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RECEIVED 1987 JAN 23 AM 11:37 HAZARDOUS WASTE SECTION

RECEIVED

RESEARCH TRIANGLE INSTITUTE

Center for Environmental Measurements

January 15, 1987

Mr. Ralph Koenig
Los Alamos National Laboratory
Technical Area 50, Building 37
SM-30 Bikini Road
Los Alamos, New Mexico 87545

Dear Mr. Koenig:

Enclosed, please find copies of the evaluations of your audit results.

If you have any questions or comments concerning the audit, please feel free to call me at (919) 541-6483.

Sincerely,

RKM Jayanty

Dr. R.K.M. Jayanty
Project Leader

RKMJ/sr/91,92

cc: Darryl von Lehmden, EMSL/EPA
Robert Lampe, EMSL/EPA
Florence Richardson, EPA/Washington
Mark Sides, Region VI, EPA 6H-CP

8350

Post Office Box 12194 Research Triangle Park, North Carolina 27709 Telephone: 919 541-6000

FIELD AUDIT REPORT/NUMBER 91

PART A - To be filled out by organization supplying audit cylinders (RTI)

1. Organization supplying audit sample(s) and shipping address

Research Triangle Institute
P.O. Box 12194
Cornwallis Road
Research Triangle Park, N.C. 27709

2. Individual requesting Audit, organization, and phone number

Mark Sides, Region VI EPA, Dallas, TX (214) 767-8944

3. Audit supervisor, organization, and phone number

R.K.M. Jayanty, Research Triangle Institute, (919) 541-6483

4. Shipping instructions - Name, Address, Attention

Ralph Koenig, T.A. 50, Bldg. 37, SM-30 Bikini Rd., Los Alamos National Laboratory, Los Alamos, NM 87545

5. Shipping date for cylinder August 22, 1986

6. Guaranteed arrival date for cylinder by Overnite Trans. Co.

7. Audit cylinder(s) status/constituent concentration

A.	Cylinder number	AAL 11924
B.	Cylinder pressure, psig	1800
C.	Cylinder construction	Aluminum
D.	Audit Balance Gas	Nitrogen
E.	Date of Last Analysis	4/86
F.	Audit Gas(es), ppb	
	Carbon tetrachloride	16.9 ± 0.5
	Chloroform	23.2 ± 0.5
	Perchloroethylene	78 ± 1.9
	Benzene	52.6 ± 1.7
	Vinyl chloride	31.8 ± 1.0

cc: Darryl von Lehmden, EMSL/EPA
Robert Lampe, EMSL/EPA
Florence Richardson, EPA/Washington
Mark Sides, Region VI, EPA

FIELD AUDIT REPORT/NUMBER 91

PART B - To be filled out by audit supervisor

1. Organic chemical manufacturing process Hazardous Waste Trial Burn
2. Name of individual/organization being audited Ralph Koenig, Los Alamos National Laboratory
3. Location of audit Los Alamos National Laboratory, Los Alamos New Mexico 87545
4. Use of audit material Ascertain accuracy of VOST sampling and GC/MS analysis procedures.
5. Audit Results

A. Cylinder number AAL 11924
B. Pressure before audit, psig 1800
C. Pressure after audit, psig 1500
D. Audit date: 9/7/86

Compound	Auditee Conc. (ppb) 1	2	3	Average	RTI Concentration
Carbon tetrachloride	9.4	9.9	10.5	10.3	16.9 ± 0.5
Chloroform				N/A	23.2 ± 0.5
Perchloroethylene				N/A	78 ± 1.9
Benzene				N/A	52.6 ± 1.7
Vinyl chloride				N/A	31.8 ± 1.0

E. Audit Accuracy*

Carbon tetrachloride	-39
Chloroform	N/A
Perchloroethylene	N/A
Benzene	N/A
Vinyl chloride	N/A

$$* \text{ Percent accuracy} = \frac{\text{Auditee Conc.} - \text{RTI Conc.}}{\text{RTI Conc.}} \times 100$$

6. Problems (if any) Calculations: assumed 1 atm pressure and standard room temperature (298°K) in converting NG/sample volume to PPB. (cks)

FIELD AUDIT REPORT/NUMBER 92

PART A - To be filled out by organization supplying audit cylinders (RTI)

1. Organization supplying audit sample(s) and shipping address

Research Triangle Institute
P.O. Box 12194
Cornwallis Road
Research Triangle Park, N.C. 27709

2. Individual requesting Audit, organization, and phone number

Mark Sides, Region VI EPA, Dallas, TX (214) 767-8944

3. Audit supervisor, organization, and phone number

R.K.M. Jayanty, Research Triangle Institute, (919) 541-6483

4. Shipping instructions - Name, Address, Attention

Ralph Koenig, T.A. 50, Bldg. 37, SM-30 Bikini Rd. Los Alamos National Laboratory, Los Alamos, NM 87545

5. Shipping date for cylinder: August 22, 1986

6. Guaranteed arrival date for cylinder: by Overnite Trans. Co.

7. Audit cylinder(s) status/constituent concentration

A.	Cylinder number	AAL 12421
B.	Cylinder pressure, psig	1400
C.	Cylinder construction	Aluminum
D.	Audit Balance Gas	Nitrogen
E.	Date of Last Analysis	6/86
F.	Audit Gas(es) PPB	
	Acetonitrile	14.9 ± 1.0
	Methyl Ethyl Ketone	18.1 ± 1.0
	Trichloroethylene	13.2 ± 0.7
	1,2-Dichloroethane	16.7 ± 0.9
	Trichlorofluoromethane	15.9 ± 0.5
	Bromomethane (7/85)	15.0 ± 0.6
	Dichlorodifluoromethane	15.5 ± 0.6
	1,2-Dibromoethane	16.2 ± 0.7
	1,1,1-Trichloroethane	16.3 ± 0.9

cc: Darryl von Lehmden, EMSL/EPA
Robert Lampe, EMSL/EPA
Florence Richardson, EPA/Washington
Mark Sides, Region VI, EPA

FIELD AUDIT REPORT/NUMBER 92

PART B - To be filled out by audit supervisor

1. Organic chemical manufacturing process Hazardous Waste Trial Burn.
2. Name of individual/organization being audited Ralph Koenig, Los Alamos National Laboratory
3. Location of audit Los Alamos National Laboratory New Mexico 87545
4. Use of audit material Ascertain accuracy of VOST sampling and GC/MS analysis procedure.

5. Audit Results

A. Cylinder number AAL 12421
B. Pressure before audit, psig 1400
C. Pressure after audit, psig 1350
D. Audit date: 9/7/86

Compound	Auditee Conc. (ppb) 1	2	Average	RTI Concentration
Acetonitrile			N/A	14.9 ± 1.0
Methyl Ethyl Ketone			N/A	18.1 ± 1.0
Trichloroethylene	9.66	10.96	9.33	13.2 ± 0.7
1,2-Dichloroethane			N/A	16.7 ± 0.9
Trichlorofluoromethane			N/A	15.9 ± 0.5
Bromomethane			N/A	15.0 ± 0.6
Dichlorodifluoromethane			N/A	15.5 ± 0.6
1,2-Dibromoethane			N/A	16.2 ± 0.7
1,1,1-Trichloroethane			N/A	16.3 ± 0.9

E. Audit Accuracy*

Acetonitrile	N/A	Bromomethane	N/A
Methyl Ethyl Ketone	N/A	Dichlorodifluoromethane	N/A
Trichloroethylene	-25	1,2-Dibromoethane	N/A
1,2-Dichloroethane	N/A	1,1,1-Trichloroethane	N/A
Trichlorofluoromethane	N/A		

$$* \text{ Percent accuracy} = \frac{\text{Auditee Conc.} - \text{RTI Conc.}}{\text{RTI Conc.}} \times 100$$

6. Problems (if any) Calculations: assumed 1 atm pressure and standard room temperature (298°K) in converting NG/sample volume to PPB. (cks)

TABLE OF CONTENTS

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A	Analysis of Trial POHCs in Waste Feed
	i) Carbon Tetrachloride (CCl_4) Feed Stock ii) Trichloroethylene (TCE) Feed Stock iii) Liquid Mixture Feed (LMF) iv) Fuel Oil Feed (FOF) v) Alumagel (ALGL) vi) Pel-e-cel (PEL) vii) Caustic Solution (CS)
B	Analysis for POHCs in Offgas (VOST-T,TC)
C	Analysis for Oxygen (O_2) in Offgas
	i) ORSAT Analysis ii) O_2/Combustibles Strip Chart
D	Analysis for Chloride (Cl^-) in Offgas (M5-IMP)
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	i) Scrubber Discharge Liquid (SDL) ii) Activated Charcoal (ACF & ACU)) iii) Makeup Water (MW) iv) Incinerator Ash (IA) v) HEPA Filters (HEPA & HEPA4)
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H	Combustion Gas Flowrates
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J	EPA Method-5 & VOST Sample Period Chart
K	EPA Method-5 Data Sheets
L	EPA Method-5 Particulate Filter Data Sheets
M	VOST Field Data Sheets
N	Liquid Feed Preparation & Feed Rate Data
O	Solid Feed Preparation & Feed Rate Schedule
P	Log Book & Manual Data Sheets
Q	Analytical Reports (CEP & Los Alamos)

Analytical Report

Date: 12/01/86

John Vavruska
MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ——> Burn Test

Sample Sheet # 5425

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result	Units	Uncertainty +/-
00.96591	46%CT	56235	CCl4	40	%	4
86.12412	LA-1-V-1-CCL4	56235	CCl4	100	%	5
86.12413	LA-1-V-1-TCE	79016	TCE	97	%	5
86.12414	LA-1-V-1-L.M.F.	56235	CCl4	32	%	2
		79016	TCE	16	%	1
		CL	Chloride	1	MG/L	.5
		SOLIDS,DIS	Disolved Solids	12350	MG/L	1235
86.12415	LA-1-V-2-L.M.F.	56235	CCl4	43	%	2
		79016	TCE	21	%	1
		CL	Chloride	8	MG/L	.5
		SOLIDS,DIS	Disolved Solids	5460	MG/L	546
86.12416	LA-1-V-3-L.M.F.	56235	CCl4	40	%	2
		79016	TCE	20	%	1
		CL	Chloride	3	MG/L	.5
		SOLIDS,DIS	Disolved Solids	2630	MG/L	263
86.12417	LA-2-V-1-L.M.F.	56235	CCl4	30	%	3
		79016	TCE	16	%	1
		CL	Chloride	5	MG/L	.5
		SOLIDS,DIS	Disolved Solids	6600	MG/L	660
86.12418	LA-2-V-2-L.M.F.	56235	CCl4	41	%	2
		79016	TCE	20	%	1
		CL	Chloride	3	MG/L	.5
		SOLIDS,DIS	Disolved Solids	5010	MG/L	501
86.12419	LA-2-V-3-L.M.F.	56235	CCl4	46	%	3
		79016	TCE	18	%	1
		CL	Chloride	4	MG/L	.5
		SOLIDS,DIS	Disolved Solids	10550	MG/L	1055

Date: 12/1/86
Approved, Contracting

mag 12-1-86
Date: 12/1/86
Approved, Quality Control

Analytical Report

Date: 12/01/86

John Vavruska
MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ——> Burn Test

Sample Sheet # 5422

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result	Units	Uncertainty +/-
00.96584	24ug/gCT,32 TCE	56235	CCl4	< 5	UG/L	2
		79016	TCE	< 5	UG/L	2
00.96585	33ug/gCT,25 TCE	56235	CCl4	< 5	UG/L	2
		79016	TCE	< 5	UG/L	2
6589	32ug/L CT,40TCE	56235	CCl4	25	UG/L	3
		79016	TCE	34	UG/L	4
6590	32ug/L CT,40TCE	56235	CCl4	21	UG/L	3
		79016	TCE	47	UG/L	5
00.96773	20ng/gCT20510TC	56235	CCl4	.1	UG/KG	.1
		79016	TCE	7.8	UG/KG	1
00.96774	38ng/gCT38494TE	56235	CCl4	.1	UG/KG	.1
		79016	TCE	.05	UG/KG	.1
00.96775	20ng/mlCT20280T	56235	CCl4	44	UG/L	4
		79016	TCE	8050	UG/L	805
00.96776	60ng/mlCT60840T	56235	CCl4	69	UG/L	7
		79016	TCE	44000	UG/L	4400
86.10192	LA-1-V-1-F.O.F.	56235	CCl4	< 1	MG/L	1
		79016	TCE	< 1	MG/L	1
		CL	Chloride	< 1.000	MG/L	1.000
86.10193	LA-2-M5-1-ALGL	56235	CCl4	27	UG/KG	3
		79016	TCE	1	UG/KG	1
		CL	Chloride	38.000	UG/G	2.000
86.10194	LA-1-M5-1-ALGL	56235	CCl4	510	UG/KG	51
		79016	TCE	628	UG/KG	63
		CL	Chloride	54.000	UG/G	2.000
86.10195	LA-3,4-V-123PEL	56235	CCl4	82	UG/KG	8
		79016	TCE	70	UG/KG	7
		CL	Chloride	2,610.000	UG/G	130.000
86.10196	LA-3-V-3-I.A.	56235	CCl4	168	UG/KG	16
		79016	TCE	150	UG/KG	15
		CL	Chloride	8,750.000	UG/G	435.000
		PH	pH	9.900	PH UNITS	0.200
0197	LA-4-M5-123-I.A	56235	CCl4	2000	UG/KG	200
		79016	TCE	600	UG/KG	60
		CL	Chloride	26,700.000	UG/G	1,335.000
		PH	pH	8.900	PH UNITS	0.200
86.10198	LA-1-V-1-HEPA	56235	CCl4	38	UG/KG	4
		79016	TCE	< 1	UG/KG	1

		CL	Chloride		9.000	UG/G	1.000
		PH	pH		8.300	PH UNITS	0.200
86.10199	LA-4-V-3-HEPA4	56235	CCl4	150		UG/KG	15
		79016	TCE	10		UG/KG	1
		CL	Chloride		87,700.000	UG/G	4,335.000
		PH	pH		5.900	PH UNITS	0.200

Date: 12/1/86

Approved, Contracting

Date: 12/1/86

Approved, Quality Control

Analytical Report

Date: 12/01/86

John Vavruska
MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ----> Burn Test

Sample Sheet # 5423

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result	Units	Uncertainty +/-
00.96767	80.8 ppm	CL	Chloride	83.000	MG/L	1.000
86.10186	LA-1-V-1-C.S.	CL	Chloride	1,050.000	MG/L	1.000
86.10187	LA-2-V-1-C.S.	CL	Chloride	1,050.000	MG/L	1.000
86.10188	LA-2-V-3-C.S.	CL	Chloride	1,375.000	MG/L	1.000
0189	LA-3-V-1-C.S.	CL	Chloride	950.000	MG/L	1.000
0190	LA-3-V-2-C.S.	CL	Chloride	1,300.000	MG/L	1.000
0191	LA-4-V-123-C.S.	CL	Chloride	1,350.000	MG/L	1.000

Date: 12 / 1 / 86
Approved, Contracting

Date: 12 / 1 / 86
Approved, Quality Control

Analytical Report

Date: 12/01/86

John Vavruska
MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ——> Burn Test

Sample Sheet # 5379

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result	Units	Uncertainty +/-
00.96586	4800ngCT,280TCE	56235	CCl4	2900	NG	299
		79016	TCE	240	NG	24
00.96587	220ngCT,4500TCE	56235	CCl4	330	NG	33
		79016	TCE	4800	NG	488
00.96588	800ngCT,1100TCE	56235	CCl4	1440	NG	144
		79016	TCE	2100	NG	210
00.96770	20ngCT,20280TCE	56235	CCl4	8	NG	1
		79016	TCE	1150	NG	115
00.96771	10ngCT,10140TCE	56235	CCl4	5.6	NG	1
		79016	TCE	499	NG	50
00.96772	40ngCT,40560TCE	56235	CCl4	Broken	NG	
		79016	TCE		NG	
86.12449	1-V-1-T,TC	56235	CCl4	> 188	NG	19
		79016	TCE	Det Quenched	NG	
86.12450	1-V-2-T,TC	56235	CCl4	6780	NG	678
		79016	TCE	161	NG	16
86.12451	1-V-3-T,TC	56235	CCl4	5110	NG	511
		79016	TCE	< 10	NG	1
86.12452	1-V-4-T,TC	56235	CCl4	> 5760	NG	576
		79016	TCE	Det Quenched	NG	
86.12453	1-V-5-T,TC	56235	CCl4	> 5410	NG	541
		79016	TCE	Det Quenched	NG	
86.12454	1-V-6-T,TC	56235	CCl4	5410	NG	541
		79016	TCE	140	NG	14
86.12455	1-V-(1-6)-T,TC	56235	CCl4	< 10	NG	1
		79016	TCE	3	NG	1
86.12456	2-V-1-T,TC	56235	CCl4	63	NG	6
		79016	TCE	< 10	NG	1
86.12457	2-V-2-T,TC	56235	CCl4	Det Quenched	NG	
		79016	TCE		NG	
86.12458	2-V-3-T,TC	56235	CCl4	Broken	NG	
		79016	TCE	< 10	NG	1
86.12459	2-V-4-T,TC	56235	CCl4	1190	NG	119
		79016	TCE	164	NG	16
86.12460	2-V-5-T,TC	56235	CCl4	4580	NG	458
		79016	TCE	115	NG	12
86.12461	2-V-6-T,TC	56235	CCl4	5660	NG	566
		79016	TCE	110	NG	12

86.12462	2-V-(1-6)-T,TC	56235	CCl4		8	NG	1
		79016	TCE	<	10	NG	1
86.12463	3-V-1-T,TC	56235	CCl4		2170	NG	217
		79016	TCE		231	NG	23
86.12464	3-V-2-T,TC	56235	CCl4		2230	NG	223
		79016	TCE		235	NG	23
2465	3-V-3-T,TC	56235	CCl4		5660	NG	566
		79016	TCE		1240	NG	124
86.12466	3-V-4-T,TC	56235	CCl4		4440	NG	444
		79016	TCE		543	NG	54
86.12467	3-V-5-T,TC	56235	CCl4		258	NG	26
		79016	TCE		6	NG	1
86.12468	3-V-6-T,TC	56235	CCl4		2993	NG	300
		79016	TCE		8	NG	1
86.12469	3-V-(1-6)-T,TC	56235	CCl4	<	10	NG	1
		79016	TCE	<	10	NG	1
86.12470	4-V-1-T,TC	56235	CCl4		5600	NG	560
		79016	TCE		52	NG	5
86.12471	4-V-2-T,TC	56235	CCl4		590	NG	59
		79016	TCE	<	10	NG	1
86.12472	4-V-3-T,TC	56235	CCl4		2600	NG	260
		79016	TCE		36	NG	4
86.12473	4-V-4-T,TC	56235	CCl4		5200	NG	520
		79016	TCE		210	NG	21
86.12474	4-V-5-T,TC	56235	CCl4		6200	NG	620
		79016	TCE		162	NG	16
86.12475	4-V-6-T,TC	56235	CCl4		4900	NG	490
		79016	TCE		116	NG	12
86.12476	4-V-(1-6)-T,TC	56235	CCl4	<	10	NG	1
		79016	TCE	<	10	NG	1
86.12477	(1-4)-V-1-T,TCA	56235	CCl4	<	10	NG	1
		79016	TCE		502	NG	50
2478	(1-4)-V-2-T,TCA	56235	CCl4	<	10	NG	1
		79016	TCE		605	NG	61
86.12479	(1-4)-V-3-T,TCA	56235	CCl4	<	10	NG	1
		79016	TCE		614	NG	61
86.12480	(1-4)-V-4-T,TCA	56235	CCl4		615	NG	62
		79016	TCE	<	10	NG	1
86.12481	(1-4)-V-5-T,TCA	56235	CCl4			NG	
		79016	TCE		BROKEN	NG	
86.12482	(1-4)-V-6-T,TCA	56235	CCl4		730	NG	73
		79016	TCE	<	10	NG	1
86.12483	(1-4)V-ALL-T,TC	56235	CCl4	<	10	NG	1
		79016	TCE	<	10	NG	1

Date: 12/1/86

Approved, Contracting

Date: 12/1/86

Approved, Quality Control

ORSAT READINGS

Job: Los Alamos National Laboratories - Controlled Date: 9-4-86

Air Incinerator - Stack

Test No.: LANL-1-M5-1 (Condition 1 Run 1)
LANL-1-M5-2 (Condition 1 Run 2)
LANL-1-M5-3 (Condition 1 Run 3)

Time	% CO_2		% O_2		% CO	
LANL-1-M5-1 Bag 1	8.7		17.8	9.1		
Bag 1	8.6		17.8	9.2	-	
Bag 2	8.6		17.8	9.2		
Bag 2	8.6		17.8	9.2		
		silica gel	12.6	Impinger	296	
LANL-1-M5-2 Bag 1	8.6		17.8	9.2		
Bag 1	8.6		17.8	9.2		
Bag 2	8.6		17.7	9.1		
Bag 2	8.6		17.7	9.1		
		silica gel	14.0	Impinger	395	
LANL-1-M5-3 Bag 1	8.7		17.8	9.1		
Bag 1	8.6		17.8	9.2		
Bag 2	8.6		17.8	9.2		
Bag 2	8.6		17.8	9.2		
		silica gel	14	Impinger	385	
Average						

Engineering, Inc.

ORSAT READINGS

Job: Los Alamos National Laboratories - Controlled Air Incinerator - Stack

Date: 9-5-86

Test No.: LANL-2-MS-1, LANL-2-MS-2, LANL-2-MS-3

Time	% CO_2		% O_2		% CO	
LANL-2-MS-1 Bag 1	8.0		18.4	10.4		
Bag 1	8.0		18.4	10.4		
Bag 2	8.0		18.4	10.4		
Bag 2	8.0		18.4	10.4		
	silica gel gain - 8.8 g		impinger water gain - 295 ml			
LANL-2-MS-2 Bag 1	8.0		18.4	10.4		
Bag 1	8.0		18.4	10.4		
Bag 2	8.0		18.4	10.4		
Bag 2	8.0		18.4	10.4		
	silicagel gain - 11.0		impinger H_2O gain - 296			
LANL-2-MS-3 Bag 1	8.0		18.4	10.4		
Bag 1	8.0		18.4	10.4		
Bag 2						
Bag 2						
	silica gel gain - 13.6		impinger H_2O gain - 287			
Average						

Engineering, Inc.

ORSAT READINGS

Job: Los Alamos National Laboratories - Controlled Air Incinerator - Stack samples

Date: 9/6/86

Test No.: LANL-3-MS-1, LANL-3-MS-2, LANL-3-MS-3

Time	% CO_2		% O_2		% CO	
LANL-3-MS-1 Bag 1	8.0		18.1	10.1		
Bag 1	8.0		18.1	10.1		
Bag 2	8.0		18.1	10.1		
Bag 2	8.0		18.1	10.1		
	silica gel gain - 18		imp. H_2O gain - 387			
LANL-3-MS-2 Bag 1	7.6		17.6	10.0	silica gel gain - 18.4	
Bag 1	7.6		17.6	10.0	impinger H_2O gain - 416.7	
Bag 2	~~7~~.6		~~18.2~~ 17.7	10.0		
Bag 2	7.6 ~~8.0~~		17.6	10.0		
LANL-3-MS-3 Bag 1	7.6		17.8	10.2	silica gel gain - 17.9	
Bag 1	~~7.6~~ 7.6		17.8	10.2	impinger H_2O gain - 280	
Bag 2	7.6		17.8	10.2		
Bag 2	7.6		17.8	10.2		
Average						

Engineering, Inc.

ORSAT READINGS

Job: Los Alamos National Laboratories — Date: 9/7/86

Controlled Air Incinerators

Test No.: LANL-4-MS-1, LANL-4-MS-2, LANL-4-MS-3

Time	% CO_2		% O_2		% CO	
LANL-4-MS-1 Bag 1	5.8		18.2	12.4 Silica Gel	Gain -	11.6
Bag 1	5.8		18.2	12.4 H_2O	gain -	242.6
Bag 2	6.0		18.2	12.2		
Bag 2	6.0		18.2	12.2		
LANL-4-MS-2 Bag 1	7.0		18.3	~~11.7~~ 11.3		
Bag 1	7.0		17.8	~~11.1~~ silica	gel -	13.8
Bag 1	7.0		18.1	11.1 H_2O	gain -	~~210~~ 200.9
Bag 2	7.0		18.0	11.0		
Bag 2	~~7.0~~		18.2	11.0		
LANL-4-MS-3 Bag 1	8.0		18.2	10.2	silica gel	- 18.4
Bag 1	8.0		18.2	10.2	H_2O gain	- 279
~~Bag 2~~	~~6.4~~		~~18.6~~	~~17.2~~		
~~Bag 2~~	~~6.2~~		~~18.4~~	~~12.2~~		
~~Bag 2~~	~~6.2~~		~~18.4~~	~~12.2~~		
Average						

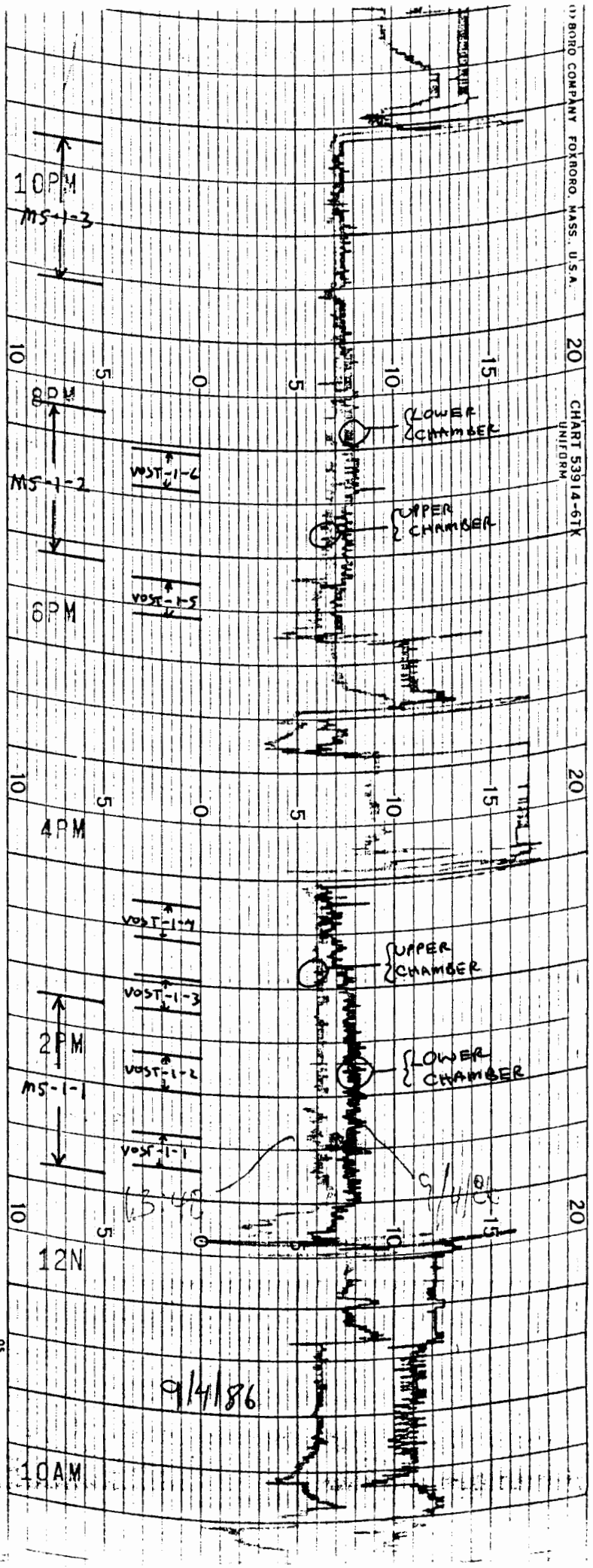
Bag 2 not fully purged.

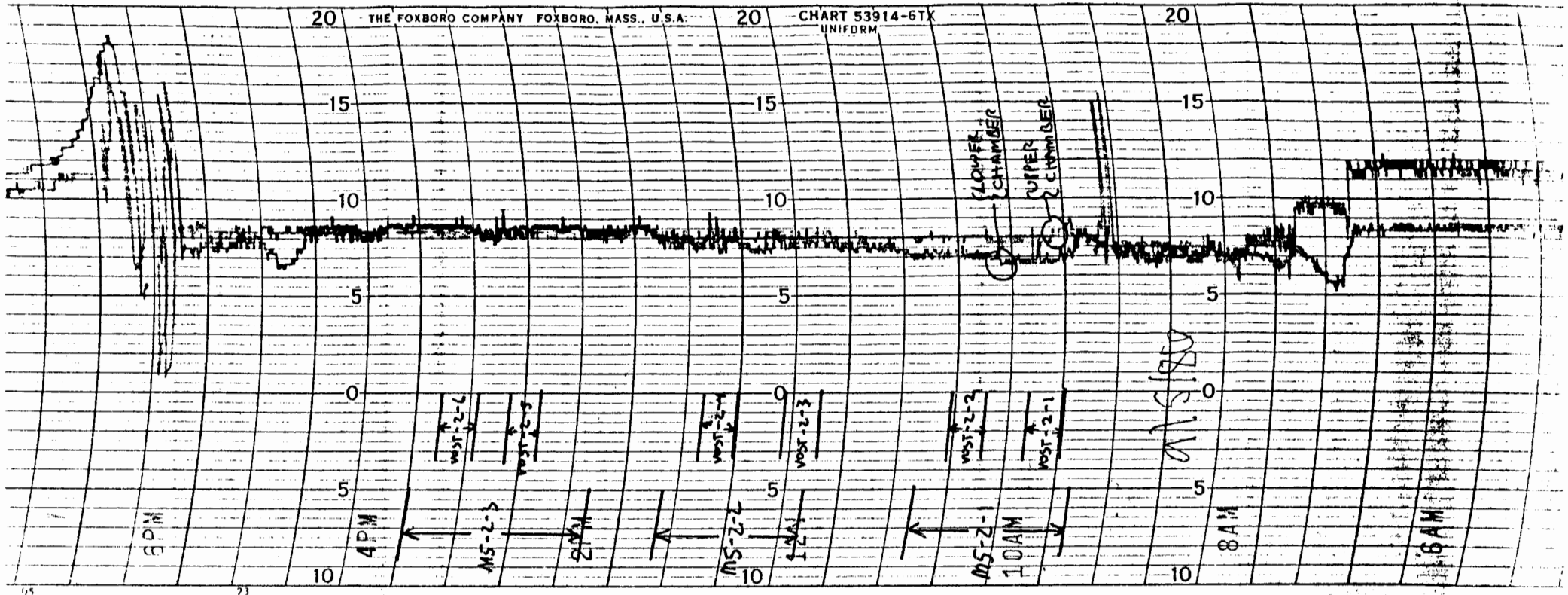
Engineering, Inc.

Incinerator O_2/Comb. ★

(Lower Chamber is darker trace)

★ Values above "0" are percent (%) excess oxygen (O_2)




THE FOXBORO COMPANY FOXBORO, MASS., U.S.A.
CHART 53914-6TX
UNIFORM
20
15
10
5
0
5
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6PM
4PM
2PM
12AM
10AM
8AM
6AM
MS-2-3
MS-2-2
MS-2-1
WST-2-6
WST-2-5
WST-2-4
WST-2-3
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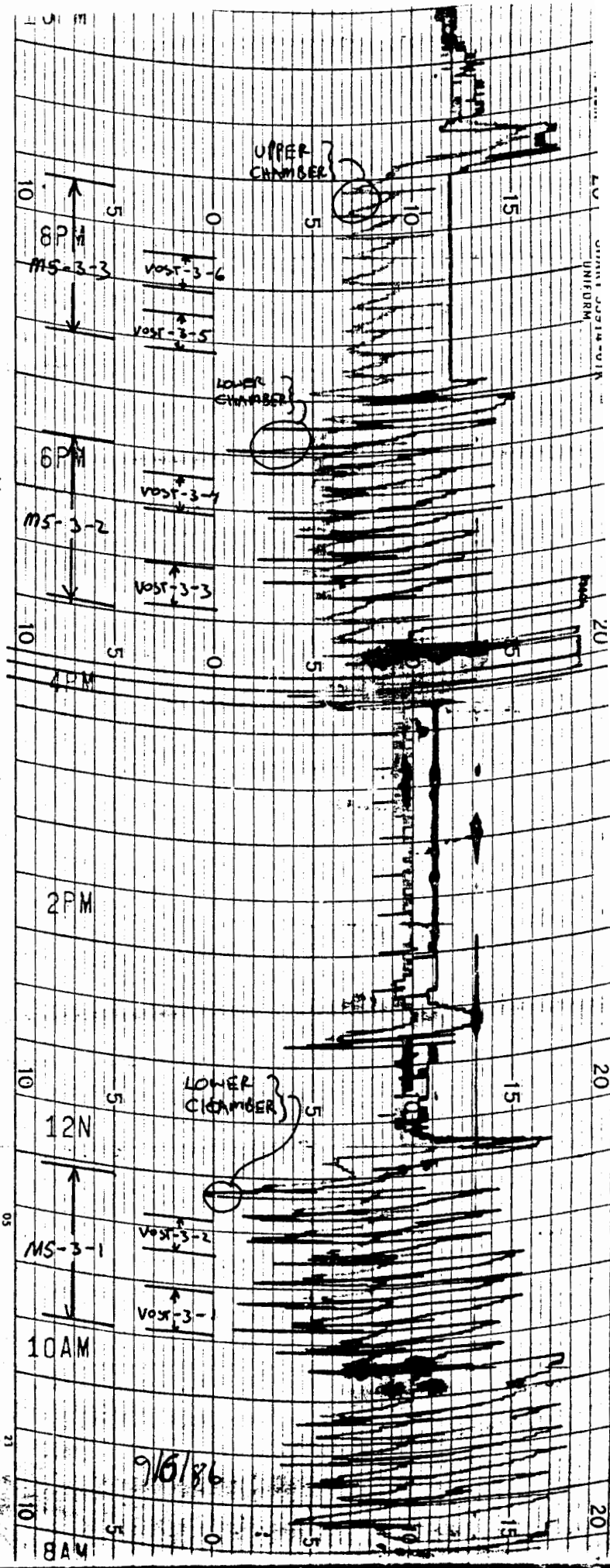
WST-2-1
LOWER CHAMBER
UPPER CHAMBER


UPPER CHAMBER
8PM
MS-3-3
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VOST-3-5
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MS-3-2
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VOST-3-2
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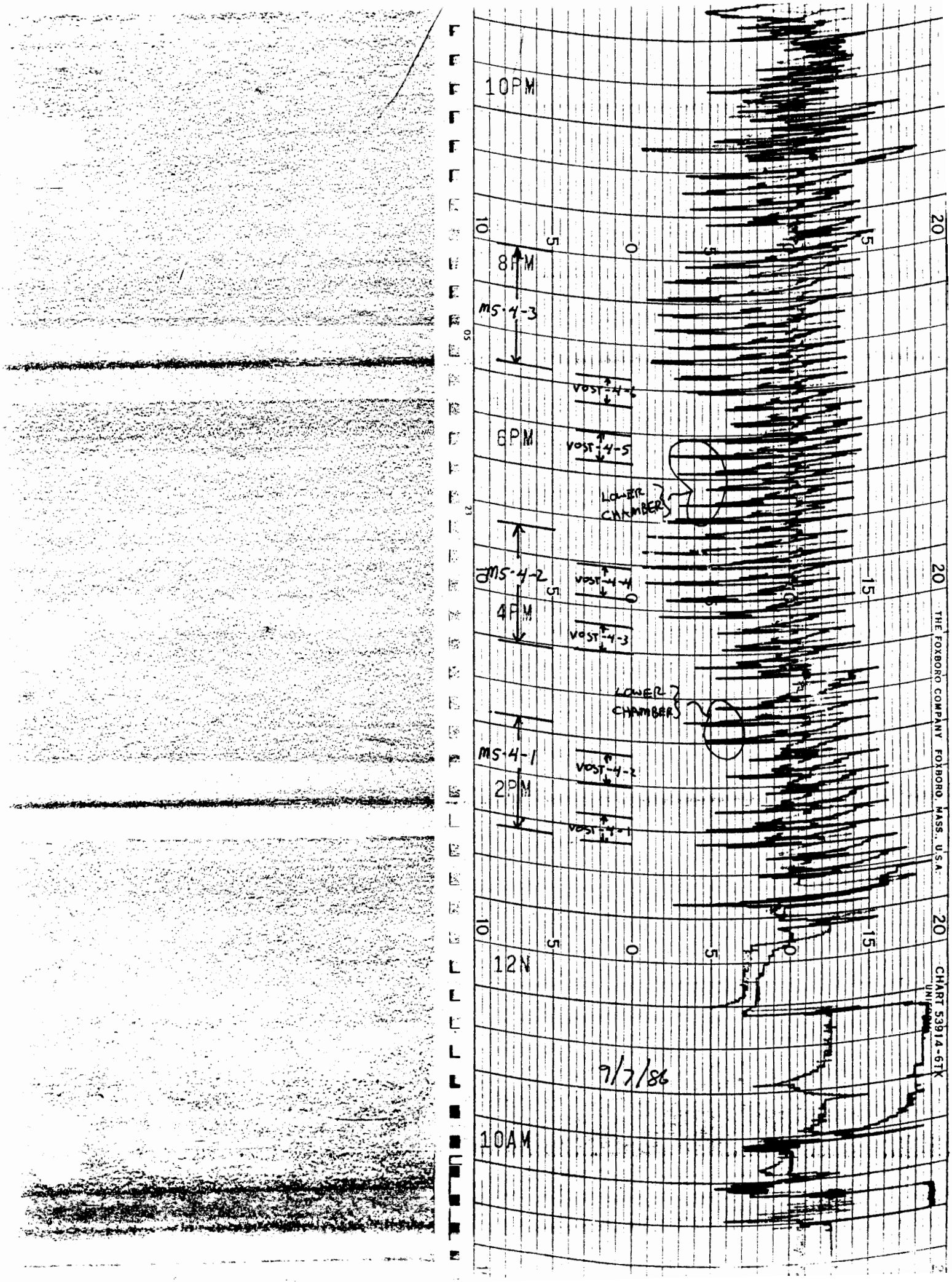
10PM
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LOWER CHAMBER
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VOST-4-2
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9/7/86
10AM
THE FOXBORO COMPANY FOXBORO, MASS., U.S.A.
CHART 53914-GTX
UNIFORM

Analytical Report

Date: 12/01/86

John Vavruska
MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ----> Burn Test

Sample Sheet # 5377

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result		Units	Uncertainty +/-
00.96768	25.9 ppm	CL	Chloride		27.000	MG/L	1.000
00.96769	12.9 ppm	CL	Chloride		13.000	MG/L	1.000
86.12420	PA1234M5123IMPB	CL	Chloride	<	1.000	MG/L	1.000
86.12421	LA-1-M5-1-IMP	CL	Chloride	<	1.000	MG/L	1.000
86.12422	LA-1-M5-2-IMP	CL	Chloride	<	1.000	MG/L	1.000
86.12423	LA-1-M5-3-IMP	CL	Chloride	<	1.000	MG/L	1.000
86.12424	LA-2-M5-1-IMP	CL	Chloride	<	1.000	MG/L	1.000
86.12425	LA-2-M5-2-IMP	CL	Chloride		48.000	MG/L	1.000
86.12426	LA-2-M5-3-IMP	CL	Chloride		325.000	MG/L	1.000
86.12427	LA-3-M5-1-IMP	CL	Chloride		168.000	MG/L	1.000
86.12428	LA-3-M5-2-IMP	CL	Chloride		72.000	MG/L	1.000
86.12429	LA-3-M5-3-IMP	CL	Chloride		148.000	MG/L	1.000
86.12430	LA-4-M5-1-IMP	CL	Chloride		42.000	MG/L	1.000
86.12431	LA-4-M5-2-IMP	CL	Chloride		220.000	MG/L	1.000
86.12432	LA-4-M5-3-IMP	CL	Chloride		270.000	MG/L	1.000

Date: 12/1/86
Approved, Contracting

Date: 12/1/86
Approved, Quality Control

Analytical Report

Date: 12/01/86

John Vavruska
MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ——> Burn Test

Sample Sheet # 5424

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result	Units	Uncertainty +/-
86.12400	LA-1-V-1-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	.14	UG/L	.1
		CL	Chloride	14,000.000	MG/L	700.000
		PH	pH	10.300	PH UNITS	0.200
12401	LA-1-V-2-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	< .12	UG/L	.1
		CL	Chloride	18,000.000	MG/L	900.000
		PH	pH	2.900	PH UNITS	0.200
86.12402	LA-1-V-3-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	.21	UG/L	.1
		CL	Chloride	26,000.000	MG/L	1,300.000
		PH	pH	2.400	PH UNITS	0.200
86.12403	LA-2-V-1-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	< .12	UG/L	.1
		CL	Chloride	13,000.000	MG/L	650.000
		PH	pH	2.200	PH UNITS	0.200
86.12404	LA-2-V-2-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	.57	UG/L	.1
		CL	Chloride	25,000.000	MG/L	1,250.000
		PH	pH	1.800	PH UNITS	0.200
86.12405	LA-2-V-3-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	.18	UG/L	.1
		CL	Chloride	28,000.000	MG/L	1,400.000
		PH	pH	1.600	PH UNITS	0.200
86.12406	LA-3-V-1-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	.43	UG/L	.1
		CL	Chloride	20,000.000	MG/L	1,000.000
		PH	pH	1.000	PH UNITS	0.200
86.12407	LA-3-V-2-S.D.L.	56235	CCl4	.14	UG/L	.1
		79016	TCE	.64	UG/L	.1
		CL	Chloride	9,000.000	MG/L	450.000
		PH	pH	3.500	PH UNITS	0.200
2408	LA-3-V-3-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	.59	UG/L	.1
		CL	Chloride	19,000.000	MG/L	950.000
		PH	pH	4.100	PH UNITS	0.200
86.12409	LA-4-V-1-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	.43	UG/L	.1

		CL	Chloride		12,000.000	MG/L		600.000
		PH	pH		2.000	PH UNITS		0.200
86.12410	LA-4-V-2-S.D.L.	56235	CCl4	<	.12	UG/L	.1	
		79016	TCE		.57	UG/L	.1	
		CL	Chloride		18,000.000	MG/L		900.000
		PH	pH		207.000	PH UNITS		0.200
`2411	LA-4-V-3-S.D.L.	56235	CCl4	<	.12	UG/L	.1	
		79016	TCE		.35	UG/L	.1	
		CL	Chloride		22,000.000	MG/L		550.000
		PH	pH		1.900	PH UNITS		0.200

Date: 12 / 1 / 86

Approved, Contracting

Date: 12 / 1 / 86

Approved, Quality Control

Analytical Report

Date: 12/01/86

John Vavruska
MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ----> Burn Test

Sample Sheet # 5378

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result	Units	Uncertainty +/-
00.96764	6.4 ppm	CL	Chloride	7.000	MG/L	1.000
00.96765	3.2 ppm	CL	Chloride	3.600	MG/L	1.000
00.96766	12.9 ppm	CL	Chloride	14.500	MG/L	1.000
86.12433	LA-1-V-A.C.(F)	56235	CCl4	990	UG/KG	99
		79016	TCE	< 1	UG/KG	1
		CL	Chloride	2,300.000	UG/G	1.000
		PH	pH	9.900	PH UNITS	0.200
86.12434	LA-12V123-AC(U)	56235	CCl4	< 1	UG/KG	1
		79016	TCE	35	UG/KG	4
		CL	Chloride	9,780.000	UG/G	1.000
		PH	pH	5.700	PH UNITS	0.200
86.12435	LA-3-V-3-AC.(U)	56235	CCl4	1100	UG/KG	110
		79016	TCE	58	UG/KG	6
		CL	Chloride	30,100.000	UG/G	1.000
		PH	pH	6.000	PH UNITS	0.200
86.12436	LA-4-V-123-AC(U	56235	CCl4	620	UG/KG	62
		79016	TCE	110	UG/KG	11
		CL	Chloride	12,550.000	UG/G	1.000
		PH	pH	4.900	PH UNITS	0.200
86.12437	LA-1-V-1-M.W.	56235	CCl4	< .1	UG/L	.1
		79016	TCE	< .12	UG/L	.1
		CL	Chloride	3.000	MG/L	1.000
86.12438	LA-1-V-2-M.W.	56235	CCl4	< .1	UG/L	.1
		79016	TCE	< .12	UG/L	.1
		CL	Chloride	3.000	MG/L	1.000
86.12439	LA-1-V-3-M.W.	56235	CCl4	< .1	UG/L	.1
		79016	TCE	< .12	UG/L	.1
		CL	Chloride	3.000	MG/L	1.000
86.12440	LA-2-V-1-M.W.	56235	CCl4	< .1	UG/L	.1
		79016	TCE	< .12	UG/L	.1
		CL	Chloride	3.000	MG/L	1.000
441	LA-2-V-2-M.W.	56235	CCl4	< .1	UG/L	.1
		79016	TCE	< .12	UG/L	.1
		CL	Chloride	3.000	MG/L	1.000
86.12442	LA-2-V-3-M.W.	56235	CCl4	< .1	UG/L	.1
		79016	TCE	< .12	UG/L	.1
		CL	Chloride	3.000	MG/L	1.000
86.12443	LA-3-V-1-M.W.	56235	CCl4	< .1	UG/L	.1

		79016	TCE	<	.12		UG/L	.1	
		CL	Chloride			3.000	MG/L		1.000
86.12444	LA-3-V-2-M.W.	56235	CCl4	<	.1		UG/L	.1	
		79016	TCE	<	.12		UG/L	.1	
		CL	Chloride			3.000	MG/L		1.000
12445	LA-3-V-3-M.W.	56235	CCl4	<	.1		UG/L	.1	
		79016	TCE	<	.12		UG/L	.1	
		CL	Chloride			3.000	MG/L		1.000
86.12446	LA-4-V-1-M.W.	56235	CCl4		.2		UG/L	.1	
		79016	TCE		.13		UG/L	.1	
		CL	Chloride			3.000	MG/L		1.000
86.12447	LA-4-V-2-M.W.	56235	CCl4		.2		UG/L	.1	
		79016	TCE		.13		UG/L	.1	
		CL	Chloride			3.000	MG/L		1.000
86.12448	LA-4-V-3-M.W.	56235	CCl4		.2		UG/L	.1	
		79016	TCE	<	.12		UG/L	.1	
		CL	Chloride			3.000	MG/L		1.000

Date: 12/1/86

Approved, Contracting

nag

Date: 12/1/86

Approved, Quality Control

Analytical Report

Date: 12/01/86

John Vavruska
MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ——> Burn Test

Sample Sheet # 5422

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result	Units	Uncertainty +/-
00.96584	24ug/gCT,32 TCE	56235	CCl4	< 5	UG/L	2
		79016	TCE	< 5	UG/L	2
00.96585	33ug/gCT,25 TCE	56235	CCl4	< 5	UG/L	2
		79016	TCE	< 5	UG/L	2
[illegible]6589	32ug/L CT,40TCE	56235	CCl4	25	UG/L	3
		79016	TCE	34	UG/L	4
[illegible]590	32ug/L CT,40TCE	56235	CCl4	21	UG/L	3
		79016	TCE	47	UG/L	5
00.96773	20ng/gCT20510TC	56235	CCl4	.1	UG/KG	.1
		79016	TCE	7.8	UG/KG	1
00.96774	38ng/gCT38494TE	56235	CCl4	.1	UG/KG	.1
		79016	TCE	.05	UG/KG	.1
00.96775	20ng/mlCT20280T	56235	CCl4	44	UG/L	4
		79016	TCE	8050	UG/L	805
00.96776	60ng/mlCT60840T	56235	CCl4	69	UG/L	7
		79016	TCE	44000	UG/L	4400
86.10192	LA-1-V-1-F.O.F.	56235	CCl4	< 1	MG/L	1
		79016	TCE	< 1	MG/L	1
		CL	Chloride	< 1.000	MG/L	1.000
86.10193	LA-2-M5-1-ALGL	56235	CCl4	27	UG/KG	3
		79016	TCE	1	UG/KG	1
		CL	Chloride	38.000	UG/G	2.000
86.10194	LA-1-M5-1-ALGL	56235	CCl4	510	UG/KG	51
		79016	TCE	628	UG/KG	63
		CL	Chloride	54.000	UG/G	2.000
86.10195	LA-3,4-V-123PEL	56235	CCl4	82	UG/KG	8
		79016	TCE	70	UG/KG	7
		CL	Chloride	2,610.000	UG/G	130.000
86.10196	LA-3-V-3-I.A.	56235	CCl4	168	UG/KG	16
		79016	TCE	150	UG/KG	15
		CL	Chloride	8,750.000	UG/G	435.000
		PH	pH	9.900	PH UNITS	0.200
[illegible]197	LA-4-M5-123-I.A	56235	CCl4	2000	UG/KG	200
		79016	TCE	600	UG/KG	60
		CL	Chloride	26,700.000	UG/G	1,335.000
		PH	pH	8.900	PH UNITS	0.200
86.10198	LA-1-V-1-HEPA	56235	CCl4	38	UG/KG	4
		79016	TCE	< 1	UG/KG	1

		CL	Chloride		9.000	UG/G	1.000
		PH	pH		8.300	PH UNITS	0.200
86.10199	LA-4-V-3-HEPA4	56235	CCl4	150		UG/KG	15
		79016	TCE	10		UG/KG	1
		CL	Chloride		87,700.000	UG/G	4,335.000
		PH	pH		5.900	PH UNITS	0.200

Date: 12/1/86

Approved, Contracting

Date: 12/ /

Approved, Quality Control

Analytical Report

Date: 12/01/86

John Vavruska
MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ----> Burn Test

Sample Sheet # 5421

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result	Units	Uncertainty +/-
86.10161	LANL-1-M5-1	AL	Al	5.300	MG/L	0.100
		FE	Fe	3.200	MG/L	0.100
		NA	Na	2.500	MG/L	0.100
86.10162	LANL-1-M5-2	AL	Al	6.700	MG/L	0.100
		FE	Fe	5.000	MG/L	0.100
		NA	Na	2.400	MG/L	0.100
[illegible].10163	LANL-1-M5-3	AL	Al	5.700	MG/L	0.100
		FE	Fe	2.500	MG/L	0.100
		NA	Na	2.100	MG/L	0.100
86.10164	LANL-2-M5-1	AL	Al	2.300	MG/L	0.100
		NA	Na	2.100	MG/L	0.100
86.10165	LANL-2-M5-2	AL	Al	3.500	MG/L	0.100
		FE	Fe	7.600	MG/L	0.100
		NA	Na	2.000	MG/L	0.100
86.10166	LANL-2-M5-3	AL	Al	3.600	MG/L	0.100
		FE	Fe	22.200	MG/L	0.100
		NA	Na	2.400	MG/L	0.100
86.10167	LANL-3-M5-1	AL	Al	3.400	MG/L	0.100
		FE	Fe	26.200	MG/L	0.100
		NA	Na	2.200	MG/L	0.100
86.10168	LANL-3-M5-2	AL	Al	3.700	MG/L	0.100
		FE	Fe	31.100	MG/L	0.100
		NA	Na	2.400	MG/L	0.100
86.10169	LANL-3-M5-3	AL	Al	3.100	MG/L	0.100
		FE	Fe	51.200	MG/L	0.100
		NA	Na	2.300	MG/L	0.100
86.10170	LANL-4-M5-1	AL	Al	4.100	MG/L	0.100
		FE	Fe	18.400	MG/L	0.100
		NA	Na	2.400	MG/L	0.100
86.10171	LANL-4-M5-2	AL	Al	3.300	MG/L	0.100
		FE	Fe	29.300	MG/L	0.100
		NA	Na	2.400	MG/L	0.100
[illegible]0172	LANL-4-M5-3	AL	Al	5.400	MG/L	0.100
		FE	Fe	65.600	MG/L	0.100
		NA	Na	2.200	MG/L	0.100
86.10173	BLANK	AL	Al	8.100	MG/L	0.100
		FE	Fe	0.600	MG/L	0.100
		NA	Na	1.700	MG/L	0.100

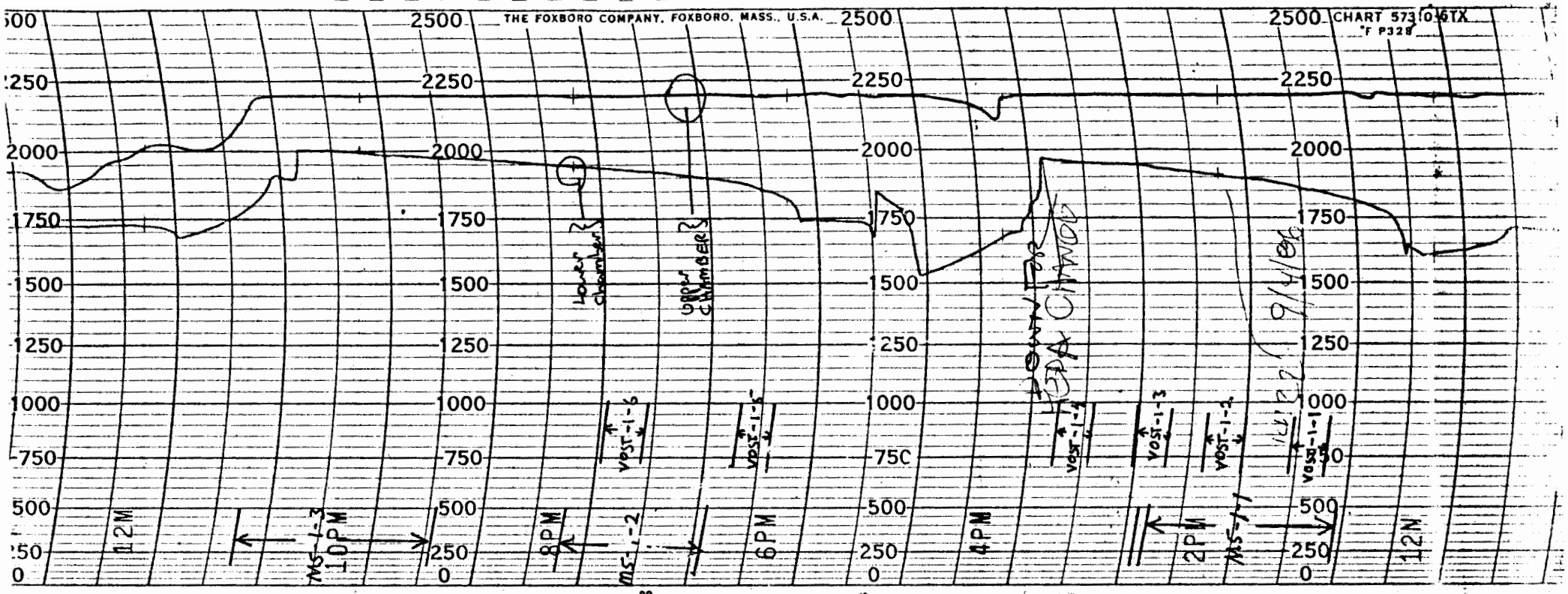
86.12484	Fe= 0.099 mg/L	AL	Al	<	0.100	MG/L	0.100
		FE	Fe		0.120	MG/L	0.100
		NA	Na		6.900	MG/L	0.100
86.12485	Fe=.08Al=.45mgL	AL	Al		0.500	MG/L	0.100
		FE	Fe		0.100	MG/L	0.100
		NA	Na		0.100	MG/L	0.100

Date: 12/1/86

Approved, Contracting

Date: 12/1/86

Approved, Quality Control


THE FOXBORO COMPANY, FOXBORO, MASS., U.S.A.
CHART 573 06TX
°F P328
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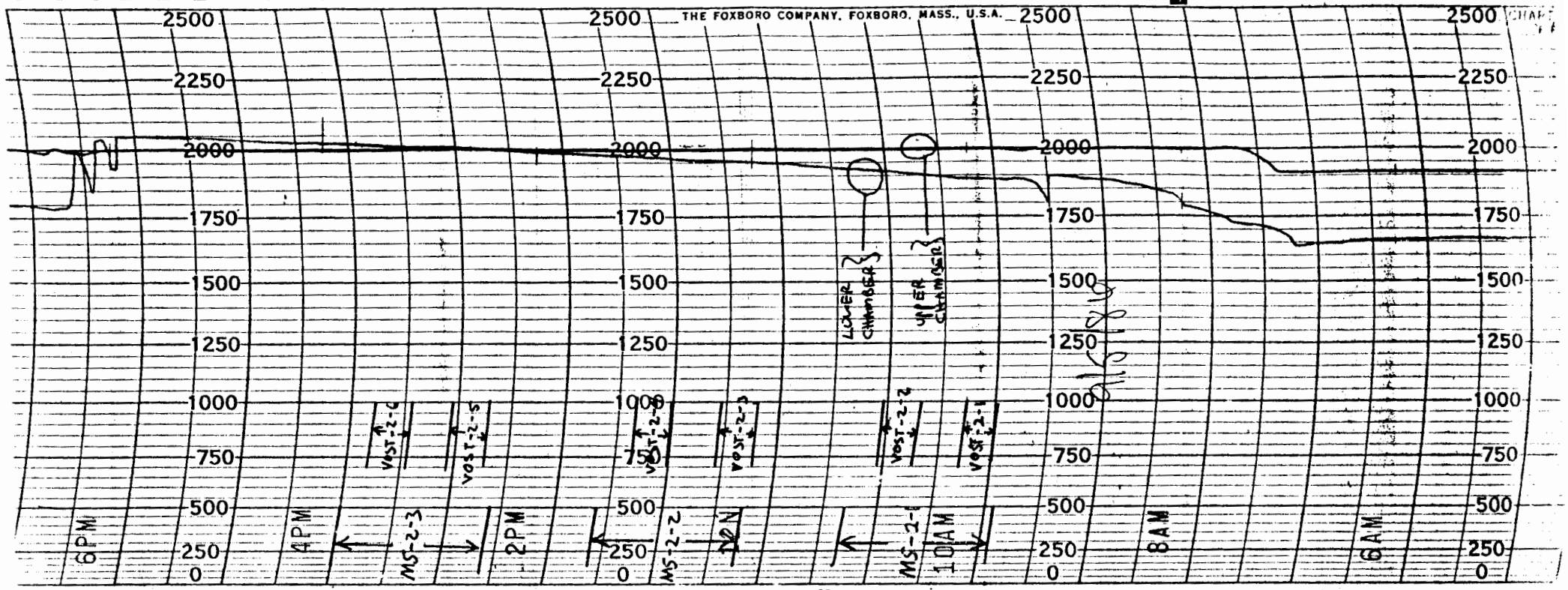
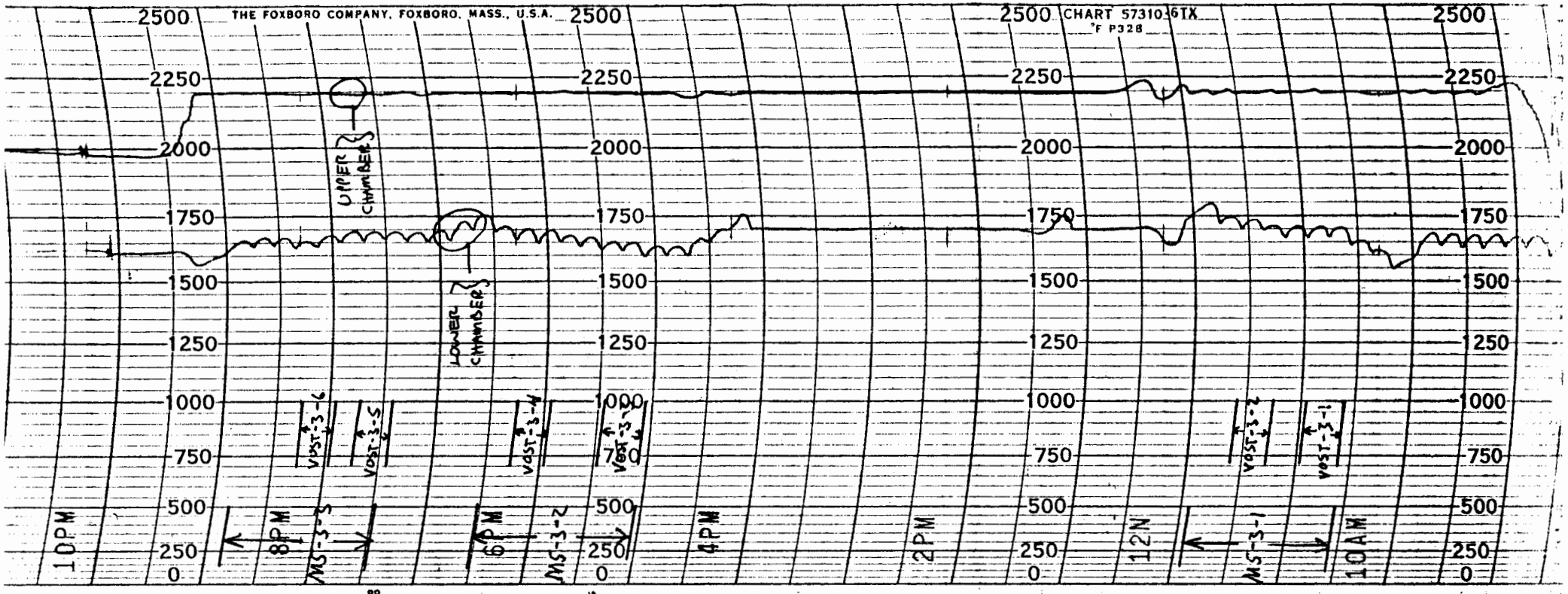
2PM
MS-1-1
12N
VOST-1-6
VOST-1-5
VOST-1-4
VOST-1-3
VOST-1-2
VOST-1-1
Lower chamber
Upper chamber
Incinerator Temperature - °F
(Upper chamber is darker trace)


THE FOXBORO COMPANY, FOXBORO, MASS., U.S.A.
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
6PM
4PM
2PM
12N
10AM
8AM
6AM
MS-2-3
MS-2-2
MS-2-1
VOST-2-6
VOST-2-5
VOST-2-4
VOST-2-3
VOST-2-2
VOST-2-1
LOWER CHAMBER
UPPER CHAMBER


THE FOXBORO COMPANY, FOXBORO, MASS., U.S.A.
CHART 57310-6TX
°F P328
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
UPPER CHAMBER
LOWER CHAMBER
VOST-3-6
VOST-3-5
VOST-3-4
VOST-3-3
VOST-3-2
VOST-3-1
MS-3-3
MS-3-2
MS-3-1
10PM
8PM
6PM
4PM
2PM
12N
10AM

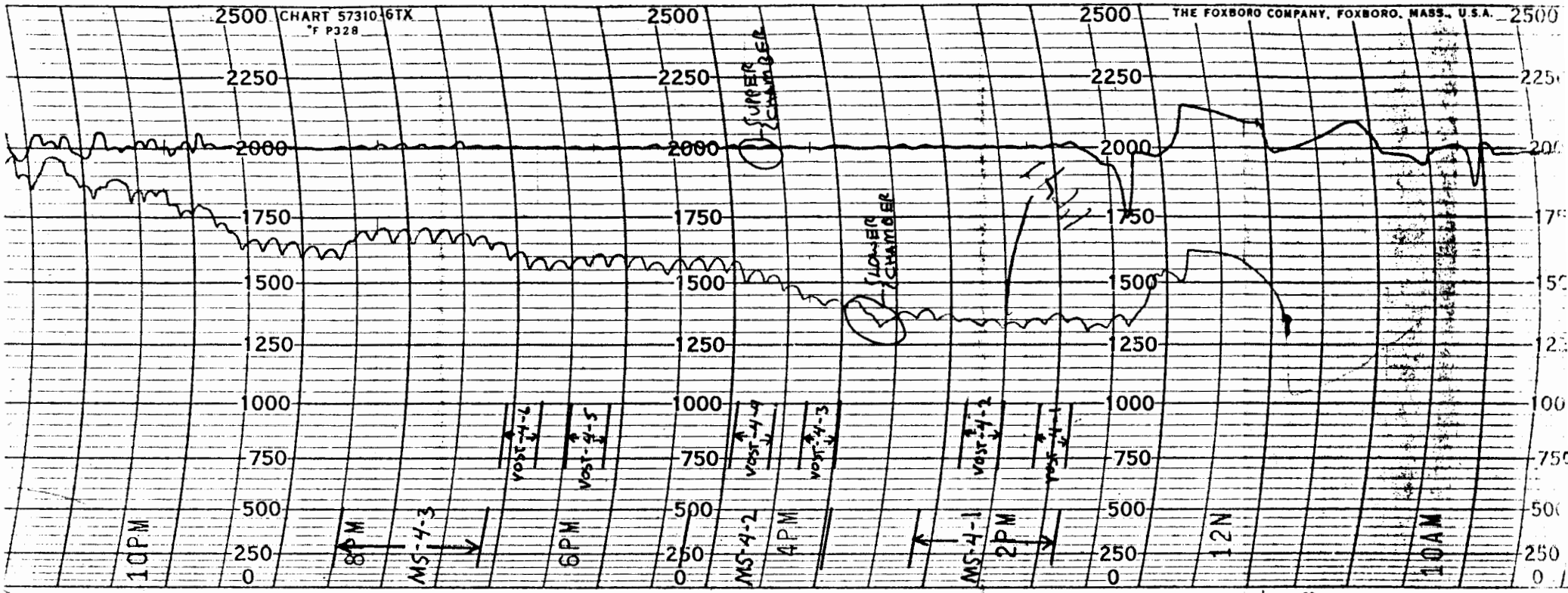


CHART 57310-6TX
°F P328
THE FOXBORO COMPANY, FOXBORO, MASS., U.S.A.
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
UPPER CHAMBER
LOWER CHAMBER
VOST-4-6
VOST-4-5
VOST-4-4
VOST-4-3
VOST-4-2
VOST-4-1
MS-4-3
MS-4-2
MS-4-1
10PM
8PM
6PM
4PM
2PM
12N
10AM

University of California
CAE Project No: 3770

Table 1
Summary of Results
September 4, 1986
Condition 1

Run	1	2	3
Start Time	01:10 PM	06:52 PM	09:25 PM
Finish Time	02:45 PM	08:15 PM	10:45 PM
Gas Conditions			
Pressure (in Hg)	23.23	23.12	23.12
Temperature, (F)	209	213	212
Moist. (Volume%)	35.20	35.52	36.60
O2, (Volume %)	9.2	9.2	9.2
CO2, (Volume %)	8.6	8.6	8.6
Density, (lb/ft3)	0.0407	0.0402	0.0401
Gas Flow Rates			
Volume Basis			
acfm	1500	1546	1491
scfm	919	937	905
dscfm	596	604	574
Mass Basis			
lb/hr	3660	3730	3590

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CAE Project No: 3770

Table 2
Summary of Results
September 5, 1986
Condition 2

Run	1	2	3
Start Time	09:50 AM	12:20 PM	02:40 PM
Finish Time	11:20 AM	01:40 PM	04:00 PM
Gas Conditions			
Pressure (in Hg)	23.09	23.09	23.09
Temperature, (F)	216	226	229
Moist. (Volume%)	32.45	31.96	31.99
O2, (Volume %)	10.4	10.4	10.4
CO2, (Volume %)	8.0	8.0	8.0
Density, (lb/ft3)	0.0405	0.0400	0.0398
Gas Flow Rates			
Volume Basis			
acfm	1373	1378	1367
scfm	827	818	808
dscfm	559	557	550
Mass Basis			
lb/hr	3340	3310	3270

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Table 3
Summary of Results
September 6, 1986
Condition 3

Run	1	2	3
Start Time	10:35 AM	05:07 PM	07:27 PM
Finish Time	11:55 AM	06:32 PM	08:50 PM
Gas Conditions			
Pressure (in Hg)	23.19	23.08	23.08
Temperature, (F)	225	216	210
Moist. (Volume%)	35.40	39.47	27.36
O2, (Volume %)	10.1	10.0	10.2
CO2, (Volume %)	8.0	7.6	7.6
Density, (lb/ft3)	0.0396	0.0391	0.0417
Gas Flow Rates			
Volume Basis			
acfm	1569	1682	1592
scfm	937	1013	967
dscfm	605	613	702
Mass Basis			
lb/hr	3730	3950	3980

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CAE Project No: 3770

Table 4
Summary of Results
September 7, 1986
Condition 4

Run	1	2	3
Start Time	01:50 PM	03:57 PM	07:10 PM
Finish Time	03:12 PM	05:18 PM	08:30 PM
Gas Conditions			
Pressure, (in Hg)	23.16	23.16	23.13
Temperature, (F)	213	211	202
Moist. (Volume %)	25.37	25.59	26.07
O2, (Volume %)	12.3	11.0	10.2
CO2, (Volume %)	5.9	7.0	8.0
Density, (lb/ft3)	0.0418	0.0420	0.0426
Gas Flow Rates			
Volume Basis			
acfm	1492	1565	1562
scfm	906	951	962
dscfm	676	708	711
Mass Basis			
lb/hr	3740	3944	3992

Nomenclature

A	-	absorbance
An	-	cross sectional area of nozzle (ft^2)
As	-	cross sectional area of stack (ft^2)
Bwo	-	proportion of water vapor in the gas stream by volume (%)
Cp	-	pitot tube coefficient (dimensionless)
Df	-	dilution factor
Fd	-	ratio of dry gas generated to gross calories (dcfm/MBtu)
Fc	-	ratio of gas generated to gross calories (dscf/MBtu)
GCV	-	gross calorific value of fuel (Btu/lb)
DH	-	average pressure drop across the meter box orifice (in. H_2O)
$\overline{(DP)^{1/2}}$	-	average of square roots of velocity heads of stack gas (in. H_2O)
DH@	-	meter orifice calibration coefficient (dimensionless)
%I	-	percent of isokinetic sampling (acceptable: $90\% \leq \%I \leq 110\%$)
Kp	-	$\frac{[(lb/lb\text{-}mole)(in.\ Hg)]^{1/2}}{[(^\circ R)(in.\ H_2O)]^{1/2}}$
Kc	-	spectrophotometer calibration factor
Md	-	dry molecular weight of stack gas (lb/lb-mole)
Ms	-	molecular weight of stack gas, wet basis (lb/lb-mole)
Mn	-	total amount of particulate matter collected (gm)
N	-	normality of titrant (meq/ml)
Pb	-	barometric pressure (in. Hg)
Pf	-	final absolute pressure of flask (in. Hg)
Pi	-	initial absolute pressure of flask (in. Hg)
Ps	-	absolute stack gas pressure (in. Hg)
Qa	-	volumetric flow rate, actual conditions
Qstd	-	volumetric flow rate, standard conditions, dry basis
std	-	standard conditions, 29.92 in. Hg 68°F
Tf	-	final absolute temperature of flask (°R)
Ti	-	initial absolute temperature of flask (°R)
Tm	-	average dry gas meter temperature (°F)
Ts	-	average stack temperature (°F)
Tstd	-	absolute temperature, standard conditions (528°R)
Θ	-	total sampling time (min)
Va	-	volume of aliquot (ml)
Vf	-	volume of flask (ml)
Vlc	-	total volume of liquid collected in impingers and silica gel (ml)
Vm	-	volume of gas sample through the dry gas meter at meter conditions (ft^3)
Vmstd	-	volume of gas sample through the dry gas meter, standard conditions (ft^3)
Vstd	-	volume of flask sample, standard conditions (ml)
Vsoln	-	total volume of solution (ml)
Vt	-	volume of titrant used to titrate aliquot (ml)
Vtb	-	volume of titrant used to titrate blank (ml)
Vwstd	-	volume of water collected, standard conditions (ft^3)
Vs	-	stack gas velocity (ft/sec)
Yd	-	gas meter correction factor (dimensionless)

UNIVERSITY OF CALIFORNIA
CAE Project No: 3770

PARAMETERS

Condition 1

Run No.	1	2	3
STACK			
A_n	.000534	.000534	.000534
A_s	.79	.79	.79
B_{wo}	.3520	.3652	.3660
$\%CO_2$	8.6	8.6	8.6
C_p	.840	.840	.840
$\overline{DH}$	.740	.740	.680
DH@	1.807	1.807	1.807
$\overline{(DP)^{1/2}}$	.415	.425	.410
%I	103.9	104.1	104.9
M_d	29.74	29.74	29.74
M_n	.0000	.0000	.0000
M_s	25.61	25.46	25.45
$\%O_2$	9.2	9.2	9.2
P_b	23.19	23.08	23.08
P_s	23.23	23.12	23.12
θ	64.0	80.0	80.0
$\overline{T_m}$	84	79	66
$\overline{T_s}$	209	213	212
V_{lc}	308.6	409	399
V_m	35.50	44.23	41.97
V_{mstd}	26.75	33.48	32.55
V_s	31.64	32.61	31.45
V_{wstd}	14.54	19.26	18.79
Y_d	.9999	.9999	.9999

UNIVERSITY OF CALIFORNIA
CAE Project No: 3770

PARAMETERS

Condition 2

Run No.	1	2	3
STACK			
A_n	.000534	.000534	.000534
A_s	.79	.79	.79
B_{wo}	.3245	.3196	.3199
$\%CO_2$	8.0	8.0	8.0
C_p	.840	.840	.840
$\overline{DH}$	.570	.640	.620
DH@	1.807	1.807	1.807
$\overline{(DP)^{1/2}}$	.379	.378	.375
%I	98.5	102.2	101.2
M_d	29.70	29.70	29.70
M_n	.0000	.0000	.0000
M_s	25.90	25.96	25.95
$\%O_2$	10.4	10.4	10.4
P_b	23.05	23.05	23.05
P_s	23.09	23.09	23.09
θ	80.0	80.0	80.0
$\overline{T_m}$	71	92	103
$\overline{T_s}$	216	226	229
V_{1c}	303.8	307	300.6
V_m	38.84	41.71	41.60
V_{mstd}	29.79	30.78	30.10
V_s	28.97	29.08	28.84
V_{wstd}	14.31	14.46	14.16
Y_d	.9999	.9999	.9999

UNIVERSITY OF CALIFORNIA
CAE Project No: 3770

PARAMETERS

Condition 3

Run No.	1	2	3
STACK			
A_n	.000534	.000534	.000534
A_s	.79	.79	.79
B_{wo}	.3540	.3947	.2736
$\%CO_2$	8.0	7.6	7.6
C_p	.840	.840	.840
$\overline{DH}$	.780	.840	.920
DH@	1.807	1.807	1.807
$\overline{(DP)^{1/2}}$	.429	.457	.446
%I	104.7	105.7	98.0
M_d	29.68	29.62	29.62
M_n	.0000	.0000	.0000
M_s	25.55	25.03	26.44
$\%O_2$	10.1	10.0	10.2
P_b	23.15	23.05	23.05
P_s	23.19	23.08	23.08
θ	80.0	80.0	80.0
$\overline{T_m}$	78	89	72
$\overline{T_s}$	225	216	210
V_{lc}	399	485.4	297.9
V_m	45.07	47.21	48.60
V_{mstd}	34.29	35.05	37.25
V_s	33.10	35.49	33.59
V_{wstd}	18.79	22.86	14.03
Y_d	.9999	.9999	.9999

UNIVERSITY OF CALIFORNIA
CAE Project No: 3770

PARAMETERS

Condition 4

Run No.	1	2	3
STACK			
A_n	.000534	.000534	.000534
A_s	.79	.79	.79
B_{wo}	.2537	.2559	.2607
$\%CO_2$	5.9	7.0	8.0
C_p	.840	.840	.840
$\overline{DH}$	.820	1.04	1.02
DH@	1.807	1.807	1.807
$\overline{(DP)^{1/2}}$	.419	.440	.443
%I	96.3	101.7	103.1
M_d	29.44	29.56	29.69
M_n	.0000	.0000	.0000
M_s	26.54	26.60	26.64
$\%O_2$	12.3	11.0	10.2
P_b	23.13	23.13	23.10
P_s	23.16	23.16	23.13
θ	80.0	80.0	80.0
$\overline{T_m}$	82	86	68
$\overline{T_s}$	213	211	202
V_{lc}	254.2	284.7	297.4
V_m	46.68	52.01	51.31
V_{mstd}	35.23	38.99	39.72
V_s	31.49	33.01	32.96
V_{wstd}	11.97	13.41	14.01
Y_d	.9999	.9999	.9999

GAS FLOWRATES

Sample Period	Flowrate (acfm)	Velocity (ft/s)
LANL-1-M5-1	1500	32.2
LANL-1-M5-2	1546	33.1
LANL-1-M5-3	1491	32.0
LANL-2-M5-1	1373	29.4
LANL-2-M5-2	1378	29.5
LANL-2-M5-3	1367	29.3
LANL-3-M5-1	1569	33.6
LANL-3-M5-3	1682	36.1
LANL-3-M5-3	1592	34.1
LANL-4-M5-1	1492	32.0
LANL-4-M5-2	1565	33.6
LANL-4-M5-3	1562	33.5

CLEAN AIR ENGINEERING, INC
November 21, 1986

CARBON MONOXIDE EMISSIONS

UNIVERSITY OF CALIFORNIA
LOS ALAMOS NATIONAL LABORATORY

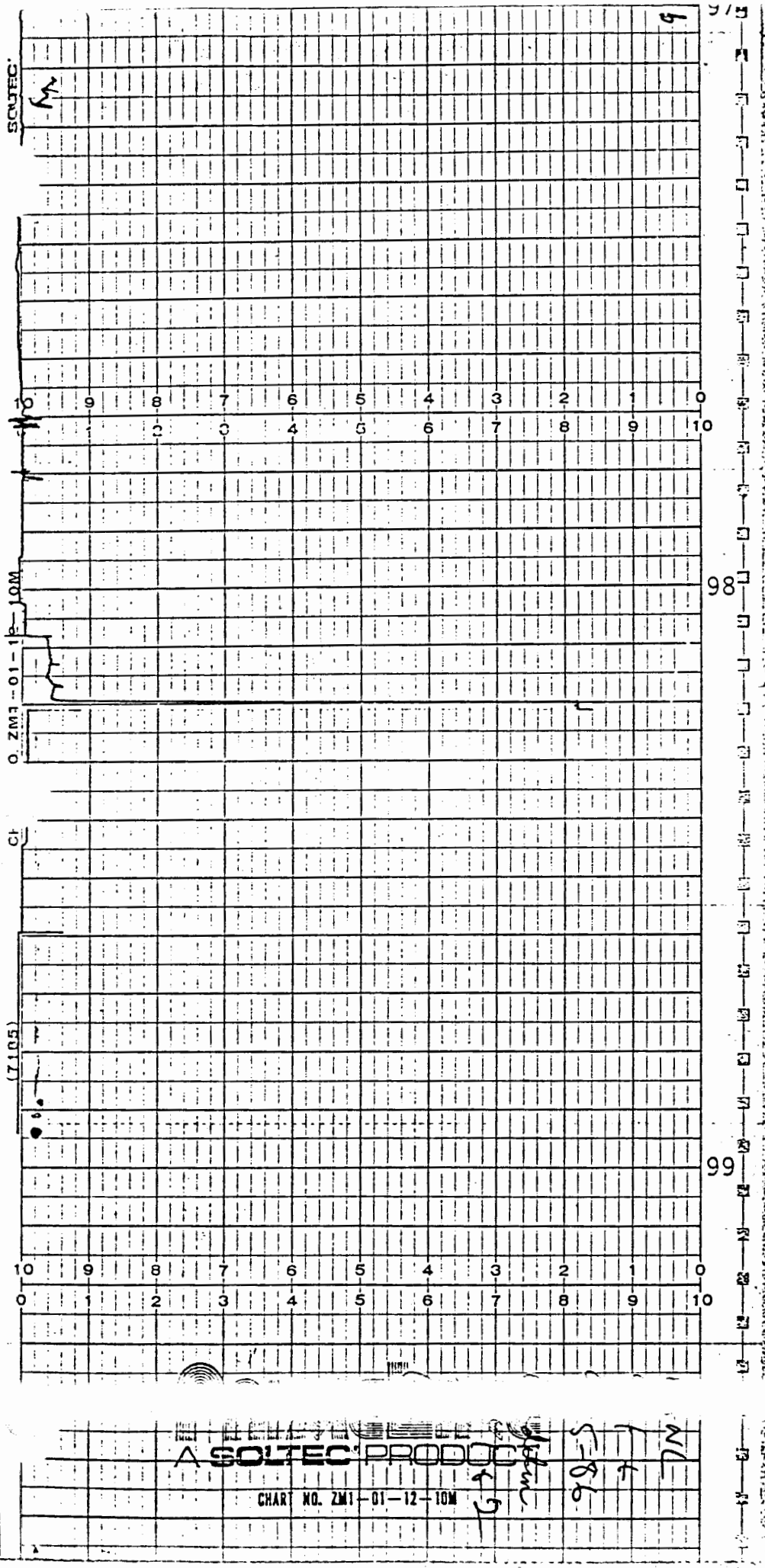
Purchase Order No: 2-LFD-1415F-1
CAE Project No: 3770

UNIVERSITY OF CALIFORNIA
CAE Project No: 3770

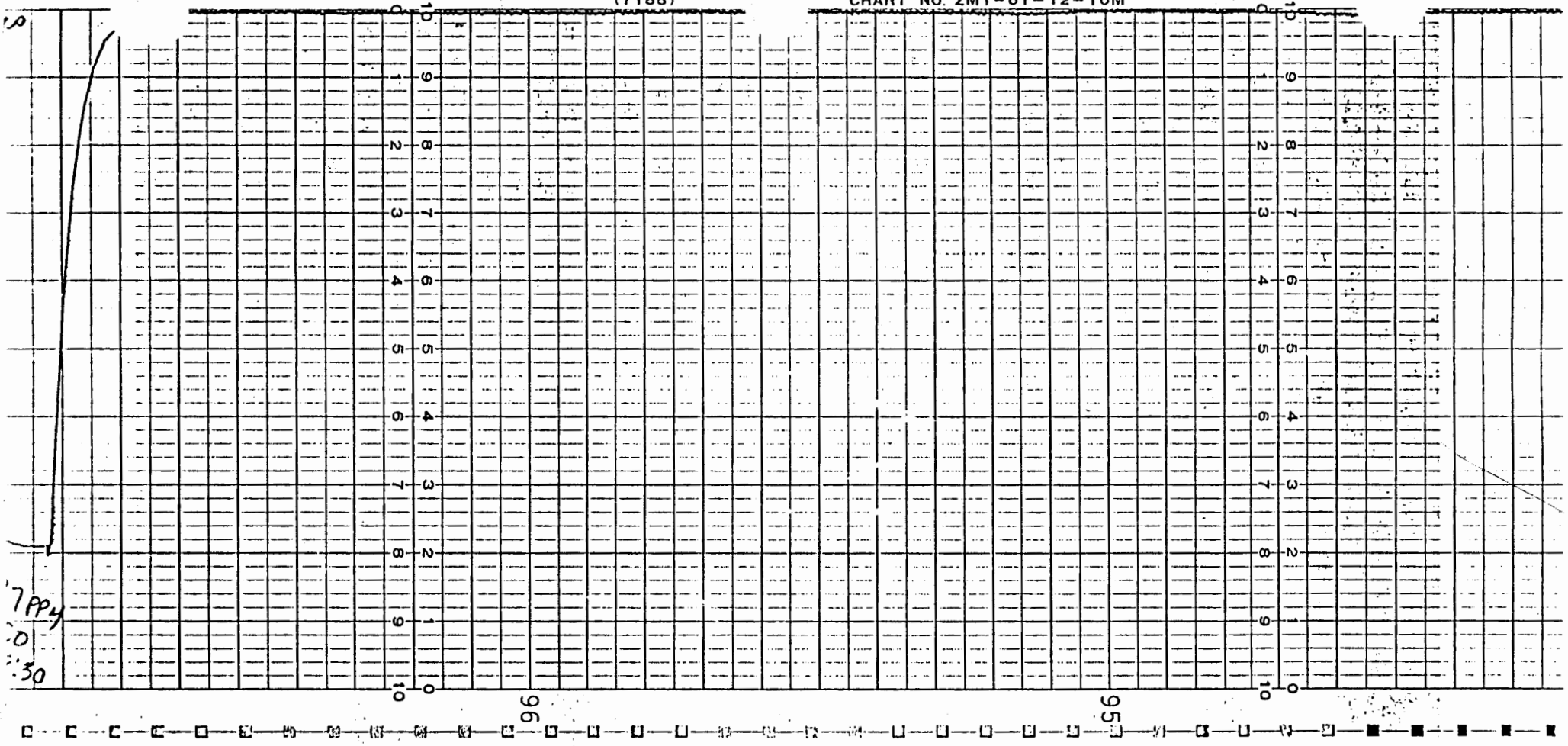
Summary of Results
Carbon Monoxide Concentrations
(as ppmv, dry basis)

Run	1	2	3
Condition 1 Sept. 4, 1986	5	6	12
Condition 2 Sept. 5, 1986	5	6	7
Condition 3 Sept. 6, 1986	*	5**	5
Condition 4 Sept. 7, 1986	5	5	7

*-Data out of range of chart recorder
**-Two peaks noted at 70 and 63 ppm during middle of run


SOLTEC
10 9 8 7 6 5 4 3 2 1 0
0 1 2 3 4 5 6 7 8 9 10
98
0. ZM3-01-1 10M
(7105)
99
A SOLTEC PRODUCT
CHART NO. ZM1-01-12-10M

(7185) CHART NO. ZM1-01-12-10M



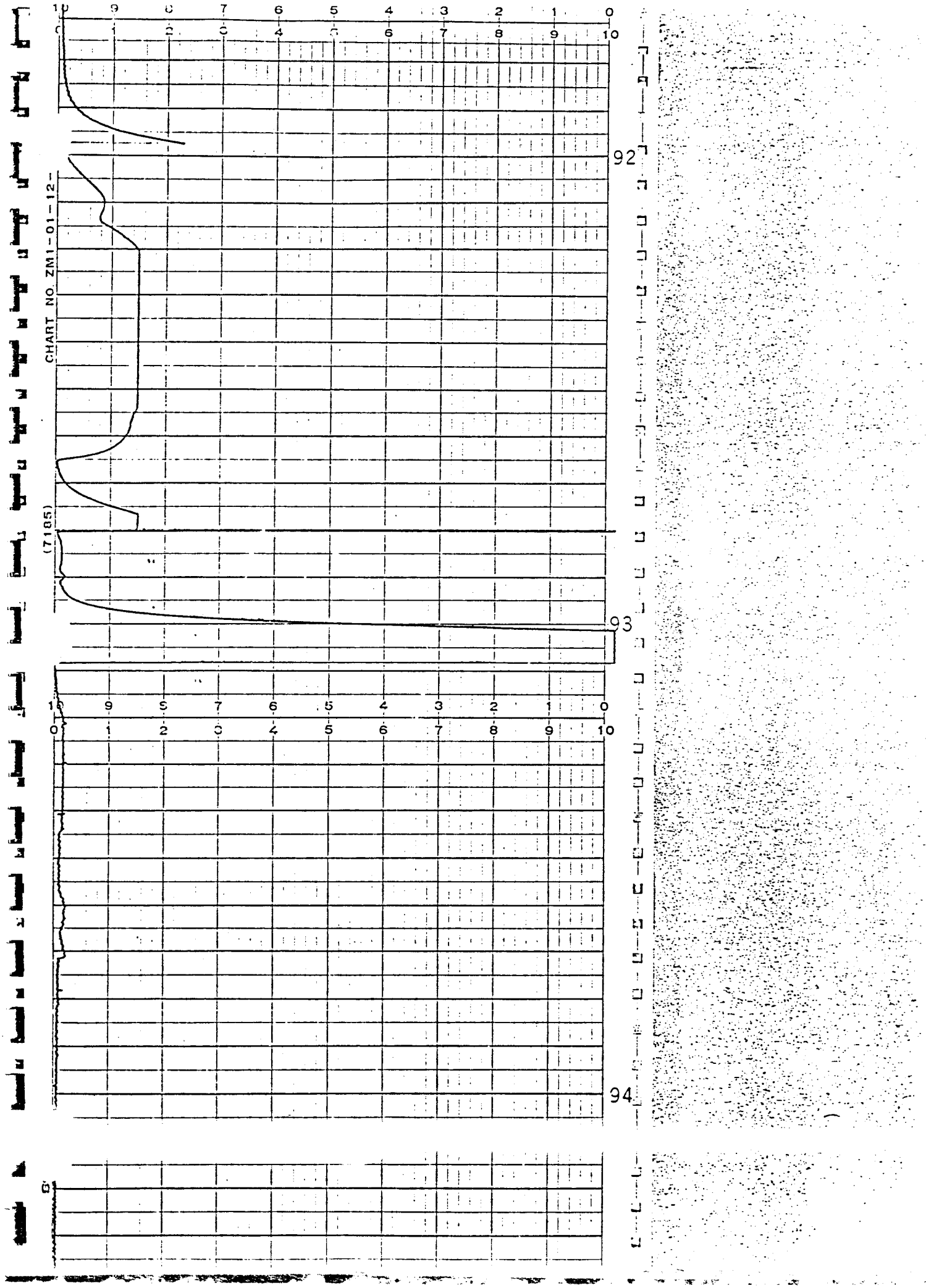
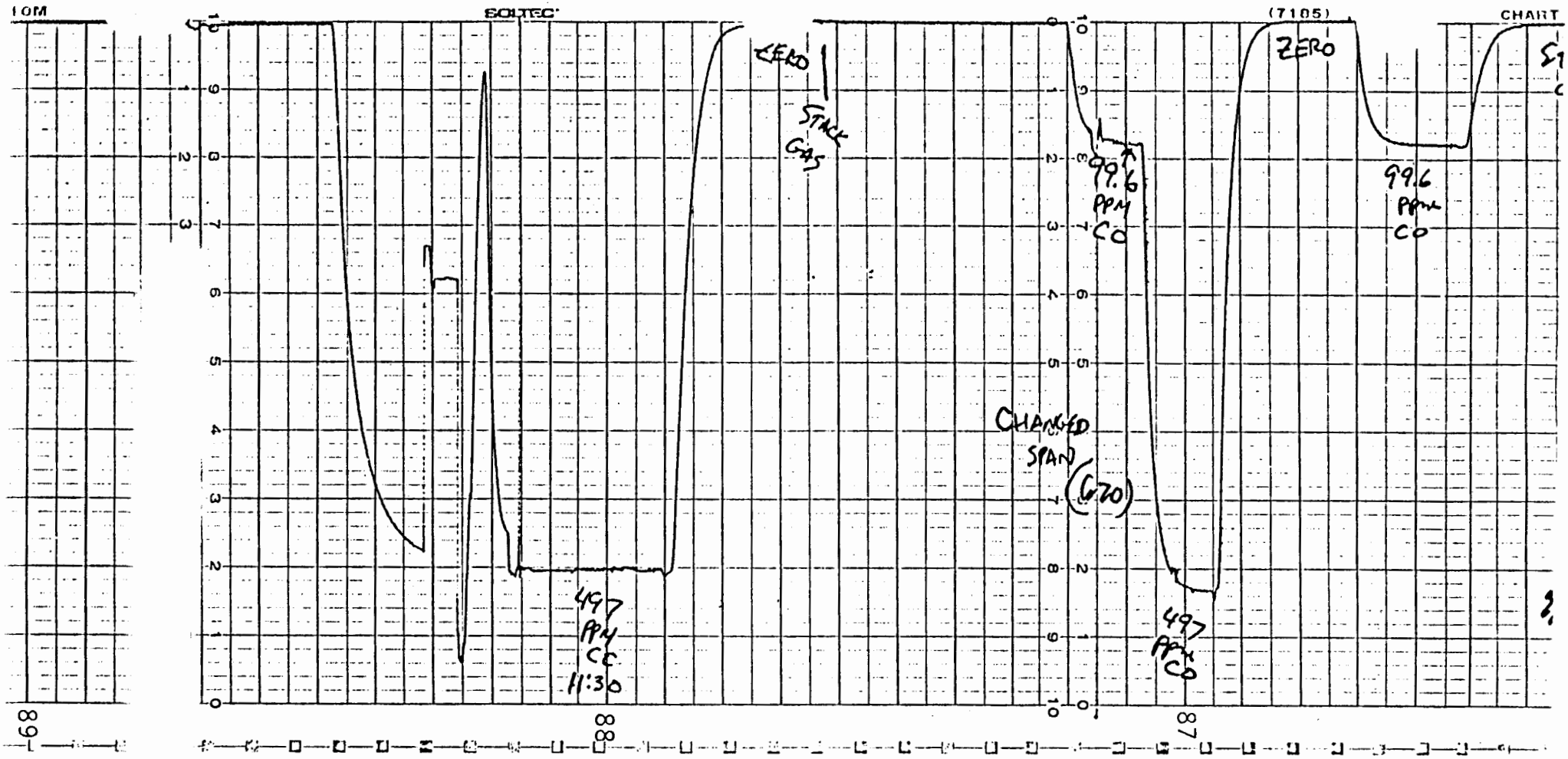
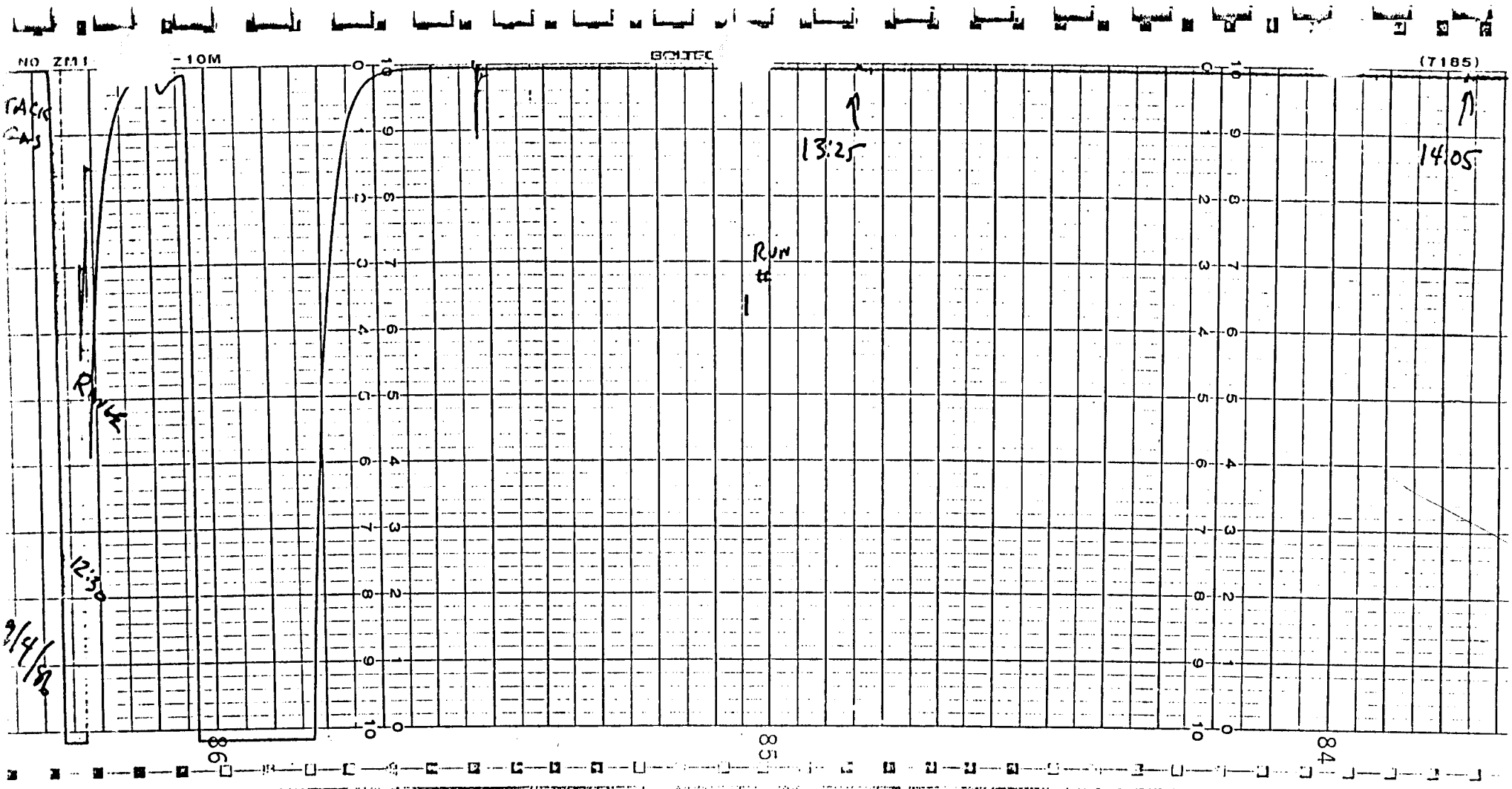
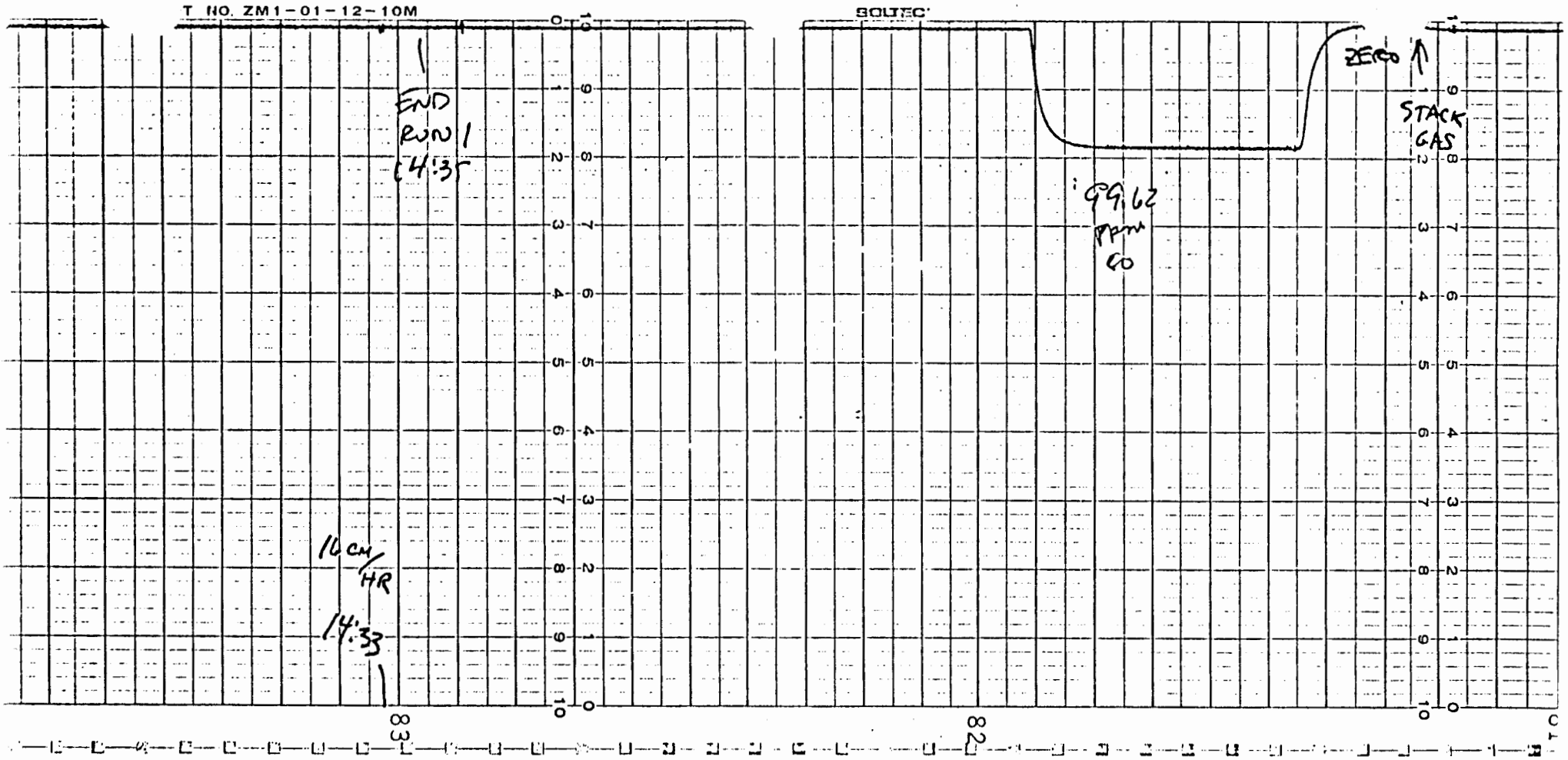


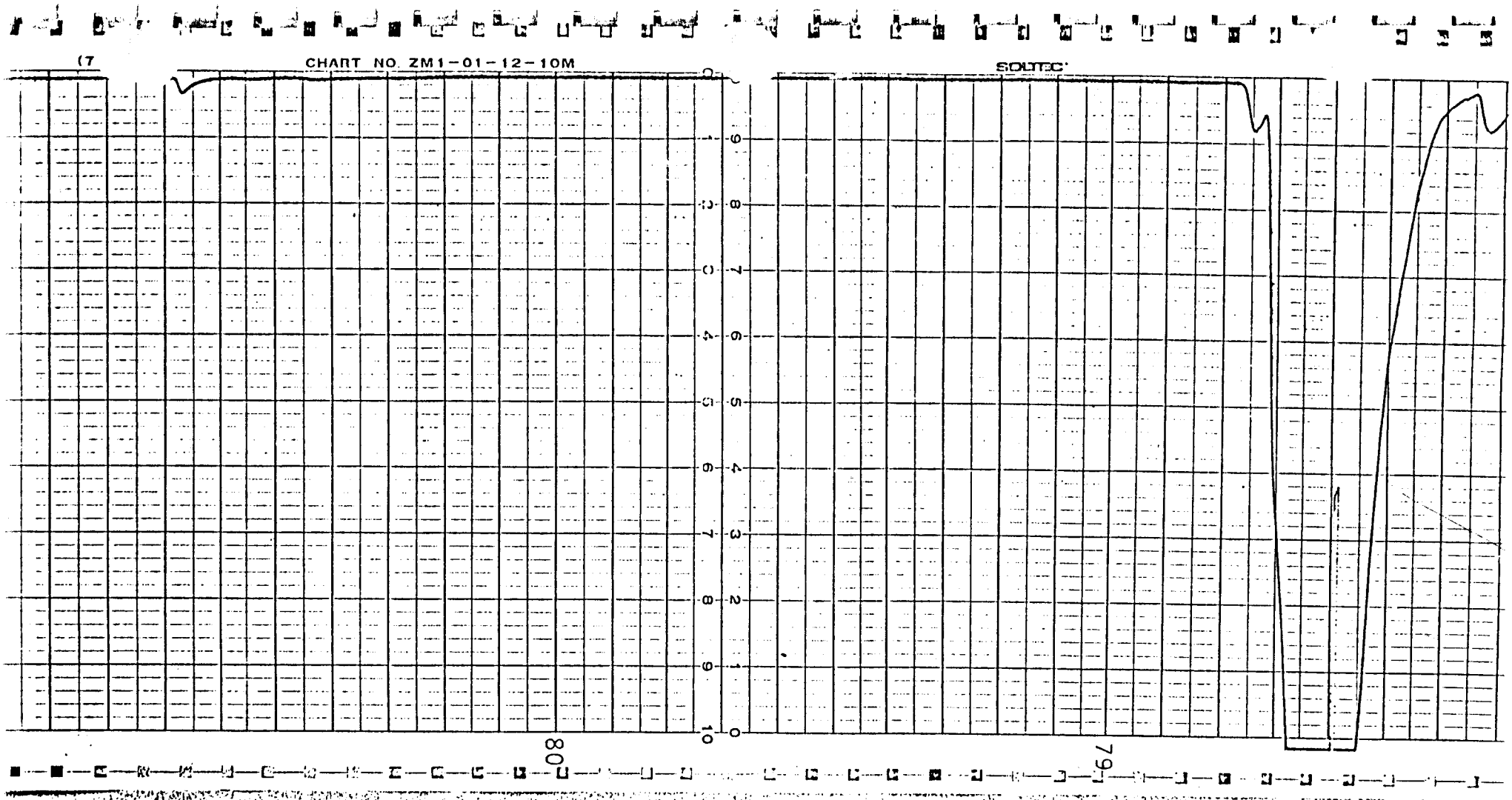
CHART NO. ZM1-01-12-
(7185)
92
93
94

ZM1-01-12-1
CHA
(7185)
90
91
10 9 8 7 6 5 4 3 2 1 0
0 2 3 4 5 6 7 8 9 10
10 9 8 7 6 5 4 3 2 1 0
8 7 8 9 10


SOLTEC
(7105)
CHART
ZERO
STACK GAS
99.6 PPM CO
99.6 PPM CO
CHANGED SPAN (670)
497 PPM CO
497 PPM CO
11:30
89
88
87


NO ZM1
-10M
(7185)
TRACE GAS
RUN
12:30
13:25
14:05
Run #1
9/4/82
86
85
84


T NO. ZM1-01-12-10M
SOLTEC
END RUN 1 14:35
16 CM/HR
14:33
99.62 PPM CO
ZERO
STACK GAS
83
82


(7
CHART NO. ZM1-01-12-10M
SOLTEC
80
79

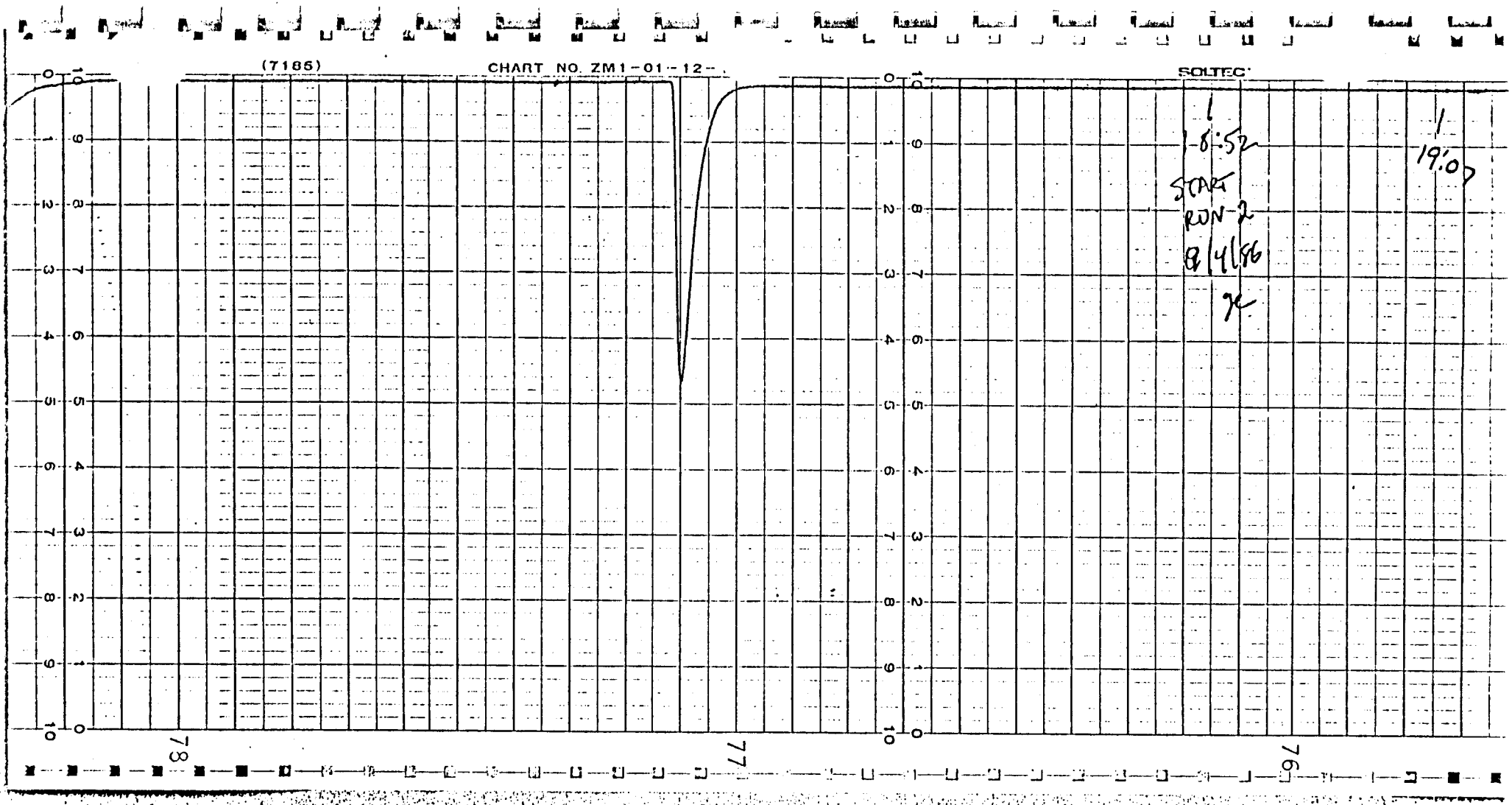

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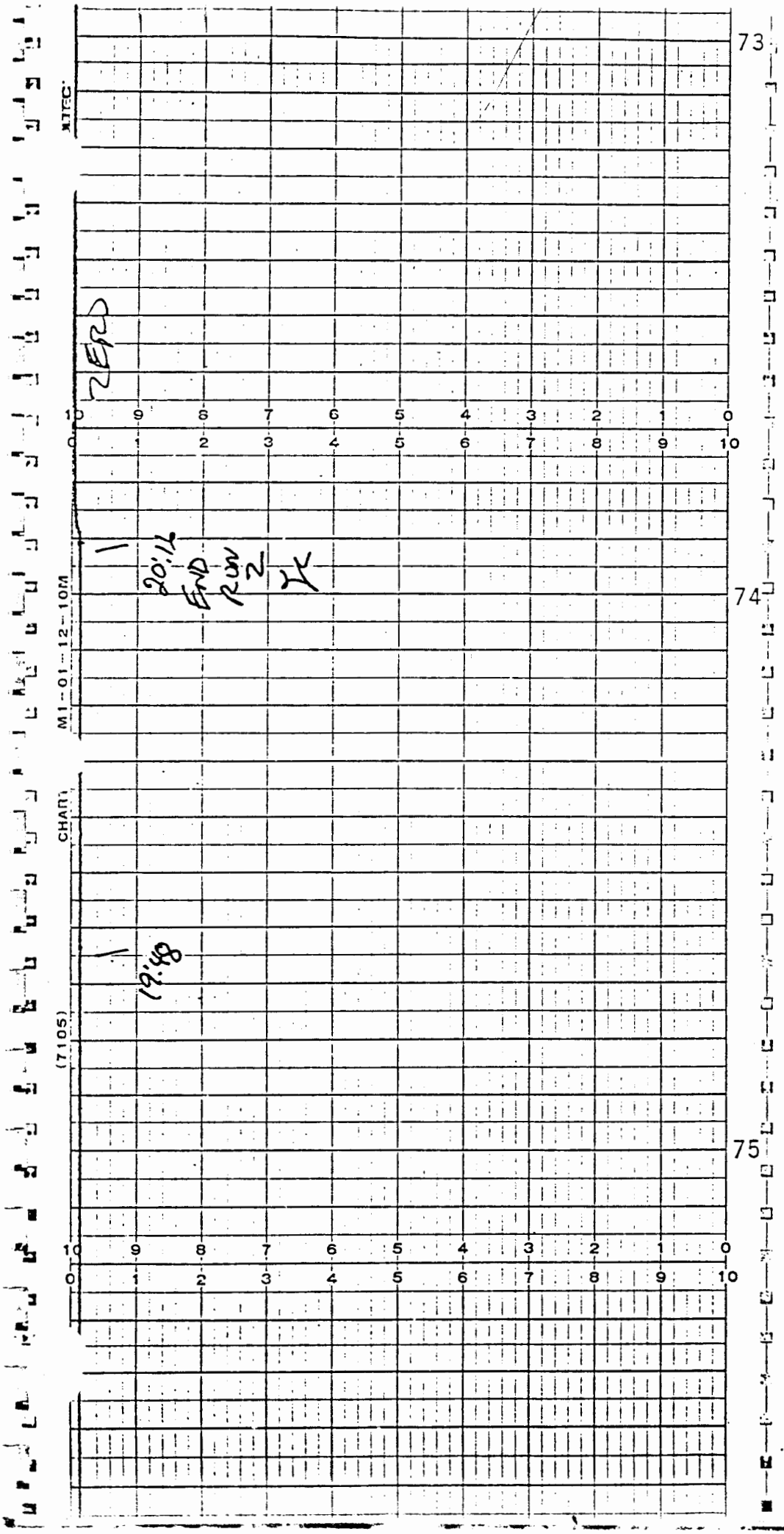
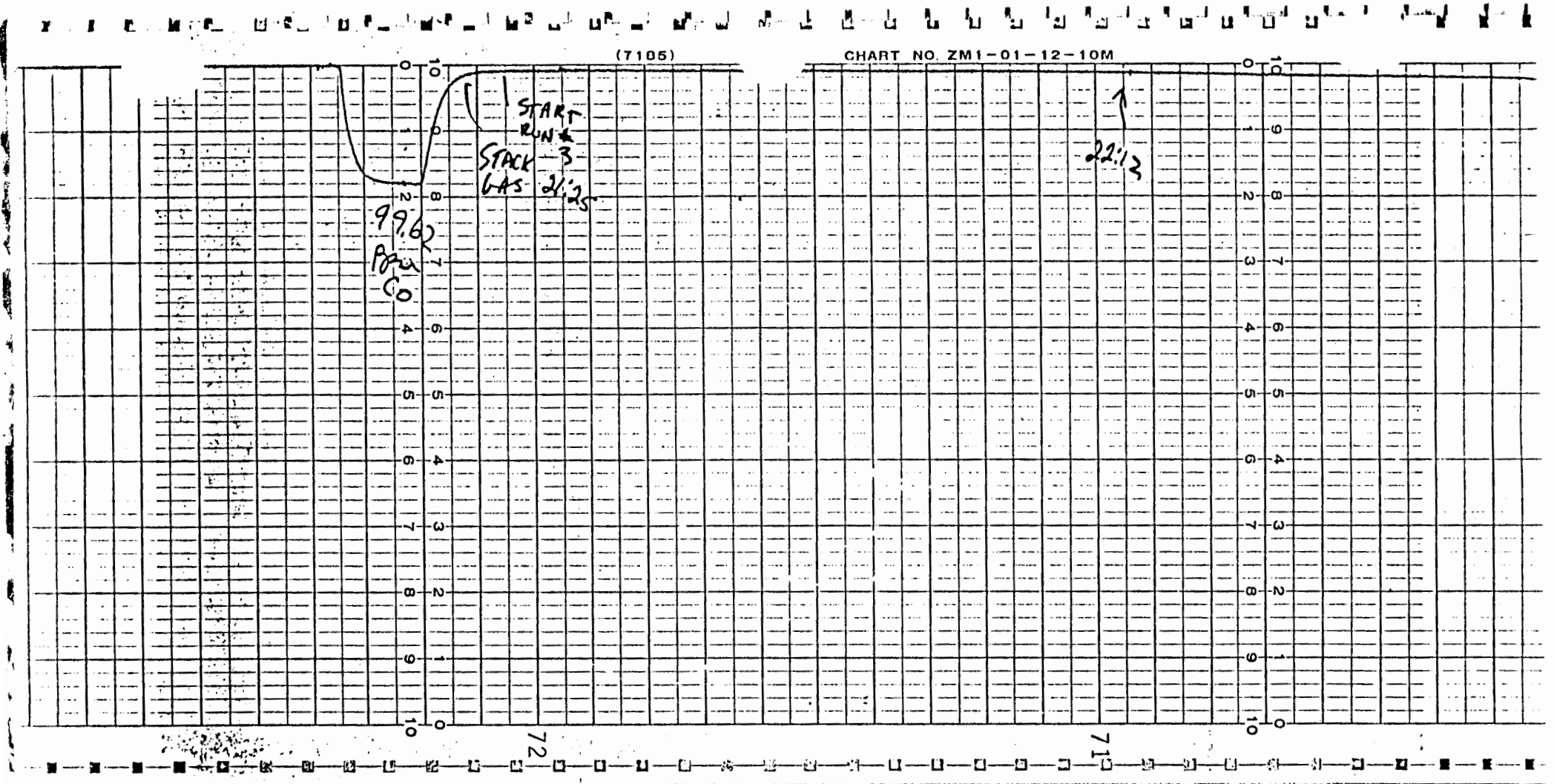
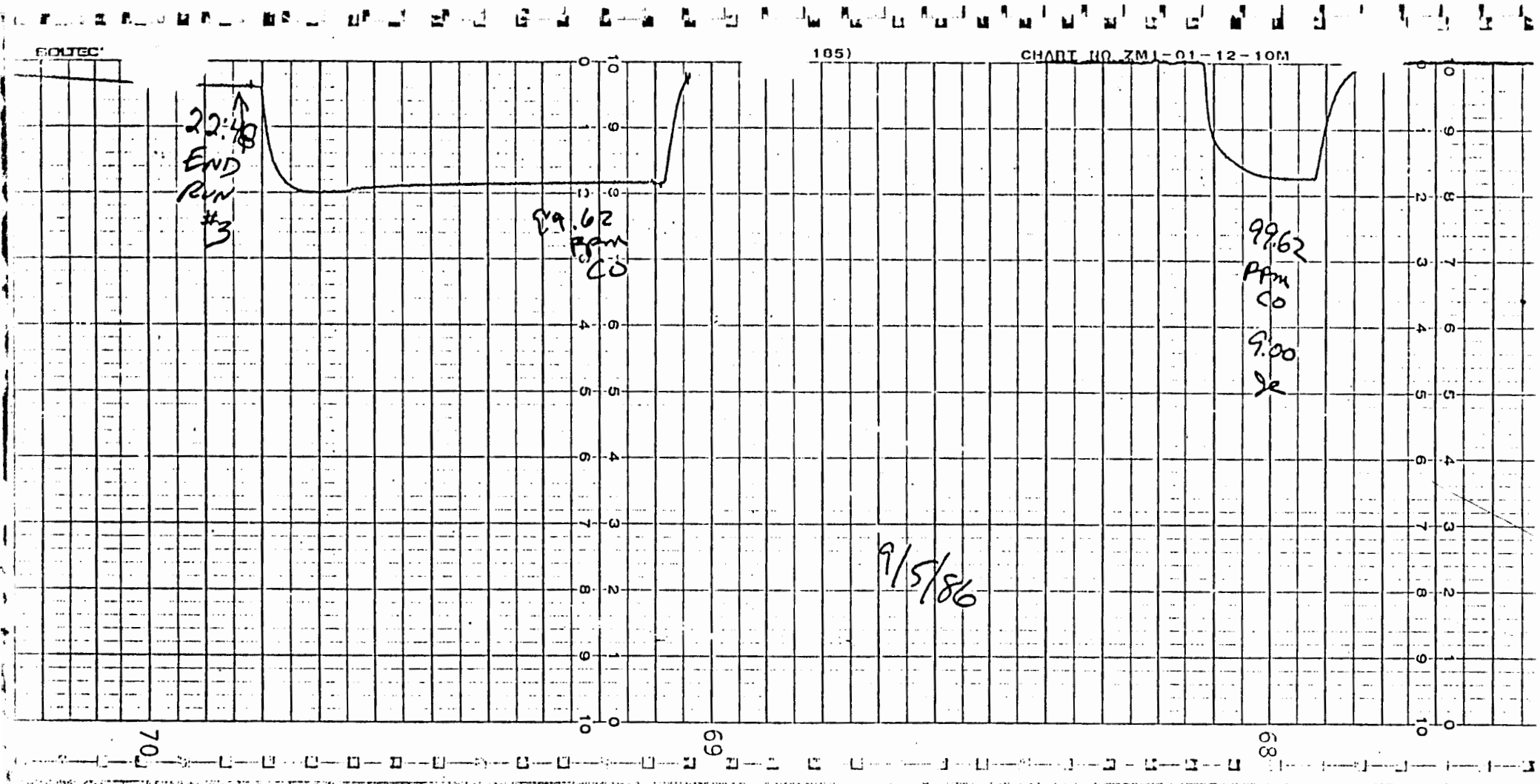
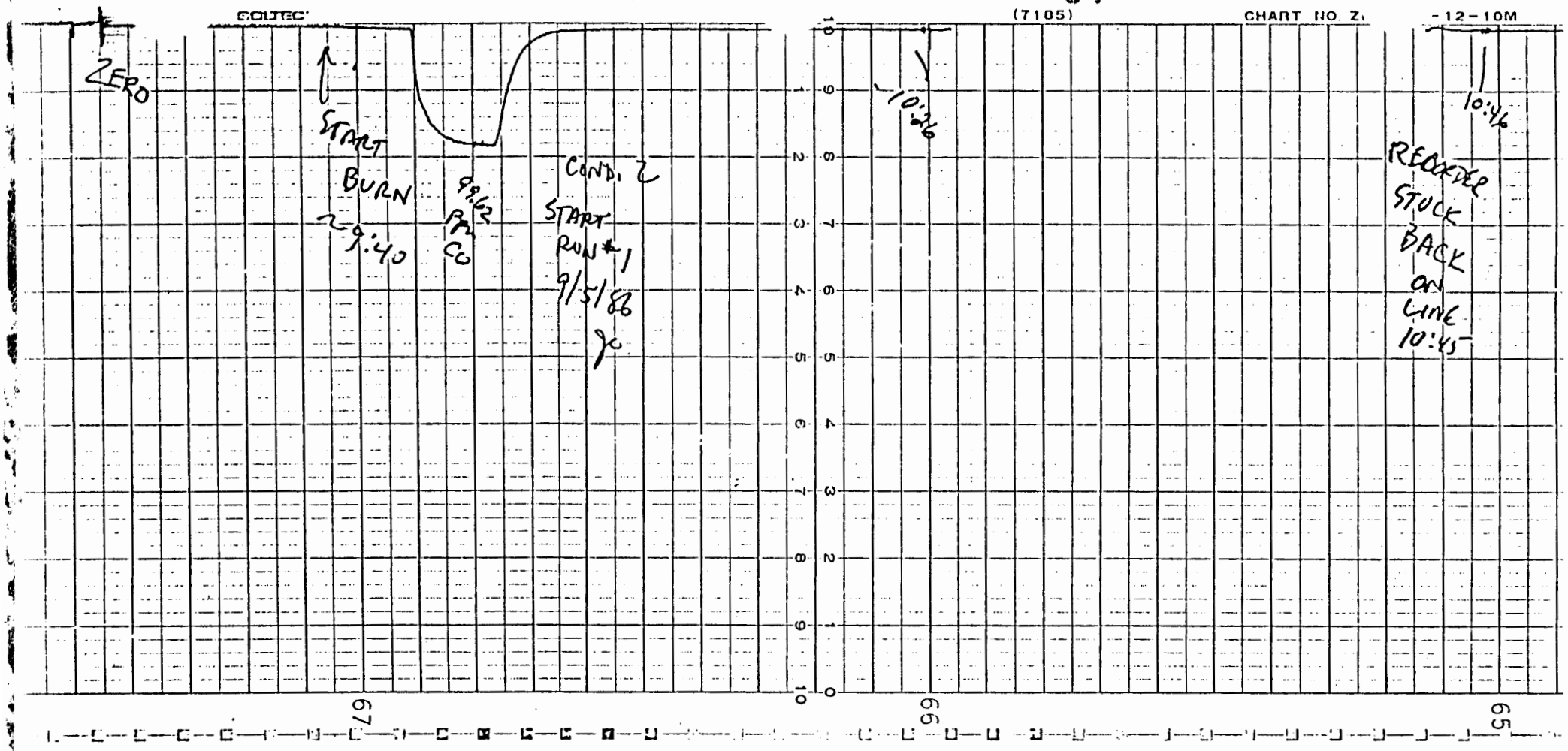
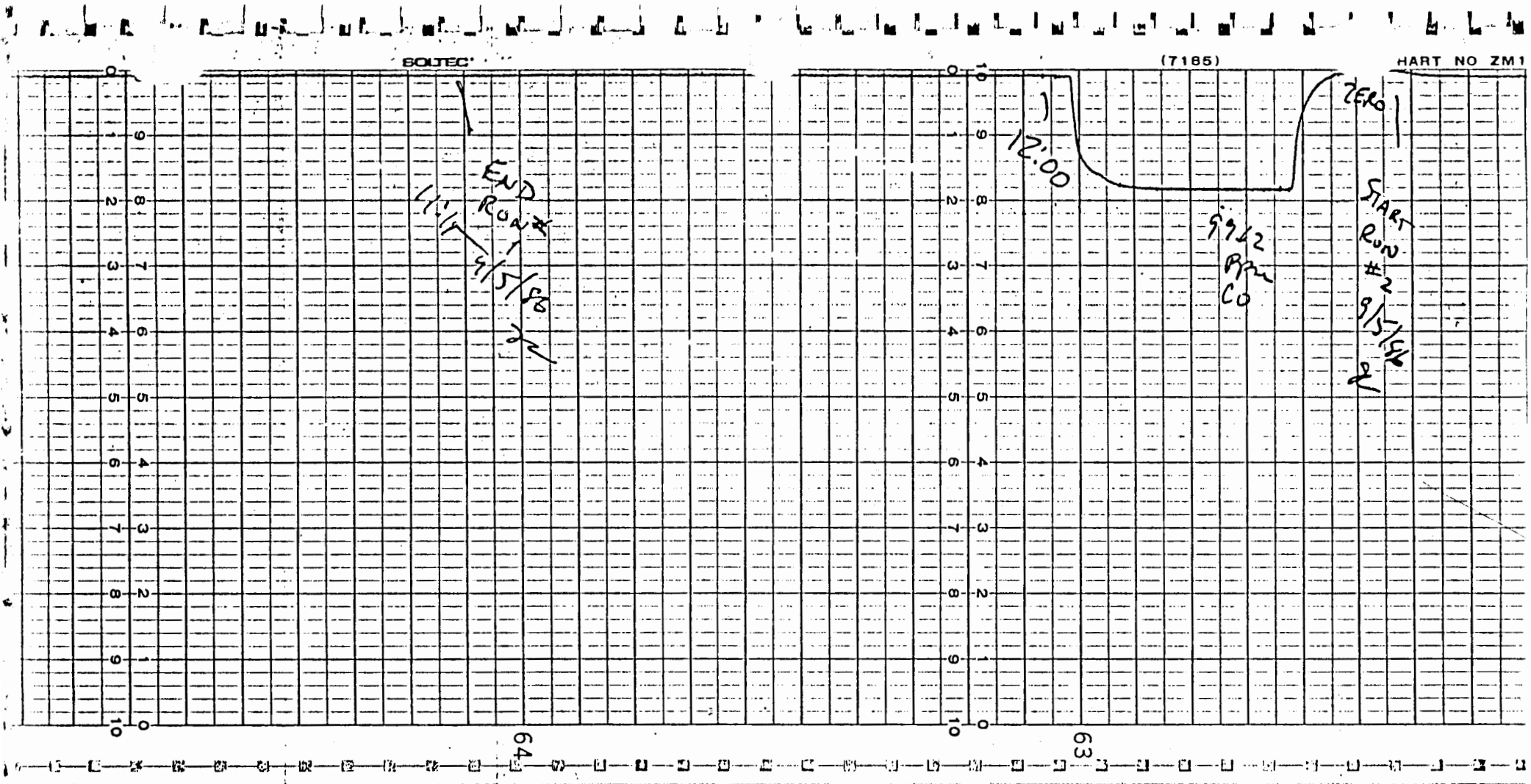
CHART NO. ZM1-01-12-
SOLTEC
18:52
START
RUN 2
8/4/86
JC
19:07
78
77
76

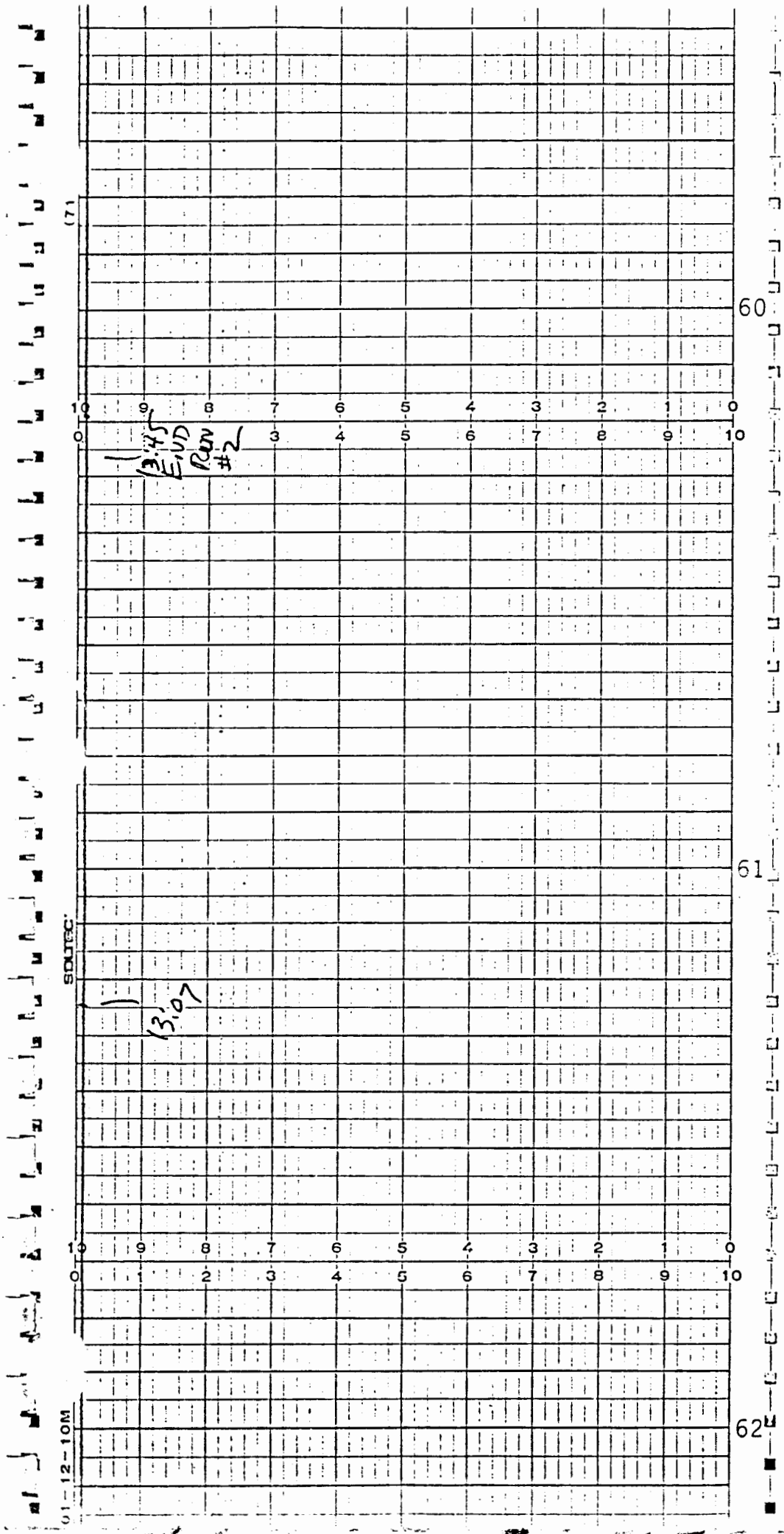

73
74
75
M1-01-12-10M
CHART
(7105)
ZERO
20:12
END
RUN
2
19:48
10 9 8 7 6 5 4 3 2 1 0
0 1 2 3 4 5 6 7 8 9 10


(7105)
CHART NO. ZM1-01-12-10M
START RUN #3
STACK GAS 21.25
99.62 PPM CO
22.13
72
71


SOLTEC
185)
CHART NO. ZM1-01-12-10M
22:48
END
RUN
#3
99.62
ppm
CO
99.62
ppm
CO
9:00
9/5/86
70
69
68


GOLTEC
(7105)
CHART NO. Z
-12-10M
ZERO
START BURN ~9:40
9.62 Pa CO
COND. 2
START RUN #1 9/5/86 JC
10:26
10:46
RECORDER STUCK BACK ON LINE 10:45
67
66
65


BOLTEC
(7165)
HART NO ZM1
END RUN #1 9/5/88
12:00
9 1/2 BPM CO
ZERO
START RUN #2 9/5/88
64
63

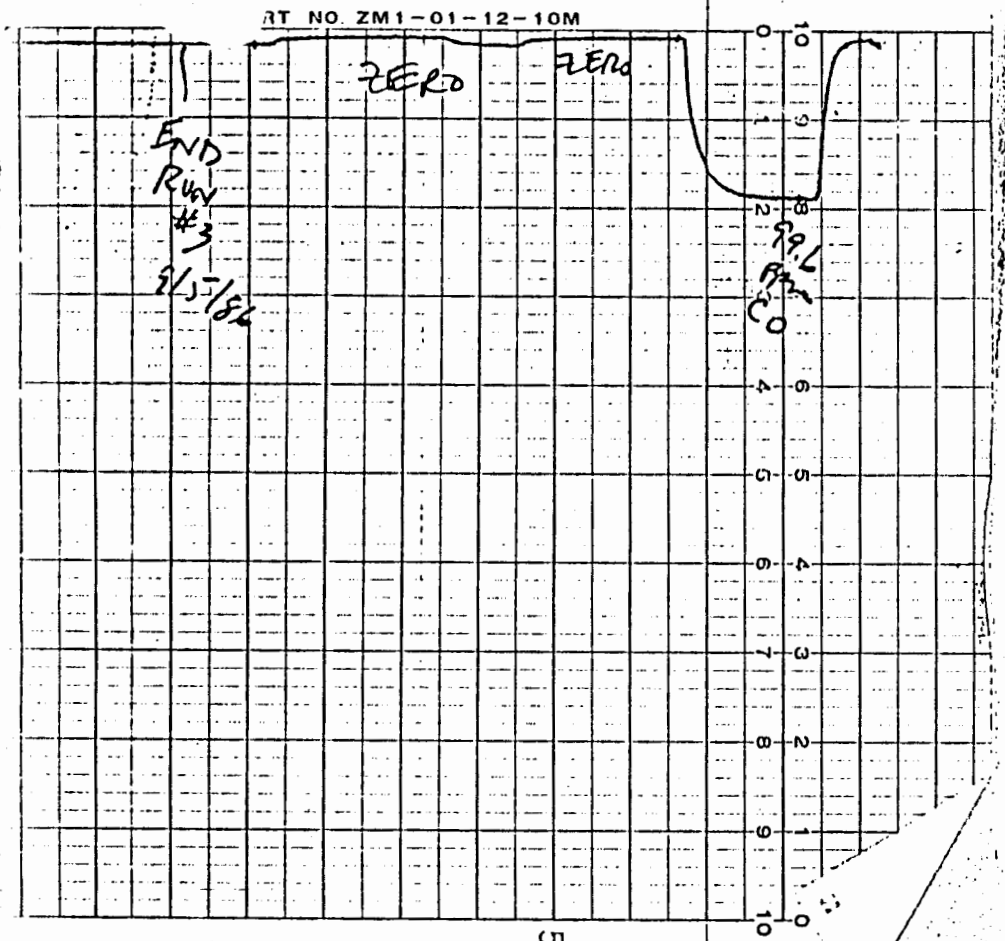

(7)
60
10 9 8 7 6 5 4 3 2 1 0
0 1 2 3 4 5 6 7 8 9 10
13.45
END
RUN
#2
61
SOLTEC
13.07
10 9 8 7 6 5 4 3 2 1 0
0 1 2 3 4 5 6 7 8 9 10
62
01-12-10M

NO. ZM1-01 M SOLTEC (7185)

START RUN #3
9/5/86
JC

15 bpm

59 58 57


RT NO. ZM1-01-12-10M
ZERO
ZERO
END
RUN
#3
8/5/86
9.6
PPM
CO

(7165) CHART NO. ZM1-01-12-10M SOLTEC

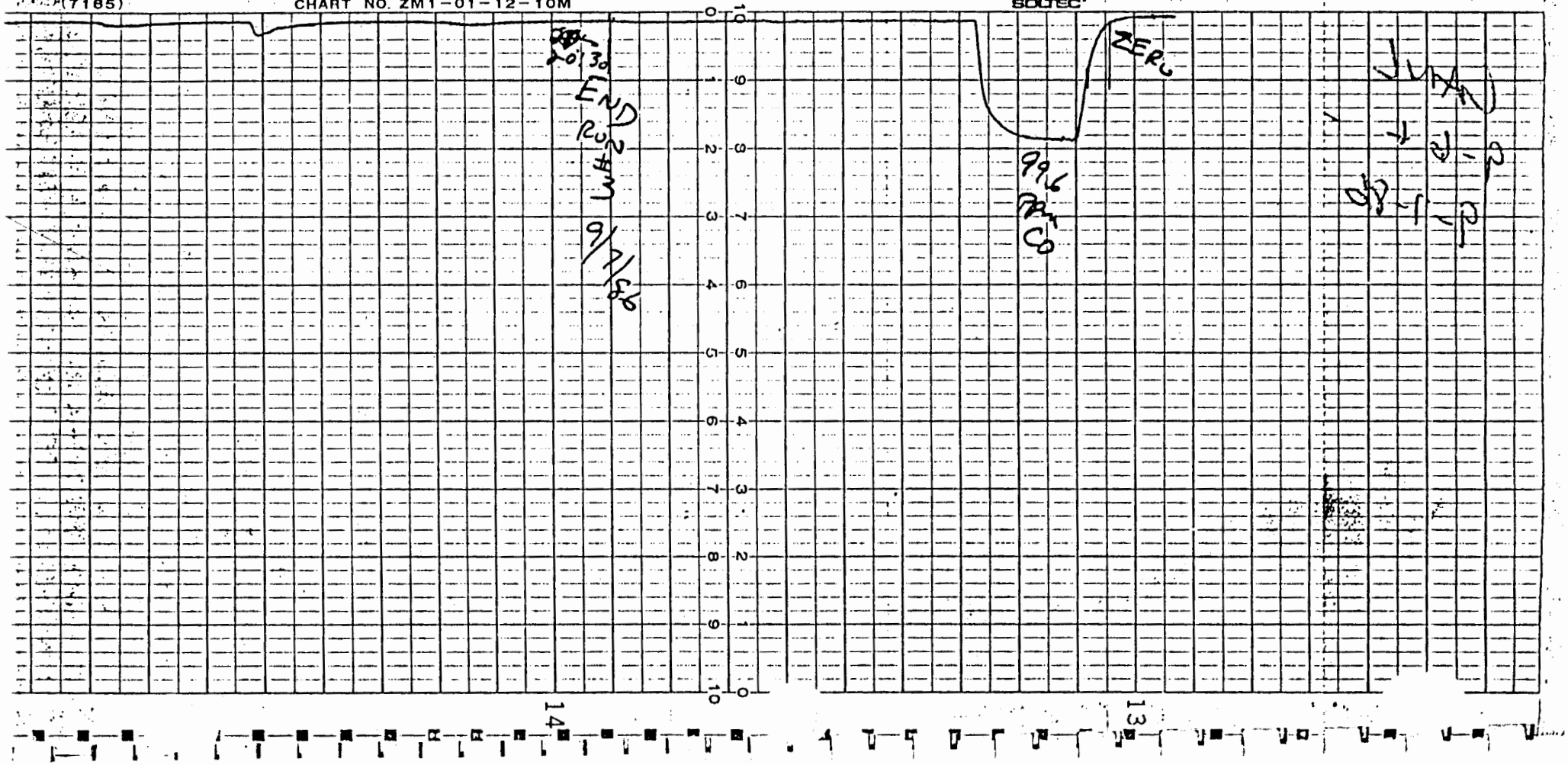


CHART NO. ZM1-01-12-10M

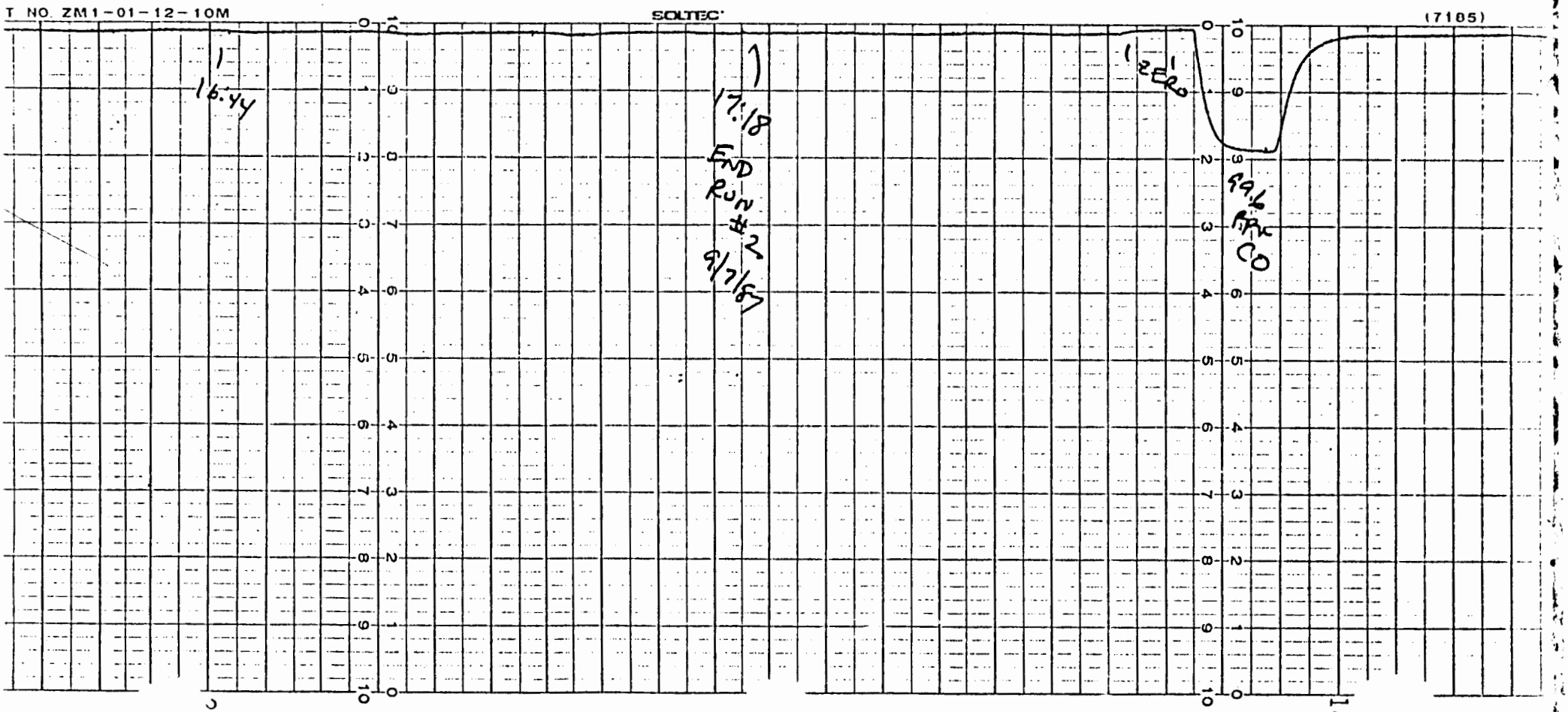
SOLTEC

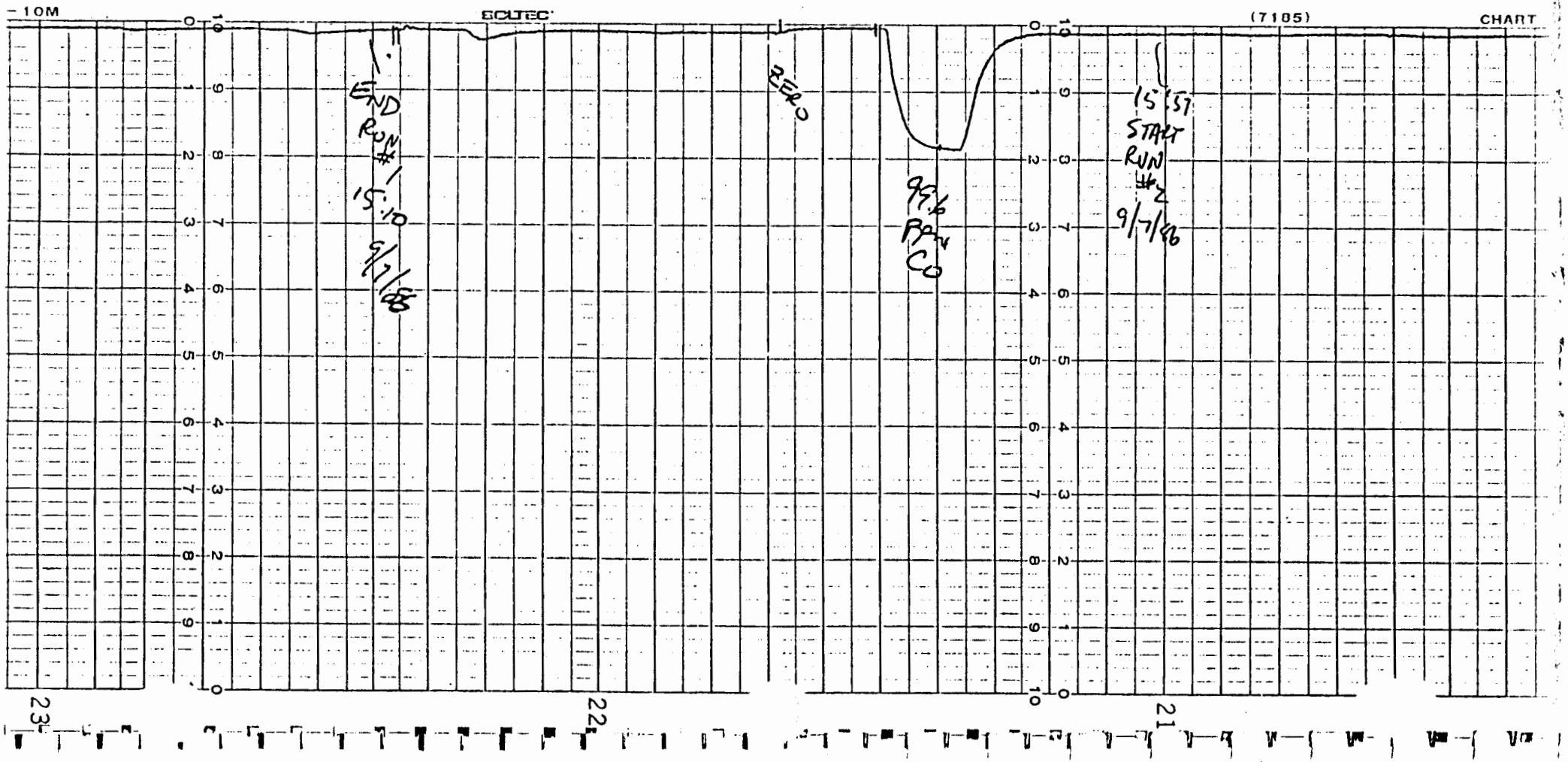
18:12
START
RUN #
3
9/7/86

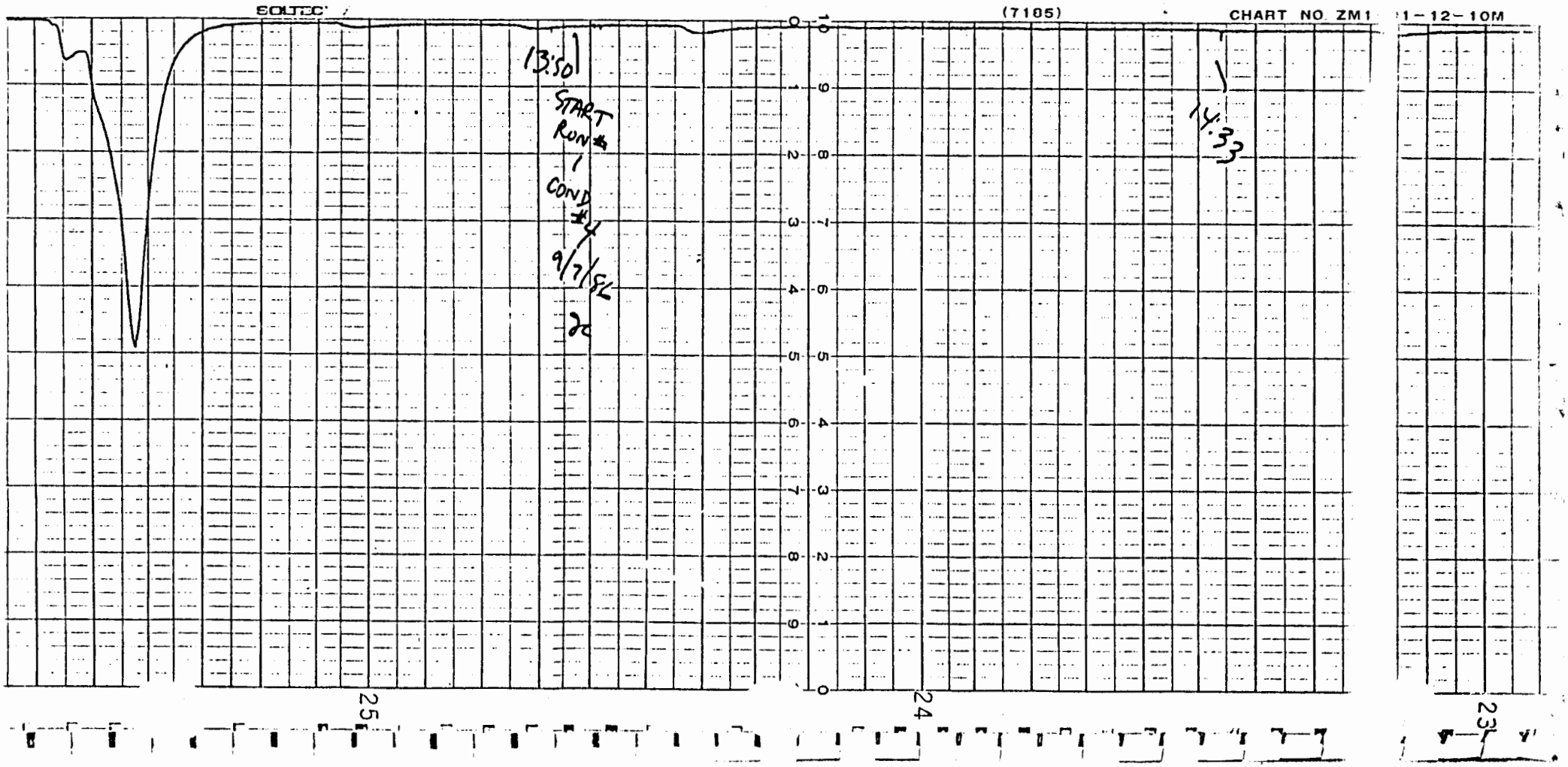
18:48

17

16


T NO. ZM1-01-12-10M
SOLTEC
(7185)
16.44
17:18
END
RUN #2
8/7/87
ZERO
99.6
PPM
CO

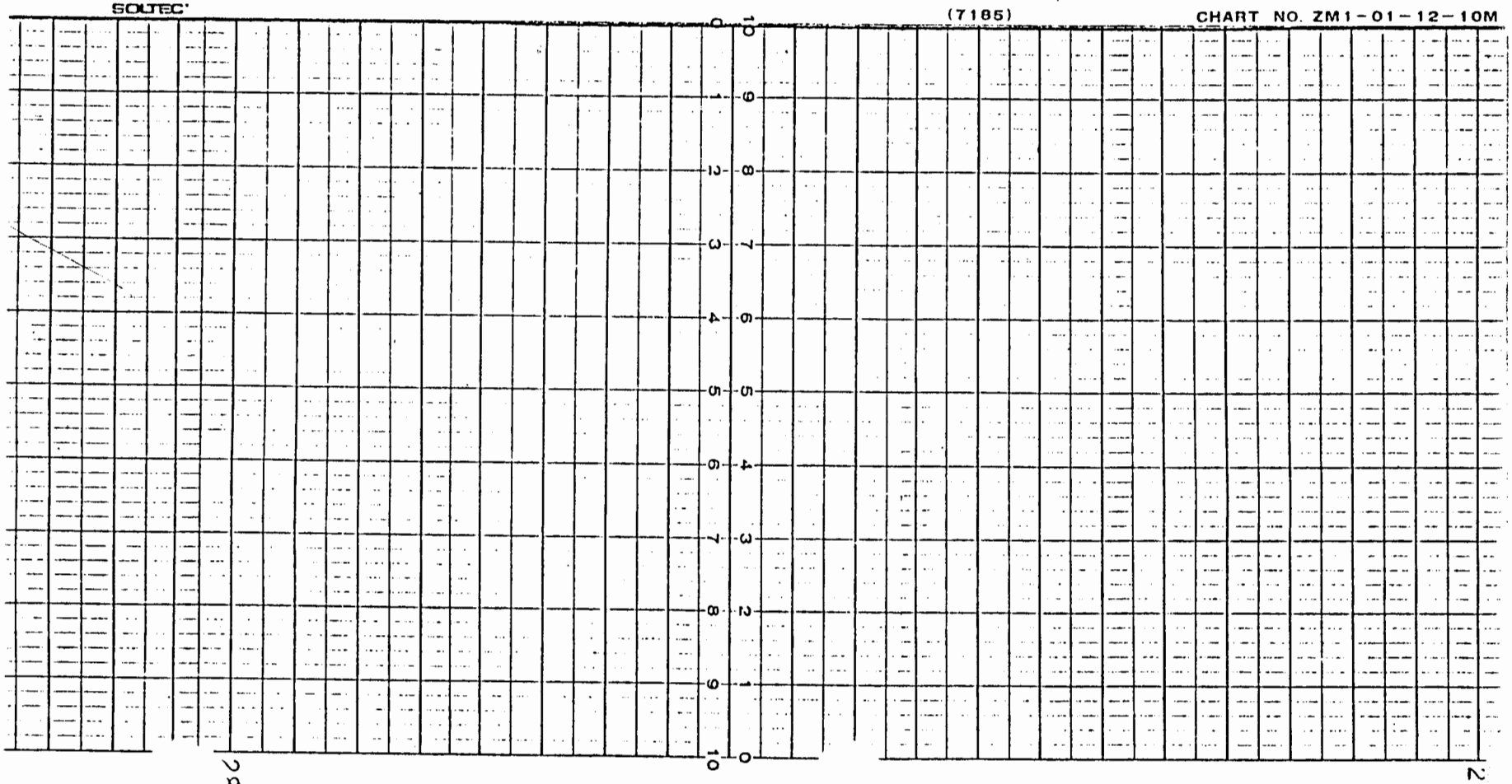

-10M
SCITEC
(7185)
CHART
END RUN #1 15:10 9/7/86
ZERO
95% RPM CO
15:57 START RUN #2 9/7/86
23
22
21


(7105)
CHART NO. ZM1
1-12-10M
13:50
START
RUN #
1
COND
#4
9/7/82
20
14:33
25
24
23

SOLTEC

(7185)

CHART NO. ZM1-01-12-10M



(7105)

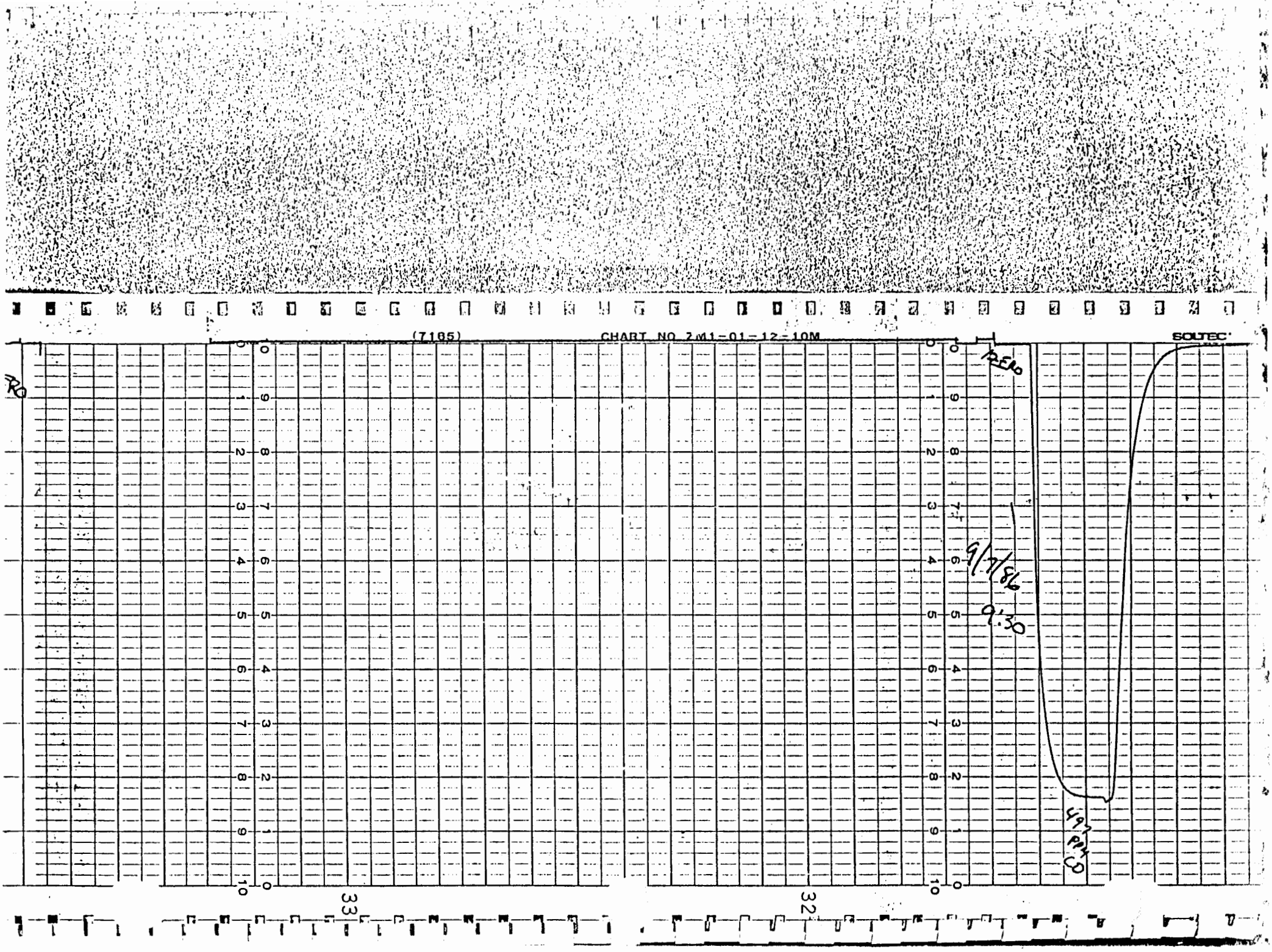
CHART NO. ZM1-01-12-10M

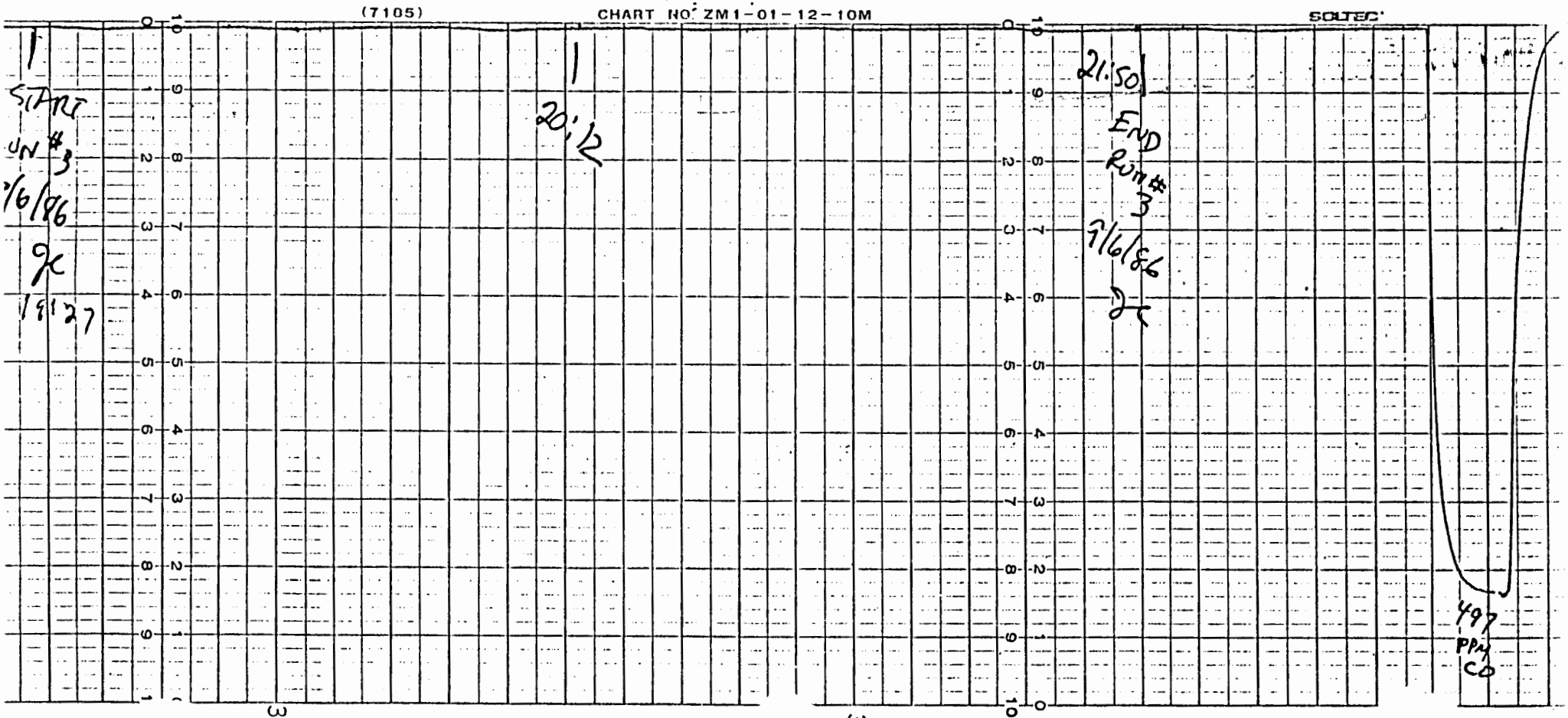
(ZERO)

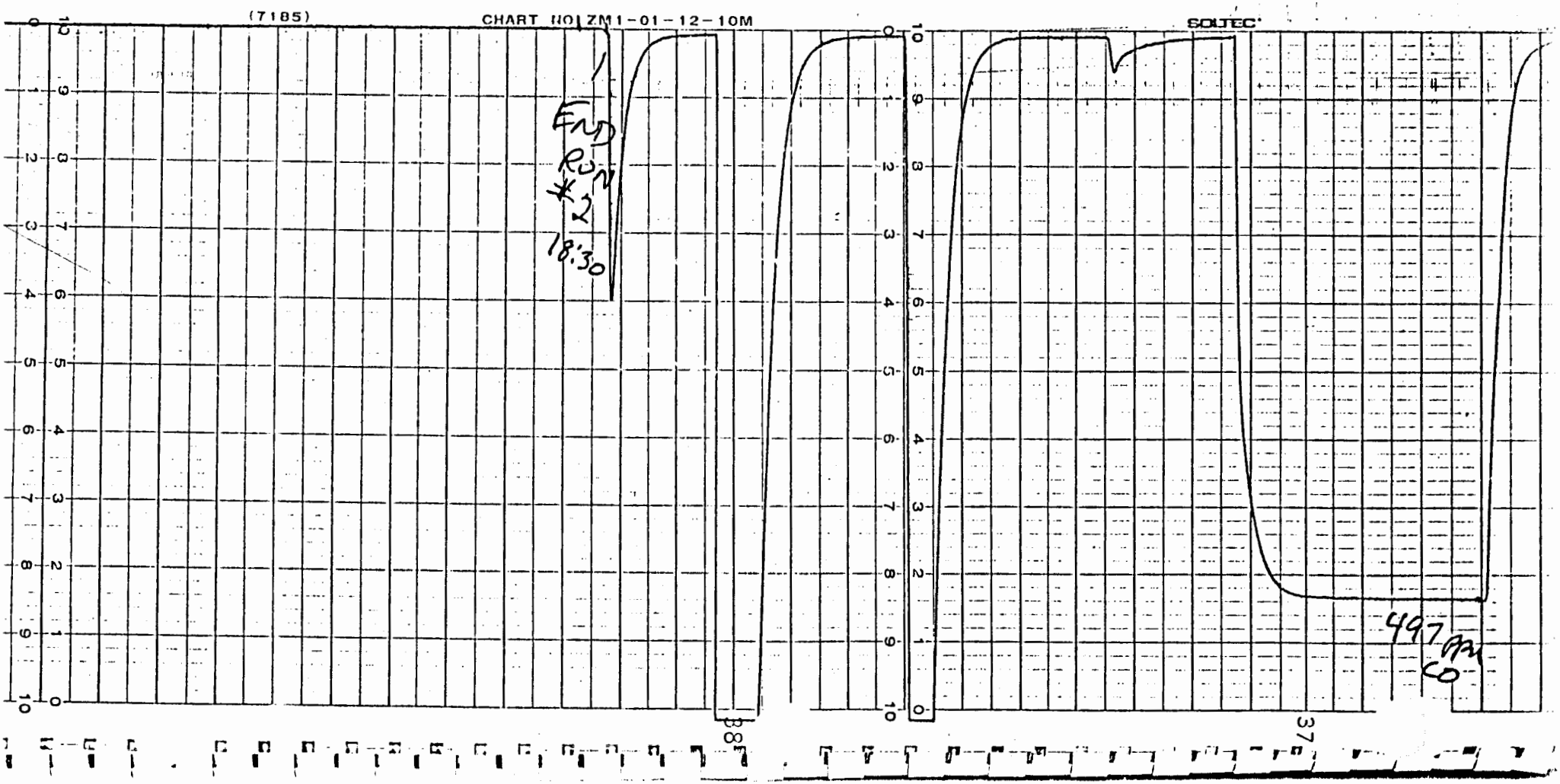
31

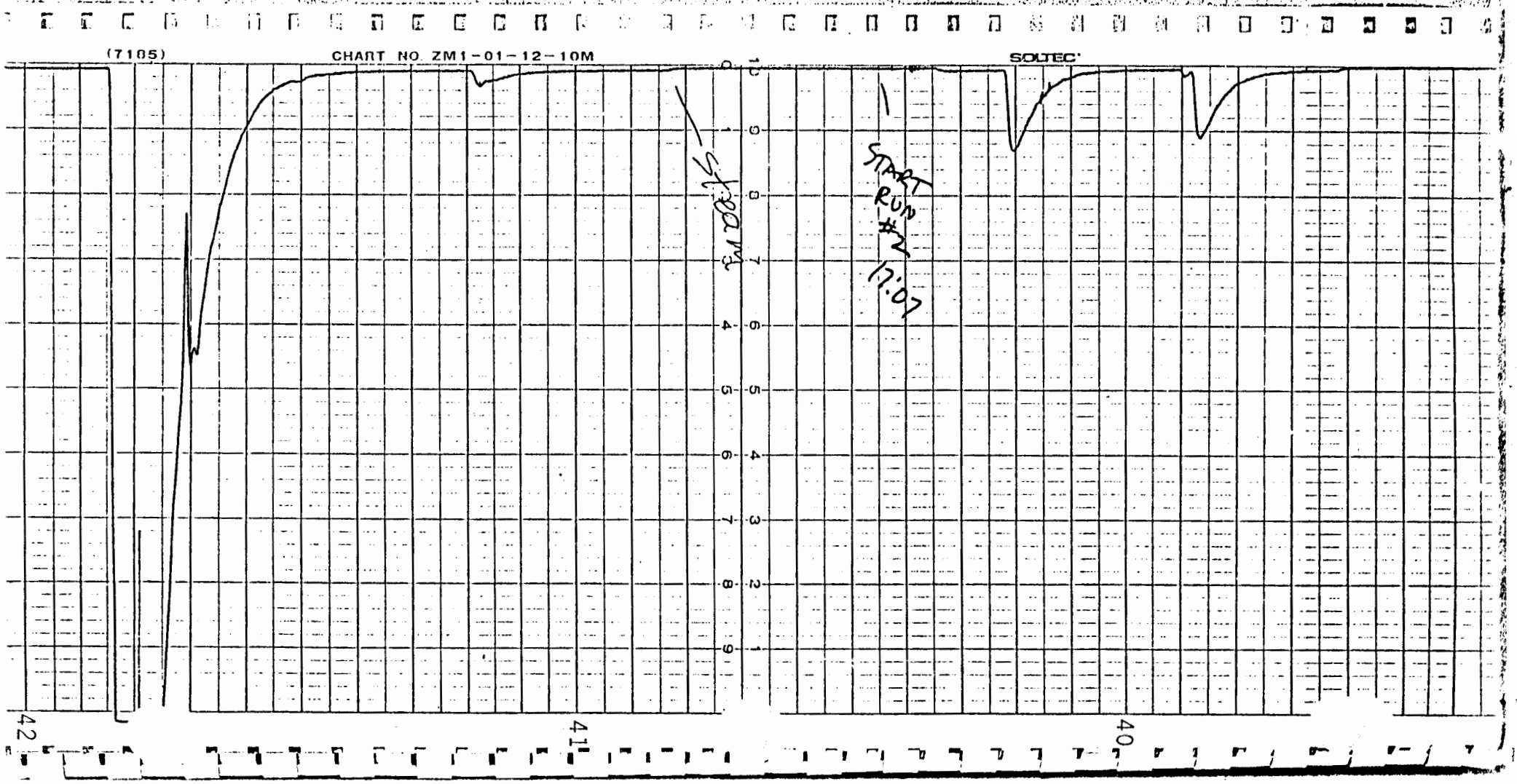
30

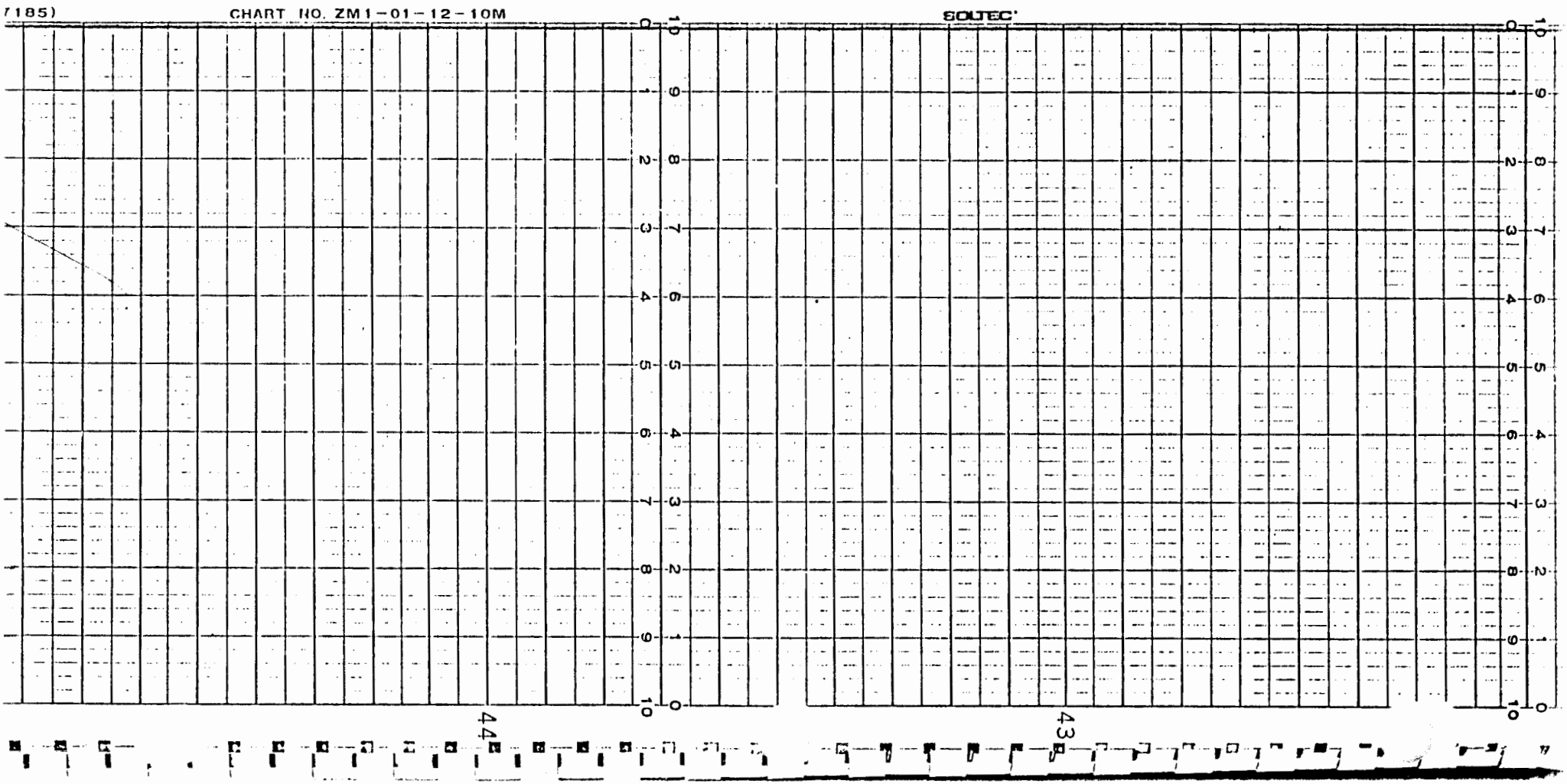
29

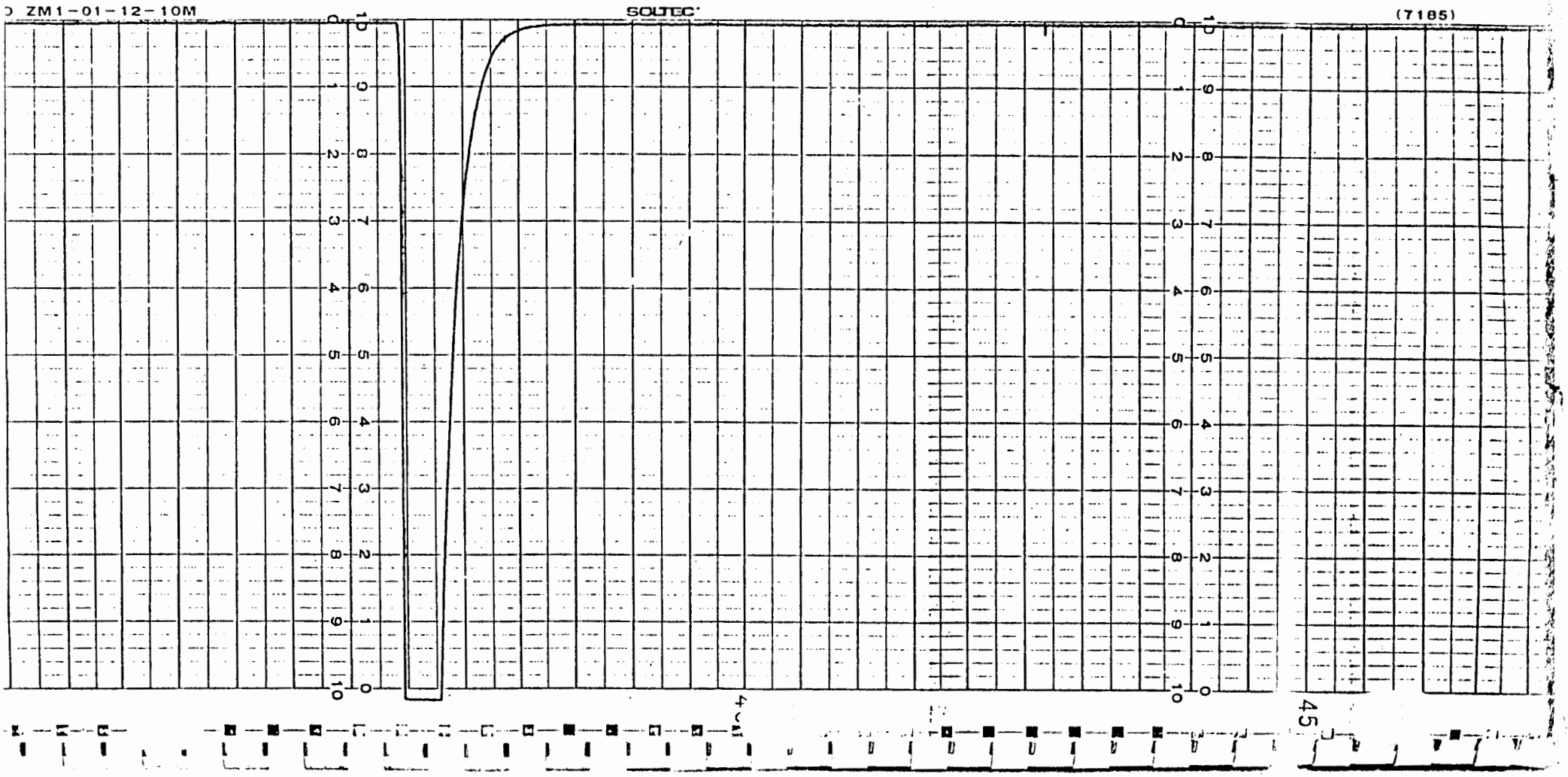

(7185)
CHART NO 2M1-01-12-10M
SOLTEC
PRE
9/7/86
9:30
49 PPM CO
33
32

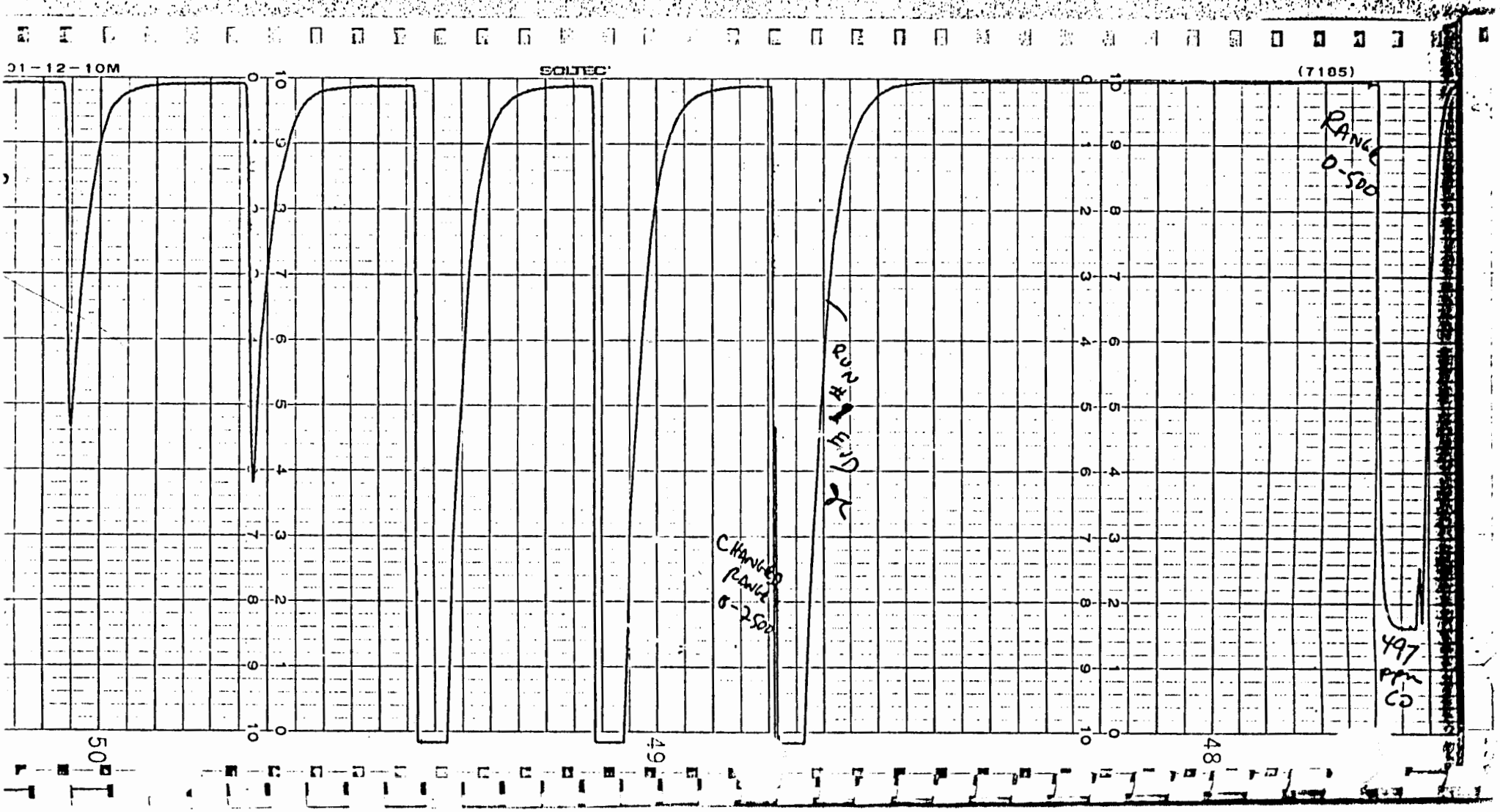

(7105)
CHART NO. ZM1-01-12-10M
SOLTEC
START
UN #3
9/6/86
JC
18:27
20:12
21:50
END
Run #
3
9/6/86
JC
497
PPM
CO

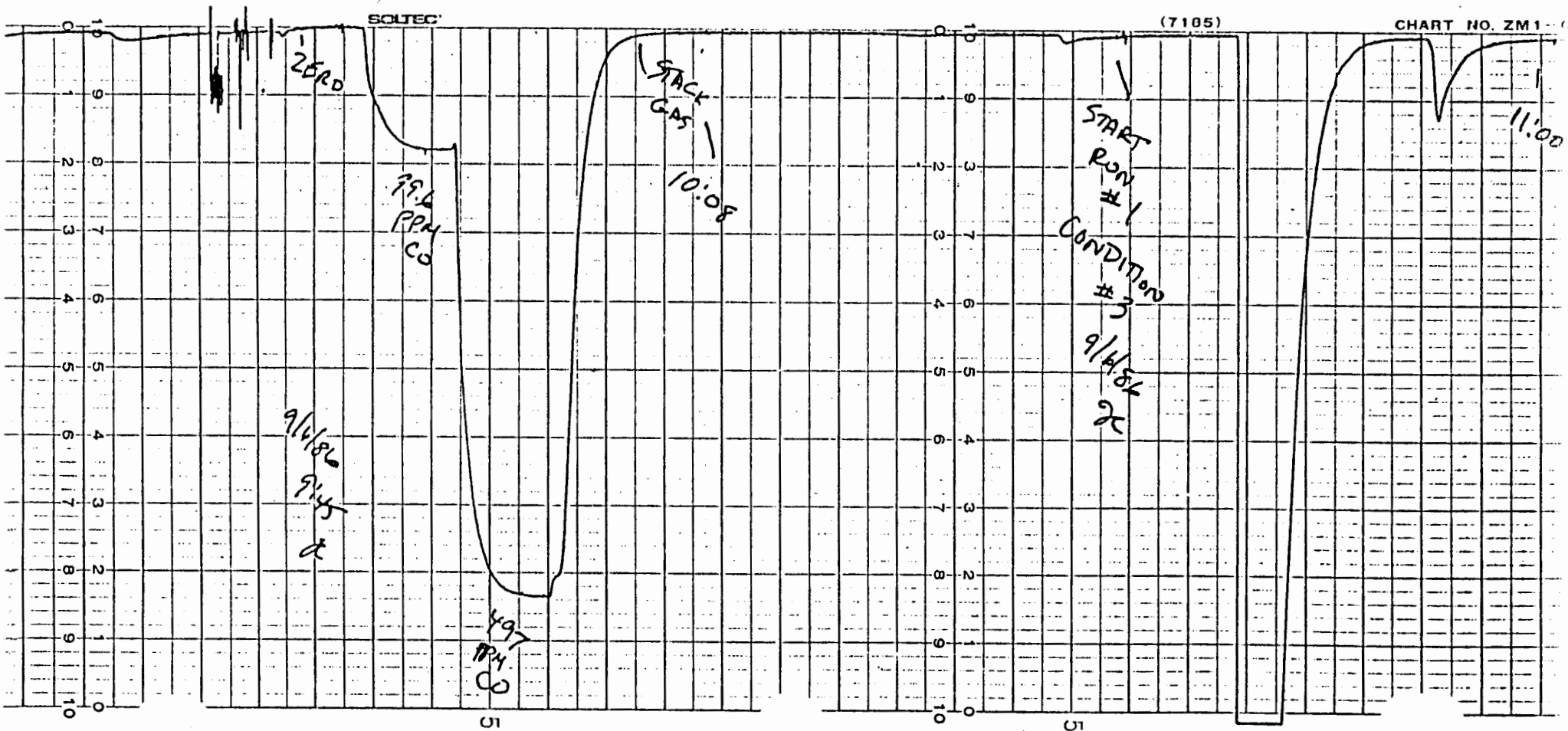

(7185)
CHART NO. ZM1-01-12-10M
SOLTEC
END RUN #2 18:30
497 ppm CO
38
37

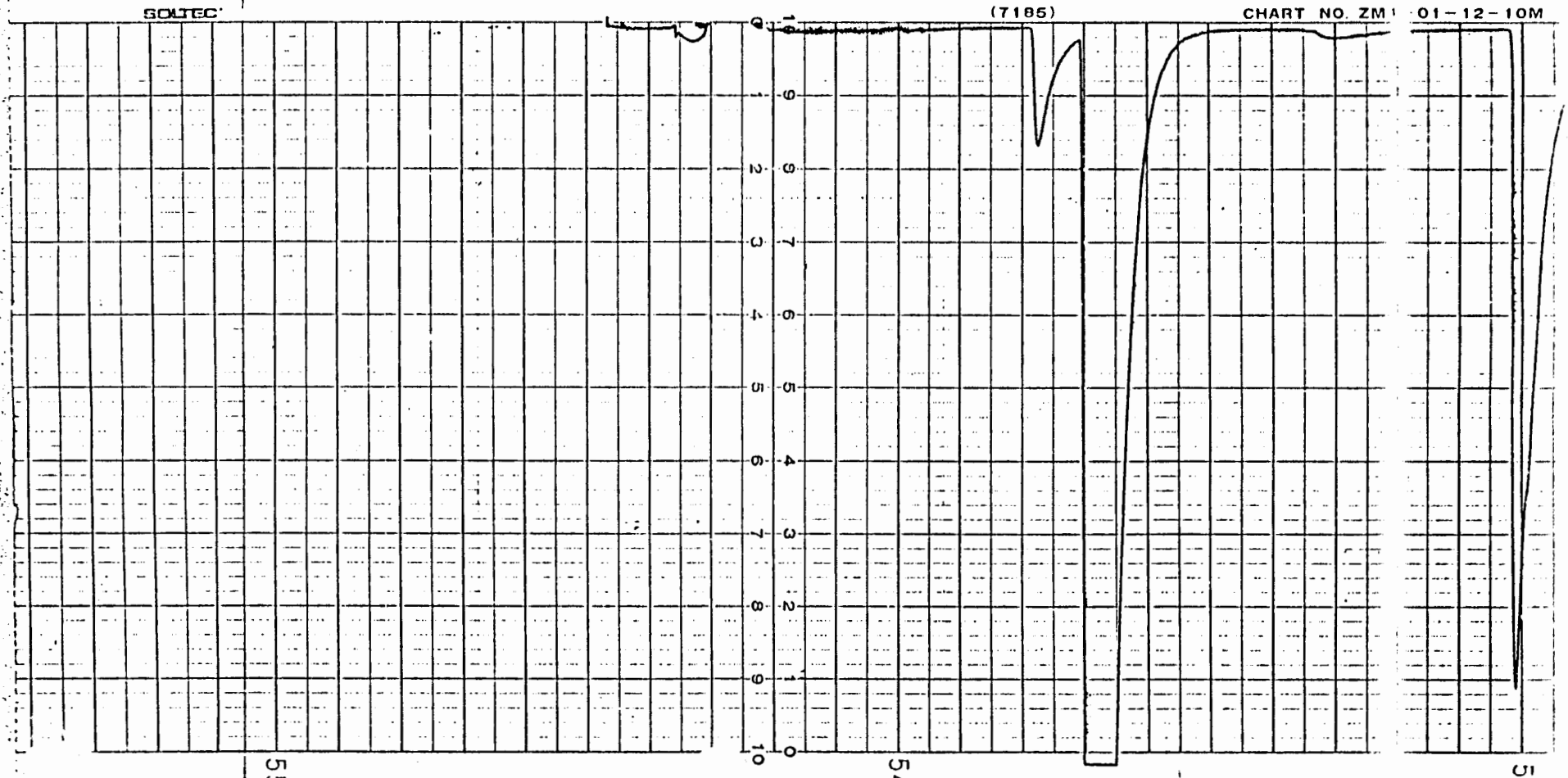

(7105)
CHART NO. ZM1-01-12-10M
SOLTEC
START RUN #2 12:07
42
41
40


7185)
CHART NO. ZM1-01-12-10M
SOLTEC
44
43


ZM1-01-12-10M
SOLTEC
(7185)


01-12-10M
SOLTEC
(7185)
RANGE 0-500
497 ppm CO
Changed Range 0-2500
RUN # END
50
49
48


SOLTEC
(7105)
CHART NO. ZM1
ZERO
9/4/86
9:45
a
99.6 PPM CO
497 PPM CO
STACK GAS
10:08
START RUN #1
CONDITION #3
9/4/86
2c
11:00
52
51


SOLTEC
(7185)
CHART NO. ZM
01-12-10M

EPA METHOD-5 & VOST SAMPLE PERIODS

METHOD 5 RUNS	VOST RUNS	
LA-1-M5-1-IMP 9/4 1310-1445	**LA-1-V-1-T,TC** 9/4 1315-1335	**LA-1-V-3-T,TC** 9/4 1443-1503
	LA-1-V-2-T,TC 9/4 1401-1421	**LA-1-V-4-T,TC** 9/4 1525-1545
LA-1-M5-2-IMP 9/4 1852-2015	**LA-1-V-5-T,TC** 9/4 1824-1844	
	LA-1-V-6-T,TC 9/4 1938-1958	
LA-1-M5-3-IMP 9/4 2125-2245		
LA-2-M5-1-IMP 9/5 0950-1120	**LA-2-V-1-T,TC** 9/5 0958-1018	
	LA-2-V-2-T,TC 9/5 1044-1104	
LA-2-M5-2-IMP 9/5 1220-1340	**LA-2-V-3-T,TC** 9/5 1216-1236	
	LA-2-V-4-T,TC 9/5 1302-1322	
LA-2-M5-3-IMP 9/5 1440-1600	**LA-2-V-5-T,TC** 9/5 1448-1508	
	LA-2-V-6-T,TC 9/5 1527-1547	
LA-3-M5-1-IMP 9/6 1035-1155	**LA-3-V-1-T,TC** 9/6 1036-1056	
	LA-3-V-2-T,TC 9/6 1117-1137	
LA-3-M5-2-IMP 9/6 1707-1832	**LA-3-V-3-T,TC** 9/6 1709-1729	
	LA-3-V-4-T,TC 9/6 1756-1816	

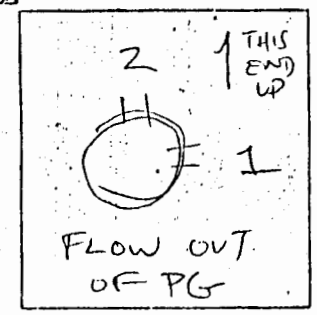
METHOD 5 RUNS	VOST RUNS
LA-3-M5-3-IMP 9/6 1927-2050	**LA-3-V-5-T,TC** 9/6 1924-1944 **LA-3-V-6-T,TC** 9/6 1957-2017
LA-4-M5-1-IMP 9/7 1350-1512	**LA-4-V-1-T,TC** 9/7 1349-1409 **LA-4-V-2-T,TC** 9/7 1430-1450
LA-4-M5-2-IMP 9/7 1557-1718	**LA-4-V-3-T,TC** 9/7 1558-1618 **LA-4-V-4-T,TC** 9/7 1638-1658
LA-4-M5-3-IMP 9/7 1910-2030	**LA-4-V-5-T,TC** 9/7 1809-1829 **LA-4-V-6-T,TC** 9/7 1846-1906

K=8.3 T_m=110
T_s=220
B_{wo}=37 JB

PARTICULA STING RAW D. ET

Client/Owner: ANL
Plant: CAF
Unit#: ____ Inlet/Outlet
Operator: J. BRABUS 7140
Date: 9/4/86
Run No.: 1
Sample Box No.: ____
Meter Box No.: 66
Meter DH@: 1.807
K Factor: ~~9~~ 8.3
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: < .005 CFM @ 17 Hg
Leak Rate After: ____ CFM @ ____ Hg
Static Press., In. H_2O (+/−): .5

Start Time: 13:10 AM ~~12:10~~ PM
Finish Time: : AM PM
Meter Yd: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: 21520
~~Thimble #~~
Beaker #

Ambient Temperature, °F: 80
Barometric Pressure, In. Hg: 23
Assumed Moisture, %: 38-39
Heater Box Setting: 250°
Probe Length, Ft.: 3 No.: Glass
Nozzle Diameter, In.: .373 → .313
Probe Heater Setting: 250°
% O_2: 9.2
% CO_2: 8.6
H_2O, ml: 296
Silica Gel, gm: 12.6
Total Vlc: 308.6
Stack Area, Ft²: π/4 · Θ = 12"
Pyrometer No.: NA

TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: 95.76 GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER INLET T_m In, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	P/HSL'/F SAMPLE BOX TEMPERATURE T_b °F
1-1	4	12 *	220	.19	(1.58) 1.2	98.59 *	94	91	52	255/246/2[illegible]
	8	6½	220	.19	.78	101.01	90	91	54	256/248/2[illegible]
2	12	6	222	.17	.70	103.25	89	90	61	255/249/2[illegible]
	16	6	222	.17	.70	105.35	89	90	63	256/248/254
3	20	7	214	.19	.78	107.64	90	89	60	255/249/25[illegible]
	24	9	208	.24	.98	110.17	89	89	58	255/250/25[illegible]
4	28	9	197	.23	.94	112.64	86	87	58	256/247/2[illegible]
	32	8	182	.20	.82	115.02	82	84	59	259/250/23[illegible]
							(84)			
TOTAL							AVG. -11	AVG. -9		
AVERAGE	(64)		(209)	(.4154)	(0.74)	(35.62)	AVG. 90 - 20/16	88.75		

NEW No. * Δ TO .313

Clean Air Engineering, Inc.

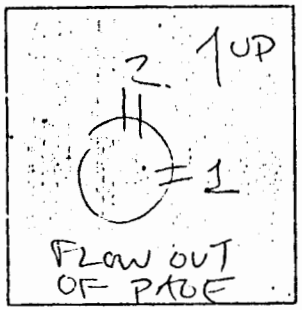
Page 1 of 2

1.99.71 NOZZLE 314 312 313 312 → 18 .313 K → 4.11

PARTICULATE ... NG
RAW DATA

Client/Owner: JL
Plant: CAF
Unit#: ____ Inlet/Outlet: ____
Operator: J. BARABUSZKO
Date: 9/4/86
Run No.: 1
Sample Box No.: ____
Meter Box No.: 66
Meter DH@: 1.807
K Factor: ____
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: ____ CFM @ ____ Hg
Leak Rate After: ____ CFM @ ____ Hg
Static Press., In. H_2O (+/−): ____

Start Time: ____ : ____ AM / PM
Finish Time: ____ : ____ AM / PM
Meter Yd: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: ____
Thimble #: ____
Beaker #: ____

Ambient Temperature, °F: ____
Barometric Pressure, In. Hg: ____
Assumed Moisture, %: ____
Heater Box Setting: 250°
Probe Length, Ft.: 3' No.: Glass
Nozzle Diameter, In.: 3
Probe Heater Setting: 250°
% O_2: ____
% CO_2: ____
H_2O, ml: 296
Silica Gel, gm: 12½
Total Vlc: 308½
Stack Area, Ft²: 55/4 Θ = 12"
Pyrometer No.: NA

TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER: INLET T_m In, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_b °F
1	(4) 36	6	216	.16	.66	117.10	81	81	64	259/253/278
	(8) 40	7½	218	.20	.82	119.43	80	81	58	259/255/250
2	(12) 44	7	219	.17	.70	121.64	80	81	56	260/254/258
	(16) 48	6	220	.15	.62	123.72	80	80	56	257/254/262
3	(20) 52	8	219	.17	.70	125.83	80	79	57	260/258/278
	(24) 56	5	200	.12	.53	127.74	80	79	57	260/259/278
4	(28) 60	4½	191	.11	.45	129.51	79	78	58	260/256/260
	(32) 64	5	181	.13	.53	131.38	79	78	58	261/253/246
TOTAL							AVG. -1	AVG. -3		
AVERAGE							AVG. 80 - 4/16 = 79.75			

149/16

Clean Air Engineering, Inc.

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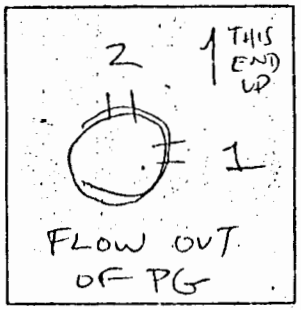
~~16 x 5 = 80~~

PARTICULA STING
RAW D. ET

Client/Owner: ANL
Plant: CM+
Unit#: ____ Inlet/Outlet: ____
Operator: J. BRAJUSZKA
Date: 7/4/86
Run No.: 2
Sample Box No.: ____
Meter Box No.: 66
Meter DH@: 1.807
K Factor: .41 ~~(.40)~~ 4.1 (DK)
Pitot Cp: .84 Pitot Leak Ck: ✓
Leak Rate Before: 2.005 CFM @ 17 Hg
Leak Rate After: ____ CFM @ ____ Hg
Static Press., In. H_2O (+/-): 0.6 0.6

Start Time: 18:52 AM/PM
Finish Time: : AM/PM
Meter Yd: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: 21511
Thimble #: ____
Beaker #: ____

Ambient Temperature, °F: ____
Barometric Pressure, In. Hg: 2 6
Assumed Moisture, %: ____
Heater Box Setting: 250°
Probe Length, Ft.: 3' No.: GLASS
Nozzle Diameter, In.: .313
Probe Heater Setting: 250°
% O_2: 9.2
% CO_2: 8.6
H_2O, ml: 395
Silica Gel, gm: 1
Total V_{lc}: 409
Stack Area, Ft²: π/4 · Θ = 12"
Pyrometer No.: NA

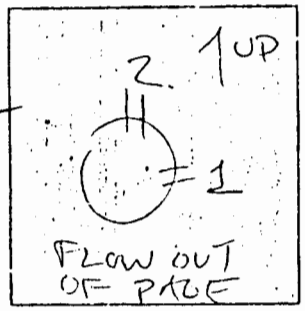
TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: 31.71 GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER INLET T_m In, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_p °F
1-1	~~5~~ 5	6½	220	.22	.90	34.79	85	88	51	270/257/252
	~~8~~ 10	7	221	.23	.94	37.92	82	86	50	270/257/245
2	~~12~~ 15	6	224	.21	.86	40.87	81	85	50	254/258/240
	~~16~~ 20	6	225	.21	.86	43.86	80	84	51	259/258/234
3	~~20~~ 25	6	216	.19	.78	46.71	81	83	50	259/261/234
	~~24~~ 30	5½	214	.18	.74	49.47	80	82	50	259/261/237
4	~~28~~ 35	5	203	.16	.66	52.09	80	81	51	259/260/25[illegible]
	~~32~~ 40	5	187	.16	.66	54.79	~~80~~ 79	80	52	260/259/25[illegible]
							8	29		
				.4066						
TOTAL					0.74		AVG.	AVG.		
AVERAGE	60		213.8	.4247	.8	44.23	AVG. 82.3	79		

Clean Air Engineering, Inc.

PARTICULATE 'NG
RAW DAT.

Client/Owner: JL
Plant: CA7
Unit#: ____ Inlet/Outlet: ____
Operator: J. BARABUSZKO
Date: 7/4/86
Run No.: 2
Sample Box No.: ____
Meter Box No.: 66
Meter DH@: 1.807
K Factor: ____
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: 6.005 CFM @ 15 Hg
Leak Rate After: ____ CFM @ ____ Hg
Static Press., In. H_2O (+/−): ____

Start Time: ____ : ____ AM / PM
Finish Time: 20:15 ~~19:15~~ AM / PM
Meter Y_d: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: 2151 9
Thimble #: ____
Beaker #: ____

Ambient Temperature, °F: ____
Barometric Pressure, In. Hg: 23.6
Assumed Moisture, %: ____
Heater Box Setting: 250°
Probe Length, Ft.: 3 No.: Glass
Nozzle Diameter, In.: ____
Probe Heater Setting: 250°
% O_2: ____
% CO_2: ____
H_2O, ml: ____
Silica Gel, gm: ____
Total V_{lc}: ____
Stack Area, Ft²: π/4 Θ = 12"
Pyrometer No.: NA

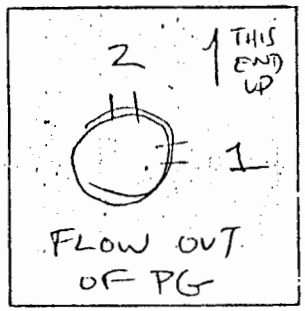
TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg		STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s (135)	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER: INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_p, °F
2-1	~~(4)~~ 36	45	7	222	.22	.90	57.~~87~~55	77	79	52	264/260/251
	~~(8)~~ 40	50	7	223	.22	.90	60.85	77	78	51	260/260/242
2	~~(12)~~ 44	55	5	226	.17	.68	63.51	77	78	54	258/261/241
	~~(16)~~ 48	60	5	226	.17	.68	66.14	77	77	53	256/259/243
3	~~(20)~~ 52	65	5½	215	.16	.66	68.74	76	76	54	260/261/254
	~~(24)~~ 56	70	5½	214	.16	.66	71.33	76	76	56	260/262/253
4	~~(28)~~ 60	75	4	196	.12	.49	73.61	76	76	56	259/260/243
	~~(32)~~ 64	80	4½	182	.13	.53	75.94	75	75	56	260/261/242
TOTAL								AVG.	AVG.		
AVERAGE								AVG.			

Clean Air Engineering, Inc.

PARTICULATE TESTING RAW DATA SHEET

Client/Owner: ANL
Plant: CHF
Unit#: _____ Inlet/Outlet: _____
Operator: J. BALABUSZKO
Date: 9/4/86
Run No.: 3
Sample Box No.: _____
Meter Box No.: 66
Meter DH@: 1.807
K Factor: 4.0
Pitot Cp: .84 Pitot Leak Ck: ✓
Leak Rate Before: <.01 CFM @ 17 Hg
Leak Rate After: <.01 CFM @ 15 Hg
Static Press., In. H_2O (+/−): .5

Start Time: 21:25 AM/PM
Finish Time: : AM/PM
Meter Yd: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: 21513
Thimble #: _____
Beaker #: _____

Ambient Temperature, °F: 6
Barometric Pressure, In. Hg: 23
Assumed Moisture, %: _____
Heater Box Setting: 250°
Probe Length, Ft.: 3 No.: 61056
Nozzle Diameter, In.: _____
Probe Heater Setting: 250°
% O_2: 9.2
% CO_2: 8.6
H_2O, ml: 385
Silica Gel, gm: 14
Total Vlc: 399
Stack Area, Ft²: π/4 · D = 12"
Pyrometer No.: NA

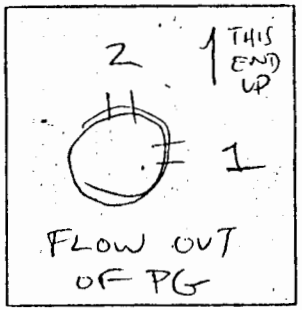
TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: 77.50 GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_b °F
1-1	~~4~~ 5	8	214	.22	.88	80.49	65	65	60	260/265/25
	~~8~~ 10	8	221	.22	.88	83.46	65	65	52	260/266/251
2	~~12~~ 15	8	225	.20	.80	86.34	66	65	50	261/268/248
	~~16~~ 20	8	225	.20	.80	89.28	66	65	53	260/268/244
3	~~20~~ 25	6	220	.17	.68	91.84	67	66	52	261/268/241
	~~24~~ 30	6	214	.16	.64	94.42	67	66	52	257/262/244
4	~~28~~ 35	5	196	.14	.56	96.81	67	66	51	257/257/247
	~~32~~ 40	5	184	.14	.56	99.19	67	66	51	257/258/
TOTAL							AVG.	AVG.		
AVERAGE	80		212	0.4098	0.68	41.97	AVG. 66			

Clean Air Engineering, Inc.

PARTICULA STING
RAW DA ET

Client/Owne. ANL
Plant CH+
Unit# ____ Inlet/Outlet ____
Operator J. BALABUSZKO
Date 9/4/86
Run No. 3
Sample Box No. ____
Meter Box No. GG
Meter DH@ 1.807
K Factor ____
Pitot C_p .84 Pitot Leak Ck ✓
Leak Rate Before ____ CFM @ ____ Hg
Leak Rate After ____ CFM @ ____ Hg
Static Press., In. H_2O (+/−) ____

Start Time ____ : ____ AM PM
Finish Time ~~22:45~~ 23:45 AM PM
Meter Y_d 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s ____
Thimble # ____
Beaker # ____

Ambient Temperature, °F ____
Barometric Pressure, In. Hg ____
Assumed Moisture, % ____
Heater Box Setting 250°
Probe Length, Ft. 3 No. Glass
Nozzle Diameter, In. ____
Probe Heater Setting 250°
% O_2 ____
% CO_2 ____
H_2O, ml ____
Silica Gel, gm ____
Total V_{lc} ____
Stack Area, Ft.² π/4 Θ = 12"
Pyrometer No. NA

TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: GAS SAMPLE VOLUME V_m, Ft³ 102.97	GAS SAMPLE TEMPERATURE AT DRY GAS METER INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_b °F
1-1	~~4~~ 45	7	221	.19	.76	~~102~~ 97	67	56	52	256/258/24
	~~8~~ 50	7	224	.19	.76	104.71	67	66	51	257/259/247
2	~~12~~ 55	7	225	.17	.68	107.35	68	66	52	257/258/24
	~~16~~ 60	7	226	.17	.68	109.99	68	67	52	257/259/24
3	~~20~~ 65	6	209	.15	.60	112.48	68	67	52	258/259/248
	~~24~~ 70	6	206	.15	.60	114.98	68	67	52	259/260/24
4	~~28~~ 75	4	198	.12	.48	117.22	67	67	52	259/259/24
	~~32~~ 80	4	184	.12	.48	119.47	67	67	52	259/260/25
TOTAL							AVG.	AVG.		
AVERAGE							AVG.			

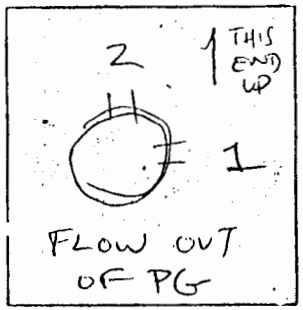
Clean Air Engineering, Inc.

A-1

Client/Owner: ANL
Plant: CFF
Unit#: ____ Inlet/Outlet
Operator: J. BALABUSZKO
Date: 9/5/86
Run No.: 1 (CONDITION 2)
Sample Box No.: ____
Meter Box No.: GG
Meter DH@: 1.807
K Factor: 3.9
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: 2.01 CFM @ 17 Hg
Leak Rate After: ____ CFM @ ____ Hg
Static Press., In. H_2O (+/−): .5

PARTICULA STING
RAW D. ET

Start Time: 9:50 AM/PM
Finish Time: 11:20 AM/PM
Meter Y_d: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: 21517
Thimble #: ____
Beaker #: ____

Ambient Temperature, °F: ____
Barometric Pressure, In. Hg: 2 ____
Assumed Moisture, %: ____
Heater Box Setting: 250°
Probe Length, Ft.: 3 No.: GLASS
Nozzle Diameter, In.: .313
Probe Heater Setting: 250°
% O_2: 10.4
% CO_2: 8.0
H_2O, ml: 295
Silica Gel, gm: 8.8
Total V_{lc}: 303.8
Stack Area, Ft²: π/4 Θ = 12"
Pyrometer No.: NA

TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: 19.71 GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_b °F
1-1	~~4~~ 5	4	220	.19	.74	22.47	65	64	46	261/255/2
	~~8~~ 10	4	222	.19	.74	25.22	66	64	42	260/256/2
2	~~12~~ 15	4	225	.17	.66	27.81	68	65	42	260/257/2
	~~16~~ 20	4	226	.16	.62	30.32	70	66	42	259/257/2
3	~~20~~ 25	4	221	.14	.55	32.69	71	67	43	258/256/
	~~24~~ 30	4	218	.14	.55	35.09	71	68	44	259/256/
4	~~28~~ 35	3	206	.11	.43	37.22	72	69	46	258/257/
	~~32~~ 40	3	186	.10	.39	39.27	73	70	47	258/257/2
						~~44.~~				~~257/2~~
				~~3850~~						
TOTAL			216		0.57		AVG. 69.5	AVG. 66.6		
AVERAGE	80		~~215.5~~	.3794		38.84	AVG. 71			

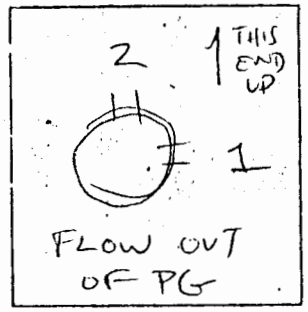
Clean Air Engineering, Inc.

Page 1 of 2

PARTICULA STING
RAW D. ET

Client/Owne. ANL
Plant CH+
Unit# Inlet/Outlet
Operator J. BALASUSZKO
Date 9/5/86
Run No. 1 (CONDITION 2)
Sample Box No.
Meter Box No. GG
Meter DH@ 1.807
K Factor
Pitot C_p .84 Pitot Leak Ck ✓
Leak Rate Before CFM @ Hg
Leak Rate After <.01 CFM @ 17 Hg
Static Press., In. H_2O (+/−)

Start Time
: AM PM
Finish Time
11:20 AM PM
Meter Yd
0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s
Thimble #
Beaker #

Ambient Temperature, °F
Barometric Pressure, In. Hg
Assumed Moisture, %
Heater Box Setting 250°
Probe Length, Ft. 3 No. Glass
Nozzle Diameter, In.
Probe Heater Setting 250°
% O_2
% CO_2
H_2O, ml
Silica Gel, gm
Total V_{lc}
Stack Area, Ft² π/4 Θ = 12"
Pyrometer No. NA

TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_b °F
1-1	~~4~~ 45	5	221	.19	.74	42.04	72	71	51	258/258/2
	~~8~~ 50	5	226	.18	.70	44.73	75	72	46	257/256/2
2	~~12~~ 55	5	228	.15	.59	47.22	76	73	48	257/252/24
	~~16~~ 60	4.5	228	.14	.55	49.64	76	73	50	257/256/25
3	~~20~~ 65	4	217	.13	.51	51.97	76	73	51	257/256/25
	~~24~~ 70	4	218	.13	.51	54.30	77	74	51	257/256/251
4	~~28~~ 75	4	203	.10 ~~.09~~ JB	.39	56.40	77	74	52	256/256/2
	~~32~~ 80	4	198	.11	.43	58.55	78	75	53	255/255/
						−19.71				
			-21							
				.3738						
TOTAL			(217.4)	✓	0.57		AVG. 75.9	AVG. 73.1		
AVERAGE	80		(216) 4	.3794			AVG. 71.3			

Clean Air Engineering, Inc.

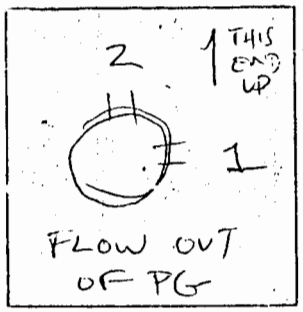
5-1

PARTICULATE TESTING RAW DATA SET

RUN 4, 21517 5

Client/Owner: ANL
Plant: CHI
Unit#: ____ Inlet/Outlet
Operator: J. BAL ABS 2120
Date: 9/5/86
Run No.: 2 (CONDITION 2)
Sample Box No.: ____
Meter Box No.: GG
Meter DH@: 1.807
K Factor: ____
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: 2.01 CFM @ 17 Hg
Leak Rate After: ____ CFM @ ____ Hg
Static Press., In. H_2O (+/-): 0.6

Start Time: 12:20 AM/PM
Finish Time: 1:40 AM/PM
Meter Yd: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: 21507
Thimble #: ____
Beaker #: ____

Ambient Temperature, °F: ____
Barometric Pressure, In. Hg: 25
Assumed Moisture, %: ____
Heater Box Setting: 250°
Probe Length, Ft.: 3 No.: GLASS
Nozzle Diameter, In.: .313
Probe Heater Setting: 250°
% O_2: 8.0
% CO_2: 10.4
H_2O, ml: 296
Silica Gel, gm: 11.0
Total Vlc: 307
Stack Area, Ft²: 55/4 Θ = 12"
Pyrometer No.: NA

TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: 58.80 GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_b °F
1-1	~~4~~ 5	6	233	.19	.84	61.77	88	87	55	254/261/278
	~~8~~ 10	6	233	.19	.84	64.70	89	88	50	252/261/241
2	~~12~~ 15	6	235	.17	.75	67.53	90	89	54	253/263/316
	~~16~~ 20	6	234	.17	.75	70.33	~~90~~ 91 JB	90	54	252/265/211
3	~~20~~ 25	4½	227	.14	.62	72.91	92	90	57	252/261/2[illegible]
	~~24~~ 30	4½	225	.13	~~.58~~ .57	75.39	93	90	58	252/260/248
4	~~28~~ 35	3½	212	.11	.48	77.64	92	90	59	251/260/246
	~~32~~ 40	3½	199	.11	.48	79.93	92	90	60	251/261/299
TOTAL			226	.3868 ✓			AVG. 90.875	AVG. 89.25		
AVERAGE	80		~~224~~	.3785	0.64	41.71	AVG. 92			

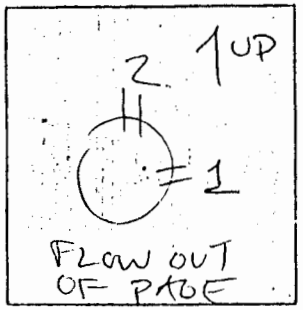
Clean Air Engineering, Inc.

5-2

PARTICULATE 'NG RAW DAT.

Client/Owner: VL
Plant: CA+
Unit#: ____ Inlet/Outlet: ____
Operator: J. BALABUSZKO
Date: 7/5/86
Run No.: 2 (CONDITION 2)
Sample Box No.: ____
Meter Box No.: GG
Meter DH@: 1.807
K Factor: 4.4
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: 4.02 CFM @ 17 Hg
Leak Rate After: ____ CFM @ ____ Hg
Static Press., In. H_2O (+/−): ____

Start Time: ____ : ____ AM / PM
Finish Time: 1:40 AM / PM
Meter Yd: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: ____
Thimble #: ____
Beaker #: ____

Ambient Temperature, °F: ____
Barometric Pressure, In. Hg: ____
Assumed Moisture, %: ____
Heater Box Setting: 250°
Probe Length, Ft.: 3' No.: Glass
Nozzle Diameter, In.: ____
Probe Heater Setting: 250°
% O_2: ____
% CO_2: ____
H_2O, ml: ____
Silica Gel, gm: ____
Total V_{lc}: ____
Stack Area, Ft²: JJ/4 Θ = 12"
Pyrometer No.: NA

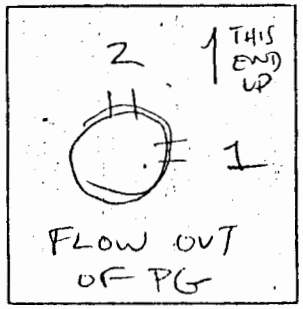
TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg		STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER: INLET T_m In, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_p, °F
2-1	(4) ~~36~~	65	5 1/2	230	.19	.84	82.84	91	90	59	251/260/259
	(8) 40	60	5 1/2	233	.18	.79	85.75	91	90	54	252/264/26.
2	(12) 44	65	5	236	.15	.66	88.43	93	92	58	252/263/26,
	(16) 48	60	5	236	.14	.62	91.04	94	93	66	253/264/505
3	(20) 52	65	4 1/2	232	.13	.57	93.56	95	94	61	253/265/26
	(24) 56	70	4	228	.12	.53	95.97	98	96	63	249/264/26
4	(28) 60	75	4	220	.10	.44	98.26	99	97	65	249/262/3[illegible]
	(32) 64	80	4	210	.10	.44	100.51	99	98	66	248/263/
				(228.125)	.3701						
TOTAL								AVG. 92.5	AVG. 93.75		
AVERAGE				226.1	.3785		41.71	AVG.	91.6		

Clean Air Engineering, Inc.

PARTICUL ESTING
RAW D SET

Client/Owner: ANL
Plant: CMT
Unit#: ____ Inlet/Outlet: ____
Operator: J. BALABUS ZICO
Date: 9/5/86
Run No.: 3 (CONDITION 2)
Sample Box No.: ____
Meter Box No.: 66
Meter DH@: 1.807
K Factor: ____
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: .02 CFM @ 7 Hg
Leak Rate After: ____ CFM @ ____ Hg
Static Press., In. H_2O (+/−): .5

Start Time: 14:40 AM/PM
Finish Time: 16:00 AM/PM
Meter Y_d: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: 21509
Thimble #: ____
Beaker #: ____

Ambient Temperature, °F: ____
Barometric Pressure, In. Hg: 29.5
Assumed Moisture, %: ____
Heater Box Setting: 250°
Probe Length, Ft.: 3 No.: Glass
Nozzle Diameter, In.: ____
Probe Heater Setting: 250°
% O_2: 10.4
% CO_2: 8.0
H_2O, ml: 287
Silica Gel, gm: 13.6
Total V_{lc}: 300.6
Stack Area, Ft.²: π/4 Θ = 12"
Pyrometer No.: NA

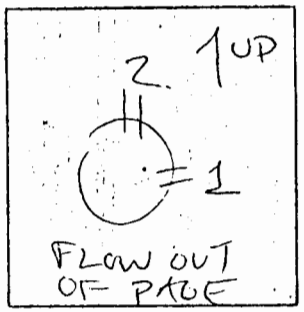
TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: 2.72 GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_b °F
1-1	4 5	5	232	.18	.79	5.68	99	99	68	260/256/[illegible]
	8 10	5	235	.19	.84	8.67	98	99	68	260/261/[illegible]
2	12 15	4 1/2	236	.18	.79	11.55	98	98	63	260/255/[illegible]
	16 20	4	239	.16	.70	14.31	99	98	64	260/262/[illegible]
3	20 25	4	234	.13	.57	16.82	103	100	60	259/256/[illegible]
	24 30	4	232	.12	.53	19.27	104	102	58	259/258/[illegible]
4	28 35	3	212	.09	.40	21.43	105	103	56	262/256/[illegible]
	32 40	3	205	.10	.44	23.68	105	104	57	
			~~227~~							
			~~228~~	.3760						
TOTAL			229				AVG. 104	AVG. 100.4		
AVERAGE	80		228.1	.3746	0.62	41.60	AVG. 103			

Clean Air Engineering, Inc.

PARTICULATE ING RAW DAT.

Client/Owner: VL
Plant: CA+
Unit#: ____ Inlet/Outlet: ____
Operator: J. BALASZKO
Date: 9/5/86
Run No.: 3 (CONDITION 2)
Sample Box No.: ____
Meter Box No.: GE
Meter DH@: 1.807
K Factor: ____
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: ____ CFM @ ____ Hg
Leak Rate After: <.02 CFM @ 17 Hg
Static Press., In. H_2O (+/−): ____

Start Time: ____ : ____ AM PM
Finish Time: 4:00 AM PM
Meter Y_d: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: ____
Thimble #: ____
Beaker #: ____

Ambient Temperature, °F: ____
Barometric Pressure, In. Hg: ____
Assumed Moisture, %: ____
Heater Box Setting: 250°
Probe Length, Ft.: 3' No.: Glass
Nozzle Diameter, In.: ____
Probe Heater Setting: 250°
% O_2: ____
% CO_2: ____
H_2O, ml: ____
Silica Gel, gm: ____
Total V_{lc}: ____
Stack Area, Ft²: 55/4 Θ = 12"
Pyrometer No.: NA

TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER: INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_p °F
2-1	(4) 36	65 4	235	.17	.75	26.47	106	104	65	258/254/200
	(8) 40	60 4	239	.17	.75	29.31	105	103	56	257/259/249
2	(12) 44	55 4	240	.15	.66	31.97	106	105	58	259/255/22[illegible]
	(16) 48	60 4	239	.14	.62	34.59	106	107	60	260/260/291
3	(20) 52	65 3½	232	.13	.57	37.10	107	107	61	256/257/2[illegible]
	(24) 56	70 3½	226	.13	.57	39.56	105	104	61	258/249/258
4	(28) 60	75 3½	216	.12	.53	42.02	104	102	61	253/261/308
	(32) 64	80 3½	208	.11	.48	44.32	103	105	62	263/264/277
TOTAL			(229.4)	.3732			AVG. 105.3	AVG. 104.6		
AVERAGE			(228.8)	.3746			AVG.	(102.9)		

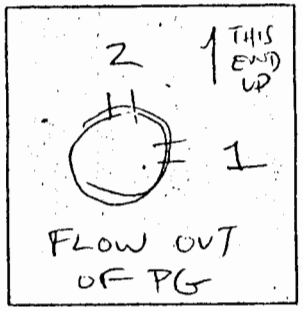
Clean Air Engineering, Inc.

1-1

Client/Owner: ANL
Plant: CHIT
Unit#: _____ Inlet/Outlet: _____
Operator: J. BALABUS ZICC
Date: 9/6/86
Run No.: 1 CONDITION 3
Sample Box No.: _____
Meter Box No.: GG
Meter DH@: 1.807
K Factor: 4.2
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: <.005 CFM @ 15 Hg
Leak Rate After: <.01 CFM @ 15 Hg
Static Press., In. H_2O (+) (−) 0.6

PARTICULATE TESTING RAW DATA SHEET

Start Time: 10:35 AM PM
Finish Time: : AM PM
Meter Yd: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: 21557
Thimble #: _____
Beaker #: _____

Ambient Temperature, °F: _____
Barometric Pressure, In. Hg: 23
Assumed Moisture, %: _____
Heater Box Setting: 250°
Probe Length, Ft.: 3 No.: GLASS
Nozzle Diameter, In.: _____
Probe Heater Setting: 250°
% O_2: 10.1
% CO_2: 8.0
H_2O, ml: 381
Silica Gel, gm: 18
Total V_{lc}: .399
Stack Area, Ft²: π/4 Θ = 12"
Pyrometer No.: NA

TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: 45.48 GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_p, °F
1-1	~~4~~ 5	7½	225	.24	1.0	48.72	72	71	41	252/252/250
	~~8~~ 10	7½	230	.24	1.0	51.91	72	72	39	253/251/250
2	~~12~~ 15	8	233	.23	.97	~~54.35~~ 53.06	73	72	43	251/253/249
	~~16~~ 20	8	233	.22	.92	58.18	74	73	51	250/253/255
3	~~20~~ 25	5½	227	.16	.67	60.83	75	73	58	251/251/261
	~~24~~ 30	5½	225	.17	.71	63.56	76	74	58	250/252/256
4	~~28~~ 35	5	214	.14	.59	66.05	78	75	57	250/253/256
	~~32~~ 40	5	198	.14	.59	68.06	78	76	57	250/253/250
			223.1	.4361 ✓	.81		74.8	73.5		
TOTAL							AVG.	AVG.		
AVERAGE	80		225	0.4287	0.78	45.07	AVG. 78			

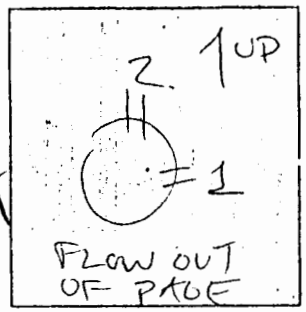
Clean Air Engineering, Inc.

7-2

PARTICULATE ING RAW DAT

Client/Owner VL
Plant CA+
Unit# _____ Inlet/Outlet _____
Operator J. SALASUSZKO
Date 9/6/86
Run No. RUN 1 CONDITION 3
Sample Box No. _____
Meter Box No. GG
Meter DH@ 1.807
K Factor _____
Pitot C_p .84 Pitot Leak Ck ✓
Leak Rate Before _____ CFM @ _____ Hg
Leak Rate After _____ CFM @ _____ Hg
Static Press., In. H_2O (+/−) _____

Start Time _____ AM PM
Finish Time 11:55 ~~PM~~ AM
Meter Yd 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s _____
Thimble # _____
Beaker # _____

Ambient Temperature, °F _____
Barometric Pressure, In. Hg _____
Assumed Moisture, % _____
Heater Box Setting 250°
Probe Length, Ft. 3' No. Glass
Nozzle Diameter, In. _____
Probe Heater Setting 250°
% O_2 _____
% CO_2 _____
H_2O, ml _____
Silica Gel, gm _____
Total Vlc _____
Stack Area, Ft² JJ/4 Θ = 12"
Pyrometer No. NA

TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg		STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_p °F
2-1	(4) 36	45	7½	230	.23	.97	71.19	79	77	53	254/252/26
	(8) 40	50	7½	234	.22	.92	74.30	80	77	50	249/251/274
2	(12) 44	55	6	235	.18	.76	77.11	81	78	50	250/253/251
	(16) 48	60	6	235	.18	.76	79.94	83	80	50	249/256/330
3	(20) 52	65	5½	229	.17	.71	82.70	85	82	53	247/255/284
	(24) 56	70	5½	227	.17	.71	85.44	86	84	51	248/250/253
4	(28) 60	75	5	220	.14	.59	88.01	88	85	52	247/252/281
	(32) 64	80	5	209	.14	.59	90.55	90	87	54	247/254/251
TOTAL								AVG.	AVG.		
AVERAGE								AVG.			

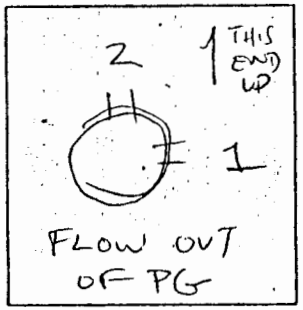
Clean Air Engineering, Inc.

8-1

PARTICULATE TESTING RAW DATA SHEET

Client/Owner: ANL
Plant: CH+
Unit#: ____ Inlet/Outlet
Operator: S. BALASUSZKO
Date: 9/6/86
Run No.: 2 CONDITION 3
Sample Box No.: ____
Meter Box No.: GG
Meter DH@: 1.807
K Factor: 4.0
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: 2.01 CFM @ 17 Hg
Leak Rate After: 2.01 CFM @ 15 Hg
Static Press., In. H_2O (+/−): 0.4

Start Time: 17:07 AM/PM
Finish Time: 18:32 AM/PM
Meter Y_d: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: 21514 (2)
Thimble #: ____
Beaker #: ____

Ambient Temperature, °F: ____
Barometric Pressure, In. Hg: 23.5
Assumed Moisture, %: ____
Heater Box Setting: 250°
Probe Length, Ft.: 3 No.: Glass
Nozzle Diameter, In.: ____
Probe Heater Setting: 250°
% O_2: 10.0
% CO_2: 7.6
H_2O, ml: 467
Silica Gel, gm: 16.4
Total V_{lc}: 485.4
Stack Area, Ft²: π/4 ⊖ = 12"
Pyrometer No.: NA

TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: 90.77 GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_p °F
1-1	4 5	6	224	.24	.96	93.94	86	89	54	255/248/2
	8 10	6	225	.25	1.0	97.16	88	89	52	254/250/25
2	12 15	6	229	.24	.96	100.31	89	90	53	252/250/25
	16 20	6	228	.24	.96	103.46	90	90	54	242/257/255
3	20 25	5 1/2	218	.20	.80	106.34	88	90	57	253/251/26
	24 30	5 1/2	218	.20	.80	109.23	90	91	58	253/254/26
4	28 35	4 1/2	204	.16	.64	111.83	90	91	58	253/248/26
	32 40	4 1/2	189	.16	.64	114.43	89	91	58	253/251/2
			216.9	.4580 ✓	.85					
							88.8	~~89.1~~ 90.1		
TOTAL							AVG.	AVG.		
AVERAGE	80		216	.4569	.84	47.21	AVG. 89			

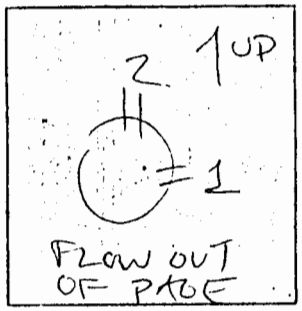
Clean Air Engineering, Inc.

8-2

PARTICULATE TESTING RAW DATA

Client/Owner: NL
Plant: CA.
Unit#: ____ Inlet/Outlet: 5 RALABUS-ZICO
Operator: ____
Date: 9/6/86
Run No.: 2 CONDITIONS
Sample Box No.: ____
Meter Box No.: GG
Meter DH@: 1.807
K Factor: ____
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: ____ CFM @ 17 Hg
Leak Rate After: ____ CFM @ ____ Hg
Static Press., In. H_2O (+/−): ____

Start Time: ____ : ____ AM PM
Finish Time: ____ : ____ AM PM
Meter Y_d: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: ____
Thimble #: ____
Beaker #: ____

Ambient Temperature, °F: ____
Barometric Pressure, In. Hg: ____
Assumed Moisture, %: ____
Heater Box Setting: 250°
Probe Length, Ft.: 3' No.: Glass
Nozzle Diameter, In.: ____
Probe Heater Setting: 250°
% O_2: ____
% CO_2: ____
H_2O, ml: ____
Silica Gel, gm: ____
Total V_{lc}: ____
Stack Area, Ft²: 55/4 Θ = 12"
Pyrometer No.: NA

TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER: INLET T_m In, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_p, °F
2-1	(4) 36	45 / 7	223	.25	1.0	117.62	89	91	59	254/252/252
	(8) 40	50 / 7	225	.25	1.0	120.87	89	90	58	253/252/307
2	(12) 44	55 / 6	225	.21	.84	123.82	88	90	58	255/252/26
	(16) 48	60 / 6	226	.21	.84	126.79	88	90	61	255/252/26
3	(20) 52	65 / 6	217	.21	.84	129.76	86	88	62	254/251/28
	(24) 56	70 / 6	214	.20	.80	132.64	86	88	64	254/255/27
4	(28) 60	75 / 5	206	.17	.68	135.32	86	88	67	254/252/25
	(32) 64	80 / 5	189	.17	.68	137.98	85	87	68	255/252/25
			215.6		.84					
				.4558						
TOTAL							AVG. 87.1	AVG. 89		
AVERAGE			216.3	.4569	.84		AVG. 88.8			

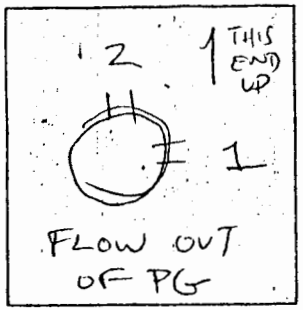
Clean Air Engineering, Inc.

9-1

PARTICUL/ STING RAW D. ET

Client/Owne. ANL
Plant CH+
Unit# _____ Inlet/Outlet
Operator S. BALABUS ZKO
Date 9/6/86
Run No. 3 CONDITION 3
Sample Box No. _____
Meter Box No. GG
Meter DH@ 1.807
K Factor 4.6
Pitot C_p .84 Pitot Leak Ck ✓
Leak Rate Before <.005 CFM @ 17 Hg
Leak Rate After <.01 CFM @ 16 Hg
Static Press., In. H_2O (+) (-) .4

Start Time AM 19:27 PM
Finish Time AM : PM
Meter Y_d 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s 21556 ~~[illegible]~~
Thimble # _____
Beaker # _____

Ambient Temperature, °F _____
Barometric Pressure, In. Hg 25.5
Assumed Moisture, % _____
Heater Box Setting 250°
Probe Length, Ft. 3' No. Glass
Nozzle Diameter, In. _____
Probe Heater Setting 250°
% O_2 ~~HUGE~~ ~~10.6~~ 10.2
% CO_2 ~~10.6~~ 7.6
H_2O, ml 280
Silica Gel, gm 17.9
Total V_{lc} 297.9
Stack Area, Ft² π/4 Θ = 12"
Pyrometer No. NA

TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: 38.20 GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_p, °F
1-1	4 5	6	218	.22	1.0	41.39	73	74	55	256/256/24
	8 10	6	220	.22	1.0	44.57	73	74	50	256/257/24
2	12 15	6½	221	.21	.97	47.69	72	73	51	253/257/25
	16 20	6½	222	.22	1.0	50.88	73	73	57	252/255/25
3	20 25	5½	213	.19	.87	53.85	73	72	61	253/252/25
	24 30	5½	211	.19	.87	56.80	72	72	63	253/256/25
4	28 35	5	200	.16	.74	59.56	72	72	61	252/257/25
	32 40	5	183	.16	.74	62.31	72	72	59	252/258/255
			211		.90		72.5	72.8		
TOTAL							AVG.	AVG.		
AVERAGE	80		210	0.4464	0.92	48.60	AVG. 72			

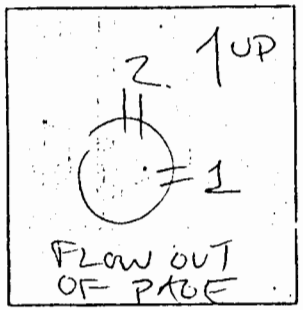
Clean Air Engineering, Inc.

9-2

PARTICULATE ING RAW DAT

Client/Owner: JL
Plant: CA
Unit#: ____ Inlet/Outlet: ____
Operator: S. BARABUSZKO
Date: 9/6/86
Run No.: 3 CONDITION 3
Sample Box No.: ____
Meter Box No.: GG
Meter DH@: 1.807
K Factor: ____
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: ____ CFM @ ____ Hg
Leak Rate After: ____ CFM @ ____ Hg
Static Press., In. H_2O (+/−): ____

Start Time: ____ : ____ AM PM
Finish Time: ____ : ____ AM PM
Meter Yd: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: ____
Thimble #: ____
Beaker #: ____

Ambient Temperature, °F: ____
Barometric Pressure, In. Hg: ____
Assumed Moisture, %: ____
Heater Box Setting: 250°
Probe Length, Ft.: 3' No.: GLASS
Nozzle Diameter, In: ____
Probe Heater Setting: 250°
% O_2: ____
% CO_2: ____
H_2O, ml: ____
Silica Gel, gm: ____
Total Vlc: ____
Stack Area, Ft²: 55/4 D = 12"
Pyrometer No.: NA

TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_p °F
2-1	(4) 36	45 7½	218	.26	1.2	65.70	71	71	54	253/255/248
	(8) 40	50 7½	220	.26	1.2	69.41	72	71	51	253/246/256
2	(12) 44	55 6½	221	.21	.97	72.27	71	71	50	253/257/24
	(16) 48	60 6½	221	.21	.97	75.40	71	71	50	253/255/250
3	(20) 52	65 6	209	.20	.92	78.43	70	71	50	253/257/259
	(24) 56	70 6	203	.20	.92	81.48	71	70	50	252/257/258
4	(28) 60	75 5	191	.15	.69	84.14	70	70	51	253/256/26
	(32) 64	80 5	182	.15	.69	86.60	70	69	52	253/258/254
			208.1		.95		70.8	70.5		
TOTAL							AVG.	AVG.		
AVERAGE			209.6		.93		AVG. 71.7			

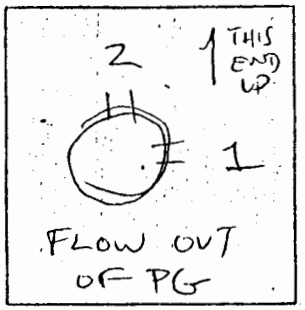
Clean Air Engineering, Inc.

10-1

Client/Owner: ANL
Plant: CM+
Unit#: _____ Inlet/Outlet: _____
Operator: S. BALABUSZKO
Date: 9/7/86
Run No.: 1 CONDITION 4
Sample Box No.: _____
Meter Box No.: 66
Meter DH@: 1.807
K Factor: _____
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: .015 CFM @ 17 Hg
Leak Rate After: .02 CFM @ 5 Hg
Static Press., In. H_2O (+/-): 0.4

PARTICULA STING
RAW D ET

Start Time: 13:50 AM/PM
Finish Time: 15:12 AM/PM
Meter Yd: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: 21510
Thimble #: _____
Beaker #: _____

Ambient Temperature, °F: _____
Barometric Pressure, In. Hg: 23.
Assumed Moisture, %: _____
Heater Box Setting: 250°
Probe Length, Ft.: 3 No.: Glass
Nozzle Diameter, In.: _____
Probe Heater Setting: 250°
% O_2: 12.3
% CO_2: 5.9
H_2O, ml: 242.6
Silica Gel, gm: 11.6
Total V_{lc}: 254.2
Stack Area, Ft²: π/4 Θ = 12"
Pyrometer No.: NA

TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: 88.16 GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_b, °F
1-1	45	5	217	.22	1.0	91.38	75	77	56	252/253/241
	80	5	220	.21	.97	94.52	77	78	51	251/247/249
2	125	4½	223	.20	.92	97.60	78	79	48	251/256/257
	120	4½	222	.20	.92	100.68	79	79	48	251/255/258
3	2025	3½	223	.15	~~.69~~ .77	103.40	81	81	52	250/256/248
	2430	3½	215	.15	.69	106.10	82	82	53	249/258/261
4	2835	3	196	.12	.55	108.54	82	83	53	250/254/259
	3240	3½	185	.14	.64	111.17	83	83	53	250/253/241
				.0146						
			212.6		.80		~~89.6~~	~~90.3~~		
TOTAL							AVG.	AVG.		
AVERAGE	80		212	0.0190	0.82	46.68	AVG. 82			

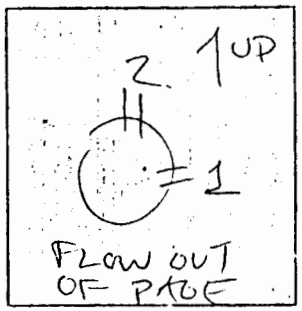
Clean Air Engineering, Inc.

10-2

PARTICULATE TESTING RAW DATA

Client/Owner: VL
Plant: CA+
Unit#: ____ Inlet/Outlet: ____
Operator: J-BALAKOSZKO
Date: 9/7/86
Run No.: 1 CONDITION 4
Sample Box No.: ____
Meter Box No.: 66
Meter DH@: 1.807
K Factor: ____
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: ____ CFM @ ____ Hg
Leak Rate After: ____ CFM @ 17 Hg
Static Press., In. H_2O (+/−): ____

Start Time: ____ : ____ AM PM
Finish Time: 15:12 AM PM
Meter Y_d: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: ____
Thimble #: ____
Beaker #: ____

Ambient Temperature, °F: ____
Barometric Pressure, In. Hg: ____
Assumed Moisture, %: ____
Heater Box Setting: 250°
Probe Length, Ft.: 3' No.: Glass
Nozzle Diameter, In.: ____
Probe Heater Setting: 250°
% O_2: ____
% CO_2: ____
H_2O, ml: ____
Silica Gel, gm: ____
Total V_{lc}: ____
Stack Area, Ft²: 55/4 Θ = 12"
Pyrometer No.: NA

MIN/PT: 5

TRAVERSE POINT NUMBER	SAMPLING TIME θ, min.	VACUUM In. Hg		STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER: INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_p °F
2-1	(4) 36	45	5	219	.23	1.1	114.52	83	85	53	251/256/259
	(8) 40	50	5	222	.24	1.1	117.93	84	85	50	250/257/248
2	(12) 44	55	4½	222	.19	.87	120.96	84	85	52	251/256/266
	(16) 48	60	4½	222	.19	.87	123.98	84	85	53	252/255/241
3	(20) 52	65	4	217	.17	.78	126.85	86	86	54	249/258/255
	(24) 56	70	4	211	.17	.78	129.74	85	86	53	252/255/272
4	(28) 60	75	3	198	.13	.60	132.28	85	86	54	251/256/245
	(32) 64	80	3	192	.13	.60	134.84	85	86	55	250/257/29.
				212.9		.84					
TOTAL					.4234			AVG. 84.5	AVG. 85.5		
AVERAGE				212.8	.4190	.82		AVG. 87.5			

11-1

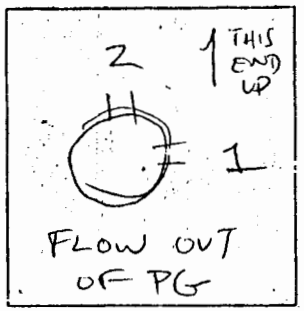
Client/Owner: ANL
Plant: CM+
Unit#: ____ Inlet/Outlet
Operator: 3 - RAZ ASUSEO
Date: 9/7/86
Run No.: 2 CONDITION 4
Sample Box No.: ____
Meter Box No.: GG
Meter DH@: 1.807
K Factor: 5.3
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: 6.01 CFM @ 17 Hg
Leak Rate After: ____ CFM @ ____ Hg
Static Press., In. H_2O (+) (−) 0.4

15:57 Start Time AM PM

Finish Time 17:16 AM PM

Meter Yd 0.9999

PARTICUL/ STING
RAW D. ET



SCHEMATIC OF TESTING LOCATION

Filter #'s: 21512
Thimble #: ____
Beaker #: ____

Ambient Temperature, °F: ____
Barometric Pressure, In. Hg: 2[illegible]
Assumed Moisture, %: ____
Heater Box Setting: 250°
Probe Length, Ft.: 3' No.: Glass
Nozzle Diameter, In.: ____
Probe Heater Setting: 250°
% O_2: ____
% CO_2: ____
H_2O, ml: 270.9
Silica Gel, gm: 13.8
Total V_{lc}: 284.7
Stack Area, Ft²: π/4 Θ = 12"
Pyrometer No.: NA

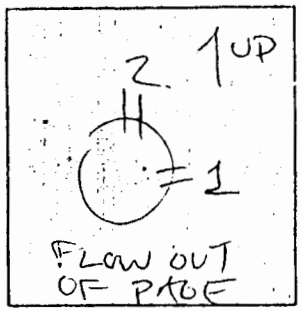
TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: 35.40 GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_p °F
1-1	4 5	8 1/2	222	.24	1.3	39.02	86	89	53	259/262/25
	8 10	8 1/2	223	.24	1.3	42.69	87	88	46	259/264/25
2	12 15	7 1/2	224	.21	1.1	46.06	87	88	46	258/259/25
	16 20	7 1/2	224	.21	1.1	49.43	87	89	48	256/259/25
3	20 25	6	214	.17	.90	52.47	86	88	48	256/259/26
	24 30	6	214	.17	.90	55.53	87	88	49	254/258/24
4	28 35	5	194	.15	.80	58.43	88	89	50	255/258/25
	32 40	5	186	.15	.80	61.31	89	90	51	254/258/25
			~~.4193~~							
			~~.4969~~	.4369						
					1.0		87.7	88.6		
TOTAL			212.6				AVG.	AVG.		
AVERAGE	80		211	.4405	1.04	52.01	AVG. 86			

Clean Air Engineering, Inc.

PARTICULATE TESTING RAW DATA

Client/Owner: NL
Plant: CA+
Unit#: _____ Inlet/Outlet: _____
Operator: J-L ATSUSUKO
Date: 9/7/86
Run No.: ~~4~~ 2 CONDITION 4
Sample Box No.: _____
Meter Box No.: GG
Meter DH@: 1.807
K Factor: _____
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: _____ CFM @ _____ Hg
Leak Rate After: _____ CFM @ _____ Hg
Static Press., In. H_2O (+/−): _____

Start Time: _____ : _____ AM / PM
Finish Time: 17:20 AM / PM
Meter Y_d: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: _____
Thimble #: _____
Beaker #: _____

Ambient Temperature, °F: _____
Barometric Pressure, In. Hg: _____
Assumed Moisture, %: _____
Heater Box Setting: 250°
Probe Length, Ft.: 3' No.: GLASS
Nozzle Diameter, In.: _____
Probe Heater Setting: 250°
% O_2: _____
% CO_2: _____
H_2O, ml: _____
Silica Gel, gm: _____
Total V_{lc}: _____
Stack Area, Ft²: π/4 Θ = 12"
Pyrometer No.: NA

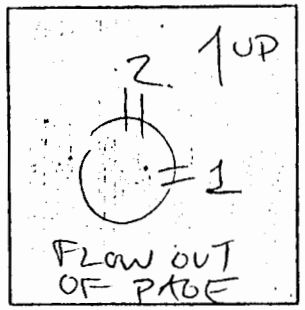
TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg		STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER: INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_p, °F
2-1	(4) 36	45	8	218	.24	1.3	64.86	88	89	51	255/256/24
	(8) 40	50	8	222	.25	1.3	68.50	88	89	49	253/260/288
2	(12) 44	55	8	217	.22	1.2	72.04	84	87	50	255/249/257
	(16) 48	60	8	220	.21	1.1	75.47	83	86	50	254/258/271
3	(20) 52	65	6½	212	.19	1.0	78.68	83	84	52	254/255/260
	(24) 56	70	6½	209	.18	.95	81.79	81	82	51	258/256/244
4	(28) 60	75	5½	191	.15	.78	84.60	79	81	51	255/259/251
	(32) 64	80		182	.15	.78	87.41	79	80	51	
				208.9	.1440			83.1	84.8		
TOTAL						1.1		AVG.	AVG.		
AVERAGE				210.7	.1405	1.1		AVG.	85.9		

Clean Air Engineering, Inc.

PARTICULATE TESTING RAW DATA

Client/Owner: NL
Plant: CA+
Unit#: ____ Inlet/Outlet: ____
Operator: J. SALABUSZKO
Date: 9/7/86
Run No.: 3 CONDITIONED
Sample Box No.: ____
Meter Box No.: GG
Meter DH@: 1.807
K Factor: ____
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before: 2.02 CFM @ 6 Hg
Leak Rate After: ____ CFM @ ____ Hg
Static Press., In. H_2O (+/−): 0.4

Start Time: 19:10 AM/PM
Finish Time: : AM/PM
Meter Y_d: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: 2158
Thimble #: ____
Beaker #: ____

Ambient Temperature, °F: ____
Barometric Pressure, In. Hg: 23.
Assumed Moisture, %: ____
Heater Box Setting: 250°
Probe Length, Ft.: 3 No.: GLASS
Nozzle Diameter, In.: ____
Probe Heater Setting: 250°
% O_2: 10.2
% CO_2: 8.0
H_2O, ml: 279
Silica Gel, gm: 18.4
Total V_{lc}: 297.4
Stack Area, Ft²: 55/4 Θ = 12"
Pyrometer No.: NA

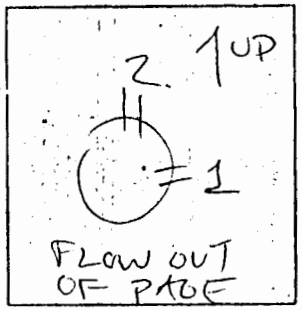
TRAVERSE POINT NUMBER	SAMPLING TIME θ, min. (MIN/PT ____)	VACUUM In. Hg		STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	GAS SAMPLE VOLUME V_m, Ft³ (Initial Volume: 9.34)	GAS SAMPLE TEMPERATURE AT DRY GAS METER: INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_p, °F
2-1	(4) 36	5	5½	217	.24	1.2	12.90	73	73	59	257/268/281
	(8) 40	10	5½	218	.24	1.2	16.47	73	73	59	257/252/2[illegible]
2	(12) 44	15	5½	221	.21	1.1	19.81	74	73	59	256/254/27
	(16) 48	20	5½	221	.21	1.1	23.04	73	72	58	256/261/2[illegible]
3	(20) 52	25	5	212	.19	.99	26.20	72	72	53	257/262/26[illegible]
	(24) 56	30	5	210	.19	.99	29.42	72	71	53	257/265/26[illegible]
4	(28) 60	35	4	183	.15	.78	32.19	69	70	53	259/265/25
	(32) 64	40	4	175	.15	.78	35.00	69	68	53	257/268/25
TOTAL								AVG.	AVG.		
AVERAGE		80		202	.4028	1.02	51.31	AVG. 68			

Clean Air Engineering, Inc.

PARTICULATE TESTING
RAW DATA

Client/Owner: VL
Plant: CA7
Unit#: ____ Inlet/Outlet
Operator: J. BALASUSZKO
Date: 9/7/86
Run No.: 3 CONDITION 4
Sample Box No.: ____
Meter Box No.: 66
Meter DH@: 1.807
K Factor: ____
Pitot C_p: .84 Pitot Leak Ck: ✓
Leak Rate Before ____ CFM @ ____ Hg
Leak Rate After ____ CFM @ ____ Hg
Static Press., In. H_2O (+/−) ____

Start Time: ____ : ____ AM PM
Finish Time: 20:30 AM PM
Meter Yd: 0.9999



SCHEMATIC OF TESTING LOCATION

Filter #'s: ____
Thimble #: ____
Beaker #: ____

Ambient Temperature, °F: ____
Barometric Pressure, In. Hg: 5
Assumed Moisture, %: ____
Heater Box Setting: 250°
Probe Length, Ft.: 3 No.: Glass
Nozzle Diameter, In.: ____
Probe Heater Setting: 250°
% O_2: ____
% CO_2: ____
H_2O, ml: ~~479~~ 279
Silica Gel, gm: ~~18~~
Total V_{lc}: ~~497~~
Stack Area, Ft.²: 55/4 Θ = 12"
Pyrometer No.: NA

TRAVERSE POINT NUMBER	MIN/PT ____ SAMPLING TIME θ, min.	VACUUM In. Hg	STACK TEMPERATURE T_s, °F	VELOCITY HEAD DP_s	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER DH, In. H_2O	Initial Volume: GAS SAMPLE VOLUME V_m, Ft³	GAS SAMPLE TEMPERATURE AT DRY GAS METER: INLET T_m in, °F	OUTLET T_m out, °F	TEMP. OF GAS LEAVING CONDENSER OR LAST IMPINGER T_c, °F	SAMPLE BOX TEMPERATURE T_b °F
2-1	(4) 36	6	209	.24	1.2	38.47	66	66	53	257/266/256
	(8) 40	6	210	.22	1.2	41.90	66	66	53	256/267/251
2	(12) 44	6	210	.21	1.1	45.32	66	65	55	257/266/250
	(16) 48	6	207	.21	1.1	48.67	64	64	53	255/268/254
3	(20) 52	5	196	.19	.99	51.84	63	63	52	258/265/247
	(24) 56	5	~~193~~ 193	.19	.99	54.98	63	63	53	" " "
4	(28) 60	5	~~181~~ 178	.15	.78	57.82	64	63	53	255/262/251
	(32) 64	5	169	.15	.78	60.65	64	63	53	254/261/258
TOTAL							AVG.	AVG.		
AVERAGE							AVG.			

Clean Air Engineering, Inc.

48.67

METER BOX FULL CALIBRATION

DATE: 9-2-86 METER BOX Yd: 1.0032 METER BOX: V I

OPERATOR: C. Fox METER BOX ΔH@: — BAROMETRIC PRESSURE (Pb): 29.34

Q	ΔH	ΔP	Yds	Standard Meter Gas Volume (ft^3) Initial	Final	(Vds) Net	Meter Box Gas Volume (ft^3) Meter Index in L/rev. Initial	Final	(Vd) Net	Standard Meter Temperature In	Out	Tds Avg	Meter Box Temperature In	Out	Td Avg	Time (Min.) θ	Yd	ΔH@
.0358	.5	.1	1.0000	0.000	.500	.500			.5061	72	72	72	83.3	80.6	82.0	13.59	1.0050	—
.0356	.5	.1	1.0000	0.000	1.000	1.000			1.0211	72.5	72.5	72.5	88.7	83.3	86.0	27.29	1.0027	—
.0355	.5	.1	1.0000	0.000	.500	.500			.5124	73	73	73	90.5	86	88.0	13.69	1.0018	—

Q - Flow Rate (cfm)
ΔH - Orifice Pressure Differential (in. H O)
ΔP - Inlet Pressure Differential Standard Meter (in. H O)
Yds - Standard Meter Correction Factor (Unitless)
Yd - Meter Box Correction Factor (Unitless)
ΔH@ - Orifice Pressure Differential that gives 0.75 cfm of air at 70°F and 29.92" Hg (in. H O)

$$Yd = (Yds)\left(\frac{Vds}{Vd}\right)\left(\frac{Td + 460}{Tds + 460}\right)\left(\frac{Pb + \Delta P/13.6}{Pb + \Delta H/13.6}\right)$$

$$\Delta H@ = \frac{0.0317\ \Delta H}{Pb\ (T + 460)}\left[\frac{(Tds + 460)\ \theta}{Vds.\ Yds}\right]^2$$

$$Q = \frac{17.64 \cdot Vds \cdot Pb}{(Tds + 460)\ \theta}$$

DATE: 8-85

OPERATOR: C. Fox

$\overline{Yd}$ .999 (.9999)

$\overline{\Delta H@}$ 1.807

Meter Box: G6

BAROMETRIC PRESSURE (Pb): 29.28

Q	ΔH	ΔP	Yds	STANDARD METER GAS VOLUME (ft³) INITIAL	FINAL	Vds NET	METER BOX GAS VOLUME (ft³) INITIAL	FINAL	VD NET	STANDARD METER TEMP. (°F) IN	OUT	Tds AVG	METER BOX TEMP. (°F) IN	OUT	Td AVG	TIME (MIN) θ	Yd	ΔH@
.39	.5	-1.2	1.0000	0.000	5.000	5.000	312.400	317.576	5.176	76	76	76	106	103.5	105	10.44	1.0139	1.824
.39	.5	-1.2	1.0000	0.000	5.000	5.000	317.576	322.739	5.163	76	76	76	104	102.5	103	10.49	1.0129	1.824
.65	1.5	-2.2	1.0000	00.000	10.013	10.013	322.739	333.131	10.392	76.5	76.5	76.5	104.5	101.5	103	14.87	1.0018	1.355
.65	1.5	-2.2	1.0000	00.000	10.000	10.000	333.131	343.487	10.356	76.5	76.5	76.5	101.5	100	101	14.91	1.0004	1.355
.91	3.0	-3.9	1.0000	00.000	10.002	10.002	343.487	353.926	10.439	76.5	76.5	76.5	102	99	100.5	10.55	.9838	1.357
.91	3.0	-3.8	1.0000	00.000	10.000	10.000	353.926	364.373	10.447	77	77	77	106	99.5	103	10.62	.9865	1.357

- Flow Rate (cfm)
- Orifice Pressure differential (in. H_2O)
- Standard Meter inlet pressure differential (in. H_2O)
- Standard Meter Correction Factor
- Meter Box Correction Factor

ΔH@ = Orifice pressure differential that gives 0.75 cfm at 70°F and 29.92" Hg (in. H_2O)

$$Yd = (Yds)\frac{Vds}{Vd}\;\frac{Td + 460}{Tds + 460}\;\frac{Pb + \Delta p/13.6}{Pb + \Delta H/13.6}$$

$$\Delta H@ = \frac{0.0317 \cdot \Delta H}{\left[\frac{(Tds + 460)\;\theta}{Vd}\right]^2}$$

PLANT WASTE MANAGEMENT

DATE 7/4/00

SHEET # 1 OF 1

** 68-2562 * RUN #

WEIGHT SHEET * MORE ADD

RUN #	WT. #	FILTER # OR IDENTIFICATION	TFB	WASH ML	WASH CORR.	GROSS	TARE	
	1	BLANK	B		- - - -			
LANL-1-MS-1	2	1	B	100	*	66.0268 66.0277	66.0088 66.0097 66.0091 *	.01
LANL-1-MS-2	3	2	B	~~160~~ 170 FINAL VOL.	*	68.9425 68.9431	68.9265 68.9274 68.9268 *	.01
LANL-1-MS-3	4	3	B	~~160~~ 170 FINAL VOL.	*	68.6394 68.6401	68.6203 68.6210 68.6204 *	.0
L 2-MS-1	5	4	B	140	*	68.4429 68.4436	68.4205 68.4211 68.4208 *	.02
LANL-2-MS-2	6	5	B	147	*	66.1594 66.1581 66.1587	66.1385 66.1395 66.1389 *	.01
LANL-2-MS-3	7	6	B	140	*	64.0790 64.0777 64.0782	64.0548 64.0559 64.0557 *	.02
LANL-3-MS-1	8	7	B	150	*	67.3312 67.3314	67.3049 67.3044 *	.02
LANL-3-MS-2	9	8	B	150	*	66.1345 66.1344	66.0985 66.0979 *	.0
LANL-3-MS-3	10	9	B	140	** *68.2562*	68.2556 68.2576 68.2554	68.2117 68.2116 *	.04 44
LANL-4-MS-1	11	10	B	170		67.0595 67.0599	67.0451 67.0461 67.0461	

BALANCE _____ CLIENT LOS ALAMOS N.L.

DATE 9-4-86 UNIT INCINERATOR

SHEET # 1 OF 3 RUN # _____

WEIGHT SHEET

RUN #	WT. #	FILTER # OR IDENTIFICATION	TFB	WASH ML	WASH CORR.	GROSS	TARE	
	1	BLANK	B		- - - -			
	2	21548	F					
	3	21549	F					
	4	21550 1B	F					
	5	21551	F					
	6	21552	F					
	7	21553	F					
	8	21554	F					
	9	21555	F					
MS-3	10	21556	F			3.9628 * 3.9628	3.9619 3.9620 *	.00
DNL 3-MS-1	11	21557	F			3.9448 * 3.9449	3.9441 3.9441 *	.00

BALANCE _____ CLIENT _____

OPERATOR J. BALABUSZKO PLANT _____

DATE 9-4-86 UNIT _____

SHEET # 2 OF 3 RUN # _____

WEIGHT SHEET

RUN #	WT. #	FILTER # OR IDENTIFICATION	TFB	WASH ML	WASH CORR.	GROSS	TARE	
	1	BLANK	B		- - - -			
ANL 2-M5-2 (5)	2	21507	F		*	3.7718 3.7718	3.7732 3.7732 *	-.00
BLANK	3	21508	F				3.7809 3.7807	
~~ANL 2-2~~ ANL 2-M5-3 (6)	4	21509	F		*	3.8012 ~~3.8013~~ 3.8015 JB	3.8002 3.8003 *	.00
LANL-4-M5-1	5	21510	F			3.8136 3.8133	3.8130 3.8131	
2 LANL-1-M5-2-F	6	21511	F		*	3.8234 3.8233	3.8260 3.8261 *	-.00
LANL-4-M5-2	7	21512	F			3.8195 3.8195	3.8183 3.8184	
3 LANL-1-M5-3-E	8	21513	F		*	3.8285 ~~3.8270~~ 3.8282	3.8282 3.8281 *	.00
ANL 3-M5-2	9	21514	F		*	3.8321 3.8320	3.8299 3.8299 *	.00
NL	10	21515	F			3.9226	3.9222 3.9223	
	11	21516	F				3.8482 3.8484	

BALANCE _____ CLIENT _____

OPERATOR J BALABUSZKO PLANT _____

DATE 9-4-86 UNIT _____

SHEET # 3 OF 3 RUN # _____

WEIGHT SHEET

RUN #	WT. #	FILTER # OR IDENTIFICATION	TFB	WASH ML	WASH CORR.	GROSS	TARE	
	1	BLANK	B		- - - - JS			
LAVL-MS-1 (14)	2	21517	F		3.8792	~~3.8792~~	3.8808	
						* 3.8792 JS	3.8809 *	-.00
LAVL-4-MS-3	3	21518	F			3.8817	3.8714	
						3.8817	3.8715	
	4	21519	F					
.F1 ✓ LAVL-1-MS-1-F	5	21520	F			3.8833	3.8842	
					*	3.8832	3.8843 * JS	-.0
LAVL-4-MS-3	6	M	B	175		106.3859	106.3485	
						106.3878	106.3481	
						106.3878		
	7	11	B				2.9119	
	8	12	B				2.9157	
LAVL-4-MS-2	9	11	B	160		65.3715	65.3460	
						65.3717	65.3472	
							65.3469	
lank	10	12	B	100 (.000047/ml)		67.5662	67.5617	
					*	67.5669	67.5626 *	.0
							67.5622 *	
2nd Acetone blank ~~LAVL-MS-1~~	11	AA	B	100		107.5203	107.5201	
						107.5205	107.5210	

VOST FIELD DATA SET #1

PLANT LANL
LOCATION CA1
OPERATOR Kaufmann
DATE 9/9/86
RUN # 1
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/min @ 16"
LEAK CHECK AFTER <0.1" Hg/min @ 17.5"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CA1 outlet stack
PROBE NO. VOST 1
VOST NO.
FILTER I.D. NA
PROBE HEATER SET 4
METER BOX NO. V1
Yd 1.0032
Bp 23.17

Diagram of sample location

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 170.00	AH	COMMENTS:	
5	~1	70	138	12	12	20	33	32	175.2	1.0	Start Time	5
10	~1	70	133	12	12	23	33	31	180.2	1.0	1315	6
15	~1	75	132	12	12	23	32	31	185.35	1.0		7
20		75	132	13	13	23	32	32	~~190.91~~	1.0		7
									190.91			
Avg/total							32		20.91	1.0		

CONDENSATE SAMPLES: ~~NA~~ LANL-1-V-1

SAMPLE I.D.: COMMENTS:

condition 1

Frosted glass outlet of trap

VOST FIELD DATA SHEET
DATA SET # 2

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/4/86
RUN # 2
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE < 0.1" Hg/min @ 17.5"
LEAK CHECK AFTER < 0.1 Hg/min @ 17"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI outlet
PROBE NO. VOST 1
VOST NO.
FILTER I.D. NA
PROBE HEATER SET ~ +9
METER BOX NO. U 1
Yd 1.0032
Bp 23.17

Diagram of sample location

Start Time 1401

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 19 ~~209~~.01	ΔH	COMMENTS: Vac "Hg	
5	~1	75	133	16	12	20	32	30	204.6	1.0	6	
10	~1	75	135	14	11	21	32	31	210.1	1.0	5	
15	~1	75	132	14	11	21	32	31	215.2	1.0	5	
20	~1	75	130	14	12	20	32	31	220.72	1.0	6	
Avg/Total								31	21.71	1.0		

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

Condition 1

VOST FIELD D[illegible]EET
DATA SET # 3

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/4/86
RUN # 3
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/min @ 19"
LEAK CHECK AFTER <0.1" Hg/min @ 21.5"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI [illegible] let
PROBE NO. VOST
VOST NO.
FILTER I.D. N
PROBE HEATER SET [illegible] 14
METER BOX NO. VI
Yd .0032
Bp 23.17

Diagram of sample location

Start Time 1443

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 223.01	ΔH	COMMENTS:	
5	~1	65	128	17	13	20	31	29	227.8	1.0	13	
10	~1	70	135	15	12	21	31	29	232.6	1.0	14	
15	~1	65	138	16	13	21	31	30	237.2	1.0	14	
20	~1	65	142	18	14	23	31	31	241.92	1.0	14	
Avg/total								30		1.0		

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

Condition 1

High vaccuum during sampling - one of the trapps packed tightly

Final leak check was conducted at the maximum vaccuum the pump could pull

VOST FIELD DATA SHEET
DATA SET # 4

PLANT LANL
LOCATION CAI
OPERATOR Kautmann
DATE 9/4/86
RUN # 4
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE < 0.1" Hg/min @ 19"
LEAK CHECK AFTER < .01/min @ 19"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI outlet
PROBE NO. VOST 1
VOST NO.
FILTER I.D. NA
PROBE HEATER SET ~~V~~ 4
METER BOX NO. V
Yd 1.0032
Bp 23.17

Diagram of sample location Start Time 1525

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 245.24	ΔH	COMMENTS: Vac
5	~1	75	138	22	21	27	37	38	250.6	1.0	7
10	~1	75	137	21	19	27	38	39	—	1.0	8
15	~1	73	130	20	18	25	39	40	261.1	1.0	8
20	~1	70	137	20	19	27	40	41	266.06	1.0	8
Avg/total								39	20.82	1.0	

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

condition 1

VOST FIELD D HEET
DATA SET # 5

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/4/86
RUN # 5
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/min @ 19"
LEAK CHECK AFTER <0.1" Hg/min @ 21.5"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI outlet
PROBE NO. VOST 1
VOST NO.
FILTER I.D. NA
PROBE HEATER SET ~~V14~~
METER BOX NO. V1
Yd 1.0032
Bp ~~23.47~~ 23.08

Diagram of sample location Start Time 1854

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 270.52 ~~270.14~~	ΔH	COMMENTS: Vac
5	~1	75	127	16	18	21	31	30	275.9	~~1.0~~ 1.2	10
10	~1	75	128	15	17	20	31	31	281.0	~~1.0~~ 1.2	10
15	~1	75	132	15	13	20	30	30	286.2	~~1.0~~ 1.2	10
20	~1	70	136	14	12	20	31	29	292.00	~~1.0~~ 1.2	11
Avg/Total								30	21.48	~~1.0~~ 1.2	

CONDENSATE SAMPLES:

SAMPLE I.D.: condition 1

COMMENTS: stop after 20.7 min.

VOST FIELD DATA SHEET
DATA SET # 6

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/4/86
RUN # 6
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/min @ 19"
LEAK CHECK AFTER <0.1" Hg/min @ 19.5"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI outlet
PROBE NO. VOST 1
VOST NO.
FILTER I.D. NA
PROBE HEATER SET V-14
METER BOX NO. V1
Yd 1.0032
Bp 23.08

Diagram of sample location

Start Time 1938

TIME minutes	SAMPLING RATE l/min	SAMPLING RATE ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 294.32	AH	COMMENTS: VAC
5	~1	75	133	15	13	19	29	27	299.8	1.2	7
10	~1	75	141	13	13	19	28	27	304.95	1.2	8
15	~1	75	140	10	13	19	28	27	—	1.2	9
20	~1	75	133	11	13	19	28	27	315.68	1.2	9
								27.5	21.36	1.2	

CONDENSATE SAMPLES:

SAMPLE I.D.: condition 1

COMMENTS:

VOST FIELD DATA SHEET
DATA SET # 1

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/5/86
RUN # 1
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/min @ 21"
LEAK CHECK AFTER <0.1" Hg/min @ 21"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI Outlet
PROBE NO. VOST 1
VOST NO.
FILTER I.D. NA
PROBE HEATER SET ~~1~~ 3.5
METER BOX NO. V1
Yd 1.0032
Bp 23.05

condition 2

Diagram of sample location

Start Time 0958

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: ~~37~~ 0.00	ΔH	Vac	COMMENTS:
5	~1	75	129	11	14	17	19	21	5.42	1.03	10	
10	~1	75	133	9	11	17	20	21	10.60	1.03	10	
15	~1	73	141	9	11	18	21	22	15.60	1.03	10	
20	~1	70	136	10	11	18	21	22	20.62	1.03	10	
Avg/Total								21	20.62	1.03		

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

LANL-2-V-1

Frosted area of trap is the gas outlet side

VOST FIELD SHEET
DATA SET #____

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/5/86
RUN # 2
FIELD BLANK I.D.: TENAX____
TENAX/CHARCOAL____
LEAK CHECK BEFORE <0.1" Hg/min @ 21"
LEAK CHECK AFTER <0.1" Hg/min @ 20"
CARTRIDGE I.D.:
TENAX____
TENAX/CHAR____

STACK I.D. CAI Outlet
PROBE NO. VOST 1
VOST NO.____
FILTER I.D. N/A
PROBE HEATER SET ~~150~~
METER BOX NO. V1
Yd 1.0032
Bp 23.05

condition 2

Diagram of sample location

Start Time 1044

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 21.49	ΔH	COMMENTS: Vac
5	~1	75	137	9	13	19	24	24	26.81	1.03	8
10	~1	75	139	9	12	19	25	24	32.15	1.03	8
15	~1	75	139	9	12	20	24	25	37.68	1.03	9
20	~1	75	140	8	12	19	25	25	43.17	1.03	9
Avg/Total								24.5	21.68	1.03	

CONDENSATE SAMPLES:

SAMPLE I.D.:____ COMMENTS:____

LANL-2-V-2

VOST FIELD SHEET
DATA SET # 4

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/5/86
RUN # 3
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/min @ 20.5"
LEAK CHECK AFTER <0.1" Hg/min @ 19"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI Outlet
PROBE NO. VOST 1
VOST NO.
FILTER I.D. N/A
PROBE HEATER SET 3
METER BOX NO. V I
Yd 1.0032
Bp 23.09

condition 2

Diagram of sample location

Start Time 1216

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 43.78	ΔH	Vac	COMMENTS:
5	~1	75	138	9	12	20	37	38	49.50	1.03	7	
10	~1	70	138	8	11	21	38	38	54.68	1.03	7	
15	~1	75	147	9	10	20	38	37	60.15	1.03	8	
20	~1	75	144	8	10	20	40	39	65.60	1.03	8	
Avg/Total								38	21.82	1.03		

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

LANL-2-V-3

VOST FIELD SHEET
DATA SET # L

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/5/86
RUN # 3 4
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1 "Hg/Min @ 21"
LEAK CHECK AFTER <0.1 "Hg/Min @ 21.5"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI Outlet
PROBE NO. VOST
VOST NO.
FILTER I.D. N/A
PROBE HEATER SET 123.5
METER BOX NO. V I
Yd 1.0032
Bp 23.05
condition 2

Diagram of sample location

Start Time 1302

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 66.30	ΔH	Vac	COMMENTS:
5	~1	70	143	13	15	24	38	36	71.51	1.03	10	
10	~1	75	146	10	12	20	37	34	76.95	1.03	11	
15	~1	75	146	10	14	22	37	35	82.30	1.03	11	
20	~1	75	145	10	12	21	35	33	87.47	1.03	11	
Avg/Total								36	21.17	1.03		

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

LANL-2-V-4

VOST FIELD SHEET
DATA SET # 1

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/5/86
RUN # 5
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/Min @ 21"
LEAK CHECK AFTER <0.1" Hg/min @ 18"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI Outlet
PROBE NO. VOST 1
VOST NO.
FILTER I.D. NA
PROBE HEATER SET ~~1.2~~ 2.5
METER BOX NO. V1
Yd 1.0032
Bp 23.05

condition 2

Diagram of sample location

Start Time 1448

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 87.98	ΔH	COMMENTS: Vac	
5	~1	75	149	12	12	21	38	37	93.50	1.03	7	
10	~1	75	141	12	13	22	39	38	98.75	1.03	7	
15	~1	75	139	13	15	24	40	41	104.22	1.03	7	
20	~1	75	139	14	15	25	41	43	109.96	1.03	8	
Avg/Total								40	21.98	1.03		

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

LANL-2-V-5

VOST FIELD | HEET
DATA SET # 1

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/5/86
RUN # 6
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1 "Hg/min @ 21"
LEAK CHECK AFTER <0.1 "Hg/min @ 21"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI Outlet
PROBE NO. VOST 1
VOST NO.
FILTER I.D. N/A
PROBE HEATER SET ~~N/A~~
METER BOX NO. V1
Yd 1.0032
Bp

condition 2

Diagram of sample location

Start Time 1527

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 110.67	ΔH	Vac	COMMENTS:
5	~1	75	136	15	16	26	46	49	116.00	1.03	6	
10	~1	70	133	13	13	24	47	48	120.90	1.03	7	
15	~1	70	130	11	13	25	48	48	125.82	1.03	8	
20	~1	65	137	13	14	25	49	48	130.59	1.03	8	
Avg/Total							48		19.92	1.03		

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

LANL-2-V-6

VOST FIELD SHEET
DATA SET #_____

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/6/86
RUN # 1
FIELD BLANK I.D.: TENAX_____
TENAX/CHARCOAL_____
LEAK CHECK BEFORE <0.1" Hg/MM @ 21"
LEAK CHECK AFTER <0.1" Hg/Min @ 21.5"
CARTRIDGE I.D.:
TENAX_____
TENAX/CHAR_____

STACK I.D. CAI Outlet
PROBE NO. VOST 1
VOST NO._____
FILTER I.D. N/A
PROBE HEATER SET ~~[illegible]~~ 3.5
METER BOX NO. V1
Yd 1.0032
Bp 23.15

condition 3

Diagram of sample location

Start Time 1036

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 0.00	ΔH	COMMENTS: Vac
5	~1	75	130	15	13	18	24	25	5.00	1.03	9
10	~1	75	132	13	12	18	24	25	10.00	1.03	10
15	~1	70	133	12	11	18	24	26	15.07	1.03	11
20	~1	70	132	14	12	19	25	26	20.14	1.03	11
Avg/Total								25	20.14	1.03	

CONDENSATE SAMPLES:

SAMPLE I.D.:_____ COMMENTS:_____

LANL-3-V-1

VOST FIELD SHEET
DATA SET #____

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/6/86
RUN # 2
FIELD BLANK I.D.: TENAX____
TENAX/CHARCOAL____
LEAK CHECK BEFORE <0.1" Hg/min @ 21.5"
LEAK CHECK AFTER <0.1" Hg/min @ 18"
CARTRIDGE I.D.:
TENAX____
TENAX/CHAR____

STACK I.D. CAI Outlet
PROBE NO. VOST 1
VOST NO.____
FILTER I.D. NA
PROBE HEATER SET ~~Vg~~ 3
METER BOX NO. V I
Yd 1.0032
Bp 23.15

condition 3

Diagram of sample location

Start Time 1117

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 20.95	ΔH	Vac	COMMENTS:
5	~1	75	138	14	13	26	29	31	26.23	1.03	5	
10	~1	75	138	12	13	21	31	32	31.48	1.03	6	
15	~1	75	138	10	12	20	32	35	36.65	1.03	6	
20	~1	70	137	12	13	20	34	38	41.82	1.03	7	
Avg/Total								33	20.87	1.03		

CONDENSATE SAMPLES:

SAMPLE I.D.:____ COMMENTS:____

LANL-3-V-2

VOST FIELD SHEET
DATA SET # 1

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/6/86
RUN # 3
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/min @ 21.5"
LEAK CHECK AFTER <0.1" Hg/min @ 21"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI Out
PROBE NO. VOST 1
VOST NO.
FILTER I.D. NA
PROBE HEATER SET
METER BOX NO. V1
Yd 1.0032
Bp 23.05

condition 3

Diagram of sample location

Start Time 1709

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 45.71	ΔH	CO[illegible]NTS: Va[illegible]
5	~1	75	124	20	20	23	32	32	—	1.02	1[illegible]
10	~1	75	131	20	20	25	33	33	56.12	1.02	1[illegible]
15	~1	70	131	20	19	25	33	33	61.19	1.02	1[illegible]
20	~1	70	129	19	20	24	34	33	66.42	1.02	1[illegible]
Avg/Total								33	20.71	1.02	

CONDENSATE SAMPLES:

SAMPLE I.D.:

COMMENTS: Traps loaded in train ~5 hrs. before sampling

LANL-3-V-3

VOST FIELD SHEET
DATA SET #_L_

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/6/86
RUN # 4
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/Min @ 21"
LEAK CHECK AFTER <0.1" Hg/Min @ 21"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI Outlet
PROBE NO. VOST 1
VOST NO.
FILTER I.D. NA
PROBE HEATER SET ~~NA~~
METER BOX NO. V1
Yd 1.0032
Bp 23.05

condition 4

Diagram of sample location

Start Time 1756

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 66.83	ΔH	COMMENTS: Vac	
5	~1	75	128	20	20	23	34	32	72.03	1.02	9	
10	~1	70	128	18	18	23	34	32	77.10	1.02	12	
15	~1	70	132	18	18	[illegible]	33	[illegible]	82.20	1.02	12	
20	~1	70	133	18	17	22	33	[illegible]	87.20	1.02		
Avg/Total								33	20.37	1.02		

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

LANL-3-V-4

VOST FIELD SHEET
DATA SET # 1

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/6/86
RUN # 5
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/Min @ 21.5"
LEAK CHECK AFTER <0.1" Hg/Min @ 21.5"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI Outlet
PROBE NO. VOST 1
VOST NO.
FILTER I.D. NA
PROBE HEATER SET
METER BOX NO. V1
Yd 1.0032
Bp 23.05

condition 3

Diagram of sample location

Start Time 1924

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 87.75	ΔH	COMMENTS: Va
5	~1	75	132	19/14	13	18	26	25	93.32	1.02	14
10	~1	75	134	15	14	18	25	25	98.81	1.02	1
15	~1	75	131	15	14	18	25	25	104.30	1.02	1
20	~1	75	133	14	13	18	25	24	109.74	1.02	1
Avg/Total								25	21.99	1.02	

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

LANL-3-V-5

VOST FIELD SHEET
DATA SET # 1

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/6/86
RUN # 6
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/Min @ 21.5"
LEAK CHECK AFTER <0.1" Hg/M @ 21.5"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI Outlet
PROBE NO. VOST 1
VOST NO.
FILTER I.D. NA
PROBE HEATER SET 113
METER BOX NO. V1
Yd 1.0032
Bp 23.05

condition 3

Diagram of sample location

Start Time 1957

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 10.42	ΔH	COMMENTS: Vac	
5	~1	75	127	15	14	17	25	23	15.73	1.03	7	
10	~1	70	131	15	13	18	25	24	20.97	1.03	9	
15	~1	75	133	15	13	18	25	24	26.20	1.03	10	
20	~1	70	135	14	14	18	25	24	31.46	1.03	10	
Avg/Total								24	21.04	1.03		

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

LANL-3-V-6

VOST FIELD DATA SHEET
DATA SET # 4

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/7/86
RUN # 1
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/MIN @ 21.5"
LEAK CHECK AFTER <0.1" Hg/min @ 21"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI Outlet
PROBE NO. VOST 1
VOST NO.
FILTER I.D. N/A
PROBE HEATER SET ~~[illegible]~~ 335
METER BOX NO. V1
Yd 1.0032
Bp 23.13

condition 4

Diagram of sample location

Start Time 1349

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 33.02	ΔH	Vac	COMMENTS:
5	~1	75	126	13	16	18	23	24	38.54	1.02	11	
10	~1	75	130	12	15	19	24	25	43.80	1.02	11	
15	~1	75	132	12	~~12~~ 15	20	25	27	49.00	1.02	11	
20	~1	70	131	~~14~~ 12	~~14~~ ~~20~~	~~20~~ ~~26~~	~~28~~ 26	28	53.98	1.02	11	
Avg/Total								25	20.96	1.02		

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

LANL-4-V-1

VOST FIELD SHEET
DATA SET # 20

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/2/86
RUN # 2
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/min @ 21.5"
LEAK CHECK AFTER <0.1" Hg/min @ 17"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI Outlet
PROBE NO. VOST 1
VOST NO.
FILTER I.D. NA 3.5
PROBE HEATER SET
METER BOX NO. V1
Yd 1.0032
Bp 23.13

condition 4

Diagram of sample location

Start Time 1430

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 54.66	ΔH	COMMENTS: Vac	
5	~1	75	133	11	14	19	31	32	59.75	1.02	5	
10	~1	75	133	10	13	19	31	32	64.86	1.02	6	
15	~1	76	131	9	11	19	31	32	70.08	1.02	6	
20	~1	75	130	9	11	19	32	32	75.42	1.02	6	
Avg/Total								32	20.76	1.02		

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

LANL-4-V-2

VOST FIELD L HEET
DATA SET # 2L

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/7/86
RUN # 3
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/min @ 21.5"
LEAK CHECK AFTER <0.1" Hg/min @ 17"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI Outl
PROBE NO. VOST 1
VOST NO.
FILTER I.D. N/A
PROBE HEATER SET
METER BOX NO. V 1
Yd 1.0032
Bp 22.13

condition 4

Diagram of sample location

Start Time 1558

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 75.96	ΔH	COMMENTS: Vac
5	~1	70	134	11	12	20	33	33	~~80.00~~ 81.00	1.02	6
10	~1	70	133	13	13	20	34	34	~~84.95~~ 85.95	1.02	6
15	~1	70	141	10	11	18	34	34	91.03	1.02	6
20	~1	70	140	10	11	19	34	34	96.11	1.02	6
Avg/Total								34	20.15	1.02	

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

LANL-4-V-3

VOST FIELD SHEET
DATA SET # 2

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/7/86
RUN # 4
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/min @ 21.5"
LEAK CHECK AFTER <0.1" Hg/min @ 21.5"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI Outlet
PROBE NO. VOST 1
VOST NO.
FILTER I.D. NA
PROBE HEATER SET ~~[illegible]~~ 30
METER BOX NO. V I
Yd 1.0032
Bp 23.13

condition 4

Diagram of sample location

Start Time 1638

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 96.74	ΔH	COMMENTS: Vac
5	~1	65	125	12	13	19	34	33	101.45	1.0	17
10	~1	65	129	11	12	18	33	32	106.00	1.0	17
15	~1	63	131	11	12	18	33	31	110.22	1.0	17
20	~1	55	134	12	11	18	32	31	114.45	1.0	17
Avg/Total								32	17.71	1.0	

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

LANL-4-V-4

VOST FIELD D[illegible]HEET
DATA SET # 2

PLANT LANL
LOCATION CAI
OPERATOR Kautmann
DATE 9/7/86
RUN # 5
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/Min @ 21.5"
LEAK CHECK AFTER <0.1" Hg/Min @ 18"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI Outlet
PROBE NO. VOST
VOST NO.
FILTER I.D. N/A
PROBE HEATER SET
METER BOX NO. V I
Yd 1.0032
Bp 23.0

condition 4

Diagram of sample location

Start Time 1809

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 15.12	ΔH	Vac	COMMENTS:
5	~1	75	136	11	13	19	24	23	20.35	1.02	7	
10	~1	75	137	10	11	19	24	23	—	1.02	6	
15	~1	75	137	10	13	18	24	23	21.40	1.02	6	
20	~1	75	131	11	11	19	25	24	36.56	1.02	6	
Avg/Total								24	21.44	1.02		

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

LANL-4-V-5

VOST FIELD SHEET
DATA SET # 2

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/7/86
RUN # 6
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/min @ 21"
LEAK CHECK AFTER <0.1" Hg/min @ 20"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. CAI Outlet
PROBE NO. VOST 1
VOST NO.
FILTER I.D. NA
PROBE HEATER SET
METER BOX NO. V1
Yd 1.0032
Bp 22.10

condition 4

Diagram of sample location

Start Time 1846

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 37.01	ΔH	Vac	COMMENTS:
5	~1	70	129	11	11	18	25	25	—	1.02	6	
10	~1	70	134	10	11	17	25	25	47.20	1.02	8	
15	~1	70	134	11	11	18	26	25	52.42	1.02	8	
20	~1	70	128	10	11	18	26	26	~~57.~~ 57.37	1.02	8	
Avg/Total								25	20.36	1.02		

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

LANL-4-V-6

VOST FIELD SHEET
DATA SET # [illegible]

PLANT LANL
LOCATION CAT
OPERATOR Kaufmann
DATE 9/7/86
RUN # Audit 1
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/Min @ 21.5"
LEAK CHECK AFTER <0.1" Hg/Min @ 15"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. Audit Tank
PROBE NO. NA
VOST NO.
FILTER I.D. NA
PROBE HEATER SET NA
METER BOX NO. VI
Yd 1.0032
Bp 23.55

Tank # AAL 12421

Diagram of sample location · start time 2025

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE NA	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 61.85	ΔH	COMMENTS: Vac.
5	~.5	35		12	13	18	26	26	64.38	1.0	2
10	~.5	35		12	12	19	27	26	66.82	1.0	2
15	~.5	35		11	10	19	27	27	69.28	1.0	2
20	~.5	35		11	11	18	28	27	71.78	1.0	2
								27	9.93	1.0	

CONDENSATE SAMPLES:

SAMPLE I.D.: _____ COMMENTS: _____

LANL-(1-4)-V-1 - Audit

VOST FIELD SHEET
DATA SET #

PLANT LANL
LOCATION CAT
OPERATOR Kohlmann
DATE 9/7/86
RUN # Audit 2
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE 20.1" Hg/Min @ 15"
LEAK CHECK AFTER 20.1" Hg/Min @ 15"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. Audit
PROBE NO. NA
VOST NO.
FILTER I.D. NA
PROBE HEATER SET N
METER BOX NO. VI
Yd 1.0032
Bp 23.05

Tank # AAL 12421
start time 2100

Diagram of sample location

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE NA	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 72.35	ΔH	COMMENTS:
5	~.5	37		12	12	18	29	29	75.24	1.0	2
10	~.5	37		10	12	18	29	28	78.00	1.0	2
15	~.5	37		10	11	18	30	29	~~81.79~~ *	1.0	2
20	~.5	37		10	11	18	30	29	~~83.74~~	1.0	2
									83.74		
								29	11.39	1.0	

CONDENSATE SAMPLES:

* 80.96

SAMPLE I.D.: COMMENTS:

LANL-(1-4)-V-2-Audit

VOST FIELD SHEET
DATA SET #

PLANT LANL
LOCATION CAT
OPERATOR Kaufmann
DATE 9/6/86
RUN # Audit 3
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/min 615"
LEAK CHECK AFTER <0.1" Hg/min 615"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. Audit Tank
PROBE NO. NA
VOST NO.
FILTER I.D. NA
PROBE HEATER SET NA
METER BOX NO. 11
Yd 1.0032
Bp 23.09

Tank # AAL 12421
start time 2132

Diagram of sample location

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 85.10	ΔH	COMMENTS: Vac.
			NA								
5	~.5	36		12	10	19	31	30	87.90	1.0	2
10	~.5	36		10	10	18	31	30	90.57	1.0	2
15	~.5	36		11	11	18	32	30	93.35	1.0	2
20	~.5	36		10	10	19	32	30	96.01	1.0	2
								31	10.91	1.0	

CONDENSATE SAMPLES:

SAMPLE I.D.: COMMENTS:

LANL-(1-4)-V-3-Audit

VOST FIELD SHEET
DATA SET #

PLANT LANL
LOCATION CAT
OPERATOR Kaufmann
DATE 9/3/86
RUN # Audit 4
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/min @ 17"
LEAK CHECK AFTER <0.1" Hg/min @ 15"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. Audit tank
PROBE NO. NA
VOST NO.
FILTER I.D. NA
PROBE HEATER SET NA
METER BOX NO. VI
Yd 1.0032
Bp 23.13

Tank # AAL 11924
start time 0842

Diagram of sample location

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE NA	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 96.66	ΔH	COMMENTS: Vac.
5	~.5	35		14	15	18	21	22	99.25	1.0	2
10	~.5	35		13	13	17	21	22	102.82	1.0	2
15	~.5	35		13	14	17	22	22	104.37	1.0	2
20	~.5	35		14	14	18	22	23	106.78	1.0	2
								22	10.12	1.0	

CONDENSATE SAMPLES:

SAMPLE I.D.: COMMENTS:

LANL-(1-4)-V-4 - Audit

VOST FIELD SHEET
DATA SET # c

PLANT LANL
LOCATION CAT
OPERATOR Kaufmann
DATE 9/8/86
RUN # Audit 5
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/min @ 17"
LEAK CHECK AFTER <0.1" Hg/min @ 17"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. Audit Tank
PROBE NO. NA
VOST NO.
FILTER I.D. NA
PROBE HEATER SET NA
METER BOX NO. VI
Yd 1.0032
Bp 23.13

Tank # AAL 11924
start time 0920

Diagram of sample location

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE NA	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 7.42	ΔH	Vac.	COMMENTS:
5	~.5	35		13	13	17	25	24	—	1.0	2	
10	~.5	35		11	11	17	25	25	12.51	1.0	2	
15	~.5	35		~~16~~ 12	~~15~~ 12	16	27	26	15.12	1.0	2	
20	~.5	35		13	13	17	25	26	17.76	1.0	2	
								25	10.28	1.0		

CONDENSATE SAMPLES:

SAMPLE I.D.: COMMENTS:

LANL-(1-4)-V-5-Audit

VOST FIELD SHEET
DATA SET #____

PLANT LANL
LOCATION CAI
OPERATOR Kaufmann
DATE 9/3/86
RUN # Audit 6
FIELD BLANK I.D.: TENAX
TENAX/CHARCOAL
LEAK CHECK BEFORE <0.1" Hg/min @ 17"
LEAK CHECK AFTER <0.1" Hg/min @ 17"
CARTRIDGE I.D.:
TENAX
TENAX/CHAR

STACK I.D. Audit Tank
PROBE NO. NA
VOST NO.
FILTER I.D. NA
PROBE HEATER SET NA
METER BOX NO. VI
Yd 1.0032
Bp 28.13

Tank # AAL 11924
start time 0950

Diagram of sample location

TIME minutes	SAMPLING RATE l/min	ss ball	GAS TEMPERATURES, DEG C 1 PROBE NA	2 TENAX 1	3 TENAX 2	4 GAS OUT	5 METER IN	6 METER OUT	VOLUME GAS METERED liters INITIAL: 18.59	ΔH	COMMENTS: Vac.	
5	~.5	35		10	11	17	27	27	21.20	1.0	2	
10	~.5	35		11	10	17	28	27	24.88	1.0	2	
15	~.5	35		11	9	17	28	27	26.48	1.0	2	
20	~.5	35		11	11	17	28	27	29.19	1.0	2	
								27	10.60	1.0		

CONDENSATE SAMPLES:

SAMPLE I.D.:_____ COMMENTS:_____

LANL-(1-4)-V-6-Audit

1/

1/4/86 RCRA Legend Batch Feed Preparation

0730 TCE drum #1 on scale, Gross wt = 251.6 lb

0842 Transferred contents of drum #1 to Tank 53.4 lb

Level Ind = 19.0%

251.6
53.4
198.2 lb transferred ⇒ 280 − 198.2 =
81.8 to be added

0851 Drum #2 TCE put on scale, Gross = 697.4 lb

697.4
81.8
615.6

Final Gross = 614.4 ⇒ 697.4 − 614.4 = 83.0 added

Total TCE added = 83.0
198.2
281.2 lb

Level Ind. = 23.0%

0910 CCl_4 drum #2 put scale Gross wt = 154.6 lb
53.4
101.2 lb transfe

2/

RERA batch #2
TCE

Drum #2 G 614.8
280.0 to be added
334.8

614.8
337.6
277.2 actually added

Total TCE = 277.2 lbs

Added ~ 7 lbs additional TCE/CCl_4
out of transfer filter to batch #2

9/5/86

1/

RERA Liquid Batch #2 Makeup

Fuel Oil

G 400.4
56.2
344.2 = 1st charge
490 - 344.2 = 145.8 needed

G 215.6
145.8
69.8 actual fuel 71.6 ⇒ 215.6
71.6
144.0 added

Total fuel oil added = 344.2
144.0
488.2 lb

CCl_4

Drum #3 G 210.6
45.8
164.8 added

630.0
164.8
465.2

Drum #4 G ~~740~~ 741.0
~~165~~ 465.2 to be added

741.0
267.4
473.6 actual added

275.8

Total CCl_4 473.6
164.8
638.4

0930 CCl_4 Drum #3 Grosswt = 740.2 lb

0940 Sample # CCl_4 Drum #3 taken

630.0
101.2
528.8 to be added

740.2
528.8
211.4

0945 Added balance of CCl_4

Final Grosswt. Drum #3 = 210.6 lb

740.2
210.6
529.6 actually added on this drum #3

Total CCl_4 added to tank = 529.6
101.2
630.8 lb

LEVEL IND = 51.0%

Fuel Oil

Tare (drum #1) = 42.6 lb

Filled drum to gross wt = 387.8
42.6
345.2 in drum

10:40 Tare after transfer #1 = 387.8
53.8
First addition Added to tank = 334.0 lb
490.0
334.0
156.0 lb to go

2nd addition to drum
Gross = 230.2
156.0 to be added
74.2

Actual tare = 72.8 lb

11:00 Actual added 230.2
72.8
157.4

Total Fuel Oil Added = 157.4
334.0
491.4 lb

Begin Mixing

JSV 1/

1/4/86 RCRA Liquid Feed Viscosity Measurement

50 ml liquid feed batch #1 drained into beaker.

Viscosity measurement conditions:

1) 65°F
2) Falling Ball Type Viscosimeter, Gilmont Instrum
Tube Size #2, – Ball densities: glass – 2.53 g/
S.S – 8.02
3) Measured density of feed mixture: 10 cm³ sample
11.84 g / 10 cm³ = 1.184 g/cm³

Data:

Liquid	drop time, Δt, sec	ball
DI H_2O	13.20	glass
"	13.70	"
"	13.92	"
"	13.85	"
liquid feed	7.43	S.S.
"	7.39	"
"	7.19	"
"	7.27	"
"	6.76	"
"	6.80	"
"	6.87	"

Viscosity Calculation:

1) Viscosimeter constant, $K = \dfrac{\mu}{(\rho_f - \rho)\, t_{avg}}$

for D.I. H_2O, $\mu = 1\,cP$, $\rho = 1\,g/cm^3$, $\rho_f = 2.53\,g/c$

$t_{avg} = 13.67\,sec =$

$$K = \frac{1\,cP}{(2.53-1)\cdot(13.67\,sec)/60} = 2.869$$

2) Viscosity of feed:

$$\mu = K(\rho_f - \rho)\, t_{avg}$$

$$t_{avg} = 7.10\,sec = 0.1184\,min$$

$$\mu = 2.869(8.02 - 1.184)(0.1184)$$

$$\boxed{\mu = 2.32\,cP}$$

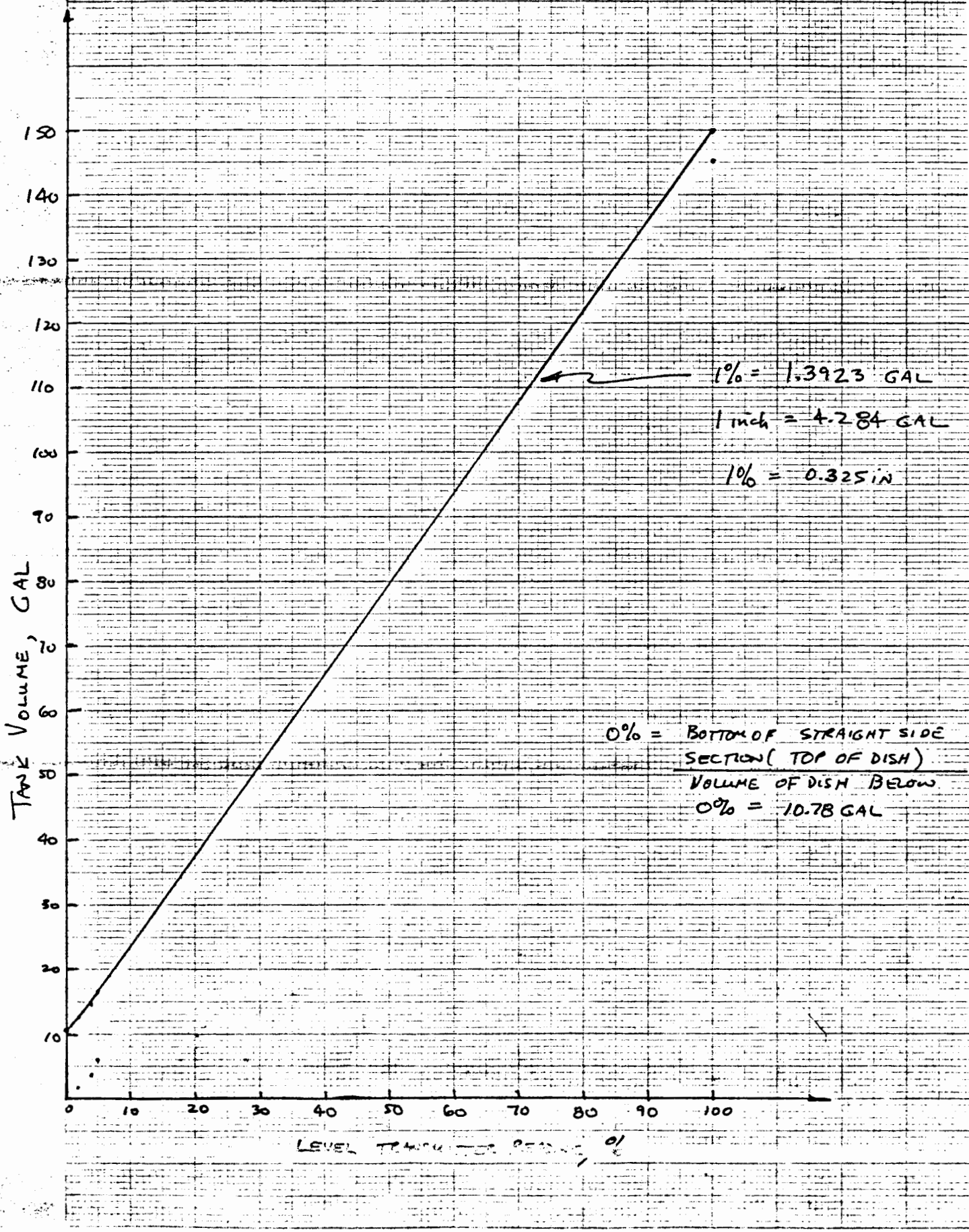
RCRA Trial Burn Liquid Feed

Compositions as actually prepared

	Batch #1		Batch #2	
	lbs	wt%	lbs	wt%
Aluminogel	3.5	0.249	3.5	0.249
Fuel Oil	491.4	34.93	488.2	34.69
CCl_4	630.8	44.84	638.4	45.35
TCE	281.2	19.99	277.2	19.70
	1406.9		1407.3	

FEED TANK #1 VOLUME CALIBRATION

(KYNAR-LINED TANK)



JSV 8/7/86

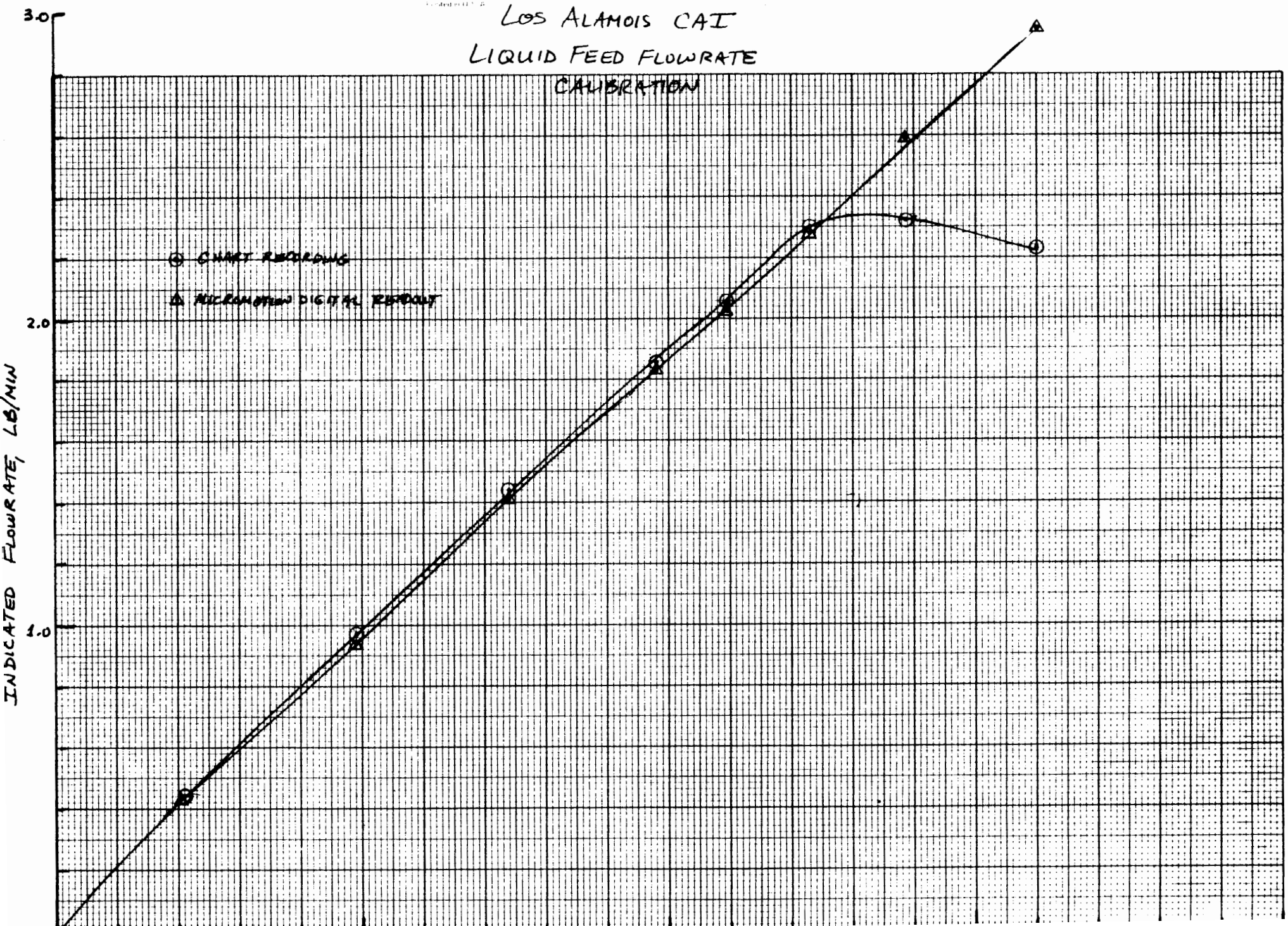
LOS ALAMOS CAI
LIQUID FEED FLOWRATE CALIBRATION

Date 11/25/86 Liquid WATER @ 75°F Data Recorded by John S. Vacuuk

Flowmeter Type MICROMOTION MODEL C

Data Point No.	Pump Stroke Setting (%)	Micromotion Readout (lb/min)	Chart Reading (lb/min)	Measured Quantities H_2O Vol. (mL)	Measured Quantities Time (sec)	Calculated Flowrate (lb/min)
1	70	2.03	2.06	1218	74.01	2.18
2	70	2.03	2.06	1278	77.25	2.19
3	100	2.95	2.23	1515	62.56	3.20
4	100	2.95	2.23	1508	62.15	3.21
5	85	2.60	2.32	1300	61.87	2.78
6	85	2.58	2.32	1315	62.91	2.76
7	75	2.28	2.30	1441	77.60	2.46
8	75	2.28	2.30	1398	75.16	2.46
9	60	1.84	1.86	1248	84.06	1.96
10	60	1.82	1.85	1235	83.18	1.96
11	45	1.40	1.44	1040	93.56	1.47
12	45	1.41	1.44	896	80.04	1.48
13	30	0.95	0.97	840	113.87	0.98
14	30	0.94	0.97	998	135.17	0.98
15	15	0.44	0.45	830	261.88	0.42
16	15	0.43	0.45	759	245.15	0.41

GRAPH PAPER Buffalo, N.Y. SQUARE 10 X 10 TO THE HALF INCH AS 0812 01



LOS ALAMOS CAI

Liquid Feed Flowrate Calibration

11/25/86

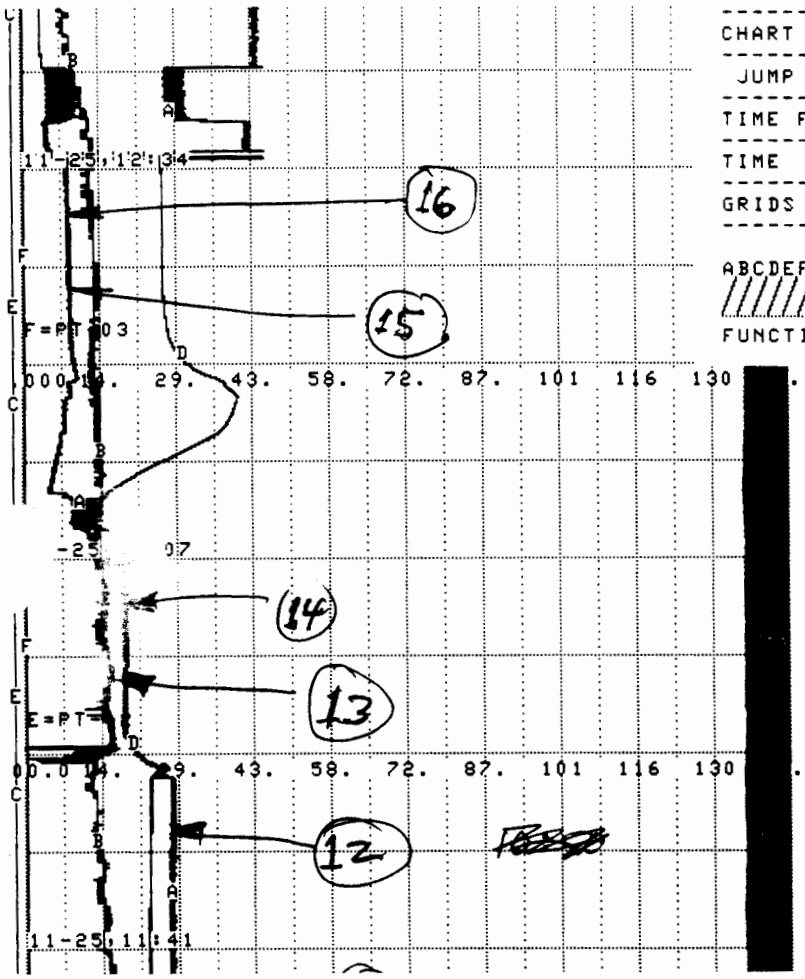
TIGRAPH 200 STATUS

CHANNEL	A	B	C	D	E	
HI SETPOINT %	99	99	99	99	99	99
LO SETPOINT %	0	0	0	0	0	0
CHANNEL SELECT	ON	ON	ON	ON	ON	ON
CHART MODULE	P1A	P2A	P3A	P4A	P5A	P6
SCALE HI END	7.50	100.	100.	145.	145.	145
SCALE LO END	0.00	0.00	00.0	00.0	0.00	0.0
SCALE UNITS	WASTE	LVL-1	LVL-2	PT-01	PT-02	PT-03
LO PASS FILTER	OUT	OUT	OUT	OUT	OUT	OU
CHART SPEED	4.5 IN/HOUR					
JUMP SPEED	OFF IN/HOUR					
TIME FORMAT	MONTH - DAYS,HOURS:MINUTES					
TIME	11-25,10:21 YEAR: '86					
GRIDS ORDERED	BY CHANNEL LINE SYNC 60 HZ					

PRINTER TEST COMPLETE.

ABCDEFGHIJKLMNOPQRSTUVWXYZ/abcdefgh;jklmnopqrstu

FUNCTIONS SAVED



LIQUID FEED RATE STRIP CHART

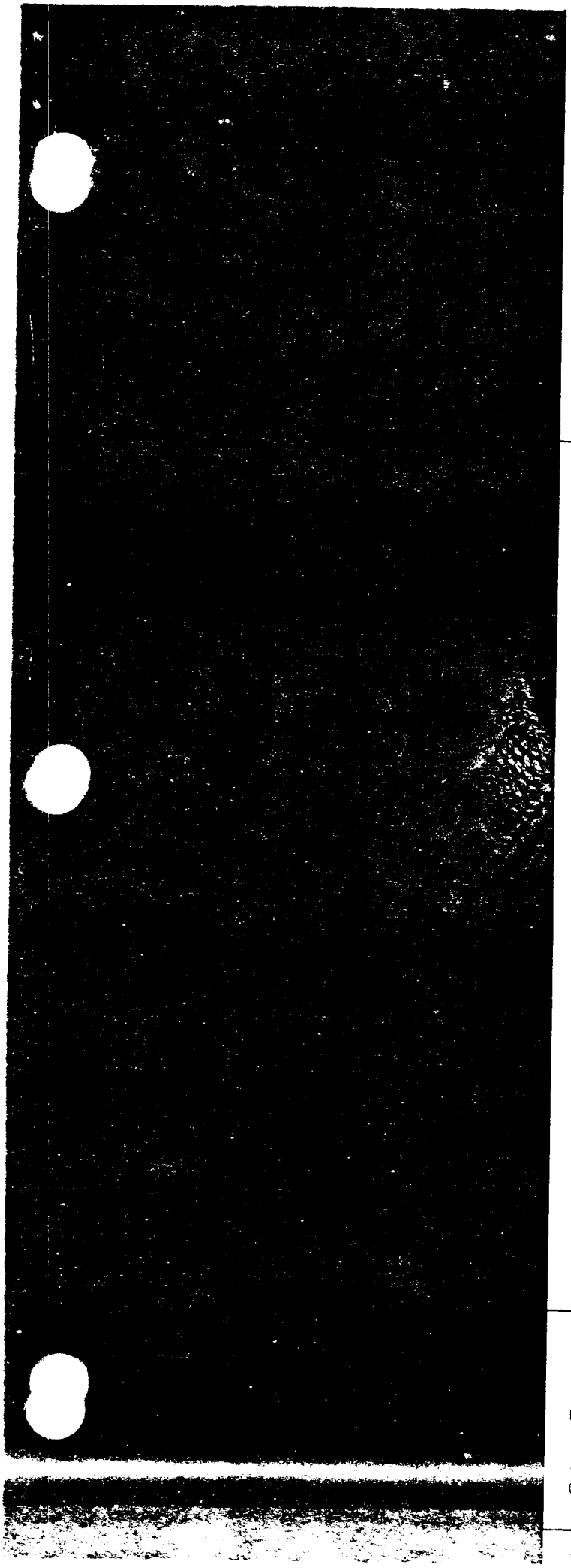
Designations on the following strip chart are as follows:

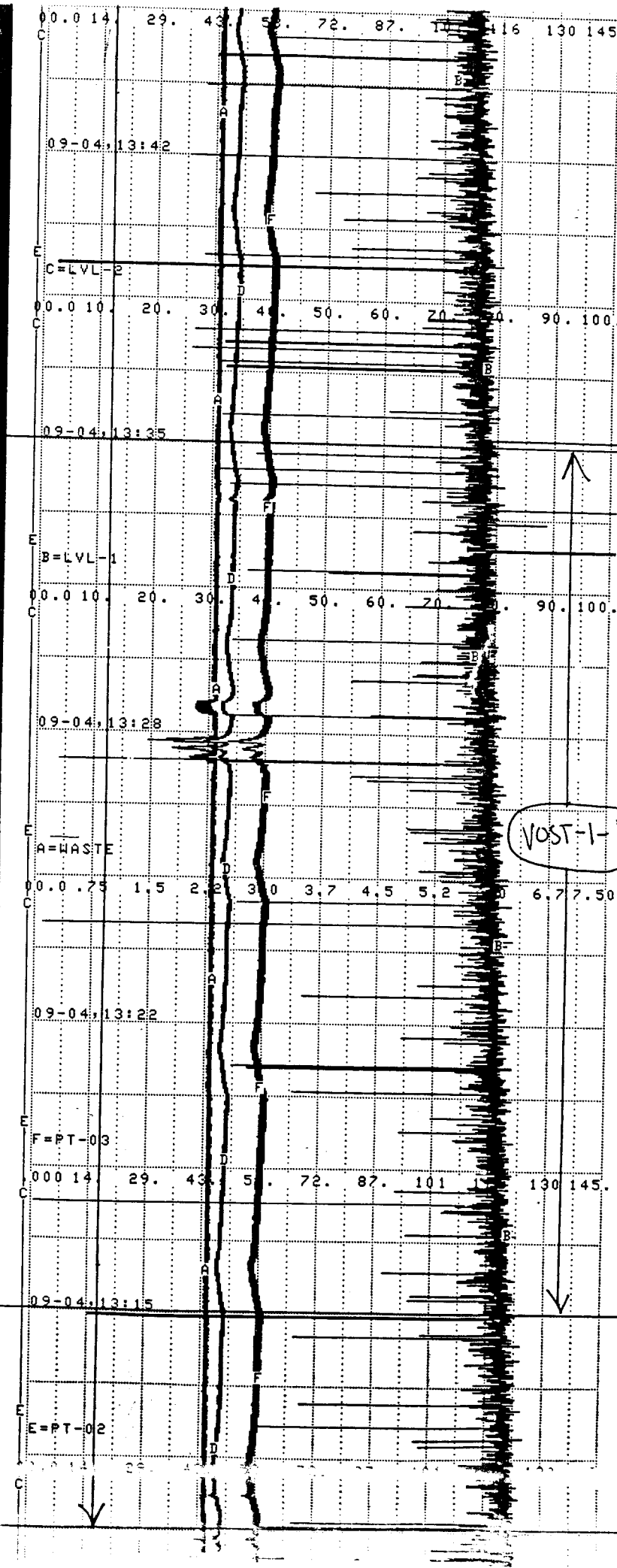
Trace	Designator	Identification
A	WASTE	Waste Feed (0-7.5 lb_m/min)
B	LVL-1	Level in Feed Tank #1 (%)
C	LVL-2	Level in Feed Tank #2 (%)
D	PT-01	Feed Tank #1 Pump Discharge Pressure (0-145 psi)
E	PT-02	Feed Tank #2 Pump Discharge Pressure (0-145 psi)
F	PT-03	Liquid Burner Feed Pressure (0-145 psi)

Please note that date and time are printed periodically on the left hand side of the chart. In addition, trace designators are printed in sequence (A-F) on the left hand side of the chart. When each designator is printed, the appropriate chart scale for that input is also printed (i.e.- A=WASTE, 0-7.5 lb_m/min; B=LVL-1, 0-100%; D=PT-01, 0-145 psi; etc.). The scale for any trace continues for four (4) vertical divisions, until the next trace designator and scale are printed.

To correctly determine the value for a particular trace at any given point on the chart you must refer back to the scale printed for that trace when the trace designator is printed (once every 24 vertical divisions). Traces ARE NOT attenuated to correspond to different scales. Attempts to determine values for a given trace other than with reference to its appropriate scale will result in erroneous readings!

Please note also that beginning with 9/05/86 chart speed was changed from 18 inches/hr to 9 inches/hr to conserve chart paper.

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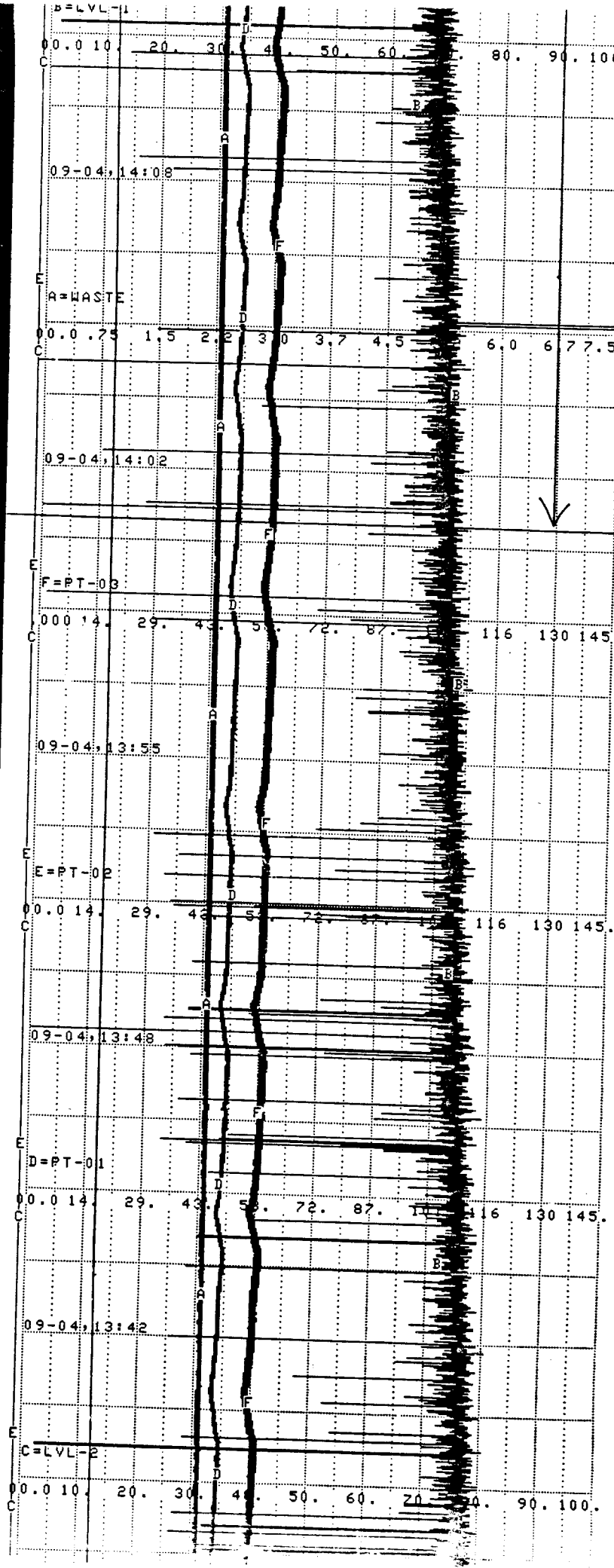
09-04,13:35
B=LVL-1
09-04,13:28
A=WASTE
09-04,13:22
F=PT-03
09-04,13:15
E=PT-02
VOST-1-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09-04,14:02
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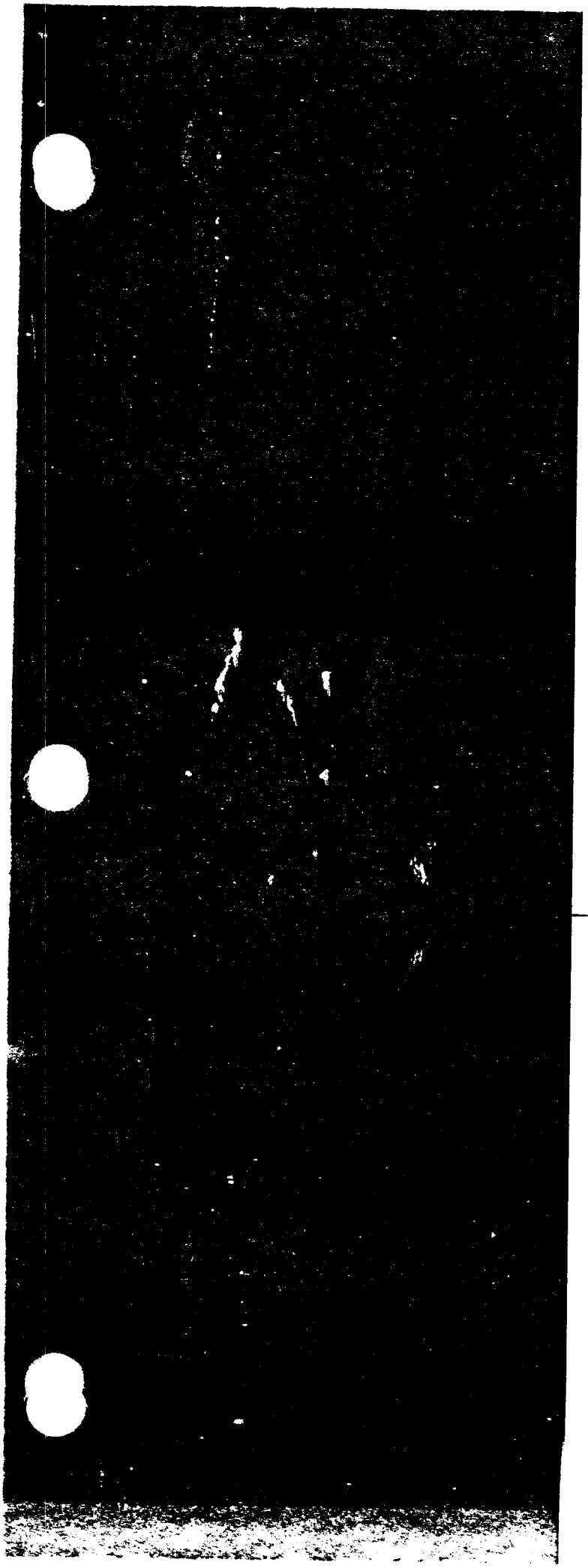
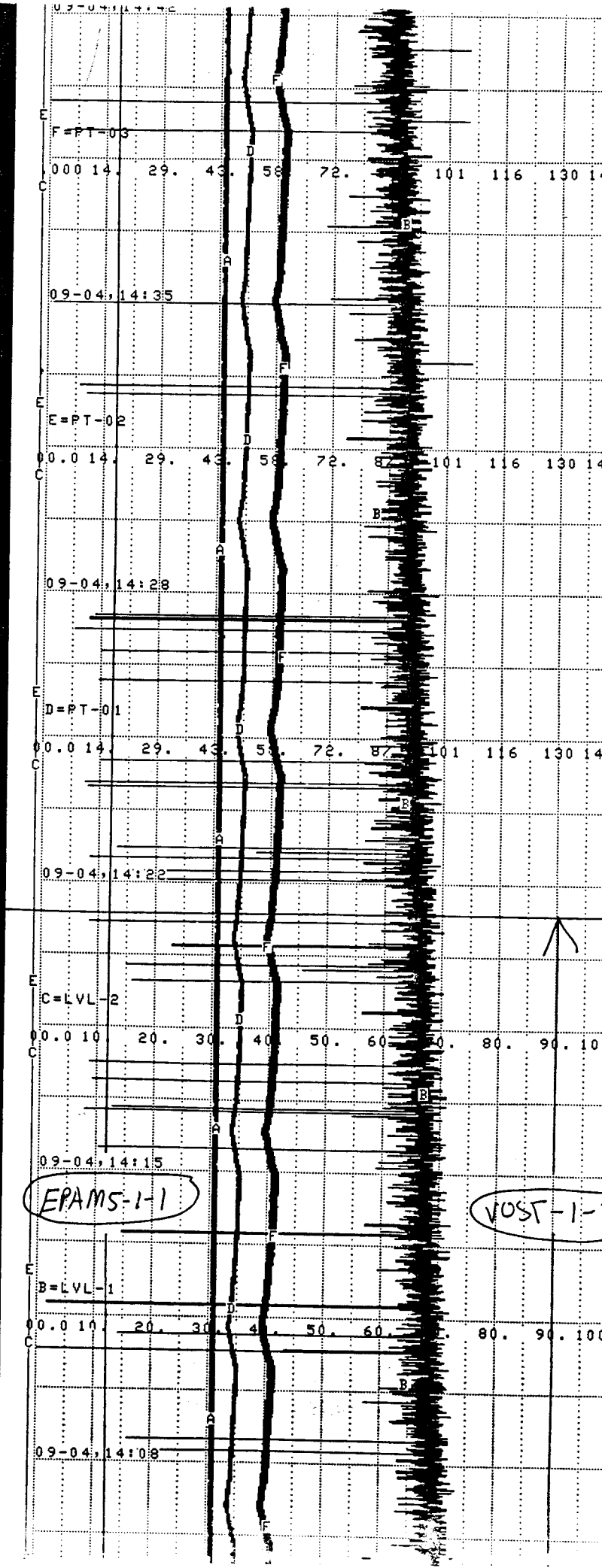
09-04,13:55
E=PT-02
09-04,13:48
D=PT-01
09-04,13:42
C=LVL-2

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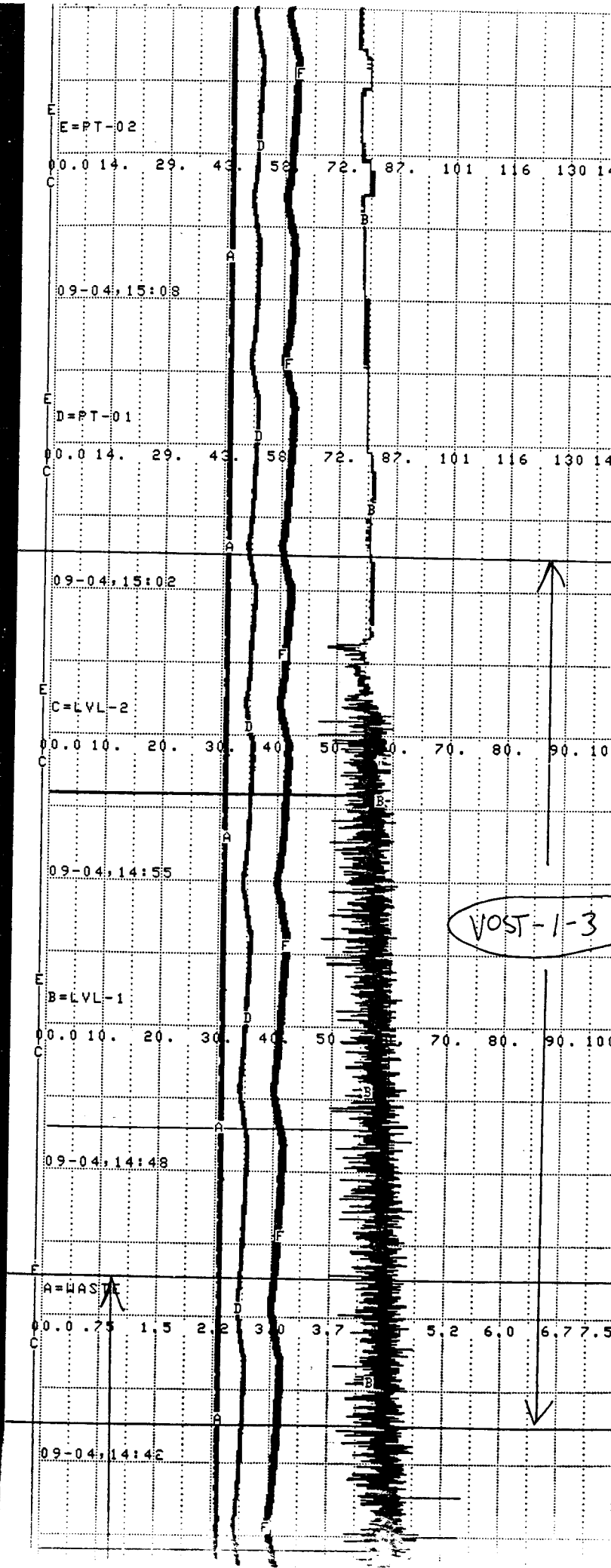
E=PT-02
00.0 14. 29. 43. 58. 72. 87. 101 116 130
09-04,14:28
D=PT-01
00.0 14. 29. 43. 58. 72. 87. 101 116 130
09-04,14:22
C=LVL-2
00.0 10. 20. 30. 40. 50. 60. 70. 80. 90. 10
09-04,14:15
EPAMS-1-1
VOST-1-
B=LVL-1
00.0 10. 20. 30. 40. 50. 60. 70. 80. 90. 100
09-04,14:08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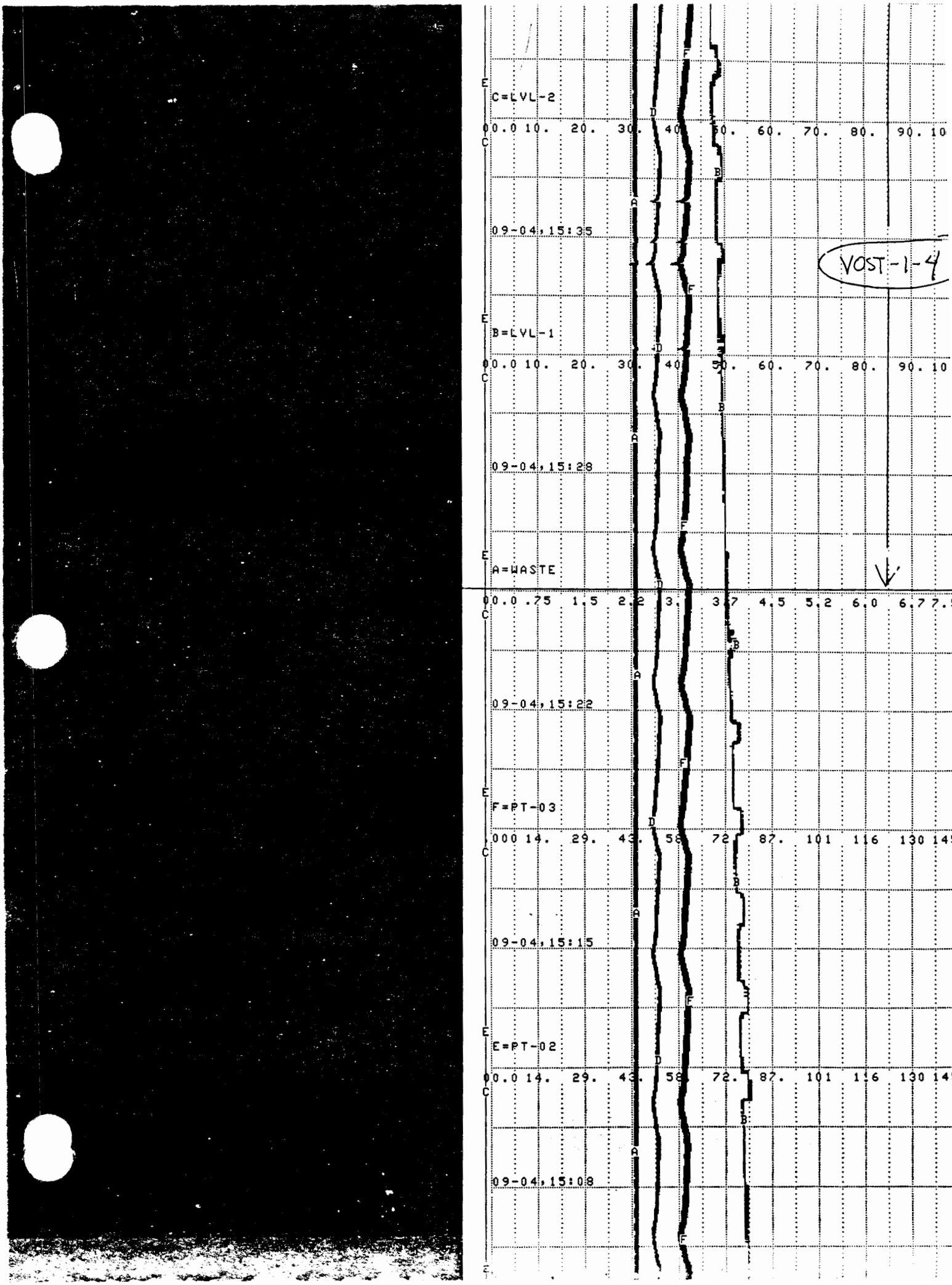
09-04,14:42
VOST-1-3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VOST-1-4
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09-04,15:28
A=WASTE
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09-04,15:22
F=PT-03
000 14. 29. 43. 58. 72. 87. 101 116 130 145
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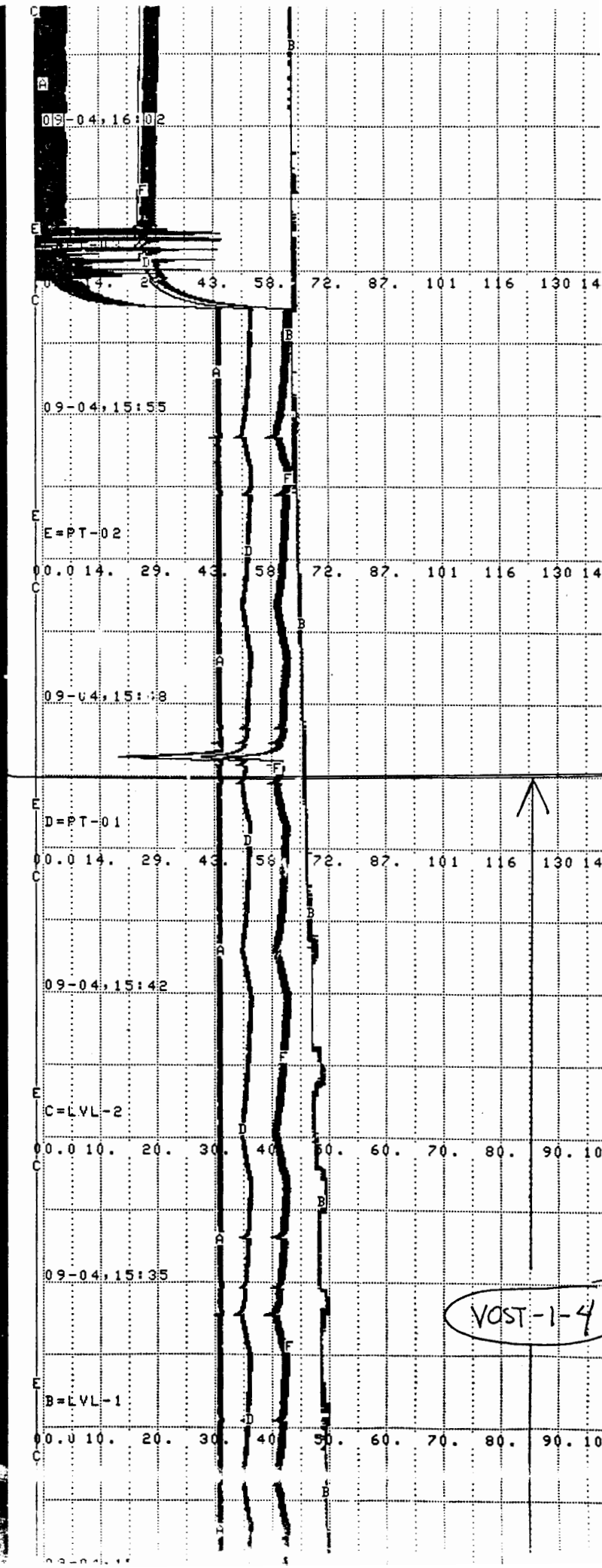
E=PT-02
00.0 14. 29. 43. 58. 72. 87. 101 116 130 145
09-04,15:08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D=PT-01
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C=LVL-2
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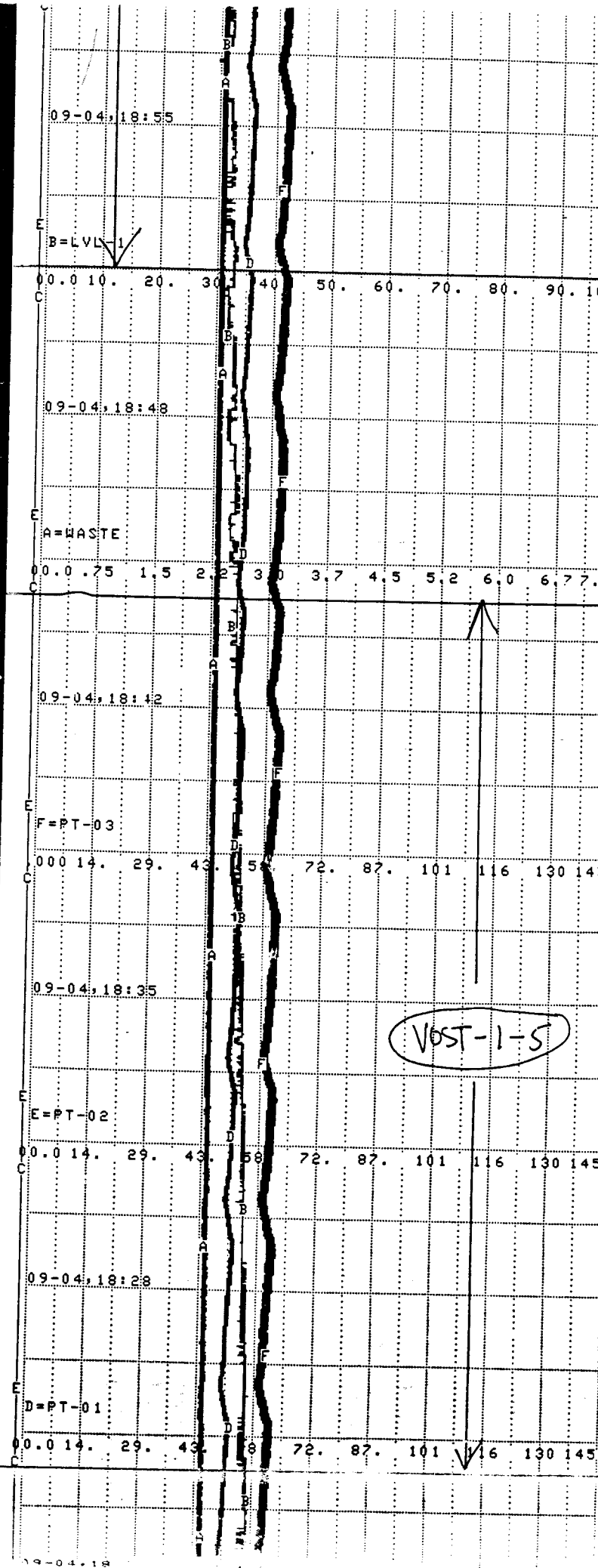
B=LVL-1
VOST-1-4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09-04,18:48
A=WASTE
00.0 .75 1.5 2.2 3.0 3.7 4.5 5.2 6.0 6.7
09-04,18:42
F=PT-03
000 14. 29. 43. 58. 72. 87. 101 116 130 14
09-04,18:35
VOST-1-5
E=PT-02
00.0 14. 29. 43. 58. 72. 87. 101 116 130 145
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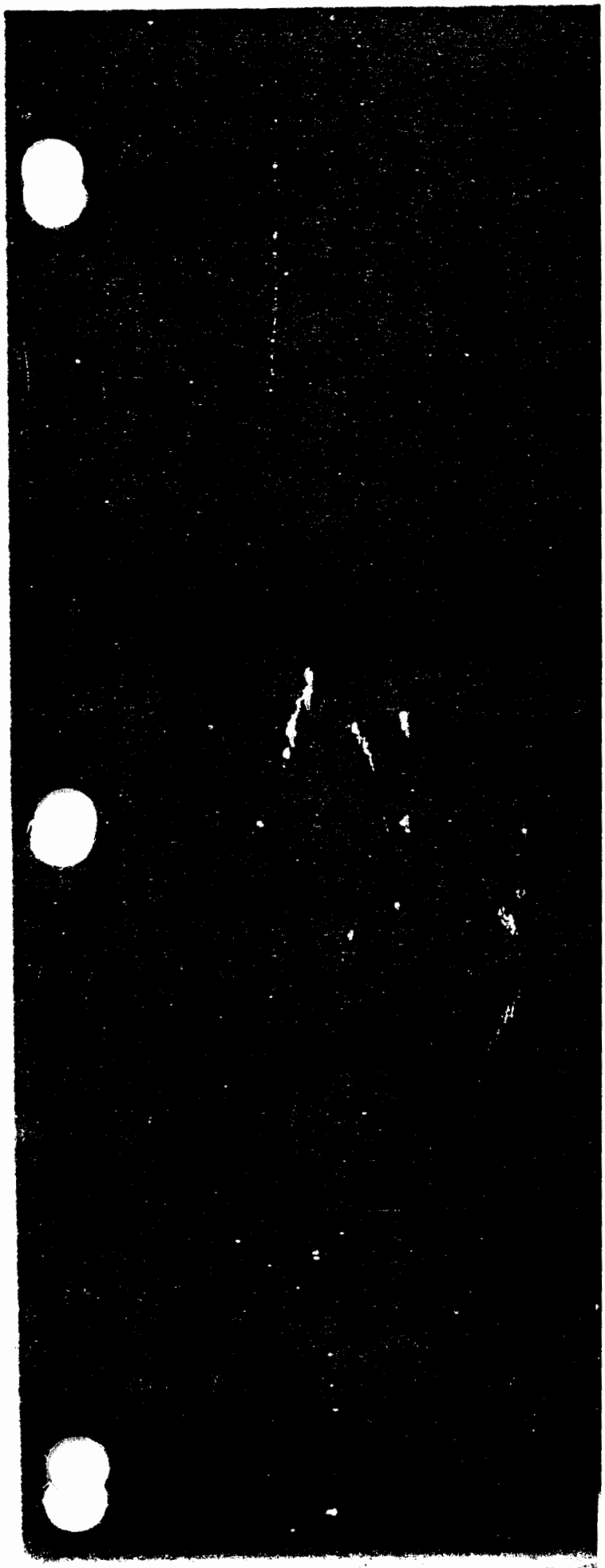
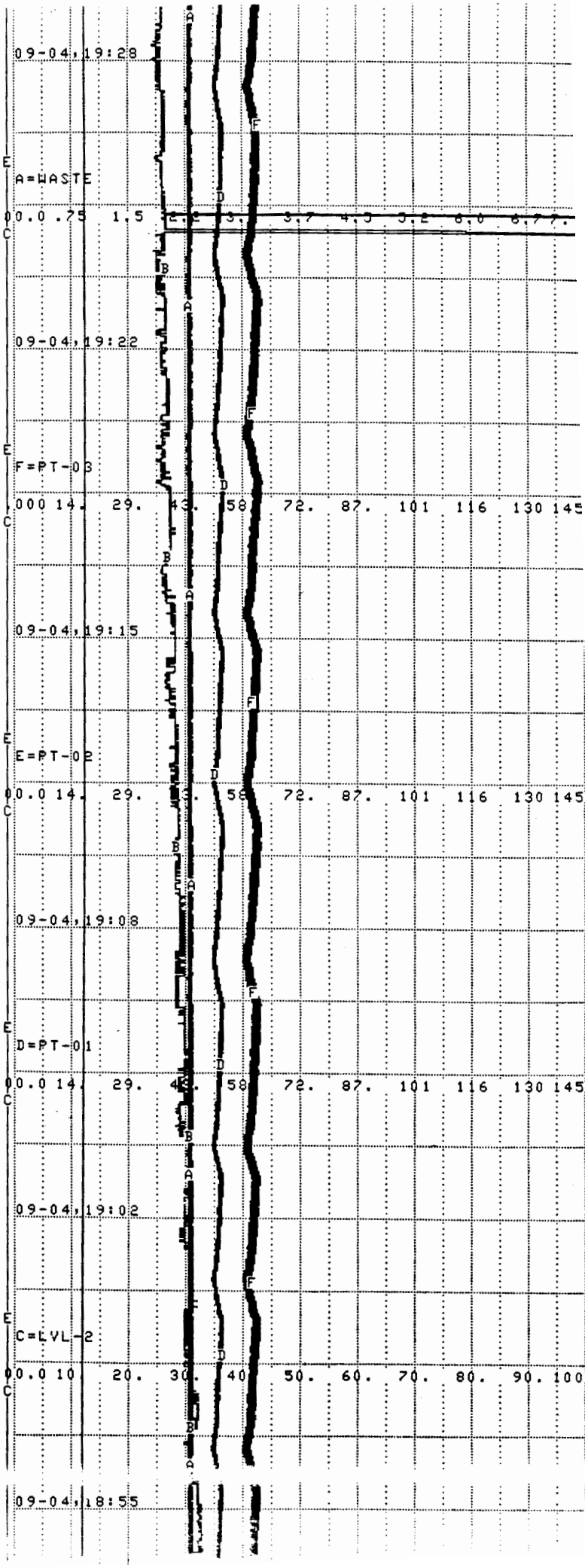
D=PT-01
00.0 14. 29. 43. 58. 72. 87. 101 116 130 145

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00.0 .75 1.5
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000 14. 29. 43. 58. 72. 87. 101 116 130 145
09-04,19:15
E=PT-02
00.0 14. 29. 43. 58. 72. 87. 101 116 130 145
09-04,19:08
D=PT-01
00.0 14. 29. 43. 58. 72. 87. 101 116 130 145
09-04,19:02
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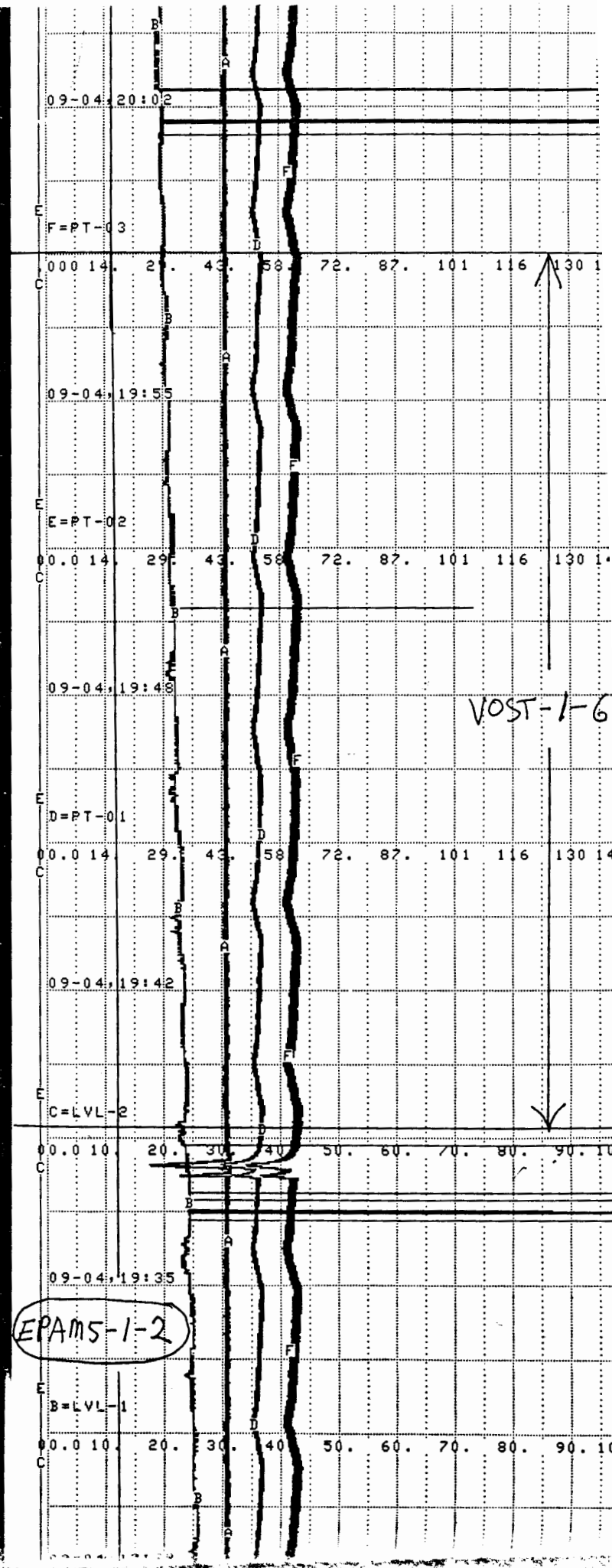
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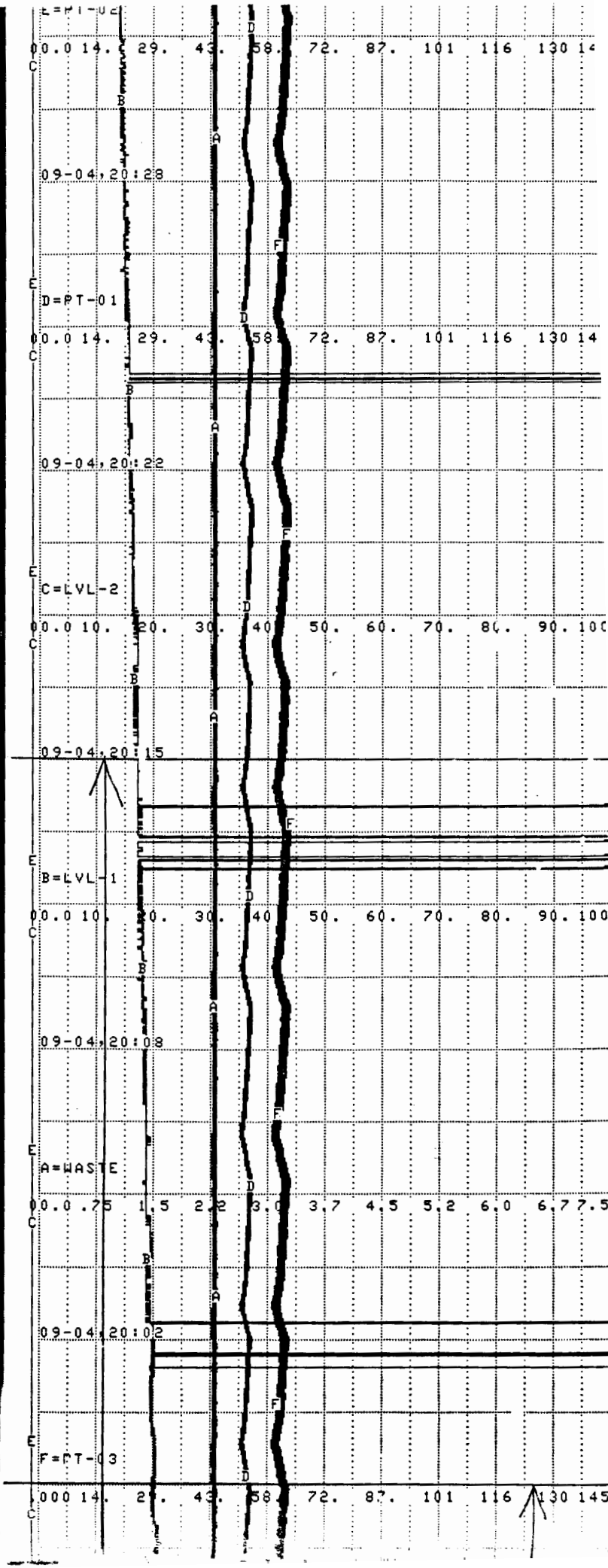
B=LVL-1
VOST-1-6
EPAM5-1-2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09-04,20:22
C=LVL-2
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09-04,20:15
B=LVL-1
00.0 10. 20. 30. 40. 50. 60. 70. 80. 90. 100
09-04,20:08
A=WASTE
00.0 .75 1.5 2.2 3.0 3.7 4.5 5.2 6.0 6.7 7.5
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F=PT-03
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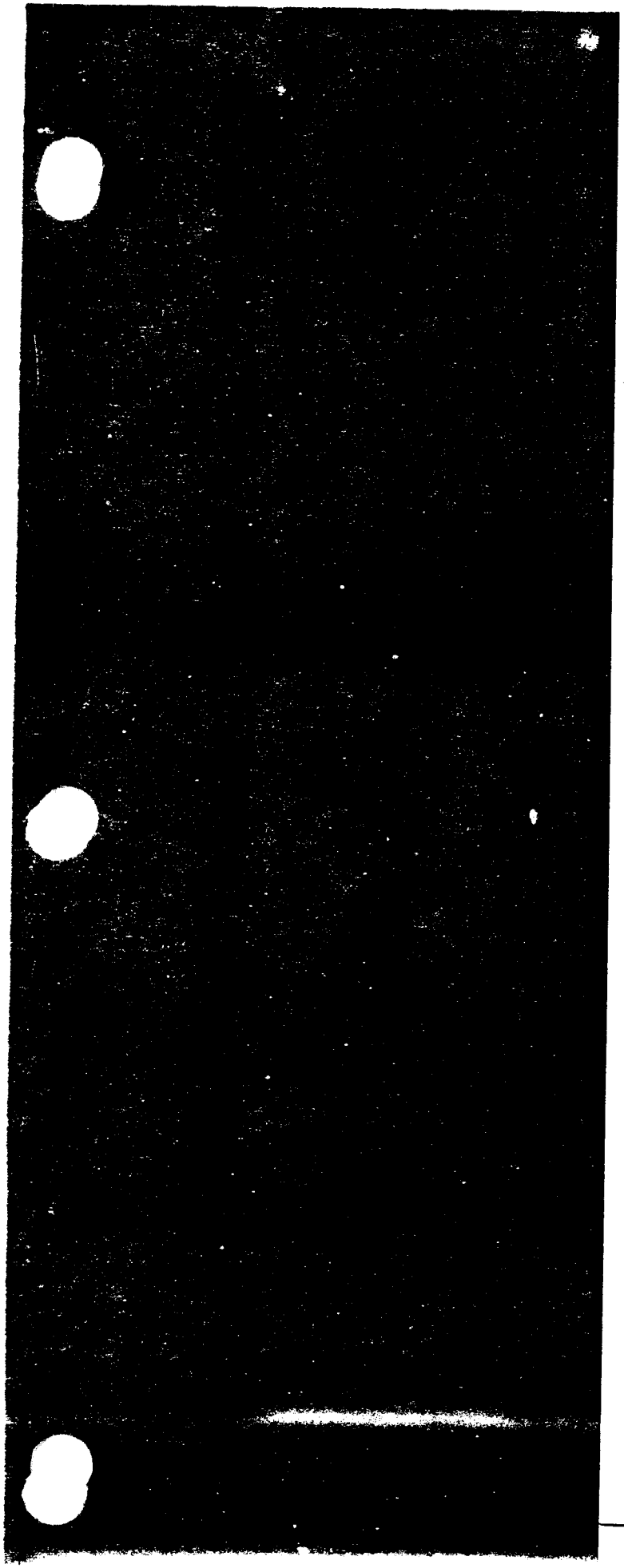

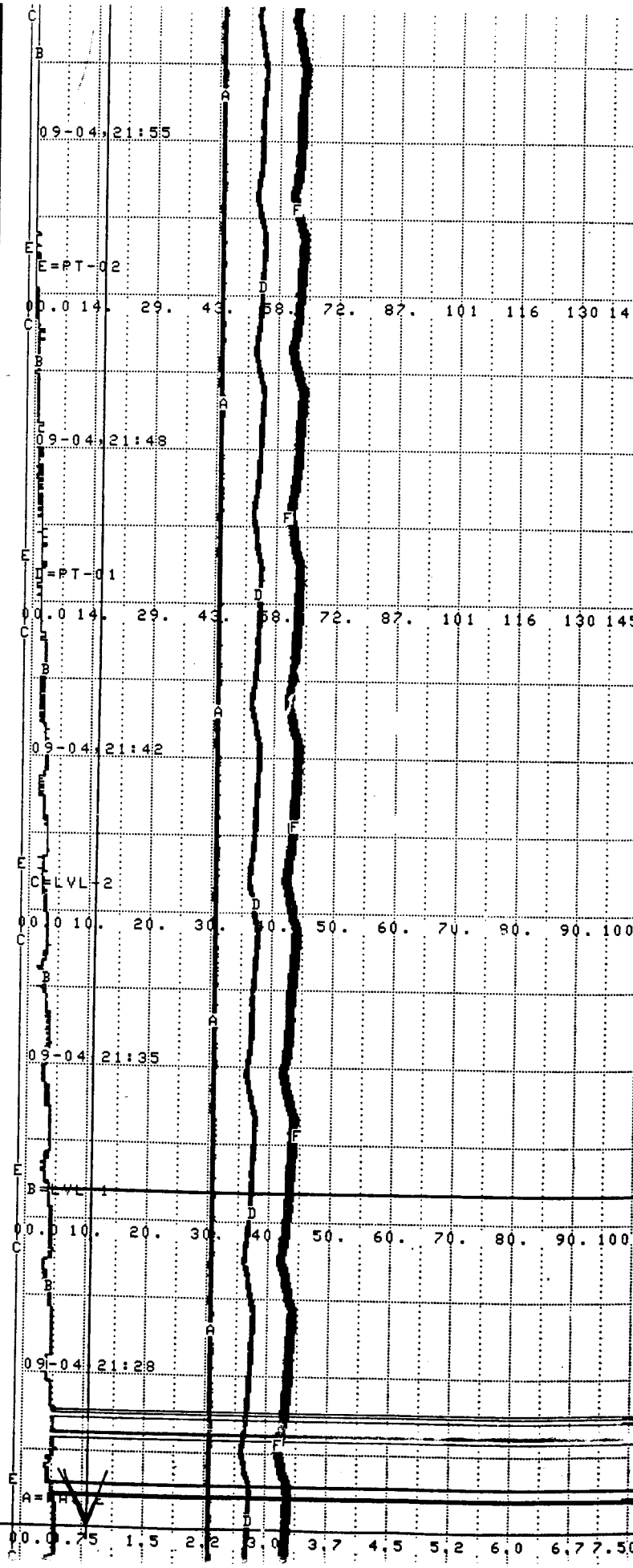
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09-04,21:42
C=LVL-2
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09-04 21:35
B=LVL-1
00.0 10. 20. 30. 40. 50. 60. 70. 80. 90. 100
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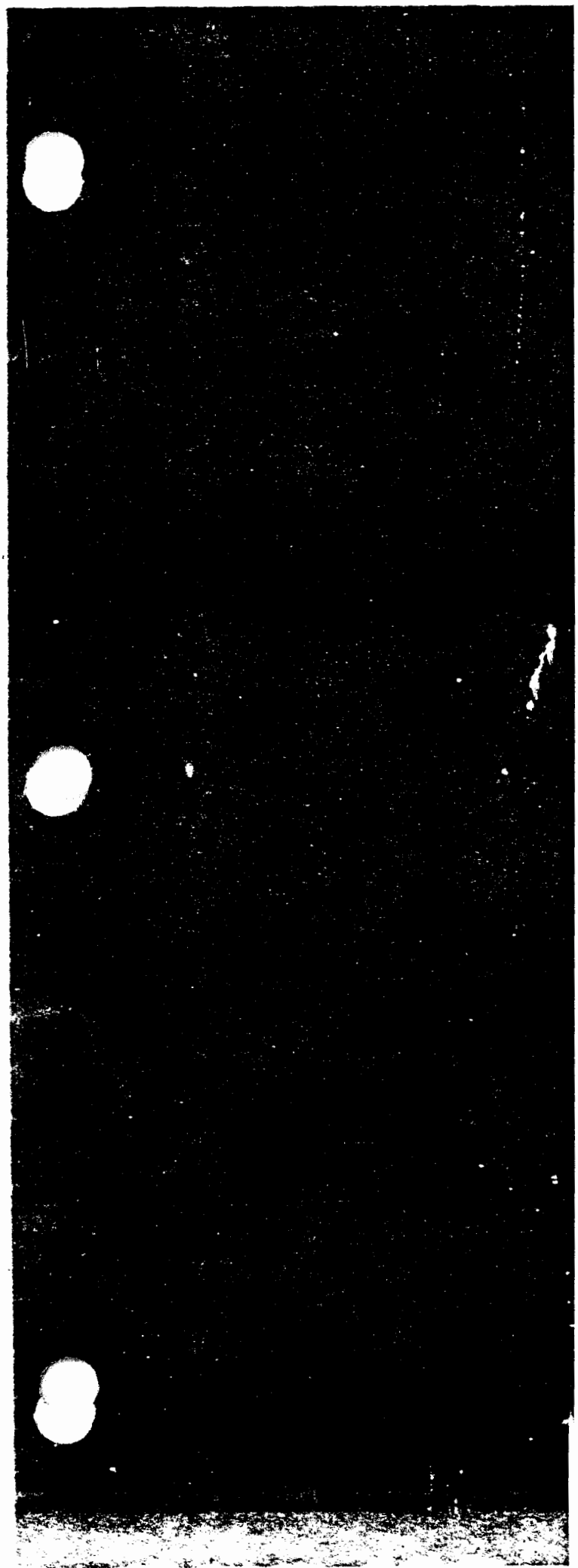

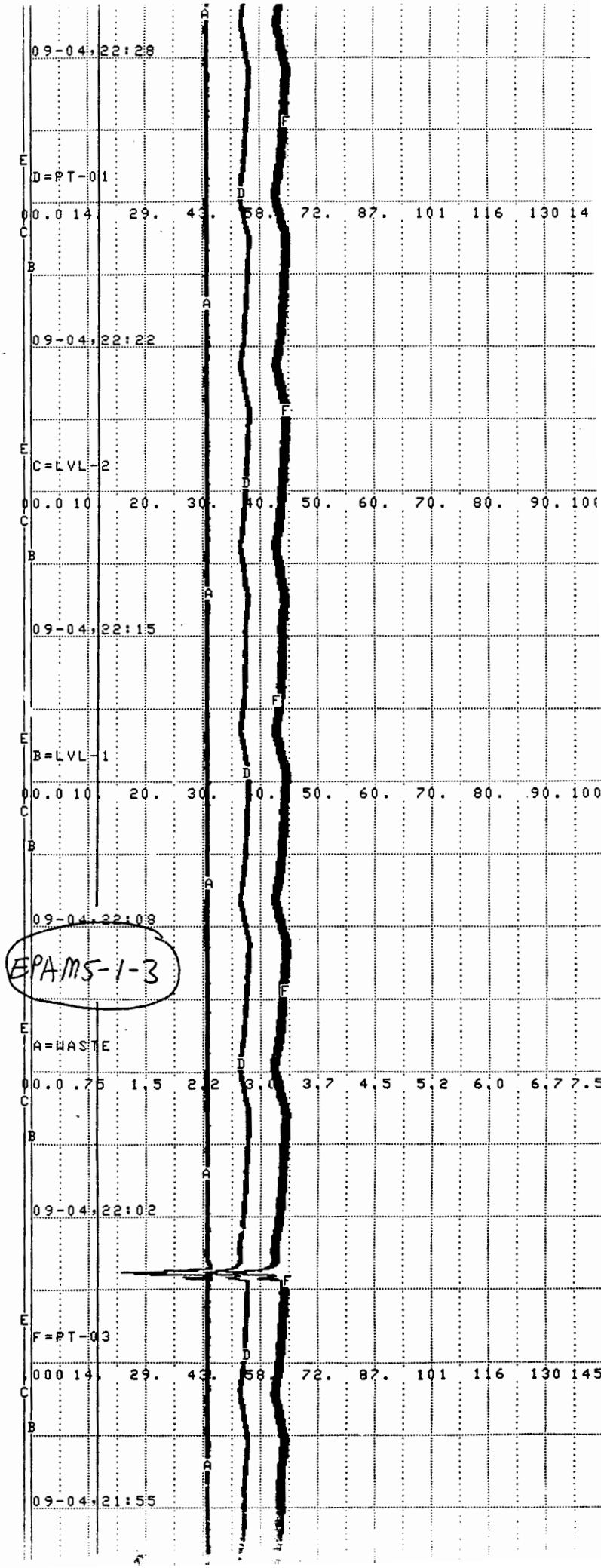
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09-04,22:22
C=LVL-2
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09-04,22:15
B=LVL-1
00.0 10. 20. 30. 40. 50. 60. 70. 80. 90. 100
09-04,22:08
EPAMS-1-3
A=WASTE
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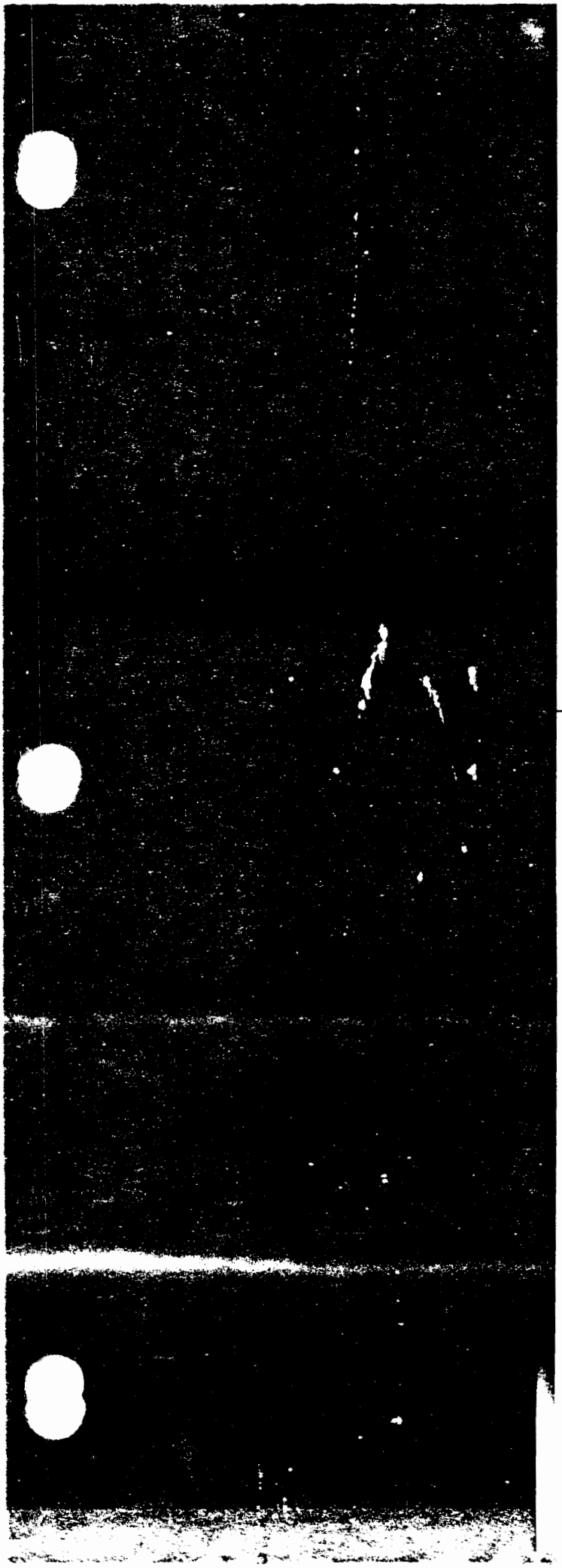

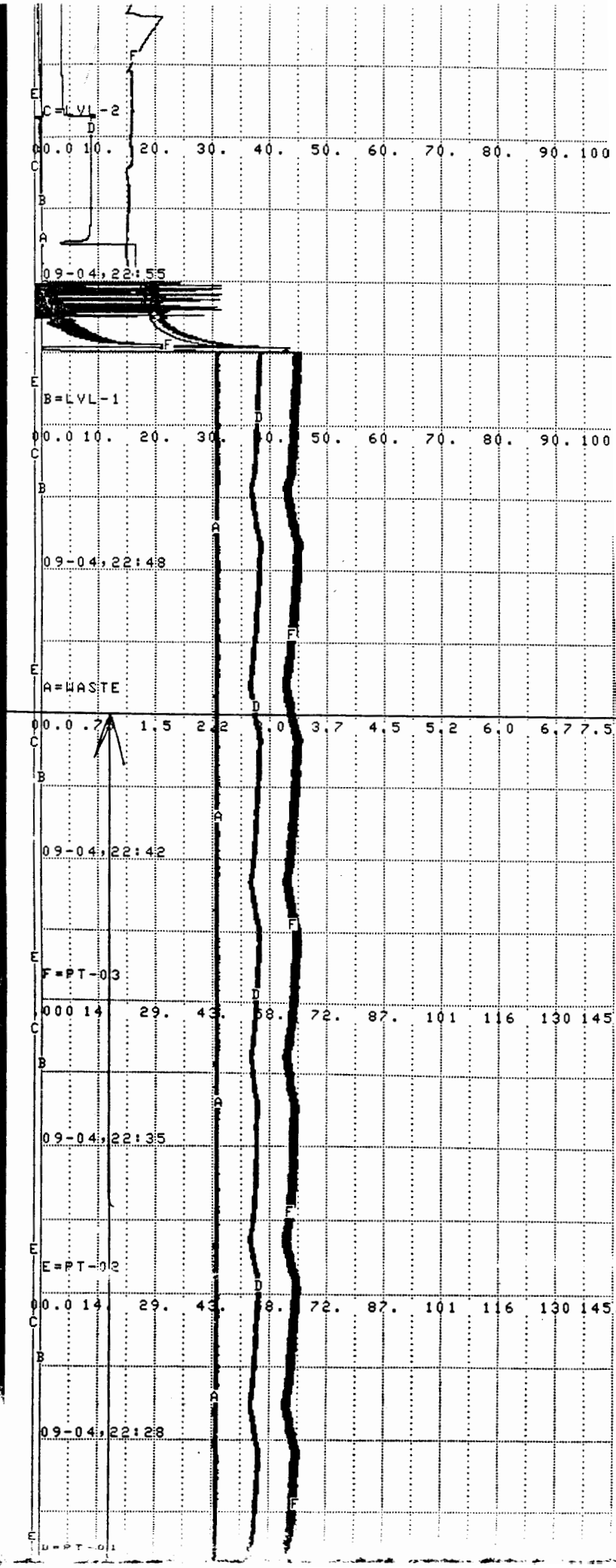
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09-04,22:48
A=WASTE
00.0 .7 1.5 2.2 3.0 3.7 4.5 5.2 6.0 6.7 7.5
09-04,22:42
F=PT-03
000 14 29. 43. 58. 72. 87. 101 116 130 145
09-04,22:35
E=PT-02
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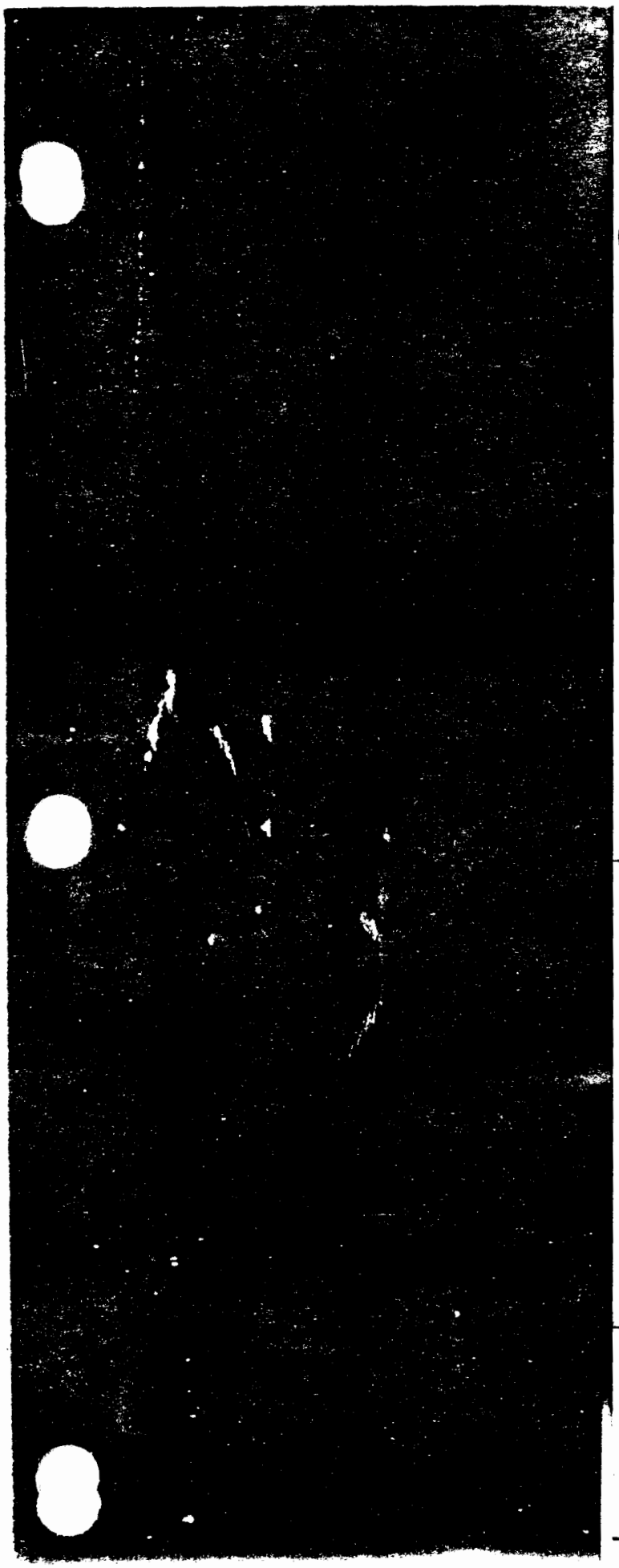
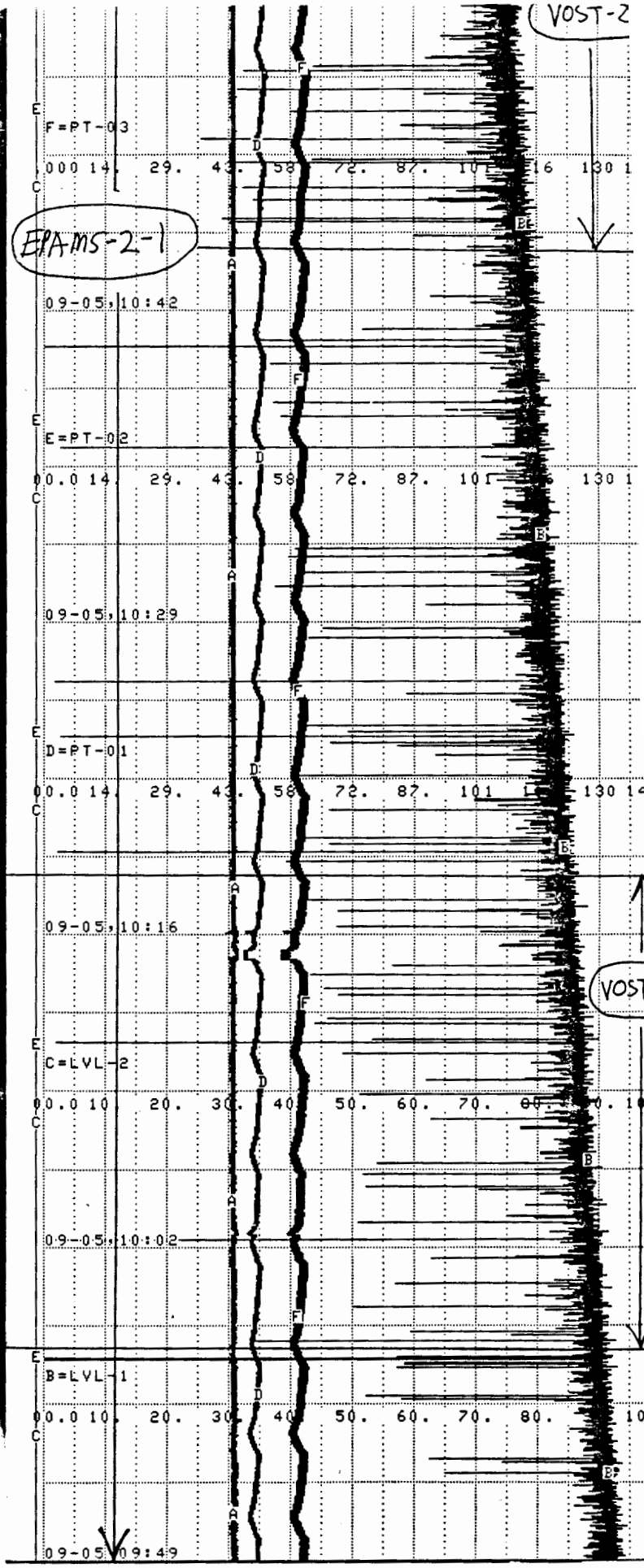
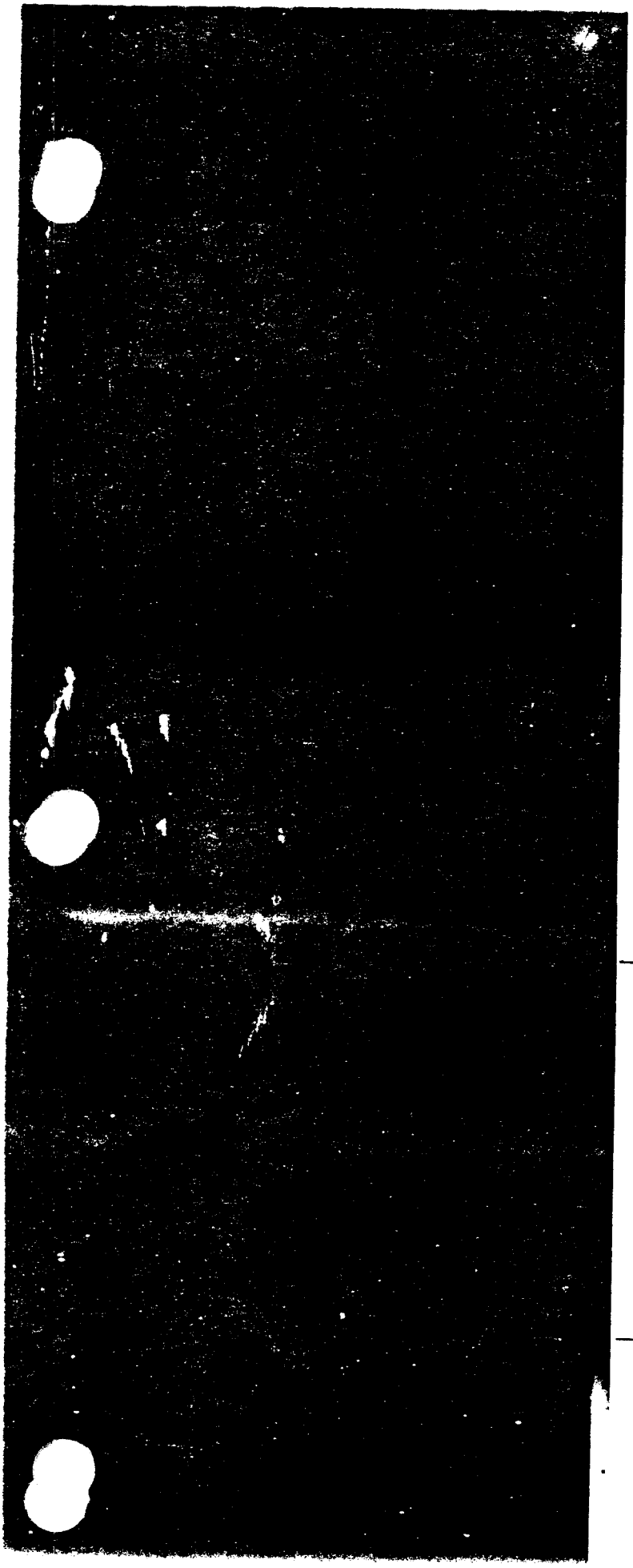
09-04,22:28
D=PT-01

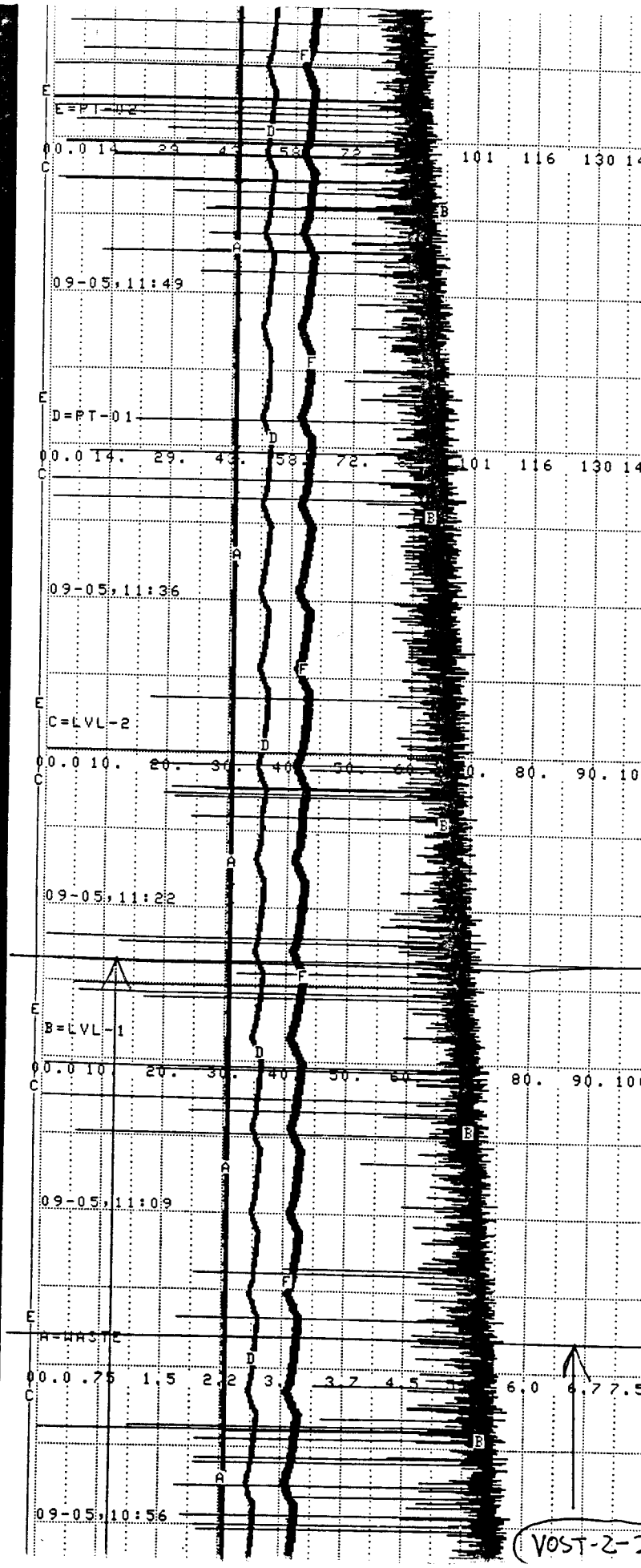




TIGRAPH 200 STATUS

CHANNEL | A | B | C | D | E | F

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D=PT-01
09-05,11:36
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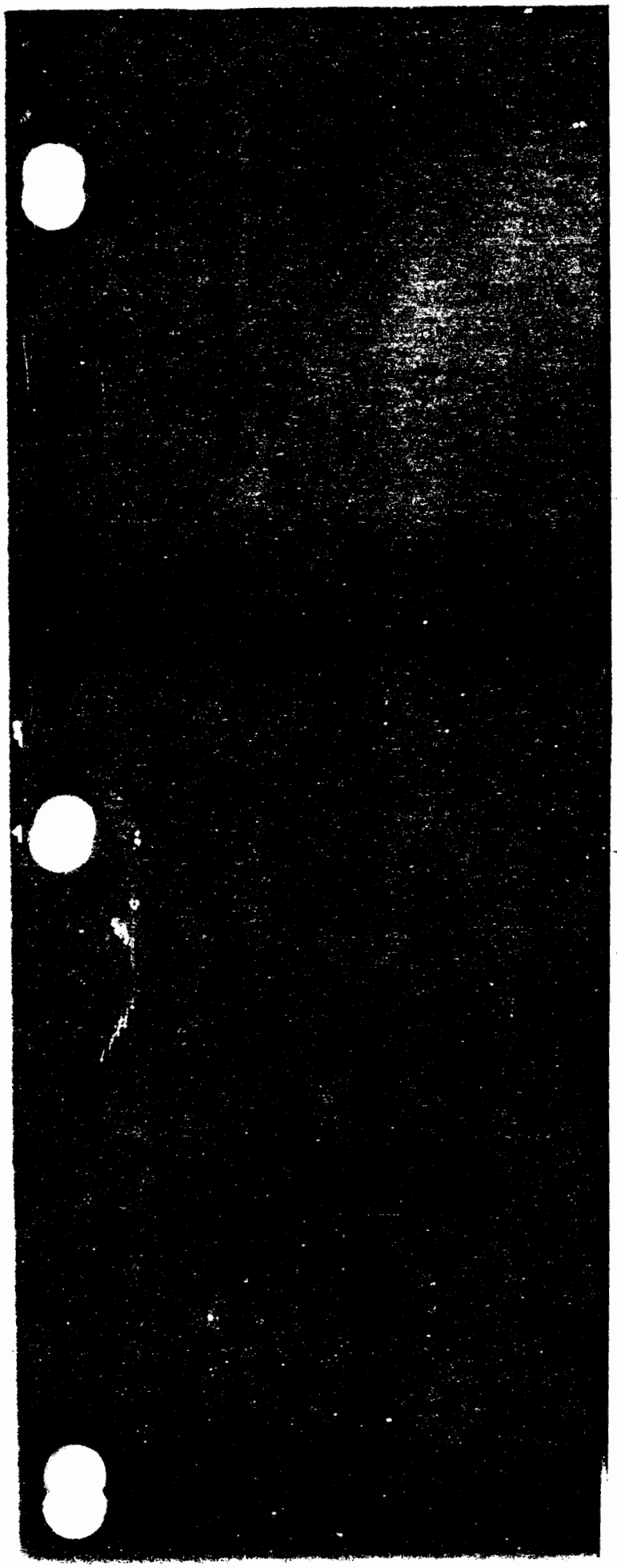
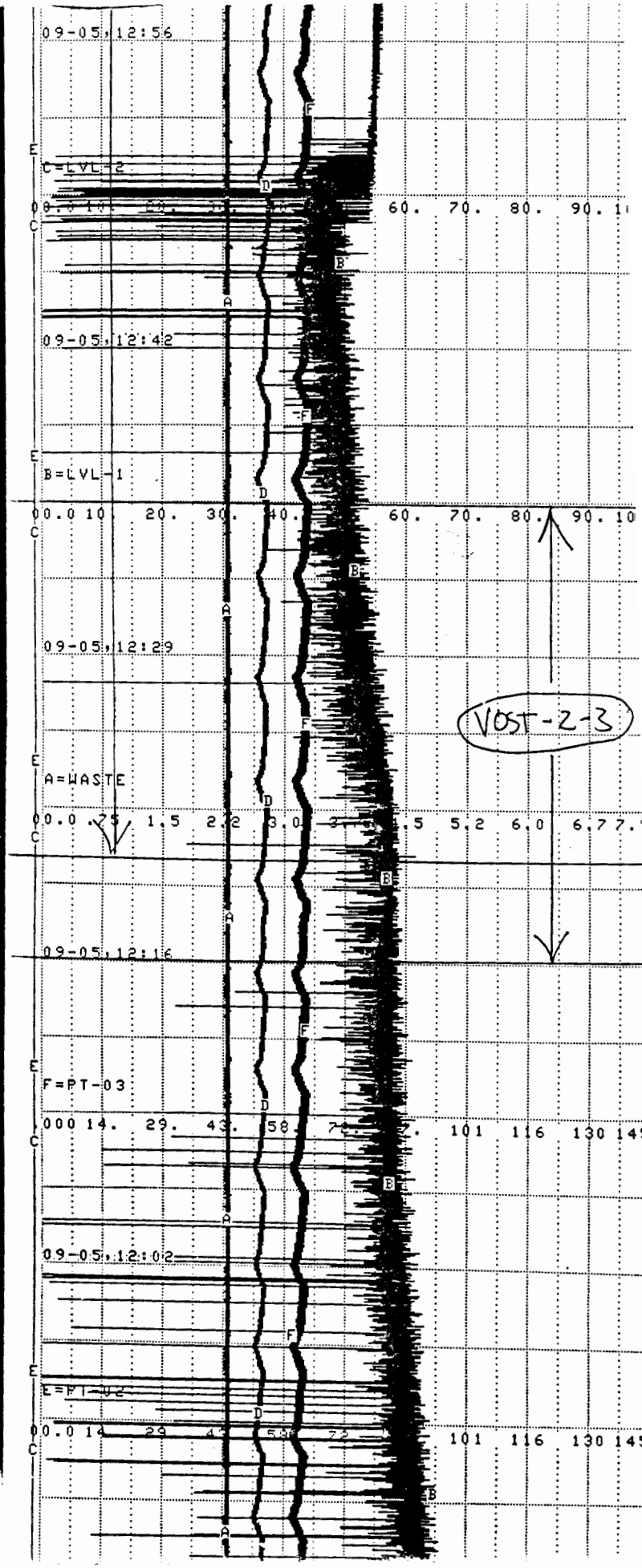
09-05,11:22
B=LVL-1
09-05,11:09
A=WASTE
09-05,10:56
VOST-2-

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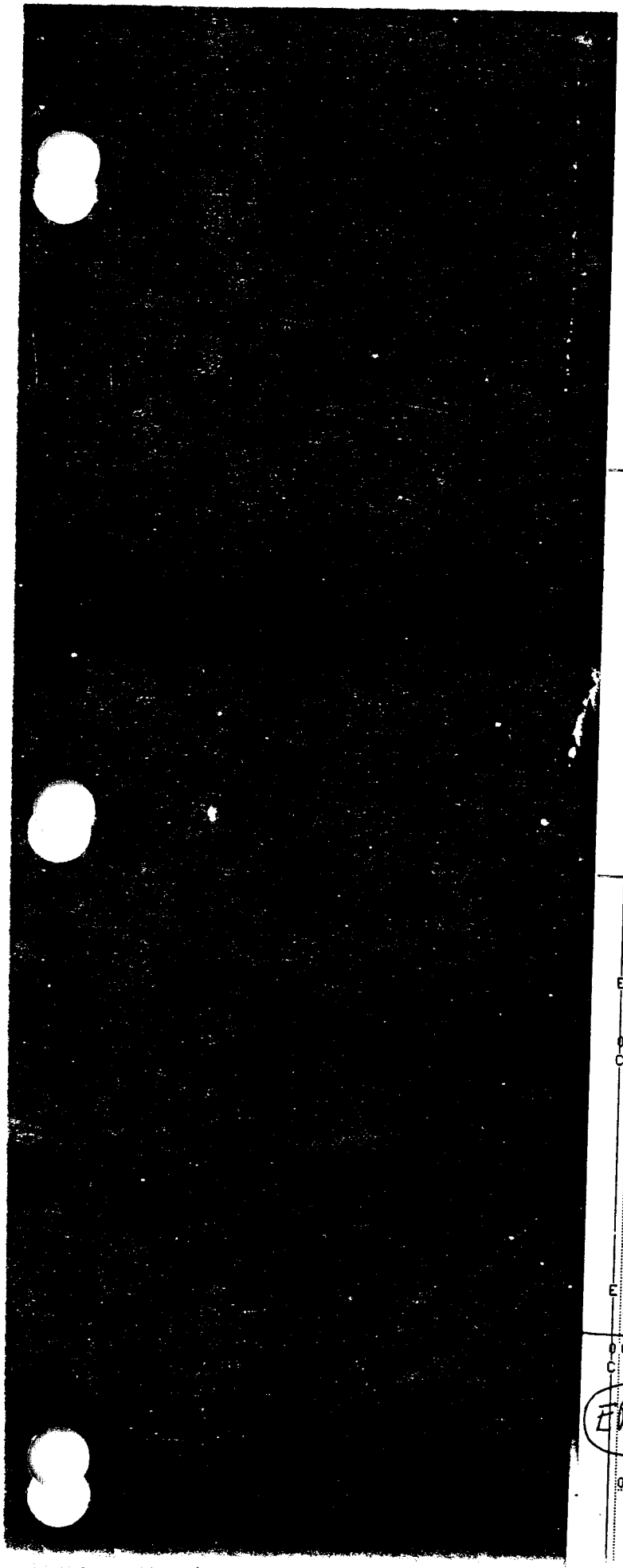
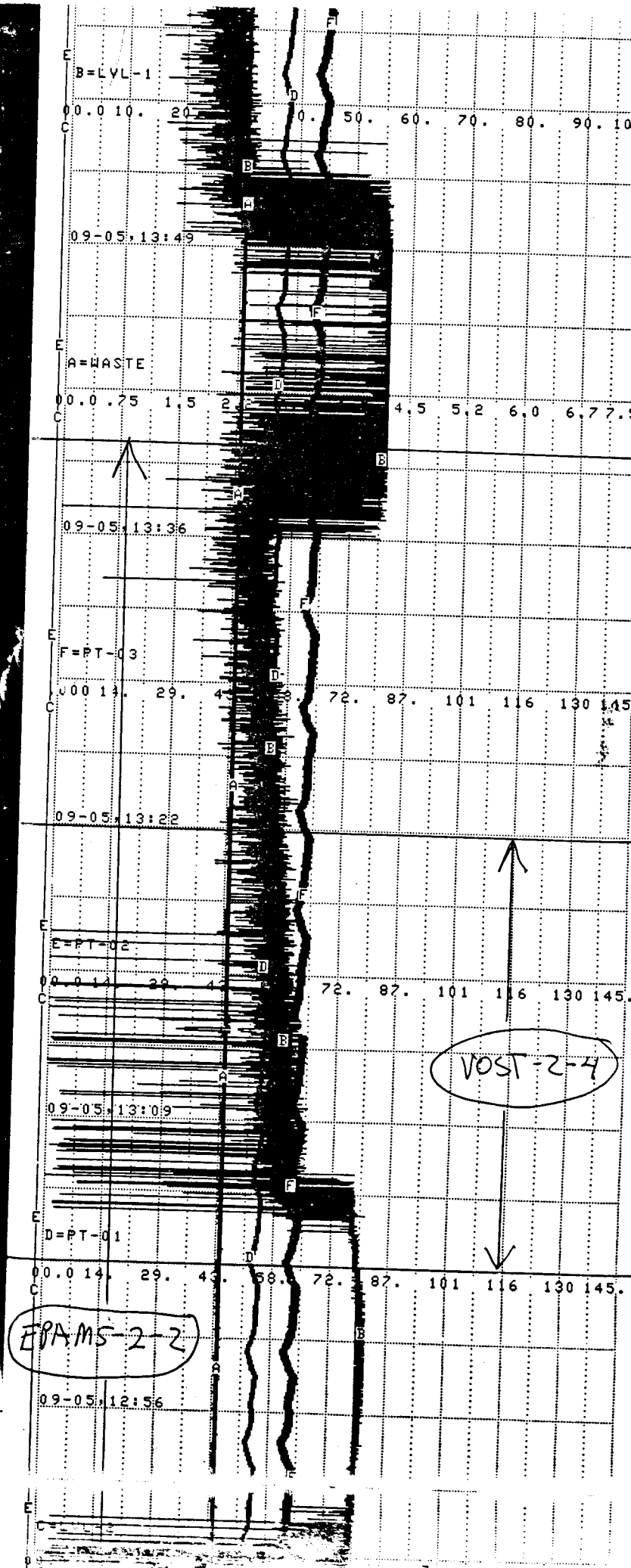
09-05,12:42
B=LVL-1
09-05,12:29
A=WASTE
09-05,12:16
F=PT-03
09-05,12:02
E=PT-02
VOST-2-3




B=LYL-1
09-05,13:49
A=WASTE
09-05,13:36
F=PT-03
09-05,13:22
E=PT-02
09-05,13:09
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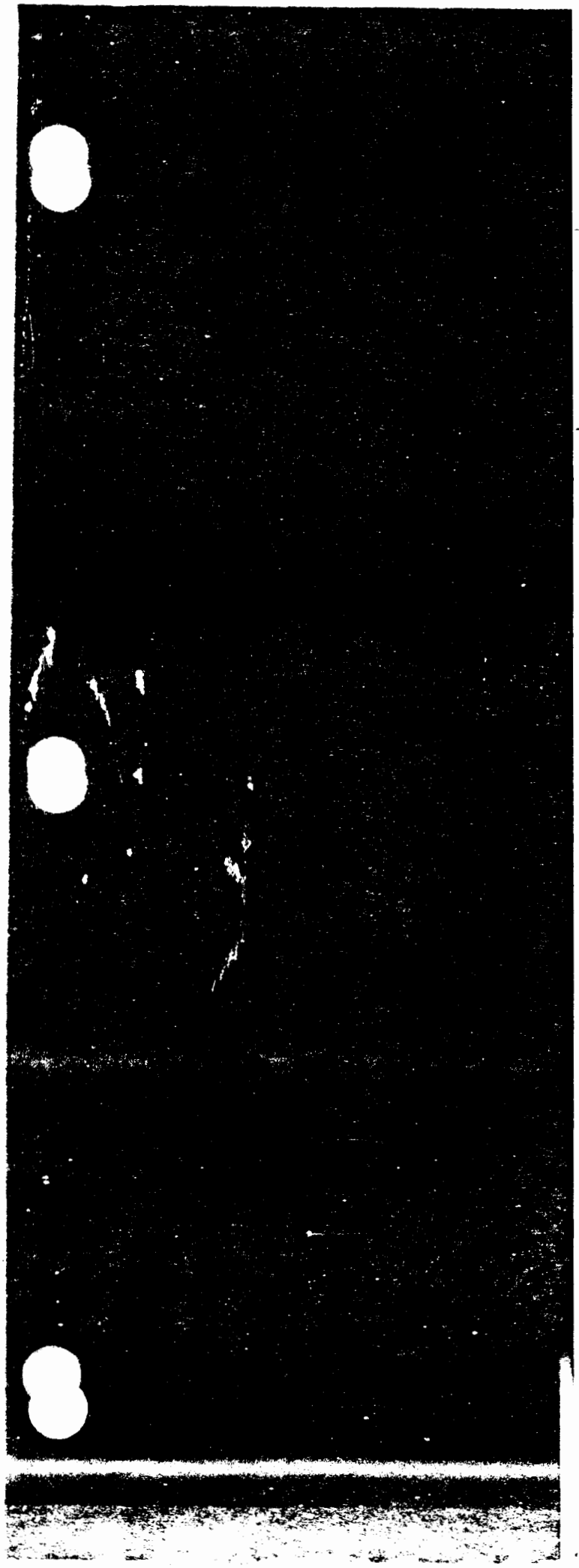
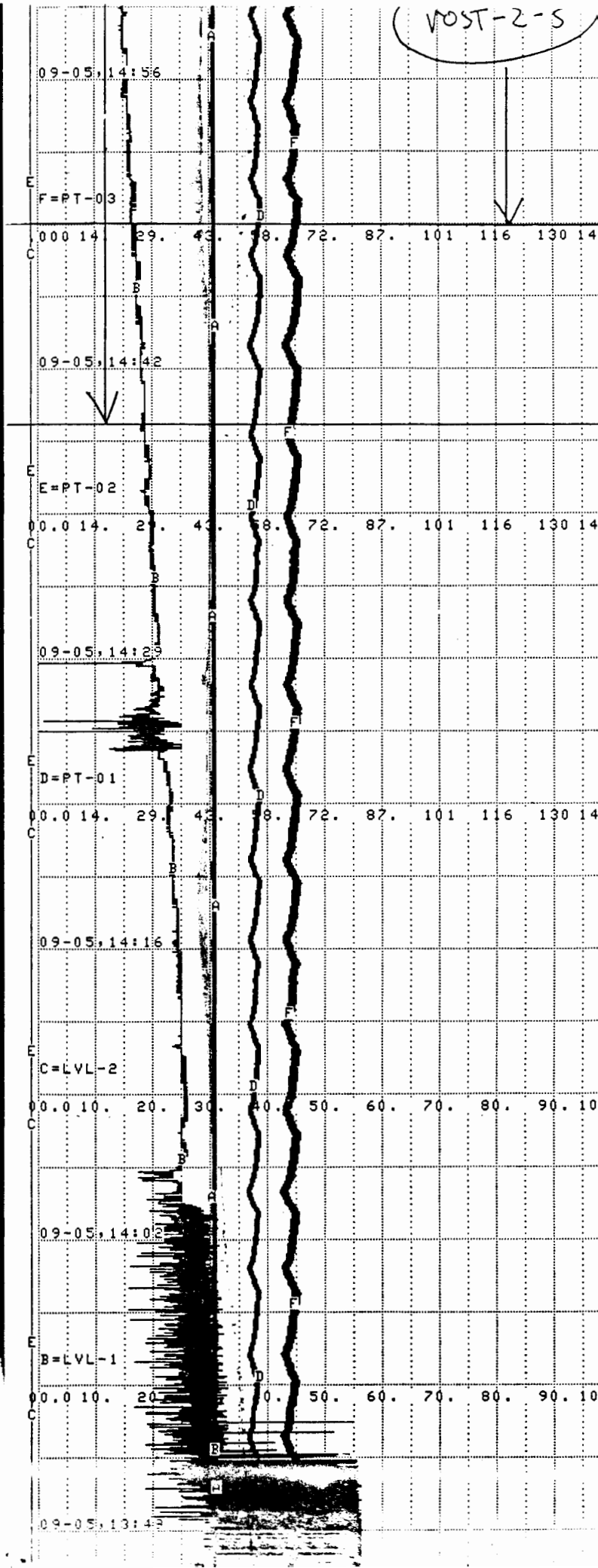
09-05,12:56
VOST-2-4
EPAM5-2-2




POST-2-S
09-05,14:56
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000 14. 29. 43. 58. 72. 87. 101 116 130 14
09-05,14:42
E=PT-02
00.0 14. 29. 43. 58. 72. 87. 101 116 130 14
09-05,14:29
D=PT-01
00.0 14. 29. 43. 58. 72. 87. 101 116 130 14
09-05,14:16
C=LVL-2
00.0 10. 20. 30. 40. 50. 60. 70. 80. 90. 10
09-05,14:02
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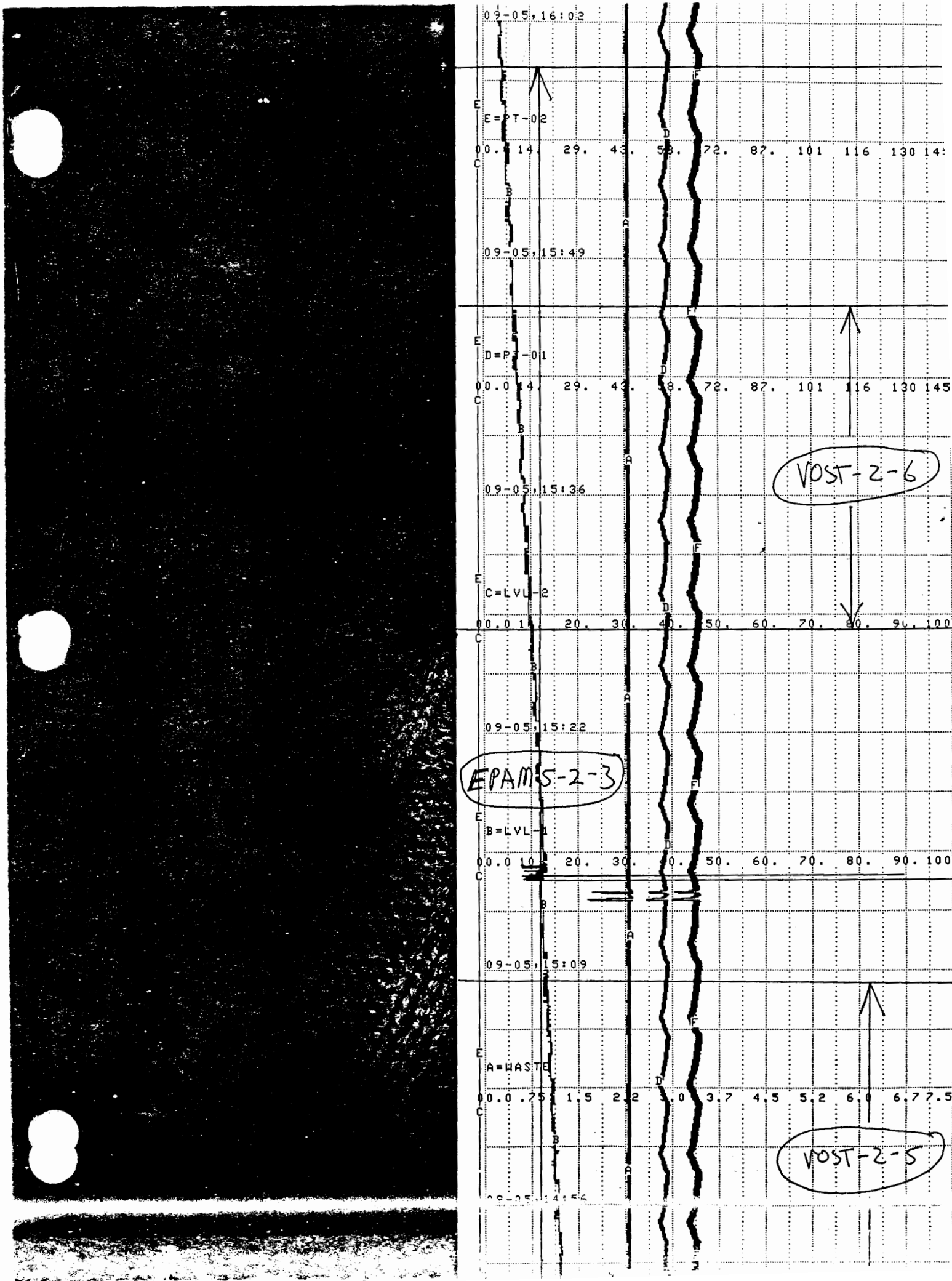
09-05,13:49


09-05,16:02
E=PT-02
09-05,15:49
D=PT-01
09-05,15:36
VOST-2-6
C=LVL-2
09-05,15:22
EPAM5-2-3
B=LVL-1
09-05,15:09
A=WASTE
VOST-2-5

RCRA TRIAL BURN SOLID MATRIX

FEED PREPARATION PROCEDURE

Following is a step-by-step procedure for preparation of solid matrix feed material for the RCRA trial burn in the Los Alamos Controlled Air Incinerator. It is emphasized that steps 5 and 6 must be performed using full face respirators equipped with activated carbon canisters.

1. Open the top lid on a box containing a 5 gal polyethylene jug. Unscrew the wide mouth cap and place on top of jug. Label the side of the box with an ID number.

2. Place the box/jug/cap on the digital balance and record the weight in lbs. Record the weight and punch the TR (tare) button on the balance.

3. Add the specified weight (15.28 lbs) of Pel-E-Cel (pelletized ground corn cobs) to the jug using a scoop and large polyethylene funnel supported on the ring stand. Record the actual weight of Pel-E-cel added to the jug. Punch the TR button on the balance. Note: For this operation, a dust mask must be worn.

4. Add the specified amount of water (1.53 lbs) to the jug through a separate funnel. Record the actual weight of water added to the jug.

5. Transfer a drum of carbon tetrachloride (CCl_4) into the liquid feed room with the forklift, placing it on the scale and in the right hemispherical opening in the drum ventilation hood. Verify that both ventilation blowers are on. Make sure the drum pump, transfer line and valve, and intermediate carboy assembly are ready for liquid transfer from the drum. FROM THIS POINT ON, A FULL FACE RESPIRATOR WITH ACTIVATED CARBON CANISTER MUST BE WORN. Remove the bung from the drum and insert the drum pump shaft into the bunghole until the end of the shaft rests on the bottom of the drum. Wrap a rag around the open area between the shaft and the bung to minimize release of vapors. Begin transfer of CCl_4 by pressing the air trigger on the drum pump. Release the trigger before the intermediate 5 gallon polyethylene carboy is full. Place a box/jug which has previously been loaded with Pel-E-Cel and water on the balance. Punch the TR button on the scale. Begin gravity transfer of CCl_4 from the intermediate carboy into the jug through the drain valve on the bottom of the carboy until the desired weight (11.10 lbs) has been reached. Record the actual weight of CCl_4 transferred and punch the TR button on the balance.

6. For addition of trichloroethylene (TCE) into the solid feed matrix, follow the exact procedure as outlined in step 5 above. The desired amount of TCE is 5.55 lbs. Record the actual weight of TCE added. Punch the TR button on the balance and record total weight of the solid matrix package. The desired total weight is 37.0 lbs. Replace cap on polyethylene jug.

8/4/86

RCRA TRIAL BURN SOLID FEED

Box No.	Box+Jug+Cap (lbs)	Pel-e-Cel (lbs)	Water (lbs)	CCl_4 (lbs)	TCE (lbs)	Total Gross Wt. (lbs)
1			20.28	17.16	—	37.44
2			20.16	17.14	—	37.26
3			20.42	16.66	—	37.02
4			20.66	16.80	—	37.74
5			20.52	16.46	—	36.98
6			20.48	16.94	—	37.42
7			20.40	16.56	—	36.96
8			20.46	16.60	—	37.06
9			20.58	16.32	—	36.90
10			20.52	16.82	—	37.34
11			20.60	16.84	—	37.44
12			20.70	16.46	—	37.16
13			20.64	15.76	—	36.40

RCRA TRIAL BURN SOLID FEED

CCl4 (Drum #1) 8/28

TCE Drum # 8/28/86

8/22/86

Box No.	Box+Jug+Cap (lbs)	Pel-e-Cel (lbs)	Water (lbs)	CCl_4 (lbs)	TCE (lbs)	Total Gross Wt. (lbs)
14	3.66	15.32	1.54/20.60	11.10	5.64	37.32
15	3.76	15.30	1.54/20.60	11.18	5.56	36.08
16	3.68	15.30	1.50/20.48	11.18	5.58	37.22
17	3.62	15.32	1.50/20.44	11.10	5.56	36.98
18	3.60	15.32	1.62/20.52	11.12	5.54	37.06
19	3.62	15.40	1.52/20.54	11.08	5.56	37.14
20	3.62	15.32	1.58/20.52	11.08	5.54	37.14
21	3.60	15.30	1.52/20.47	11.12	5.64	37.20
22	3.64	15.32	1.56/20.52	11.06	5.62	37.18
23	3.60	15.30	1.64/20.52	11.10	5.60	37.22
24	3.60	15.32	1.54/20.44	11.12	5.54	37.10
25	3.62	15.42	1.54/20.58	11.16	5.56	37.20
26	3.62	15.30	1.52/20.44	11.08	5.58	37.22
27	3.62	15.32	1.56/20.48	11.26	5.56	37.28
28	3.60	15.34	1.54/20.48	11.06	5.68	37.28
29	3.64	15.30	1.52/20.46	11.14	5.54	37.14
30	3.62	15.42	1.66/20.70	11.08	5.52	37.30
31	3.62	15.30	1.62/20.54	11.12	5.54	37.36
32	3.66	15.28	1.62/20.52	11.24	5.60	37.42
33	3.64	15.34	1.52/20.48	11.20	5.52	37.16
34	3.62	15.32	1.56/20.50	11.16	5.64	37.28
35	3.62	15.34	1.68/20.62	11.26	5.54	37.36
36	3.58	15.30	1.60/20.48	11.14	5.64	37.32
37	3.56	15.42	1.52/20.48	11.40	5.56	37.48

RCRA TRIAL BURN SOLID FEED

8/22/86

Box No.	Box+Jug+Cap (lbs)	Pel-e-Cel (lbs)	Water (lbs)	CCl_4 (lbs)	TCE (lbs)	Total Gross Wt. (lbs)
38	3.60	15.32	1.52/20.44	11.12	5.64	37.38
39	3.62	15.30	1.52/20.44	11.08	5.54	37.14
40	3.58	15.34/18.92	1.52/20.44	11.12	5.56	37.16
41	3.60	15.78	1.54/20.92	11.10	5.58	37.76
42	3.58	15.32	1.52/20.42	11.08	5.58	36.58
43	3.60	15.30	1.56/20.46	11.10	5.70	36.80
44	3.58	15.30	1.52/20.40	11.20	5.58	36.70
45	3.62	15.32	1.58/20.50	11.30	5.56	36.82
46	3.56	15.36	1.50/20.40	11.08	5.54	36.50
47	3.60	15.32	1.58/20.48	11.10	5.58	36.68
48	3.60	15.50	1.52/20.64	11.06	5.66	36.94
49	3.54	15.34	1.50/20.38	11.06	5.56	36.52
50	3.60	15.30	1.50/20.40	11.08	5.58	36.58
51	3.60	15.30	1.50/20.40	11.22	5.54	36.70
52	3.56	15.32	1.52/20.40	11.26	5.54	37.42
53	3.58	15.34	1.54/20.46	11.08	5.54	37.10
54	3.60	15.30	1.52/20.42	11.06	6.16	37.20
55	3.58	15.36	1.52/20.46	11.06	5.58	36.60
56	3.58	15.30	1.54/20.44	11.06	5.60	36.66
57	3.60	15.28	1.52/20.42	11.06	5.60	36.62
58	3.62	15.38	1.56/20.54	11.10	5.58	36.76
59	3.58	15.32	1.58/20.48	11.10	5.52	36.62
60	3.62	15.30	1.50/20.44	11.12	5.64	36.72
61	3.58	15.30	1.50/20.36	11.08	5.58	36.58

Drum #1 CCl4

Drum #2 CCl4

TCE Drum #1 Gross Wt = 692.4 lb, Gross Wt all boxes filled = 251.6 lb

CCl4 Drum #2 Gross Wt = 725.6 lb − [illegible] = 152 lb

RCRA TRIAL BURN SOLID FEED

8/22/86

Box No.	Box+Jug+Cap (lbs)	Pel-e-Cel (lbs)	Water (lbs)	CCl_4 (lbs) 8/28/86	TCE (lbs) 8/29/86	Total Gross Wt. (lbs)
62	3.62	15.30	1.52/20.44	11.14	5.54	37.16
63	3.62	15.30	1.50/20.42	11.10	5.56	36
64	3.58	15.30	1.50/20.38	11.24	5.62	36.92
65	3.54	15.32	1.56/20.44	11.10	5.54	36.64
66	3.62	15.30	1.52/20.38	11.16	5.58	36.72
67	3.58	15.30	1.50/20.40	11.12	5.60	36.58
68	3.54	15.30	1.52/20.36	11.10	5.62	36.78
69	3.62	15.32	1.50/20.44	11.10	5.62	36.66
70	3.60	15.32	1.50/20.42	11.16	5.60	36.74
71	3.56	15.30	1.52/20.38	11.12	5.52	36.52
72	3.54	15.28	1.52/20.36	11.08	5.54	36.52
73	3.58	15.30	1.60/20.46	11.12	5.56	36.70
74	3.60	15.40	1.54/20.56	11.20	5.58	36.82
75	3.54	15.32	1.70/20.56	11.10	5.54	36.76
76	3.54	15.40	1.52/20.48	11.10	5.56	36.58
77	3.58	15.32	1.46/20.34	11.06	5.54	36.68
78	3.58	15.36	1.62/20.56	11.20	5.54	36.82
79	3.56	15.34	1.56/20.42	11.30	6.04	37.26
80	3.62	15.32	1.54/20.46	11.06	5.54	36.56
8/25/86 81	3.62	15.34	1.54/20.50	11.08	5.54	36.70
82	3.62	15.42	1.52/20.56	11.06	5.52	36.62
83	3.66	15.30	1.54/20.50	11.20	5.54	36.82
84	3.62	15.34	1.54/20.50	11.06	5.54	36.78
85	3.62	15.28	1.54/20.44	11.18	5.58	36.74

8/25/86

RCRA TRIAL BURN SOLID FEED

Box No.	Box+Jug+Cap (lbs)	Pel-e-Cel (lbs)	Water (lbs)	CCl_4 (lbs)	TCE (lbs)	Total Gross Wt. (lbs)
86	3.62	15.28	1.54/20.44	11.08	5.58	36.82
87	3.58	15.30	1.58/20.46	11.32	5.64	36.98
88	3.62	15.28	1.54/20.44	11.08	5.56	36.70
89	3.58	15.36	1.56/20.50	11.18	5.54	37.04
90	3.62	15.42	1.64/20.68	11.28	5.52	37.28
91	3.56	15.34	1.52/20.42	11.08	5.60	36.88
92	3.64	15.32	1.60/20.54	11.06	5.76	37.12
93	3.60	15.28	1.54/20.42			
94	3.62	15.44	1.66/20.70			
95	3.64	15.28	1.52/20.44			
96	3.62	15.28	1.50/20.38			
97	3.64	15.30	1.54/20.48			
98	3.62	15.32	1.58/20.54		NO	CCl_4 OR
99	3.62	15.28	1.54/20.44			TCE add
100	3.66	15.28	1.52/20.46			to the box
101	3.60	15.28	1.54/20.42			
102	3.60	15.28	1.52/20.40			
103	3.56	15.28	1.52/20.34			
104	3.62	15.28	1.54/20.44			
105	3.56	15.28	1.53/20.36			
106	3.62	15.30	1.56/20.48			
107	3.60	15.30	1.58/20.48			
108	3.64	15.34	1.52/20.44			
109	3.64	15.30	1.62/20.54			

8/26/86

RCRA TRIAL BURN SOLID FEED

Box No.	Box+Jug+Cap (lbs)	Pel-e-Cel (lbs)	Water (lbs)	CCl_4 (lbs)	TCE (lbs)	Total Gross Wt. (lbs)
110	3.62	15.30	1.52 / 20.42			
111	3.62	15.28	1.60 / 20.50			
112	3.64	15.30	1.54 / 20.48			
113	3.66	15.28	1.62 / 20.56			
114	3.62	15.26	1.58 / 20.46			
115	3.62	15.28	1.52 / 20.42			
116	3.62	15.28	1.54 / 20.42			
117	3.66	15.28	1.54 / 20.48			
118	3.64	15.28	1.52 / 20.42			
119	3.58	15.28	1.54 / 20.40			
120	3.62	15.28	1.54 / 20.44			
121	3.62	15.28	1.54 / 20.42			
122	3.62	15.28	1.58 / 20.48			
123	3.62	15.28	1.52 / 20.44			
124	3.64	15.28	1.54 / 20.44			
125	3.62	15.28	1.52 / 20.42			
126	3.62	15.32	1.64 / 20.58			
127	3.58	15.28	1.52 / 20.38			
128	3.60	15.28	1.54 / 20.40			
129	3.60	15.28	1.54 / 20.42			
130	3.54	15.28	1.54 / 20.36			
131	3.58	15.28	1.54 / 20.40			
132	3.58	15.28	1.54 / 20.40			
133						

LOS ALAMOS CAI
RCRA TRIAL BURN
SOLID MATRIX FEED RECORD

Date 9/6/86

Boxes from Last Run

BOX NUMBER	CLOCK TIME BOX FED TO INCINERATOR
1	
2	0815
3	0830
4	0842
5.	08.47
14	0900
15	0.915
16	0.927
17	0939
18	0951
19	1011
20.	1016
21	1029
22.	1040
23	1050
24	1104
25	1117
28	1130
29	1150
26	1215
30	1612
27	1627
x 31	1639

LOS ALAMOS CAI
RCRA TRIAL BURN
SOLID MATRIX FEED RECORD

Date 9/6/86

	BOX NUMBER	CLOCK TIME BOX FED TO INCINERATOR
	33	1640
	34	1700
	32	1713
	35	1725
	38	1737
	36	1748
	40	1800
	42	1812
	41	1824
	43	1836
	39	1845
	44	1858
DCM	48	1910
	45	1922
	47	1934
	46	1946
	37	1959
	50	2012
9/7/86	81	2024
	87	2036
	70	2049
9/7/86	60	1029 ← Stuck in room.
	62	1312

LOS ALAMOS CAI
RCRA TRIAL BURN
SOLID MATRIX FEED RECORD

Date 9/7/86

BOX NUMBER	CLOCK TIME BOX FED TO INCINERATOR
51	1330
54	1342
66	1352
59	1407
86	1415
92	1427
89	1439
57	1451
71	1503
71	1515
77	1527
58	1540
73	1545
49	1555
65	1607
82	1617
55	1629
52	1641
68	1653
73	1702
85	1714
74	1726
67	1733

LOS ALAMOS CAI
RCRA TRIAL BURN
SOLID MATRIX FEED RECORD

Date 9/7/86

BOX NUMBER	CLOCK TIME BOX FED TO INCINERATOR
90	1745
84	1757
63	1806
61	1818
76	1830
75	1840
91	1852
64	1900
69	1912
83	1924
88	1930
56	1940
79	1952
53	2002
80	2015
6	2027
12	
13	

LFR Dem

Stop

9/4/86 DLM 12:00 Bryan Analyzer calibration OK with CAE CO standard for comparison. CO_2 readings are highly suspect but CO readings appear good.

12:40 JSV Begin liquid feed, batch #1

" :04 JSV Stop feed to burner, totalizer = 520.0 lb

3:17 JSV Begin feed again after changing HEPAs.
Initially couldn't get feedpump pressure so took out ball check on pump check, cleaned it, put together. Pump works now.

18:20 CLJ Changed #1 Hepa Bank
18:30 DLM & WD " " " Bypass filter.

21:20 RP Began particulate run #3. totalizer = 1022.0 lbs

2250 W.D. SAMPLING COMPLETE BURNER FEED TOTALIZER 1254.8 LBS

2256 Chd Turned off Liquid Feed, Started Gas feed to liquid burner, will leave Steam atomizing medium on at ~50 psi

Reducing Chamber temperatures, vent fan AP, etc for idling mode.

9/5/86

730 JSV Liquid feed totalizer = 1272.2 lb.

730 JSV Prepared batch #2 liquid feed in tank
Composition: 277.2 lb TCE
638.4 lb CCl_4
488.2 lb Fuel Oil
3.5 lb Aluminyl
This batch was added to ~ 5-10 gal of batch #1 in tank as heel from yesterday. Total Volume of feed today = 150 gallons.

0939 Begin liquid feed – batch #2 Totalizer = 0.0

1000 Ops DH Checked with CO/CO_2 calibration. THC & MTHC readings high on bargraph mode.

* install Timer in Caustic Low Level Alarm

:00 [illegible] Calibration complete. THC [illegible] readings off-scale [illegible] CO [illegible] OK, [illegible]

1400 DAA — Prepared new tank of Caustic solution

[illegible] JSV — Remont of batch #2, Totalizer = 1383.4 lbs

1[illegible]0 JSV — Flushed out feed tank with two 2 gal cans of fuel oil, purged feed line with this.

9/6/86

1230 CH. — Changed Hepa — #1 Bank. (Bypass open ~1/4 hr)

1310 (PP) — Discharge line on caustic pump burst.

1430 (PP) — Replaced discharge line on caustic pump

9/7/86 CHL — Switched Liquid Process Filters, Changed filters in East Tank.

CHL — Mixed a batch of Caustic

0245 CHL — Changed HEPA #1 Bank. (Bypass open for

Did some clean-up on Glove boxes — Liq filter, etc —

[illegible] JSV — Fed box in sideways (90°) to normal box orientation on main. Box cleared ~~[illegible]~~ north edge of guillotine doorway by just <1 inch.

Earlier, ~~[illegible]~~ first box fed today jammed between room and doorway, hence, the ~~[illegible]~~ for trying the new box orientation.

CHL

Note to Corbin — Brought 8 rolls 2" Masking Tape from Trailer —

2039 — Sampling finished —

9/8/86

CHL 0002 — Lighted Lower burner

0005 — Started Shutdown —

1900 — Process Shutdown

LOG SHEET NO. 1

RUN NUMBER 21

START DATE 9/2/86

PAGE ___ OF ___

DATE	TIME	ID	COMBUSTION CONTROL PANEL: LOWER CHAMBER TEMPERATURE, °F (RECORDER)	UPPER CHAMBER TEMPERATURE, °F (RECORDER)	LOWER CHAMBER O_2/COMB., % (RECORDER)	UPPER CHAMBER O_2/COMB., % (RECORDER)		FLOW CONTROL PANEL: UPPER CHAMBER FUEL GAS FLOW, SCFM	LOWER CHAMBER FUEL GAS FLOW, SCFM	UPPER CHAMBER BURNER AIR FLOW, SCFM	LOWER CHAMBER BURNER AIR FLOW, SCFM	INTERFIRE AIR FLOW, SCFM	(Filter Rack #2) OFFGAS FLOW, ~~SCFM~~ LB/min.	SECONDARY AIR FLOW, SCFM	CONDENSER WORKING LIQUID FLOW, GPM	PROCESS STEAM FLOW, LB/HR
9/3	0005	CLW	980	1040	10.3	11.9		10.8	25	38	69	20	62	243	4	22
	1300	~~DAA~~	[illegible]	[illegible]	10.0	8.5		12.5	31	65	45	20	47	65	4	22
	2000	CRL	1550	1970	15	8.3		10.2	—	36.5	—	20	35.5	70	4	22
9/4	0000	CRL	1525	1950	14.5	8.5		10.5	—	35	—	20	35.4	65	4	22
	0400	WED	1520	1950	14.0	8.5		11.8	—	62	—	20	35.6	65	4	22
	0930	RAP	1650	2150	11	5.5		15	0	95	8	20	39	20	4	104
	1250	~~DAA~~	1750	2200	6.5	3.3		17.5	~~0~~	115	~~0~~	20	57.2	10	4	108
	1530	RAP	1950	2200	6.8	6.2		12.5	0	80	8	20	54.2	20	4	103
	1915	RAP	1900	2200	7.3	6.7		14	0	93	8	20	58.9	20	4	107
	2130	WD	1950	2300	7	7		12	0	80	~8	20	58.2	20	4	104
9/5	0100	CLW	1720	1950	11.5	10.4		3	—	20	5~~0~~ 8	20	29.5	20	3	102
	1015	JW	1880	2000	6.6	7.8		7.8	0	47	~8	20	54.7 ~~28.0~~	20	3	105
	1320	RAP	1970	2000	7.5	7.8		6.0	0	37	8	20	53.4	20	3	106
	1530	RAP	2010	2000	8.2	8.2		6.0	0	34	8	20	53.4	20	3	104
9/6/86	0900	RAP	~~1880~~ 1780	2200	14	9		20	0	175	8	18	62	150	3	20
		DATA POINT	1	6	12	13		7	3	8	4	16	20	17		18

LOG SHEET NO. 1

RUN NUMBER 21

START DATE 9/2/86

PAGE ___ OF ___

DATE	TIME	I	COMBUSTION CONTROL PANEL: LOWER CHAMBER TEMPERATURE, °F (RECORDER)	UPPER CHAMBER TEMPERATURE, °F (RECORDER)	LOWER CHAMBER O_2/COMB., % (RECORDER)	UPPER CHAMBER O_2/COMB., % (RECORDER)		FLOW CONTROL PANEL: UPPER CHAMBER FUEL GAS FLOW, SCFM	LOWER CHAMBER FUEL GAS FLOW, SCFM	UPPER CHAMBER BURNER AIR FLOW, SCFM	LOWER CHAMBER BURNER AIR FLOW, SCFM	UNDERFIRE AIR FLOW, SCFM	(Filter Rack #2) OFFGAS FLOW, ~~SCFM~~ LB/min.	SECONDARY AIR FLOW, SCFM	CONDENSER WORKING LIQUID FLOW, GPM	[illegible] FLOW, LB/HR	[redacted]
9/2/86	1740	RAP	1630	2200	5	7		23	4	150	20	50	62	100	0	[illegible]	[redacted]
9/7	1456	JSV	1330	2000	9.5	10		20	2	136	7	51	61.1	140	25	93	[redacted]
	1800	RAP	1580	2000	7	10		19	2	130	7	51	61.6	140	38	99	[redacted]
			1	6	12	13		7	3	8	4	16	20	17			

LOG SHEET NO. 2

Note: draw li... at top of recorder bar and mark the date a... time

RUN NUMBER 21
START DATE 9/2/86
PAGE ___ OF ___

FLOW CONTROL PANEL

DATE	TIME	INIT.	1 FUEL GAS TEMP., °F	2 BURNER AIR TEMP., °F	3 AMBIENT AIR TEMP., °F	4 UPPER ASH DOOR GLOVEBOX TEMP., °F	5 LOWER ASH DOOR GLOVEBOX TEMP., °F	6 MAIN RAM GLOVEBOX TEMP., °F	LOWER CHAMBER FUEL GAS TOTALIZER, LB	UPPER CHAMBER FUEL GAS TOTALIZER, LB	LOWER CHAMBER BURNER AIR TOTALIZER, LB	UPPER CHAMBER BURNER AIR TOTALIZER, LB	OFFGAS TOTALIZER, LB	UNDERFIRE AIR TOTALIZER, LB	SECONDARY AIR TOTALIZER, LB	PROCESS STEAM TOTALIZER, LB
9/3/86	0004	WD	78	98	81	95	88	79								
9/3/86	1300	RA	86	132	104	91	161	107								
	2200	Chl	92	144	111	209	174	116								
	2359	WED	90	142	110	211	171	115								
9/4	0400	Chl	91	143	110	210	166	112								
	0930	DAA	93	142	113	218	170	118								
	1250	DAA	95	146	118	230	187	137								
	1540	RA	96	153	122	235	197	126								
	1915	JM	100	158	124	239	202	132								
	2130	DM	99	159	123	239	209	136								
9/5	0100	WD	98	162	120	238	211	135								
	1010	JSW	95	152	115	216	192	127								
	1320	RA	99	160	123	223	209	134								
	1530	RA	104	165	125	225	215	138								
9/6	0900	RA	96	150	116	220	197	187								
		DATA POINT	10	2	11	40	41	39								

Note: draw li... t top of recorder bar and mark the date a... time

I... SHEET NO. 2

RUN NUMBER 21
START DATE 9/2/86
PAGE ___ OF ___

FLOW CONTROL PANEL

DATE	TIME	INIT.	1 FUEL GAS TEMP., °F	2 BURNER AIR TEMP., °F	3 AMBIENT AIR TEMP., °F	4 UPPER ASH DOOR GLOVEBOX TEMP., °F	5 LOWER ASH DOOR GLOVEBOX TEMP., °F	6 MAIN RAM GLOVEBOX TEMP., °F	LOWER CHAMBER FUEL GAS TOTALIZER, LB	UPPER CHAMBER FUEL GAS TOTALIZER, LB	LOWER CHAMBER BURNER AIR TOTALIZER, LB	UPPER CHAMBER BURNER AIR TOTALIZER, LB	OFFGAS TOTALIZER, LB	UNDERFIRE AIR TOTALIZER, LB	SECONDARY AIR TOTALIZER, LB	TOTALIZER, LB
9-6-86	1740	[illegible]	100°	159°	122	234	190	139								
9/7/86	1455	JO	95	137	113	215	166	143								
9/7/86	1800	[illegible]	97	139	115	216	170	143								
DATA POINT			10	2	11	40	41	39								

LOG . . 3

RUN NUMBER 21
START DATE 9/2/86
PAGE ____ OF ____

SCRUBBER CONTROL PANEL

DATE	TIME	INIT.	ABSORBER LIQUID FLOW, GPM	VENTURI LIQUID FLOW, GPM	QUENCH LIQUID FLOW, GPM	QUENCH LIQUID PRESSURE, PSIG	VENTURI PRESSURE DROP, IN. WG	MAKEUP WATER FLOW: LB/MIN	MAKEUP WATER TOTALIZER, LB	Filter Control (Recorder) A: ABSORBER SUMP GAS TEMP., °F	C: QUENCH SUMP GAS TEMP., °F	B: PROCESS LIQUID TEMP., °F	D: CARBON BED GAS TEMP., °F
9/3	0010 ~~12~~	G.C.	5	5	16	67	48			137	148 ~~150~~	96	171
	1300	RAP	6.5	3	16	74	42			156	119 ~~109~~	109 ~~174~~	171
	2200	Chf	6.5	2.6	15.8	72	21			155	162 ~~106~~	106 ~~162~~ DAA	198
9/4	2359	DM	6.5	2.6	15.8	72	29			153	162 ~~107~~	107 ~~162~~ DAA	198
9/5	0400	Chf	5.5	2.5	15.8	72	31			153	162 ~~105~~	105 ~~162~~ DAA	200
	0540	DAA	6.8	2.8	15.8	72	40			161	169	111	211
	1250	DAA	7.0	2.5	15.8	72	45			165	184	112	211
	1541	JSV	7.1	1.5	15.8	77	45			165	192	117	212
	1915	RAP	7.1	2.0	15.8	76	45			165	118	187	220
	2130	DM	7.1	1.5	15.8	77	46			165	119	191	226
	0100	WD	7	1.7	16	75	37			154	106	171	215
	1015	Cf	7.0	2.0	16.0	75	38			162	181	116	220
	1320	RAP	7	20	14	77	38			162	184	118	228
9/6	0905	JSV	6.8	1.8	16	76	40			167	~~[illegible]~~ 186	108	228
	1730	DAA	6.8	1.2	16	76	40			168	189	115	226
		DATA POINT	59	60	58	49	50			22	21	30	

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SCRUBBER CONTROL PANEL

Filter Control Re (Recorder)

DATE	TIME	INIT.	ABSORBER LIQUID FLOW, GPM	VENTURI LIQUID FLOW, GPM	QUENCH LIQUID FLOW, GPM	QUENCH LIQUID PRESSURE, PSIG	VENTURI PRESSURE DROP, IN. WG	MAKEUP WATER FLOW: LB/MIN	MAKEUP WATER TOTALIZER, LB	A ABSORBER SUMP GAS TEMP., °F	C QUENCH SUMP GAS TEMP., °F	B PROCESS LIQUID TEMP., °F	D CARBON BED GAS TEMP., °F
9/7	1500	MA	6.5	2.0	16.0	73	39			165	185	125	211
9/7	1808	JM	6.5	2.0	16.0	75	40			168	189	128	211
DATA POINT			59	60	58	49	50			22	21	30	

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(Recorder 2) FILTER CONTROL PANEL 1 (Recorder

DATE	TIME	INIT.	ABSORBER GAS OUTLET TEMP., °F (A A)	CONDENSER GAS OUTLET TEMP., °F (B B)	SUPERHEATER GAS OUTLET TEMP., °F (C C)	HEPA PLENUM GAS OUTLET TEMP., °F (D D)	PRIMARY HX WORKING LIQUID OUTLET TEMP., °F (E E)	PRIMARY HX PROCESS LIQUID INLET TEMP., °F (F F)	PRIMARY HX PROCESS LIQUID OUTLET TEMP., °F (A A)	SECONDARY HX COOLING LIQUID INLET TEMP., °F (B B)	SECONDARY HX COOLING LIQUID OUTLET TEMP., °F (C C)	SECONDARY HX WORKING LIQUID INLET TEMP., °F (D D)	SECONDARY HX WORKING LIQUID OUTLET TEMP., °F (E E)	CONDENSER WORKIN LIQUID OUTLET TEMP., °F (F F)		
9/2/86	0005 ~~1205~~	WD	126 ~~139~~	122 ~~94~~	145 ~~148~~	~~195~~ ~~194~~ 165	~~168~~ 100	133	100	59	71	100	66	121		
	1300	RP	145	141	175	196 ~~195~~	113	155	111	65	80	98	75	141		
	2017	WD	133	128	162	196	113	151	111	62	77	113	72	130		
	0003	WD	131	127	160	195	112	150	110	62	77	111	72	128		
	0400	WD	131	127	161	195	110	150	110	61	76	111	70	130		
	0945	DAA	150	145	177	196	117	160	115	62	78	115	72	143		
	1255	DAA	158	155	181	215	121	165	118	65	81	118	75	151		
	1540	JSV	~~158~~ 151	155	191	205	120	165	117	65	81	120	75	153		
	1915	DAA	158	155	192	215	120	165	116	65	81	118	75	155		
	2130	RW	160	156	193	222	120	165	116	65	81	118	75	155		
9-5-86	0100	DM	127	122	165	210	110	150	108	62	76	118	71	123		
	1010	JSV	155	151	195	210	117	160	113	63	80	110	73	150		
	1320	RW	155	152	195	225	120	161	115	65	82	115	75	150		
	1530	JSV	155	151	195	225	120	161	116	65	81	117	75	151		
9/6/86	0900	JSV	155	153	190	225	117	162	113	61	77	113	62	78		
	DATA POINT		23	24	25	26	35	32	33							

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			(Recorder 2)						FILTER CONTROL PANEL No. 1 (Recorder)					
			A	B	C	D	E	F	A	B	C	D	E	F
DATE	TIME	INIT.	ABSORBER GAS OUTLET TEMP., °F	CONDENSER GAS OUTLET TEMP., °F	SUPERHEATER GAS OUTLET TEMP., °F	HEPA PLENUM GAS OUTLET TEMP., °F	PRIMARY HX WORKING LIQUID OUTLET TEMP., °F	PRIMARY HX PROCESS LIQUID INLET TEMP., °F	PRIMARY HX PROCESS LIQUID OUTLET TEMP., °F	SECONDARY HX COOLING LIQUID INLET TEMP., °F	SECONDARY HX COOLING LIQUID OUTLET TEMP., °F	SECONDARY HX WORKING LIQUID INLET TEMP., °F	SECONDARY HX WORKING LIQUID OUTLET TEMP., °F	CONDENSER WORKIN LIQUID OUTLET TEMP., °F
9-6-86	17 40	[illegible]	168	160	180	228	120	167	115	65	82	120	76	157
9-7-86	1500	[illegible]	160	138	182	221	130	165	126	71	100	120	93	131
9-7-86	18 08	[illegible]	162	141	173	208	135	165	130	71	101	130	96	131

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DATE	TIME	INIT.	FILTER CONTROL PANEL NO. 1: PROCESS LIQUID SPECIFIC GRAVITY	PROCESS SUMP INLET pH	PROCESS SUMP OUTLET pH	BUILDING SUMP pH	CONDENSATE SUMP pH	FILTER CONTROL PANEL NO. 2: 1 ~~INCINERATOR~~ From Boiler OFFGAS CO_2, %	1 ~~INCINERATOR~~ From Boiler OFFGAS CO, %	2 HEPA PLENUM OFFGAS CO_2, %	2 HEPA PLENUM OFFGAS CO, %	~~INDUCED BLOWER FLOW, SCFM~~ Final Flow LB/min	~~PROCESS LIQUID FLOW, GPM~~ Final Flow TOTALIZER, LB	PROCESS LIQUID BLOWDOWN FLOW, LB/MIN	PROCESS LIQUID BLOWDOWN TOTALIZER, LB	CONDENSATE FLOW, LB/MIN	CONDENSATE TOTALIZER, LB
9/2/84	0010 ~~1210~~	WD	~1	7.2	7	3.8	6.6	—	—	—	—	62.2	27804	29	33696	0	72
	1300	AMA	1.01	7.6	7	3.4	6.7	—	—	—		47.6	70426	33	64213		—
	2019	WD	1.02	7	7	3	6.6	—	—	—	—	35.3	89444	50	86550		—
9/3/84	0000	CLL	1.018	7.2	7	3.2	6.6	—	—	—	—	35.5	97409	58	98883	0	29
	0400	CLL	1.018	7.2	7	3.1	6.7	—	—	—	—	35.4	106026	61	112150	0	3.29
	0945	DAA	1.018	7.4	6.3	3.1	6.7	—	—	—	—	45.37	118235	56	130688	0	.32
	1300	DAA	1.018	7.0	2.0	3.2	6.7	—				56.4	127082	33	141165		.86
	1900	DAA	1.023	7.2	3.2	6.3	6.6	~~4.0~~	4.0 mm	—	—	58.8	145692	60	163116	0	19
	2130	KAV	1.027	7.2	2.8	6.5	6.6					50.2	153337	59	178425		19
9-5-84	0100	DM	1.027	6.4	3.8	6.6	6.6					30.50 ~~56~~	162432 ~~18282~~	63	18282		19
	1005	JW	1.035	7.1	2.6	5.1	6.5	—	—	—	—	54.6	181572	65	21407		—
	1320	DAA	1.035	7.3	6.0	6.4	6.5	—	—	—	—	53.1	192310	58	225575	0	11
	1530	CL	1.035	7.4	2.2	6.4	6.4	—	—	—	—	53.4	199165	60	23274		8.19
9/6/84	0857	JW	1.021	7.2	2.1	4.2	4.5	—	—	—	—	62.0	244470	57	28897	—	—
	1740	JW	1.05	6.1	3.3	6	4.6					62.2	274568	52	31438		—

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DATE	TIME	INIT.	FILTER CONTROL PANEL NO. 1: PROCESS LIQUID SPECIFIC GRAVITY	PROCESS SUMP INLET pH	PROCESS SUMP OUTLET pH	BUILDING SUMP pH	CONDENSATE SUMP pH	FILTER CONTROL PANEL NO. 2: 1 INCINERATOR OFFGAS CO_2, %	1 INCINERATOR OFFGAS CO, %	2 HEPA PLENUM OFFGAS CO_2, %	2 HEPA PLENUM OFFGAS CO, %	Final Flow ~~INDUCED BLOWER FLOW, SCFM~~ LB/min	Final Flow ~~PRIMARY HX WORKING LIQUID FLOW, GPM~~ Totalizer, LB	PROCESS LIQUID BLOWDOWN FLOW, LB/MIN	PROCESS LIQUID BLOWDOWN TOTALIZER, LB	CONDENSATE FLOW, LB/MIN	CONDENSATE TOTALIZER, LB
9/7	1500	[illegible]	1.022	6.4	3.3	6.0	4.4	—	—	—	—	61.2	343443	41	358690	0	11.75
	1808	JSV	1.04	6.4	2.4	6.4	4.4	—	—	—	—	60.5	355604	80	389,059	—	—
			67		69		70										1

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LIQUID BURNER CONTROL PANEL

DATE	TIME	INIT.	FUEL OIL FLOW, ~~GPM~~ LB/min	FUEL OIL ~~WASTE LIQUID FLOW, GPM~~ Totalizer, LB	MIXTURE FLOW, LB/MIN	MIXTURE TOTALIZER, LB	Liq Burner Air Rock 15/min (Rock 5)	Liq. Burner Air Totalizer 16 (Rock 5)	Tank #1 Level, %	Feed Pressure, psig	Atomizing Steam Flow, lb/h		
9/3/86	1305	RA	— not in operation →										
	2220	CLR	— On	Natural Gas →									
9/4	0000	DM	— On	Natural Gas →									
	0400	WD	— "	"	"	—	5.5	—	—				
	0445	~~DMA~~					7.86	—	—				
	1300	DMA	—	~~179~~	2.26	42.17	14.2	—	88.9	47.3			
	1359	JSV	—	—	2.59	197.4	14.0		72.7	59.0	108		
	1534	JSV	—	—	2.62	447.3	14.0	—	49.5	59.0	112		
	1917	WD			2.64	690.4	16.0	—	30	51.2	107		
	2131	RA	—	—	2.64	1048	15.89	—	4.75	52.4	104		
9/5	0100	CLR	~~0.00 (on natural gas)~~ -On Natural Gas		(on natural Gas) 0.00	1292.276	5.96	—		P.1 = 3.5% 36.2	102	*Residuals?	
	1005	JSV	—	—	2.67	71.9	16.4		87.5	59.0	105		
	1320	RA	—	—	2.64	608	16.2	—	33.7	54	106		
	1530	JSV	—	—	2.66	931.8			11.0	64.9	98		

DATA POINT

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FIELD MEASUREMENTS, II

DATE	TIME	INIT.	CAUSTIC TANK LEVEL, IN.	SCRUBBER LIQUID FILTER PRESSURE DROP, PSID	PROCESS LIQUID FILTER PRESSURE DROP, PSID	CHECK GAS SAMPLE LIQUID TRAP (✓)	STRAINER INLET/OUTLET PRESSURE, PSIG	QUENCH TOWER PRESSURE DROP, IN. WG	ABSORBER TOWER PRESSURE DROP, IN.WG	OFFGAS HEPA#1 PRESSURE DROP, IN. WG	OFFGAS HEPA#2 PRESSURE DROP, IN. WG	CONDENSER PRESSURE DROP, IN. WG	SUPERHEATER PRESSURE DROP, IN. WG	CARBON BED PRESSURE DROP, IN. WG	CARBON BED HEPA PRESSURE DROP, IN. WG	Makeup Water Totalizer, LB.	
3	0015	CAL	~37"	8	2		71/69		1.4	0.8	0.3	0.3	0.35	1.25	0.7	436176	
	1255	CA	≈37"	0	17.5		77/76		7.2	1.2	0.2	.16	.15	.89	.45	444047	
	1720	JFR	37"	0	4		75/74		1	1.3	0.2	.18	.25	.8	.50	049236	
	2220	CAL	37	2	2		75/73		0.5	0.8	0.1	.05	.05	.6	.5	0443172	
	0005	WD	~38	2	~3		75/73		0.2	0.9	0.1	0.1	0.06	0.5	0.25	044464	
	0400	WD	~38	2	3		75/73		0.2	0.9	0.1	0.1	0.06	0.5	0.28	044622	
	0900	DAB	~38	~2	~4		74/72		0.6	2.6	0.13	0.14	0.10	0.6	0.32	044836	
	1300	JFR	38	5	0		75/22		1.3	3.5	0.3	0.30	0.10	0.7	2.8	0448910	
	1520	JFR	39	7	0		75/21		1.3	5.9	0.3	0.23	.15	0.7	2.3	0450998	
	1916	JW	30.5	0	6		79/77		1.4	0.45	0.3	0.30	0.31	1.2	0.7	045230	
	2130	CAL	18.5	0	7		79/78		1.4	0.75	0.3	0.32	0.3+	1.2	0.7	0453472	
5	0104	WD	~39	0	8		77/76		0.2	0.35	0.2	0.08	0.4	0.23	0.45	045504	
	1010	JFR	36	0	8		77/75		1.0	1.0	0.5	.30	.75	1.9	.50	045889	
	1500	DAB	12	0	7		80/79		1.2	1.5	0.3	.28	.25	1.05	0.50/1.05	046016	
	1730	JFR	29	0	7		79/78		2	1.5	0.4	.28	.25	1.05	.50	0461070	
6	1743	JW	38	0	8		78/78		1.6	0.9	0.7	0.34	0.34	1.3	0.6	047173	

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FIELD MEASUREMENTS, [illegible] II

DATE	TIME	INIT.	CAUSTIC TANK LEVEL, IN.	SCRUBBER LIQUID FILTER PRESSURE DROP, PSID	PROCESS LIQUID FILTER PRESSURE DROP, PSID	CHECK GAS SAMPLE LIQUID TRAP (✓)	STRAINER INLET/OUTLET PRESSURE, PSIG	QUENCH TOWER PRESSURE DROP, IN. WG	ABSORBER TOWER PRESSURE DROP, IN.WG	OFFGAS HEPA#1 PRESSURE DROP, IN. WG	OFFGAS HEPA#2 PRESSURE DROP, IN. WG	CONDENSER PRESSURE DROP, IN. WG	SUPERHEATER PRESSURE DROP, IN. WG	CARBON BED PRESSURE DROP, IN. WG	CARBON BED HEPA PRESSURE DROP, IN. WG	Makeup Water Totalizer, LB.
9-7	1450	CB	28.5	2.5	2.5		76/74		2.4	.8	.6	.41	.37	1.3 ~~0.8~~	0.8 ~~1.2~~	048000
	1810	JW	25.5	0	1.0		78/77		2.3	1.05	0.65	0.41	.35	1.3	0.65	048122

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DATE	TIME	INIT.	CHECK UPS SYSTEM ✓	STEAM GENERATOR DEIONIZER, MEGOHMS	NITROGEN MANIFOLD PRESSURE, PSIG	NATURAL GAS METER, FT^3	CHECK AUXILIARY GENERATOR ✓						
			MEASUREMENTS, OUTSIDE										
9/6	1730	DAA	✓	~~[illegible]~~	1700	177302	✓						
9/7	1500	JFR.		0	1700	179171							
	1800	DAA	✓	0	1700	179443	✓						

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DATE	TIME	INIT.	CHECK UPS SYSTEM (✓)	STEAM GENERATOR DEIONIZER, MEGOHMS	NITROGEN MANIFOLD PRESSURE, PSIG	NATURAL GAS METER, FT^3	CHECK AUXILIARY GENERATOR (✓)	MEASUREMENTS, OUTSIDE					
9/3	0020	Chl	✓	67	1680	1705053	✓	UFT tank - start 1029 gal					
	1245	CG	✓	16.5	1680	171856	✓						
	1830	JW	✓	14.9	1680	172350	✓						
	2025	WD	✓	17.5	1680	1724939	✓						
	2230	Chl	✓	17.5	1680	1724988	✓						
9/4	0400	Chl	✓	16.2	1680	1730622	✓						
	0945	DAA	✓	17.5	1680	1735586	✓						
	1300	JFR	✓	18.	1680	1738818	✓						
	1520	JFR.	✓	18	1680	1740050	✓						
	1915	DAA	✓	17.2	1680	1742339	✓						
	2130	Chl	✓	17.2	1690	1743271	✓	26" / 572 gal in UFT					
9/5	0100	Chl	✓	18	1690	1744944	✓						
	1010	CG	✓	18.0	1700	175148	✓						
	1330	CG	✓	17.4	1700	175234	✓						
	1530	JFR	✓	18.0	1700	175281	✓						
	2000	Chl	✓	13.[illegible]	1700	1754308	✓	46"	1025 gal	18 FT			

Los Alamos

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

memorandum

TO: Lee C. Borduin, HSE 7, E517 DATE: November 26, 1986

FROM: Larry R. Field, HSE-9, Contracting MAIL STOP/TELEPHONE: K484/4086

SYMBOL: HSE-9/86-555

SUBJECT: Quality Assurance of Burn Test Analyses Performed By CEP (Santa Fe).

The results obtained from the Quality Control Samples submitted to CEP are given below. In addition a summary of analytical events is included at the end of this memorandum.

Chloride Analyses:

Sample Number	Analytical Result Units (ppm)	QC Result	% Recovery
00.96767	83.	81.	98.
00.96764	7.	6.4	91.
00.96765	3.6	3.2	113.
00.96766	14.5	12.9	112.
00.96768	27.	25.9	104.
00.96769	13.	12.9	100.

The average percent recovery for the chloride containing QC spiked samples was 103 % .

Inorganic Analyses (Na, Fe, & Al):

Sample Number	Analytical Result Units (mg/L)	QC Result	% Recovery
86.12484(Fe)	0.12	0.099	121.
86.12485(Fe)	0.1	0.08	125.
86.12485(Al)	0.5	0.45	111.

The average percent recovery for the Inorganic (Fe & Al) containing QC spiked samples was 119 % . Sodium (Na) was not in the QC sample.

Analyses of Liquid Mixture Feed:

Sample Number	Analytical Result Units (%)	QC Result	% Recovery
00.96591(CCl_4)	40.	46.	87.

The average percent recovery for the Liquid Feed Mixture containing QC spiked sample was 87 % .

Analyses of Volatile Organics in Soils:

Sample Number	Analytical Result Units (ug/kg)	QC Result	% Recovery
First Set			
00.96773(TCE)	7.8	20510.	0.03
00.96773(CCl_4)	0.1	20.	0.5
00.96774(TCE)	0.05	38494.	0.00
00.96774(CCl_4)	0.1	38.	0.2
Second Set			
00.96584(TCE)	ND	32.0	0.0
00.96584(CCl_4)	ND	24.3	0.0
00.96585(TCE)	ND	24.8	0.0
00.96585(CCl_4)	ND	32.7	0.0

The average percent recovery for the First Set of Volatile Organics in Soil containing QC spiked samples was 0.1 % .

The average percent recovery for the Second Set of Volatile Organics in Soil containing QC spiked samples was 0.0 % .

ND is not detected.

Analyses of Volatile Organics in Water:

Sample Number	Analytical Result Units (ug/L)	QC Result	% Recovery
First Set			
00.96775(TCE)	8050.	20280.	39.
00.96775(CCl_4)	44.	20.	220.
00.96776(TCE)	44000.	60840.	72.
00.96776(CCl_4)	69.	60.	115.
Second Set			
00.96589(TCE)	34.	32.	106.
00.96589(CCl_4)	25.	40.	63.
00.96590(TCE)	47.	32.	146.
00.96590(CCl_4)	21.	40.	53.

The average percent recovery for the First Set of Volatile Organics in Water containing QC spiked samples was 56. % for TCE and 167 % for CCl_4 .

The average percent recovery for the Second Set of Volatile Organics in Water containing QC spiked samples was 126. % for TCE and 58 % for CCl_4 .

Vost Cartridge Analyses:

Sample Number	Analytical Result Units (ng)	QC Result	% Recovery
First Set			
00.96770(TCE)	1150.	20280.	6.
00.96770(CCl_4)	8.	20.	40.
00.96771(TCE)	499.	10140.	5.
00.96771(CCl_4)	6.	10.	60.
00.96772(TCE)	NR	40560.	--
00.96772(CCl_4)	NR	40.	--

Second Set

00.96586(TCE)	240.	280.	86.
00.96586(CCl_4)	2900.	4800.	60.
00.96787(TCE)	4800.	4500.	106.
00.96787(CCl_4)	330.	220.	150.
00.96588(TCE)	2100.	1100.	190.
00.96588(CCl_4)	1440.	800.	180.

The average percent recovery for the First Set of Vost Cartridges containing QC spiked samples was 5.5 % for TCE and 50 % for CCl_4 .

The average percent recovery for the Second Set of Vost Cartridges containing QC spiked samples was 127. % for TCE and 130 % for CCl_4 .

NR is not reported.

Summary of Analytical Events:

Approximately 10 % of the analyses performed for this study were evaluated by the insertion of Quality Control Samples. The results obtained from the analyses of these samples are listed above.

Good analytical recoveries were achieved from the determinations of Chloride and the atomic species (Fe, Al, and Na) in spiked QC samples. However, such was not the case for the organic analyses of TCE and CCl_4 in various matrices i.e., air, water, and soil.

Inspection of the analytical data obtained from, and auditing of the analytical procedures used by, the contract analytical laboratory (CEP of Santa Fe) pointed out two distinct flaws. One was in the spiking of the QC samples themselves and the other was in the analytical technique used by CEP to analyze the liquid feed mixtures.

1.) The problem with the spiked QC samples was that the TCE was spiked at a 1000 fold excess of what it should be. The behavior of large amounts of these volatile organic materials on sorption media such as soils and Tenax is unknown and may account for the low recoveries observed for the first set of analyses. Thus, it was decided to resubmit additional QC samples to CEP for analyses, that contained organic materials spiked at levels more-in-line with what was found in the majority of the other samples. The recoveries on second set were better for the vost cartridges, but were erratic for the water samples.

2.)The improper analytical technique used by CEP for the analyses of the Liquid Feed mixtures was GC-ECD. The reason for this being improper is that calibration curves for the ECD are extremely non-linear at the high levels found in the samples we submitted. GC-FID on the other hand is the appropriate analytical technique for these analyses. Thus, it was decided to resubmit for analyses, all of the samples previously analyzed by GC-ECD along with new QC samples. The results obtained for the QC samples for the old vs new method are found in tabular form in this memorandum as First Set = old method(GC-ECD) and Second Set = new method(GC-FID). The average recoveries for these are listed at the bottom of each table.

It should be noted here that the poor recoveries observed for the soil samples, may result from dramatic differences in altitude between the sampling site and analytical laboratory. Further, the soil used to make these QC samples is not truly representative of the ash samples for which they were intended, so the low recoveries may not be an indication of the reliability of data obtained from the ash samples. Then again, it may.

cy: Peggy Gautier, QA/QC.

Analytical Report

Date: 12/01/86

John Vavruska
MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ----> Burn Test

Sample Sheet # 5425

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result	Units	Uncertainty +/-
00.96591	46%CT	56235	CCl4	40	%	4
86.12412	LA-1-V-1-CCL4	56235	CCl4	100	%	5
86.12413	LA-1-V-1-TCE	79016	TCE	97	%	5
[illegible]12414	LA-1-V-1-L.M.F.	56235	CCl4	32	%	2
		79016	TCE	16	%	1
		CL	Chloride	1	MG/L	.5
		SOLIDS,DIS	Disolved Solids	12350	MG/L	1235
86.12415	LA-1-V-2-L.M.F.	56235	CCl4	43	%	2
		79016	TCE	21	%	1
		CL	Chloride	8	MG/L	.5
		SOLIDS,DIS	Disolved Solids	5460	MG/L	546
86.12416	LA-1-V-3-L.M.F.	56235	CCl4	40	%	2
		79016	TCE	20	%	1
		CL	Chloride	3	MG/L	.5
		SOLIDS,DIS	Disolved Solids	2630	MG/L	263
86.12417	LA-2-V-1-L.M.F.	56235	CCl4	30	%	3
		79016	TCE	16	%	1
		CL	Chloride	5	MG/L	.5
		SOLIDS,DIS	Disolved Solids	6600	MG/L	660
86.12418	LA-2-V-2-L.M.F.	56235	CCl4	41	%	2
		79016	TCE	20	%	1
		CL	Chloride	3	MG/L	.5
		SOLIDS,DIS	Disolved Solids	5010	MG/L	501
86.12419	LA-2-V-3-L.M.F.	56235	CCl4	46	%	3
		79016	TCE	18	%	1
		CL	Chloride	4	MG/L	.5
		SOLIDS,DIS	Disolved Solids	10550	MG/L	1055

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Analytical Report

Date: 12/01/86

John Vavruska
MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ----> Burn Test

Sample Sheet # 5424

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result	Units	Uncertainty +/-
86.12400	LA-1-V-1-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	.14	UG/L	.1
		CL	Chloride	14,000.000	MG/L	700.000
		PH	pH	10.300	PH UNITS	0.200
2401	LA-1-V-2-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	< .12	UG/L	.1
		CL	Chloride	18,000.000	MG/L	900.000
		PH	pH	2.900	PH UNITS	0.200
86.12402	LA-1-V-3-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	.21	UG/L	.1
		CL	Chloride	26,000.000	MG/L	1,300.000
		PH	pH	2.400	PH UNITS	0.200
86.12403	LA-2-V-1-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	< .12	UG/L	.1
		CL	Chloride	13,000.000	MG/L	650.000
		PH	pH	2.200	PH UNITS	0.200
86.12404	LA-2-V-2-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	.57	UG/L	.1
		CL	Chloride	25,000.000	MG/L	1,250.000
		PH	pH	1.800	PH UNITS	0.200
86.12405	LA-2-V-3-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	.18	UG/L	.1
		CL	Chloride	28,000.000	MG/L	1,400.000
		PH	pH	1.600	PH UNITS	0.200
86.12406	LA-3-V-1-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	.43	UG/L	.1
		CL	Chloride	20,000.000	MG/L	1,000.000
		PH	pH	1.000	PH UNITS	0.200
86.12407	LA-3-V-2-S.D.L.	56235	CCl4	.14	UG/L	.1
		79016	TCE	.64	UG/L	.1
		CL	Chloride	9,000.000	MG/L	450.000
		PH	pH	3.500	PH UNITS	0.200
:408	LA-3-V-3-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	.59	UG/L	.1
		CL	Chloride	19,000.000	MG/L	950.000
		PH	pH	4.100	PH UNITS	0.200
86.12409	LA-4-V-1-S.D.L.	56235	CCl4	< .12	UG/L	.1
		79016	TCE	.43	UG/L	.1

		CL	Chloride		12,000.000	MG/L		600.000
		PH	pH		2.000	PH UNITS		0.200
86.12410	LA-4-V-2-S.D.L.	56235	CCl4	<	.12	UG/L	.1	
		79016	TCE		.57	UG/L	.1	
		CL	Chloride		18,000.000	MG/L		900.000
		PH	pH		207.000	PH UNITS		0.200
2411	LA-4-V-3-S.D.L.	56235	CCl4	<	.12	UG/L	.1	
		79016	TCE		.35	UG/L	.1	
		CL	Chloride		22,000.000	MG/L		550.000
		PH	pH		1.900	PH UNITS		0.200

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John Vavruska
MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ----> Burn Test

Sample Sheet # 5423

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result	Units	Uncertainty +/-
00.96767	80.8 ppm	CL	Chloride	83.000	MG/L	1.000
86.10186	LA-1-V-1-C.S.	CL	Chloride	1,050.000	MG/L	1.000
86.10187	LA-2-V-1-C.S.	CL	Chloride	1,050.000	MG/L	1.000
86.10188	LA-2-V-3-C.S.	CL	Chloride	1,375.000	MG/L	1.000
'0189	LA-3-V-1-C.S.	CL	Chloride	950.000	MG/L	1.000
)190	LA-3-V-2-C.S.	CL	Chloride	1,300.000	MG/L	1.000
.0191	LA-4-V-123-C.S.	CL	Chloride	1,350.000	MG/L	1.000

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MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ----> Burn Test

Sample Sheet # 5422

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result	Units	Uncertainty +/-
00.96584	24ug/gCT,32 TCE	56235	CCl4	< 5	UG/L	2
		79016	TCE	< 5	UG/L	2
00.96585	33ug/gCT,25 TCE	56235	CCl4	< 5	UG/L	2
		79016	TCE	< 5	UG/L	2
96589	32ug/L CT,40TCE	56235	CCl4	25	UG/L	3
		79016	TCE	34	UG/L	4
96590	32ug/L CT,40TCE	56235	CCl4	21	UG/L	3
		79016	TCE	47	UG/L	5
00.96773	20ng/gCT20510TC	56235	CCl4	.1	UG/KG	.1
		79016	TCE	7.8	UG/KG	1
00.96774	38ng/gCT38494TE	56235	CCl4	.1	UG/KG	.1
		79016	TCE	.05	UG/KG	.1
00.96775	20ng/mlCT20280T	56235	CCl4	44	UG/L	4
		79016	TCE	8050	UG/L	805
00.96776	60ng/mlCT60840T	56235	CCl4	69	UG/L	7
		79016	TCE	44000	UG/L	4400
86.10192	LA-1-V-1-F.O.F.	56235	CCl4	< 1	MG/L	1
		79016	TCE	< 1	MG/L	1
		CL	Chloride	< 1.000	MG/L	1.000
86.10193	LA-2-M5-1-ALGL	56235	CCl4	27	UG/KG	3
		79016	TCE	1	UG/KG	1
		CL	Chloride	38.000	UG/G	2.000
86.10194	LA-1-M5-1-ALGL	56235	CCl4	510	UG/KG	51
		79016	TCE	628	UG/KG	63
		CL	Chloride	54.000	UG/G	2.000
86.10195	LA-3,4-V-123PEL	56235	CCl4	82	UG/KG	8
		79016	TCE	70	UG/KG	7
		CL	Chloride	2,610.000	UG/G	130.000
86.10196	LA-3-V-3-I.A.	56235	CCl4	168	UG/KG	16
		79016	TCE	150	UG/KG	15
		CL	Chloride	8,750.000	UG/G	435.000
		PH	pH	9.900	PH UNITS	0.200
0197	LA-4-M5-123-I.A	56235	CCl4	2000	UG/KG	200
		79016	TCE	600	UG/KG	60
		CL	Chloride	26,700.000	UG/G	1,335.000
		PH	pH	8.900	PH UNITS	0.200
86.10198	LA-1-V-1-HEPA	56235	CCl4	38	UG/KG	4
		79016	TCE	< 1	UG/KG	1

		CL	Chloride		9.000	UG/G	1.000
		PH	pH		8.300	PH UNITS	0.200
86.10199	LA-4-V-3-HEPA4	56235	CCl4	150		UG/KG	15
		79016	TCE	10		UG/KG	1
		CL	Chloride		87,700.000	UG/G	4,335.000
		PH	pH		5.900	PH UNITS	0.200

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MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ----> Burn Test

Sample Sheet # 5421

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result	Units	Uncertainty +/-
86.10161	LANL-1-M5-1	AL	Al	5.300	MG/L	0.100
		FE	Fe	3.200	MG/L	0.100
		NA	Na	2.500	MG/L	0.100
86.10162	LANL-1-M5-2	AL	Al	6.700	MG/L	0.100
		FE	Fe	5.000	MG/L	0.100
		NA	Na	2.400	MG/L	0.100
[illegible].0163	LANL-1-M5-3	AL	Al	5.700	MG/L	0.100
		FE	Fe	2.500	MG/L	0.100
		NA	Na	2.100	MG/L	0.100
86.10164	LANL-2-M5-1	AL	Al	2.300	MG/L	0.100
		NA	Na	2.100	MG/L	0.100
86.10165	LANL-2-M5-2	AL	Al	3.500	MG/L	0.100
		FE	Fe	7.600	MG/L	0.100
		NA	Na	2.000	MG/L	0.100
86.10166	LANL-2-M5-3	AL	Al	3.600	MG/L	0.100
		FE	Fe	22.200	MG/L	0.100
		NA	Na	2.400	MG/L	0.100
86.10167	LANL-3-M5-1	AL	Al	3.400	MG/L	0.100
		FE	Fe	26.200	MG/L	0.100
		NA	Na	2.200	MG/L	0.100
86.10168	LANL-3-M5-2	AL	Al	3.700	MG/L	0.100
		FE	Fe	31.100	MG/L	0.100
		NA	Na	2.400	MG/L	0.100
86.10169	LANL-3-M5-3	AL	Al	3.100	MG/L	0.100
		FE	Fe	51.200	MG/L	0.100
		NA	Na	2.300	MG/L	0.100
86.10170	LANL-4-M5-1	AL	Al	4.100	MG/L	0.100
		FE	Fe	18.400	MG/L	0.100
		NA	Na	2.400	MG/L	0.100
86.10171	LANL-4-M5-2	AL	Al	3.300	MG/L	0.100
		FE	Fe	29.300	MG/L	0.100
		NA	Na	2.400	MG/L	0.100
[illegible]172	LANL-4-M5-3	AL	Al	5.400	MG/L	0.100
		FE	Fe	65.600	MG/L	0.100
		NA	Na	2.200	MG/L	0.100
86.10173	BLANK	AL	Al	8.100	MG/L	0.100
		FE	Fe	0.600	MG/L	0.100
		NA	Na	1.700	MG/L	0.100

•86.12484	Fe= 0.099 mg/L	AL	Al	<	0.100	MG/L	0.100
		FE	Fe		0.120	MG/L	0.100
		NA	Na		6.900	MG/L	0.100
86.12485	Fe=.08Al=.45mgL	AL	Al		0.500	MG/L	0.100
		FE	Fe		0.100	MG/L	0.100
		NA	Na		0.100	MG/L	0.100

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John Vavruska
MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ----> Burn Test

Sample Sheet # 5379

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result	Units	Uncertainty +/-
00.96586	4800ngCT,280TCE	56235	CCl4	2900	NG	299
		79016	TCE	240	NG	24
00.96587	220ngCT,4500TCE	56235	CCl4	330	NG	33
		79016	TCE	4800	NG	488
[illegible]6588	800ngCT,1100TCE	56235	CCl4	1440	NG	144
		79016	TCE	2100	NG	210
[illegible]6770	20ngCT,20280TCE	56235	CCl4	8	NG	1
		79016	TCE	1150	NG	115
00.96771	10ngCT,10140TCE	56235	CCl4	5.6	NG	1
		79016	TCE	499	NG	50
00.96772	40ngCT,40560TCE	56235	CCl4	Broken	NG	
		79016	TCE		NG	
86.12449	1-V-1-T,TC	56235	CCl4	> 188	NG	19
		79016	TCE	Det Quenched	NG	
86.12450	1-V-2-T,TC	56235	CCl4	6780	NG	678
		79016	TCE	161	NG	16
86.12451	1-V-3-T,TC	56235	CCl4	5110	NG	511
		79016	TCE	< 10	NG	1
86.12452	1-V-4-T,TC	56235	CCl4	> 5760	NG	576
		79016	TCE	Det Quenched	NG	
86.12453	1-V-5-T,TC	56235	CCl4	> 5410	NG	541
		79016	TCE	Det Quenched	NG	
86.12454	1-V-6-T,TC	56235	CCl4	5410	NG	541
		79016	TCE	140	NG	14
86.12455	1-V-(1-6)-T,TC	56235	CCl4	< 10	NG	1
		79016	TCE	3	NG	1
86.12456	2-V-1-T,TC	56235	CCl4	63	NG	6
		79016	TCE	< 10	NG	1
86.12457	2-V-2-T,TC	56235	CCl4	Det Quenched	NG	
		79016	TCE		NG	
[illegible]12458	2-V-3-T,TC	56235	CCl4	Broken	NG	
		79016	TCE	< 10	NG	1
[illegible]459	2-V-4-T,TC	56235	CCl4	1190	NG	119
		79016	TCE	164	NG	16
86.12460	2-V-5-T,TC	56235	CCl4	4580	NG	458
		79016	TCE	115	NG	12
86.12461	2-V-6-T,TC	56235	CCl4	5660	NG	566
		79016	TCE	110	NG	12

86.12462	2-V-(1-6)-T,TC	56235	CCl4		8	NG	1
		79016	TCE	<	10	NG	1
86.12463	3-V-1-T,TC	56235	CCl4		2170	NG	217
		79016	TCE		231	NG	23
86.12464	3-V-2-T,TC	56235	CCl4		2230	NG	223
		79016	TCE		235	NG	23
2465	3-V-3-T,TC	56235	CCl4		5660	NG	566
		79016	TCE		1240	NG	124
86.12466	3-V-4-T,TC	56235	CCl4		4440	NG	444
		79016	TCE		543	NG	54
86.12467	3-V-5-T,TC	56235	CCl4		258	NG	26
		79016	TCE		6	NG	1
86.12468	3-V-6-T,TC	56235	CCl4		2993	NG	300
		79016	TCE		8	NG	1
86.12469	3-V-(1-6)-T,TC	56235	CCl4	<	10	NG	1
		79016	TCE	<	10	NG	1
86.12470	4-V-1-T,TC	56235	CCl4		5600	NG	560
		79016	TCE		52	NG	5
86.12471	4-V-2-T,TC	56235	CCl4		590	NG	59
		79016	TCE	<	10	NG	1
86.12472	4-V-3-T,TC	56235	CCl4		2600	NG	260
		79016	TCE		36	NG	4
86.12473	4-V-4-T,TC	56235	CCl4		5200	NG	520
		79016	TCE		210	NG	21
86.12474	4-V-5-T,TC	56235	CCl4		6200	NG	620
		79016	TCE		162	NG	16
86.12475	4-V-6-T,TC	56235	CCl4		4900	NG	490
		79016	TCE		116	NG	12
86.12476	4-V-(1-6)-T,TC	56235	CCl4	<	10	NG	1
		79016	TCE	<	10	NG	1
86.12477	(1-4)-V-1-T,TCA	56235	CCl4	<	10	NG	1
		79016	TCE		502	NG	50
2478	(1-4)-V-2-T,TCA	56235	CCl4	<	10	NG	1
		79016	TCE		605	NG	61
86.12479	(1-4)-V-3-T,TCA	56235	CCl4	<	10	NG	1
		79016	TCE		614	NG	61
86.12480	(1-4)-V-4-T,TCA	56235	CCl4		615	NG	62
		79016	TCE	<	10	NG	1
86.12481	(1-4)-V-5-T,TCA	56235	CCl4			NG	
		79016	TCE		BROKEN	NG	
86.12482	(1-4)-V-6-T,TCA	56235	CCl4		730	NG	73
		79016	TCE	<	10	NG	1
86.12483	(1-4)V-ALL-T,TC	56235	CCl4	<	10	NG	1
		79016	TCE	<	10	NG	1

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John Vavruska
MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ----> Burn Test

Sample Sheet # 5378

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result	Units	Uncertainty +/-
00.96764	6.4 ppm	CL	Chloride	7.000	MG/L	1.000
00.96765	3.2 ppm	CL	Chloride	3.600	MG/L	1.000
00.96766	12.9 ppm	CL	Chloride	14.500	MG/L	1.000
86.12433	LA-1-V-A.C.(F)	56235	CCl4	990	UG/KG	99
		79016	TCE	< 1	UG/KG	1
		CL	Chloride	2,300.000	UG/G	1.000
		PH	pH	9.900	PH UNITS	0.200
86.12434	LA-12V123-AC(U)	56235	CCl4	< 1	UG/KG	1
		79016	TCE	35	UG/KG	4
		CL	Chloride	9,780.000	UG/G	1.000
		PH	pH	5.700	PH UNITS	0.200
86.12435	LA-3-V-3-AC.(U)	56235	CCl4	1100	UG/KG	110
		79016	TCE	58	UG/KG	6
		CL	Chloride	30,100.000	UG/G	1.000
		PH	pH	6.000	PH UNITS	0.200
86.12436	LA-4-V-123-AC(U	56235	CCl4	620	UG/KG	62
		79016	TCE	110	UG/KG	11
		CL	Chloride	12,550.000	UG/G	1.000
		PH	pH	4.900	PH UNITS	0.200
86.12437	LA-1-V-1-M.W.	56235	CCl4	< .1	UG/L	.1
		79016	TCE	< .12	UG/L	.1
		CL	Chloride	3.000	MG/L	1.000
86.12438	LA-1-V-2-M.W.	56235	CCl4	< .1	UG/L	.1
		79016	TCE	< .12	UG/L	.1
		CL	Chloride	3.000	MG/L	1.000
86.12439	LA-1-V-3-M.W.	56235	CCl4	< .1	UG/L	.1
		79016	TCE	< .12	UG/L	.1
		CL	Chloride	3.000	MG/L	1.000
86.12440	LA-2-V-1-M.W.	56235	CCl4	< .1	UG/L	.1
		79016	TCE	< .12	UG/L	.1
		CL	Chloride	3.000	MG/L	1.000
2441	LA-2-V-2-M.W.	56235	CCl4	< .1	UG/L	.1
		79016	TCE	< .12	UG/L	.1
		CL	Chloride	3.000	MG/L	1.000
86.12442	LA-2-V-3-M.W.	56235	CCl4	< .1	UG/L	.1
		79016	TCE	< .12	UG/L	.1
		CL	Chloride	3.000	MG/L	1.000
86.12443	LA-3-V-1-M.W.	56235	CCl4	< .1	UG/L	.1

		79016	TCE	<	.12	UG/L	.1	
		CL	Chloride		3.000	MG/L		1.000
86.12444	LA-3-V-2-M.W.	56235	CCl4	<	.1	UG/L	.1	
		79016	TCE	<	.12	UG/L	.1	
		CL	Chloride		3.000	MG/L		1.000
12445	LA-3-V-3-M.W.	56235	CCl4	<	.1	UG/L	.1	
		79016	TCE	<	.12	UG/L	.1	
		CL	Chloride		3.000	MG/L		1.000
86.12446	LA-4-V-1-M.W.	56235	CCl4		.2	UG/L	.1	
		79016	TCE		.13	UG/L	.1	
		CL	Chloride		3.000	MG/L		1.000
86.12447	LA-4-V-2-M.W.	56235	CCl4		.2	UG/L	.1	
		79016	TCE		.13	UG/L	.1	
		CL	Chloride		3.000	MG/L		1.000
86.12448	LA-4-V-3-M.W.	56235	CCl4		.2	UG/L	.1	
		79016	TCE	<	.12	UG/L	.1	
		CL	Chloride		3.000	MG/L		1.000

Date: 12/1/86

Approved, Contracting

Date: 12/1/86

Approved, Quality Control

Analytical Report

Date: 12/01/86

John Vavruska
MS - E 517
Tel. (505)-667-7391

From: Larry R. Field
HSE-9 / Contracting
MS - K484
Tel. (505)-667-5889

Source of Samples: ----> Burn Test

Sample Sheet # 5377

Sample No.	Other ID No.	Cas. Number	Analysis Type	Analytical Result		Units	Uncertainty +/-
00.96768	25.9 ppm	CL	Chloride		27.000	MG/L	1.000
00.96769	12.9 ppm	CL	Chloride		13.000	MG/L	1.000
86.12420	PA1234M5123IMPB	CL	Chloride	<	1.000	MG/L	1.000
86.12421	LA-1-M5-1-IMP	CL	Chloride	<	1.000	MG/L	1.000
12422	LA-1-M5-2-IMP	CL	Chloride	<	1.000	MG/L	1.000
2423	LA-1-M5-3-IMP	CL	Chloride	<	1.000	MG/L	1.000
.2424	LA-2-M5-1-IMP	CL	Chloride	<	1.000	MG/L	1.000
86.12425	LA-2-M5-2-IMP	CL	Chloride		48.000	MG/L	1.000
86.12426	LA-2-M5-3-IMP	CL	Chloride		325.000	MG/L	1.000
86.12427	LA-3-M5-1-IMP	CL	Chloride		168.000	MG/L	1.000
86.12428	LA-3-M5-2-IMP	CL	Chloride		72.000	MG/L	1.000
86.12429	LA-3-M5-3-IMP	CL	Chloride		148.000	MG/L	1.000
86.12430	LA-4-M5-1-IMP	CL	Chloride		42.000	MG/L	1.000
86.12431	LA-4-M5-2-IMP	CL	Chloride		220.000	MG/L	1.000
86.12432	LA-4-M5-3-IMP	CL	Chloride		270.000	MG/L	1.000

Date: 12/1/86

Approved, Contracting

Date: 12/1/86

Approved, Quality Control

REPORT OF ANALYSIS

CEP#	CLIENT#	CCL4	TCE
8611404-01A	0.96589 PG	25.02 UG/L	33.94 UG/L
8611404-02A	0.96590 PG	21.20 UG/L	47.32 UG/L
8611405-01A	0.96584 PG	NOT DETECTED	NOT DETECTED
8611405-02A	0.96585 PG	NOT DETECTED	NOT DETECTED
8611406-01A	0.96591 PG	39.9%	NOT DETECTED *

* Spiked with Tr[illegible]ethane

 CEP, Inc. REPORT LAB # 86-09-249

RECEIVED: 09/12/86 11/12/86 15:09:58

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES: 4
COMPANY: Los Alamos National Labs
FACILITY:

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN:
PHONE: (505) 982-9841

CERTIFIED BY

CONTACT: GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

WORK ID: Water Quality and Org.
TAKEN:
TRANS: Self
TYPE: Solid
P.O. #:
INVOICE: under separate cover

SAMPLE IDENTIFICATION

01	LANL-1-V-1-A.C.(F.)
02	LANL-1,2-V-1,2,3-A.C.(U)
03	LANL-3-V-3-A.C.(U)
04	LANL-4-V-1,2,3-A.C.(U)

CEP, Inc. TEST CODES and NAMES used on this report

CL S	Chloride
CTET 1	Carbon Tetrachloride
PH S	pH
TCE	Trichloroethylene

REPORT OF ANALYSIS

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	ug/gram	
LANL-1-V-1-A. C. (F.)	09/04/86	Chloride	2300	
86.12433		Carbon Tetrachloride 56235	990	(ug/kg)
		pH	9.92	(units)
		Trichloroethylene 79016	<1	(ug/kg)
LANL-1,2-V-1,2,3-A. C. (U)	09/06/86	Chloride	9780	
86.12434		Carbon Tetrachloride	<1	(ug/kg)
		pH	5.73	(units)
		Trichloroethylene	35	(ug/kg)
LANL-3-V-3-A. C. (U)	09/06/86	Chloride	30100	
86.12435		Carbon Tetrachloride	1100	(ug/kg)
		pH	6.02	(units)
		Trichloroethylene	58	(ug/kg)
LANL-4-V-1,2,3-A. C. (U)	09/07/86	Chloride	12550	
86.12436		Carbon Tetrachloride	620	(ug/kg)
		pH	4.99	(units)
		Trichloroethylene	110	(ug/kg)

 CEP, Inc. REPORT LAB # 86-09-243

RECEIVED: 09/12/86 11/12/86 15:09:38

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES: 2
COMPANY: Los Alamos National Labs
FACILITY:

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN:
PHONE: (505) 982-9841

CERTIFIED BY

CONTACT: QAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

WORK ID: Water Quality and Org.
TAKEN:
TRANS: Self
TYPE: Filter
P.O. #:
INVOICE: under separate cover

SAMPLE IDENTIFICATION

01 LANL-1-V-1-HEPA
02 LANL-4-V-3-HEPA(U)

CEP, Inc. TEST CODES and NAMES used on this report

CL S	Chloride
CTET 1	Carbon Tetrachloride
PH S	pH
TCE	Trichloroethylene

REPORT OF ANALYSIS

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	ug/gram	
LANL-1-V-1-HEPA 86.10198	09/04/86	Chloride	9	
		Carbon Tetrachloride	38	(ug/kg)
		pH	8.31	(units)
		Trichloroethylene	<1	(ug/kg)
LANL-4-V-3-HEPA(U) 86.10199	09/08/86	Chloride	87700	
		Carbon Tetrachloride	150	(ug/kg)
		pH	5.89	(units)
		Trichloroethylene	10	(ug/kg)

 CEP, Inc. REPORT LAB # 86-09-242

RECEIVED: 09/12/86 11/12/86 15:09:18

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES: 2
COMPANY: Los Alamos National Labs
FACILITY:

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN:
PHONE: (505) 982-9841

CERTIFIED BY

CONTACT: QAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

WORK ID: Water Quality and Org.
TAKEN:
TRANS: Self
TYPE: Solid
P.O. #:
INVOICE: under separate cover

SAMPLE IDENTIFICATION

01 LANL-3-V-3-I.A.
02 LANL-4-M5-1,2,3-I.A.

CEP, Inc. TEST CODES and NAMES used on this report

CL S	Chloride
CTET 1	Carbon Tetrachloride
PH S	pH
TCE	Trichloroethylene

REPORT OF ANALYSIS

LAB # 86-09-2

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	ug/gram	
LANL-3-V-3-I. A. 86.10196	09/06/86	Chloride	8750	
		Carbon Tetrachloride	168	(ug/kg)
		pH	9.91	(units)
		Trichloroethylene	150	(ug/kg)
LANL-4-M5-1,2,3-I. A. 86.10197	09/07/86	Chloride	26700	
		Carbon Tetrachloride	2000	(ug/kg)
		pH	8.92	(units)
		Trichloroethylene	600	(ug/kg)

 CEP, Inc. REPORT LAB # 86-09-241

RECEIVED: 09/12/86 11/12/86 16:23:20

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES: 4
COMPANY: Los Alamos National Labs
FACILITY:

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN:
PHONE: (505) 982-9841

CERTIFIED BY

CONTACT: GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

WORK ID: Water Quality and Org.
TAKEN:
TRANS: Self
TYPE: Liquid
P.O. #:
INVOICE: under separate cover

SAMPLE IDENTIFICATION

01 LANL-1-V-1-F.D.F.
02 LANL-2-M5-1-ALGL
03 LANL-1-M5-1-ALGL
04 LANL-3,4-V-1,2,3-PEL

CEP, Inc. TEST CODES and NAMES used on this report

CL 1	Chloride
CTET 1	Carbon Tetrachloride
TCE	Trichloroethylene

REPORT OF ANALYSIS

LAB # 86-09-24

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	mg/liter	
LANL-1-V-1-F. O. F. 86.10192	09/04/86	Chloride	<1	
		Carbon Tetrachloride	<1	
		Trichloroethylene	<1	
LANL-2-M5-1-ALGL 86.10193	09/05/86	Chloride	38	(ug/gram)
		Carbon Tetrachloride	27	(ug/kg)
		Trichloroethylene	1.24	(ug/kg)
LANL-1-M5-1-ALGL 86.10194	09/04/86	Chloride	54	(ug/gram)
		Carbon Tetrachloride	510	(ug/kg)
		Trichloroethylene	628	(ug/kg)
LANL-3,4-V-1,2,3-PEL 86.10195	09/06/86	Chloride	2610	(ug/gram)
		Carbon Tetrachloride	82	(ug/kg)
		Trichloroethylene	70	(ug/kg)

 CEP, Inc. REPORT LAB # 86-09-246

RECEIVED: 09/12/86 11/19/86 16:14:06

REPORT TO
Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN Larry Fields

CLIENT LA NAT LAB SAMPLES 2
COMPANY Los Alamos National Labs
FACILITY

WORK ID Organics
TAKEN
TRANS Self
TYPE Liquid
P.O. #
INV. # 418748

PREPARED BY
Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN
PHONE (505) 982-9841

CERTIFIED BY

CONTACT GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

"CORRECTED REPORT"

SAMPLE IDENTIFICATION

01 LANL-1-V-1-CCL4
02 LANL-1-V-1-TCE

CEP, Inc. TEST CODES and NAMES used on this report

P CTET % Carbon Tetrachloride
P TCE % Trichloroethulene

REPORT OF ANALYSIS

LAB # 86-09-246

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	%
LANL-1-V-1-CCL4	09/04/86	% Carbon Tetrachloride	100
LANL-1-V-1-TCE	09/04/86	% Trichloroethylene	97.0

Sulbers

 CEP, Inc. REPORT LAB # 86-09-247

RECEIVED: 09/12/86 11/19/86 16:14:29

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES: 6
COMPANY: Los Alamos National Labs
FACILITY:

WORK ID: Water Quality & Org.
TAKEN:
TRANS: Self
TYPE: Liquid
P.O. #:
INV. #: 418749

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN:
PHONE: (505) 982-9841

CERTIFIED BY

CONTACT: GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

"CORRECTED REPORT"

SAMPLE IDENTIFICATION

01	LANL-1-V-1-L.M.F.
02	LANL-1-V-2-L.M.F.
03	LANL-2-V-1-L.M.F.
04	LANL-2-V-2-L.M.F.
05	LANL-1-V-3-L.M.F.
06	LANL-2-V-3-L.M.F.

CEP, Inc. TEST CODES and NAMES used on this report

CL 1	Chloride
P CTET	% Carbon Tetrachloride
P TCE	% Trichloroethylene
TDS 1	Total Dissolved Solids

REPORT OF ANALYSIS

LAB # 86-09-247

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	mg/liter	
LANL-1-V-1-L. M. F.	09/04/86	Chloride	1	
		% Carbon Tetrachloride	31.8	(%)
		% Trichloroethylene	16.0	(%)
		Solids, Total Dissolved	12350	
LANL-1-V-2-L. M. F.	09/04/86	Chloride	8	
		% Carbon Tetrachloride	43.0	(%)
		% Trichloroethylene	21.3	(%)
		Solids, Total Dissolved	5460	
LANL-2-V-1-L. M. F.	09/05/86	Chloride	5	
		% Carbon Tetrachloride	30.0	(%)
		% Trichloroethylene	16.0	(%)
		Solids, Total Dissolved	6600	
LANL-2-V-2-L. M. F.	09/05/86	Chloride	3	
		% Carbon Tetrachloride	40.6	(%)
		% Trichloroethylene	20.1	(%)
		Solids, Total Dissolved	5010	
LANL-1-V-3-L. M. F.	09/04/86	Chloride	3	
		% Carbon Tetrachloride	40.4	(%)
		% Trichloroethylene	20.3	(%)
		Solids, Total Dissolved	2630	
LANL-2-V-3-L. M. F.	09/05/86	Chloride	4	
		% Carbon Tetrachloride	46.4	(%)
		% Trichloroethylene	18.2	(%)
		Solids, Total Dissolved	10550	

PAGE 1 CEP, Inc. REPORT LAB # 86-11-409

RECEIVED: 11/20/86 11/25/86 16:20:54

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES: 3

COMPANY: Los Alamos National Labs

FACILITY:

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN:

PHONE: (505) 982-9841

CERTIFIED BY

CONTACT: GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

WORK ID: Organics

TAKEN:

TRANS:

TYPE: Vost Cartridges

P.O. #:

INVOICE: under separate cover

SAMPLE IDENTIFICATION

01 0.96587 T
01 0.96587 TC
02 0.96588 T
02 0.96588 TC
03 0.96586 T
03 0.96586 TC

CEP, Inc. TEST CODES and NAMES used on this report

CTET 1 Carbon Tetrachloride
TCE Trichloroethylene

REPORT OF ANALYSIS

LAB # 86-11-4[illegible]

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	ug/liter	
0.96587 T	not specified	Carbon Tetrachloride	330	[illegible]
		Trichloroethylene	4900	4500
		Carbon Tetrachloride	330	
		Trichloroethylene	4900	
	not specified	Carbon Tetrachloride	1440	800
		Trichloroethylene	2100	1100
		Carbon Tetrachloride	1440	
		Trichloroethylene	2100	
0.96586 T	not specified	Carbon Tetrachloride	2900	4800
		Trichloroethylene	240	280
		Carbon Tetrachloride	2900	
		Trichloroethylene	240	

PAGE 1 CEP, Inc. REPORT LAB # 86-09-238

RECEIVED: 09/11/86 11/03/86 01:00:52

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES: 42
COMPANY: Los Alamos National Labs
FACILITY:

WORK ID: Organics
TAKEN:
TRANS: Self
TYPE: Charcoal Traps
P.O. #:
INVOICE: under separate cov

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN:
PHONE: (505) 982-9841

CERTIFIED BY:

CONTACT: GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

* Detector quenched unable to determine.
** Broken in shipment.

SAMPLE IDENTIFICATION

01 I-V-1-T
02 I-V-1-TC
03 I-V-2-T
04 I-V-2-TC
05 I-V-3-T
06 I-V-3-TC
07 I-V-4-T
08 I-V-4-TC
09 I-V-5-T
10 I-V-5-TC
11 I-V-6-T
12 I-V-6-TC
13 I-V-(1-6)-T Field Blank
14 I-V-(1-6)-TC Field Blank
15 I-V-(1-6)-CON
16 2-V-1-T
17 2-V-1-TC
18 2-V-2-T
19 2-V-2-TC
20 2-V-3-T
21 2-V-3-TC

CEP, Inc. TEST CODES and NAMES used on this report

CTET 1 Carbon Tetrachloride
TCE Trichloroethylene

 CEP, Inc. REPORT LAB # 86-09-238

RECEIVED: 09/11/86 11/03/86 01:00:52

SAMPLE IDENTIFICATION

22 2-V-4-T
23 2-V-4-TC
24 2-V-5-T
25 2-V-5-TC
26 2-V-6-T
27 2-V-6-TC
28 2-V-(1-6)-T Field Blank
29 2-V-(1-6)-TC Field Blank
30 2-V-(1-6)-CON
31 3-V-1-T
32 3-V-1-TC
33 3-V-2-T
34 3-V-2-TC
35 3-V-3-T
36 3-V-3-TC
37 3-V-4-T
38 3-V-4-TC
39 3-V-5-T
40 3-V-5-TC
41 3-V-6-T
42 3-V-6-TC

OUT OF STATE 800/545-2188

REPORT OF ANALYSIS

LAB # 86-09-238

SAMPLE IDENTIFICATION	E COLLECTED	TYPE OF ANALYSIS	ng
I-V-1-T	09/04/86	Carbon Tetrachloride	>188
		Trichloroethylene	*
I-V-1-TC	09/04/86	Carbon Tetrachloride	>188
		Trichloroethylene	*
I-V-2-T	09/04/86	Carbon Tetrachloride	6780
		Trichloroethylene	161
I-V-2-TC	09/04/86	Carbon Tetrachloride	6780
		Trichloroethylene	161
I-V-3-T	09/04/86	Carbon Tetrachloride	51.10
		Trichloroethylene	<10.0
I-V-3-TC	09/04/86	Carbon Tetrachloride	51.10
		Trichloroethylene	<10.0
I-V-4-T	09/04/86	Carbon Tetrachloride	>5760
		Trichloroethylene	*
I-V-4-TC	09/04/86	Carbon Tetrachloride	>5760
		Trichloroethylene	*
I-V-5-T	09/04/86	Carbon Tetrachloride	>5410
		Trichloroethylene	*
I-V-5-TC	09/04/86	Carbon Tetrachloride	>5410
		Trichloroethylene	*
I-V-6-T	09/04/86	Carbon Tetrachloride	5410
		Trichloroethylene	140
I-V-6-TC	09/04/86	Carbon Tetrachloride	**
		Trichloroethylene	**
I-V-(1-6)-T Field Blank	09/04/86	Carbon Tetrachloride	<10.0
		Trichloroethylene	2.5

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	ng
I-V-(1-6)-TC Field Blank	09/04/86	Carbon Tetrachloride	<10.0
		Trichloroethylene	2.5
I-V-(1-6)-CON	09/04/86	Carbon Tetrachloride	14.80 (ug/liter)
		Trichloroethylene	0.26 (ug/liter)
2-V-1-T	09/05/86	Carbon Tetrachloride	63.0
		Trichloroethylene	<10.0
2-V-1-TC	09/05/86	Carbon Tetrachloride	63.0
		Trichloroethylene	<10.0
2-V-2-T	09/05/86	Carbon Tetrachloride	*
		Trichloroethylene	*
2-V-2-TC	09/05/86	Carbon Tetrachloride	*
		Trichloroethylene	*
2-V-3-T	09/05/86	Carbon Tetrachloride	**
		Trichloroethylene	**
2-V-3-TC	09/05/86	Carbon Tetrachloride	4.0
		Trichloroethylene	<10.0
2-V-4-T	09/05/86	Carbon Tetrachloride	1190
		Trichloroethylene	164
2-V-4-TC	09/05/86	Carbon Tetrachloride	1190
		Trichloroethylene	164
2-V-5-T	09/05/86	Carbon Tetrachloride	4580
		Trichloroethylene	115
2-V-5-TC	09/05/86	Carbon Tetrachloride	4580
		Trichloroethylene	115
2-V-6-T	09/05/86	Carbon Tetrachloride	5660
		Trichloroethylene	110
2-V-6-TC	09/05/86	Carbon Tetrachloride	5660

REPORT OF ANALYSIS

LAB # 86-09-238

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	ng	
2-V-6-TC (Con't)		Trichloroethylene	110	
2-V-(1-6)-T Field Blank	05/86	Carbon Tetrachloride	8.0	
		Trichloroethylene	<10.0	
2-V-(1-6)-TC Field Blank	05/86	Carbon Tetrachloride	8.0	
		Trichloroethylene	<10.0	
2-V-(1-6)-CON	05/86	Carbon Tetrachloride	7.78	(ug/liter)
		Trichloroethylene	0.19	(ug/liter)
3-V-1-T	06/86	Carbon Tetrachloride	2170	
		Trichloroethylene	231	
3-V-1-TC	06/86	Carbon Tetrachloride	2170	
		Trichloroethylene	231	
3-V-2-T	06/86	Carbon Tetrachloride	2230	(ng/liter)
		Trichloroethylene	235	(ng/liter)
3-V-2-TC	06/86	Carbon Tetrachloride	2230	
		Trichloroethylene	235	
3-V-3-T	06/86	Carbon Tetrachloride	5660	
		Trichloroethylene	1240	
3-V-3-TC	06/86	Carbon Tetrachloride	5660	
		Trichloroethylene	1240	
3-V-4-T	06/86	Carbon Tetrachloride	4440	
		Trichloroethylene	543	
3-V-4-TC	06/86	Carbon Tetrachloride	4440	
		Trichloroethylene	543	
3-V-5-T	06/86	Carbon Tetrachloride	258	
		Trichloroethylene	6.0	
3-V-5-TC	06/86	Carbon Tetrachloride	258	
		Trichloroethylene	6.0	

REPORT OF ANALYSIS

LAB # 86-09-238

SAMPLE IDENTIFICATION	E COLLECTED	TYPE OF ANALYSIS	ng
3-V-6-T	06/86	Carbon Tetrachloride	2993
		Trichloroethylene	8.0
3-V-6-TC	06/86	Carbon Tetrachloride	2993
		Trichloroethylene	8.0

PAGE 1 CEP, Inc. REPORT LAB # 86-09-239

RECEIVED: 09/12/86 11/03/86 01:29:06

REPORT TO: Los Alamos Nationa abs
Mail Stop K 484
Los Alamos, NM 87

ATTEN: Larry Fields

CLIENT: LA NAT LAB MPLES 32
COMPANY: Los Alamos Nationa abs
FACILITY:

WORK ID: Organics
TAKEN:
TRANS: Self
TYPE: Charcoal Traps
P.O. #:
INVOICE: under separate cov

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN:
PHONE: (505) 982-9841

CERTIFIED BY:

CONTACT: GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

* Broken in shipment.

SAMPLE IDENTIFICATION

01 3-V-(1-6)-T Field Blank
02 3-V-(1-6)-TC Field Blank
03 3-V-(1-6)-CON
04 4-V-1-T
05 4-V-1-TC
06 4-V-2-T
07 4-V-2-TC
08 4-V-3-T
09 4-V-3-TC
10 4-V-4-T
11 4-V-4-TC
12 4-V-5-T
13 4-V-5-TC
14 4-V-6-T
15 4-V-6-TC
16 4-V-(1-6)-T Field Blank
17 4-V-(1-6)-TC Field Blank
18 4-V-(1-6)-CON
19 (1-4)-V-1-T-A
20 (1-4)-V-1-TC-A
21 (1-4)-V-2-T-A

CEP, Inc. TEST CODES and NAMES used on this report

CTET 1 Carbon Tetrachloride
TCE Trichloroethylene

RECEIVED: 09/12/86 11/03/86 01:29:06

SAMPLE IDENTIFICATION

22 (1-4)-V-2-TC-A
23 (1-4)-V-3-T-A
24 (1-4)-V-3-TC-A
25 (1-4)-V-4-T-A
26 (1-4)-V-4-TC-A
27 (1-4)-V-5-T-A
28 (1-4)-V-5-TC-A
29 (1-4)-V-6-T-A
30 (1-4)-V-6-TC-A
31 (1-4)-V-ALL-T Trip Blank
32 (1-4)-V-ALL-TC Trip Blan

REPORT OF ANALYSIS

OUT OF STATE 800/545-2188

LAB # 86-09-239

SAMPLE IDENTIFICATION	E COLLECTED	TYPE OF ANALYSIS	ng	
3-V-(1-6)-T Field Blank	06/86	Carbon Tetrachloride	<10.0	
		Trichloroethylene	<10.0	
3-V-(1-6)-TC Field Blank	06/86	Carbon Tetrachloride	<10.0	
		Trichloroethylene	<10.0	
3-V-(1-6)-CON ?	06/86	Carbon Tetrachloride	2.03	(ug/liter)
		Trichloroethylene	0.19	(ug/liter)
4-V-1-T	07/86	Carbon Tetrachloride	5600	
		Trichloroethylene	52.0	
4-V-1-TC	07/86	Carbon Tetrachloride	5600	
		Trichloroethylene	52.0	
4-V-2-T	07/86	Carbon Tetrachloride	590	
		Trichloroethylene	<10.0	
4-V-2-TC	07/86	Carbon Tetrachloride	590	
		Trichloroethylene	<10.0	
4-V-3-T	09/07/86	Carbon Tetrachloride	2600	
		Trichloroethylene	36.0	
4-V-3-TC	07/86	Carbon Tetrachloride	2600	
		Trichloroethylene	36.0	
4-V-4-T	07/86	Carbon Tetrachloride	5200	
		Trichloroethylene	210	
4-V-4-TC	07/86	Carbon Tetrachloride	5200	
		Trichloroethylene	210	
4-V-5-T	07/86	Carbon Tetrachloride	6200	
		Trichloroethylene	162	
4-V-5-TC	07/86	Carbon Tetrachloride	6200	
		Trichloroethylene	162	

REPORT OF ANALYSIS

LAB # 86-09-239

SAMPLE IDENTIFICATION	E COLLECTED	TYPE OF ANALYSIS	ng	
4-V-6-T	07/86	Carbon Tetrachloride	4900	
		Trichloroethylene	116	
4-V-6-TC	07/86	Carbon Tetrachloride	4900	
		Trichloroethylene	116	
4-V-(1-6)-T Field Blank	07/86	Carbon Tetrachloride	<10.0	
		Trichloroethylene	<10.0	
4-V-(1-6)-TC Field Blank	07/86	Carbon Tetrachloride	<10.0	
		Trichloroethylene	<10.0	
4-V-(1-6)-CON	07/86	Carbon Tetrachloride	0.44	(ug/liter)
		Trichloroethylene	0.38	(ug/liter)
(1-4)-V-1-T-A	07/86	Carbon Tetrachloride	<10.0	
		Trichloroethylene	502	
(1-4)-V-1-TC-A	07/86	Carbon Tetrachloride	<10.0	
		Trichloroethylene	502	
(1-4)-V-2-T-A	07/86	Carbon Tetrachloride	<10.0	
		Trichloroethylene	605	
(1-4)-V-2-TC-A	07/86	Carbon Tetrachloride	<10.0	
		Trichloroethylene	605	
(1-4)-V-3-T-A	07/86	Carbon Tetrachloride	<10.0	
		Trichloroethylene	614	
(1-4)-V-3-TC-A	07/86	Carbon Tetrachloride	<10.0	
		Trichloroethylene	614	
(1-4)-V-4-T-A	08/86	Carbon Tetrachloride	615	
		Trichloroethylene	<10.0	
(1-4)-V-4-TC-A	08/86	Carbon Tetrachloride	615	
		Trichloroethylene	<10.0	
(1-4)-V-5-T-A	08/86	Carbon Tetrachloride	*	

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OUT OF STATE 800/545-2188

REPORT OF ANALYSIS

LAB # 86-09-239

SAMPLE IDENTIFICATION	E COLLECTED	TYPE OF ANALYSIS	ng
(1-4)-V-5-T-A (Con't)		Trichloroethylene	*
(1-4)-V-5-TC-A	08/86	Carbon Tetrachloride	*
		Trichloroethylene	*
(1-4)-V-6-T-A	08/86	Carbon Tetrachloride	730
		Trichloroethylene	<10.0
(1-4)-V-6-TC-A	08/86	Carbon Tetrachloride	730
		Trichloroethylene	<10.0
(1-4)-V-ALL-T Trip Blank	08/86	Carbon Tetrachloride	<10.0
		Trichloroethylene	<10.0
(1-4)-V-ALL-TC Trip Blank	08/86	Carbon Tetrachloride	<10.0
		Trichloroethylene	<10.0

PAGE 1 CEP, Inc. REPORT LAB # 86-09-241

RECEIVED: 09/12/86 11/03/86 00:46:21 WORK NOT COMPLETE

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES: 4
COMPANY: Los Alamos National Labs
FACILITY:

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN:
PHONE: (505) 982-9841

CERTIFIED BY

CONTACT: GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

WORK ID: Water Quality and Org.
TAKEN:
TRANS: Self
TYPE: Liquid
P.O. #:
INVOICE: under separate cover

SAMPLE IDENTIFICATION

01 LANL-1-V-1-F.O.F.
02 LANL-2-M5-1-ALGL
03 LANL-1-M5-1-ALGL
04 LANL-3,4-V-1,2,3-PEL

CEP, Inc. TEST CODES and NAMES used on this report

CL 1	Chloride
CTET 1	Carbon Tetrachloride
TCE	Trichloroethulene

REPORT OF ANALYSIS

LAB # 86-09-241

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	mg/liter	
LANL-1-V-1-F.O.F.	09/04/86	Chloride	<1	
		Carbon Tetrachloride	<1	
		Trichloroethylene	<1	
LANL-2-M5-1-ALQL	09/05/86	Chloride	38	(ug/gram)
		Carbon Tetrachloride		(ug/gram)
		Trichloroethylene		(ug/gram)
LANL-1-M5-1-ALQL	09/04/86	Chloride	54	(ug/gram)
		Carbon Tetrachloride		(ug/gram)
		Trichloroethylene		(ug/gram)
LANL-3,4-V-1,2,3-PEL	09/06/86	Chloride	2610	(ug/gram)
		Carbon Tetrachloride		(ug/gram)
		Trichloroethylene		(ug/gram)

 CEP, Inc. REPORT LAB # 86-09-246

RECEIVED: 09/12/86 11/03/86 00:47:04

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES: 2
COMPANY: Los Alamos National Labs
FACILITY:

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN:
PHONE: (505) 982-9841

CERTIFIED BY

CONTACT: QAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

WORK ID: Organics
TAKEN:
TRANS: Self
TYPE: Liquid
P.O. #:
INVOICE: under separate cover

SAMPLE IDENTIFICATION		CEP, Inc. TEST CODES and NAMES used on this report	
01	LANL-1-V-1-CCL4	P CTET	% Carbon Tetrachloride
02	LANL-1-V-1-TCE	P TCE	% Trichloroethulene

P.O. Box 6851 • Santa Fe, New Mexico 87505
OUT OF STATE 800/545-2188

REPORT OF ANALYSIS

LAB # 86-09-246

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	%
LANL-1-V-1-CCL4	09/04/86	% Carbon Tetrachloride	81.49
LANL-1-V-1-TCE	09/04/86	% Trichloroethylene	41.47

CEP, Inc. REPORT LAB # 86-09-377

RECEIVED 09/17/86 10/15/86 16:48:01

REPORT TO
Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN Larry Fields

CLIENT LA NAT LAB SAMPLES 2
COMPANY Los Alamos National Labs
FACILITY

PREPARED BY
Controls for Environmental
Pollution, Inc
1925 Rosina Street
Santa Fe, NM 87502

ATTEN
PHONE (505) 982-9841

CERTIFIED BY

CONTACT GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made

WORK ID Water Quality
TAKEN
TRANS CEP
TYPE Liquid
P.O. #
INVOICE under separate cover

SAMPLE IDENTIFICATION

01 0 9775 PG
02 0 9776 PG

CEP, Inc. TEST CODES and NAMES used on this report

CTET 1 Carbon Tetrachloride
TCE Trichloroethylene

REPORT OF ANALYSIS

LAB # 86-09-3

SAMPLE IDENTIFICATION	DATE COLLECTED	CTET 1 ug/liter	TCE ug/liter
0.9775 PG	not specified	40.0	4600
0.9776 PG	not specified	66	6800

PAGE 1 CEP, Inc. REPORT LAB # 86-09-376

RECEIVED 09/17/86 10/15/86 16:47:42

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES: 2
COMPANY: Los Alamos National Labs
FACILITY:

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN:
PHONE: (505) 982-9841

CERTIFIED BY

CONTACT: GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made

WORK ID: Water Quality
TAKEN:
TRANS: CEP
TYPE: Solid
P.O. #:
INVOICE: under separate cover

SAMPLE IDENTIFICATION

01 0 96773 PG
02 0 96774 PG

CEP, Inc. TEST CODES and NAMES used on this report

CTET 1	Carbon Tetrachloride
TCE	Trichloroethylene

OUT OF STATE 800/545-2188

REPORT OF ANALYSIS

LAB # 86-09-376

SAMPLE IDENTIFICATION	DATE COLLECTED	CTET 1 ug/liter	TCE ug/liter
0.96773 PG	not specified	0.26	15.28
0.96774 PG	not specified	0.18	0.13

PAGE 1 CEP, Inc. REPORT LAB # 86-09-250

RECEIVED 09/12/86 10/15/86 16:46:56

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES: 12
COMPANY: Los Alamos National Labs
FACILITY:

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN:
PHONE: (505) 982-9841

CERTIFIED BY

CONTACT: GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

WORK ID: Water Quality and Org.
TAKEN:
TRANS: Self
TYPE: Liquid
P.O. #:
INVOICE: under separate cover

SAMPLE IDENTIFICATION

01 LANL-1-V-1-M.W.
02 LANL-1-V-2-M.W.
03 LANL-1-V-3-M.W.
04 LANL-2-V-1-M.W.
05 LANL-2-V-2-M.W.
06 LANL-2-V-3-M.W.
07 LANL-3-V-1-M.W.
08 LANL-3-V-2-M.W.
09 LANL-3-V-3-M.W.
10 LANL-4-V-1-M.W.
11 LANL-4-V-2-M.W.
12 LANL-4-V-3-M.W.

CEP, Inc. TEST CODES and NAMES used on this report

CL 1	Chloride
CTET 1	Carbon Tetrachloride
TCE	Trichloroethylene

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REPORT OF ANALYSIS

LAB # 86-09-250

SAMPLE IDENTIFICATION	DATE COLLECTED	CL_1 mg/liter	CHET_1 ug/liter	TCE ug/liter
LANL-1-V-1-M. W.	09/04/86	3	<0. 12	<0. 12
LANL-1-V-2-M. W.	09/04/86	3	<0. 12	<0. 12
LANL-1-V-3-M. W.	09/04/86	3	<0. 12	<0 12
LANL-2-V-1-M. W.	09/05/86	3	<0. 12	<0. 12
LANL-2-V-2-M. W.	09/05/86	3	<0. 12	<0 12
LANL-2-V-3-M. W.	09/05/86	3	<0. 12	<0. 12
LANL-3-V-1-M. W.	09/06/86	3	<0. 12	<0. 12
LANL-3-V-2-M. W.	09/06/86	3	<0. 12	<0. 12
LANL-3-V-3-M. W.	09/06/86	3	<0. 12	<0. 12
LANL-4-V-1-M. W.	09/07/86	3	0. 20	0. 13
LANL-4-V-2-M. W.	09/07/86	3	0. 20	0. 13
LANL-4-V-3-M. W.	09/07/86	3	0. 15	<0. 12

Cl's Entered 10/20/86

PAGE 1 | CEP, Inc. REPORT | LAB # 86-09-249

RECEIVED 09/12/86 | 10/15/86 16:46:13 | WORK NOT COMPLETE

REPORT TO
Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN Larry Fields

CLIENT LA NAT LAB SAMPLES 4
COMPANY Los Alamos National Labs
FACILITY

PREPARED BY
Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN
PHONE (505) 982-9841

CERTIFIED BY

CONTACT GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

WORK ID Water Quality and Org.
TAKEN
TRANS Self
TYPE Solid
P.O. #
INVOICE under separate cover

SAMPLE IDENTIFICATION

01 LANL-1-V-1-A.C.(F.)
02 LANL-1,2-V-1,2,3-A.C.(U)
03 LANL-3-V-3-A.C.(U)
04 LANL-4-V-1,2,3-A.C.(U)

CEP, Inc. TEST CODES and NAMES used on this report

CL S	Chloride
CTET 1	Carbon Tetrachloride
PH S	pH
TCE	Trichloroethylene

REPORT OF ANALYSIS

OUT OF STATE 800/545-2188

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	ug/gram	
LANL-1-V-1-A. C. (F.)	09/04/86	Chloride	2300	
		Carbon Tetrachloride		(ug/liter)
		pH	9.92	(units)
		Trichloroethylene		(ug/liter)
LANL-1,2-V-1,2,3-A. C. (U)	09/06/86	Chloride	9780	
		Carbon Tetrachloride		(ug/liter)
		pH	5.73	(units)
		Trichloroethylene		(ug/liter)
LANL-3-V-3-A. C. (U)	09/06/86	Chloride	30100	
		Carbon Tetrachloride		(ug/liter)
		pH	6.02	(units)
		Trichloroethylene		(ug/liter)
LANL-4-V-1,2,3-A. C. (U)	09/07/86	Chloride	11600	(ug/gram 13500)
		Carbon Tetrachloride		(ug/liter)
		pH	4.99	(units)
		Trichloroethylene		(ug/liter)

PAGE 1 CEP, Inc REPORT LAB # 86-09-241

RECEIVED 09/12/86 10/15/86 16:43:42 WORK NOT COMPLETE

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES 4
COMPANY: Los Alamos National Labs
FACILITY:

PREPARED BY: Consult. for Environmental Pollution, Inc
1526 Rosina Street
Santa Fe, NM 87502

ATTEN:
PHONE: (505) 984-3341

CERTIFIED BY:

CONTACT: GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

WORK ID: Water Quality and Org.
TAKEN:
TRANS: Self
TYPE: Liquid
P O #:
INVOICE: under separate cover

SAMPLE IDENTIFICATION

01 LANL-1-V-1-F O.F.
02 LANL-2-M5-1-ALGL
03 LANL-1-M5-1-ALGL
04 LANL-3,4-V-1,2,3-PEL

CEP, Inc. TEST CODES and NAMES used on this report

CL 1	Chloride
CTET 1	Carbon Tetrachloride
TCE	Trichloroethylene

REPORT OF ANALYSIS

LAB # 86-09-241

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	mg/liter	
LANL-1-V-1-F.O.F.	09/04/86	Chloride	<1	
		Carbon Tetrachloride		(ug/liter)
		Trichloroethylene		(ug/liter)
LANL-2-M5-1-ALGL	09/05/86	Chloride	38	(ug/gram) ok
		Carbon Tetrachloride		(ug/liter)
		Trichloroethylene		(ug/liter)
LANL-1-M5-1-ALGL	09/04/86	Chloride	54	(ug/gram) ok
		Carbon Tetrachloride		(ug/liter)
		Trichloroethylene		(ug/liter)
LANL-3,4-V-1,2,3-PEL	09/06/86	Chloride	2610	(ug/gram) ok
		Carbon Tetrachloride		(ug/liter)
		Trichloroethylene		(ug/liter)

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OUT OF STATE 800/545-2188

PAGE 1 | CEP, Inc | REPORT | LAB # 86-09-242

RECEIVED: 09/12/86 | 10/15/86 16:44:23 | WORK NOT COMPLETE

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES: 2
COMPANY: Los Alamos National Labs
FACILITY:

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN:
PHONE: (505) 982-9841

CERTIFIED BY:

CONTACT: GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

WORK ID: Water Quality and Org.
TAKEN:
TRANS: Self
TYPE: Solid
P.O. #:
INVOICE: under separate cover

SAMPLE IDENTIFICATION

01 LANL-3-V-3-I.A
02 LANL-4-M5-1,2,3-I.A

CEP, Inc. TEST CODES and NAMES used on this report

CL S	Chloride
CTET 1	Carbon Tetrachloride
PH S	pH
TCE	Trichloroethylene

REPORT OF ANALYSIS

LAB # 86-09-242

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	ug/gram	
LANL-3-V-3-I.A.	09/06/86	Chloride	8750	
		Carbon Tetrachloride		(ug/liter)
		pH	9.91	(units)
		Trichloroethylene		(ug/liter)
LANL-4-M5-1,2,3-I.A.	09/07/86	Chloride	26700	
		Carbon Tetrachloride		(ug/liter)
		pH	8.92	(units)
		Trichloroethylene		(ug/liter)

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OUT OF STATE 800/545-2188

 CEP, Inc. REPORT LAB # 86-09-243

RECEIVED 09/12/86 10/15/86 16 44 58 WORK NOT COMPLETE

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES: 2
COMPANY: Los Alamos National Labs
FACILITY:

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN:
PHONE: (505) 982-9841

CERTIFIED BY:

CONTACT: GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

WORK ID: Water Quality and Org.
TAKEN:
TRANS: Self
TYPE: Filter
P.O. #:
INVOICE: under separate cover

SAMPLE IDENTIFICATION

01 LANL-1-V-1-HEPA 26.1 mg
02 LANL-4-V-3-HEPA(U) 71.1 mg

CEP, Inc. TEST CODES and NAMES used on this report

CL S	Chloride
CTET 1	Carbon Tetrachloride
PH S	pH
TCE	Trichloroethylene

REPORT OF ANALYSIS

LAB # 86-09-243

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	ug/gram	
LANL-1-V-1-HEPA	09/04/86	Chloride	9	
		Carbon Tetrachloride		(ug/liter)
		pH	8.31	(units)
		Trichloroethylene		(ug/liter)
LANL-4-V-3-HEPA(U)	09/08/86	Chloride	87700	
		Carbon Tetrachloride		(ug/liter)
		pH	5.89	(units)
		Trichloroethylene		(ug/liter)

P.O. BOX 5351 • Santa Fe, New Mexico 87502 OUT OF STATE 800/545-2188

 CEP, Inc. REPORT LAB # 86-09-245

RECEIVED: 09/12/86 10/15/86 16:45:18

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES: 12
COMPANY: Los Alamos National Labs
FACILITY:

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN:
PHONE: (505) 982-9841

CERTIFIED BY

CONTACT: GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

WORK ID: Water Quality and Org.
TAKEN:
TRANS: Self
TYPE: Liquid
P.O. #:
INVOICE: under separate cover

SAMPLE IDENTIFICATION

01 LANL-1-V-1-S.D.L.
02 LANL-1-V-2-S.D.L.
03 LANL-1-V-3-S.D.L.
04 LANL-2-V-1-S.D.L.
05 LANL-2-V-2-S.D.L.
06 LANL-2-V-3-S.D.L.
07 LANL-3-V-1-S.D.L.
08 LANL-3-V-2-S.D.L.
09 LANL-3-V-3-S.D.L.
10 LANL-4-V-1-S.D.L.
11 LANL-4-V-2-S.D.L.
12 LANL-4-V-3-S.D.L.

CEP, Inc. TEST CODES and NAMES used on this report

CL 1	Chloride
CTET 1	Carbon Tetrachloride
PH 1	pH
TCE	Trichloroethylene

REPORT OF ANALYSIS

OUT OF STATE 800/545-2188

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	mg/liter	
LANL-1-V-1-S. D. L.	09/04/86	Chloride	14000	
86.12400		Carbon Tetrachloride	<0.12	(ug/liter)
		pH	10.30	(units)
		Trichloroethylene	0.14	(ug/liter)
LANL-1-V-2-S. D. L.	09/04/86	Chloride	18000	
86.12401		Carbon Tetrachloride	<0.12	(ug/liter)
		pH	2.85	(units)
		Trichloroethylene	<0.12	(ug/liter)
LANL-1-V-3-S. D. L.	09/04/86	Chloride	26000	
86.12402		Carbon Tetrachloride	<0.12	(ug/liter)
		pH	2.38	(units)
		Trichloroethylene	0.21	(ug/liter)
LANL-2-V-1-S. D. L.	09/05/86	Chloride	13000	
86.12403		Carbon Tetrachloride	<0.12	(ug/liter)
		pH	2.19	(units)
		Trichloroethylene	<0.12	(ug/liter)
LANL-2-V-2-S. D. L.	09/05/86	Chloride	25000	
04		Carbon Tetrachloride	<0.12	(ug/liter)
		pH	1.82	(units)
		Trichloroethylene	0.57	(ug/liter)
LANL-2-V-3-S. D. L.	09/05/86	Chloride	28000	
05		Carbon Tetrachloride	<0.12	(ug/liter)
		pH	1.63	(units)
		Trichloroethylene	0.18	(ug/liter)
LANL-3-V-1-S. D. L.	09/06/86	Chloride	20000	
0		Carbon Tetrachloride	<0.12	(ug/liter)
		pH	0.99	(units)
		Trichloroethylene	0.43	(ug/liter)
LANL-3-V-2-S. D. L. 0	09/06/86	Chloride	9000	
		Carbon Tetrachloride	0.14	(ug/liter)
		pH	3.52	(units)
		Trichloroethylene	0.64	(ug/liter)

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OUT OF STATE 800/545-2188

REPORT OF ANALYSIS

LAB # 86-09-245

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	mg/liter	
LANL-3-V-3-S. D. L. 86 12408	09/06/86	Chloride	19000	
		Carbon Tetrachloride	<0.12	(ug/liter)
		pH	4.06	(units)
		Trichloroethylene	0.59	(ug/liter)
LANL-4-V-1-S. D. L. 09	09/07/86	Chloride	12000	
		Carbon Tetrachloride	<0.12	(ug/liter)
		pH	2.00	(units)
		Trichloroethylene	0.43	(ug/liter)
LANL-4-V-2-S. D. L. 41	09/07/86	Chloride	18000	
		Carbon Tetrachloride	<0.12	(ug/liter)
		pH	2.71	(units)
		Trichloroethylene	0.57	(ug/liter)
LANL-4-V-3-S. D. L. 41	09/07/86	Chloride	22000	
		Carbon Tetrachloride	<0.12	(ug/liter)
		pH	1.87	(units)
		Trichloroethylene	0.35	(ug/liter)

[illegible] 10/[illegible]/86

[illegible] 10/22/86

The following information provided by you would expedite your samples being processed. Please include a packing slip containing the following information:

Report To:
- Client Name
- Street Address or P.O. Box
- City, State, Zip Code
- Attention

Telephone #

Date & Time of Collection

Sample Identification

Analysis requested for each sample

Billing Address

Turn-Around Service

(Emergency, Rush, Routine)

Alphabetize or numerical order on packing slip.

On sample containers please indicate the following:

Client Name

Sample Identification

Date & Time Collected

If packaged in blue ice do not use felt tip pen as markings come off. Use non water soluble markers or package bottles in leak proof plastic bags. Seal Samples with electrical or plastic type tape to prevent leakage. Do not use paper labels when packing in ice as bottles sweat and labels slip off.

Note: If you use paper labels, please cover with clear plastic type tape.

Your cooperation will help keep sample analysis cost down and expedite your samples through the laboratory. We appreciate your help in this matter.

If you send your samples UPS, please contact UPS sales representative for packaging information.

If further instructions are required please feel free to contact Gail at 1-800-545-2188.

Looking forward in performing technical services for you and your company.

 CEP, Inc. REPORT LAB # 86-09-247

RECEIVED: 09/12/86 11/03/86 00:47:37

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES: 6
COMPANY: Los Alamos National Labs
FACILITY:

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

ATTEN:
PHONE: (505) 982-9841

CERTIFIED BY

CONTACT: QAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

WORK ID: Water Quality & Org.
TAKEN:
TRANS: Self
TYPE: Liquid
P.O. #:
INVOICE: under separate cover

SAMPLE IDENTIFICATION

01 LANL-1-V-1-L.M.F.
02 LANL-1-V-2-L.M.F.
03 LANL-2-V-1-L.M.F.
04 LANL-2-V-2-L.M.F.
05 LANL-1-V-3-L.M.F.
06 LANL-2-V-3-L.M.F.

CEP, Inc. TEST CODES and NAMES used on this report

CL 1	Chloride
P CTET	% Carbon Tetrachloride
P TCE	% Trichloroethulene
TDS 1	Total Dissolved Solids

REPORT OF ANALYSIS

LAB # 86-09-247

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	mg/liter
LANL-1-V-1-L. M. F.	09/04/86	Chloride	1
		% Carbon Tetrachloride	11.05 (%)
		% Trichloroethylene	6.88 (%)
		Solids, Total Dissolved	12350
LANL-1-V-2-L. M. F.	09/04/86	Chloride	8
		% Carbon Tetrachloride	11.82 (%)
		% Trichloroethylene	5.09 (%)
		Solids, Total Dissolved	5460
LANL-2-V-1-L. M. F.	09/05/86	Chloride	5
		% Carbon Tetrachloride	10.50 (%)
		% Trichloroethylene	5.83 (%)
		Solids, Total Dissolved	6600
LANL-2-V-2-L. M. F.	09/05/86	Chloride	3 / 3
		% Carbon Tetrachloride	11.78 (%)
		% Trichloroethylene	6.95 (%)
		Solids, Total Dissolved	5010
LANL-1-V-3-L. M. F.	09/04/86	Chloride	3
		% Carbon Tetrachloride	10.18 (%)
		% Trichloroethylene	5.99 (%)
		Solids, Total Dissolved	2630
LANL-2-V-3-L. M. F.	09/05/86	Chloride	4
		% Carbon Tetrachloride	10.01 (%)
		% Trichloroethylene	5.24 (%)
		Solids, Total Dissolved	10550

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 CEP, Inc. REPORT LAB # 86-09-379

RECEIVED: 09/17/86 11/03/86 00:48:08

REPORT TO: Los Alamos National Labs
Mail Stop K 484
Los Alamos, NM 87545

ATTEN: Larry Fields

CLIENT: LA NAT LAB SAMPLES: 3
COMPANY: Los Alamos National Labs
FACILITY:

WORK ID: Water Quality
TAKEN:
TRANS: CEP
TYPE: Charcoal Cartridges
P.O. #:
INVOICE: under separate cover

PREPARED BY: Controls for Environmental Pollution, Inc.
1925 Rosina Street
Santa Fe, NM 87502

CERTIFIED BY

ATTEN:
PHONE: (505) 982-9841

CONTACT: GAIL

These samples will be disposed of in three weeks from the date of final report unless other arrangements are made.

* Broken in shipment.

SAMPLE IDENTIFICATION

01	0.96770
01	0.96770 PQ
02	0.96771
02	0.96771 PQ
03	0.96772
03	0.96772 PQ

CEP, Inc. TEST CODES and NAMES used on this report

112TCE	1,1,2-Trichloroethane
CTET 1	Carbon Tetrachloride

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OUT OF STATE 800/545-2188

REPORT OF ANALYSIS

LAB # 86-09-379

SAMPLE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	ng
0.96770	not specified	1,1,2-Trichloroethane	1150
		Carbon Tetrachloride	8.0
		1,1,2-Trichloroethane	1150
		Carbon Tetrachloride	8.0
0.96771	not specified	1,1,2-Trichloroethane	499
		Carbon Tetrachloride	5.6
		1,1,2-Trichloroethane	499
		Carbon Tetrachloride	5.6
0.96772	not specified	1,1,2-Trichloroethane	*
		Carbon Tetrachloride	*
		1,1,2-Trichloroethane	*
		Carbon Tetrachloride	*