



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
Bureau of Technical Services
CN 411
Trenton, N.J. 08625-0411
(609) 530-4041

September 4, 1990

MEMORANDUM

TO: Chief, Bureau of Enforcement Operations

THROUGH: Edward Choromanski 

FROM: Michael Pratt 

SUBJECT: Electrum Recovery Works, Inc.
APC Plant ID No. 40203
NJ Stack No. 002
P/CT No. 82301

Emission tests were conducted at the above referenced facility on a pot-furnace controlled by an afterburner and a scrubber (in series).

The purpose of these tests was to determine particulate, lead, THC (as CH₄) and CO emissions and then to compare the emission results for each air contaminant to the P/CT No. 82301 allowables.

NOTES:

- 1) According to Nehal Patel (MRO inspector witnessing June 13, 1990 first test run):
 - a) Production rates exceeded P/CT No. 82301 listed amount. 8.3.(e) - 1 violation was written.
 - b) Temperature chart recorder was not operating. 8.3(e) - 1 violation was written.
 - c) Afterburner combustion chamber observed temperature was equal to 1440^oF.



Leonard Sobolewski reviewed the submitted test report. His review indicated the following:

- 1) THC (as CH₄) and CO emissions were either not detected or were within P/CT No. 82301 allowables.
- 2) Particulates and lead emission rates exceeded (for all 3 test runs) P/CT No. 82301 allowables.

CONCLUSIONS:

Compliance: THC (as CH₄) and CO Emissions

Non-Compliance: Particulate and lead emission rates.

RECOMMENDATION:

Appropriate enforcement action.

c Milton Polakovic
Louis Mikolajczyk
Byron Sullivan
Leonard Sobolewski



State of New Jersey
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 DIVISION OF ENVIRONMENTAL QUALITY
 Bureau of Technical Services
 CN 411
 Trenton, N.J. 08625-0411
 (609) 530-4041

August 30, 1990

MEMORANDUM

TO: Mike Pratt

FROM: Len Sobolewski

SUBJECT: Electrum Recovery Works
 Rahway, New Jersey
 APC Plant ID No. 40203
 NJ Stack No. 002
 Permit/Certificate 082301

Emission tests were conducted at the above subject company on June 13, 1990. The testing project was completed by Trace Technologies Inc. of Bridgewater, New Jersey.

The purpose of the testing project was to determine compliance/non-compliance of air emissions being discharge from the Process Stack (A) (NJ Stack No. 002) as prescribed by the New Jersey Administrative Code 7:27-8 "Permits".

The results of the aforementioned emission tests utilizing the raw field data and laboratory analysis submitted to the Bureau of Technical Services for review and evaluation is as follows:

PARTICULATE/LEAD EMISSIONS

	<u>Run No. 1</u>	<u>Run No. 2</u>	<u>Run No. 3</u>
<u>Particulate</u>			
Actual (lbs/hr)	0.055	0.053	0.215
Allowable (lbs/hr)	0.0432	0.0432	0.0432
<u>Lead</u>			
Actual (lbs/hr)	0.0167	0.035	0.028
Allowable (lbs/hr)	0.0015	0.0015	0.0015



GAS TEST USING THE FLOW DATA FROM THE
PARTICULATE/LEAD TESTS

	<u>Run No. 1</u>	<u>Run No. 2</u>	<u>Run No. 3</u>
<u>Total Hydrocarbons</u> (As Methane)			
Actual (ppm)	ND <1.0	ND <1.0	ND <1.0
PPM @ 7% O ₂	3.04	5.38	5.28
Actual (lbs/hr)	0.0018	0.0019	0.0017
Allowable (lbs/hr)	0.0523	0.0523	0.0523
<u>Carbon Monoxide</u>			
Actual (ppm)	15.9	ND <2	ND <2
PPM @ 7% O ₂	48.39	10.77	10.57
Actual (lbs/hr)	0.05	<0.01	<0.01
Allowable (lbs/hr)	0.1865	0.1865	0.1865

For all test runs the Process Stack (A) was processing the following materials as verified by Mr. J.G. Douglas, President of Electrum Recovery Works Inc. at the charge rate indicated.

<u>Batch Composition</u>		<u>Batch Charging Rate</u>	
Solder Dross Lot CH062			
Tin	42%	No. 1	5,850 lbs
Lead	28%	No. 2	760 lbs
Tin Oxides	18%	No. 3	782 lbs
Lead Oxides	12%	No. 4	2,467 lbs
<hr/>		<hr/>	
Total	100%	Total	9,859 lbs 1,160 lbs/hr

Charge Time

Start Charging	8:33 am
Stop Charging	5:00 pm
Total Time	8.5 hrs

Permit/Certificate Number 082301 lists the production amount as 2,000 lbs/batch, one (1) hour batch indicating that the process was operating at 58% during the testing period.

The emission rates reported by Trace Technologies essentially agreed with the results calculated by the Bureau of Technical Services using the submitted field testing data and the laboratory analysis reports.

In conclusion the test results indicated that the total hydrocarbon and carbon monoxide emission rates were within the standards stated on Permit/Certificate Number 082301 during all test runs.

The test results also indicated that the particulate/lead emission rates exceeded the standards stated on Permit/Certificate Number 082301 during all test runs.

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Trace Technologies, Inc.

P.O. Box 6817, 10 Radcl Avenue
Bridgewater, New Jersey 08807
Telephone (201) 685-2100



STACK TEST REPORT
FOR
ELECTRUM RECOVERY WORKS

CONDUCTED ON: 06/08/90

SUBMITTED: 07/23/90

PROJECT #: 1425

I CERTIFY THAT THESE TESTS HAVE BEEN CONDUCTED UNDER MY DIRECT SUPERVISION AND THAT ALL RESULTS AND CALCULATIONS HAVE BEEN REVIEWED BY JOHN W. LEATHERDALE, P.E.

A handwritten signature in cursive script, appearing to read "John W. Leatherdale".

Trace Technologies, Inc.

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Trace Technologies, Inc.

INTRODUCTION

Emission tests were conducted at Electrum Recovery Works on June 12, 1990 according to these protocols approved by the NJDEP (see appendix). These tests were intended to characterize the emissions particulate, lead content, total hydrocarbons, and carbon monoxide.

SAMPLING

Sampling was initiated on June 8th, but aborted due to problems with the gas sampling train. A NJDEP required revision to the proposed protocol included a negative pressure leak test on the sampling bags per EPA 10A 4.1. Method 10A is specifically for Carbon Monoxide emissions at Petroleum Refineries, and the negative leak test on the bag valve is required due to post-sampling analytical procedures (i, the filling of vacuum reaction bulbs from the bag under negative pressure). Mr. F Ballay of the NJDEP Bureau of Technical Services suggested to Mr. Jack Douglas of Electrum that Trace Technologies should use bags as manufactured by Pace Associates because the DEP found those to be acceptable. The tests were canceled for the day and new bags ordered to arrive for the revised test date of June 12th.

Sampling on June 12th, commenced with the first run starting at 9:16 a.m. Some difficulty was experienced with the "lung" type gas sampling trains due to the high negative pressure in the duct. Larger sampling drums were used in order to comply with the NJDEP requirement for gas bags having 1.5 times the sample volume. Larger drums do not have the same structural rigidity of the smaller drums and will tend to suck themselves in when under high vacuum on a hot day.

The Orsat gas bag system was converted to a positive pressure drum using a teflon lined bellows pump. The first 2 runs of the Hydrocarbon sampling were run marginally as negative pressure, but the third run was conducted under positive pressure using teflon bellows pump.

On-site clean up consisted of cleaning the probe with acetone (Mr. Ballay correctly asked for acetone and not dilute nitric acid as is usually required for a Method 12 test), and transferring the gas bag impinger catch to VOA bottles. All other clean up was performed in the laboratory.

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Trace Technologies, Inc.

ANALYSIS

Total Hydrocarbons - The gas bags were analyzed for total Hydrocarbons on June 13th, using a GC/FID, as per the submitted protocol. The bags were pressurized with a weight before removing samples. The liquid fraction was run on an Envirochem purge & trap pre-screener which purges the sample directly into the detector. The pre-screener has an MDL of approximately 1.0 ppm hexane in water. All of the samples and blanks were none detected, so additional quantitation was not required.

Particulate - The probe wash was evaporated in weighing dishes to dryness, desiccated and weighed. The filters were desiccated and weighed to constant weight.

Lead - The filters were cut up and placed in the particulate evaporation dishes. The particulate was digested according to Method 12 procedures. Analysis was done on a Varian 400 computer controlled A.A..

Carbon Monoxide - The Orsat bags were analyzed using a Horiba NDIR and certified (on the label) gas standard from Scott.

RESULTS

The tests indicate that the lead levels are above the permit levels, but within reasonable standards. Carbon monoxide levels were none detected for the second two tests and 16 ppm for the first. Total Hydrocarbons were none detected for all three tests. Particulate levels were below 0.02 G/DSCF for the first two runs, but .038 G/DSCF for the third.

A review of the data for the third particulate test shows that the increased levels were all in the probe wash, and not the filter. This elevated level may have been due to a large water droplet from the scrubber, or contamination in the fume hood during evaporation.

The run 3 probe wash analysis is not consistent with the other data obtained at this site.

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Trace Technologies, Inc.

RECOMMENDATIONS

The permit should be modified to reflect the actual lead emissions based on the stack test. The particulate data, exclusive of the run probe wash is in compliance. Total Hydrocarbon and Carbon Monoxide were within standards.

Trace Technologies recommends that the run 3 particulate be repeated, or the data be accepted based on the probe wash values of runs 1 and 2.

VALIDATION

These tests were conducted by experienced personnel using calibrated equipment and NJDEP certified laboratory procedures. Isokinetic sampling requirements were met on all three tests. The results of these tests should be considered as valid except for the run 3 probe wash.

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TESTING SUMMARY
 ELECTRUM RECOVERY WORKS JUNE 12, 1990

PARAMETER	UNITS	RUN 1	RUN 2	RUN 3
STACK TEMPERATURE	DEG F	128✓	126✓	130✓
MOISTURE	%	19.17✓	14.82✓	16.44✓
CARBON DIOXIDE	%	2.6✓	1.4✓	1.35✓
OXYGEN	%	16.4✓	18.4✓	18.35✓
MOLECULAR WEIGHT	LB/LB-MOL	26.94	27.33	27.14
ISOKINETIC SAMPLING	%	96.1✓	90.2	90.8
CARBON MONOXIDE	PPMV	15.9	ND<2	ND<2
TOTAL HYDROCARBONS AS C1	PPMV	ND<1	ND<1	ND<1
TOTAL PARTICULATE	MG	35.4	32.2	120.7
TOTAL LEAD	MG	10.728	21.06	17.175
FLOW RATE	ACFM	951	949	889
FLOW RATE	DSCFM	680	717	655
PARTICULATE CONC.	G/DSCF	0.01	0.009	0.038
EMISSION RATE (PARTIC)	LB/HR	0.055✓	0.053✓	0.215
EMISSION RATE (LEAD)	LB/HR	0.0167✓	0.035✓	0.028✓

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COMPUTERIZED DATA OUTPUT

TRACE TECHNOLOGIES, INC.

RESULTS OF EPA METHOD 5 TESTING

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RUN # 1

TRAV. POINT NUMBER	TOTAL TIME MIN	STACK TEM DEG F	VELOC. HEAD IN H2O	VELOCITY FPS	DELTA METER CU FT	METER TEM DEG F	ISOKINETIC SAMPLING PER-CENT
1	8	83	.25	29.74	6.964	73	90.25
2	16	140	.25	31.26	7.167	80	96.07
3	24	140	.22	29.33	7.045	89	99.62
4	32	138	.3	34.19	7.887	90	93.38
5	40	83	.22	27.9	7.188	83.5	97.09
6	48	145	.22	29.45	7.046	93	99.47
7	57	145	.25	31.39	8.407	96	95.42
8	64	150	.27	32.76	6.755	98	99.03

PARAMETER	UNITS	VALUE
AVERAGE STACK TEMPERATURE	DEG F	128 ✓
AVERAGE METER TEMPERATURE	DEG F	87.8 ✓
PER-CENT CARBON DIOXIDE	%	2.6
MOISTURE FRACTION	%	19.17
MOLECULAR WEIGHT	##/MOL	26.94
NOZZLE DIAMETER	INCHES	.36
DURATION OF SAMPLING	MINUTES	64
VOLUME OF GAS SAMPLED	CU.FT.	58.463 ✓
AREA OF STACK	SQ.FT.	5158 ✓
FILTER CATCH	MG	35.4
TOTAL WATER	GRAMS	287.1 ✓
VOLUMETRIC FLOW RATE	ACFM	951
VOLUMETRIC FLOW RATE	SCFM	680
ISOKINETIC SAMPLING	PER-CENT	96.1
DUST CONCENTRATION	GRAINS/SCF	.00952 ✓
EMISSION RATE (PARTICULATE)	POUNDS/HR	.055
LEAD	POUNDS/HR	.0167

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COMPUTERIZED DATA OUTPUT

TRACE TECHNOLOGIES, INC.

RESULTS OF EPA METHOD 5 TESTING

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RUN # 2

TRAV. POINT NUMBER	TOTAL TIME MIN	STACK TEM DEG F	VELOC. HEAD IN H2O	VELOCITY FPS	DELTA METER CU FT	METER TEM DEG F	ISOKINETIC SAMPLING PER-CENT
1	8	90	.22	27.88	6.686	84	87.99
2	16	135	.22	29	6.83	92.5	91.96
3	24	145	.25	31.17	7.409	98	92.51
4	32	128	.25	30.73	7.428	102	90.83
5	40	95	.22	28.01	7.145	96	91.78
6	49	125	.22	28.75	8.216	102	93.55
7	56.5	150	.3	34.29	7.274	106.5	88.02
8	64	140	.33	35.67	7.801	109	88.08

PARAMETER	UNITS	
AVERAGE STACK TEMPERATURE	DEG F	126
AVERAGE METER TEMPERATURE	DEG F	98.7
PER-CENT CARBON DIOXIDE	%	1.4
MOISTURE FRACTION	%	14.82
MOLECULAR WEIGHT	##MOL	27.33
NOZZLE DIAMETER	INCHES	.36
DURATION OF SAMPLING	MINUTES	64
VOLUME OF GAS SAMPLED	CU.FT.	58.793
AREA OF STACK	SQ.FT.	.5158
FILTER CATCH	MG	32.2
TOTAL WATER	GRAMS	208.7
VOLUMETRIC FLOW RATE	ACFM	949
VOLUMETRIC FLOW RATE	SCFM	717
ISOKINETIC SAMPLING	PER-CENT	90.2
DUST CONCENTRATION	GRAINS/SCF	.00874
EMISSION RATE (PARTICULATE)	POUNDS/HR	.053
LEAD	POUNDS/HR	.035

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COMPUTERIZED DATA OUTPUT

TRACE TECHNOLOGIES, INC.

RESULTS OF EPA METHOD 5 TESTING

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Run # 3

TRAV. POINT NUMBER	TOTAL TIME MIN	STACK TEM DEG F	VELOC. HEAD IN H2O	VELOCITY FPS	DELTA METER CU FT	METER TEM DEG F	ISOKINETIC SAMPLING PER-CENT
1	8	100	.16	24.07	5.794	84	92.4
2	16	128	.2	27.58	6.51	89	92.61
3	24	142	.18	26.47	6.274	95.5	94.83
4	32	145	.22	29.34	6.821	97.5	91.99
5	40	95	.14	22.42	5.803	89	97.66
6	48	130	.22	28.97	6.51	92.5	88.02
7	56	150	.32	35.53	7.889	97.5	86.86
8	64	150	.32	35.53	8.013	102	87.41

PARAMETER	UNITS	
AVERAGE STACK TEMPERATURE	DEG F	130
AVERAGE METER TEMPERATURE	DEG F	93.3
PER-CENT CARBON DIOXIDE	%	1.35
MOISTURE FRACTION	%	16.44
MOLECULAR WEIGHT	#/#MOL	27.14
NOZZLE DIAMETER	INCHES	.36
DURATION OF SAMPLING	MINUTES	64
VOLUME OF GAS SAMPLED	CU.FT.	53.618
AREA OF STACK	SQ.FT.	.5158
FILTER CATCH	MG	120.7
TOTAL WATER	GRAMS	216.6
VOLUMETRIC FLOW RATE	ACFM	889
VOLUMETRIC FLOW RATE	SCFM	655
ISOKINETIC SAMPLING	PER-CENT	90.8
DUST CONCENTRATION	GRAINS/SCF	.0357
EMISSION RATE (PARTICULATE)	POUNDS/HR	.2
LEAD	POUNDS/HR	.028

000007

TRACE TECHNOLOGIES, INC.
 Environmental Process Technology
 10 Radel Avenue
 BRIDGEWATER, NEW JERSEY 08807
 (201) 685-2100

JOB ELECTRUM

SHEET NO. _____ OF _____

CALCULATED BY JWL DATE 5/31/89

CHECKED BY _____ DATE _____

SCALE _____

PROPERTIES OF SAMPLING LOCATIONS

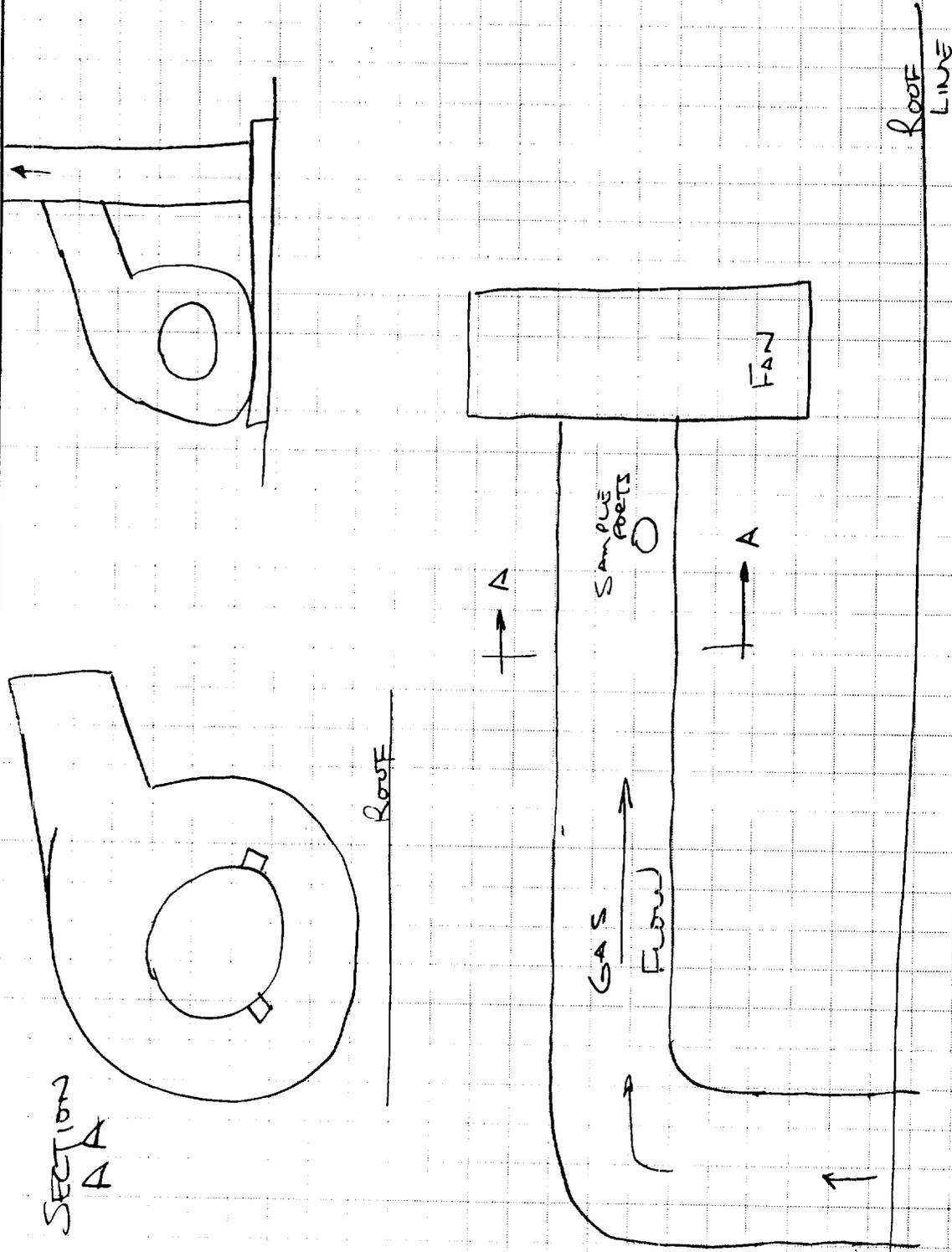
	Stack #1	Stack #2	Stack #3
Purpose of Stack	Top of Pot	EXHAUST	
Height (ft)			
Length (ft)	30"	8'-6"	
Diameter (ft I.D.)	10"	10"	
Wall Thickness (in)	1/8 GA ?	1/8 GA ?	
Material of Construction	ST.	ST.	
Ports a. Existing			
b. Size Opening	3"	3"	
c. Distance of Platform	13 1/2"		
Straight Distance Before Port	18"	80"	
Type of Restriction	HOOD	ELBOW	
Straight Distance After Port	12"	1'-10"	
Type of Restriction	TJEE	FAN INLET	
Environment	HOT - Top of Pot	ROOF - AMB	
Work Space	SCAFFOLD	ADEQUATE	
Ambient Temperature (°F)	100	80	
Avg Pitot Reading (H ₂ O in Hg)	0.1 EST	0.1 EST	
Stack Velocity (F/M)	1500 EST	1200 EST	
SCFM	500 EST	600 EST	
Moisture % by Volume	EST 5%	EST 10%	
Stack Temperature (°F)	500	160	
Particulate Loading (gr/SCF)	UNK	LIGHT	
Particle Size	UNK.	UNK.	
Gases Present	CO ₂ , O ₂ , N ₂	CO ₂ , O ₂ , N ₂	
Stack Pressure (H ₂ O in Hg)	AMB	EST - 1"	
Water Sprays	NONE	SCRUBBER	
Dilution Air	NONE	COMB. AIR	
Elevator	—	NONE	

000008

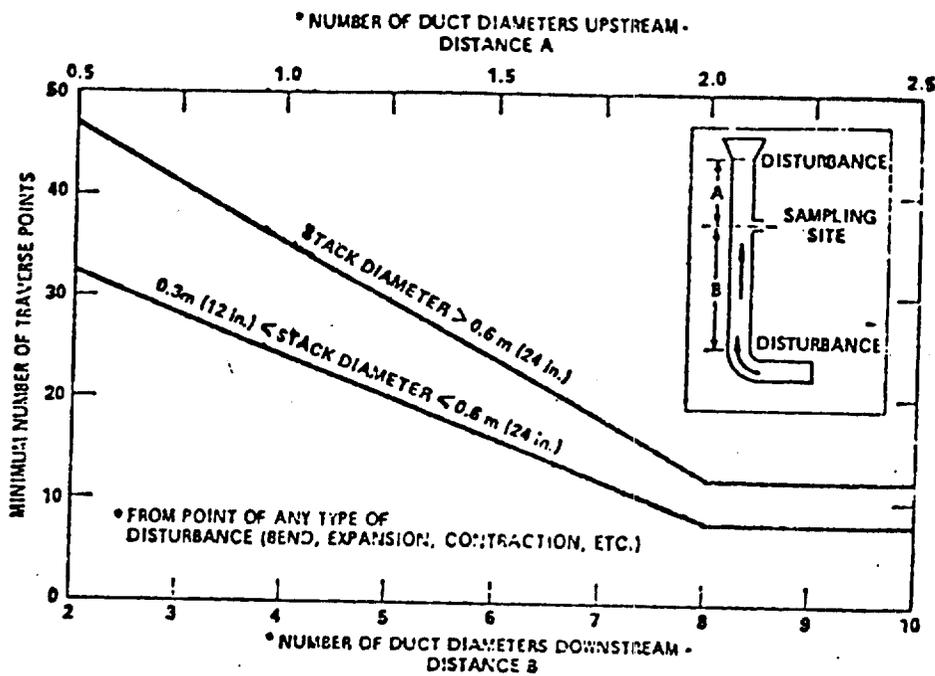
TRACE TECHNOLOGIES, INC.
Environmental Process Technology
10 Radel Avenue
BRIDGEWATER, NEW JERSEY 08807
(201) 685-2100

JOB _____
SHEET NO. _____ OF _____
CALCULATED BY _____ DATE _____
CHECKED BY _____ DATE _____
SCALE _____

Sketch of stack to be sampled showing locations of port openings, water sprayers, flow interferences, dilution air inlets, and scaffolding or platform erection dimensions:



000009



ID = 9.75"

Table 1-1. Location of traverse points in circular stacks
(Percent of stack diameter from inside wall to traverse point)

Traverse point number on a diameter	Number of traverse points on a diameter											
	2	4	6	8	10	12	14	16	18	20	22	24
1	14.6	6.7	4.4	3.3	2.5	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	35.4	25.0	14.7	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3		75.0	29.5	19.4	14.6	11.8	9.2	8.5	7.5	6.7	6.0	5.5
4		93.3	70.5	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5			85.3	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6			95.6	80.6	65.8	35.5	26.9	22.0	18.8	16.5	14.6	13.2
7				89.5	77.4	64.5	36.6	28.3	23.6	20.4	18.0	16.1
8				96.7	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9					91.8	82.3	73.1	62.5	39.2	30.5	26.1	23.0
10					97.5	88.2	79.9	71.7	61.8	39.8	31.5	27.2
11						93.3	85.4	78.0	70.4	61.2	39.3	32.3
12						97.9	90.1	83.1	76.4	69.4	60.7	39.8
13							94.3	87.5	81.2	75.0	68.5	60.2
14							98.2	91.5	85.4	79.6	73.9	67.7
15								95.1	89.1	83.5	78.2	72.8
16								98.4	92.5	87.1	82.0	77.0
17									95.6	90.3	85.4	80.6
18									98.6	92.3	88.4	83.9
19										95.1	91.3	86.8
20										98.7	94.0	89.5
21											96.5	92.1
22											98.9	94.6
23												96.8
24												98.9

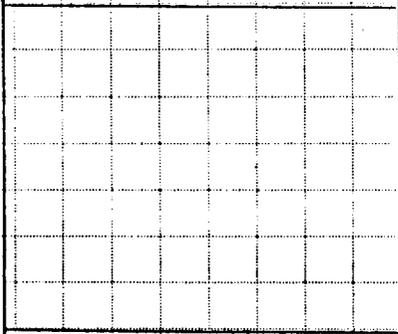
* 1 1"
2 2.4
3 7.3
4 8.75

TRACE TECHNOLOGIES, INC.
 10 Radel Avenue
 Bridgewater, New Jersey 08807
 (201) 685-2100

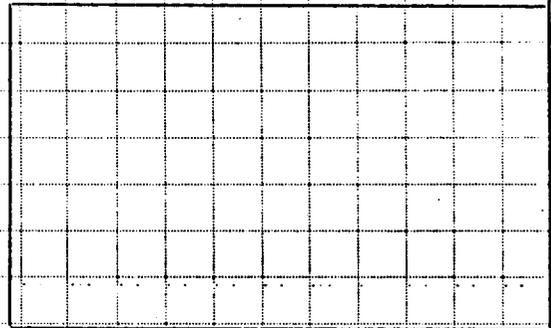
JOB Electrum
 SHEET NO. _____ OF _____
 CALCULATED BY _____ DATE _____
 CHECKED BY _____ DATE _____

SCALE _____

NON-CYCLONIC FLOW VERIFICATION



STACK ELEVATION



STACK PLAN

TRAVERSE POINT	LOCATION (INCHES)	$\Delta P @ 0^\circ$	ROTATION	DEGREES OF ROTATION
1			5°	→
2			7°	→
3			7°	→
4			15°	→
5			2°	→
6			2°	→
7			0°	→
8			5°	→

$\Sigma ABS =$ ~~35~~ 43

AVERAGE ROTATION = 5.37 DEGREES

MAXIMUM ALLOWABLE 10°

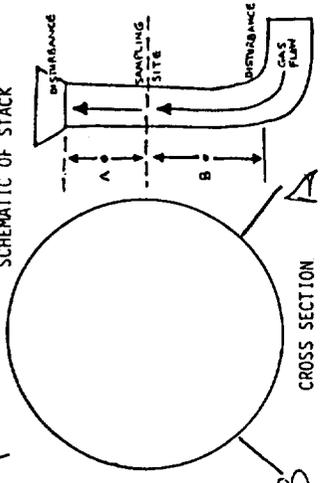
000011

LEAK CHECK PRE-TEST ~~0.01~~ .001
 POST TEST -10.5" Hg .005

TRACE TECHNOLOGIES, INC.
 10 RADEL AVENUE
 BRIDGEMAN, NEW JERSEY 08807

AMBIENT TEMPERATURE 75
 BAROMETRIC PRESSURE 30.07 30.12
 ASSUMED MOISTURE, % 15
 PROBE LENGTH, in. 24
 NOZZLE DIAMETER, in. .36
 STACK DIAMETER, in. 9.75
 METER H 1.98
 C FACTOR 12-4
 PROCESS WEIGHT RATE

PLANT Electric
 DATE 6/8/90 6/12
 LOCATION
 OPERATOR JWL
 STACK NO. 1
 RUN NO. C
 SAMPLE BOX NO. C
 METER BOX NO. 1
 HEATER BOX SETTING 220



TRAVERSE POINT NUMBER	SAMPLING TIME (t), min	STATIC PRESSURE (in H ₂ O)	STACK TEMPERATURE (T _s), °F	VELOCITY HEAD (ΔP _s)	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER (ΔH) in. H ₂ O	GAS SAMPLE VOLUME (V _m), ft ³	GAS SAMPLE TEMPERATURE AT DRY GAS METER INLET (T _{m IN}), °F OUTLET (T _{m OUT}), °F	SAMPLE BOX TEMPERATURE °F	TEMPERATURE OF GAS LEAVING CONDENSER OR LAST IMPINGER °F	PUMP VACUUM in Hg gauge
	9:16:30									
A1	0:00	9.7	83	.25	2.97	104.037	73 ^{7.3} 73	245	72	7
2	8:00		140	.25	2.97	111.002	86 ^{8.0} 74	245	76	7.5
3	16:00		140	.22	2.72	118.170	100 ^{9.9} 78	250	87	7.0
4	24:00		138	.30	3.72	125.215	100 ^{9.0} 80	240	84	8.5
	32:00		Leads test at -12			133.102				
			Leads test at -15			"Hg to orifice nozzle				
						.012				
B1	32:00	some ΔP	83	.22	2.72	133.566	84 ^{8.3} 83	240	86	7.0
2	40:00		145	.22	2.72	140.290	100 ^{9.3} 86	240	86	7.5
3	48:00		145	.25	3.1	147.337	104 ^{9.6} 88	240	92	8
4	51:00		150	.27	3.35	155.745	108 ^{9.8} 88	230	86	8.5
ENDS	00:04					162.500	110 ^{1.00} 90			

10:40 Probe 210 Imp 165
 Probe out 230

TRACE TECHNOLOGIES, INC.
 Environmental Process Technology
 10 Radel Avenue
 BRIDGEWATER, NEW JERSEY 08807
 (201) 685-2100

JOB ELECTRUM
 SHEET NO. _____ OF _____
 CALCULATED BY _____ DATE _____
 CHECKED BY _____ DATE _____
 SCALE BOX C

PARTICULATE CLEAN-UP SHEET

DATE:
 RUN NUMBER:
 OPERATOR:
 SAMPLE BOX NUMBER:

PLANT:
 LOCATION OF SAMPLE PORT:
 BAROMETRIC PRESSURE:
 AMBIENT TEMPERATURE:

FILTER NUMBER	TARE (g)	FINAL (g)	NET (mg)
<u>3</u>	<u>.6248</u>	<u>.6435</u>	<u>18.7</u>

ACETONE WASH - BEAKER NUMBER					
VOLUME (ml)	TARE (g)	FINAL (g)	NET (mg)	(BLANK) (mg)	CORRECTED NET (mg)
<u>100</u>	<u>102.7084</u>	<u>102.7352</u>	<u>26.8</u>	<u>10.1</u>	<u>16.7</u>

TOTAL DRY PARTICULATE CATCH 35.4 mg

SILICA GEL		
TARE (g)	FINAL (g)	NET (g)
<u>220.9</u>	<u>250.0</u>	<u>29.1</u>

BOTTLE C 6/7/90

IMPINGER		
INITIAL (ml)	FINAL (ml)	NET (g)
<u>200</u>	<u>450</u>	<u>250</u>

0.1 N HNO₃

TOTAL WATER 287.1 g

000016

TRACE TECHNOLOGIES, INC.
 Environmental Process Technology
 10 Radel Avenue
 BRIDGEWATER, NEW JERSEY 08807
 (201) 685-2100

JOB: ELATROM
 SHEET NO. _____ OF _____
 CALCULATED BY JWL DATE 6/12/90
 CHECKED BY _____ DATE _____
 SCALE Run # 1 NJ 3 HC/CO

TRAIN # 1
 CONFIGURATION NJ 3

BAG # _____

BAG NEG LEAK CHECK ^{SLIGHT BUBBLES}
 TRAIN LEAK CHECK -16" @ 1 Lpm

IMPINGER CONTENTS 20 ml HC FREE H₂O
20 ml HC Free H₂O
Dry

VAC

TIME	ROTAMETER	DRY GAS VOLUME	
9:23	65	0.00	
5:00	65	-	
11.	67	-	
15.	70	-	
22	50	-	
32	60	-	
40	55	-	-2" Neg
44	55	-	
49	55	-	-2"
56 ^{END}	-		

IMPINGER STATUS: 2 VOA VIALS FILLED

POST LEAK CHECK: -4" neg'd

ANALYSIS REQ'D HC CO

JWL

000017

JOB _____

SHEET NO. _____ OF _____

CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

SCALE Run # 1 ORSAT

TRAIN #
 CONFIGURATION ORSAT

BAG #
 BAG NEG LEAK CHECK SLIGHT BUBBLE
 TRAIN LEAK CHECK N/A

IMPINGER CONTENTS 1 DRY

TIME	ROTAMETER	DRY GAS VOLUME		
	NOT ABLE TO RUN VACUUM DRUM			
	RECONNECTED ON (+) SIDE OF PUMP			
	RAN AT	75 75	ON ROTAMETER	
		~ 1 LPM		

IMPINGER STATUS: CONDENSER ONLY

POST LEAK CHECK:

ANALYSIS REQ'D ORSAT ONLY

[Signature] 000018

TRACE TECHNOLOGIES, INC.
 Environmental Process Technology
 10 Radel Avenue
 BRIDGEWATER, NEW JERSEY 08807
 (201) 685-2100

PARTICULATE CLEAN-UP SHEET

JOB ELECTRUM
 SHEET NO. _____ OF _____
 CALCULATED BY _____ DATE _____
 CHECKED BY _____ DATE _____
 SCALE BOX E

DATE:
 RUN NUMBER:
 OPERATOR:
 SAMPLE BOX NUMBER:

PLANT:
 LOCATION OF SAMPLE PORT:
 BAROMETRIC PRESSURE:
 AMBIENT TEMPERATURE:

FILTER NUMBER	TARE (g)	FINAL (g)	NET (mg)
<u>4</u>	<u>.6250</u>	<u>.6536</u>	<u>28.6</u>

ACETONE WASH - BEAKER NUMBER					
VOLUME (ml)	TARE (g)	FINAL (g)	NET (mg)	(BLANK) (mg)	CORRECTED NET (mg)
<u>75</u>	<u>105.4240</u>	<u>105.4352</u>	<u>11.2</u>	<u>7.575</u>	<u>3.6</u>

TOTAL DRY PARTICULATE CATCH 32.2 mg

SILICA GEL		
TARE (g)	FINAL (g)	NET (g)
<u>232.6</u>	<u>254.3</u>	<u>21.7</u>

BOTTLE A 6/7/90

IMPINGER		
INITIAL (ml)	FINAL (ml)	NET (g)
<u>200</u>	<u>387</u>	<u>187</u>

0.1N HNO₃

TOTAL WATER 208.7 g

000020

TRAIN # 1
 CONFIGURATION NJ 3 HC

BAG # _____ BAG NEG LEAK CHECK 38 bubbles/min
 TRAIN LEAK CHECK .02 LPM @ -15'
 IMPINGER CONTENTS 20 ml HC free H₂O
20 ml HC free H₂O
Dry

TIME	ROTAMETER	DRY GAS VOLUME	
12:55	START PUMPING		
12:59 (0.0)	ROTAMETER START		
1:01 2:00	2 1/2		
1:03 4:00	17		
1:05 6:00	33		
1:07 8:00	38		
1:09 10:00	43 - 0.0		Drum Seal Lost
1:11			opened Resealed
1:21 (0.0)	20.0		Restarted 1:15
2:00	35		
4:00	39		
6:00	33		
8:00	30		
10:00	37		
12:00	44		
14:00	50		
16:00	48		

IMPIGNER STATUS:
 21:00 55
 POST LEAK CHECK: .17/.17 (0.0 @ -4" Hg)
 26:00 60
 ANALYSIS REC'D
 31:00 64
 36:00 65
 38:10 STOPPED

000021

TRAIN #
 CONFIGURATION

BAG #

BAG NEG LEAK CHECK ^{some} Passing
 TRAIN LEAK CHECK N/A

IMPINGER CONTENTS

Dry

TIME

ROTAMETER

DRY GAS
 VOLUME

12:57

75

ORSAT BAG

51.25 minutes

(+)

side of

pump

IMPINGER STATUS:

discard

POST LEAK CHECK:

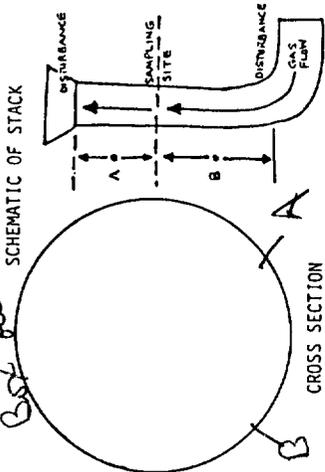
N/A

ANALYSIS REQ'D

orsat

000022

Probe 255
 Probe out 240
 Probe out 140
 Probe out 15" Hg
 Probe out 13" Hg



PLANT ELECTRON
 DATE 6/12/90
 LOCATION _____
 OPERATOR JWL
 STACK NO. _____
 RUN NO. 3A
 SAMPLE BOX NO. _____
 METER BOX NO. 2052

AMBIENT TEMPERATURE 85
 BAROMETRIC PRESSURE 30.20
 ASSUMED MOISTURE, % _____
 PROBE LENGTH, in. _____
 NOZZLE DIAMETER, in. 3/6
 STACK DIAMETER, in. 9.75
 PROBE HEATER SETTING 65
 HEATER BOX SETTING 220

METER H _____
 C FACTOR 12.4
 PROCESS WEIGHT RATE _____

TRACE TECHNOLOGIES, INC.
 10 RADEL AVENUE
 BRIDGEWATER, NEW JERSEY 08807

TRAVERSE POINT NUMBER	SAMPLING TIME (t), min	STATIC PRESSURE (in H ₂ O)	STACK TEMPERATURE (T _s), °F	VELOCITY HEAD (ΔP _s)	PRESSURE DIFFERENTIAL ACROSS ORIFICE METER (ΔH) in. H ₂ O	GAS SAMPLE VOLUME (V _m), ft ³	GAS SAMPLE TEMPERATURE AT DRY GAS METER		SAMPLE BOX TEMPERATURE °F	TEMPERATURE OF GAS LEAVING CONDENSER OR LAST IMPINGER °F	PUMP VACUUM in Hg gauge
							INLET (T _m ^{IN}), °F	OUTLET (T _m ^{OUT}), °F			
A1	3:14:00 6.0		100	.16	1.98	221.795	84	84	210	85	5.5
"	8		128	.20	2.48	227.590	92	86	220	89	8.0
"	16		142	.18	2.23	234.100	103	88	230	94	6.5
"	24		145	.22	2.72	240.375	106	89	225	93	7.5
"	32		LEAK CHECK @ -			247.197	106	90			
			LEAK CHECK @ -			10"	.002	CFM			
B1	4:02		95	.14	1.73	247.523	92	86	225	86	5.5
B2	8 (40)		130	.22	2.72	253.000	97	88	230	88	7.5
B3	48		150	.32	4.0	259.510	106	89	215	90	10
B4	56		150	.32	4.0	267.400	112	92	230	94	11
E	64					275.413	113	94			

Probe 200
 Probe out 220
 Probe out 150

JWL

TRACE TECHNOLOGIES, INC.
 Environmental Process Technology
 10 Radel Avenue
 BRIDGEWATER, NEW JERSEY 08807
 (201) 685-2100

PARTICULATE CLEAN-UP SHEET

JOB ELECTRUM
 SHEET NO. _____ OF _____
 CALCULATED BY _____ DATE _____
 CHECKED BY _____ DATE _____
 SCALE BOX A

DATE:
 RUN NUMBER:
 OPERATOR:
 SAMPLE BOX NUMBER:

PLANT:
 LOCATION OF SAMPLE PORT:
 BAROMETRIC PRESSURE:
 AMBIENT TEMPERATURE:

FILTER NUMBER	TARE (g)	FINAL (g)	NET (mg)
<u>5</u>	<u>.6263</u>	<u>.6538</u>	<u>27.5</u>

ACETONE WASH VOLUME (ml)	TARE (g)	FINAL (g)	NET (mg)	(BLANK) (mg)	CORRECTED NET (mg)
<u>100</u>	<u>107.0511</u>	<u>107.1544</u>	<u>103.3</u>	<u>10.1</u>	<u>93.2</u>

TOTAL DRY PARTICULATE CATCH 120.7 mg

SILICA GEL

TARE (g)	FINAL (g)	NET (g)
<u>229.1</u>	<u>250.7</u>	<u>21.6</u>

BOTTLE F 6/7/90

IMPINGER

INITIAL (ml)	FINAL (ml)	NET (g)
<u>200</u>	<u>395</u>	<u>195</u>

0.1 N HNO₃

TOTAL WATER 216.6 g

000024

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 Environmental Process Technology
 10 Radel Avenue
 BRIDGEWATER, NEW JERSEY 08807
 (201) 685-2100

JOB _____
 SHEET NO. _____ OF _____
 CALCULATED BY _____ DATE _____
 CHECKED BY _____ DATE _____
 SCALE # 3 HC/CO

TRAIN #
 CONFIGURATION NJ 3

BAG #

BAG NEG LEAK CHECK
 TRAIN LEAK CHECK -10" Hg .02 LPM

IMPINGER CONTENTS 20 ml HC free H₂O
 20 ml HC free H₂O
 Dry

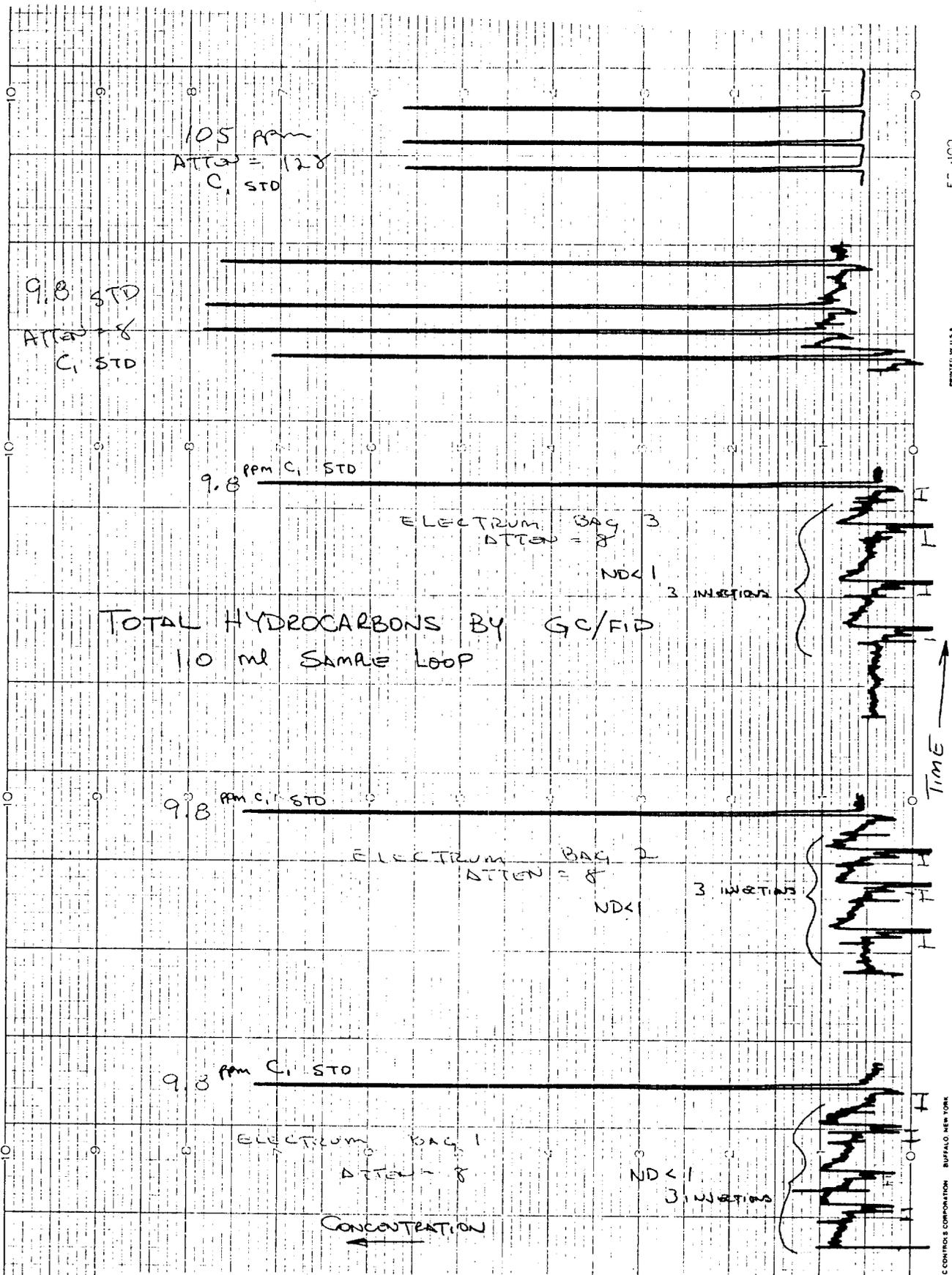
TIME	ROTAMETER	DRY GAS VOLUME
3:21 (0.0)	STARTED	
2:00	67	
4:00	30	
6:00	23	
6:30	0	
3:36 (0.0)	RESTART	
2:00	75	
4:00	75	
6:00	75	
8:00	75	
10:00	75	
12:00	75	
14:00	73	
19:00	74	
24:00	75	
29:00	75	
33:00	STOPPED	

IMPINGER STATUS:

POST LEAK CHECK: .01 LPM @ - 8" Hg

ANALYSIS REQ'D

000025

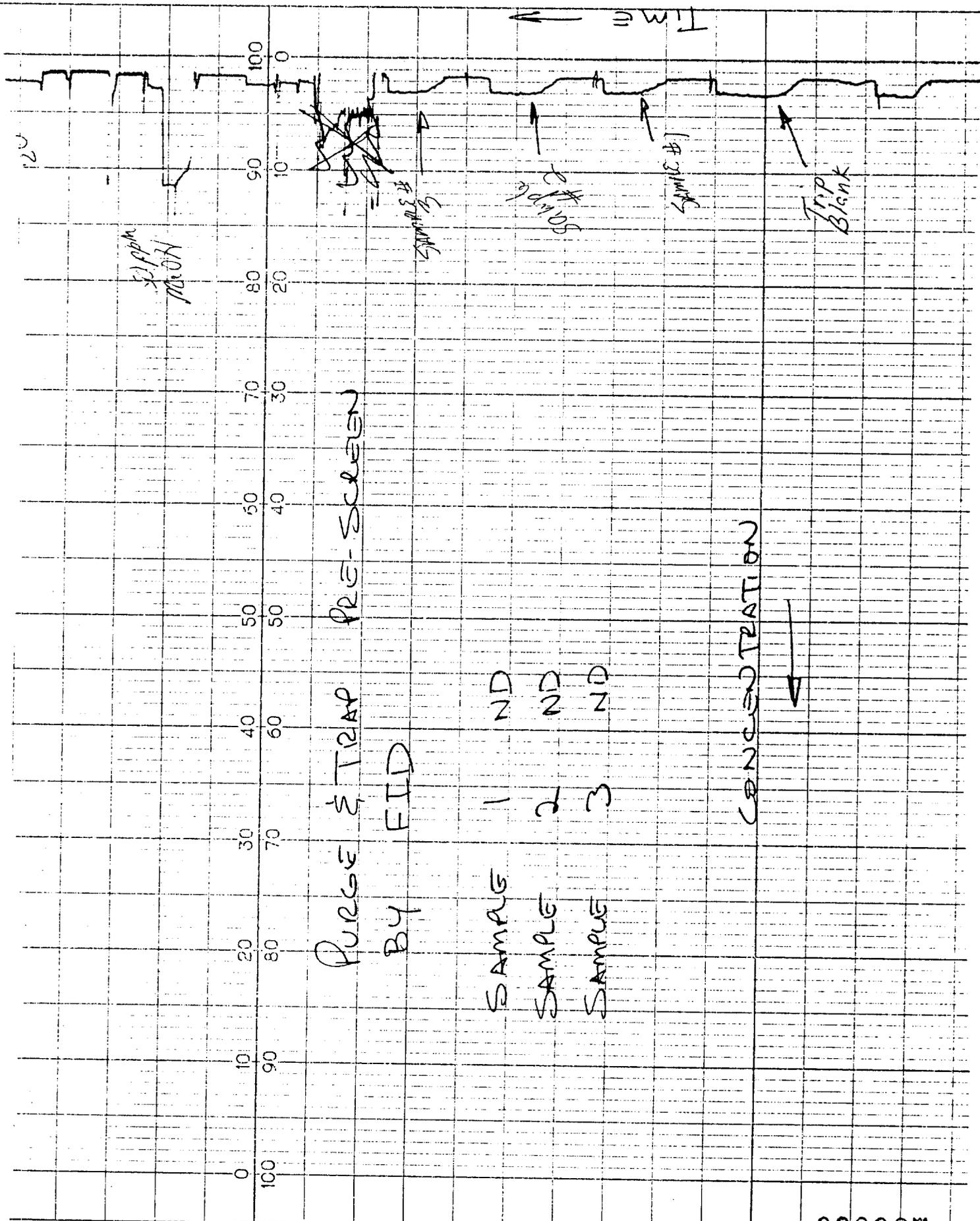


EC-100

PRINTED IN U.S.A.

C CONTROLS CORPORATION BUFFALO NEW YORK

000026

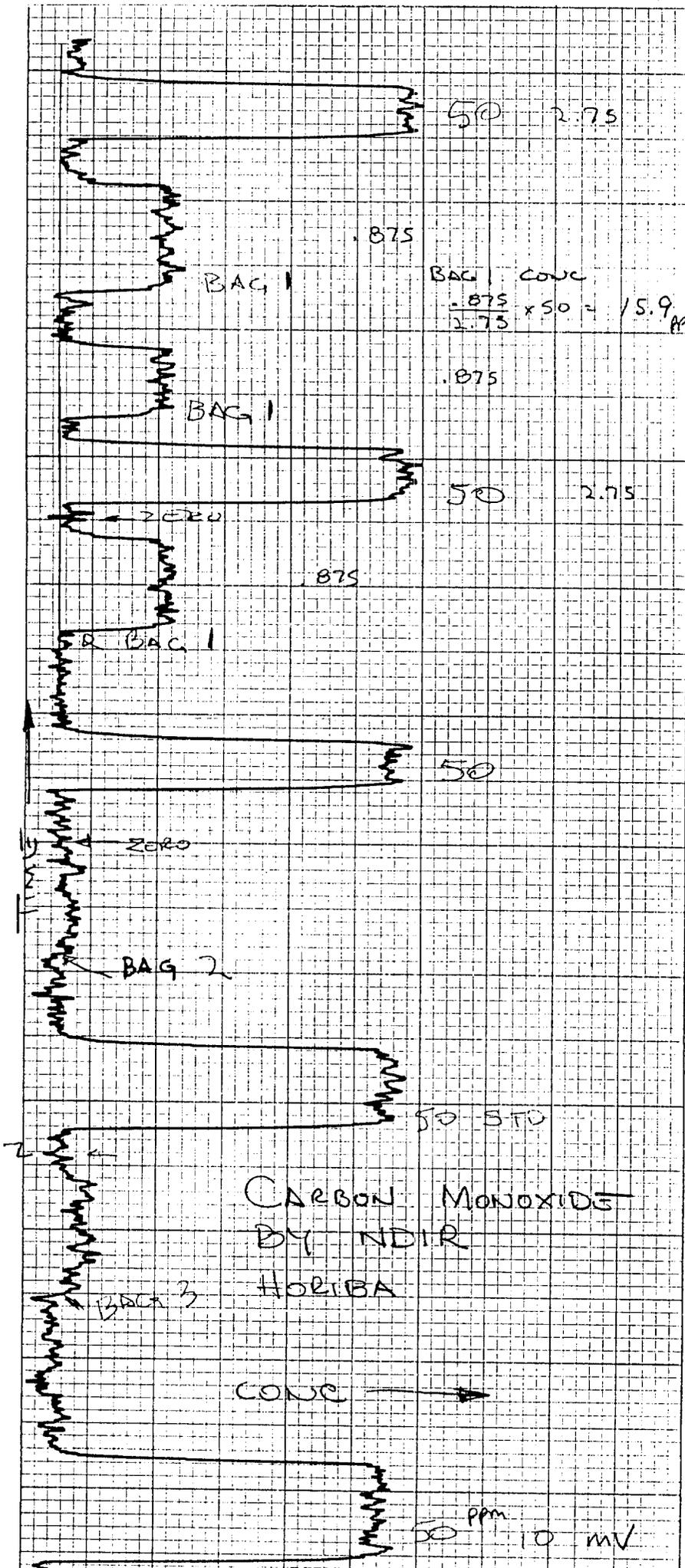


PURGE & TRAP PRE-SCREEN
BY FID

SAMPLE 1 ND
SAMPLE 2 ND
SAMPLE 3 ND

CONCENTRATION

TIME



Varian SpectrAA 300/400 System Report

TRACE TECHNOLOGIES, INC.
BRIDGEWATER, NJ

OPERATOR JWL
DATE 07/09/90
BATCH ELECTRUM

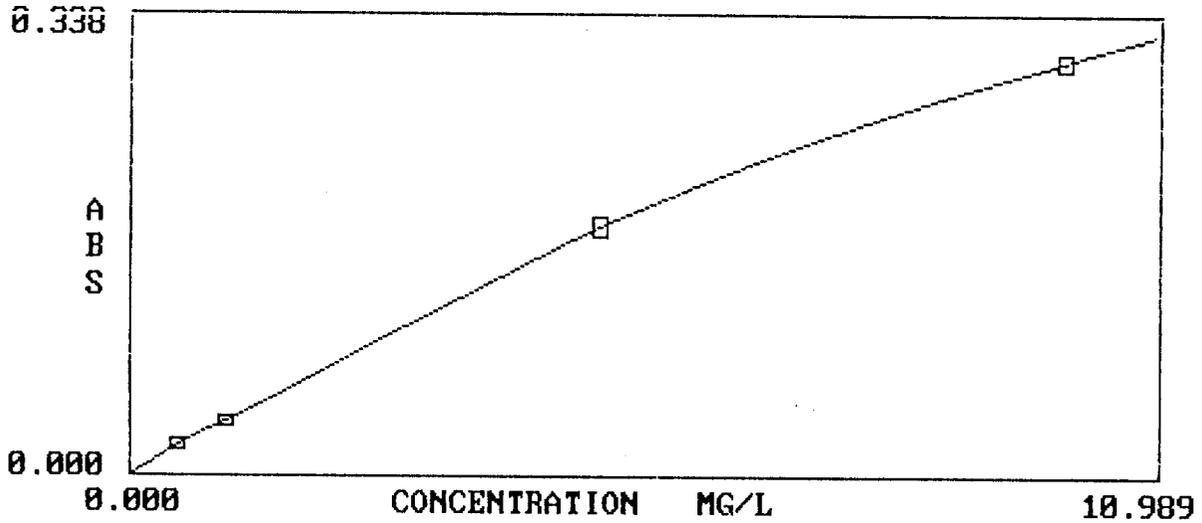
PROGRAM 1 Pb

INSTRUMENT MODE	ABSORBANCE
CALIBRATION MODE	CONCENTRATION
MEASUREMENT MODE	PEAK HEIGHT
LAMP POSITION	1
LAMP CURRENT (mA)	5
SLIT WIDTH (nm)	1.0
SLIT HEIGHT	NORMAL
WAVELENGTH (nm)	217.0
FLAME	AIR-ACETYLENE
SAMPLE INTRODUCTION	AUTO NORMAL
DELAY TIME	1
TIME CONSTANT	0.05
MEASUREMENT TIME (sec)	1.0
REPLICATES	3
BACKGROUND CORRECTION	DN
AIR FLOW (L/min)	13.5
ACETYLENE FLOW (L/min)	2.00
RINSE RATE	1
RINSE TIME (sec)	5.0
RECALIBRATION RATE	0
RESLOPE RATE	10

SAMPLE	CONC MG/L	%RSD	MEAN ABS	READINGS		
BLANK	0.000		0.008	0.008	0.009	0.008
STANDARD 1	0.500	11.4	0.022	0.022	0.025	0.020
STANDARD 2	1.000	5.3	0.039	0.037	0.039	0.041
STANDARD 3	5.000	3.3	0.186	0.179	0.187	0.192
STANDARD 4	9.990	1.2	0.307	0.303	0.309	0.310

000029

LEAD ANALYSIS



SAMPLE	CONC MG/L	%RSD	MEAN ABS	READINGS		
BLANK	0.091	38.0	0.004	0.006	0.004	0.003
RUN 1 50:1	4.293	6.6	0.161	0.149	0.164	0.170
RUN 2 50:1	8.426	5.6	0.276	0.259	0.286	0.285
RUN 3 50:1	6.872	4.2	0.240	0.228	0.246	0.245

50 ml x 50 = 2500 ml = 2.5 L 2.5 x

Blank 50 ml = .050 L .050 x .091 = .00455 mg

RUN 1 4.293 x 2.5 = 10.7325 - .00455 10.728 mg

RUN 2 8.426 x 2.5 = 21.065 - .00455 21.060 mg

RUN 3 6.872 x 2.5 = 17.18 - .00455 17.175 mg

000030

TRACE TECHNOLOGIES, INC.
Environmental Process Technology
10 Radel Avenue
BRIDGEWATER, NEW JERSEY 08807
(201) 685-2100

JOB CALIBRATION DATA
SHEET NO. _____ OF _____
CALCULATED BY _____ DATE _____
CHECKED BY _____ DATE _____
SCALE _____

PITOT TUBE : MANUFACTURED BY NUTECH AS PER
40CFR PT. 60, APP. A, METH. 2.21
WITH AN ASSIGNED COEFFIC. OF 0.84

000031

TRACE TECHNOLOGIES, INC.
 Environmental Process Technology
 10 Radel Avenue
 BRIDGEWATER, NEW JERSEY 08807
 (201) 685-2100

JOB CALIBRATION

SHEET NO. _____ OF _____

CALCULATED BY _____ DATE JUNE 4, 1990

CHECKED BY _____ DATE _____

SCALE MATHESON ROTAMETER # 1

<u>ROTA METER</u>		<u>SETTING</u>	<u>TIME (MIN)</u>		
<u>STAINLESS</u>		<u>PLASTIC</u>	<u>0-250</u>	<u>0-500 (cc)</u>	<u>lpm</u>
30		63	.68	1.38	
30		63	.68	1.38	0.36
30		63	.68	1.39	
60		127	.32	0.64	
60		127	0.32	0.64	0.78
60		127	0.32	0.65	
90		-			
90		-	.22	0.43	
90		-	0.22	0.43	1.25
			0.22	0.43	
120		-	0.17	0.33	
120		-	0.17	0.33	1.5
120		-	0.17	0.34	
150		-	0.13	0.28	
150		-	0.13	0.28	1.8
150		-	0.13	0.28	

000032

JOB CALIBRATION

TRACE TECHNOLOGIES, INC.
 Environmental Process Technology
 10 Radel Avenue
 BRIDGEWATER, NEW JERSEY 08807
 (201) 685-2100

SHEET NO. _____ OF _____

CALCULATED BY _____ DATE June 4, 1990

CHECKED BY _____ DATE _____

SCALE MATHESON ROTAMER #1

<u>ROTA METER</u>		<u>SETTING</u>	<u>TIME (MIN)</u>		
<u>STAINLESS</u>		<u>PLASTIC</u>	<u>0-250</u>	<u>0-500 (cc)</u>	
13		30	1.88	3.79	
13		30	1.88	3.80	0.13
13		30	1.88	3.80	
29		60	0.72	1.46	
29		60	0.72	1.46	0.34
29		60	0.72	1.46	
43		90	0.45	0.92	
43		90	0.45	0.92	0.54
43		90	0.45	0.92	
56		120	0.33	0.68	
56		120	0.33	0.68	0.74
56		120	0.33	0.68	
70		150	0.27	0.55	
70		150	0.27	0.55	0.91
70		150	0.27	0.56	

000033

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 (201) 685-2100

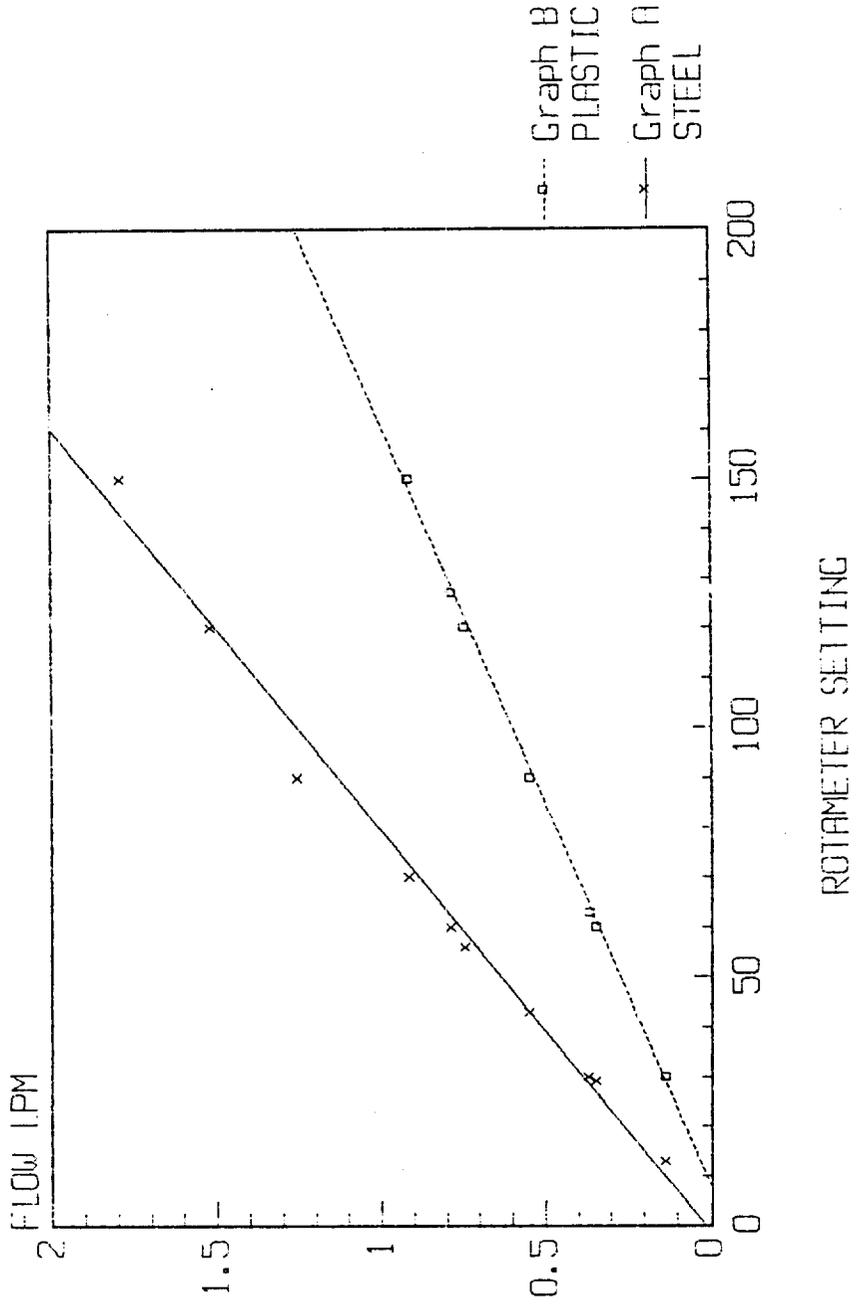
JOB CALIBRATION

SHEET NO. _____ OF _____
 CALCULATED BY _____ DATE JUNE 4, 1990
 CHECKED BY _____ DATE _____
 SCALE MATHESON ROTAMETER #2

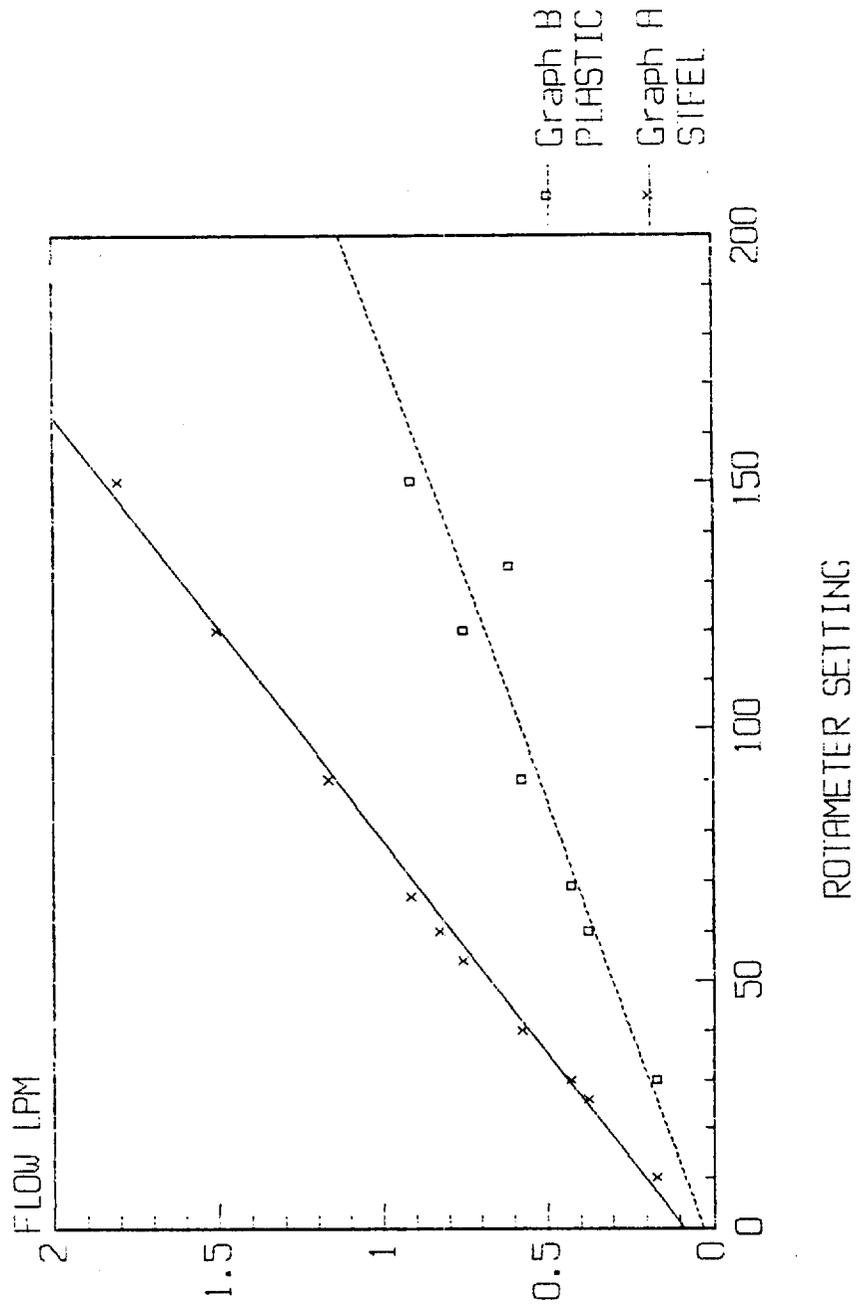
ROTA METER		SETTING (SS)	TIME (MIN)	
STAINLESS	PLASTIC		0-250	0-500 (cc)
30	69		0.58	1.17
30	69		0.58	1.18 0.42
30	69		0.58	1.18
60	133		0.30	0.61
60	133		0.30	0.61 0.82
60	133		0.30	0.61
90	-		0.20	0.43
90	-		0.20	0.43 1.16
90	-		0.20	0.43
120	-		0.17	0.33
120	-		0.17	0.33 1.5
120	-		0.17	0.33
150	-		0.13	0.28
150	-		0.13	0.27 1.8
150	-		0.13	0.28

000056

MATHESON ROTAMETER 1 6/4/90



MINIHESON ROTAMETER 2 6/4/90



TRACE TECHNOLOGIES, INC.
 Environmental Process Technology
 10 Radel Avenue
 BRIDGEWATER, NEW JERSEY 08807
 (201) 685-2100

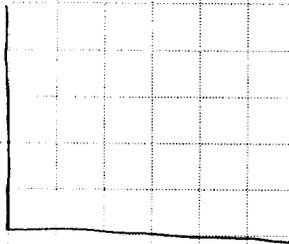
JOB _____
 SHEET NO. _____ OF _____
 CALCULATED BY _____ DATE _____
 CHECKED BY _____ DATE _____
 SCALE NUTECH PUMP #1

ROTOMETER SETTING

TIME

CC/min x 100	TIME		
	0-250	0-500	
2	2.02	4.05	0.25
2	2.03	4.11	
2	2.06	4.17	
4	0.90	1.80	
4	0.90	1.83	.55
4	0.92	1.83	
6	0.60	1.22	.819
6	0.60	1.22	
6	0.60	1.22	
8	0.47	0.94	1.06
8	0.47	0.94	
8	0.47	0.94	
10	0.33	0.68	
10	0.33	0.68	1.47
10	0.33	0.68	

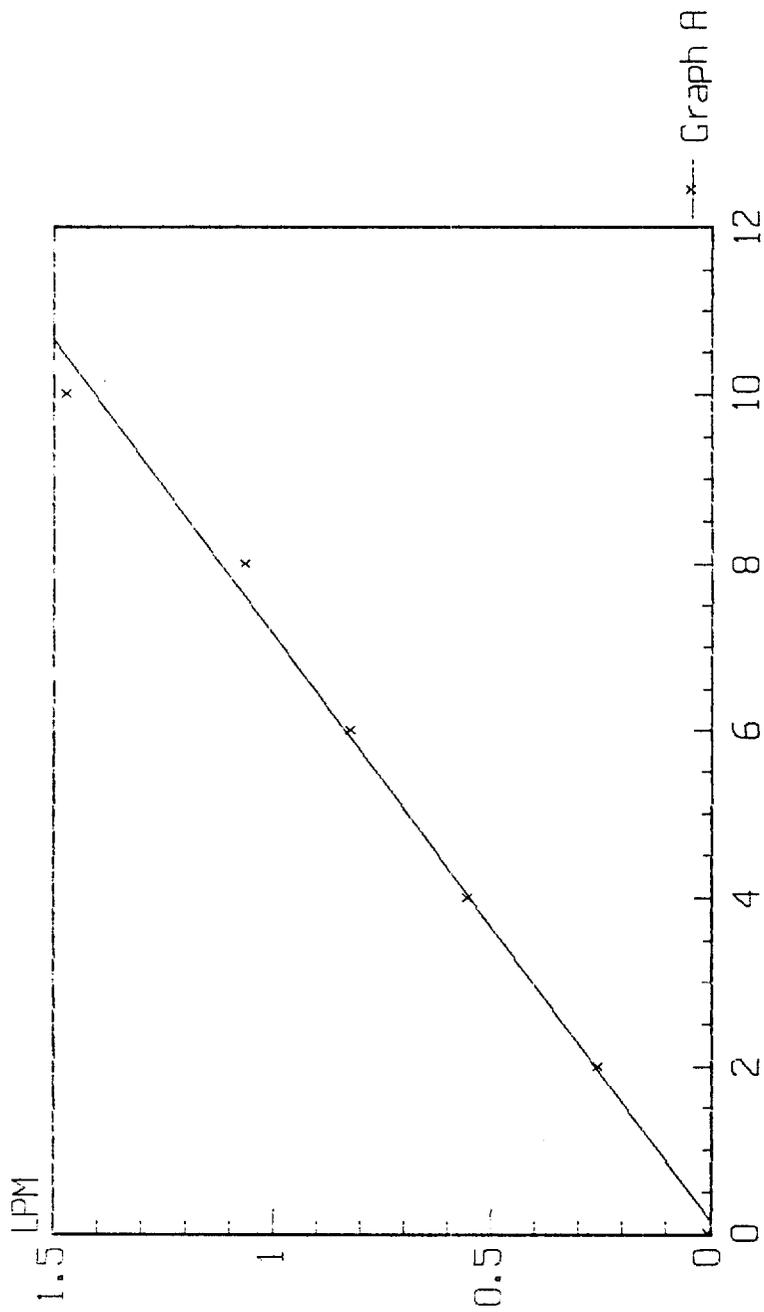
m/min
 UNITS x 10⁻³



ROTAMETER
 Setting

000038

NUTECH PUMP 1 JUNE 1990

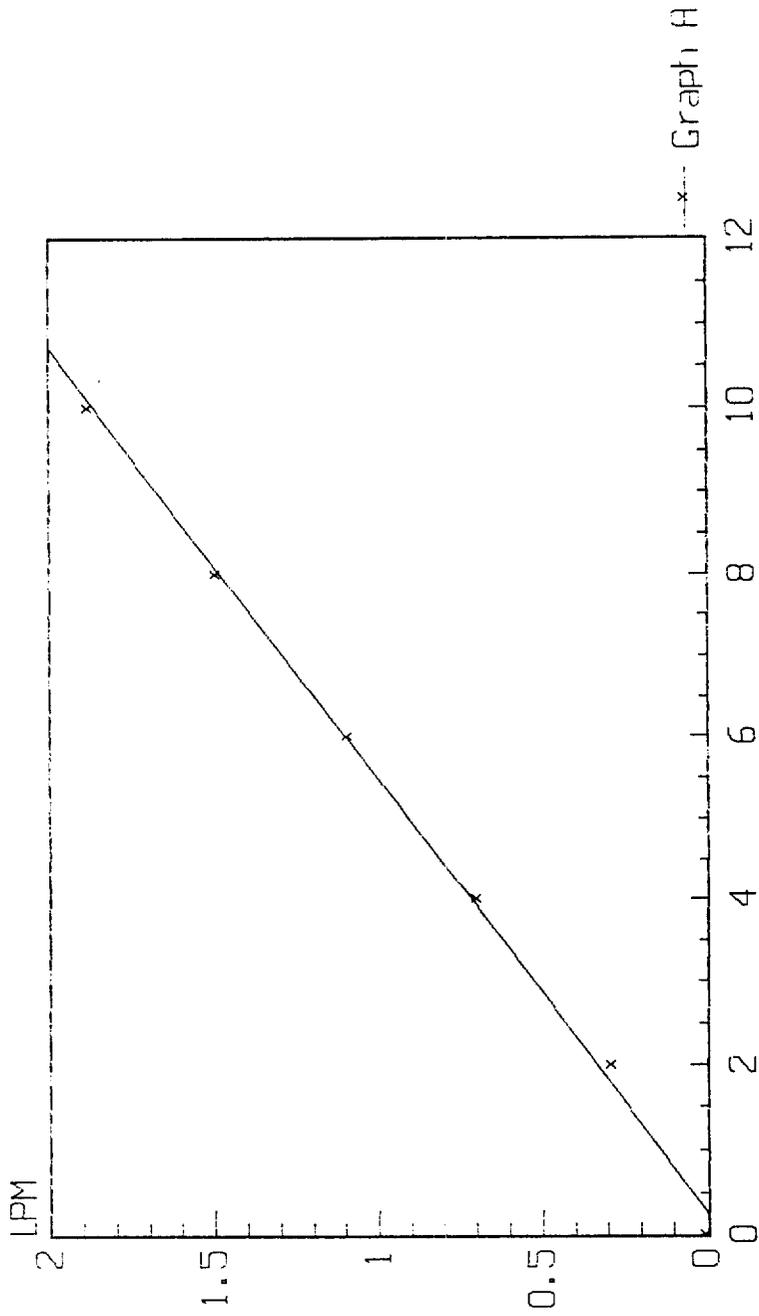


ROTAMETER SETTING X100 CC/MIN

Graph A

000039

NUTECH PUMP 3 JUNE 1990



Graph A

ROTAMETER SETTING X100 CC/MIN

000040

TRACE TECHNOLOGIES, INC.
 Environmental Process Technology
 10 Radel Avenue
 BRIDGEWATER, NEW JERSEY 08807
 (201) 685-2100

JOB _____
 SHEET NO. _____ OF _____
 CALCULATED BY _____ DATE _____
 CHECKED BY _____ DATE _____
 SCALE _____

ROTOMETER SETTING

<u>STAINLESS</u>	<u>Min</u>		<u>Dry V_F</u>	<u>Dry V_I</u>	<u>TIME</u>
	<u>0-250</u>	<u>0-500</u>			
120	0.16	0.34	15.95	0.0	10.54
120		0.34			
120		0.34			
120		0.34			

NUTECH PUMP #3

<u>ROTOMETER SETTING</u> x100 cc/min	<u>TIME</u>		<u>ml/min x 10⁻²</u>
	<u>0-250</u>	<u>0-500</u>	
2	1.73	3.51	.284
2	1.75	3.49	
4	0.72	1.43	.699
4	0.72	1.43	
6	-	0.91	
6	0.45	0.92	1.09
6	0.45	0.92	
8	0.32	0.67	
8	0.33	0.67	1.49
8	0.33	0.67	
10	0.25	0.53	
10	0.27	0.53	1.88
	0.25	0.53	

000041

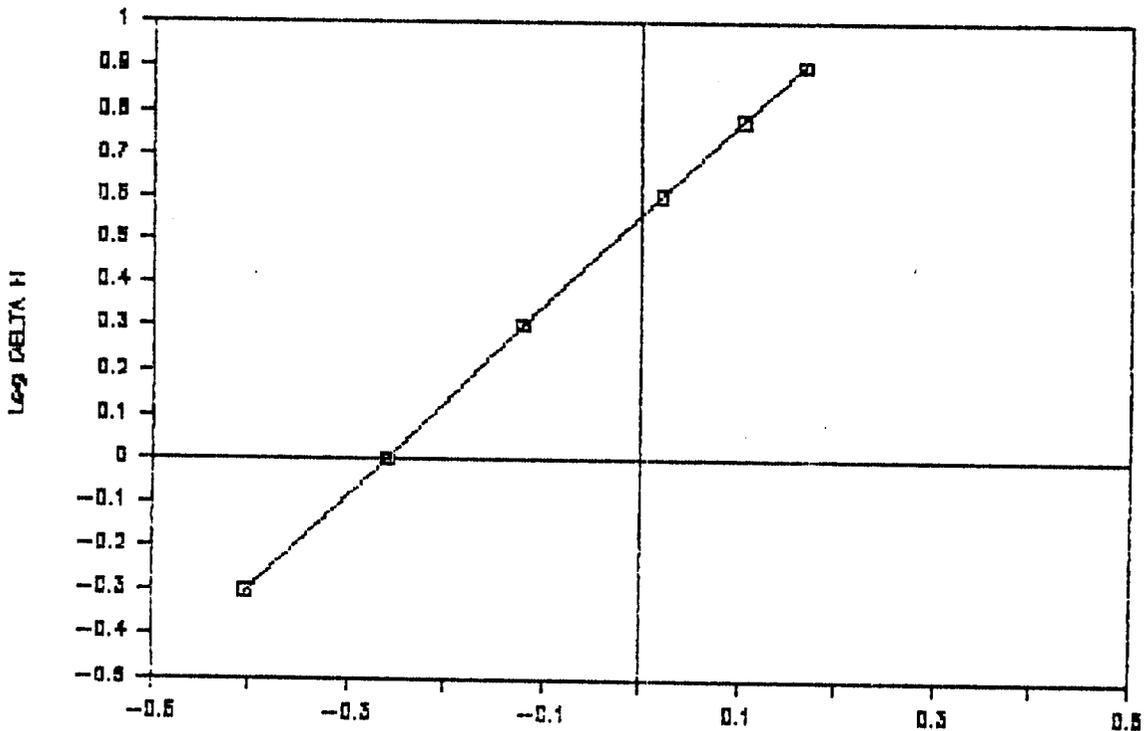
Trace Technologies, Inc.
 Computerized data output

Stack Sampler Calibration

METER BOX # 2052
 CALIBRATED 5/22/90
 BY JG

DELTA H	Vw	Vd	Tw	Tdi	Tdo	Td	TIME	Y	DELTA H@
.5	5	5.005	66.000	96.000	82.000	89.000	12.710	1.041	1.747
1	5	5.047	66.000	102.000	85.000	93.500	9.170	1.040	1.809
2	10	10.123	66.000	114.000	88.000	101.000	13.420	1.048	1.927
4	10	10.153	66.000	122.000	92.000	107.000	9.700	1.051	1.998
6	10	10.176	66.000	126.000	96.000	111.000	8.020	1.051	2.034
8	10	10.244	66.000	127.000	97.000	112.000	6.980	1.041	2.051

Y = 1.046
 DELTA H@ = 1.928



C00042

Electrum

RECOVERY WORKS, INC.

RECEIVED
JUN 19 1990

IRACE TECHNOLOGIES, INC.

Tel. (201) 396-1616
Toll-Free 1-800-622-1192
FAX: 201-396-9390

827 Martin Street
Rahway, New Jersey 07065

June 15, 1990

State of New Jersey
Department of Environmental Protection
Department of Environmental Quality- Metro Region
2 Babcock Place
West Orange, New Jersey 07052

Attention: Mr. Nehal Patel

Re: Stack Test Feedstock- June 13, 1990

Dear Mr. Patel,

In accordance with your request, we are pleased to submit the following data, relating to the subject matter.

Charge No. 1, Time in 8:33 a.m.

Material : Solder Dross, Lot CH 062
Composition: Tin Approx. 42%
Lead Approx. 28%
Tin Oxides Approx. 18%
Lead Oxides Approx. 12%

Quantity : 5850 lbs.

Charge No. 2, Time in 11:05 a.m.

Material : (Same as charge No. 1)
Composition: (Same as charge No. 1)
Quantity : 760 lbs.

Charge No. 3, Time in 12:01 p.m.

Material : (Same as charge No. 1)
Composition: (Same as charge No. 1)
Quantity : 782 lbs.

Charge No. 4, Time in 2:45 p.m.

Material : (Same as charge No. 1)
Composition: (Same as charge No. 1)
Quantity : 2467 lbs.

Summary

Time In : 8:33 a.m.
Time Out : 5:00 p.m.
Total Time : 8.5 hrs.

000043

RECOVERY WORKS, Inc.

Quantity: 9859 lbs.
Rate (s): 1160 lbs./hr.
 8.5 hrs./batch
 9859 lbs./batch

We trust this data meets your requirements. If you have any further question, please do not hesitate to call. We remain,

Respectfully yours,

ELECTRUM RECOVERY WORKS, INC.

COPY

Jack G. Douglas
President

JGD/sr

Enclosures (3)

000044

S- ch Lot () ITEM ()

062

PAGE (2 of 2)

6/13/90

<p>GR 862 Skid < 44 > GR^{w/o} skid 818 # 4 IN T < 36 > NET 782</p>	<p>GR 971 skid < 46 > GR^{w/o} skid 925 # 1 IN T < 63 > NET 802</p>	<p>GR 906 skid < 75 > GR^{w/o} skid 831 # IN T < 36 > NET 795</p>
<p>GR 907 Skid < 61 > GR^{w/o} skid 846 # 3 IN T < 36 > NET 810</p>	<p>COPY GR skid < > GR^{w/o} skid # T < > NET</p>	<p>GR skid < > GR^{w/o} skid # T < > NET</p>

Sub Total G
T < >
with Skids NET

Total G
T < >
with Skids NET

000047

S-CH ~~Lot~~ Lot ()

ITEM ()

6/13/90

062

PAGE (1 of 2)

GR 705 Skid < > GR ^{w/o} skid 118 # 1 062 IN	GR 860 skid < 56 > GR ^{w/o} skid 804 # 9 062 IN	GR 1514 skid < 62 > GR ^{w/o} skid 1452 # 4 061 IN
T < 48 > NET 657 ✓	T < 40 > NET 764 ✓	T < 24 > NET 1428 ✓

GR 2003 Skid < 38 > GR ^{w/o} skid 1965 # 5 IN	GR 1144 skid < 45 > GR ^{w/o} skid 1099 # 8 COPY IN	GR 837 skid < 41 > GR ^{w/o} skid 790 # 6 IN
T < 30 > NET 1935 ✓	T < 33 > NET 1,066 ✓	T < 36 > NET 760 ✓

Sub Total G
T < >
with Skids NET

Total G
T < >
with Skids NET

000046

Trace Technologies, Inc.

ELECTRUM RECOVERY WORKS STACK TEST PROTOCOL

2. DESCRIPTION OF OPERATING PARAMETERS

A) PROCESS - The weight rate of the feed stock shall be recorded by the operating personnel. Times of door openings shall also be recorded.

B) CONTINUOUS EMISSION MONITORS - None required. The afterburner temperature is monitored on the main control panel for the pollution control system.

C) FUEL USAGE - Not normally monitored.

3. DESCRIPTION OF SAMPLING LOCATIONS

A) SAMPLING LOCATIONS - See attached protocol sheets for the following sampling locations.

1. Top of lead pot
2. Inlet to I.D. Fan (Outlet emission point)

B) STACK CONDITIONS -

1. Top of pot - Moisture is estimated to be 5%, temperature is approximately 500F, and cyclonic conditions may exist. The cyclonic flow may be induced by the conical hood top of the lead pot. There is no alternate location to conduct the sampling, and duct modifications are not possible due to the location of the inlet to the afterburner. Since this sampling point is being used only to determine the efficiency of the control system, and not for outlet emission compliance, the cyclonic flow problems may not affect the overall results of the test.

2. Inlet to I.D. Fan - Moisture is estimated at 10% (Saturated gas at the outlet of the scrubber), the temperature is estimated at 160F, and cyclonic flow conditions should be absent. A check to verify the absence of cyclonic flow will be made prior to the start of the sampling.

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Trace Technologies, Inc.

P.O. Box 6817, 10 Radel Avenue
Bridgewater, New Jersey 08807
Telephone (201) 685-2100

May 31, 1989

New Jersey Department of Environmental Protection
Bureau of Technical Services
CN-411
380 Scotch Road
Trenton, NJ 08625

Attention: Mr. E. Choromanski,
Chief, Technical Services

The following is a stack test protocol for required sampling at Electrum Recovery Works, 827 Martin Street, Rahway, NJ. The sampling reflects the requirement for efficiency testing for particulates, and outlet emission testing for lead. It is also proposed that two complete sets of tests be conducted; the first set will be run at an afterburner temperature of 1600F as per the permit requirements, and the second set at an afterburner temperature of 800F. The second set would be used to verify that the emissions meet the outlet requirements at the lower afterburner operating temperature.

1. DESCRIPTION OF SOURCE TO BE TESTED

A) **PROCESS** - A gas fired lead recovery pot is used to extract lead from various lead bearing scrap materials. The charge stock is loaded manually through the front door openings, and then heated to recover the lead. The doors may be opened at times to rake material from the pot, and when the lead is removed for casting.

B) **CONTROL APPARATUS** - Gas fired Afterburner followed by a packed tower scrubber. The afterburner will be operated at 1600F for the first round of tests, and at 800F for the second round of tests.

C) **PERMIT** - Certificate No. 082301
APC Plant I.D. 40203

D) **SAFETY** - Normal personal protection for industrial sites, Hard hat & glasses.

000048

Trace Technologies, Inc.

ELECTRUM RECOVERY WORKS STACK TEST PROTOCOL

C) ACCESS -

1. Top of pot - A scaffold shall be erected above the charging doors to hold the sampling equipment.

2. Inlet to I.D. Fan - Accessible from the roof. The duct to be sampled is a horizontal duct, and the sample ports shall be cut in so that the probe will be at a 45 deg angle from the bottom vertical plane.

4. SAMPLING METHODS TO BE UTILIZED

A) PARTICULATE - EPA Reference Method 5 as corrected for NJ Test Method 1 considerations. The temperature of the probe outlet, and filter outlet will be monitored.

Sampling shall be conducted using equipment conforming to the reference method. Modifications to the standard RAC train include the the use of type K (chromel-alumel) thermocouples in the gas stream at the cyclone inlet and the filter outlet elbow. A thermocouple is also located inside the heated filter compartment. The sample gas stream of the particulate sampling train shall be maintained at a temperature to prevent condensation from occurring (by visual observation) but no higher than 225F. Only complete sample modules shall be used at the site to minimize on-site clean-up requirements and the possibility of contamination. Only the probe and nozzle shall be field cleaned.

Sample clean-up at the site shall consist of carefully lowering the detached probe and nozzle (sealed with parafilm) in a horizontal plane with the sealed nozzle opening facing upward. The nozzle shall be removed from the probe, cleaned with acetone, and brushed only if required. The probe shall be thoroughly rinsed with acetone into the same sample bottle as the nozzle rinse. The probe shall be brushed only if required. The outlet emission samples shall have an additional rinse of dilute nitric acid to remove any traces of lead. The nitric acid rinses shall be placed in a separate sample bottle.

Leak checks shall be conducted at the sample nozzle prior to sampling (less than 0.02 CFM at -15 inches mercury), and post sampling (less than 0.02 CFM at a vacuum 1 inch greater than the maximum observed during the sampling). Leak check results shall be logged in the data sheets.

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Trace Technologies, Inc.

ELECTRUM RECOVERY WORKS STACK TEST PROTOCOL

B) ANALYSIS - The sampling module and probe wash bottle shall be inspected for possible damage during transit to the laboratory. If no damage is observed, the sampling module shall be disassembled for cleaning. The cyclone and flask shall be removed and rinsed thoroughly with acetone to remove any visible particulate. A rubber policeman may be used to remove any particulate not removed with the acetone rinse. The filter assembly shall be opened and the filter quantitatively removed to a petri dish and sealed. The front half of the filter assembly shall be acetone rinsed. The rinses from the cyclone, and filter shall be combined with the probe rinse. For the outlet samples, an additional dilute nitric acid rinse of all front half glass shall be added to the probe acid rinse bottle.

The volume of water in the impingers shall be measured using a graduated cylinder and recorded on the data sheet. The silica gel from the last impinger shall be placed in its original weighing bottle and marked for run number. The dilute acid from the outlet emission test shall be quantitatively transferred to an acid rinsed bottle.

The filters shall be desiccated and weighed to constant weight to the nearest 0.1mg.

The filter for the outlet emission test shall be cut up and digested in nitric acid as per EPA method 12.

Acetone rinses shall be transferred to pre-tared evaporating beakers and placed in a clean fume hood for evaporation. A field blank of acetone shall be evaporated at the same time. The dry beakers shall be desiccated overnight and weighed to the nearest 0.1mg. Corrections for acetone blank shall be made according to the volume of acetone evaporated.

The residue from the acetone evaporation of the outlet emission samples shall be digested in nitric acid and added to the filter digestate. All of the digestates for each run shall be combined and concentrated. Analysis for lead shall be by flame Atomic Absorption.

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Trace Technologies, Inc.

ELECTRUM RECOVERY WORKS STACK TEST PROTOCOL

C) CALIBRATION -

1. Meter Boxes - RAC method 5 boxes shall be calibrated against a 1 cubic foot per revolution wet test meter as per EPA method 5.

2. Pitot Tubes - Certified built as per criteria of EPA reference method 2.

3. Thermocouple Read-outs - Checked against a standard potential generator.

4. Nozzles - Measured as per EPA method 5 requirements.

5. Lead Standards - Purchased as certified.

C. FIXED GAS ANALYSIS - An integrated gas sample bag shall be taken during each sample run. Analysis for Carbon Dioxide and Oxygen shall be done on a standard orsat apparatus.

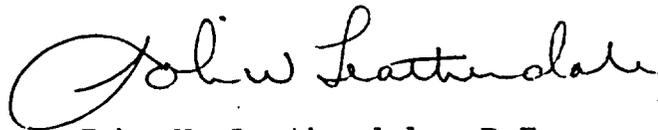
5. PRE-TEST CONSIDERATIONS

A preliminary traverse and verifications of the absence of cyclonic flow (outlet emissions point only) shall be done prior to sampling.

6. COMMENTS

The second set of samples (at the lower afterburner temperature) shall be taken as outlet emission samples only.

Very truly yours,
TRACE TECHNOLOGIES, INC.



John W. Leatherdale, P.E.
President

JWL/jl
DCN: 8906104

000052

TRACE TECHNOLOGIES, INC.
 Environmental Process Technology
 10 Radel Avenue
 BRIDGEWATER, NEW JERSEY 08807
 (201) 685-2100

JOB ELECTRUM

SHEET NO. _____ OF _____

CALCULATED BY JWL DATE 5/31/89

CHECKED BY _____ DATE _____

SCALE _____

PROPERTIES OF SAMPLING LOCATIONS

	Stack #1	Stack #2	Stack #3
Purpose of Stack	TOP OF POT	EXHAUST	
Height (ft)			
Length (ft)	30"	8'-6"	
Diameter (ft I.D.)	10"	10"	
Wall Thickness (in)	1/8 GA?	1/8 GA?	
Material of Construction	ST.	ST.	
Ports a. Existing			
b. Size Opening	3"	3"	
c. Distance of Platform	13 1/2"		
Straight Distance Before Port	18"	80"	
Type of Restriction	HOOD	ELBOW	
Straight Distance After Port	12"	1'-10"	
Type of Restriction	TJEE	FAN INLET	
Environment	14 FT - TOP OF POT	ROOF - AMB	
Work Space	SCAFFOLD	ADEQUATE	
Ambient Temperature (°F)	100	80	
Avg Pitot Reading (H ₂ O in. Hg)	0.1 EST	0.1 EST	
Stack Velocity (F/M)	1500 EST	1200 EST	
SCFM	500 EST	600 EST	
Moisture % by Volume	EST 5%	EST 10%	
Stack Temperature (°F)	500	160	
Particulate Loading (gr/SCF)	UNK	LIGHT	
Particle Size	UNK.	UNK.	
Gases Present	CO ₂ , O ₂ , N ₂	CO ₂ , O ₂ , N ₂	
Stack Pressure (H ₂ O in. Hg)	AMB	EST -1"	
Water Sprays	NONE	SCRUBBER	
Dilution Air	NONE	COMB. AIR	
Elevator	—	NONE	

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JOB ELECTRUM

SHEET NO. _____ OF _____

CALCULATED BY JWL

DATE 5/31/89

CHECKED BY _____

DATE _____

SCALE _____

STACK TESTING PROTOCOL

STACK NO. & DIAMETER TRANSFER DUCT - FAN INLET (10")

MATERIAL TO BE SAMPLED PARTICULATE, LEAD

EMISSION SOURCE LEAD POT, AFTERBURNER, SCRUBBER

REFERENCE PROCEEDURE NJ1 - EPA 12

SAMPLING EQUIPMENT STD RAC TRAIN (WITH TEMP MONITORING)

SPECIFICS :

- | | |
|--------------------------------|--|
| 1. Stack Diameter | <u>10"</u> |
| 2. Upstream Length & Diameters | <u>80" (8 D.I.A)</u> |
| 3. Downstream Length | <u>22" (2.2 D.I.A)</u> |
| 4. Number of Traverse Points | <u>8</u> |
| 5. Time per Point | <u>9 MIN</u> |
| 6. Probe Type & Length | <u>GLASS PROBE / SS SHEATH 2' EFFECTIVE</u> |
| 7. Pitot Tube | <u>"S"</u> |
| 8. Filter Media | <u>934 AH</u> |
| 9. Impinger Contents | <u>DILUTE HNO₃ (100ml, 100ml, 0ml) SILICA GEL</u> |
| 10. Seal Requirements | <u>CLOTH</u> |
| 11. Access | <u>ROOF - HORIZONTAL DUCT</u> |

ANALYTICAL :

1. Filter DRY & WEIGH - DIGEST WITH HNO₃ & ANALYZE FOR Pb BY AA
2. Probe; Cyclone ACETONE RINSE - EVAPORATE (FOLLOWED BY DILUTE HNO₃ RINSE)
(ACETONE RESIDUE TO BE HNO₃ DIGEST)
3. Impinger MEASURE VOLUME - DIGEST & ANALYZE FOR Pb WITH
FILTER & PROBE WASH.

COMMENTS:

NON CYCLONIC FLOW WILL BE VERIFIED.
ANALYSIS PROCEDURE SHALL BE AS PER EPA 12
AN INTEGRATED ORSAT BAG SHALL BE COLLECTED
FOR EACH RUN.

000054

STACK TESTING PROTOCOL

STACK NO. & DIAMETER TOP OF POT (10")
 MATERIAL TO BE SAMPLED PARTICULATE
 EMISSION SOURCE LEAD POT
 REFERENCE PROCEDURE NJ 1
 SAMPLING EQUIPMENT STD RAC TRAIN (WITH TEMP MONITORING)

SPECIFICS :

1. Stack Diameter 10"
2. Upstream Length & Diameters 18" - 1.8 DIA
3. Downstream Length 12" - 1.2 DIA
4. Number of Traverse Points 24
5. Time per Point 3 min
6. Probe Type & Length GLASS PROBE / SS SHEATH 2' EFFECTIVE
7. Pitot Tube 5"
8. Filter Media 934AH - 4" DIA
9. Impinger Contents WATER, 100, 100, 0 - SILICA GEL
10. Seal Requirements HIGH TEMP WOOL
11. Access SCAFFOLD

ANALYTICAL :

1. Filter DRY - WEIGH
2. Probe; Cyclone ACETONE RINSE - EVAPORATE; WEIGH
3. Impinger MEASURE VOLUME & WT OF SILICA GEL

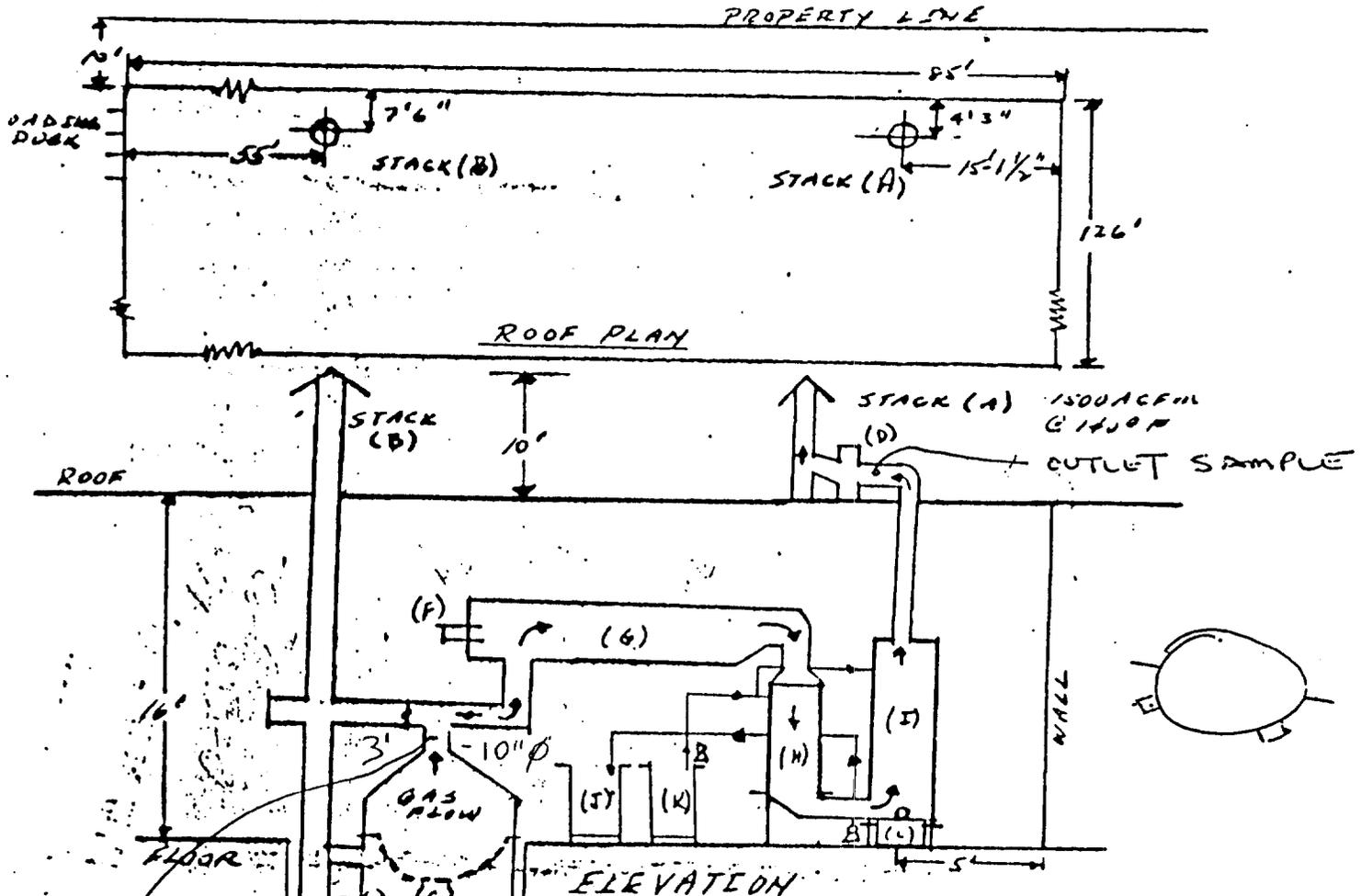
COMMENTS: THE SAMPLING LOCATION FOR THE PROCESS OUTLET IS AT THE TOP OF THE POT. THERE IS PHYSICALLY NO OTHER POSSIBLE LOCATION. THE VELOCITY TRAVERSES MAY HAVE LITTLE MEANING. NON-CYCLONIC VERIFICATION IS USELESS AT THIS SAMPLE POINT.

AN INTEGRATED DREAT BAG SHALL BE COLLECTED FOR EACH RUN

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RECEIVED

SECTION D DIAGRAM INSTRUCTIONS - A diagram must be included showing the configuration of all stacks, control apparatus and sources related to this application. NOTE: In cases of multiple stacks, include the following information for each stack: (1) distance to nearest property line, (2) stack diameters, (3) stack height above ground, (4) exit temperature (°F) of stack gases, (5) volume rate of gases (ACFM) discharged at stack conditions, (6) the location and type of control apparatus, (7) direction of flows, and (8) maximum stack emissions.



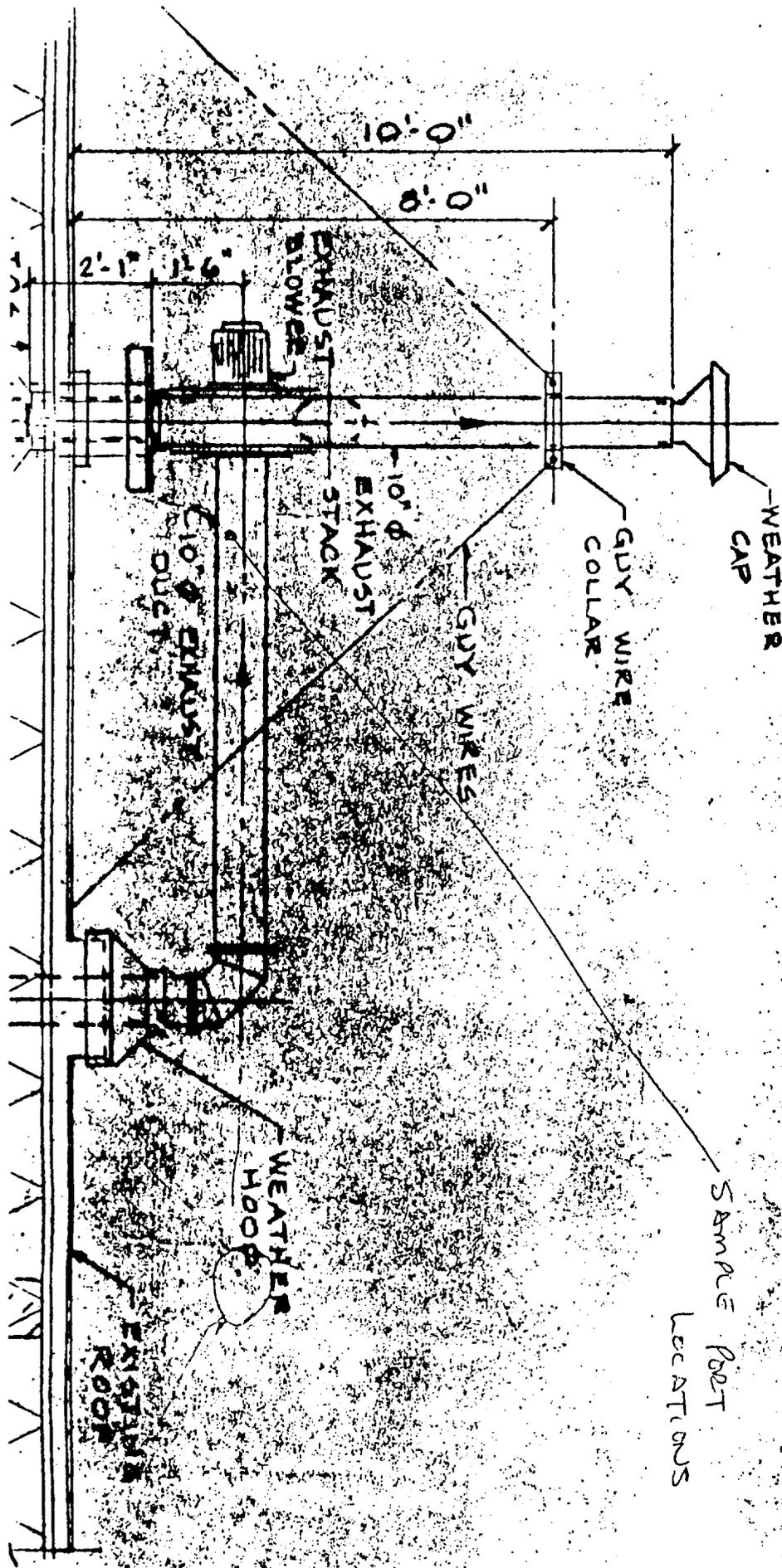
- (A) PROCESS STACK 10" Ø X 10' H.
 - (B) FURNACE STACK 10" Ø X 10' H.
 - (C) MELTING FURNACE
 - (D) I. D. FAN.
 - (E) 0.89 M. BTU/HR - GAS BURNER
 - (F) 0.69 M. BTU/HR - GAS BURNER
 - (G) AFTER BURNER - 27" Ø ID X 12' L.
 - (H) QUENCH TOWER - 2' Ø 50 X 8' L.
 - (I) SCRUBBER - 2' Ø 50 X 10' H" L.
 - (J) TANK - NEUTRALIZATION
 - (K) TANK - MAKEUP WATER
 - (L) TANK - SCRUBBER
- NOTE - 200(0) WATER DISCHARGE
 & PUMPS(2)

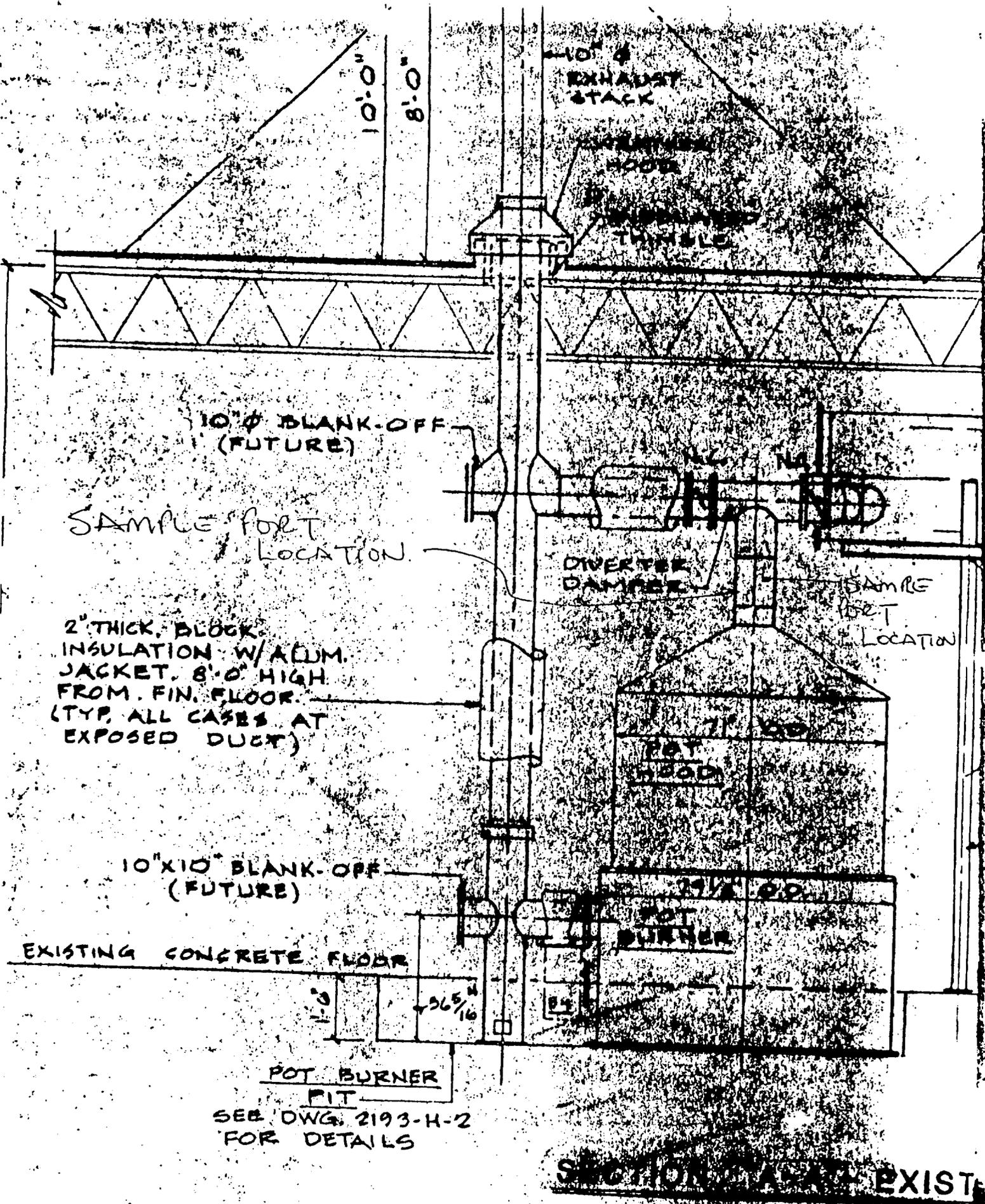
VENT LAYOUT

E

OUTLET

7-0
1-4
8-4





10" Ø EXHAUST STACK

10'-0"
8'-0"

10" Ø BLANK-OFF (FUTURE)

SAMPLE PORT LOCATION

2" THICK, BLOCK INSULATION W/ ALUM. JACKET, 8'-0" HIGH FROM FIN. FLOOR. (TYP. ALL CASES AT EXPOSED DUCT)

DIVERTER DAMPER

SAMPLE PORT LOCATION

10" X 10" BLANK-OFF (FUTURE)

EXISTING CONCRETE FLOOR

POT HOOD

POT BURNER

POT BURNER FIT

SEE DWG. 2193-H-2 FOR DETAILS

SECTION A-A EXIST

INLET

000058

Let's protect our earth



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY

CN 027
Trenton, N.J. 08625-0027
(609) 984-6721
Fax # (609) 292-1074

William O'Sullivan, P.E., Assistant Director
Air Quality Engineering and Technology

June 26, 1989

Mr. John W. Leatherdale
President
Trace Technologies
P.O. Box 6817, 10 Radel Avenue
Bridgewater, New Jersey 08807

RECEIVED
JUL 11 1989

Re: Electrum Recovery Works
APC ID No. 40203-002
Log No. 1-86-3608

TRACE TECHNOLOGIES, INC.

Dear Mr. Leatherdale,

We are in receipt of the sampling and analytical protocol which you have submitted on behalf of the above referenced facility. In reviewing the proposed procedures the following item(s) were found to require additional clarification and/or inclusion into the protocol.

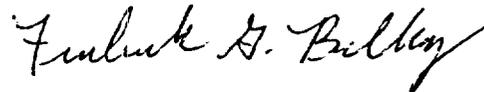
- 1) Carbon Monoxide and Oxygen tests must be conducted during each particulate test run in accordance with EPA Methods 10 and 3 Respectively.
- 2) Outlet particulate sampling trains must contain filters which conform to the specifications of EPA method 12.
- 3) Total Hydrocarbon Efficiency tests must also be conducted in accordance with NJAC 7:27B-3. Analysis shall be as Methane.
- 4) A summary of the sampling and analytical procedures for items 1 and 3 above must be submitted for approval.
- 5) There are no provisions in BNSR Log No. 01863608 allowing the source to operate at 800° F. A minimum temperature of no less than 1400° F must be maintained provided a 99% destruction efficiency can be achieved.

- 6) You or a company representative must complete the enclosed emission test production data form. The completed form must be sent to the regional office having jurisdiction over the referenced facility. A copy of the form must also be included in the final emission test report.

Your written agreement to the above mentioned item(s) will automatically approve the protocol. If a response is not received within 45 days of the date of this letter, the case will be referred for enforcement action.

If you have any further question, please feel free to contact me at (609)-530-4041.

Sincerely



Frederick G. Ballay
Sr. Environmental Specialist
Bureau of Technical Services

cc: Michael Pratt
Byron Sullivan

000060

TTI

Trace Technologies, Inc.

P.O. Box 6817, 10 Radel Avenue
Bridgewater, New Jersey 08807
Telephone (201) 685-2100

March 26, 1990

New Jersey Department of Environmental Protection
Bureau of Technical Services
CN-411
380 Scoth Road
Trenton, NJ 08625

Attention: Mr. E. Choromanski
Chief, Technical Services

RE: Revision to Stack Test Protocol
Electrum Recovery Works I.D. 40203

Dear Mr. Choromanski,

As per our discussion on August 18, 1989, we are modifying our test protocol as follows:

1. All control system inlet tests are deleted.
2. Total Hydrocarbons, Carbon Monoxide, and Oxygen are added to the outlet.
3. The second set of samples at lower temperature is deleted.

TEST METHODS

Sampling for the gaseous emissions listed above shall be done by NJ Test Method 3 utilizing a condenser and a teflon sample bag. The sampling train configuration is shown on the attached diagram.

The sampling flow rates shall be 1.0 liters per minute for 60 minutes during each of the particulate sample runs. Both the dry gas meter volume and gas bag inlet rotameter readings shall be recorded every 5 minutes on the data sheets.

Trace Technologies, Inc.

Leak checks shall be conducted as follows:

1. All gas bags shall be flushed and filled with nitrogen at least 24 hours prior to sampling.
2. The gas bags shall be brought to the site filled with nitrogen to verify integrity.
3. The sampling train, exclusive of the bag and rigid container shall be leak checked at -10 inches mercury with a leakage rate not to exceed 0.04 L per minute.
4. The actual volume of gas sampled shall be based on the calibrated rotameter reading and not the dry gas meter reading.
5. Leak tests shall be conducted pre-sampling only.

The first condenser shall contain 20 ml of HC free water, and the second condenser shall be dry. A teflon transfer line shall be used between the probe and impinger train. (The teflon line shall be as short as practical).

Sample clean up shall be as follows:

1. The sample probe and transfer line shall be rinsed with HC free water into the first impinger.
2. The contents of both impingers shall be combined and quickly poured into protocol clean VOA vials (as supplied by I-Chem). The vials shall be made liquid full with HC free water and labeled. The final volume shall be marked on the data sheet.
3. The gas bag shall be removed from the drum and the valve closed. The bag label shall show the approximate volume of the bag after sampling. The bag shall be placed in a storage box to protect it from sunlight and shipping damage.

000062

Trace Technologies, Inc.

ANALYSIS

I) Oxygen

The gas bag shall be analyzed for oxygen and carbon dioxide using a standard orsat apparatus as per EPA Method 3.

II) Carbon Monoxide

As per EPA Method 10 using a Horiba Non Dispersive Infrared Analyzer. Standards shall be purchased gas cylinders. Recorder plots shall be included with the report.

III) Total Hydrocarbon Analysis

Analysis for total hydrocarbons shall be a two step process; consisting of direct gas injection from the tedlar bag, and purge and trap analysis of the condensate.

1. Gas Chromatograph Configuration

- A. Carrier Gas - Nitrogen
- B. Detector - Flame Ionization
- C. Column - Capillary Jumper
- D. Head Pressure - 20 psig
- E. Injector Temperature - 150 C
- F. Oven Temperature - 140 C
- G. Detector Temperature - 160 C

Hydrogen and air to the detector shall be optimized to provide full scale response (1 mv) for a 2 ppmv methane injection of 1cc.

An electronic integrator shall be used to record the peak areas. Methane standards of 2.0, 10.0, and 50.0 ppmv shall be run to determine the linearity of the detector.

Gas samples shall be injected through either a gas tight syringe, or a gas sampling valve with a 1.0 ml loop. Each sample shall have three successive injections, followed by a 10.0 ppm standard injection.

Trace Technologies, Inc.

The condensate shall be analyzed by attaching a purge and trap apparatus (as per EPA Method 624) to the injector of the gas chromatograph using the same operating conditions as the gas analysis. A 1 inch long 624 column shall be used to cold trap the volatiles desorbed from the purge and trap. A 5.0 ml aliquot of the condensate shall be placed in the sparging chamber and purged at 35 ml/min for 15 minutes. The trap will then be thermally desorbed to the injection port at 180°C.

The detector response (total sample peak area minus the blank area) may then be used to calculate the VOC fraction of the condensate analyzed and the volume of gas sampled.

The total hydrocarbon content will then be the sum of the liquid and vapor phase concentration.

CALIBRATION DATA

1. Rotameters - calibrated against soap bubble meters as primary standard.
2. Gas Standards - purchased as certified by the vendor.

SAMPLING HOLDING TIME

1. Condensate - 14 days
2. Gas bags - 14 days

Please notify us as soon as possible as to any required changes. We are prepared to sample at the earliest practical time following protocol approved.

Very truly yours,
TRACE TECHNOLOGIES, INC


J. W. Leatherdale, P.E.
President

JWL/mh

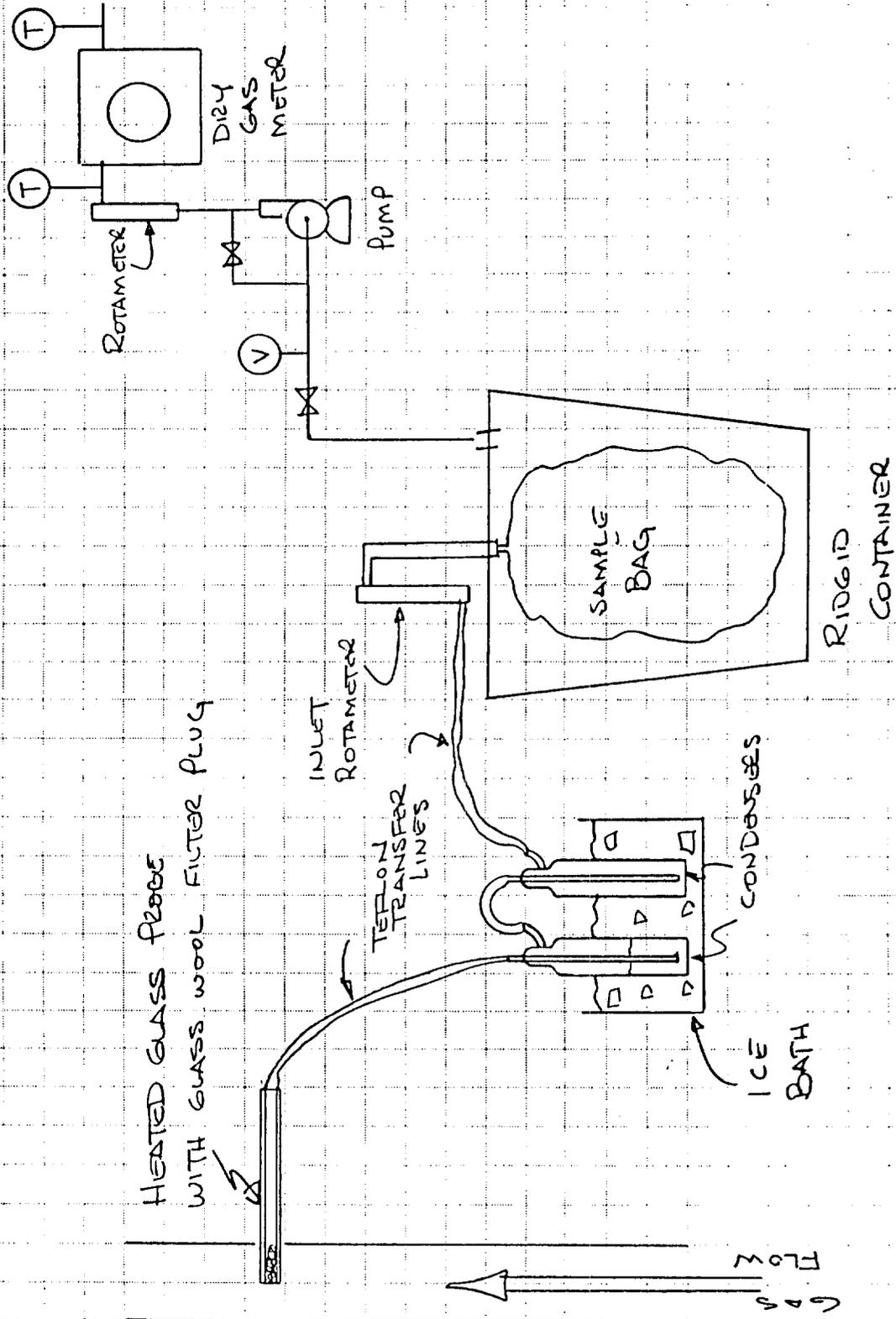
'cc: Mr. Jack Douglas/Electrum Recovery Works

Attachment
DCN:9003012/1425

000061

TRACE TECHNOLOGIES, INC.
 Environmental Process Technology
 10 Radel Avenue
 BRIDGEWATER, NEW JERSEY 08807
 (201) 685-2100

JOB NJ TEST METHOD 3
 SHEET NO. _____ OF _____
 CALCULATED BY _____ DATE _____
 CHECKED BY _____ DATE _____
 SCALE SAMPLING TRAIN



000065

Let's protect our earth



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
Bureau of Technical Services
CN 411
Trenton, N.J. 08625-0411
(609) 530-4041

April 16, 1990

Mr. John W. Leatherdale
President
Trace Technologies
P.O. Box 6817
10 Radel Avenue
Bridgewater, New Jersey 08807

RECEIVED
APR 19 1990

TRACE TECHNOLOGIES, INC.

RE: Electrum Recovery Works
APC ID No. 40203-002
Log No. 1-86-3608

Dear Mr. Leatherdale:

We have received your March 26, 1990 addendum to the protocol for the above referenced facility. Our review indicates that the following items must be addressed.

- 1) Tedlar bags to be used with NJ ATM 3.9 should be 1.5 times sample volume. They will be subject to a negative leak check (per EPA 10A 4.1), while inside rigid container, to be observed by the on-site observer from this office.
- 2) NJ ATM 3.9 train is subject to a post run leak check. A leak rate in excess of 4% of the sampling rate will cause the run to be void.
- 3) A separate EPA Method 3 train must be utilized.
- 4) Total hydrocarbon analysis required injection of calibration standards (during pre and post calibration) until two consecutive injections agree within 5% of each other. The same injection methods apply to the actual sample. All strip charts and raw data must be included in the final report. Calibration standards shall be chosen in accordance with NJ ATM 3.

000066



J/A

TTI

Trace Technologies, Inc.

P.O. Box 6817, 10 Radel Avenue
Bridgewater, New Jersey 08807
Telephone (201) 685-2100

April 26, 1990

State of New Jersey
Department of Environmental Protection
Division of Environmental Quality
Bureau of Technical Service
CN411
Trenton, NJ 08625-0411

Attention: Mr. Gary Andrew
Environmental Specialist

Re: Electrum Recovery Works
APC ID No. 40203-002
Log No. 1-86-3608

Dear Mr. Andrew,

I have reviewed the eight (8) specific items of your letter dated April 16, 1990 with Mr. F. Ballay of your Department. In order to expedite the sampling on behalf of our client, we will accept all eight (8) protocol modifications as written.

Please expedite scheduling of this test.

Very truly yours,
TRACE TECHNOLOGIES, INC



J. W. Leatherdale, P.E.
President

JWL/mh

DCN: 9004012

Sent by Fax & Certified Mail

cc: Mr. Jack Douglass, Electrum Recovery Works

000068

Mr. John W. Leatherdale
President
Trace Technologies
P.O. Box 6817
10 Radel Avenue
Bridgewater, New Jersey 08807
April 9, 1990
Page 2

- 5) THC condensate shall be analyzed as per NJ ATM 3.9.6.
- 6) Gas standards must be certified to $\pm 2\%$ by the manufacturer. Include certifications with calibration package on first day of test.
- 7) Tedlar bag gas analysis must be conducted within 24 hours of sampling.
- 8) Sample volume for the NJ ATM 3 train shall be determined by the inlet rotometer.

Please respond to each item in writing. If a response is not received within 30 days of the date of this letter, the case will be referred for enforcement action.

If I can be of further assistance, please contact me at (609) 530-4041.

Sincerely,



Gary A. Andrew
Env. Specialist
Bureau of Technical Services

c Mike Pratt
Byron Sullivan
Jack Douglas - Electrum Recovery

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TTI

Trace Technologies, Inc.

P.O. Box 6817, 10 Radel Avenue
Bridgewater, New Jersey 08807
Telephone (201) 685-2100

April 26, 1990

New Jersey Department of Environmental Protection
Division of Environmental Quality
Bureau of Technical Service
380 Scotch Road, CN411
West Trenton, NJ 08625-0411

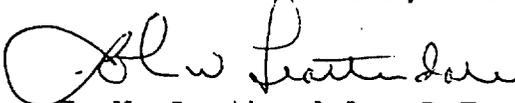
Attention: Mr. Michael Pratt

Re: Electrum Recovery Works
APC ID No. 40203-002
Log No. 1-86-3608

Dear Mr. Pratt,

Confirming our telephone discussion, the schedule for stack testing at Electrum is set for June 7-8, 1990. Please confirm this date and forward a copy of protocol approval to my office.

Very truly yours,
TRACE TECHNOLOGIES, INC



J. W. Leatherdale, P.E.
President

JWL/mh

DCN: 9004014

Sent by Fax & Certified Mail

cc: Mr. Jack Douglas, Electrum Recovery Works

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Let's protect our earth



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
Bureau of Technical Services
CN 411
Trenton, N.J. 08625-0411
(609) 530-4041

May 4, 1990

Mr. J. W. Leatherdale
Trace Technologies, Inc
P.O. Box 6817
10 Radel Avenue
Bridgewater, New Jersey 08807

RECEIVED
MAY 9 1990

TRACE TECHNOLOGIES, INC.

RE: ELECTRUM RECOVERY WORKS

APC ID No. - 40203
NJ Stack No. - 002
P&CT No - 82301
Log No. - 1-86-3608

Dear Mr. Leatherdale:

Stack tests for the above referenced facility/equipment was scheduled for June 7 and 8, 1990.

If you should have any questions, please do not hesitate to call me at (609) 530-4041.

Sincerely,

Michael Pratt
Supervisor, Technical Review
Bureau of Technical Services

c Edward Choromanski
File

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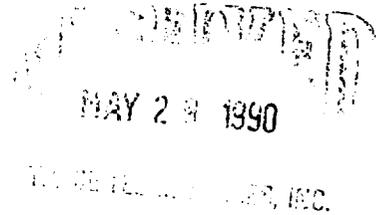
Let's protect our earth



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
Bureau of Technical Services
CN 411
Trenton, N.J. 08625-0411
(609) 530-4041

May 23, 1990

Mr. John W. Leatherdale
Trace Technologies
P.O. Box 6817
10 Radel Avenue
Bridgewater, New Jersey 08807



Re: Electrum Recovery Works
APC ID No. 40203
NJ Stack No. 002

Dear Mr. Leatherdale,

We have received your letter dated April 26, 1990, in regards to the above referenced facility.

Your letter indicates to us that you will conduct the stack test for this facility in an appropriate manner and/or agree to incorporate all additional clarifications and/or inclusions into your proposed stack test protocol. Therefore, we now approve this protocol.

In order to arrange a mutually acceptable test date for the above referenced facility, you must contact Mr. Michael Pratt of this Bureau.

If you have any questions or would like to schedule for a test date, please feel free to call us at (609) 530-4041.

Sincerely,

Gary A. Andrew
Environmental Specialist
Bureau of Technical Services

c: Michael Pratt
Byron Sullivan
Jack Douglass - Electrum Recovery

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GA