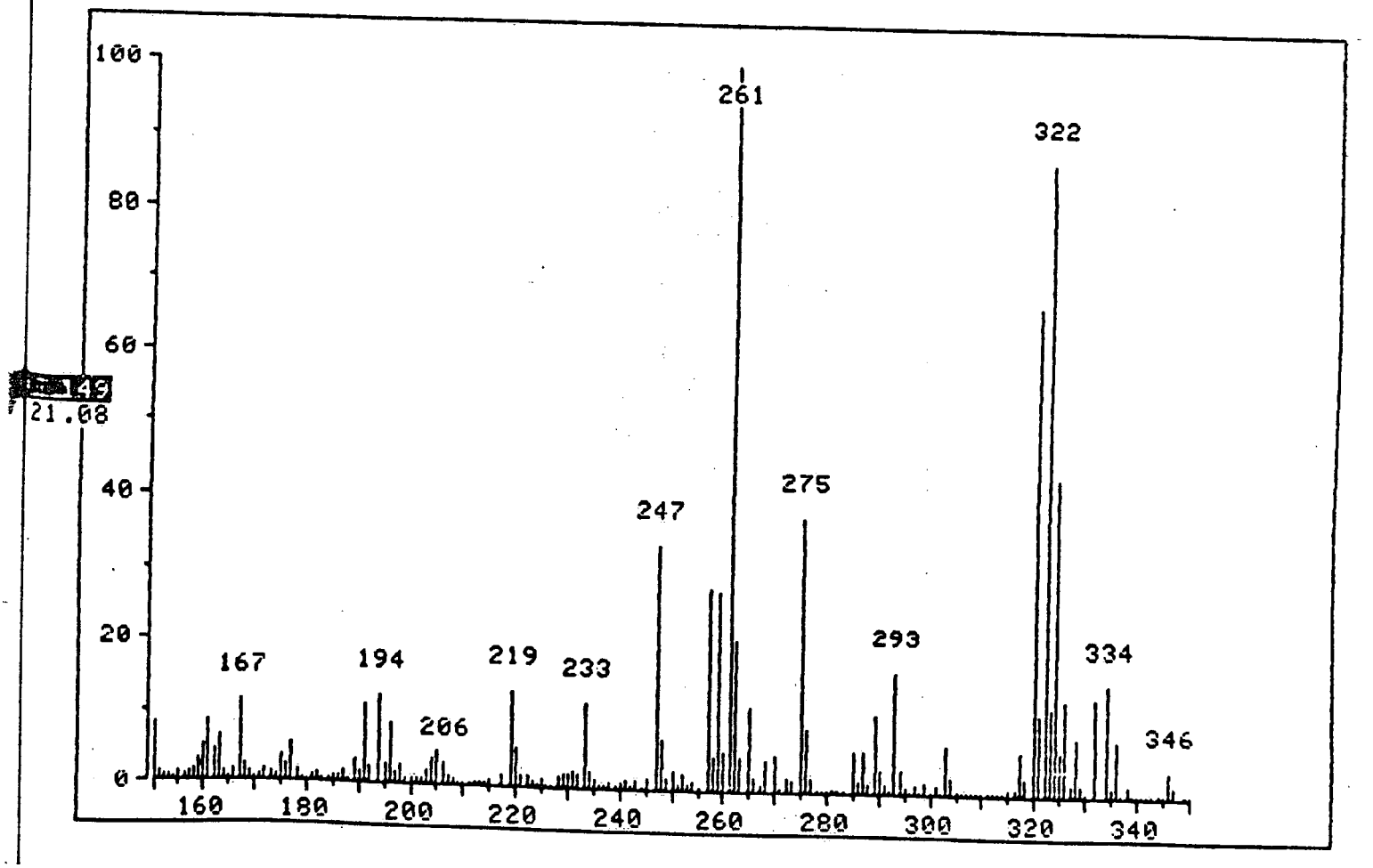
MISC C7374T

FRN 12029





C7562 PARTIAL SCAN, TCDD FRACTION, 830724, 0035 HRS, F
C7562T
6230



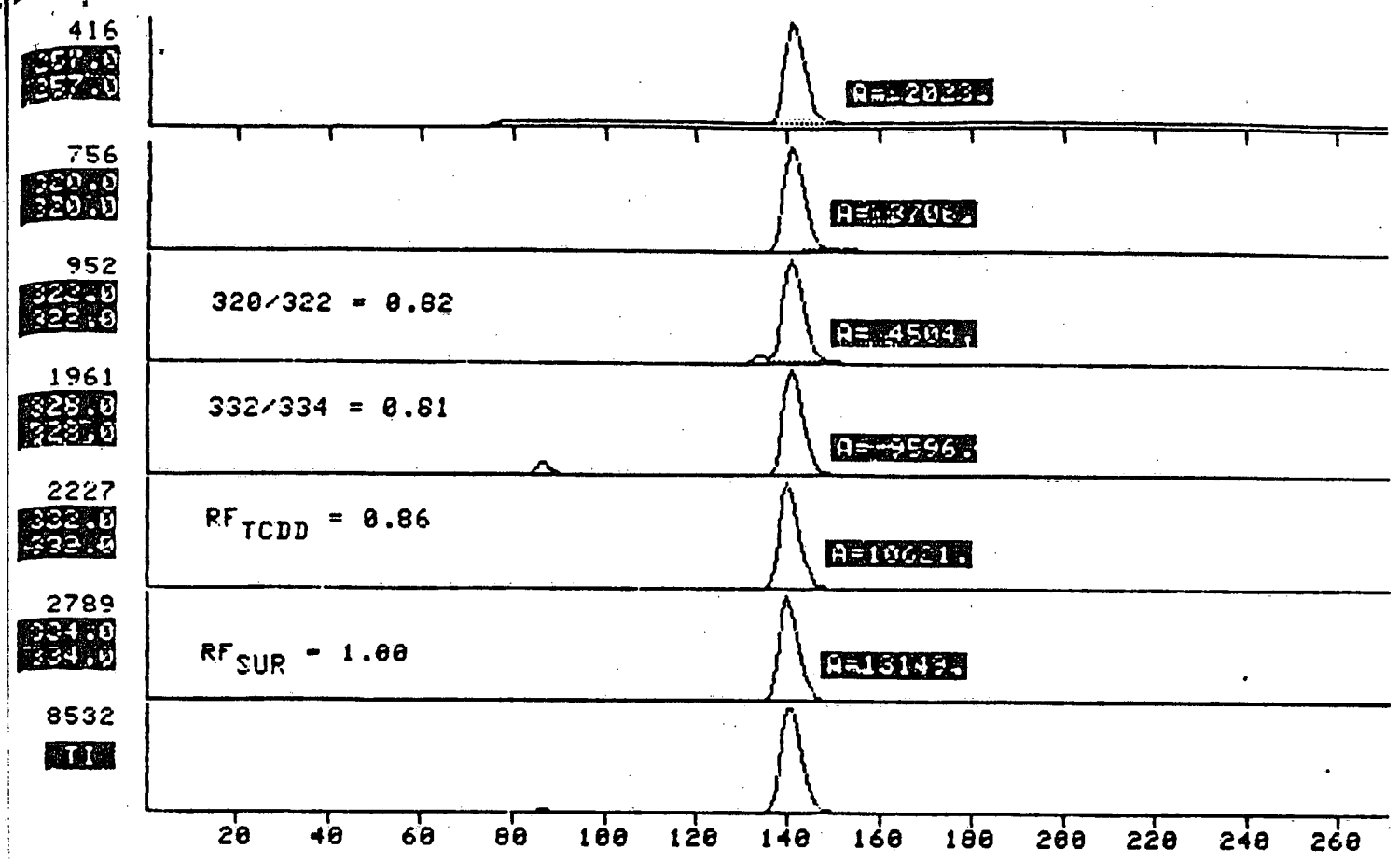
RN 6230, SPECTRUM # 149 RET.TIME: 21.08, 220 PEAKS

M/Z	REL ABUND		M/Z	REL ABUND		M/Z	REL ABUND		M/Z	REL ABUND	
150	8.3		233	12.0		275	38.0		323	12.2	
160	5.1	5.8	247	33.9		276	8.9		324	43.8	49.9
161	8.6	9.8	248	7.3		285	5.8		325	6.4	
163	6.4		257	28.2	32.1	287	5.9		326	13.4	
167	11.5		259	28.0	31.9	289	10.8		328	8.2	
177	5.6		260	5.4		293	17.0		332	13.6	
191	11.0		261	100.0		303	7.0		334	15.7	
194	12.5	14.2	262	21.2		317	6.2		336	7.9	
196	8.7	9.9	263	5.0		320	67.4	76.8			
219	13.2		265	12.0		321	11.3				
220	5.4		270	5.3		322	87.8	100			

PAUSE

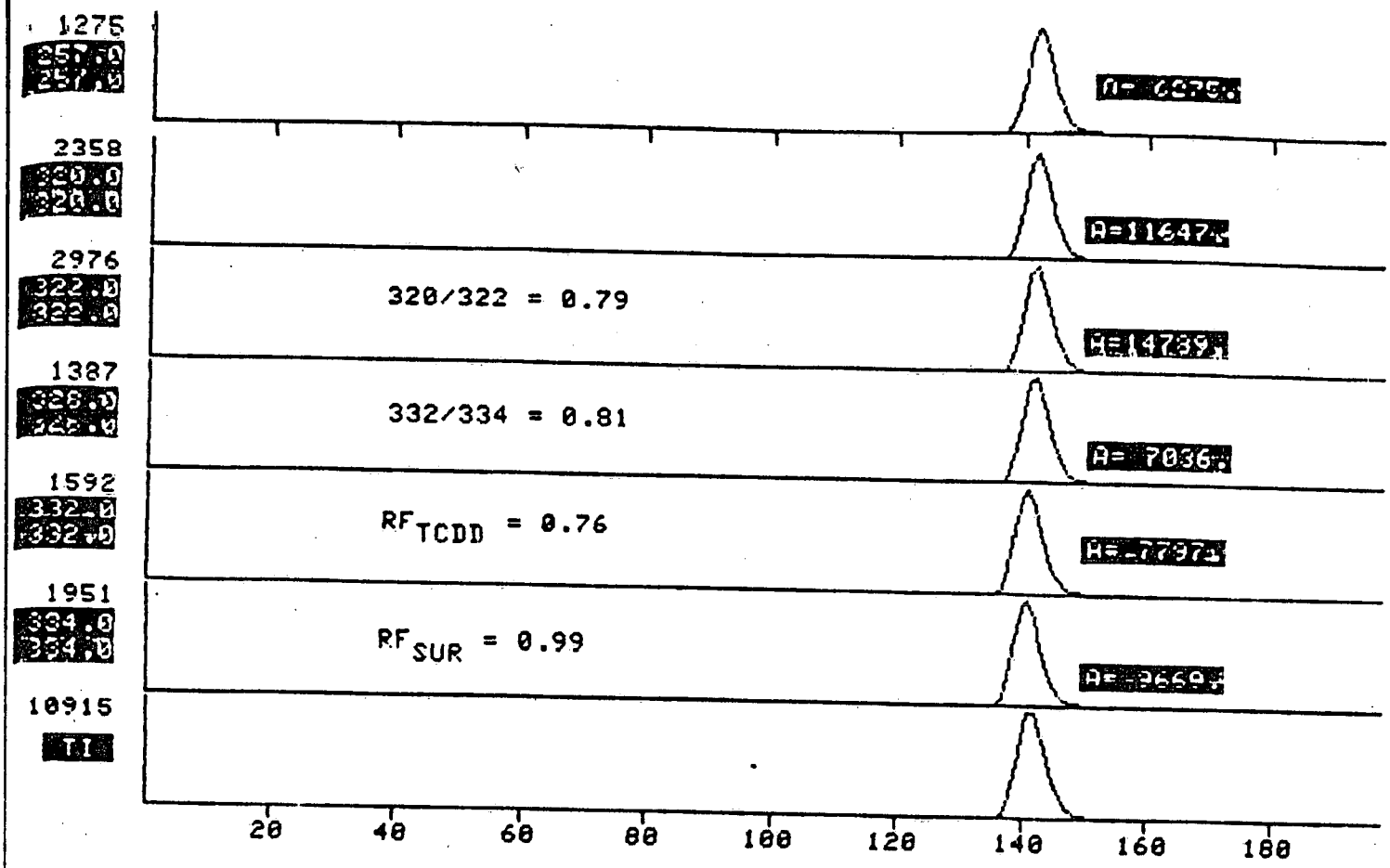
1 PPB EQ TCDD STD, 830722, 0140 HRS, F

RN 6174



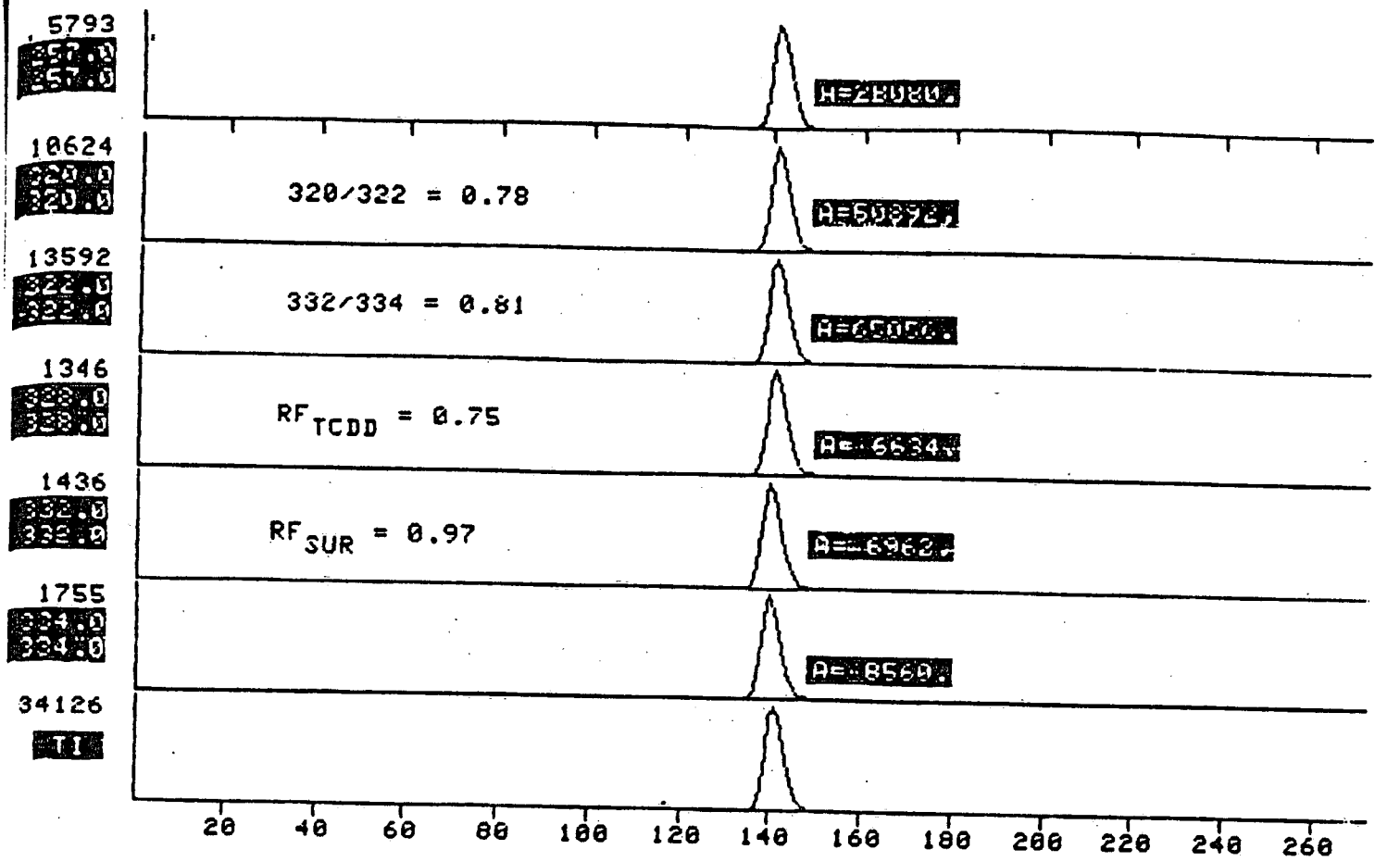
NAME 5 PPB EQ TCDD STANDARD, 830722, 0245 HRS, F

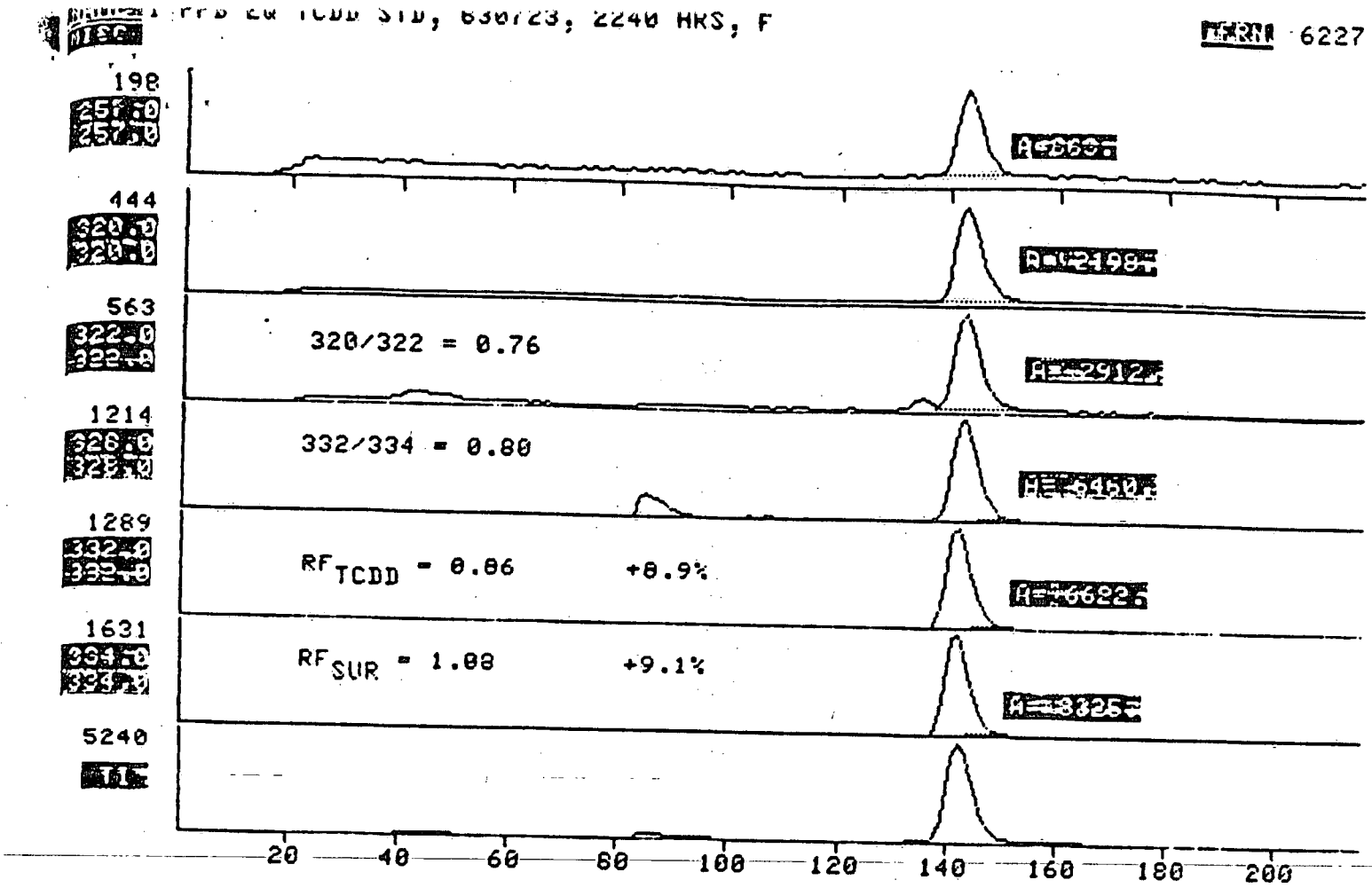
SCAN 6175



NAME 25 PPB EQ TCDD STD, 830722, 0325 HRS, F

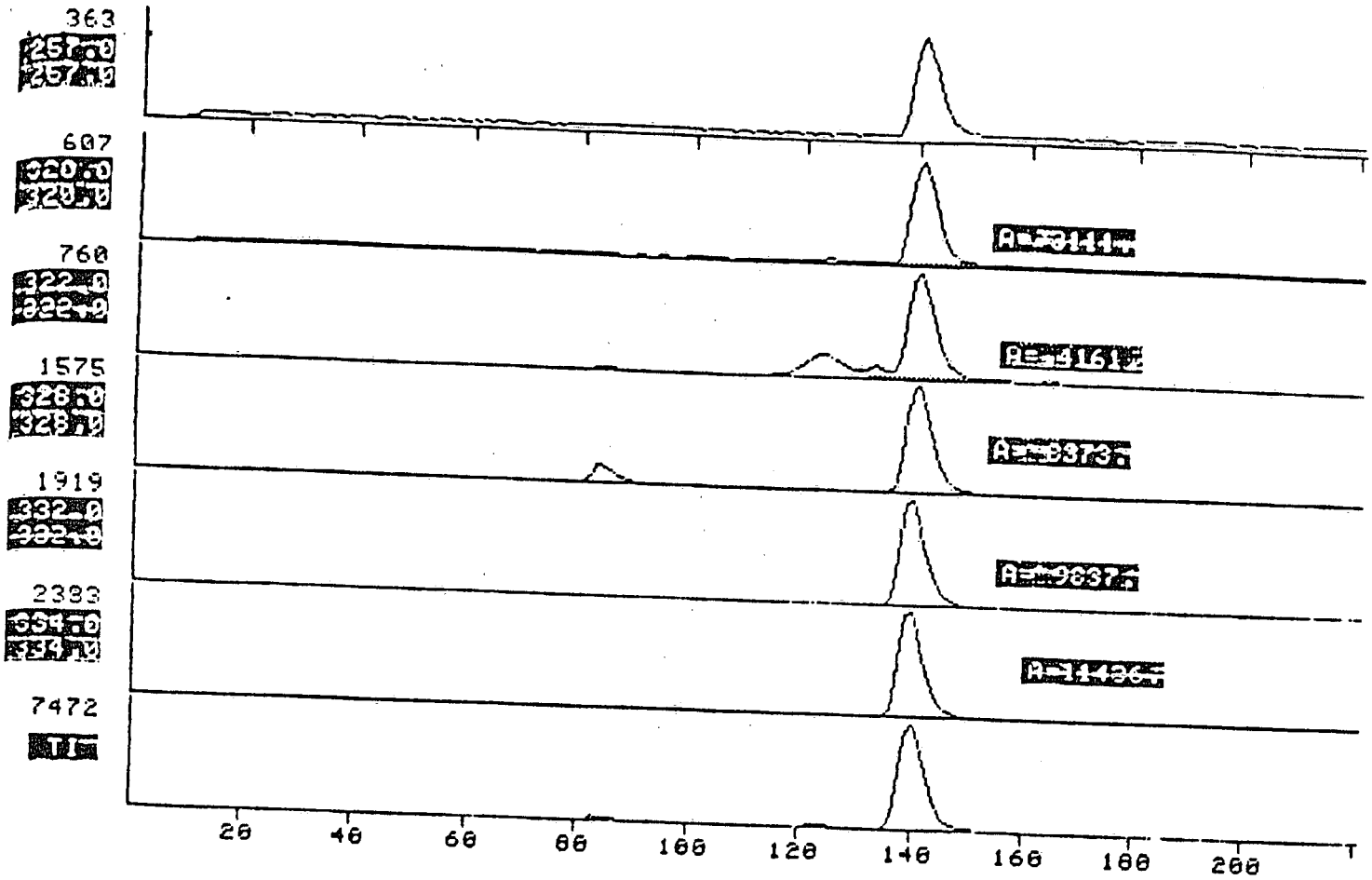
FRN 6176




TCDD STD, 630723, 2240 HRS, F
6227
198
444
563
1214
1289
1631
5240
320/322 = 0.76
332/334 = 0.80
RF TCDD = 0.86
+8.9%
RF SUR = 1.08
+9.1%
20
40
60
80
100
120
140
160
180
200

MISC 1PPB TCDD SRD

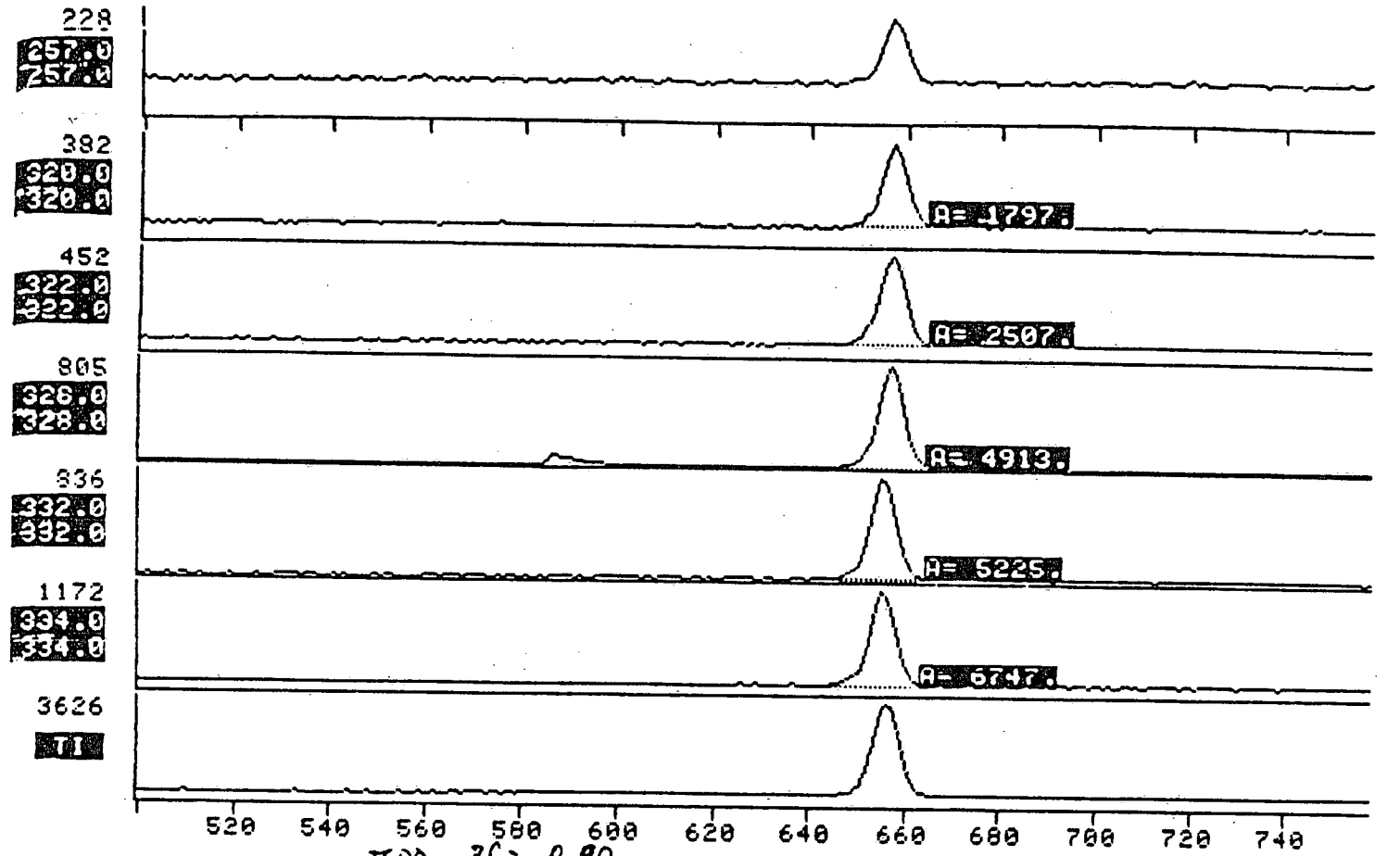
SCAN 6219



RF TCDD Native = .85

RF Surrogate = .97

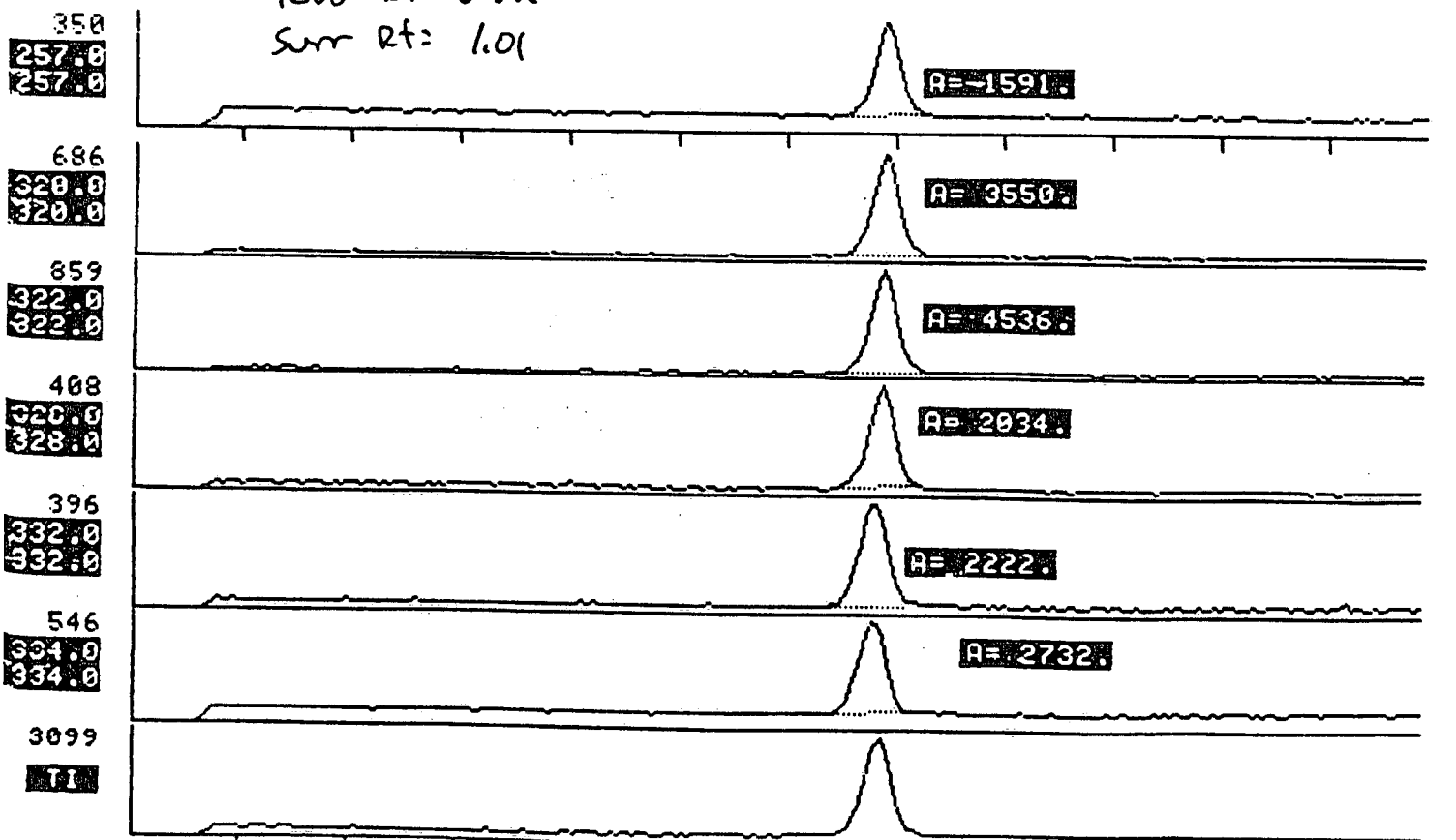
NAME 3UL 1PPB STD TCDD, 830719, 1145HRS, G
MISC 1PPB TCDD STD
FRN 11913



TCDD Rf= 0.90
Surr Rf= 1.02

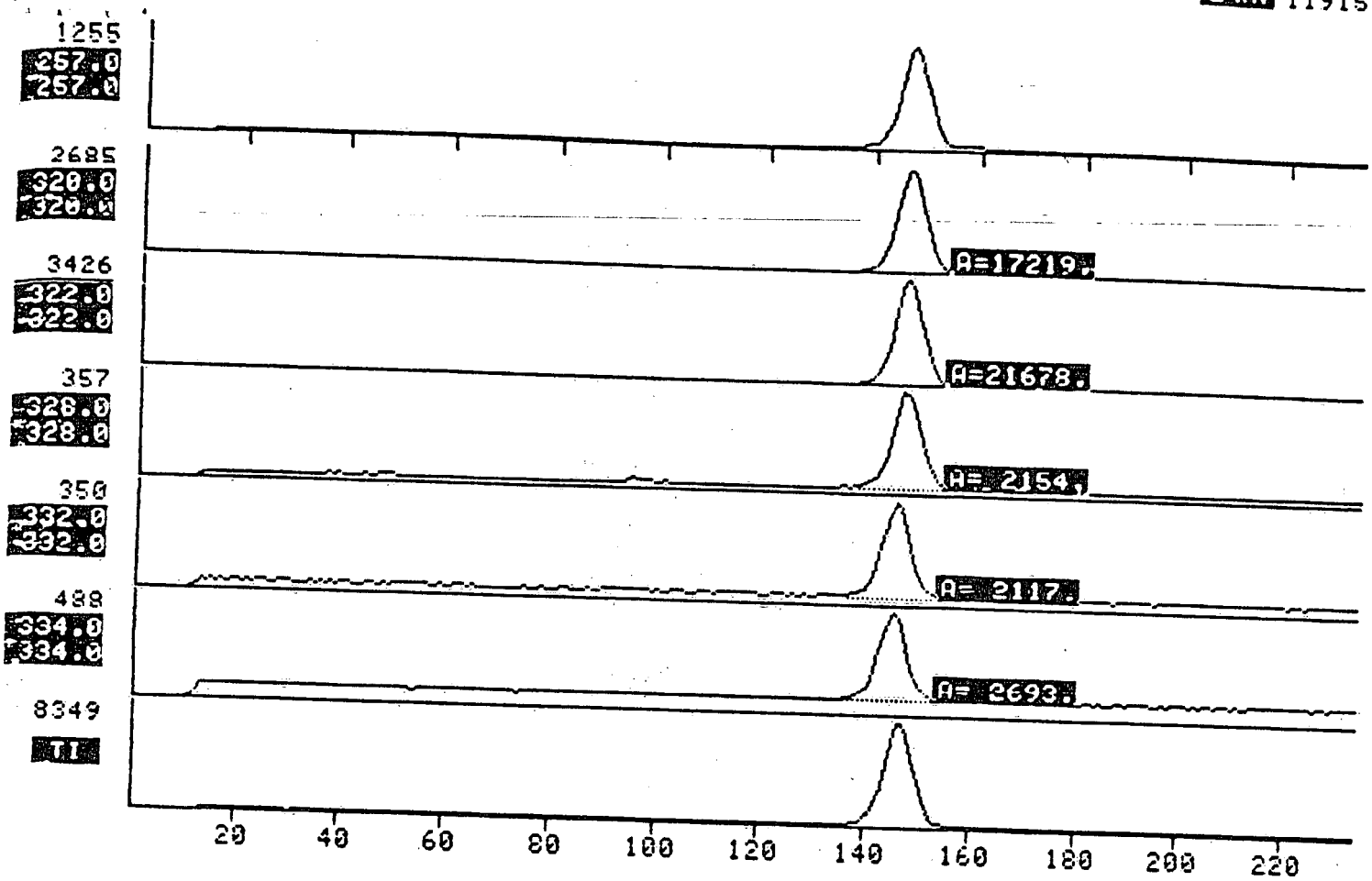
NAME 5PPB EQ TCDD STD 830719, G 1235 HRS
MISC 0#
FRN 11914

TCDD Rf= 0.82
Surr Rf= 1.01



NAME 25PPB TCDD STD. 830719. 1315HRS. G
MISC 25PPB STD TCDD

FRN 11915

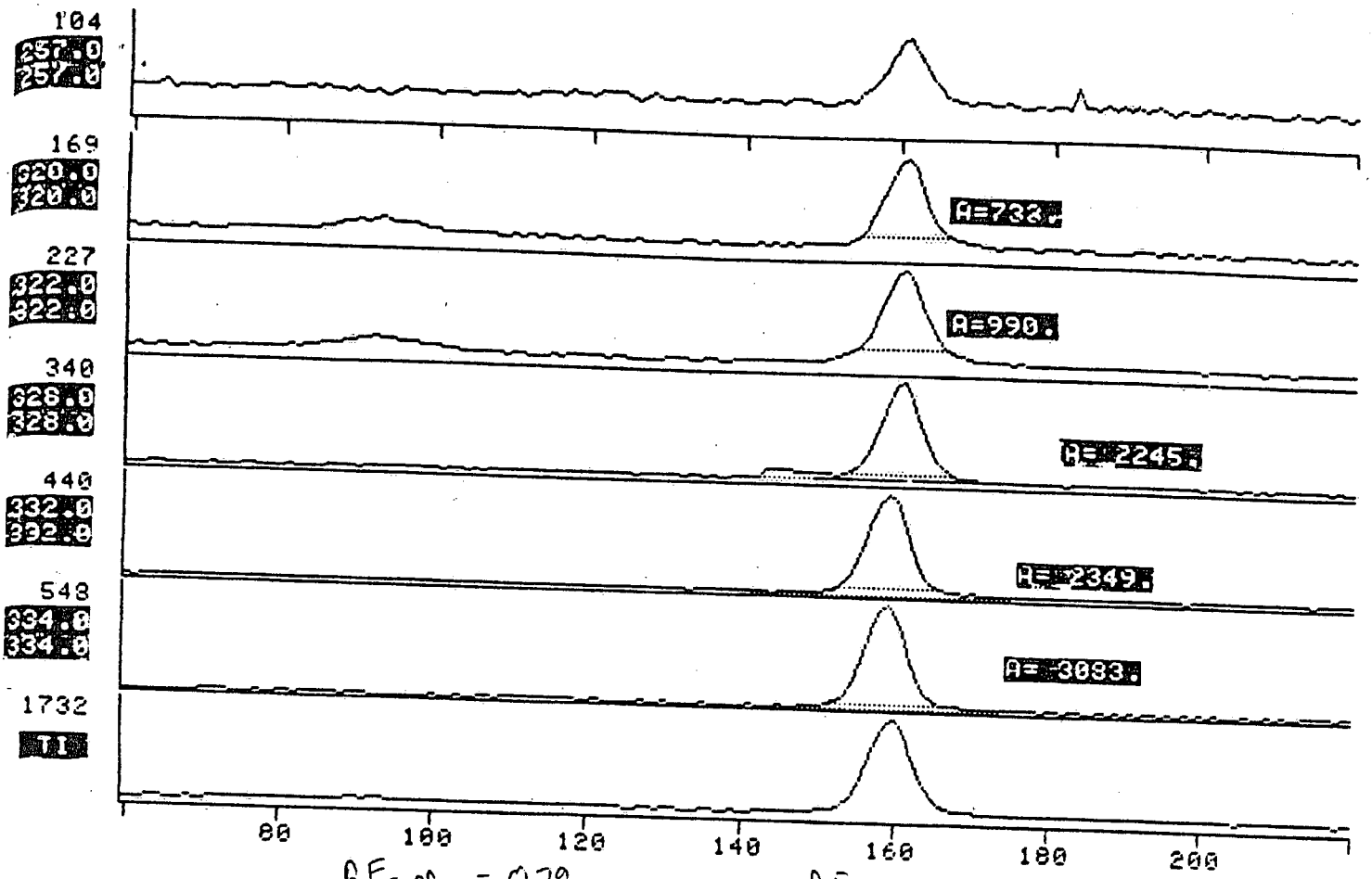


TCDD Rf= 0.81

Surr Rf= 1.02

ISC 1PPB TCDD STD

FRM 12023

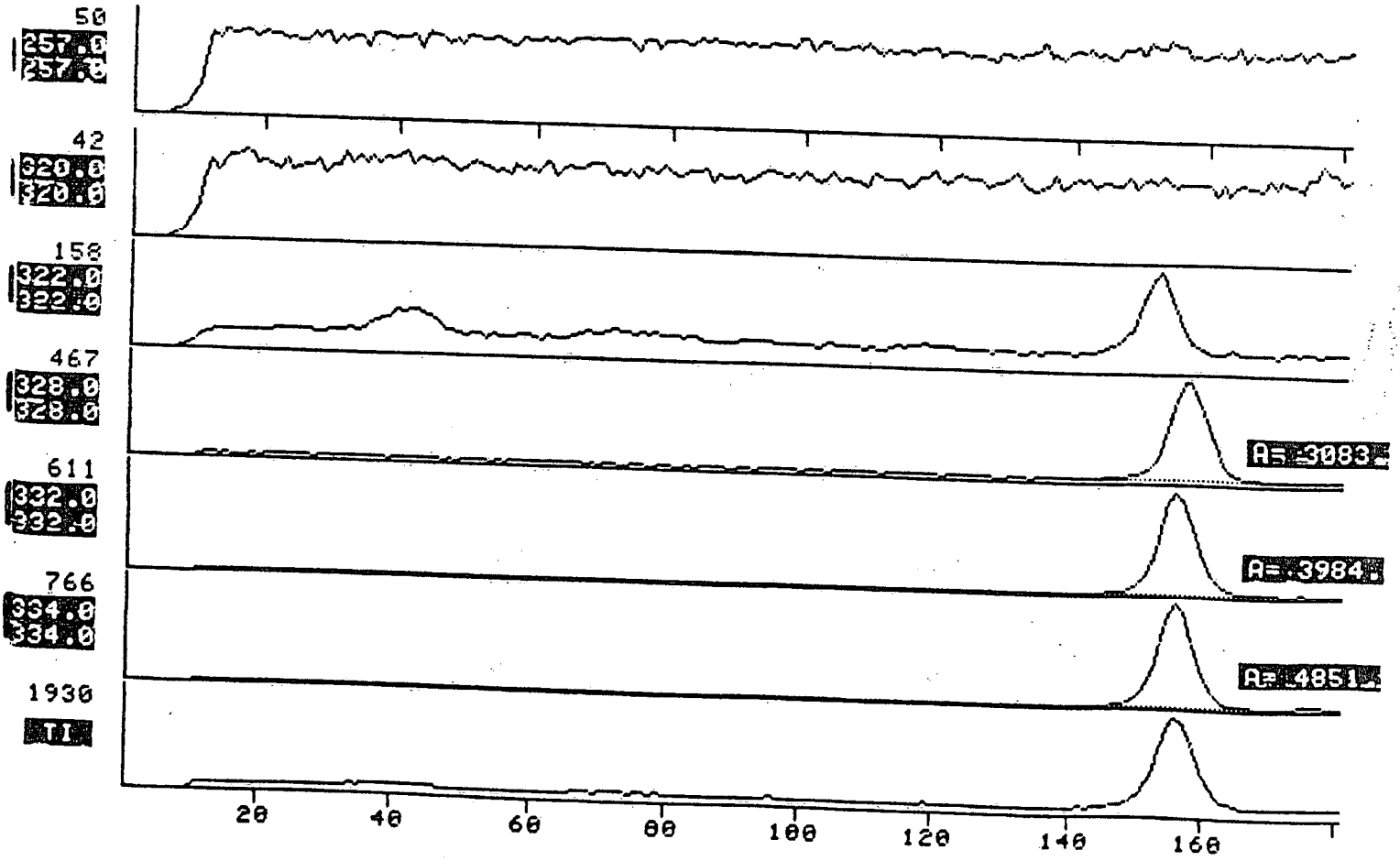


$RF_{TCDD\ Relative} = 0.79$ $RF_{Sur} = 1.02$

AME C7374 TCDD FRACTION, 830723, 1430HRS, G

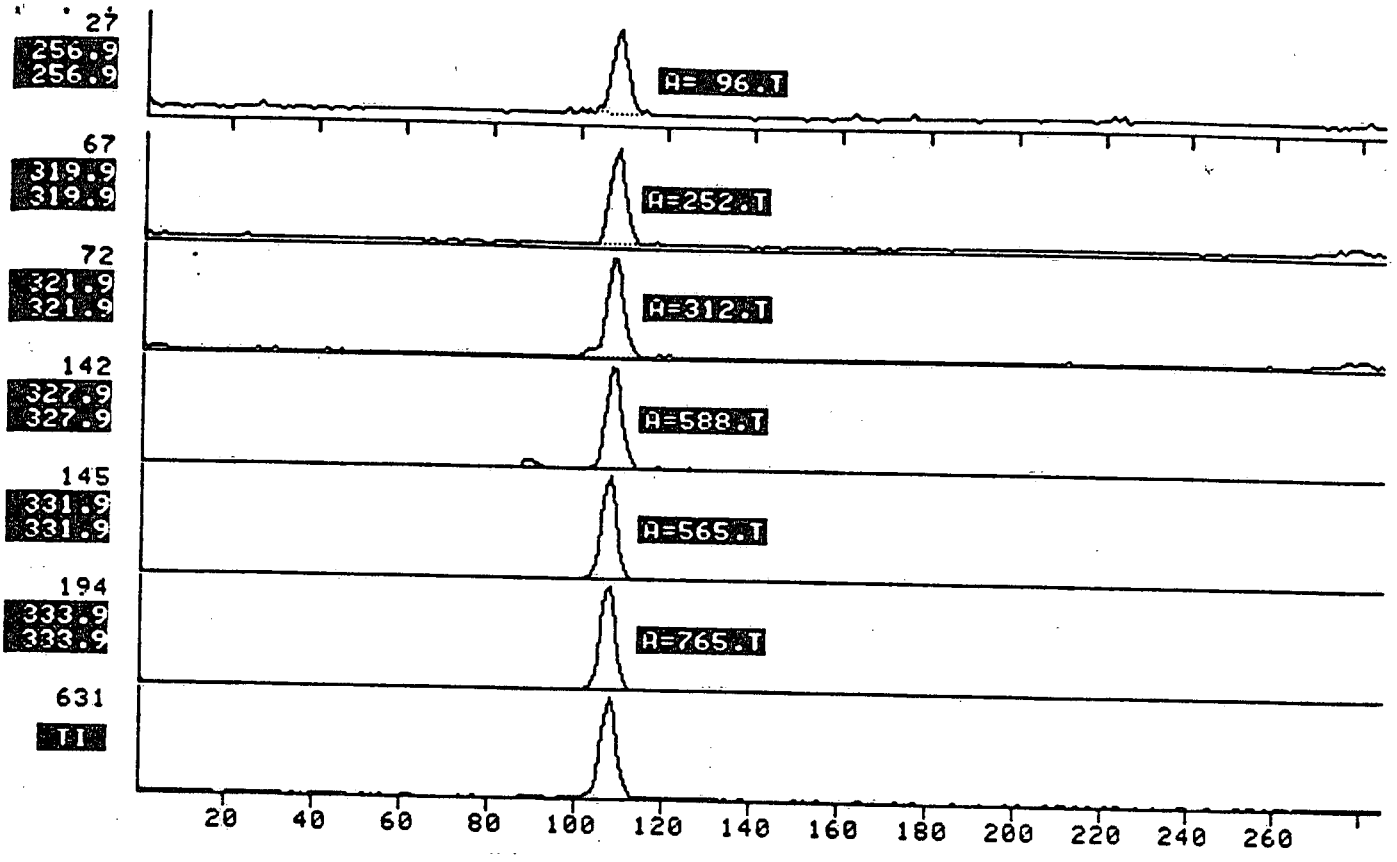
ISC C7374T

FRM 12029



NAME 1PPB EQ TCDD STD 830721 0015HRS H
MISC 1PPB STD

FRN 15875

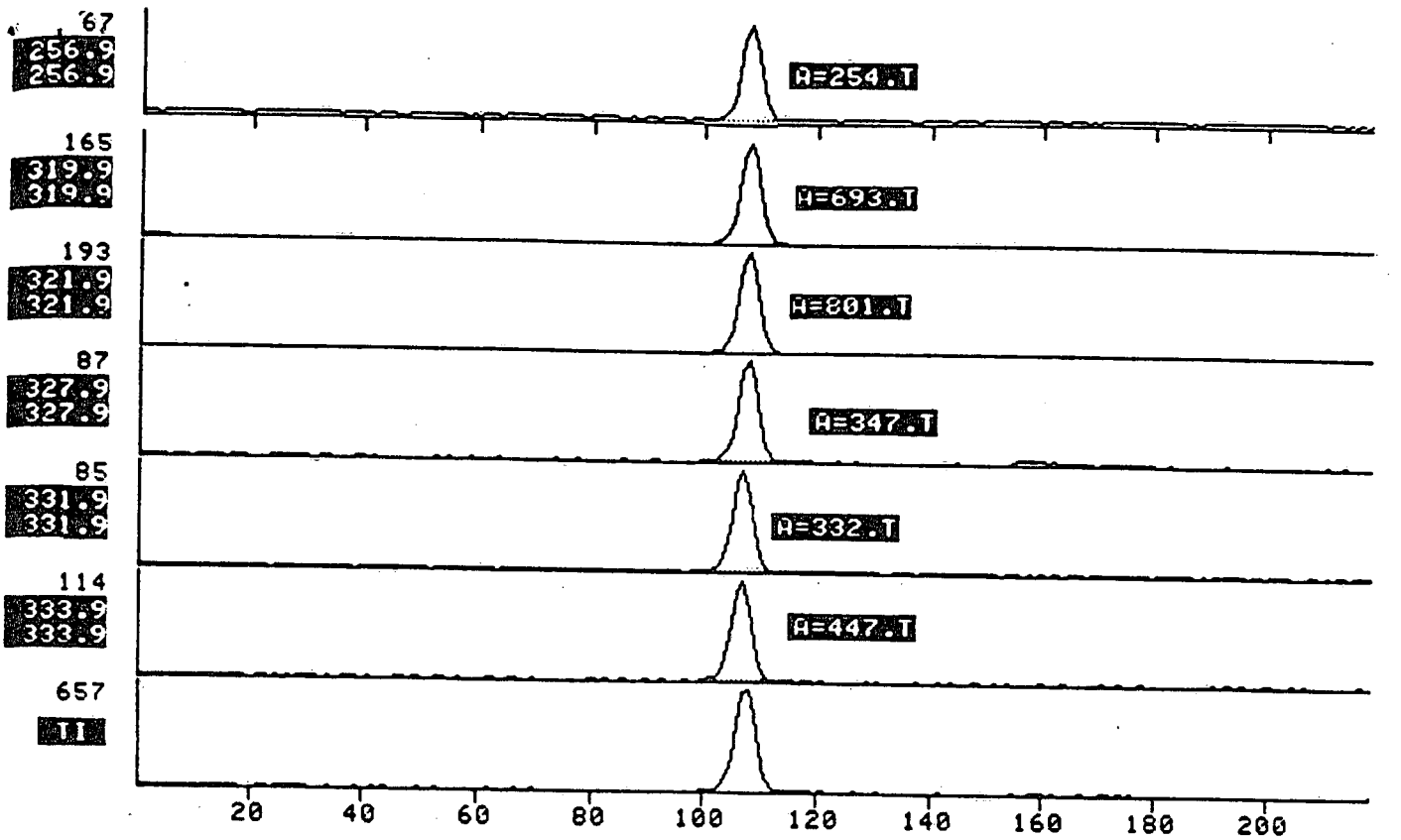


$Pf_{400} = 1.06$ $Pf_{500} = 1.10$

$\frac{Ix}{Im} = 0.81$ $\frac{Ix}{Rx} = 0.76$

NAME 5PPB EQ TCDD STD 830721 0100HRS H
MISC 5PPB STD

FRN 15876

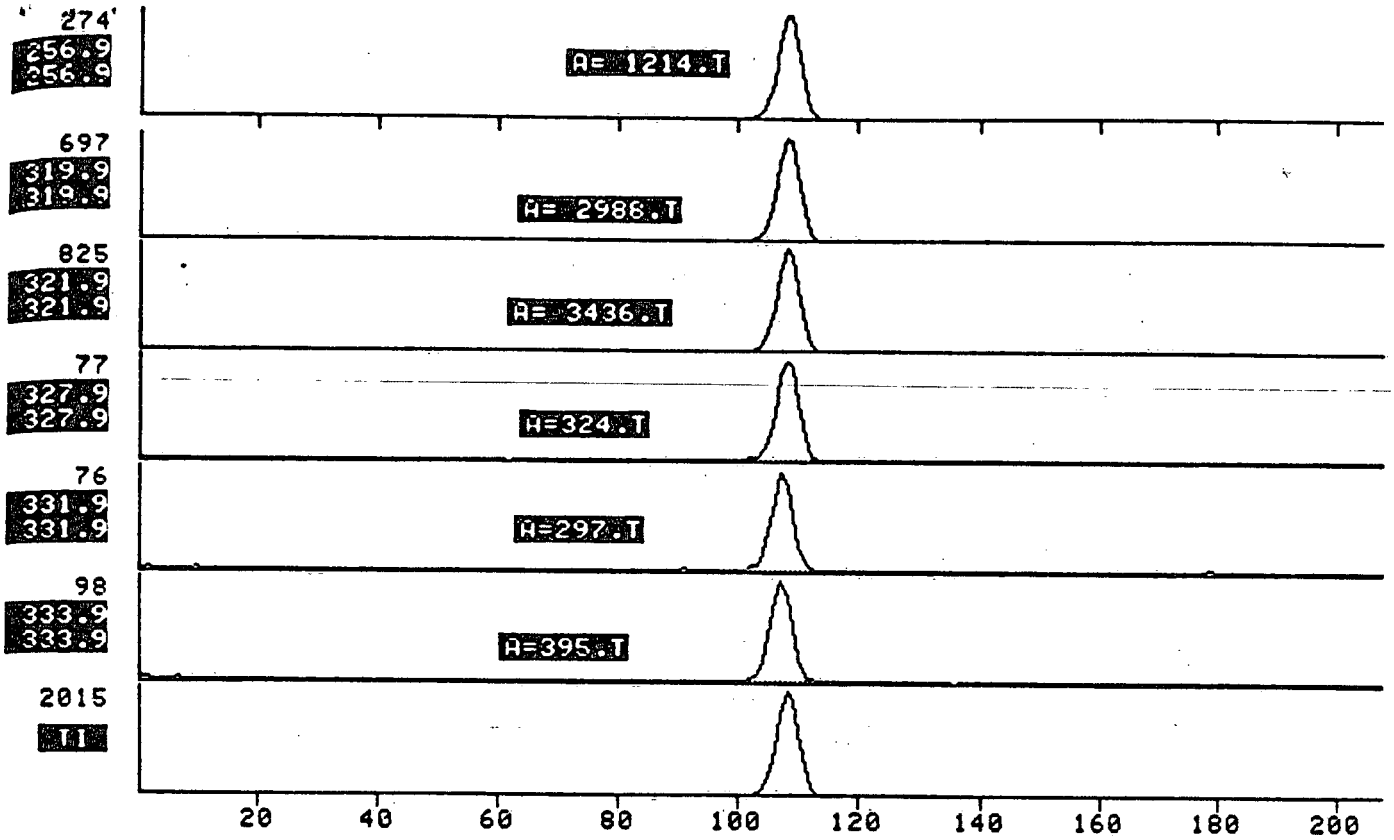


RF TCDD = 0.96 RF Hept 1.09

$\frac{Ion}{Ion}$ = 0.87 $\frac{Ion}{Ion}$ = 0.74

NAME 25PPB EQ TCDD STD 830721 0140HRS H
MISC 25PPB STD

FRN 15877

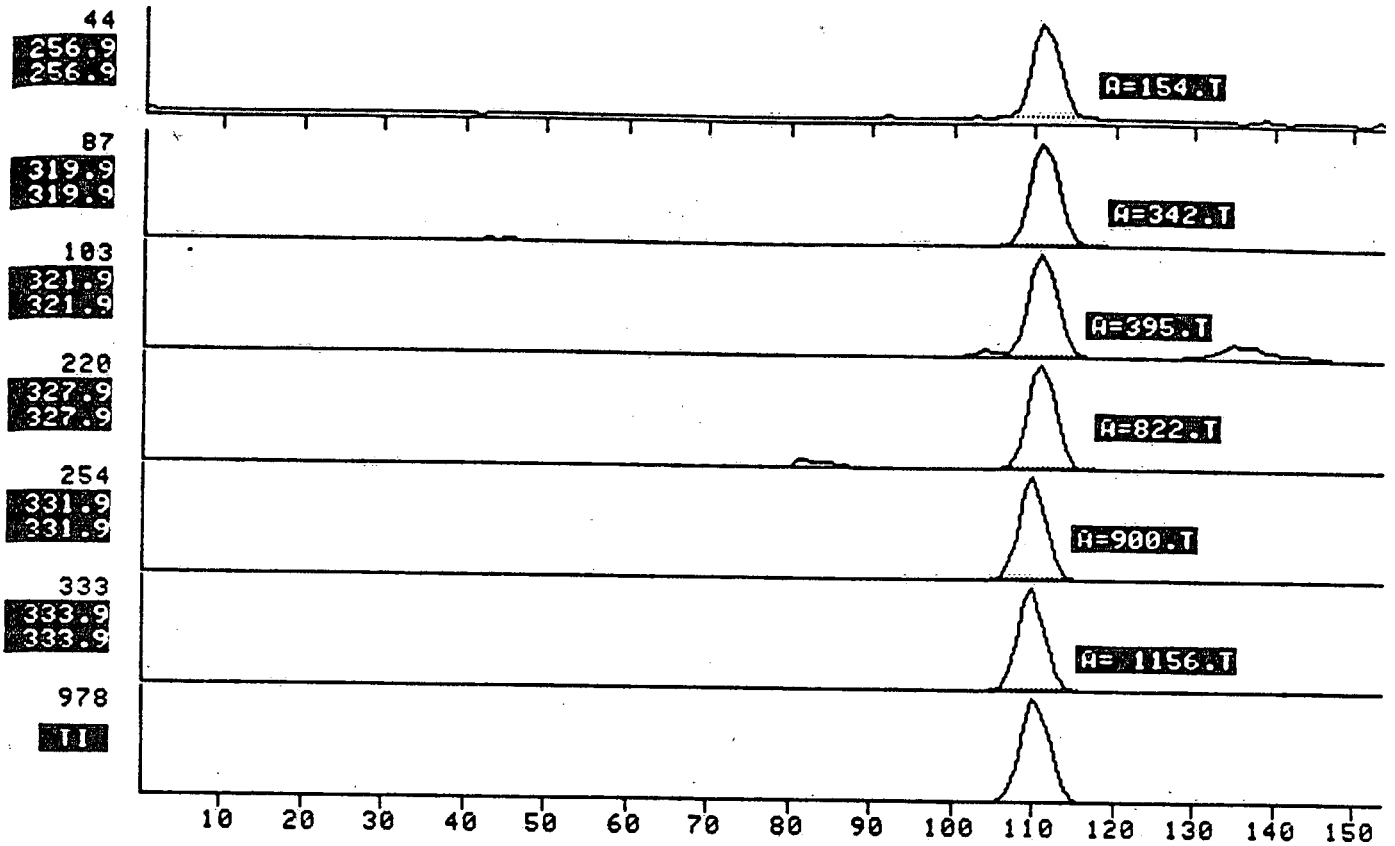


Rf_{tcnp} = 0.93 Rf_{hum} = 1.06

$\frac{320}{322}$ = 0.87 $\frac{332}{334}$ = 0.75

NAME 1PPB TCDD STANDARD, 830723, 0905HRS, H
MISC 1PPB TCDD STD

FRN 15953



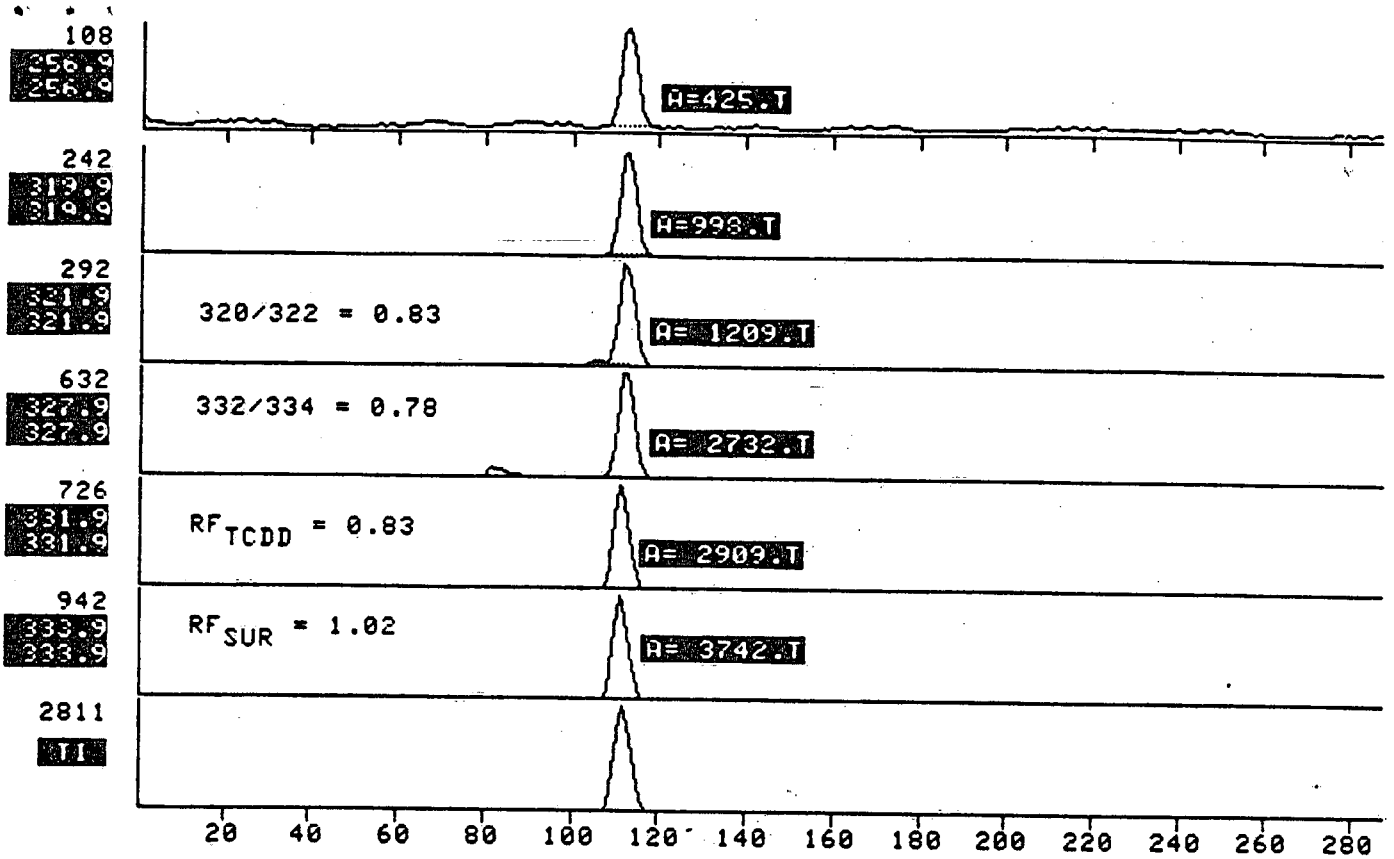
$RF_{TCDD\ Native} = .896$

$RF_{Surrogate} = .99$

NAME 1 PPB EQ TCDD STANDARD, 830723, 2130 HRS, H

MISC

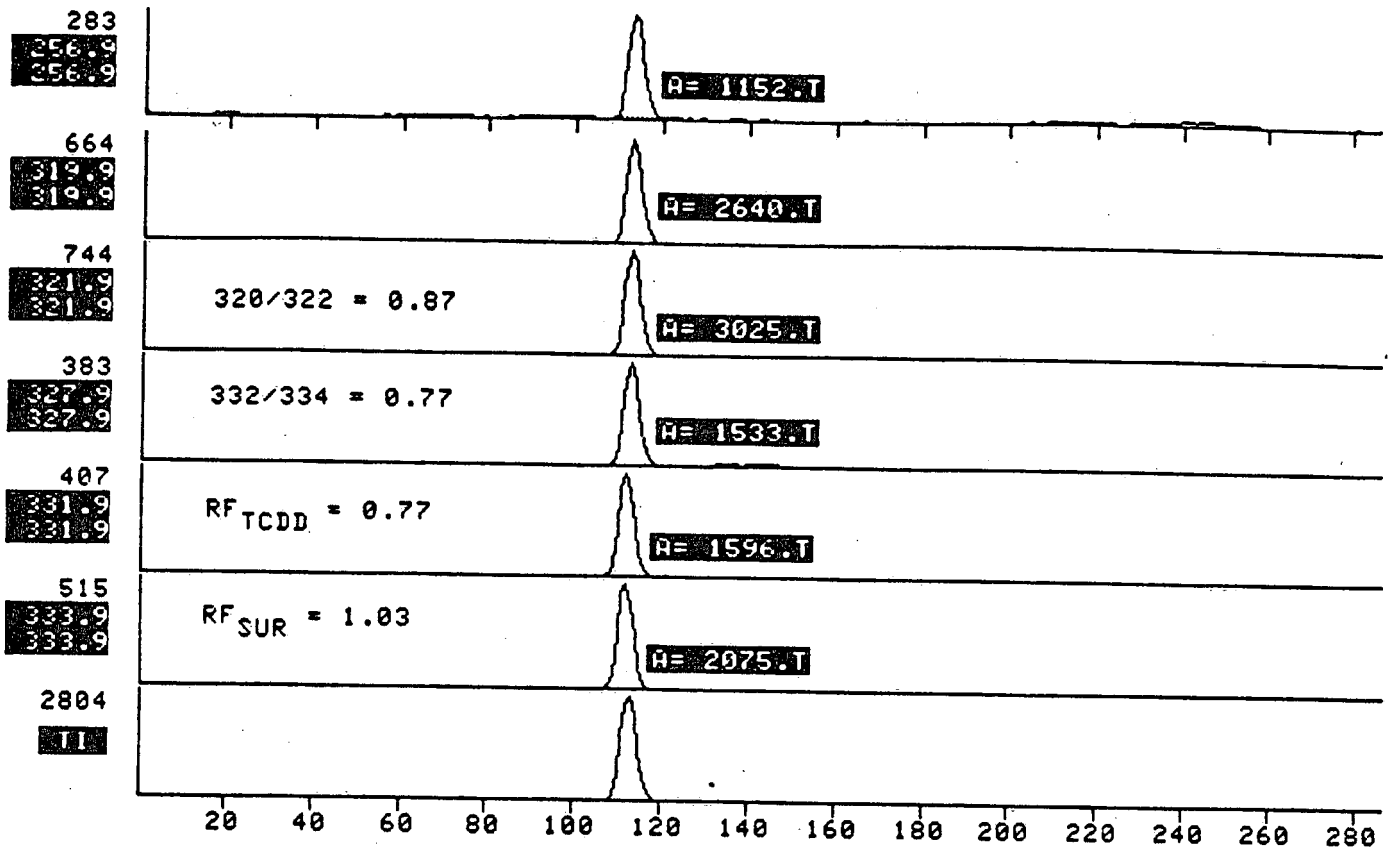
FRN 15967



NAME 5 PPB EQ TCDD STANDARD, 830723, 2300 HRS, H

MISC

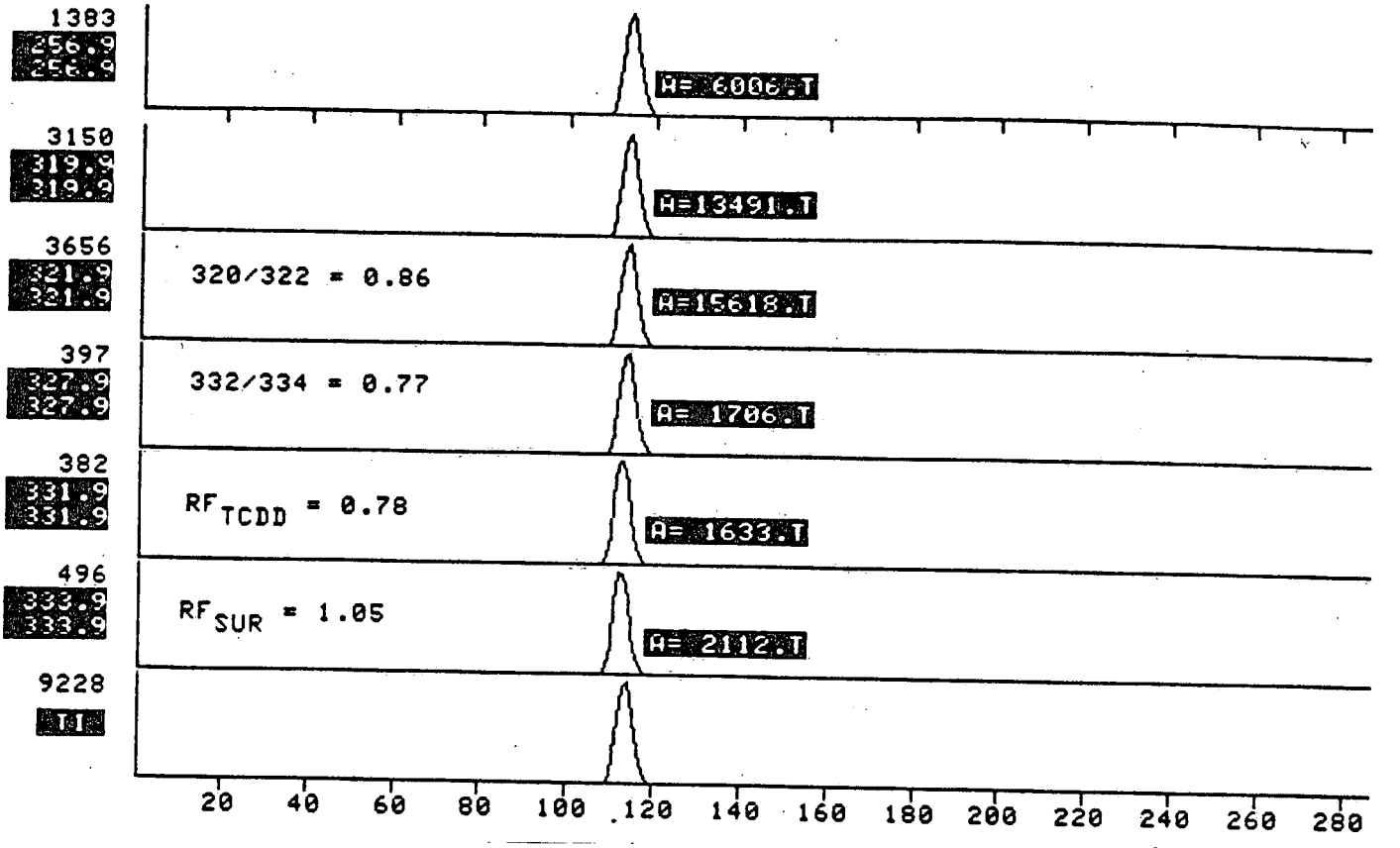
FRN 15968



NAME 25 PPB EQ TCDD STANDARD, 830723, 2340 HRS, H

MI 30

FRN 15969



ETC ENVIRONMENTAL TESTING and CERTIFICATION

CHAIN OF CUSTODY

Company: Summit Associates Job No. C7373, C7374

Address Raritan Plaza II Raritan Center
EDISON 08818

Attention: Richard Visceglia

Sample Description:

Received 2 paint cans

D. Farrell 7/15/83

Sample(s) Relinquished by: M. Zanoni

Time: 1135 Date: 7/15/83

Sample(s) Received by: D Farrell

Time: 1135 Date: 7/15/83

284 RARITAN CENTER PARKWAY • EDISON, NJ 08837 (201) 225-5600

ETC TESTING and CERTIFICATION

CHAIN OF CUSTODY FORM (CC1)

Seal Date: 7/15/83
Sealed By: Schuckert

SHIP TO:

Company: Summit Associates
Facility/Site: Raritan Plaza 2
Address: Raritan Center
Edison 08818
Attn.: Richard Visceglia
Phone: ( ) -

SAMPLE IDENTIFICATION

Facility/Site Code: RIARITANCITR

Source Codes:

Well ..... (W)	River/Stream ..... (R)	Surface Impoundment ..... (I)	Lake/Ocean ..... (L)
Soil ..... (S)	Bottom Sediment ..... (B)	Pretreatment Facility ..... (P)	Treatment Facility ..... (T)
Outfall ..... (O)	Generation Point ..... (G)	Leachate Collection Sys. ..... (C)	Other ..... (X)

Source Code (from above)	Your Sample Point ID (left justify)	Start Date (mo/day/yr)	Start Time (2400 hr. clock)	Elapsed Hours (composite)
	BLLDG6572-E	12/15/83	1015ST	
Example: W	1101J2613P	015115811	09310	13

SHUTTLE CONTENTS

Sample Bottle	Condition	Sample Bottle	Condition
C7373 A1			

CHAIN OF CUSTODY CHRONICLE

1. ~~Shuttle~~ Can Opened By: (print) M. Bonomo Date: 7/15/83 Time: 1050
Signature: M. Bonomo Seal #: Intact: ✓

2. I have received these materials in good condition from the above person.
Name: Signature:
Date: Time: Remarks:

3. I have received these materials in good condition from the above person.
Name: Signature:
Date: Time: Remarks:

4. I have received these materials in good condition from the above person.
Name: Signature:
Date: Time: Remarks:

5. Shuttle Sealed By: (print) M. Bonomo Date: 7/15/83 Time: 1105
Signature: M. Bonomo Seal #:

ETC USE ONLY Opened By: D. Farrell Date: 7/15/83 Time: 1135
Seal #: — Condition: Received paint cans

ETC ENVIRONMENTAL TESTING and CERTIFICATION

C7373
ETC Sample No.:

SAMPLE POINT INFORMATION FORM (CC2)

FIELD MEASUREMENT DATA

Select up to 3 parameters to be recorded by entering the appropriate code letter in the first space for each of the 3 data entry fields provided. Enter the actual measurement data (in the units specified) for the three parameters you have selected.

PARAMETERS		ACTUAL (left justify)	EXAMPLE
Flow (CFS)	A	C	C 2.5
Volume (Gal)	B		
Sample Depth (Ft)	C	a-13 IN	
Depth to Water (Ft)	D		
Discharge Rate (GPM)	E		F 50
Depth to Bottom (Ft)	F		
Event Time (2400-Hr Clock)	G		G 1103
Depth to Screen (Ft)	H		

FIELD TEST DATA

DO (Mg/L) ____

Sample Temp. (°C) ____

pH ____ Single Measurement — ____ 2nd of Quadruplicate — ____ 3rd of Quadruplicate — ____ 4th of Quadruplicate

Specific Conductance (uMHOS/CM) ____ Single Measurement — ____ 2nd of Quadruplicate — ____ 3rd of Quadruplicate — ____ 4th of Quadruplicate

THE FOLLOWING DATA IS FOR YOUR RECORDS ONLY

SAMPLING METHOD (choose one)

AIR-LIFT PUMP ( )
AUGER ( )
BAILER ( )
BOTTLE ( )
COLIWASA ( )
DIPPER ( )
KEMMERER ( )
MISKIN ( )

PERISTALTIC PUMP ( )
PETERSEN ( )
PISTON PUMP ( )
SCOOP/SHOVEL (✓)
SQUEEZE PUMP ( )
SUBMERSIBLE PUMP ( )
SUCTION LIFT PUMP ( )
SURBER ( )

THIEF ( )
TRIER ( )
VEHMEYER ( )
OTHER ____

SAMPLE TYPE (choose one)

GRAB (✓)

COMPOSITE ( ) ____ (describe)

OTHER ( ) ____ (describe)

WEATHER: Hot, 90° Sunny (describe)

SAMPLE DESCRIPTION (e.g. color, odor): Sandy soil. Brown, some dark brown streaks (describe)

Form Prepared By: M. Bonomi (name (print))

Employer: ETC

ETC Form CC2 6/1/82

E.T.C. TESTING and CERTIFICATION

CHAIN OF CUSTODY FORM (CC1)

Seal Date: C7374 7/15/83
Sealed By: Schuckert

SHIP TO:

Company: Summit Associates
Facility/Site: Raritan Plaza 2
Address: Raritan Center Edison 08818
Attn.: Richard Visceglia
Phone: ( ) -

SAMPLE IDENTIFICATION

Facility/Site Code: RARITANCTR

Source Codes:

Well (W) | River/Stream (R) | Surface Impoundment (I) | Lake/Ocean (L)
Soil (S) | Bottom Sediment (B) | Pretreatment Facility (P) | Treatment Facility (T)
Outfall (O) | Generation Point (G) | Leachate Collection Sys. (C) | Other (X)

Source Code (from above)	Your Sample Point ID (left justify)	Start Date (mo/day/yr)	Start Time (2400 hr. clock)	Elapsed Hours (composite)
	BLD66521-W	7/15/83	1110	
Example: W	1101J2613P	05/15/81	0930	13

SHUTTLE CONTENTS

Sample Bottle	Condition	Sample Bottle	Condition
C7374 A			

CHAIN OF CUSTODY CHRONICLE

1. ~~Shuttle~~ Can Opened By: (print) M. Bonomo Date: 7/15/83 Time: 1056
Signature: M. Bonomo Seal #: Intact: ✓

2. I have received these materials in good condition from the above person.
Name: Signature:
Date: Time: Remarks:

3. I have received these materials in good condition from the above person.
Name: Signature:
Date: Time: Remarks:

4. I have received these materials in good condition from the above person.
Name: Signature:
Date: Time: Remarks:

5. Shuttle Sealed By: (print) M. Bonomo Date: 7/15/83 Time: 1105
Signature: M. Bonomo Seal #:

ETC USE ONLY Opened By: [illegible] Date: 7/15/83 Time: 1135
Seal #: — Condition: Received Paint Can

ETC ENVIRONMENTAL TESTING and CERTIFICATION

C7374
ETC Sample No.:

SAMPLE POINT INFORMATION FORM (CC2)

FIELD MEASUREMENT DATA

Select up to 3 parameters to be recorded by entering the appropriate code letter in the first space for each of the 3 data entry fields provided. Enter the actual measurement data (in the units specified) for the three parameters you have selected.

PARAMETERS		ACTUAL (left justify)	EXAMPLE
Flow (CFS)	A		
Volume (Gal)	B		
Sample Depth (Ft)	C	C0-3N	C25
Depth to Water (Ft)	D		
Discharge Rate (GPM)	E		F50
Depth to Bottom (Ft)	F		
Event Time (2400-Hr Clock)	G		G1103
Depth to Screen (Ft)	H		

FIELD TEST DATA

DO (Mg/L) ____

Sample Temp. (°C) ____

pH ____ Single Measurement — ____ 2nd of Quadruplicate — ____ 3rd of Quadruplicate — ____ 4th of Quadruplicate

Specific Conductance (uMHOS/CM) ____ Single Measurement — ____ 2nd of Quadruplicate — ____ 3rd of Quadruplicate — ____ 4th of Quadruplicate

THE FOLLOWING DATA IS FOR YOUR RECORDS ONLY

SAMPLING METHOD (choose one)

AIR-LIFT PUMP ( )
AUGER ( )
BAILER ( )
BOTTLE ( )
COLIWASA ( )
DIPPER ( )
KEMMERER ( )
MISION ( )

PERISTALTIC PUMP ( )
PETERSEN ( )
PISTON PUMP ( )
SCOOP/SHOVEL (✓)
SQUEEZE PUMP ( )
SUBMERSIBLE PUMP ( )
SUCTION LIFT PUMP ( )
SURBER ( )

THIEF ( )
TRIER ( )
VEHMEYER ( )
OTHER ____

SAMPLE TYPE (choose one)

GRAB (✓)

COMPOSITE ( ) ____ (describe)

OTHER ( ) ____ (describe)

WEATHER: Sunny hot 90° (describe)

SAMPLE DESCRIPTION (e.g. color, odor): Sandy soil top 1" Next 2" reddish clay type material (describe)

Form Prepared By: M. Bonomo (name (print))

Employer: ETC

ETC Form CC2 6/1/82

LABORATORY CHAIN-OF-CUSTODY

ETC Sample Number(s) C7373, C7374

Relinquished By D. Farrell

Received By [illegible] Date 7/15/83 Time 5:30p

Relinquished By _____

Received By _____ Date _____ Time _____

Relinquished By _____

Received By _____ Date _____ Time _____

Relinquished By _____

Received By _____ Date _____ Time _____

Relinquished By _____

Received By _____ Date _____ Time _____

ETC ENVIRONMENTAL TESTING and CERTIFICATION

LABORATORY CHAIN-OF-CUSTODY CHRONICLE

ETC Sample Number(s) C7373, C7374

Sample Preparation For:	Analyst	Date
Base/Neutral/PCB's & Pesticides		
Acids		
Metals		
Others TCDD	[illegible]	7/19-7/22/83
Others		
Others		
Others		

Sample Analysis For:	Analyst	Date
Base/Neutral/PCB's & Pesticides		
Acids		
VOA/Purgeables		
Metals		
Others TCDD	Keith R. Shi	7/23/83
Others		
Others		
Others		
Others		
Others		

Verified By K. J. Kotz-Gebel