Note: This is a reference cited in *AP 42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources.* AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

CHARLES OLIVER & SONS
46005 So. Lost Hills Road
Coalinga, CA 93210

Attn: Rick Krebs

COMPLIANCE EMISSION TEST
Coalinga Asphalt Plant
Baghouse
July 13, 1993

Prepared By:

BTC ENVIRONMENTAL, INC.
1536 Eastman Avenue
Ventura, CA 93003

Job Number
15018

Laboratory Report Number
293-073

Test Team Leader
Ken Robison

Results Verified By
Tom Porter

Submitted
July 29, 1993

BTC ENVIRONMENTAL INCORPORATED

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SUMMARY OF SOURCE TEST RESULTS

CONSTITUENT	RUN #1	RUN #2	Run #3	AVERAGE	LIMITS
Total Particulate					
gr/DSCF	0.0340	0.0495	0.0560	***0.0465***	–
lb/hr	7.86	11.28	12.70	***10.61***	–
lb/day	78.62	112.79	127.00	***106.14***	–
-10µ PM10 Particulate					
gr/DSCF	0.0258	0.0388	0.0435	[illegible]	[illegible]
lb/hr	5.96	8.83	9.87	***8.22***	–
lb/day	59.57	88.34	98.67	***82.19***	***67.50***
Oxides of Nitrogen					
ppm by volume	62	71	69	***67***	–
lb/hr	12.16	13.73	13.28	***13.06***	–
lb/day	121.60	137.28	132.79	***130.56***	***109.50***
Carbon Monoxide					
ppm by volume	26523	17215	19438	***21059***	–
lb/hr	3166	2026	2277	***2490***	–
lb/day	31664	20260	22770	***24898***	***229.0***
Non-methane Hydrocarbons					
ppm by volume	145	81	65	***11***	–
lb/hr	26.06	14.58	11.70	***2.79***	–
lb/day	260.60	145.80	117.00	***174.50***	***107.5***

I. INTRODUCTION

INTRODUCTION

On July 13, 1993, BTC Environmental conducted compliance source testing for total and PM10 particulates, oxides of nitrogen, carbon monoxide and reactive organic compounds (ROC'S) on a fabric baghouse connected to a **propane fired asphalt hot plant**. The Charles Oliver and Son's **facility is located at 46005 So. Lost Hills Road, Coalinga, California**. The unit is operated under San Joaquin Valley Unified APCD ATC No. 5010120102. The plant reported an average production rate of **412 tons per hour** during the testing. The fuel rate was reported to be **352 gallons per hour.**

The system is comprised of a Parallel Flow CMI Drum Mixer, Model POM 936. The drier was equipped with a Haunk Low NOx Burner - Model SJO 570C-121-07-09-200. The burner is rated at 150 MM/BTUhr. A Bituma fabric baghouse is attached to the drier to remove particulate matter from the exhaust stream.

SAMPLING AND ANALYTICAL PROCEDURES

STACK GAS ANALYSIS: Samples of the stack gas were taken from the exhaust stack and analyzed for oxygen, carbon dioxide, carbon monoxide and oxides of nitrogen. The oxygen was determined with a Teledyne 320AX electrochemical cell analyzer. The carbon dioxide was checked using an ACS (Fuji) 3300 non-dispersive infrared analyzer. The oxides of nitrogen were determined with a TECO Model 10 chemilumenescent analyzer. The carbon monoxide was determined with a TECO Model 48H HDIR w/GFC analyzer. Readings were obtained at five (5) minute intervals during each 60 minute run and then averaged together to obtain the stack gas composition. Sampling was conducted according to CARB Method 100. Three (3) 60 minutes runs were conducted.

The carbon monoxide **values observed** were much higher than anticipated. **The 399 ppmv calibration gas was the highest available**. The results averaged 21,059 ppmv and the 50000 ppmv was used. **The CO calibration gas was way below the acceptable 30% of full scale.** However since the unit was not passing it was desireable to obtain readings for CO during the testing of the other parameters.

STACK GAS FLOW RATE: The stack gas velocity was determined using an "S" type pitot tube connected to an inclined draft gauge or a magnehelic gauge. The stack temperature was determined using a thermocouple and an indicating pyrometer. The proportion of water was determined gravimetrically and the dry molecular weight of the stack gas determined by CARB Method 3.1. A **24 point, 2 port traverse (12 points per port) was run on the baghouse exhaust stack.**

REACTIVE ORGANIC COMPOUNDS (ROC): The non-methane reactive organic compounds were sampled by using an inert Tedlar bag placed into a vacuum chamber. A teflon sample line was attached directly to the Tedlar bag in the chamber. A vacuum was applied to the chamber which allowed the bag to be filled with the exhaust gases. The bag was filled, evacuated and then refilled to assure that the sample line was completely purged. The bag was removed from the chamber, labeled with time and date and placed into a dark plastic bag for transport to the laboratory for analysis. The analysis was conducted by gas chromatography with a flame ionization detection (FID) system.

PM-10 PARTICULATE EMISSIONS: PM-10 particulates were collected isokinetically using a GII cascade impactor. The impactor consists of a stainless steel nozzle, two (2) stages with slotted filters, a final stage containing a back up filter and cooled impingers containing DI water. The nozzle and the first two (2) stages represnets the +10µ fraction. **The final stage, backup filter, probe and the impingers represents the -10µ fraction. The runs utilized 24 sample points (12 points per port) and the sampling was for 60 minutes.** Due to the nature of the small **filters in the impactor less than the required 30 dscf (average 24.5 dscf) was sampled.**

The weight from each fraction including the filter weights and the rinses are added together to obtain the total particulate weight. The total weight is used for the total partiuclate calculation. The total weight is divided into the weight obtained from each fraction to obtain the percentage for each fraction. The lb/hr value is obtained from each fraction. Blanks for the DI water and acetone were analyzed and subtracted from the total particulate weight.

LEAK CHECKS: Leak rates were conducted on the sampling trains and the pitot tubes before and after each test. The leak check for the sampling train was done at the nozzle. Any leak rate greater than 0.02 cfm was corrected for in the volume calculations.

The stack exhaust calculations for lb/hr were done by using the flow rate of the stack gas at the outlet of the baghouse stack. All values were calculated by using SJVUAPCD Standard Conditions (60 °F & 29.92 in. Hg). The calculations for lb/day was determined by **assuming a 10 (ten) hour day.**

If you have any questions regarding the testing procedures or the calculations, please contact the undersigned at (805) 644-1095.

Respectfully submitted,
BTC ENVIRONMENTAL, INC.

Tom Porter
Vice President - Air Test Division

II. WET TEST METHODS DATA SUMMARIES

FIELD DATA SUMMARY

	Run#1	Run#2	Run#3
Vlc - Volume of water collected, ml	136.5	144.6	151.8
Vm - Gas volume, meter cond., dcf	27.202	26.952	27.857
Y - Meter calibration factor	0.970	0.970	0.970
Pbar - Barometric pressure, in. Hg	29.15	29.15	29.15
Pg - Stack static pressure, in. H20	0.50	0.50	0.50
ΔH - Avg. meter press. diff., in. H20	0.740	0.758	0.768
Tm - Absolute meter temperature, °R	540.9	548.8	554.5
Vm(std) - Standard sample gas vol., dscf	24.7701	24.1886	24.7469
Bws - Water vapor part in gas stream	20.4	21.7	22.2
CO2 - Dry concentration, volume %	5.9	6.0	6.0
O2 - Dry concentration, volume %	10.9	10.8	10.5
Md - Mol wt. stack gas, dry, g/gmole	29.380	29.392	29.380
Ms - Mol wt. stack gas, wet, g/gmole	27.061	26.917	26.858
Cp - Pitot tube coef., dimensionless	0.831	0.831	0.831
Δp - Avg. of sq. roots of each Δp	0.966	0.966	0.966
Ts - Absolute stack Temp. °R	760.0	760.0	760.0
A - Area of stack, square feet	12.57	12.57	12.57
Qstd - Volumetric flow rate, dscfm	26968	26583	26462
An - Area of nozzel, square feet	0.0001827	0.0001827	0.0001827
ø - Sampling time, minutes	60	60	60
I - Isokinetic variation, percent	**105.3**	**104.3**	**107.2**

Amended

SOURCE EMISSION TEST PROTOCOL
FOR
CHARLES OLIVER & SONS
COALINGA ASPHALT PLANT

RECEIVED
JUN 21 1993
San Joaquin Valley Unified
Air Pollution Control District

7 Jul 93

Presented to:

San Joaquin Valley Unified APCD
1999 Tuolumne Suite 200
Fresno, CA 93721

Attn: Gabe Lazar

Prepared for:

Charles Oliver & Sons
46005 S. Lost Hills Road
Coalinga, CA 93210

Attn: Rick Krebs
935-1560

Prepared by:

BTC Environmental, Inc.
1536 Eastman Avenue
Ventura, California 93003

Tom Porter
Vice President - Air Test Division

~~June 16, 1993~~

BTC ENVIRONMENTAL INCORPORATED

BTC ENVIRONMENTAL INCORPORATED

June 16, 1993

SJVUAPCD
1999 Tuolumne Suite 200
Fresno, CA 93721

ATTENTION: Gabe Lazar

REGARDING: Source Test Protocol for Charles Oliver & Sons Asphalt Hot Plant Located in Coalinga, Califonia (ATC #5010120102)

Dear Mr. Lazar:

This is BTC Environmental, Inc. source test plan for the PM10 particulate, NOx, CO & Nonmethane Hydrocarbon source testing of a baghouse dust collecting system at the Charles Oliver & Sons Asphalt Hot Plant located at 46005 South Lost Hills Road, Coalinga, Califonia.

We tenatively plan to test on June 30, 1993. Your quick response to this protocol will be greatly appreciated.

If you have any questions please call me at (805) 644-1095.

Respectfully submitted,

BTC Environmental, Inc.

Tom Porter
Vice President - Air Test Division

cc: Mr. Rick Krebs
Charles Oliver & Sons

Mr. Al Oliver
Artesia Ready Mix Concrete

1536 Eastman Avenue • Ventura, CA 93003 • (805) 644-1095

This test plan defines the testing methodology proposed for the source emission testing of a LPG fired rotary drier asphalt plant connected to a fabric baghouse. The unit is operated under SJVUAPCD Authority to Construct No. 50101210102. The dryer is equipped with a Haunk Low NOx burner and is rated at 150 MMBtuh while buring LPG. The dryer is attached to a Bituma baghouse that is equipped with a pulse-jet cleaning system.

The testing shall include the following:

Parameter	Location Tested	Samples/Runs	Method
PM10 Particulate	Exhaust stack	3-1 hour runs 24 sample points	Modified CARB Method 501 Includes back half catch
Oxides Of Nitrogen	Exhaust Stack	3-1 hour runs	CARB Method 100 Chemilumenescent Analyzer
Carbon Monoxide	Exhaust Stack	3-1 hour runs	CARB Method 100 NDIR/GFC Analyzer
Oxygen	Exhaust Stack	3-1 hour runs	CARB Method 100 Teledyne Electrochemical Analyzer
Carbon Dioxide	Exhaust Stack	3-1 hour runs	CARB Method 100 ACS Fuji NDIR Analyzer
Non-Methane Hydrocarbons	Exhaust Stack	3 - grab bags	CARB Method 18 Inert Tedlar Bags GC/FID Analysis
Flowrate & Moisture	Exhaust Stack	1 traverse/run	Done with Carb Method 501 Gravimetric for moisture

The exhaust stack is 48" in diameter and a total of 24 sample points will be utilized for the PM10 particulate test.

The particulate results will be reported in grains/dscf, lb/hour and lb/day (based upon a 10 hr day). The gaseous results will be reported in % by vol, ppmv and lb/hr.

The PM10 data will include the back-half catch (impingers) in the total weight determination.

All results will be calculated according to SJVUAPCD Standard Conditions (60°F & 29.92 inches of Hg).

The production rate and fuel useage will be obtained and entered in the report. The plant will be operated under normal conditions during the testing.

All test procedures, analyses and calculations for the methods listed above, will follow the published methods.

Any questions please contact the undersigned at 805-644-1095.

Respectfully Submitted,

Tom Porter
Vice President - Air Test Division
BTC ENVIRONMENTAL INCORPORATED

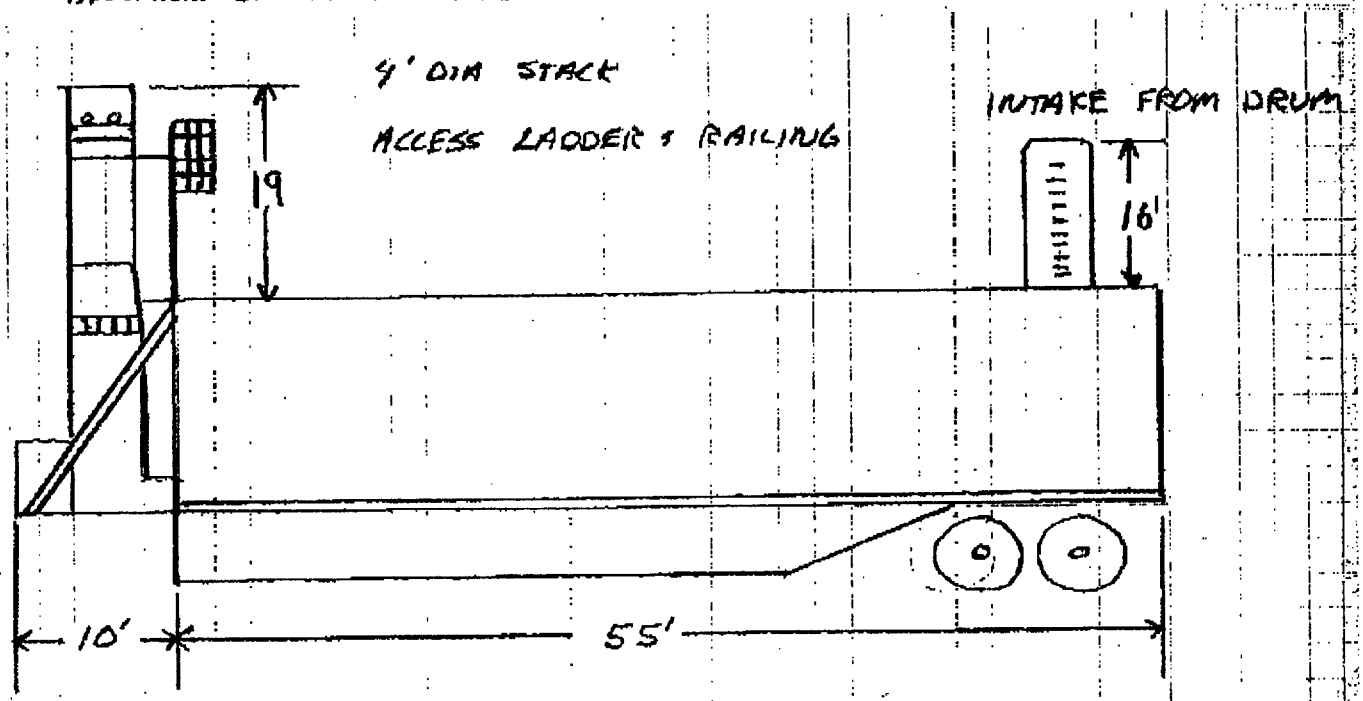
Form 405—Printed in U.S.A. 10/47

WORK SHEET

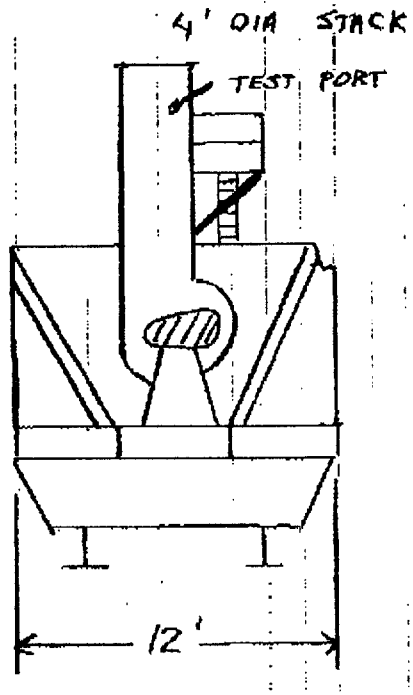
Project HARRIS RANCH
Type of Work GENCORE BAGHOUSE

Estimator MRP
Date 4/5/93

Item No.
Sheet No.



* PLENTY OF ACCESS TO REACH STACK



FIELD DATA & CALCULATIONS SUMMARY

Client: **Charles Oliver**
Site: **Coalinga**
Unit: **Baghouse**

Date: **7/13/93**
Type: ***T std = 60 F***
Run: **1-PM10**

Wlc	Water Condensate Weight	136.3	g		
Vlc	Water Condensate Volume	**136.5**	**ml**		
Vm	Metered Sample Gas Volume	**27.202**	**dcf**		
Lp	Avg. Leak Rate	0.000	cf		
Vn	Leak Corrected Sample Gas Volume	27.202	dcf		
Y	Dry Gas Meter Calibration Factor	**0.970**			
Pbar	Barometric Pressure	**29.15**	**in. Hg**		
Pg	Static Pressure	**0.5**	**in. H20**		
Ps	Stack Pressure, Absolute	29.19	in. Hg		
Δ H	Dry Gas Meter Press. Differential, Average	**0.740**	**in. H20**		
Tm	Dry Gas Meter Temperature, Average	80.9	deg. F	**540.9**	**deg. R**
Vm(std)	Sample Gas Volume	**24.7701**	**dscf**		
Vm(wet)	Sample Gas Volume, Wet	31.1105	scf		
Vw(std)	Water Vapor Volume	6.3404	scf		
Bws	Water Content of Stack Gas	0.204		**20.4**	**%**
CO2	Carbon Dioxide, Dry	**5.9**	**%**		
O2	Oxygen, Dry	**10.9**	**%**		
N2	Nitrogen, Dry	83.2	%		
Md	Molecular Wt. of Stack Gas, Dry	**29.380**	**lb/lb mole**		
Ms	Molecular Wt. of Stack Gas, Wet	**27.061**	**lb/lb mole**		
Cp	Pitot Calibration Factor	**0.831**			
Δ P	Velocity Head, Average Square Root	**0.966**	**in. H20**		
Ts	Stack Gas Temperature, Average	**300.0**	deg. F	760.0	deg. R
As	Area of Stack	**12.57**	**sq ft**	48.0	in. dia.
Vs	Stack Gas Velocity	67.30	ft/sec		
Qa	Actual Flow Rate	50,747	cfm		
Qad	Actual Flow Rate, Dry	40,404	dcfm		
Q(std)	Stack Gas Flow Rate	**26,968**	**dscfm**		
An	Nozzle Area	**0.0001827**	**sq ft**	0.183	in. dia.
Theta	Sampling Time	**60**	**min.**		
I	Isokinetics	**105.3**	**%**		

BTC Environmental, Inc. - 1989

FIELD DATA & CALCULATIONS SUMMARY

Client: **Charles Oliver**
Site: **Cealinga**
Unit: **Baghouse**

Date: **7/13/93**
Type: ***T std = 60 F***
Run: **2-PM10**

Wlc	Water Condensate Weight	144.3	g		
Vlc	Water Condensate Volume	**144.6**	**ml**		
Vm	Metered Sample Gas Volume	**26.952**	**dcf**		
Lp	Avg. Leak Rate	0.000	cf		
Vn	Leak Corrected Sample Gas Volume	26.952	dcf		
Y	Dry Gas Meter Calibration Factor	**0.970**			
Pbar	Barometric Pressure	**29.15**	**in. Hg**		
Pg	Static Pressure	**0.5**	**in. H2O**		
Ps	Stack Pressure, Absolute	29.19	in. Hg		
Δ H	Dry Gas Meter Press. Differential, Average	**0.758**	**in. H2O**		
Tm	Dry Gas Meter Temperature, Average	88.8	deg. F	**548.8**	**deg. R**
Vm(std)	Sample Gas Volume	**24.1886**	**dscf**		
Vm(wet)	Sample Gas Volume, Wet	30.9012	scf		
Vw(std)	Water Vapor Volume	6.7126	scf		
Bws	Water Content of Stack Gas	0.217		**21.7**	**%**
CO2	Carbon Dioxide, Dry	**6.0**	**%**		
O2	Oxygen, Dry	**10.8**	**%**		
N2	Nitrogen, Dry	83.2	%		
Md	Molecular Wt. of Stack Gas, Dry	**29.392**	**lb/lb mole**		
Ms	Molecular Wt. of Stack Gas, Wet	**26.917**	**lb/lb mole**		
Cp	Pitot Calibration Factor	**0.831**			
Δ P	Velocity Head, Average Square Root	**0.966**	**in. H2O**		
Ts	Stack Gas Temperature, Average	**300.0**	deg. F	760.0	deg. R
As	Area of Stack	**12.57**	**sq ft**	48.0	in. dia.
Vs	Stack Gas Velocity	67.48	ft/sec		
Qa	Actual Flow Rate	50,882	cfm		
Qad	Actual Flow Rate, Dry	39,829	dcfm		
Q(std)	Stack Gas Flow Rate	**26,583**	**dscfm**		
An	Nozzle Area	**0.0001827**	**sq ft**	0.183	in. dia.
Theta	Sampling Time	**60**	**min.**		
I	Isokinetics	**104.3**	**%**		

BTC Environmental, Inc. - 1989

BTC ENVIRONMENTAL INCORPORATED

FIELD DATA & CALCULATIONS SUMMARY

Client: **Charles Oliver**
Site: **Cealinga**
Unit: **Baghouse**

Date: **7/13/93**
Type: ***T std = 60 F***
Run: **3-PM10**

Wlc	Water Condensate Weight	151.5	g		
Vlc	Water Condensate Volume	**151.8**	**ml**		
Vm	Metered Sample Gas Volume	**27.857**	**dcf**		
Lp	Avg. Leak Rate	0.000	cf		
Vn	Leak Corrected Sample Gas Volume	27.857	dcf		
Y	Dry Gas Meter Calibration Factor	**0.970**			
Pbar	Barometric Pressure	**29.15**	**in. Hg**		
Pg	Static Pressure	**0.5**	**in. H20**		
Ps	Stack Pressure, Absolute	29.19	in. Hg		
Δ H	Dry Gas Meter Press. Differential, Average	**0.768**	**in. H20**		
Tm	Dry Gas Meter Temperature, Average	94.5	deg. F	**554.5**	**deg. R**
Vm(std)	Sample Gas Volume	**24.7469**	**dscf**		
Vm(wet)	Sample Gas Volume, Wet	31.7944	scf		
Vw(std)	Water Vapor Volume	7.0475	scf		
Bws	Water Content of Stack Gas	0.222		**22.2**	**%**
CO2	Carbon Dioxide, Dry	**6.0**	**%**		
O2	Oxygen, Dry	**10.5**	**%**		
N2	Nitrogen, Dry	83.5	%		
Md	Molecular Wt. of Stack Gas, Dry	**29.380**	**lb/lb mole**		
Ms	Molecular Wt. of Stack Gas, Wet	**26.858**	**lb/lb mole**		
Cp	Pitot Calibration Factor	**0.831**			
Δ P	Velocity Head, Average Square Root	**0.966**	**in. H20**		
Ts	Stack Gas Temperature, Average	**300.0**	deg. F	760.0	deg. R
As	Area of Stack	**12.57**	**sq ft**	48.0	in. dia.
Vs	Stack Gas Velocity	67.56	ft/sec		
Qa	Actual Flow Rate	50,938	cfm		
Qad	Actual Flow Rate, Dry	39,647	dcfm		
Q(std)	Stack Gas Flow Rate	**26,462**	**dscfm**		
An	Nozzle Area	**0.0001827**	**sq ft**	0.183	in. dia.
Theta	Sampling Time	**60**	**min.**		
I	Isokinetics	**107.2**	**%**		

BTC Environmental, Inc. - 1989

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ver. 1.3

BTC ENVIRONMENTAL
EPA methods 2, 3, 4, 5, 6, 8

CONSTANTS & CONVERSIONS

Tstd = 60, 68, or 70 °F
Pstd = 29.92 in. Hg
R = 21.85(in. Hg-cu ft/lb mole-°R)
Dw = 0.9982(g/ml)
MW(H2O) = 18.0 lb/lb mole
MW(Sulfur) = 32.03 lb/lb mole
M(H2SO4) = 98.08 lb/lb mole
MW(SO2) = 64.06 lb/lb mole
K(H2SO4) = 0.5 mg-g mole/g-meq
K(SO2) = 0.5 mg-g mole/g-meq

1 in. Hg = 13.6 in. H2O
1 lb = 453.6 g
1 lb = 7000 grain
1 g = 15.432 grain
1 mg = 0.001 g
1 hr = 60 min.
1 part/vol X = 1*10^6 ppmv X
1 bbl = 42 gal
M = 1000
La = 0.02 cfm

Kp = 85.49(ft/sec(sqrt{lb/lb mole-in.Hg/°R-in. H2O})
Kw,[cu ft/g-°R] = R / (453.6*MW(H2O)*Pstd)
Kf,[scf-ppm/lb mole] = R * (Tstd+460) * (1*10^6) / Pstd

INTERMEDIATE CALCULATIONS

F,[scf/MMBtu] = F Factor * (Tstd + 460) / 528
Ph,[in. Hg] = Pbar + (ΔH / 13.6)
N2,[%] = 100 - (O2% + CO2%)
Vlc,[ml] = Ww / Dw
Qa,[cfm] = 60 * Vs * As
Qad,[dcfm] = Qa * (1 - Bws)

CFR 40 - EPA EQUATIONS

eq. 2-8	T[°R] = T[°F]+460
eq. 2-6	Ps, [in. Hg] = Pbar+(Pg/13.6)
eq. 5-3	Bws, [%] = Vw(std) / { Vw(std) + Vm(std) }
eq. 3-2	Md, [lb/lb-mole] = 0.44*CO2%+0.32*O2%+0.28*(N2%+CO%)
eq. 2-5	Ms, [lb/lb mol] = Md*(1-Bws)+(MW(H2O)*Bws)
eq. 5-2	Vw(std), [scf] = Ww * Kw * (Tstd+460)
eq. 5-1	Vn, [cf] = Vm - ((Lp-La) * Theta)
eq. 5-1	Vm(std), [sdcf] = Vm * Y * ((Tstd+460) / (Tm+460)) * Ph / Pstd
eq. 2-9	Vs, [ft./sec.] = Kp*Cp*(ΔP*(Ts+460)/(Ps*Ms))^0.5
eq. 2-10	Qstd, [dscfm] =Qad*(Tstd+460)*Ps/((Ts+460)*Pstd)
eq. 5-8	I,[%] =100*(Ts+460)*Vm(std)*Pstd/(60*Vs*Theta*An*Ps*(1-Bws)*(Tstd+460))
eq. 5-6	Cx, [grain/dscf] = Wx,g*15.432/Vm(std)
eq. 8-2,3	Wx, [mg] = (Vt-Vtb)*N(std)*(Vsoln/Valq)*MWx*Kx
	Cx, [grain/dscf] = Wx,mg*0.001*15.432/Vm(std)
	CWx, [grain/scf] = Cx*(1-Bws)
	CCx, [grain/dscf @ 12% CO2] = Cx*12.0/CO2%
	CWCx, [grain/scf @ 12% CO2%] = CCx
	CPx, [ppmv dry] = Cx*Kf/(MWx*7000)
	CPCx, [ppmv @ N% O2] = CPX* ((20.9-N%)/(20.9-O2%))
	CFx, [lb/hr] = Cx*Q(std)*60/7000
	CEx, [lb/MMBtu] = F*(Cx/7000)*(20.9/(20.9-O2%))
	CBx, [lb/bbl] = CEx*(Fuel Btu/MM)*(Fuel lb/gal)*42
	CEsx, [lb S/MMBtu] = CEx*(MW(S) / MWx)

Where x represents, Particulate, Sulfuric Acid, Sulfate, or Sulfur Dioxide respectively.

III. WET TEST METHODS CALCULATIONS

CALCULATED EMISSION RESULTS

Client: **Charles Oliver**
Site: **Coalinga**
Unit: **Baghouse**

Date: **7/13/93**
Type: ***T std = 60 F***
Run: **1-PM10**

PM10 PARTICULATE

Wt	Total Particulate Weight	0.0546	g
Ct	Total Particulate Emissions	**0.0340**	grain/dscf
CFt	Total Particulate Flow Rate	**7.86**	lb/hr
	Total Particulate Flow Rate	**78.62**	lb/day
	+10μ Particulate	**24.2**	%
	+10μ Particulate	**1.90**	lb/hr
	+10μ Particulate	**19.05**	lb/day
	-10μ Particulate	**75.8**	%
	-10μ Particulate	**0.0258**	grain/dscf
	-10μ Particulate	**5.96**	lb/hr
	-10μ Particulate	**59.57**	lb/day

BTC Environmental, Inc. - 1989

CALCULATED EMISSION RESULTS

Client: **Charles Oliver**
Site: **Coalinga**
Unit: **Baghouse**

Date: **7/13/93**
Type: ***T std = 60 F***
Run: **2-PM10**

PM10 PARTICULATE

Wt	Total Particulate Weight	0.0776	g
Ct	Total Particulate Emissions	**0.0495**	grain/dscf
CFt	Total Particulate Flow Rate	**11.28**	lb/hr
	Total Particulate Flow Rate	**112.79**	lb/day
	+10μ Particulate	**21.7**	%
	+10μ Particulate	**2.45**	lb/hr
	+10μ Particulate	**24.45**	lb/day
	-10μ Particulate	**78.3**	%
	-10μ Particulate	**0.0388**	grain/dscf
	-10μ Particulate	**8.83**	lb/hr
	-10μ Particulate	**88.34**	lb/day

BTC Environmental, Inc. - 1989

CALCULATED EMISSION RESULTS

Client: **Charles Oliver**
Site: **Coalinga**
Unit: **Baghouse**

Date: **7/13/93**
Type: ***T std = 60 F***
Run: **3-PM10**

PM10 PARTICULATE

Wt	Total Particulate Weight	0.0898	g
Ct	Total Particulate Emissions	**0.0560**	grain/dscf
CFt	Total Particulate Flow Rate	**12.70**	lb/hr
	Total Particulate Flow Rate	**127.00**	lb/day
	+10μ Particulate	**22.3**	%
	+10μ Particulate	**2.83**	lb/hr
	+10μ Particulate	**28.33**	lb/day
	-10μ Particulate	**77.7**	%
	-10μ Particulate	**0.0435**	grain/dscf
	-10μ Particulate	**9.87**	lb/hr
	-10μ Particulate	**98.67**	lb/day

BTC Environmental, Inc. - 1989

EXHAUST GAS HYDROCARBON ANALYSIS

Client : Charles Oliver
Site : Coalinga
Unit : Baghouse

Date : 7/13/93
Job #: 15018
Lab #: 293-073

FIELD AND LAB DATA

Exhaust Flow Rate, Q(std): 26,672 dscfm (avg)
Exhaust Outlet O2: 10.7 % (avg)
Standard Temperature, T std: 60 ° F

Components	NMHC #1 6:30 AM time		NMHC #2 10:30 AM time		NMHC #3 11:10 AM time	
	ppmv	***lb/hr***	***ppmv***	***lb/hr***	***ppmv***	***lb/hr***
Methane (C1)	180	-	110	-	100	-
Ethane (C2)	15	1.90	9.3	1.18	7.2	0.91
Propane (C3)	130	24.11	72	13.35	58	10.75
Butanes (C4)	< 0.1	< 0.02	< 0.1	< 0.02	< 0.1	< 0.02
Pentanes (C5)	< 0.1	< 0.03	< 0.1	< 0.03	< 0.1	< 0.03
Hexanes+ (C6+)	< 0.1	< 0.04	< 0.1	< 0.04	< 0.1	< 0.04
Totals	145	**26.06**	81	**14.58**	65	**11.70**

The above constituents are measured by gas chromatography using FID.
T factor = 60 * 29.92 * 10^-6 / (21.85 * (460 + Tstd))
MQL of (C1-C6) = 0.1 ppmv
lb/hr = Q (std) * [ppmv] * MW of C# * T factor
lb/day = lb/hr * 10hr

RESULTS

97 ppmv
17.45 lb/hr
174.47 lb/day

BTC Environmental, Inc. - 1989

IV. CONTINUOUS TEST METHODS DATA

OXIDES OF NITROGEN - CARB METHOD 100

Client : Charles Oliver
Site : Coalinga
Unit : Baghouse

Date : 7/1/93
Job# : 15018
Lab# : 293-073

OUTLET RESULTS - Drift Corrected Emissions Data

Test Length 60 mins. Points 13

	RUN #1	RUN #2	RUN #3	*AVERAGES*
NOx, ppmv	**62**	**71**	**69**	67
O2, %	**10.9**	**10.8**	**10.5**	10.7
CO, ppmv	**26523**	**17215**	**19438**	21059
Q , sdcfm(avg)	26968	26586	26462	26672

	CALCULATED EMISSIONS			***AVERAGES***
NOx, lb/hr	**12.16**	**13.73**	**13.28**	***13.06***
NOx, lb/day	**121.60**	**137.28**	**132.79**	***130.56***
CO, lb/hr	**3166**	**2026**	**2277**	***2490***
CO, lb/day	**31664**	**20260**	**22770**	***24898***

Equations used;

lb/hr = ppm * (MW * (1.581*10^-7/60)) * Q * 60

lb/day = lb/hr * 10hr

MW = 46 for NOx & 28 for CO

EMISSIONS TEST - C.A.R.B. METHOD 100

** Test Information **

Client: Charles Oliver & Son
County: Fresno
Site(s): Coalinga
Unit(s): Baghouse

** Personnel **

BTC: Kenneth A. Robison
Client: Rich Krebs
APCD: -

Run Length:	60	Inlet ( )	Outlet(*)	Fuel( )	HC's(X)
No. Points:	13	S.T.(X)	E.I.( )	Data( )	H2S ( ) NH3 ( )

	Time	Baro.	Temp.	Weather.
Arrive:	5:00 AM	29.15	70	Clear&calm
Depart:	1:45PM	29.15	90	Clear&calm

** Instrument Information **

Instrument	"On"	Unit#	Make/Model		
Outlet NOx:	2	6	Teco #10		
O2:	2	7	Teledyne 320AX		
CO2:	2	3	ACS 3300		
CO:	2	5	Teco 48H		
Recorders:	1	5	Soltec / 6 Cont.-pens	10	cm/hr

** Calibration Information **

	Units	Zero	Span	Range	Gas Cyl.#
Outlet NOx:	ppmv	10	82.4	100	CC12590
NOx:	ppmv	10	41.4	100	CC12639
O2:	%	2.5	14.15	25	CC56466
CO:	ppmv	100	79.9	1000	CC42901
CO:	ppmv	100	39.8	1000	CC12559
CO2:	%	2	4.14	20	CC56466
CO:	ppmv	5000	399	50000	CC56466

** Recorder Information **

		Chanl.	Pen Type	Color
Outlet NOx:	ppmv	3	Cont.	Brown
O2:	%	2	Cont.	Green
CO:	ppmv	5	Cont.	Purple
CO2:	%	6	Cont.	Black

EMISSIONS TEST - C.A.R.B. METHOD 100

Client: Oliver
Site: Coalinga

Unit: Baghouse
Run: 1

Time: Beg Cals@: 5:30 AM Start@: 6:45 AM Stop@: 7:45AM End Cals@ 8:00 AM

** Measured Emissions Components**

Source:	Outlet	Outlet	Outlet	Outlet
Component:	NOx	O2	CO	CO2
Units:	ppmv	%	ppmv	%

** Instrument Cal Range, Span & Data Range**

C. Range:	100	25	100	5
Span:	82.4	14.15	399	4.12
D. Range:	100	25	50000	20

** Raw Emission Data**

6:45 AM	63	10.8	25000	6.0
_____5	62	10.8	25000	6.0
_____10	61	10.8	26000	6.0
_____15	61	10.8	26000	6.0
_____20	61	10.8	27000	6.0
_____25	63	10.8	27500	6.0
_____30	63	10.8	28500	6.0
_____35	64	10.8	28500	6.0
_____40	63	10.8	29000	6.0
_____45	69	12.3	9800	5.4
_____50	62	11.5	27500	5.9
_____55	60	11.3	31000	5.8
_____60	58	11.3	34000	5.8
Raw Avg:	62	11.0	26523	5.9
Maximum:	64	10.8	29000	6.0
Minimum:	61	10.8	25000	6.0

** Calibration Adjustments**

Zero:	0	0.0	0	0.0
Span:	-1	-0.2	0	0.0

Drift Corrected Emissions

Average:	**62**	**10.9**	**26523**	**5.9**

DCAvg= (RawAvg+(ZeroAdj/2)*(Data Rng/CalDng))*(1+(SpanAdj/(2*CalSpan))

EMISSIONS TEST - C.A.R.B. METHOD 100

Client: Oliver
Site: Coalinga

Unit: Baghouse
Run: 2

Time: Beg Cals@: 8:50 AM Start@: 9:25 AM Stop@: 10:25AM End Cals@ 10:45 AM

** Measured Emissions Components**

Source:	Outlet	Outlet	Outlet	Outlet
Component:	NOx	O2	CO	CO2
Units:	ppmv	%	ppmv	%

** Instrument Cal Range, Span & Data Range**

C. Range:	100	25	50000	20
Span:	41.1	14.15	399	4.14
D. Range:	100	25	50000	20

** Raw Emission Data**

9:25 AM	72	11.0	15000	6.0
_____5	71	10.8	17000	6.0
_____10	70	10.8	16000	6.0
_____15	71	10.8	16000	6.0
_____20	70	10.8	18000	6.1
_____25	72	10.8	17500	6.0
_____30	72	10.8	16500	6.0
_____35	72	10.8	17800	6.0
_____40	71	10.8	19000	6.0
_____45	71	10.8	18000	6.0
_____50	77	10.8	16000	6.0
_____55	74	10.8	18000	6.0
_____60	72	10.8	19000	6.0
Raw Avg:	72	10.8	17215	6.0
Maximum:	72	11.0	19000	6.1
Minimum:	70	10.8	15000	6.0

** Calibration Adjustments**

Zero:	0	0.0	0	0.0
Span:	-1	0.0	0	0.0

Drift Corrected Emissions

Average:	**71**	**10.8**	**17215**	**6.0**

DCAvg= (RawAvg+(ZeroAdj/2)*(Data Rng/CalDng))*(1+(SpanAdj/(2*CalSpan));

EMISSIONS TEST - C.A.R.B. METHOD 100

Client: Oliver
Site: Coalinga

Unit: Baghouse
Run: 3

Time: Beg Cals@: 10:30 AM Start@: 11:10 AM Stop@: 12:10PM End Cals@ 1:00PM

** Measured Emissions Components**

Source:	Outlet	Outlet	Outlet	Outlet
Component:	NOx	O2	CO	CO2
Units:	ppmv	%	ppmv	%

** Instrument Cal Range, Span & Data Range**

C. Range:	100	25	50000	20
Span:	82.4	14.15	399	4.12
D. Range:	100	25	50000	20

** Raw Emission Data**

11:10 AM	70	10.5	22000	6.0
_____5	69	10.5	20000	6.0
_____10	70	10.5	18000	6.0
_____15	72	10.5	18700	6.0
_____20	70	10.5	18000	6.0
_____25	68	10.5	21000	6.0
_____30	69	10.5	18500	6.0
_____35	70	10.5	22000	6.0
_____40	68	10.5	19500	6.0
_____45	66	10.5	19000	6.0
_____50	65	10.7	19000	6.0
_____55	68	10.5	18000	6.0
_____60	67	10.5	19000	6.0
Raw Avg:	69	10.5	19438	6.0
Maximum:	72	10.5	22000	6.0
Minimum:	68	10.5	18000	6.0

** Calibration Adjustments**

Zero:	0	0.0	0	0.0
Span:	0	0.0	0	0.0

Drift Corrected Emissions

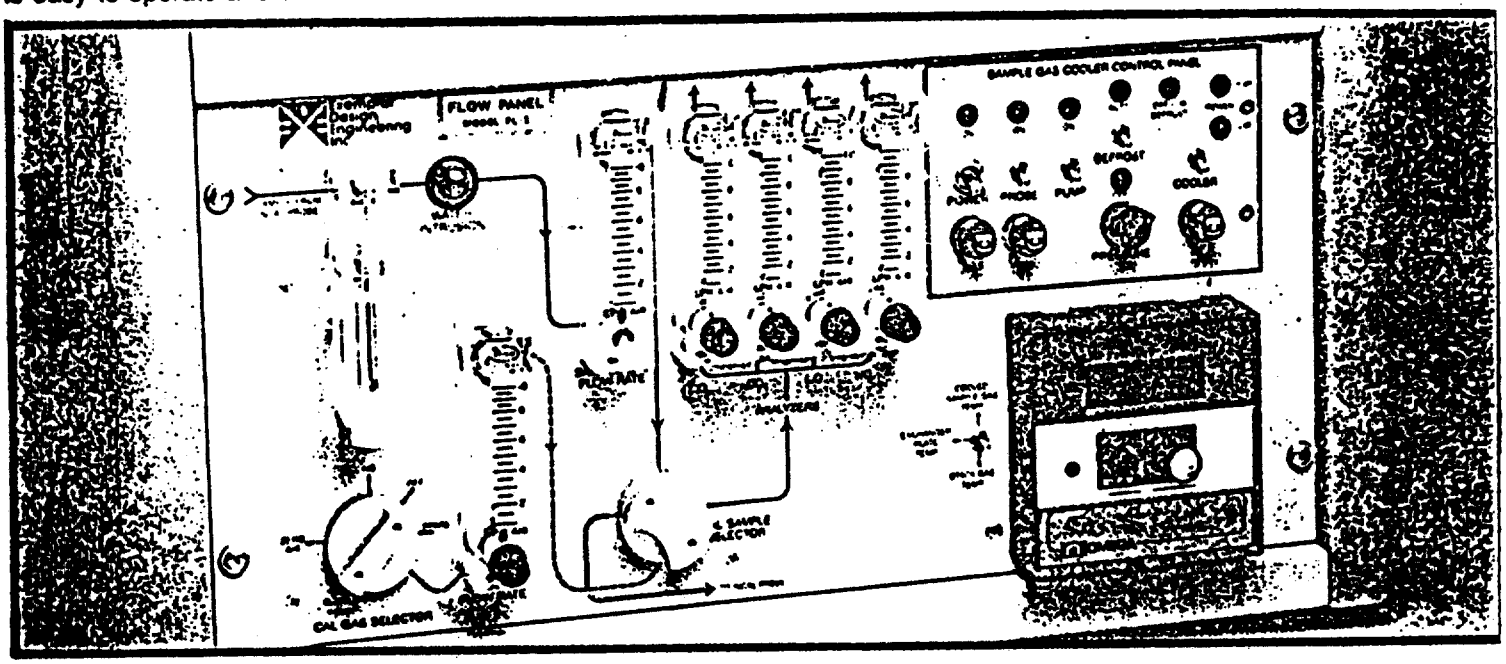
Average:	**69**	**10.5**	**19438**	**6.0**

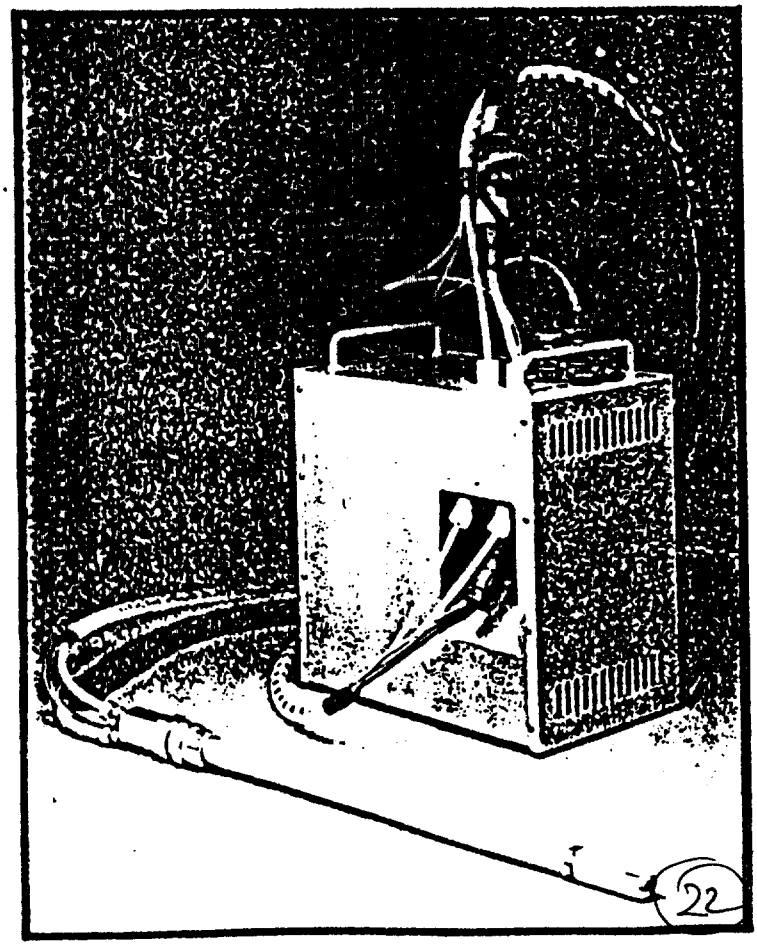
DCAvg= (RawAvg+(ZeroAdj/2)*(Data Rng/CalDng))*(1+(SpanAdj/(2*CalSpan))

Extractive Gas Sampling System

Model EGS-1 (Patent Applied For)

Exemplar's Extractive Gas Sampling System, Model EGS-1 is specifically designed to be a complete, easy to use, portable extractive gas sampling system for use with continuous gas analyzers. By combining individual Exemplar components, a complete system requires only the addition of user specified analyzers and calibration gases. The system is easy to operate and difficult to mis-calibrate.



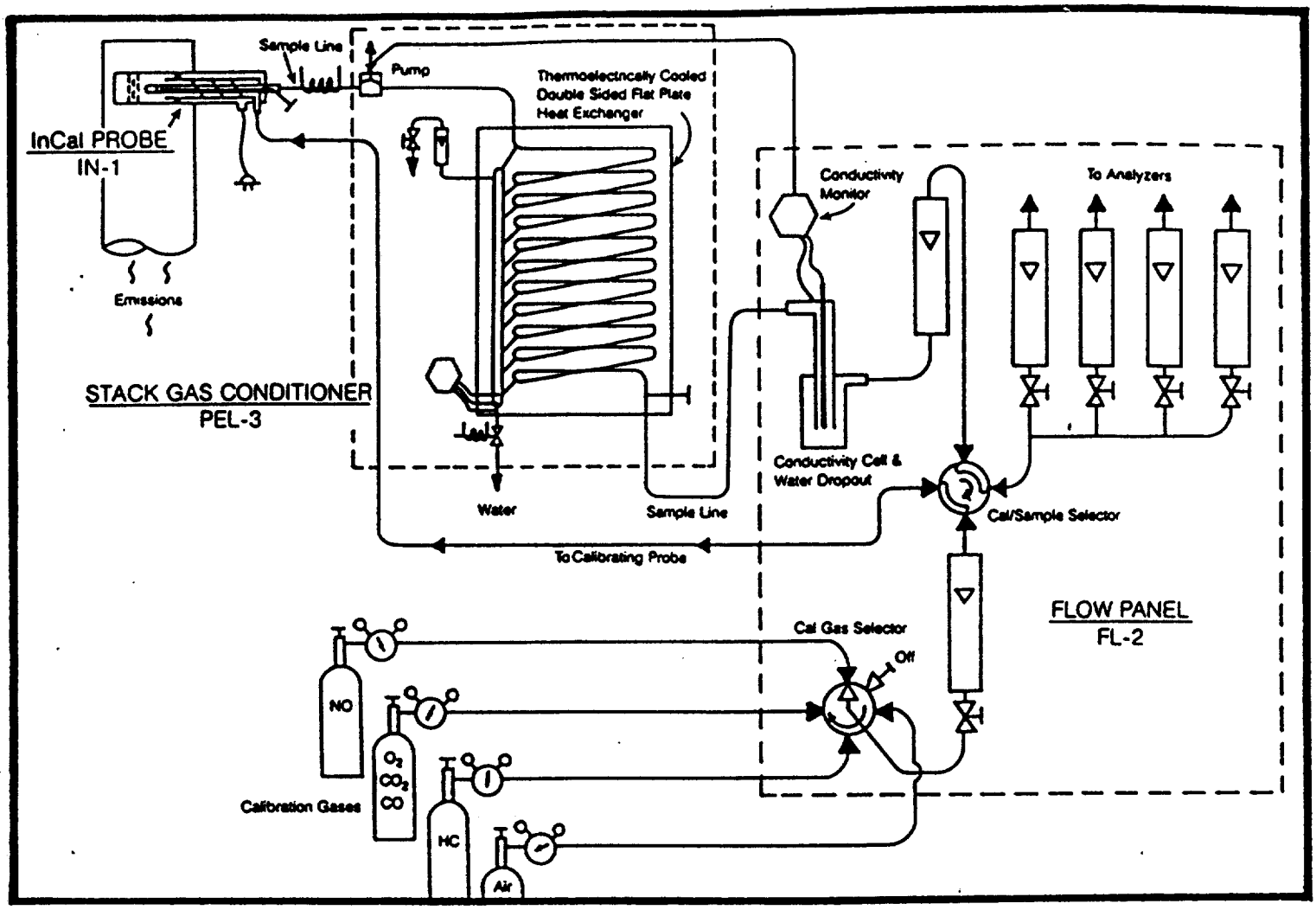


SPECIAL FEATURES

- Simple to use; only requires connecting to analyzers, cal gases and electrical power.
- Easily portable; system, analyzers and cal gases will fit into and operate from the back of a standard station wagon.
- Highly accurate; both internal and external calibration from probe tip system is easy to calibrate.
- High capacity and non-scrubbing; powerful thermoelectric coolers with special heat exchanger design removes condensing water as quickly as it is formed.
- Positive pressure design; eliminates concentration errors due to leaks.
- Corrosion and reaction resistant; sample contacts only non-reactive, non-absorbing materials.

APPLICATIONS

- Use where EPA extractive sampling requirements are specified.
- Use where high accuracy is essential.
- Replace older, complex negative pressure systems.
- Complete extractive system without the need for a sampling van.
- Use where space is limited.

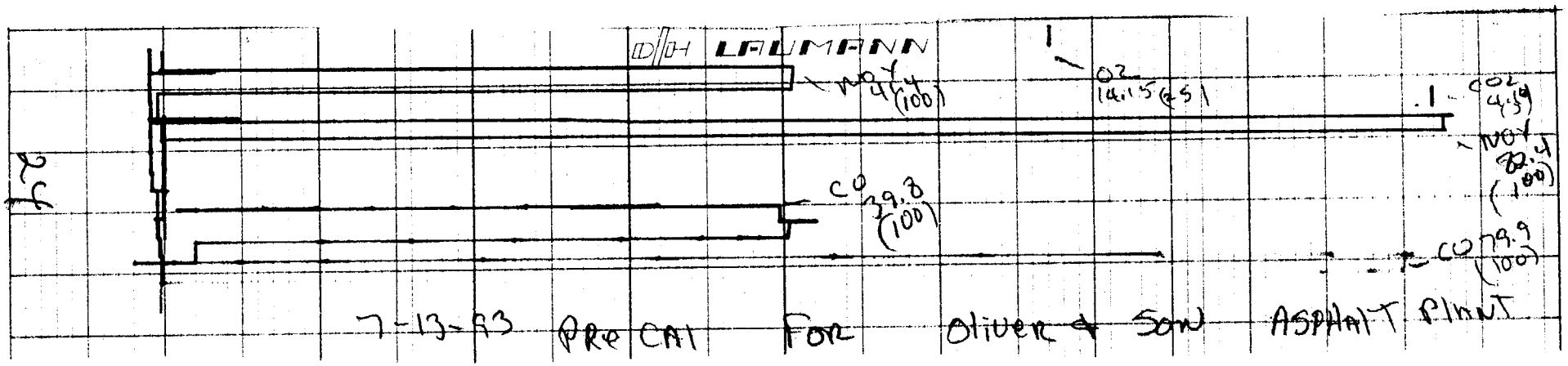


Components

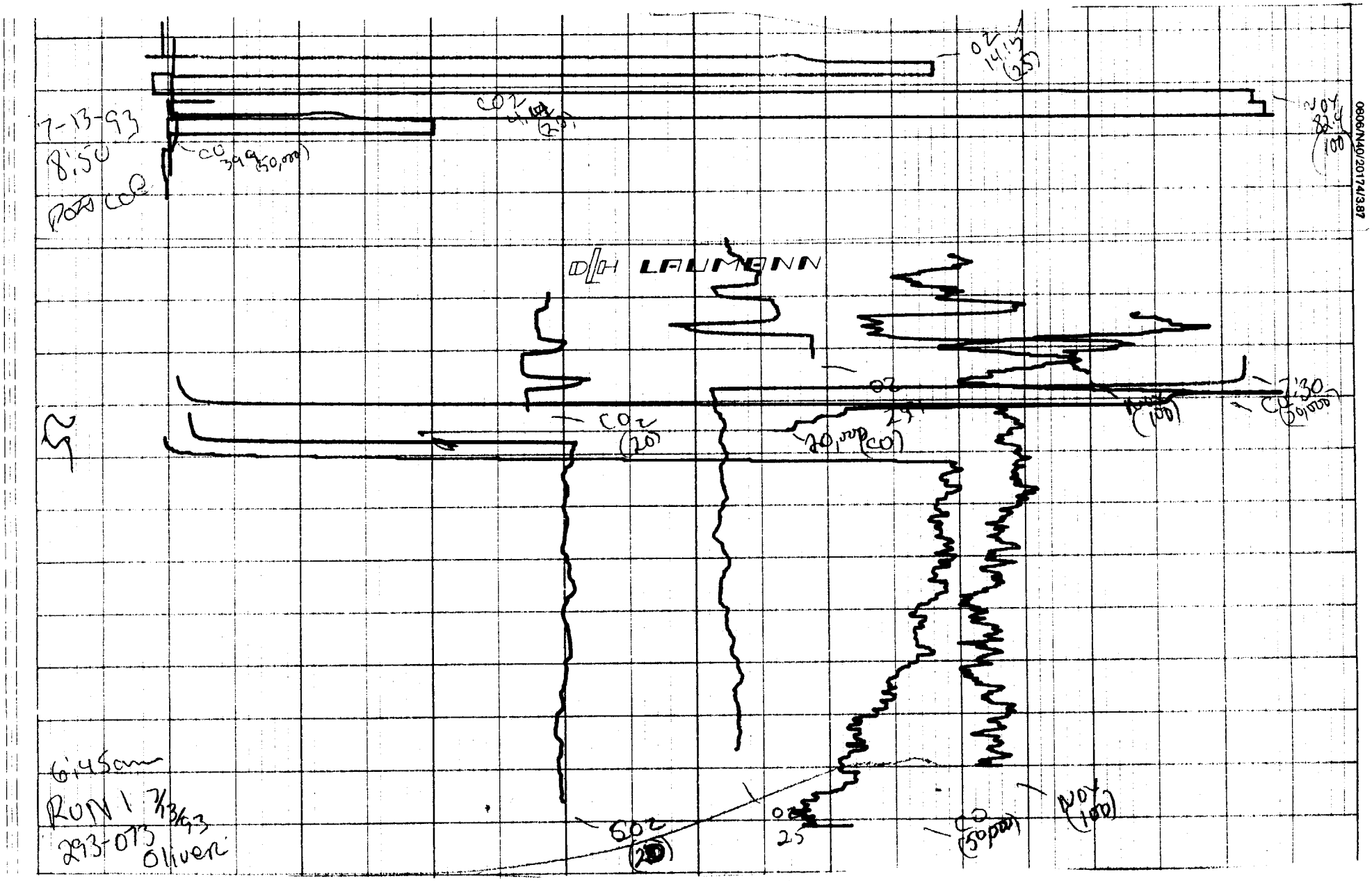
Exemplar's InCal IN-1 series of in-stream calibrating probes are used to provide filtered non-condensing sample gas from a wide range of sources. The probe's in-stream calibration feature allows the entire system (probe tip to analyzer) to be accurately calibrated. The probe's design, size and corrosion resistance make sample extraction easy.

Exemplar's Sample Gas Conditioner PEL-3 provides the distribution panel with sample gas under positive pressure. A vibrating armature pump followed by a double sided, thermoelectrically cooled, flat plate heat exchanger with integral water separation channels, is capable of producing 5 lpm of 40°F dew point sample gas from a 160°F, water saturated (30%) sample stream. The condensing water dump is automatic allowing for continuous operation. The positive pressure nature of the system eliminates sample dilution due to tube fitting leaks. The unit is light weight and easily portable.

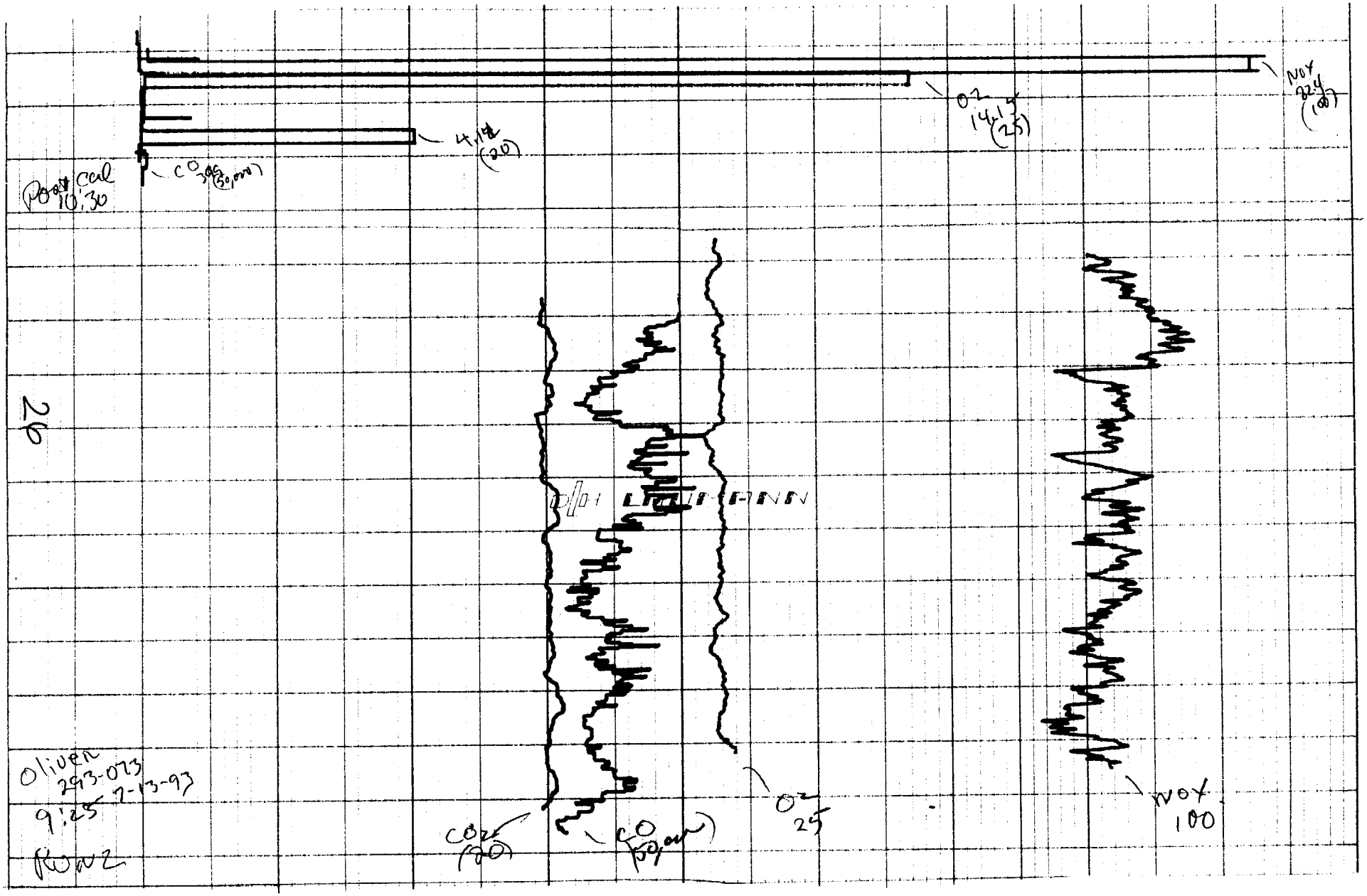
Exemplar's Sample Distribution Flow Panel FL-2 distributes dry, positive pressure, non-scrubbed sample gas to the appropriate instruments. The panel allows for both internal and probe tip calibration. Manual, click stop, rotary plug valves and an illustrative front panel provide leak free, fail-safe sample and calibration gas distribution. Flow paths are simple and easy to understand. This unit is small and easily transportable.

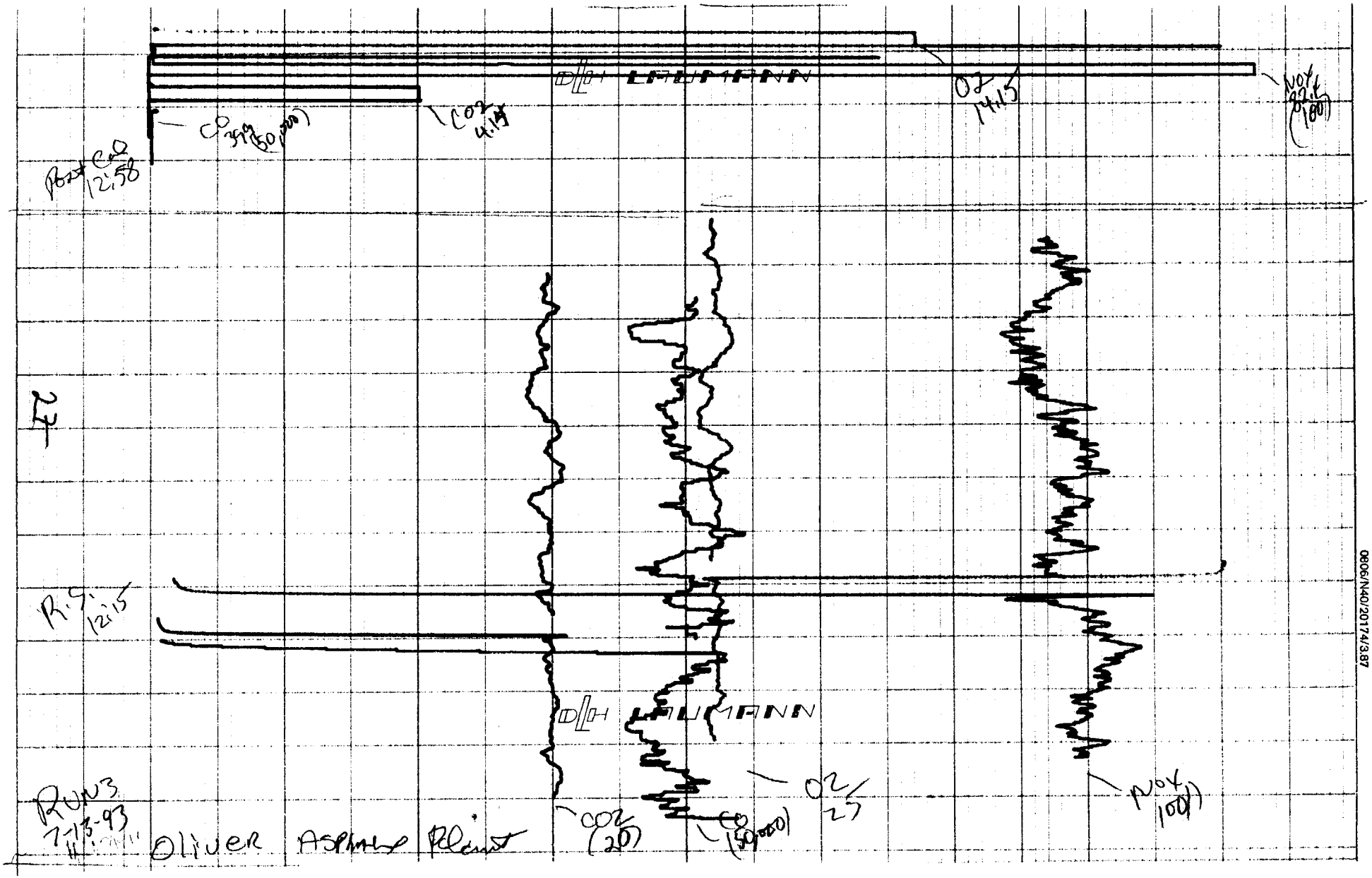


7-13-93 PRE CAL FOR Oliver & Son ASPHALT PLANT



0806/N40/20174/3.87


Post cal
10:30
CO 3.05 (50,000)
4.14 (20)
O2 14.15 (25)
NOX 324 (100)
CO2 (20)
CO (50,000)
O2 25
NOX 100
Oliven
293-073
9:25 7-13-93
Run 2



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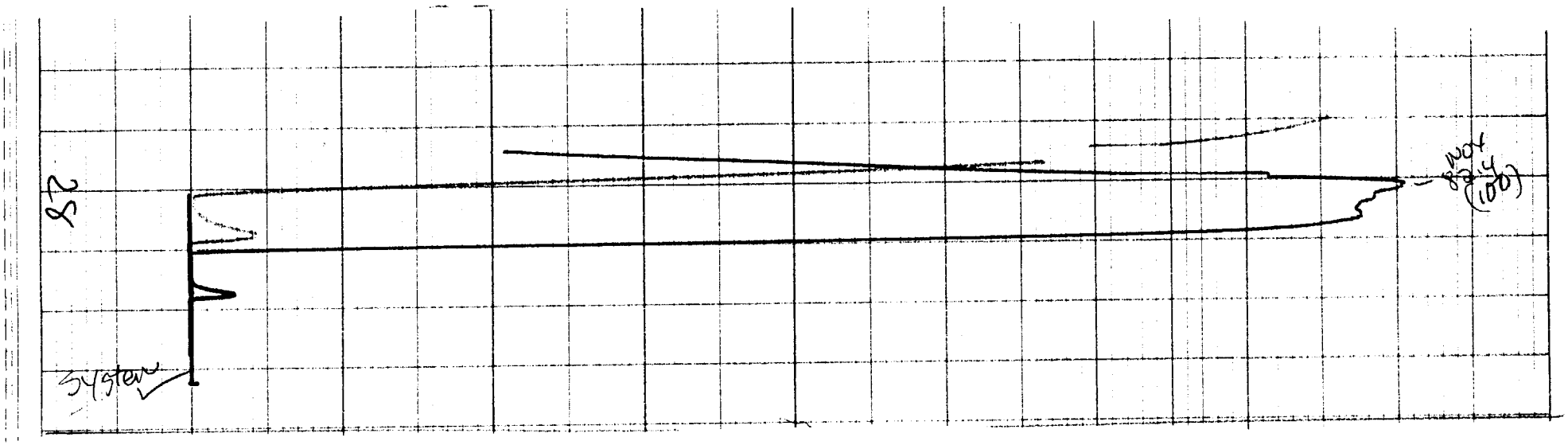
28
System
Now
Scale
(100)

V. LABORATORY ANALYSIS

IMPINGER WEIGHTS

Client : Charles Oliver
Site : Coalinga
Unit: Baghouse

Date : 7/13/93
Job #: 15018
Lab #: 293-073

Run#/Box#: 1

Imp. #1:	gross	748.6
	tare	635.4
	final	113.2
Imp. #2:	gross	598.1
	tare	577.6
	final	20.5
Imp. #3:	gross	469.6
	tare	468.0
	final	1.6
Imp. #4:	gross	624.9
	tare	623.9
	final	1.0
	TOTAL	**136.3**

Run#/Box#: 2

Imp. #1:	gross	781.8
	tare	662.5
	final	119.3
Imp. #2:	gross	623.5
	tare	603.4
	final	20.1
Imp. #3:	gross	459.5
	tare	456.6
	final	2.9
Imp. #4:	gross	610.7
	tare	608.7
	final	2.0
	TOTAL	**144.3**

Run#/Box#: 3

Imp. #1:	gross	799.4
	tare	671.3
	final	128.1
Imp. #2:	gross	601.3
	tare	581.1
	final	20.2
Imp. #3:	gross	447.2
	tare	445.2
	final	2.0
Imp. #4:	gross	599.5
	tare	598.3
	final	1.2
	TOTAL	**151.5**

Run#/Box#:

Imp. #1:	gross	
	tare	
	final	0.0
Imp. #2:	gross	
	tare	
	final	0.0
Imp. #3:	gross	
	tare	
	final	0.0
Imp. #4:	gross	
	tare	
	final	0.0
	TOTAL	**0.0**

PARTICULATE WEIGHTS : DATA & CALCULATIONS

Client : Charles Oliver
Site : Coalinga
Unit : Baghouse
Run : 1

Date : 7/1/93
Job #: 15018
Lab #: 293-073

BLANKS

Acetone — Volume: 100 ml
Gross: 66.0167 gms. Tare: 66.0166 gms. Residue: 0.0001 gms.

DI Water — Volume: 100 ml
Gross: 67.2361 gms. Tare: 67.2361 gms. Residue: 0.0000 gms.

WEIGHTS & VOLUMES

Filter (T-11) Gross: 0.0891 gms. Tare: 0.0870 gms. Net: **0.0021** gms.
Filter (T-10) Gross: 0.0904 gms. Tare: 0.0897 gms. Net: **0.0007** gms.

+10 µ Rinse -
Acetone: 75 ml * 1E-06 gm/ml = Net: **-0.0001** gms.
DI Water: 75 ml * 0 gm/ml = Net: **0.0000** gms.
Gross: 66.3361 gms. Tare: 66.3256 gms. Net: **0.0105** gms.

+10µ Total Weight = 0.0132 gms.

Filter (D-4) Gross: 0.1283 gms. Tare: 0.1150 gms. Net: **0.0133** gms.

-10 µ Rinse
DI Water: 390 ml * 0 gm/ml = Net: **0.0000** gms.
Acetone : 50 ml * 1E-06 gm/ml = Net: **-0.0001** gms.
Total: 575 ml Aliquot: 575 ml
Gross: 66.1251 gms. Tare: 66.0970 gms. Net: **0.0281** gms.

-10µ Total Weight = 0.0414 gms.

Total Weight = 0.0546 gms.

+ 10 µ 24.2 %
- 10 µ 75.8 %

PARTICULATE WEIGHTS : DATA & CALCULATIONS

Client : Charles Oliver
Site : Coalinga
Unit : Baghouse
Run : 2

Date : 7/1/93
Job #: 15018
Lab #: 293-073

BLANKS

Acetone — Volume: 100 ml
Gross: 66.0167 gms. Tare: 66.0166 gms. Residue: 0.0001 gms.

DI Water — Volume: 100 ml
Gross: 67.2361 gms. Tare: 67.2361 gms. Residue: 0.0000 gms.

WEIGHTS & VOLUMES

Filter (T-4) Gross: 0.0918 gms. Tare: 0.0910 gms. Net: **0.0008** gms.
Filter (T-5) Gross: 0.0904 gms. Tare: 0.0900 gms. Net: **0.0004** gms.

+10 µ Rinse -
Acetone: 80 ml * 1E-06 gm/ml = Net: **-0.0001** gms.
DI Water: 80 ml * 0 gm/ml = Net: **0.0000** gms.
Gross: 67.7390 gms. Tare: 67.7233 gms. Net: **0.0157** gms.

+10µ Total Weight = 0.0168 gms.

Filter (G-161) Gross: 0.1212 gms. Tare: 0.1075 gms. Net: **0.0137** gms.

-10 µ Rinse
DI Water: 458 ml * 0 gm/ml = Net: **0.0000** gms.
Acetone : 50 ml * 1E-06 gm/ml = Net: **-0.0001** gms.
Total: 650 ml Aliquot: 650 ml
Gross: 65.7834 gms. Tare: 65.7363 gms. Net: **0.0471** gms.

-10µ Total Weight = 0.0607 gms.

Total Weight = 0.077[illegible] gms.

+ 10 µ 21.7 %
- 10 µ 78.3 %

32

PARTICULATE WEIGHTS : DATA & CALCULATIONS

Client : Charles Oliver
Site : Coalinga
Unit : Baghouse
Run : 3

Date : 7/1/93
Job #: 15018
Lab #: 293-073

BLANKS

Acetone
Gross: 66.1067 gms. Tare: 66.1066 gms. Volume: 100 ml Residue: 0.0001 gms.

DI Water
Gross: 67.2361 gms. Tare: 67.2361 gms. Volume: 100 ml Residue: 0.0000 gms.

WEIGHTS & VOLUMES

Filter (Z-105) Gross: 0.0891 gms. Tare: 0.0860 gms. Net: **0.0031** gms.
Filter (Z-106) Gross: 0.0870 gms. Tare: 0.0848 gms. Net: **0.0022** gms.

+10 µ Rinse -
Acetone: 75 ml * 1E-06 gm/ml = Net: **-0.0001** gms.
DI Water: 75 ml * 0 gm/ml = Net: **0.0000** gms.
Gross: 66.5900 gms. Tare: 66.5752 gms. Net: **0.0148** gms.

+10µ Total Weight = 0.0200 gms.

Filter (Y-39) Gross: 0.1254 gms. Tare: 0.1122 gms. Net: **0.0132** gms.

-10 µ Rinse
DI Water: 375 ml * 0 gm/ml = Net: **0.0000** gms.
Acetone : 50 ml * 1E-06 gm/ml = Net: **-0.0001** gms.
Total: 575 ml Aliquot: 575 ml
Gross: 65.5686 gms. Tare: 65.5120 gms. Net: **0.0566** gms.

-10µ Total Weight = 0.0698 gms.

Total Weight = 0.0898 gms.

+ 10 µ 22.3 %
- 10 µ 77.7 %

BTC Environmental, Incorporated
1536 Eastman Avenue, Suite B
Ventura, CA. 93003
(805) 644-1095

Prepared For: **BTCE Air Department** July 27, 1993

ATTENTION: Tom Porter

Laboratory No: 931791 Project No: 293-073
Date Received: 14-JULY-93 Sampled By: Ken
Client: Charles Oliver & Sons Sample Id: See Below

RESULTS

On July 14, 1993, twenty-one (21) samples were received for analysis by BTC Environmental, Inc. The samples were identified and assigned the lab numbers listed below. This report consists of 6 pages excluding the cover letter.

SAMPLE DESCRIPTION	BTCE LAB NUMBER
1	93179101
2	93179102
3	93179103
4	93179104
5	93179105
6	93179106
7	93179107
8	93179108
9	93179109
10	93179110

Dan Farah

Dan A. Farah, Ph.D
Director - Analytical Operations

This report shall not be reproduced except in full without the written approval of BTC Environmental, Inc.

The test results reported represent only the items being tested and may not represent the entire material from which the sample was taken.

SAMPLE DESCRIPTION	BTCE LAB NUMBER
11	93179111
12	93179112
13	93179113
14	93179114
15	93179115
DI Blank 150 ml	93179116
Acetone Blank	93179117
Bag 1	93179118
Bag 2	93179119
Bag 3	93179120
Blank	93179121

Dan Farah

Dan A. Farah, Ph.D
Director - Analytical Operations

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The test results reported represent only the items being tested and may not represent the entire material from which the sample was taken.

PARTICULATE ANALYSIS WEIGHT SHEET

CLIENT: Charles Oliver & Sons
SITE:
UNIT:

DATE:
JOB#: 293-073
LAB#: 931791

Flask #	Sample ID	Final Wght	Tare Wght
43	-4 150 ml	66.3362 .3360	66.3255 .3257
44	-5 575 ml	66.1249 .1253	66.0969 .0972
45	-9 160 ml	67.7388 .7391	67.7232 .7234
46	-10 650 ml	65.7833 .7836	65.7363 .7363
47	-14 150 ml	66.5900 .5901	66.5751 .5754
48	-15 575 ml	65.5685 .5687	65.5119 .5122
49	-16 100 ml DI	67.2361 .2361	67.2360 .2362
50	-17 100 ml AC	66.0166 .0168	66.0165 .0166

PARTICULATE ANALYSIS WEIGHT SHEET

CLIENT: Charles Olives & Sons
SITE:
UNIT:

DATE:
JOB#: 293-073
LAB#: 931791

Flask #	Sample ID		Final Wght		Tare Wght
	FILTERS				
		-1	0.0891	T11	0.8.70 (0.0891)
		-2	0.0904	T10	0.0897
		-3	0.1283	D4	0.1150
		-6	0.0918	T4	0.0910
		-7	0.0904	T5	0.0900
		-8	0.1212	G161	0.1075
		-11	0.0891	Z105	0.0860
		-12	0.0870	Z106	0.0848
		-13	0.1254	Y39	0.1122

BTC Environmental, Incorporated
1536 Eastman Avenue, Suite B
Ventura CA 93003
(805) 644-1095

Client: Air Lab (Charles Oliver & Son)
Sample ID: Bag 1
BTCE LAB NO: 93179118
Date Received: 7/14/93
Date Sampled: 7/13/93

Date Analyzed: 7/15/93
Analyst: Kelly
Sample Matrix: Air

LOW LEVEL HYDROCARBONS

Species	Concentration ppm(V/V)	PQL ppm(V/V)
Methane	180	0.1
Ethane	15	0.1
Propane	130	0.1
Butane	BQL	0.1
Pentane	BQL	0.1
Hexane plus	BQL	0.1
Total	325.0	
Total Non-CH4	140	
% of Methane	55.4	

BQL: Below Practical Quantitation Limit
PQL: Practical Quantitation Limit

Dan Farah
Dan A. Farah, Ph.D. - Dept. Manager

BTC Environmental, Incorporated
1536 Eastman Avenue, Suite B
Ventura CA 93003
(805) 644-1095

Client: Air Lab (Charles Oliver & Son)
Sample ID: Bag 2
BTCE LAB NO: 93179119
Date Received: 7/14/93
Date Sampled: 7/13/93

Date Analyzed: 7/15/93
Analyst: Kelly
Sample Matrix: Air

LOW LEVEL HYDROCARBONS

Species	Concentration ppm(V/V)	PQL ppm(V/V)
Methane	110	0.1
Ethane	9.3	0.1
Propane	72	0.1
Butane	BQL	0.1
Pentane	BQL	0.1
Hexane plus	BQL	0.1
Total	191.3	
Total Non-CH4	81	
% of Methane	57.5	

BQL: Below Practical Quantitation Limit
PQL: Practical Quantitation Limit

Dan Farah
Dan A. Farah, Ph.D. - Dept. Manager

BTC Environmental, Incorporated
1536 Eastman Avenue, Suite B
Ventura CA 93003
(805) 644-1095

Client: Air Lab (Charles Oliver & Son)
Sample ID: Bag 3
BTCE LAB NO: 93179120
Date Received: 7/14/93
Date Sampled: 7/13/93

Date Analyzed: 7/15/93
Analyst: Kelly
Sample Matrix: Air

LOW LEVEL HYDROCARBONS

Species	Concentration ppm(V/V)	PQL ppm(V/V)
Methane	100	0.1
Ethane	7.2	0.1
Propane	58	0.1
Butane	BQL	0.1
Pentane	BQL	0.1
Hexane plus	BQL	0.1
Total	165.2	
Total Non-CH4	65	
% of Methane	60.5	

BQL: Below Practical Quantitation Limit
PQL: Practical Quantitation Limit

Dan Farah
Dan A. Farah, Ph.D. - Dept. Manager

BTC Environmental, Incorporated
1536 Eastman Avenue, Suite B
Ventura CA 93003
(805) 644-1095

Client: Air Lab (Charles Oliver & Son)
Sample ID: Blank
BTCE LAB NO: 93179121
Date Received: 7/14/93
Date Sampled: 7/13/93

Date Analyzed: 7/15/93
Analyst: Kelly
Sample Matrix: Air

LOW LEVEL HYDROCARBONS

Species	Concentration ppm(V/V)	PQL ppm(V/V)
Methane	BQL	0.1
Ethane	BQL	0.1
Propane	BQL	0.1
Butane	BQL	0.1
Pentane	BQL	0.1
Hexane plus	BQL	0.1
Total	0.00	
Total Non-CH4	0.00	
% of Methane	0.00	

BQL: Below Practical Quantitation Limit
PQL: Practical Quantitation Limit

Dan Farah
Dan A. Farah, Ph.D. - Dept. Manager

41

CLIENT : Charles Oliver & Sons LAB # : 931791-18

SITE : _____ Sample ID: Bag #1

Time Smpld:

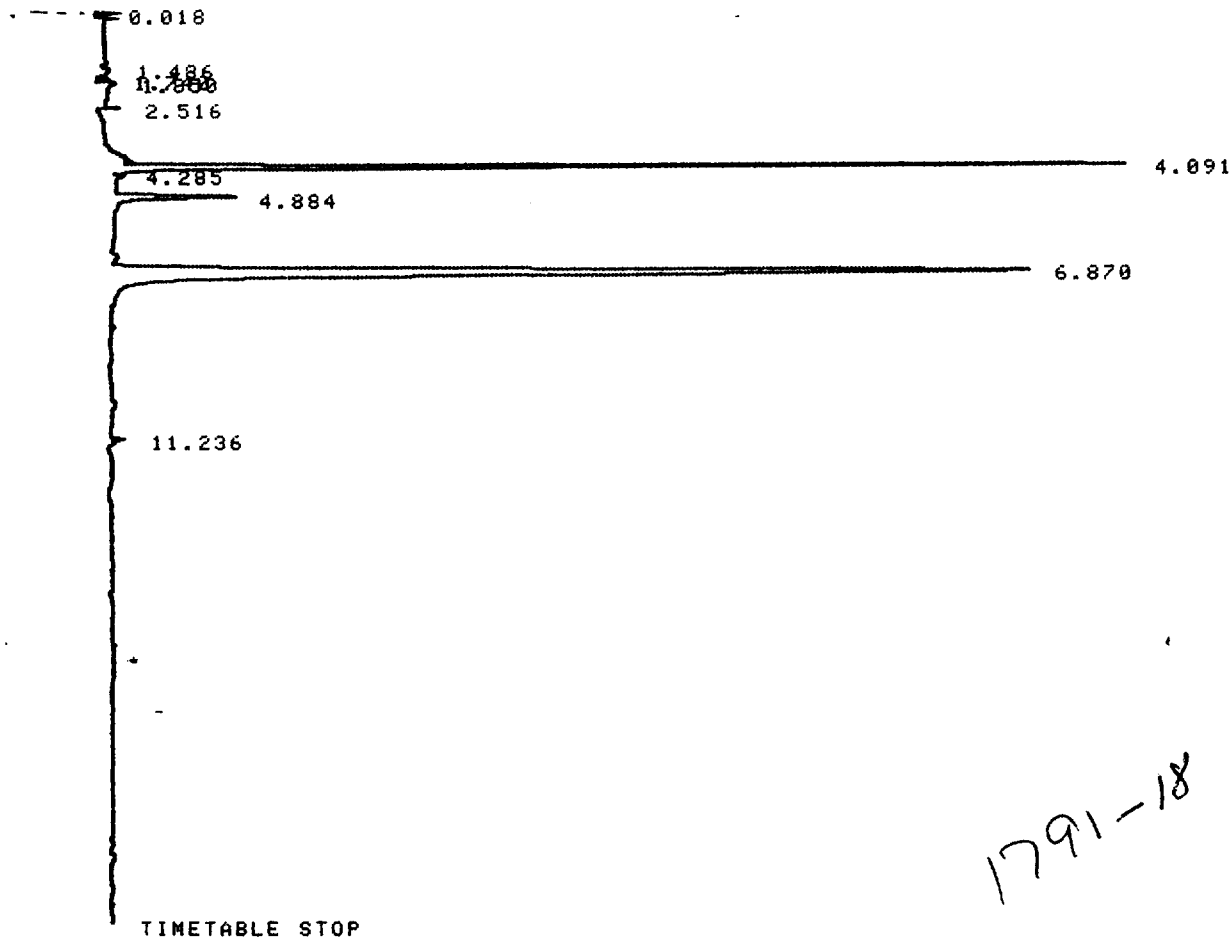
LOW LEVEL HYDROCARBONS ANALYSIS

Analyte	RT	RESPONSE FACTOR	ppm
Hexane	_____	7.9140E-04	0.0
Methane	_____	2.4310E-03	176.2
Ethane	_____	1.2770E-03	14.7
Propane	_____	8.5980E-04	133.4
n-Butane	_____	6.5820E-04	0.0
n-Pentane	_____	5.0350E-04	0.0
		Total	324.2
		Total Non-Methane	148.1
		% Methane	54%

SAVED TO:
\123R3\DAILYQC\CARLE\FUELWKS.WK3

* N # 3172 JUL 15, 1993 10:33:44

STA



1791-18

Closing signal file M:SIGNAL .BNC

RUN# 3172 JUL 15, 1993 10:33:44

SIGNAL FILE: M:SIGNAL.BNC

CARLE 400 AGC-FID DATA

AREA%

RT ,	AREA	TYPE	WIDTH	AREA%
4.091	72466	VB	.084	30.30566
4.884	11498	PV	.110	4.80852
6.870	155153	VV	.198	64.88579

TOTAL AREA= 239117

MUL FACTOR=1.0000E+00

CLIENT : Charles Oliver & Sons LAB # : 931791-19

SITE : _____ Sample ID: Bag #2

Time Smpld:

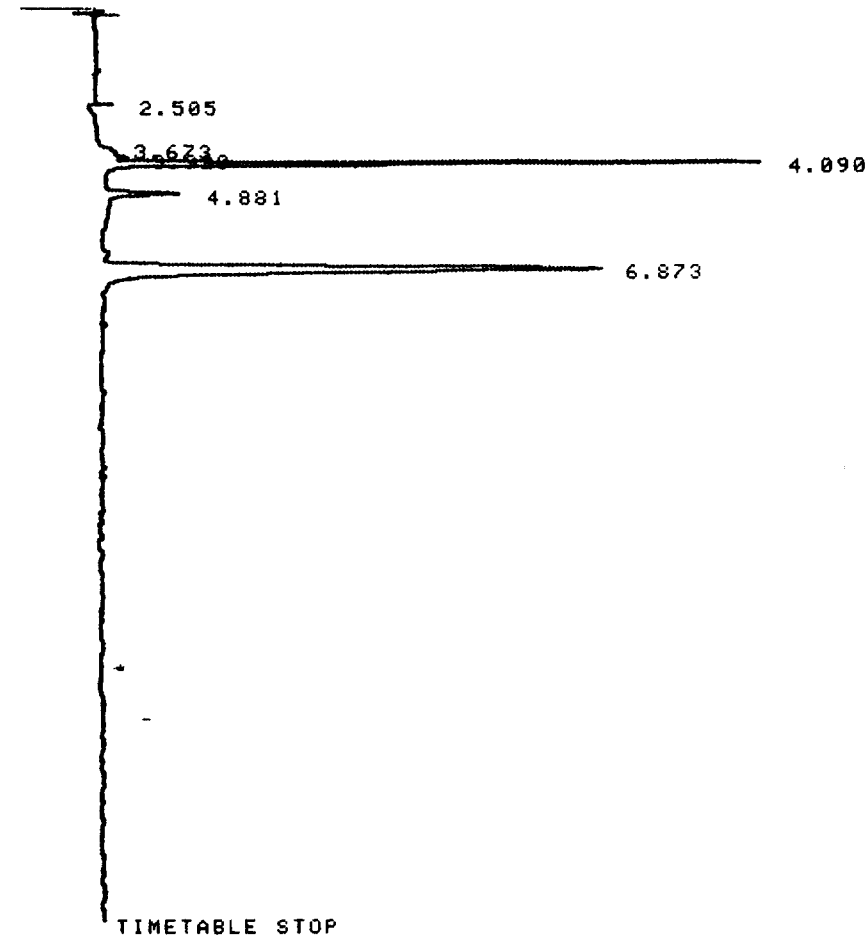
LOW LEVEL HYDROCARBONS ANALYSIS

Analyte	RT	RESPONSE FACTOR	ppm
Hexane	_____	7.9140E-04	0.0
Methane	_____	2.4310E-03	113.4
Ethane	_____	1.2770E-03	9.3
Propane	_____	8.5980E-04	71.7
n-Butane	_____	6.5820E-04	0.0
n-Pentane	_____	5.0350E-04	0.0
		Total	194.4
		Total Non-Methane	81.0
		% Methane	58%

SAVED TO:
\123R3\DAILYQC\CARLE\FUELWKS.WK3

RUN # 3173 JUL 15, 1993 12:53:12

START



1791-19

Closing signal file M:SIGNAL .BNC

RUN# 3173 JUL 15, 1993 12:53:12

SIGNAL FILE: M:SIGNAL.BNC

CARLE 400 AGC-FID DATA

AREA%

RT	AREA	TYPE	WIDTH	AREA%	
3.920	3474	VV	.188	2.46693	
4.090	46665	VB	.084	33.13734	H
4.881	7274	VV	.115	5.16535	C
6.873	83410	PV	.197	59.23038	P

TOTAL AREA= 140823
MUL FACTOR=1.0000E+00

CLIENT : Charles Oliver & Sons LAB # : 931791-20

SITE : _____ Sample ID: Bag #3

Time Smpld:

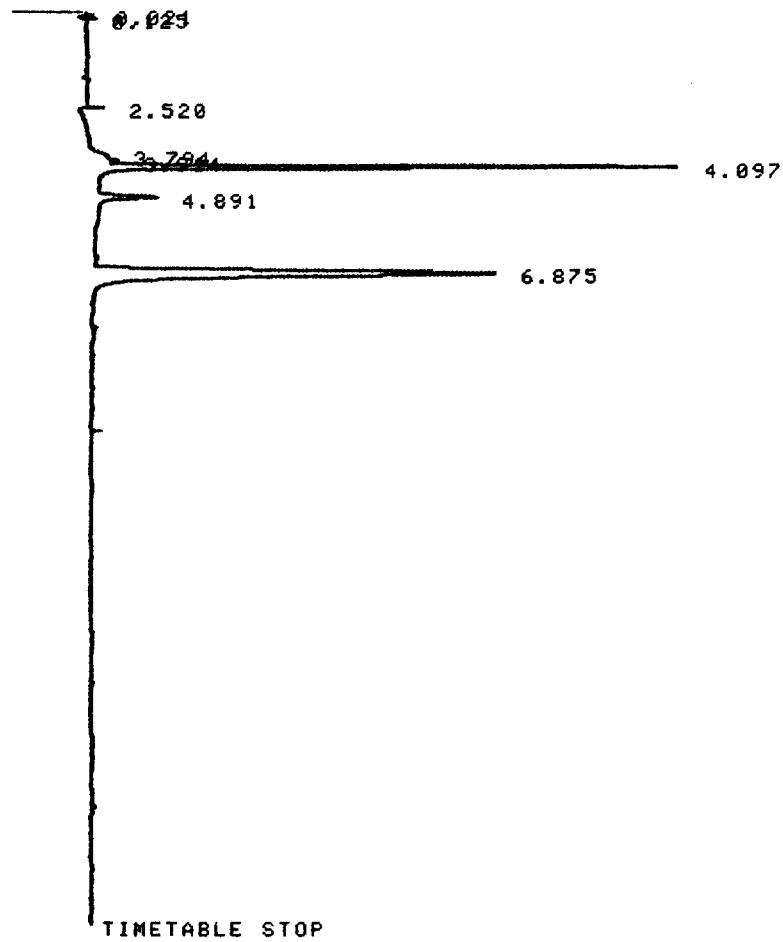
LOW LEVEL HYDROCARBONS ANALYSIS

Analyte	RT	RESPONSE FACTOR	ppm
Hexane	_____	7.9140E-04	0.0
Methane	_____	2.4310E-03	100.8
Ethane	_____	1.2770E-03	7.2
Propane	_____	8.5980E-04	58.2
n-Butane	_____	6.5820E-04	0.0
n-Pentane	_____	5.0350E-04	0.0
		Total	166.2
		Total Non-Methane	65.5
		% Methane	61%

SAVED TO:
\123R3\DAILYQC\CARLE\FUELWKS.WK3

* RUN # 3174 JUL 15, 1993 14:22:02

STAR



1791-20

Closing signal file M:SIGNAL .BNC

RUN# 3174 JUL 15, 1993 14:22:02

SIGNAL FILE: M:SIGNAL.BNC

CARLE 400 AGC-FID DATA

AREA%

RT	AREA	TYPE	WIDTH	AREA%	
3.914	2316	VV	.128	1.97670	
4.097	41458	VB	.084	35.38429	M
4.891	5659	VP	.110	4.82994	MEP
6.875	67732	PP	.198	57.80909	

TOTAL AREA= 117165

MUL FACTOR=1.0000E+00

CLIENT : Charles Oliver & Sons LAB # : 931791-01

SITE : _____ Sample ID: Blank

Time Smpld:

LOW LEVEL HYDROCARBONS ANALYSIS

Analyte	RT	RESPONSE FACTOR	ppm
Hexane	_____	7.9140E-04	0.0
Methane	_____	2.4310E-03	0.0
Ethane	_____	1.2770E-03	0.0
Propane	_____	8.5980E-04	0.0
n-Butane	_____	6.5820E-04	0.0
n-Pentane	_____	5.0350E-04	0.0
		Total	0.0
		Total Non-Methane	0.0
		% Methane	ERR

SAVED TO:
\123R3\DAILYQC\CARLE\FUELWKS.WK3

* RUN # 3171 JUL 15, 1993 09:18:22

START

2.512

3.913

TIMETABLE STOP

Closing signal file M:SIGNAL .BNC

RUN# 3171 JUL 15, 1993 09:18:22

SIGNAL FILE: M:SIGNAL.BNC

CARLE 400 AGC-FID DATA

NO RUN PEAKS STORED

~~Avole~~
~~Ave~~

1797-21
Travel Blank

VI. METHODOLOGY

SOURCE EMISSION INSTRUMENTATION LIST
7/3/91

OXIDES OF NITROGEN:

Unit No. - 1

Manufacturer:	Monitor Labs
Model No.:	8430H
Serial No.:	116
Method:	Chemilumenescence
Range (ppmv):	0-50, 100, 500,1000 & 5000

Unit No. - 2

Manufacturer:	Monitor Labs
Model No.:	8840
Serial No.:	302
Method:	Chemilumenescence
Range (ppmv):	0-50, 100, 500,1000, 5000 & 10,000

Unit No. - 3

Manufacturer:	Monitor Labs
Model No.:	8840
Serial No.:	905
Method:	Chemilumenescence
Range (ppmv):	0-50, 100, 500, 1000, 5000 & 10,000

Unit No. - 4

Manufacturer:	Monitor Labs
Model No.:	8440
Serial No.:	1264
Method:	Chemilumenescence
Range (ppmv):	0-100, 200, 500, 1000 & 1500

Unit No. - 5

Manufacturer:	Thermo Environmental (TECO)
Model No.:	10AR
Serial No.:	26840-227
Method:	Chemilumenescence
Range (ppmv):	0-2.5, 10, 25, 100, 250, 1000, 2500 & 10,000

Unit No. - 6

Manufacturer:	Thermo Enviornmental (TECO)
Model No.:	10AR
Serial No.:	26886-227
Method:	Chemilumenescence
Range (ppmv):	0-2.5, 10, 25, 100, 250, 1000, 2500 & 10,000

SOURCE EMISSION INSTRUMENTATION LIST
7/3/91

CARBON MONOXIDE:

Unit No. - 1

Manufacturer:	Horiba
Model No.:	MEXA - 221
Serial No.:	4615910
Method:	NDIR
Range (ppmv):	0-1000 & 5000

Unit No. - 2

Manufacturer:	Horiba
Model No.:	MEXA - 201E
Serial No.:	E10442
Method:	NDIR
Range (ppmv):	0-1000 & 5000

Unit No. - 3

Manufacturer:	Horiba
Model No.:	PIR - 2000
Serial No.:	205015
Method:	NDIR
Range (ppmv):	0-500, 1500 & 2500

Unit No. - 4

Manufacturer:	Anarad
Model No.:	AR - 50
Serial No.:	2376
Method:	NDIR
Range (ppmv):	0-200

Unit No. - 5

Manufacturer:	Thermo Environmental (TECO)
Model No.:	48H
Serial No.:	25184-219
Method:	NDIR/GFC
Range (ppmv):	0-50, 100, 200, 500, 1000, 2000, 5000, 10000, 20000 & 50000

Unit No. - 6

Manufacturer:	Thermo Enviornmental (TECO)
Model No.:	48H
Serial No.:	29031-233
Method:	NDIR/GFC
Range (ppmv):	0-50, 100, 200, 500, 1000, 2000, 5000, 10000, 20000 & 50000

SOURCE EMISSION INSTRUMENTATION LIST
7/3/91

OXYGEN:

Unit No. - 1

Manufacturer:	Taylor/Servomex
Model No.:	OA580
Serial No.:	508/702/497
Method:	Paramagnetic
Range (%):	0-10, 25 & 100

Unit No. - 2

Manufacturer:	Taylor/Servomex
Model No.:	68771/B
Serial No.:	68771/B
Method:	Paramagnetic
Range (%):	0-100

Unit No. - 3

Manufacturer:	Taylor/Servomex
Model No.:	570A
Serial No.:	4212B
Method:	Paramagnetic
Range (%):	0-100

Unit No. - 4

Manufacturer:	Teledyne
Model No.:	320-AX
Serial No.:	107294
Method:	Electrochemical
Range (%):	0-5, 10 & 25

Unit No. - 5

Manufacturer:	Teledyne
Model No.:	320-AX
Serial No.:	108743
Method:	Electrochemical
Range (%):	0-5, 10 & 25

Unit No. - 6

Manufacturer:	Teledyne
Model No.:	320-AX
Serial No.:	110649
Method:	Electrochemical
Range (%):	0-5, 10 & 25

SOURCE EMISSION INSTRUMENTATION LIST
7/3/91

OXYGEN:

Unit No. - 7

Manufacturer:	Teledyne
Model No.:	320-AX
Serial No.:	108742
Method:	Electrochemical
Range (%):	0-5, 10 & 25

Unit No. - 8

Manufacturer:	Teledyne
Model No.:	320-AX
Serial No.:	110647
Method:	Electrochemical
Range (%):	0-5, 10 & 25

SOURCE EMISSION INSTRUMENTATION LIST
7/3/91

CARBON DIOXIDE:

Unit No. - 1

Manufacturer:	Horiba
Model No.:	MEXA - 221
Serial No.:	4726203
Method:	NDIR
Range (%):	0-5 & 20

Unit No. - 2

Manufacturer:	Horiba
Model No.:	MEXA - 211E
Serial No.:	E70019
Method:	NDIR
Range (%):	0-5 & 20

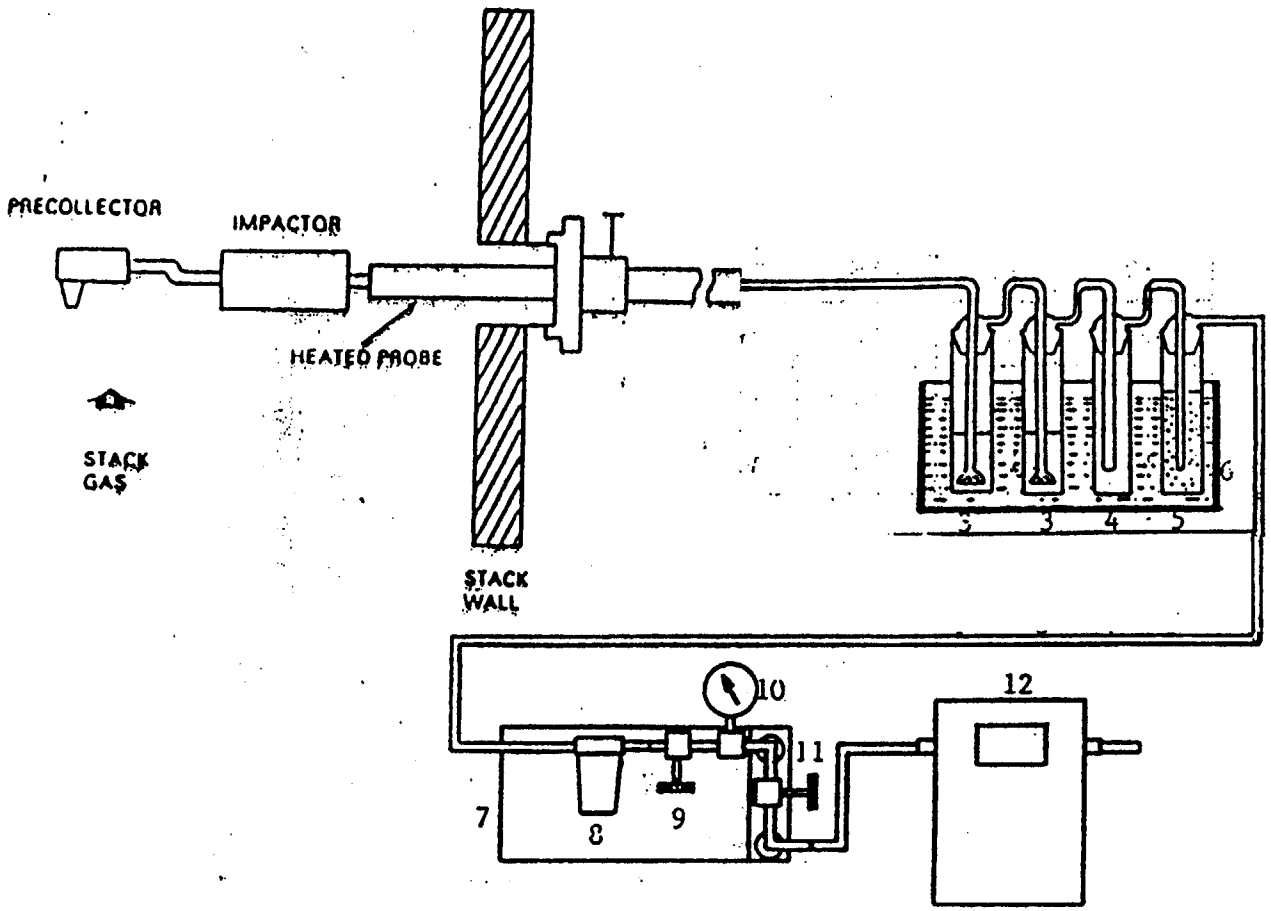
Unit No. - 3

Manufacturer:	ACS (Fuji)
Model No.:	3300
Serial No.:	N8M6611T
Method:	NDIR
Range (%):	0-5 & 20

Unit No. - 4

Manufacturer:	ACS (Fuji)
Model No.:	3300
Serial No.:	N9C5479T
Method:	NDIR
Range (%):	0-5 & 20

PM-10 PARTICULATE SAMPLING TRAIN



1. Stack Wall
2. Probe
3. Impinger with 100 ml of H_2O
4. Empty Bubbler
5. Bubbler with Silica Gel
6. Ice Bath
7. Sealed Pump (Leak Free)
8. Filter for Pump
9. Metering Valve
10. Vacuum Gauge
11. By-pass Valve
12. Temperature Compensated Dry Gas Meter

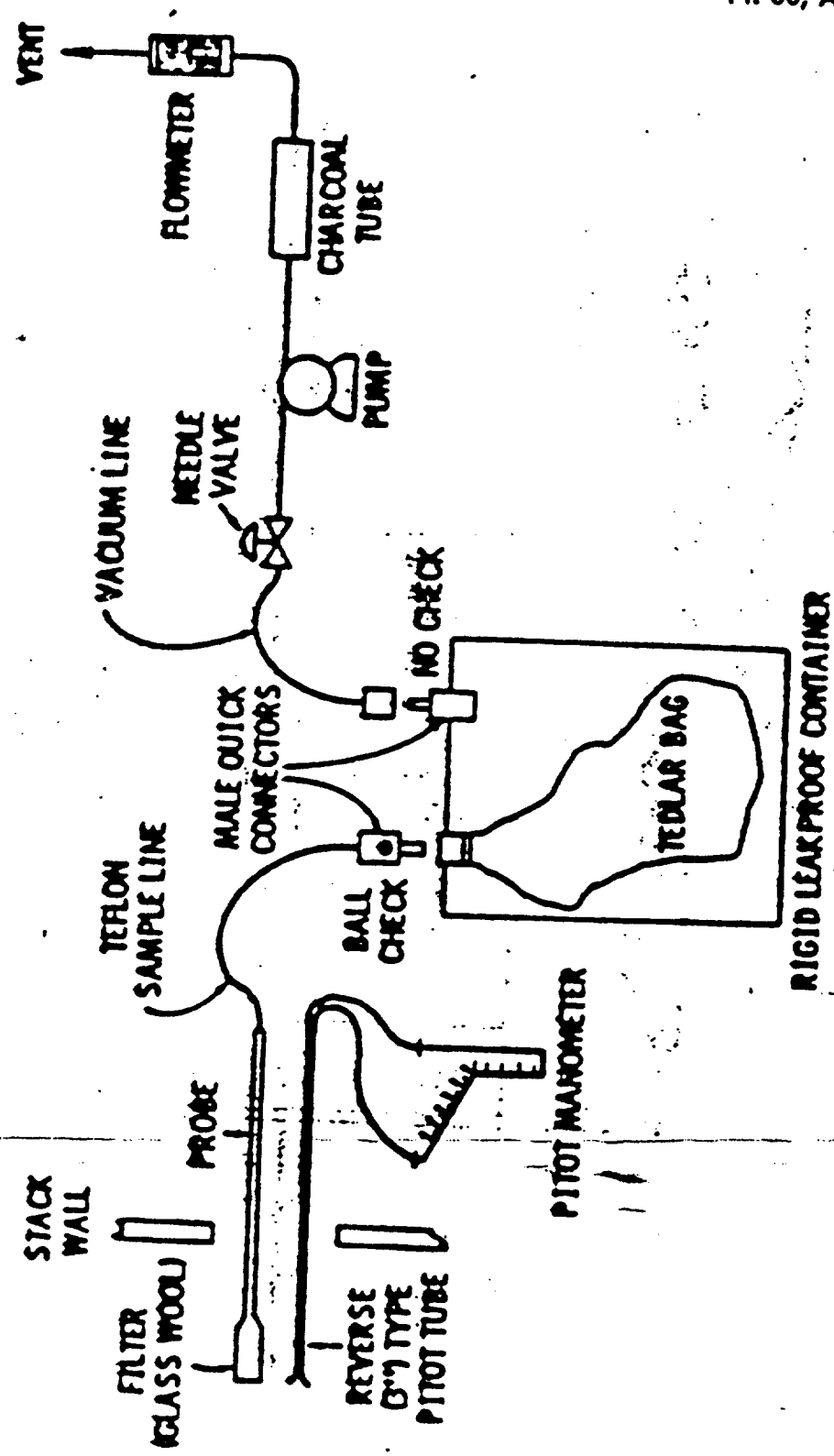
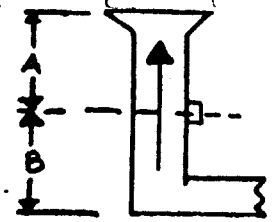
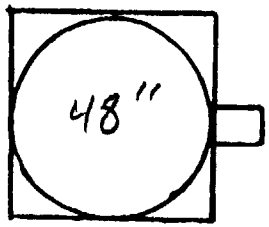


Figure 18-9. Integrated bag sampling train.

VII. RAW DATA

PLANT: Oliver Asphalt
LOCATION: Coalinga
COUNTY: Fresno
UNIT: Bag house
DATE: 7-13-93
RUN NO./METHOD: PM-10 1
COLD BOX NO.: 2
METER BOX NO.: 13
METER FACTOR: .9704
PITOT #/ FACTOR: .831
PYROMETER #: T-1
MAGNEHELIC FACTOR: ΔP m-1 ΔH m-2





FILTER NO.
AMBIENT TEMP.: 70°
BARAMETRIC PRESS.,IN.HG.: 29.15
ASSUMED MOISTURE: 20%
HEATER BOX SETTING: 17
PROBE LENGTH,FT. 5'
NOZZLE DIAMETER,IN.: .183
PROBE HEATER SETTING: 17
APPROX.WIND VEL.,MPH: 5
SAMPLE BOX TEMP.,(F): 220°F
STATIC PREASURE: .51 "H2O
OFFSET: 13 in. PORT DIA.: 4 in. (M / F)

TRAVERSE POINT NUMBER (S)	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN. 6.45	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O .77 ΔP	√ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM), FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
1		10.75	6.0	0	300°	.75		.58	704.885	73	73	3	
2				2.5		.9		.69	705.9	75	73	4	
3		10.75	6.0	5		1.05		.81	707.1	75	73	4	
4				7.5		1.05		.81	708.3	77	73	4	
5		10.75	6.0	10		1.05		.81	709.6	78	74	4	
6				12.5		.85		.65	710.5	79	74	4	
7		10.75	6.0	15		.8		.62	711.3	80	76	4	
8				17.5		.5		.39	712.4	81	76	4	
9		10.75	6.0	20		.55		.42	713.2	82	78	3	
10				22.5		.65		.5	714.2	84	79	3	
11		10.75	6.0	25		.8		.62	715.1	85	81	3	
12				27.5		1.0		.77	715.9	88	82	3	
	ZERO	10.75	6.0	30					717.079				
	SPAN												
AVERAGE													

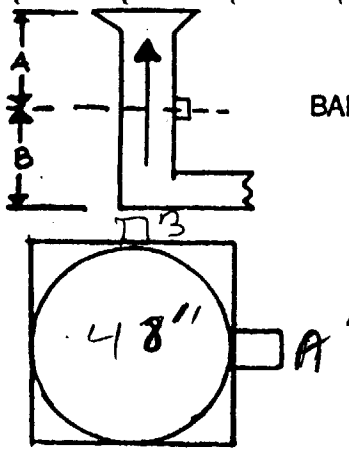
PITOT LEAK CHECK:
BEFORE: TOP ΔP= ____ BOTTOM ΔP= ____
ΔP= ____ ΔP= ____
AFTER: TOP ΔP= ____ BOTTOM ΔP= ____
ΔP= ____ ΔP= ____

SAMPLE TRAIN LEAK:
BEFORE= .001 CFM@ 25 IN. HG.
AFTER= .001 CFM@ 15 IN. HG.

COMMENTS: PURGE -

Run 1 P-10

PLANT: Oliver
LOCATION: Coalinga
COUNTY: Fresno
UNIT: Bag house
DATE: 7-13-93
RUN NO./METHOD: P-M10 1
COLD BOX NO.: 2
METER BOX NO.: B
METER FACTOR: .9704
PITOT #/ FACTOR: .837
PYROMETER #: T-1
MAGNEHELIC FACTOR: ΔP m-1 ΔH m-2



FILTER NO.
AMBIENT TEMP.: 70
BARAMETRIC PRESS.,IN.HG.: 29.15
ASSUMED MOISTURE: 20%
HEATER BOX SETTING: H
PROBE LENGTH,FT. 5'
NOZZLE DIAMETER,IN.: .183
PROBE HEATER SETTING: 17
APPROX.WIND VEL.,MPH: 5
SAMPLE BOX TEMP.,(F): 220 +
STATIC PREASURE: .54 "H2O
OFFSET: 13 in. PORT DIA.: 4 in. (M / F)

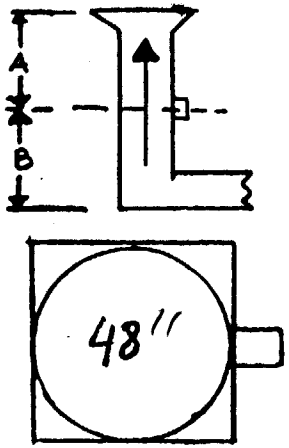
TRAVERSE POINT NUMBER (8)	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM),FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
		10.75	6.0	30	300	1.7		1.3	717.079	86	85	5	
				32.5		1.8		1.38	719.0	91	85	5	
		10.75	6.0	35		1.65		1.27	720.9	92	88	5	
				37.5		1.35		1.04	721.6	93	88	5	
	Stop Brake down	10.75	6.0	40		1.15		.89	723.0	93	90	5	
				42.5		1.0		.77	724.6	80	79	5	
		12.3	5.4	45		.90		.69	725.3	80	79	5	
				47.5		.75		.58	726.6	80	79	5	
		11.5	5.9	50		.7		.54	727.3	81	79	5	
				52.5		.75		.58	728.2	81	79	5	
		11.3	5.8	55		.7		.54	729.6	82	80	5	
				57.5		.65		.50	730.6	84	80	5	
	ZERO	11.3	5.8	60					732.087				
	SPAN												
AVERAGE		10.9	5.9	60	300.0		.966	.74	27.202	80.9		4.29	

PITOT LEAK CHECK:
BEFORE: TOP ΔP= ____ BOTTOM ΔP= ____
ΔP= ____ ΔP= ____
AFTER: TOP ΔP= ____ BOTTOM ΔP= ____
ΔP= ____ ΔP= ____

SAMPLE TRAIN LEAK:
BEFORE= ____ CFM@ ____ IN. HG.
AFTER= ____ CFM@ ____ IN. HG.

COMMENTS: PURGE ____

PLANT: Oliven
LOCATION: Coalinga
COUNTY: Fresno
UNIT: BAS house
DATE: 7-13-93
RUN NO./METHOD: PM-10 - 2
COLD BOX NO.: 3
METER BOX NO.: 13
METER FACTOR: .9704
PITOT #/ FACTOR: .831
PYROMETER #: T-1
MAGNEHELIC FACTOR: ΔP m-1 ΔH m-2



FILTER NO.
AMBIENT TEMP.: 70°
BARAMETRIC PRESS.,IN.HG.: 29.15
ASSUMED MOISTURE: 20%
HEATER BOX SETTING: H
PROBE LENGTH,FT. 5'
NOZZLE DIAMETER,IN.: .183
PROBE HEATER SETTING: H
APPROX.WIND VEL.,MPH: 5
SAMPLE BOX TEMP.,(F): 220 +
STATIC PREASURE: .5 + "H2O
OFFSET: 13 in. PORT DIA.: 4 in. (M / F)

TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM),FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
		11.0	6.0	0	300	.75		.59	732.422	79	79	1	
				2.5		.9		.71	737.5	79	79	3	
		10.8	6.0	5		1.05		.83	739.2	81	79	4	
				7.5		1.05		.83	735.6	82	79	4	
		10.8	6.0	10		1.05		.83	736.5	83	79	4	
				12.5		.85		.67	737.9	84	80	4	
		10.8	6.1	15		.8		.63	738.9	85	80	4	
				17.5		.5		.40	740.0	86	81	4	
		10.8	6.0	20		.55		.43	740.9	86	83	4	
				22.5		.65		.51	741.4	88	83	4	
		10.8	6.0	25		.8		.63	742.3	88	85	4	
				27.5		1.0		.79	742.8	91	86	4	
	ZERO	10.8	6.0	30					745.732				
	SPAN												
AVERAGE													

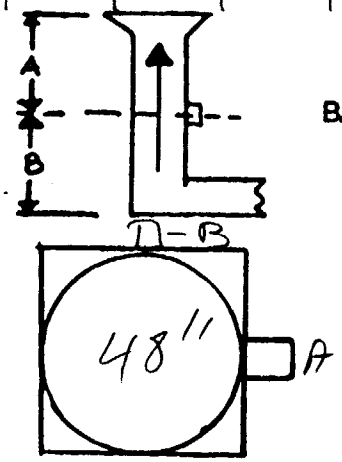
PITOT LEAK CHECK:
BEFORE: TOP ΔP= ΔP= ok BOTTOM ΔP= ΔP= ok
AFTER: TOP ΔP= ΔP= BOTTOM ΔP= ΔP=

SAMPLE TRAIN LEAK:
BEFORE= .001 CFM@ 17 IN. HG.
AFTER= .001 CFM@ 15 IN. HG.

COMMENTS: PURGE

Run 2
P-2

PLANT: Oliver
LOCATION: Coalinga
COUNTY: Fresno
UNIT: Bag house
DATE: 7-13-93
RUN NO./METHOD: PM-10 2
COLD BOX NO.: 5
METER BOX NO.: B
METER FACTOR: .9704
PITOT #/ FACTOR: 1831
PYROMETER #: T-1
MAGNEHELIC FACTOR: ΔP m-1 ΔH m-2



FILTER NO. C
AMBIENT TEMP.: 80°
BARAMETRIC PRESS.,IN.HG.: 29.15
ASSUMED MOISTURE: 20%
HEATER BOX SETTING: H
PROBE LENGTH,FT. 5'
NOZZLE DIAMETER,IN.: .183
PROBE HEATER SETTING: H
APPROX.WIND VEL.,MPH: 5
SAMPLE BOX TEMP.,(F): 220 F
STATIC PREASURE: .5" H2O
OFFSET: 13 in. PORT DIA.: 4 in. (M / F)

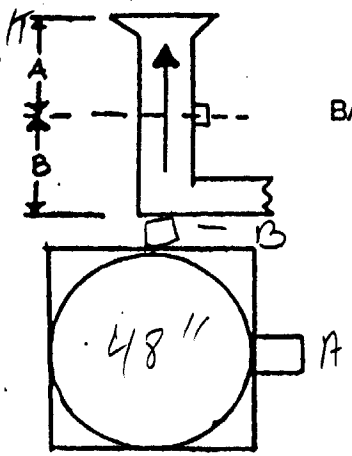
TRAVERSE POINT NUMBER (S)	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM),FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
1		10.8	6.0	30		1.7		1.34	745.732	90	89	5	
2				32.5	300	1.8		1.42	746.3	93	90	5	
3		10.8	6.0	35		1.65		1.30	748.0	95	90	5	
4				37.5		1.35		1.07	749.3	95	91	5	
5		10.8	6.0	40		1.15		.91	750.4	96	92	5	
6				42.5		1.0		.79	751.9	96	93	5	
7		10.8	6.0	45		.9		.71	753.1	97	93	5	
8				47.5		.75		.59	754.2	98	96	4	
9		10.8	6.0	50		.7		.55	755.4	98	96	4	
10				52.5		.75		.59	756.2	100	96	4	
11		10.8	6.0	55		.7		.55	757.0	100	97	4	
12				57.5		.65		.51	758.2	100	98	4	
	ZERO			60					769.374				
	SPAN												
AVERAGE		10.8	6.0	60	500		.966	0.758	26.952	888			

PITOT LEAK CHECK:
BEFORE: TOP ΔP= ____ BOTTOM ΔP= ____
ΔP= ____ ΔP= ____
AFTER: TOP ΔP= ____ BOTTOM ΔP= ____
ΔP= ____ ΔP= ____

SAMPLE TRAIN LEAK:
BEFORE= ____ CFM@ ____ IN. HG.
AFTER= ____ CFM@ ____ IN. HG.

COMMENTS: PURGE ____

PLANT: Oliver Asphalt
LOCATION: Coalinga
COUNTY: Fresno
UNIT: Bag house
DATE: 7-13-93
RUN NO./METHOD: P-m10 3
COLD BOX NO.: 3
METER BOX NO.: B
METER FACTOR: .9704
PITOT #/ FACTOR: .831
PYROMETER #: 7-1
MAGNEHELIC FACTOR: ΔP m-1 ΔH m-2



FILTER NO. —
AMBIENT TEMP.: 90° +
BARAMETRIC PRESS.,IN.HG.: 29.15
ASSUMED MOISTURE: 20%
HEATER BOX SETTING: H
PROBE LENGTH,FT. 5'
NOZZLE DIAMETER,IN.: .183
PROBE HEATER SETTING: H
APPROX.WIND VEL.,MPH: 5
SAMPLE BOX TEMP.,(F): 220
STATIC PREASURE: .5" V "H2O
OFFSET: 13 in. PORT DIA.: 4 in. (M / F)

TRAVERSE POINT NUMBER (Pm)	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O (K.3) 11:10 .80 ΔP	√ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM),FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
1		10.5	6.0	0	300	.75		.60	761.464	91	91	5	60
2				2.5		.9		.72	762.3	91	90	5	
3		10.5	6.0	5		1.05		.84	763.4	91	90	5	
4				7.5		1.05		.84	764.7	92	91	5	
5		10.5	6.0	10		1.05		.84	765.0	93	90	5	
6				12.5		.85		.68	766.0	93	91	5	
7		10.5	6.0	15		.8		.64	767.8	94	91	5	
8				17.5		.5		.40	769.3	95	93	5	
9		10.5	6.0	20		.55		.44	769.4	97	93	5	
10				22.5		.65		.52	769.9	99	95	5	
11		10.5	6.0	25		.8		.64	771.0	91	91	5	
12				27.5		1.0		.80	772.6	92	91	5	
	ZERO	10.5	6.0	30					773.329				
	SPAN												
AVERAGE													

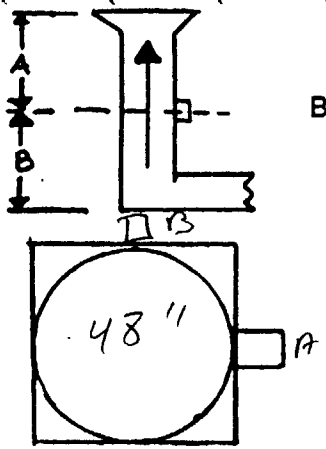
PITOT LEAK CHECK:
BEFORE: TOP ΔP= ΔP= BOTTOM ΔP= ΔP= 0
AFTER: TOP ΔP= 0 ΔP= BOTTOM ΔP= 0 ΔP=

SAMPLE TRAIN LEAK:
BEFORE= .002 CFM@ 10 IN. HG.
AFTER= .001 CFM@ 8 IN. HG.

COMMENTS: PURGE

R-3
P2

PLANT: Oliver
LOCATION: COALINGA
COUNTY: FRESNO
UNIT: Baghouse
DATE: 7-13-93
RUN NO./METHOD: PM-10 R-3
COLD BOX NO.: 3
METER BOX NO.: B
METER FACTOR: .9704
PITOT #/ FACTOR: .831
PYROMETER #: 1-1
MAGNEHELIC FACTOR: ΔP M-1 ΔH M-2



FILTER NO.
AMBIENT TEMP.: 80°
BARAMETRIC PRESS.,IN.HG.: 29.15
ASSUMED MOISTURE: 20%
HEATER BOX SETTING: 1+
PROBE LENGTH,FT. 5'
NOZZLE DIAMETER,IN.: .183
PROBE HEATER SETTING: A
APPROX.WIND VEL.,MPH: 5
SAMPLE BOX TEMP.,(F): 220 +
STATIC PREASURE: .54 "H2O
OFFSET: 13 in. PORT DIA.: 4 in. (M / F)

TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM),FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
1		10.5	6.0	30	300	1.7		1.36	773.329	92	91	7	60-
2				32.5		1.8		1.44	775.1	93	91	8	
3		10.5	6.0	35		1.65		1.32	776.9	95	92	8	
4				37.5		1.35		1.08	777.4	96	92	8	
5		10.5	6.0	40		1.15		.92	778.4	97	93	7	
6				42.5		1.0		.80	779.2	97	93	7	
7		10.5	6.0	45		.9		.72	780.9	98	95	6	
8				47.5		.75		.6	782.1	101	96	6	
9		10.5	6.0	50		.7		.56	783.1	102	98	6	
10				52.5		.75		.6	784.1	102	98	6	
11		10.5	6.0	55		.7		.56	785.2	103	99	6	
12				57.5		.65		.52	786.1	104	101		
	ZERO	0	0	60					789.321				
	SPAN	0	0										
AVERAGE		10.5	6.0	60	300		0.966	0.768	27.857	99.5			

PITOT LEAK CHECK:
BEFORE: TOP ΔP= _____ BOTTOM ΔP= _____
ΔP= _____ ΔP= _____
AFTER: TOP ΔP= _____ BOTTOM ΔP= _____
ΔP= _____ ΔP= _____

SAMPLE TRAIN LEAK:
BEFORE= _____ CFM@ _____ IN. HG.
AFTER= _____ CFM@ _____ IN. HG.

COMMENTS: PURGE _____

VIII. QUALITY ASSURANCE

DRY GAS METER CALIBRATION

Standard Pressure 29.92 in. hg.
Standard Temperature 70 F
Ambient pressure 29.65 in. hg.
Ambient temperature 72 F

Unit Number B
Date: 7/7/93

ΔH in. H20	TIME min.	WET GAS VOL. cf	DRY GAS VOL. in/out cf	Temperature W.G. AVG F	D.G. IN F	D.G. OUT F	D.G. AVG. F	*Y	†ΔH@ in. H20
0.5	14.48	5.000	678.826 / 684.097	71.0	83.0 / 88.0	80.0 / 86.0	84.3	0.9711	2.3373
1.0	12.29	6.000	684.917 / 691.401	71.0	90.0 / 96.0	87.0 / 92.0	91.3	0.9583	2.3089
1.5	10.07	6.000	691.651 / 698.060	71.0	97.0 / 101.0	92.0 / 96.0	96.5	0.9775	2.3032
2.0	7.18	5.000	698.367 / 703.732	72.0	100.0 / 103.0	96.0 / 98.0	99.3	0.9749	2.2455
						AVERAGE		0.9704	2.2988

Validity checks:

* Y(max - min) ≤.02 ? √
† | ΔH@ - ΔH@ avg. | ≤ .20 in. H20 ? √

Meter Factor: 0.9704

ΔH@ : 2.2988

Calibration by: KK Reviewed by: _____

EQUATIONS USED:

Y= (VWG*PBAR*(TDGavg.+460))/((VDG*(PBAR+(ΔH/13.6))*(TWGavg.+460))

ΔH@ = ((0.0319*ΔH)/(PBAR*(TDGavg+460))*(((TWG+460)*T)/VWG)^2

BTC Environmental, Inc. - 1992

PITOT TUBE CALIBRATION

Ambient Conditions

DATE: 1/8/93

UNIT NUMBER: 4

TEMPERATURE 68 F

RH: 30.00 %

BAROMETER: 30.04 in. hg.

Run #	Velocity fpm	ΔP (std) in. H2O	ΔP (s) in. H2O		Cp(s)	| Dev |	Cp(s)	| Dev |
			A	B	A	A	B	B
1	4688	*1.37*	*1.89*	*1.90*	0.843	0.001	0.841	0.000
2		*1.37*	*1.89*	*1.90*	0.843	0.001	0.841	0.000
3		*1.37*	*1.90*	*1.90*	0.841	0.001	0.841	0.000
Avg		1.37	1.89	1.90	~0.842	0.001*	~0.841	0.000*

AVERAGE: (Cp(s)A+Cp(s)B)/2 0.841

| ~Cp(s)A-~Cp(s)B | = 0.001 *

1	4045	*1.02*	*1.49*	*1.49*	0.819	0.001	0.819	0.001
2		*1.02*	*1.49*	*1.49*	0.819	0.001	0.819	0.001
3		*1.02*	*1.50*	*1.49*	0.816	0.002	0.816	0.002
Avg		1.02	1.49	1.49	~0.818	0.001*	~0.818	0.001*

AVERAGE: (Cp(s)A+Cp(s)B)/2 0.818

| ~Cp(s)A-~Cp(s)B | = 0.000 *

1	4478	*1.25*	*1.76*	*1.79*	0.834	0.001	0.834	0.001
2		*1.25*	*1.77*	*1.79*	0.832	0.002	0.832	0.002
3		*1.25*	*1.76*	*1.79*	0.834	0.001	0.834	0.001
Avg		1.25	1.76	1.79	~0.834	0.001*	~0.834	0.001*

AVERAGE: (Cp(s)A+Cp(s)B)/2 0.834

|~Cp(s)A-~Cp(s)B | = 0.000 *

PITOT CALIBRATION VALUE: 0.831

~ Denotes average value

* Denotes values which must be ≤ to 0.01 for calibration to be valid.

Calibrated by: KK *Reviewed by:* _____

BTC Environmental, Inc. - 1989

THERMO COUPLE CALIBRATION

Date: 7/9/93 Unit: T-1

Point	* Standard Temperature *Tstd* deg. F	Pyrometer Temperature *Tpyr* deg. F	Error % ** *(Tstd-Tpyr)/Tstd*
1 Ambient	77.0	77.0	0.00%
2 Ice	32.0	38.0	1.22%
3 Boil	212.0	213.0	0.15%
4 Oil	0.0	0.0	0.00%

Std. Corr. Factor 0.946

Calibration by: KK

Reviewed by: ____

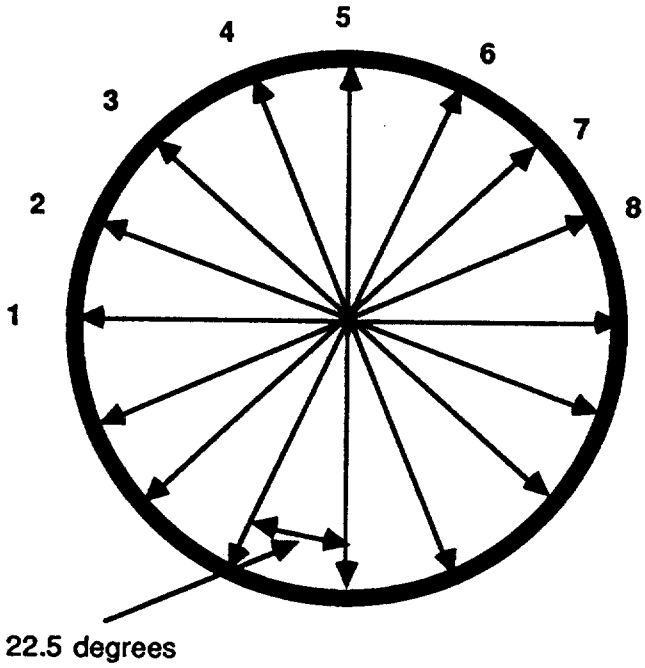
* Standard ID: 3
CAT #227-652

* * in deg. K

Nozzle Calibration

Nozzle I.D. : 18

Date : 1/5/93



Points

1 - .183
2 - .183
3- .182
4- .182
5- .182
6- .182
7- .183
8- .183

Average Nozzle Diameter = .183

Analyst : GD

Reviewed :

BTC Environmental, Inc. - 1989

SCOTT-MARRIN, INC.
6531 BOX SPRINGS BLVD. • RIVERSIDE, CA 92507
TELEPHONE (714) 653-6780 • FAX (714) 653-2430

REPORT OF ANALYSIS
NIST TRACEABLE GAS MIXTURES

BTCE01

TO:

TOM PORTER
BTC ENVIRONMENTAL INC
1536 EASTMAN AVE STE A
VENTURA, CA 93003-

DATE: 12/29/92

CUSTOMER ORDER NUMBER: 1936

PAGE 1

CYLINDER NUMBER	COMPONENT	CONCENTRATION(v/v)	NIST TRACEABLE REFERENCE STANDARD
CC12639	Nitric Oxide Nitrogen,O2-Free	41.4 ± 0.4 ppm Balance	SRM 1683b
CC68688	Nitric Oxide Nitrogen,O2-Free	41.4 ± 0.4 ppm Balance	SRM 1683b
CC12590	Nitric Oxide Nitrogen,O2-Free	82.4 ± 0.8 ppm Balance	SRM 1684b
CC28133	Nitric Oxide Nitrogen,O2-Free	78.9 ± 0.8 ppm Balance	SRM 1684b

ppm = umole/mole % = mole-%

The above analyses are traceable to the National Institute of Standards and Technology by intercomparison with the reference standards listed above.
Where indicated, volumetric and gravimetric reference standards are traceable thru use of our analytical balance. NIST Report No. MMAP 232.09/202491.

Analyst: B.E. Gross

Approved: J.T. Marrin

70

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the

SCOTT-MARRIN, INC.
6531 BOX SPRINGS BLVD. • RIVERSIDE, CA 92507
TELEPHONE (909) 653-6780 • FAX (909) 653-2430

REPORT OF ANALYSIS
NIST TRACEABLE GAS MIXTURES

BTCE01

TO:

TOM PORTER
BTC ENVIRONMENTAL INC
1536 EASTMAN AVE STE A
VENTURA, CA 93003-

DATE: 06/11/93

CUSTOMER ORDER NUMBER: 2283

CYLINDER NUMBER	COMPONENT	CONCENTRATION(v/v)	NIST TRACEABLE REFERENCE STANDARD
CC60317	Oxygen	14.08 ± 0.14 %	SRM 2659
	Carbon Dioxide	4.06 ± 0.04 %	SRM 2626a
	Carbon Monoxide	396 ± 4 ppm	SRM 1680b
	Nitrogen	Balance	
CC56466	Oxygen	14.15 ± 0.14 %	SRM 2659
	Carbon Dioxide	4.14 ± 0.04 %	SRM 2626a
	Carbon Monoxide	399 ± 4 ppm	SRM 1680b
	Nitrogen	Balance	
CC91377	Oxygen	3.97 ± 0.04 %	SRM 2658a
	Carbon Dioxide	15.23 ± 0.15 %	SRM 1675b
	Carbon Monoxide	398 ± 4 ppm	SRM 1680b
	Nitrogen	Balance	

ppm = umole/mole % = mole-%

The above analyses are traceable to the National Institute of Standards and Technology by intercomparison with the reference standards listed above.
Where indicated, volumetric and gravimetric reference standards are traceable thru use of our analytical balance. NIST Report No. MMAP 232.09/202491.

Analyst: Mark Monson
M.J. Monson

Approved: JMarrin
J.T. Marrin

71

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

SCOTT-MARRIN, INC.
6531 BOX SPRINGS BLVD. • RIVERSIDE, CA 92507
TELEPHONE (714) 653-6780 • FAX (714) 653-2430

REPORT OF ANALYSIS
NIST TRACEABLE GAS MIXTURES

BTCE01
TO: TOM PORTER
BTC ENVIRONMENTAL
1536 EASTMAN AVE
SUITE A
VENTURA, CA 93003-

DATE: 08/13/92

CUSTOMER ORDER NUMBER: 1098

CYLINDER NUMBER	COMPONENT	CONCENTRATION(v/v)	NIST TRACEABLE REFERENCE STANDARD
CC42901-	Carbon Monoxide Nitrogen	79.9 ± 0.8 ppm Balance	SRM 1679c
CC65273	Carbon Monoxide Nitrogen	79.6 ± 0.8 ppm Balance	SRM 1679c
CC42679	Carbon Monoxide Nitrogen	78.7 ± 0.8 ppm Balance	SRM 1679c
CC105440	Carbon Monoxide Nitrogen	39.8 ± 0.4 ppm Balance	SRM 2614a

ppm = umole/mole % = mole-%

The above analyses are traceable to the National Institute of Standards and Technology by intercomparison with the reference standards listed above.
Where indicated, volumetric and gravimetric reference standards are traceable thru use of our analytical balance. NIST Report No. MMAP 232.09/202491.

Analyst: Mark Monson
M.J. Monson

Approved: J.T. Marrin

72

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the

SCOTT-MARRIN, INC.
6531 BOX SPRINGS BLVD. • RIVERSIDE, CA 92507
TELEPHONE (714) 653-6780 • FAX (714) 653-2430

REPORT OF ANALYSIS
NIST TRACEABLE GAS MIXTURES

BTCE01
TO: TOM PORTER
BTC ENVIRONMENTAL INC.
1536 EASTMAN AVE.
SUITE A
VENTURA, CA 93003-

DATE: 07/30/92

CUSTOMER ORDER NUMBER: 1089

CYLINDER NUMBER	COMPONENT	CONCENTRATION(v/v)	NIST TRACEABLE REFERENCE STANDARD
CC68662	Carbon Monoxide Nitrogen	39.1 ± 0.4 ppm Balance	SRM 2614a
CC12559	Carbon Monoxide Nitrogen	39.4 ± 0.4 ppm Balance	SRM 2614a

ppm = umole/mole % = mole-%

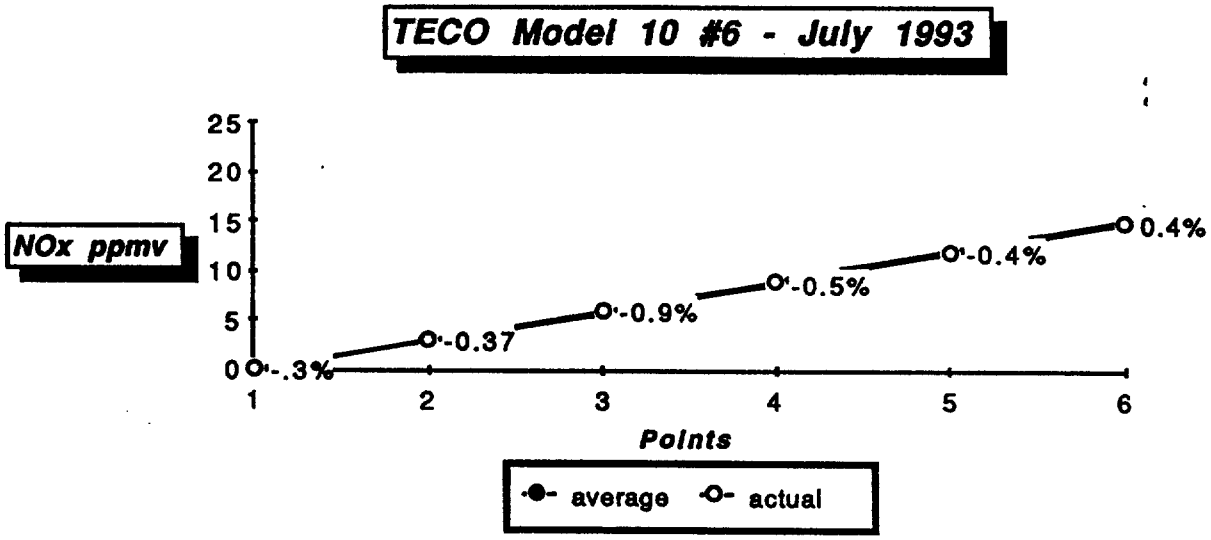
The above analyses are traceable to the National Institute of Standards and Technology by intercomparison with the reference standards listed above.
Where indicated, volumetric and gravimetric reference standards are traceable thru use of our analytical balance. NIST Report No. MMAP 232.09/202491.

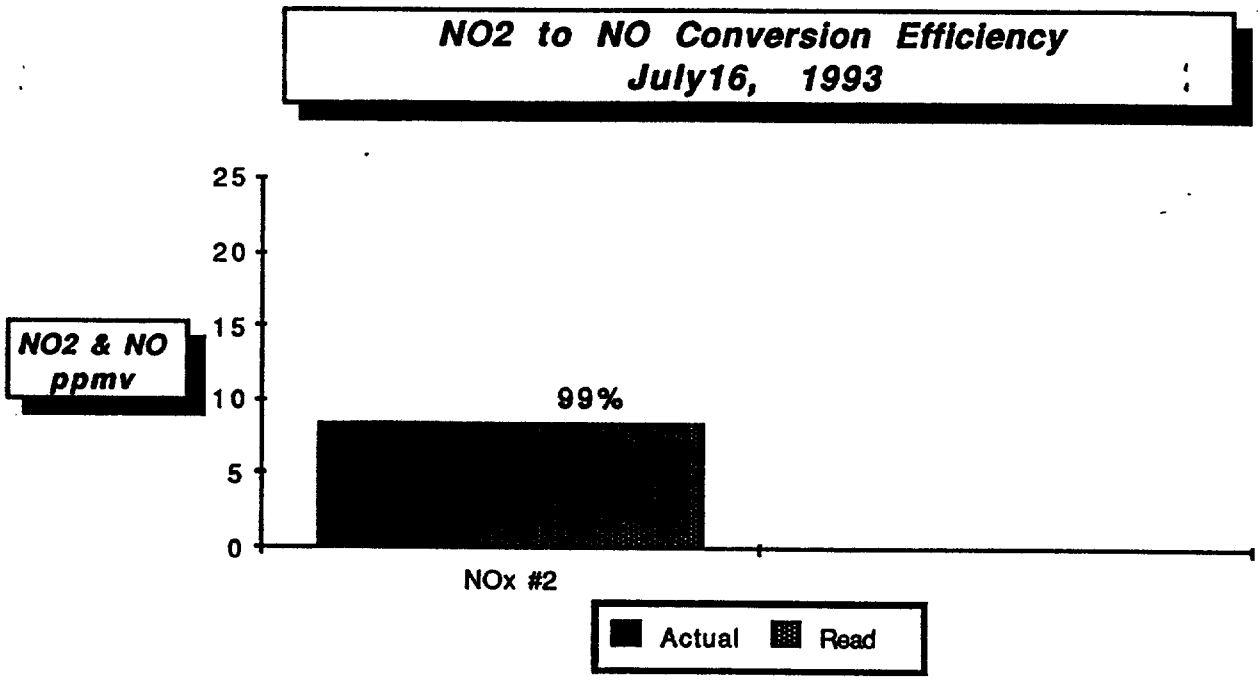
Analyst: Mark Monson
M.J. Monson

Approved: J.T. Marrin

73

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.


TECO Model 10 #6 - July 1993
NOx ppmv
25
20
15
10
5
0
-.3%
-0.37
-0.9%
-0.5%
-0.4%
0.4%
1
2
3
4
5
6
Points
average
actual


NO2 to NO Conversion Efficiency
July16, 1993
NO2 & NO ppmv
25
20
15
10
5
0
99%
NOx #2
Actual
Read

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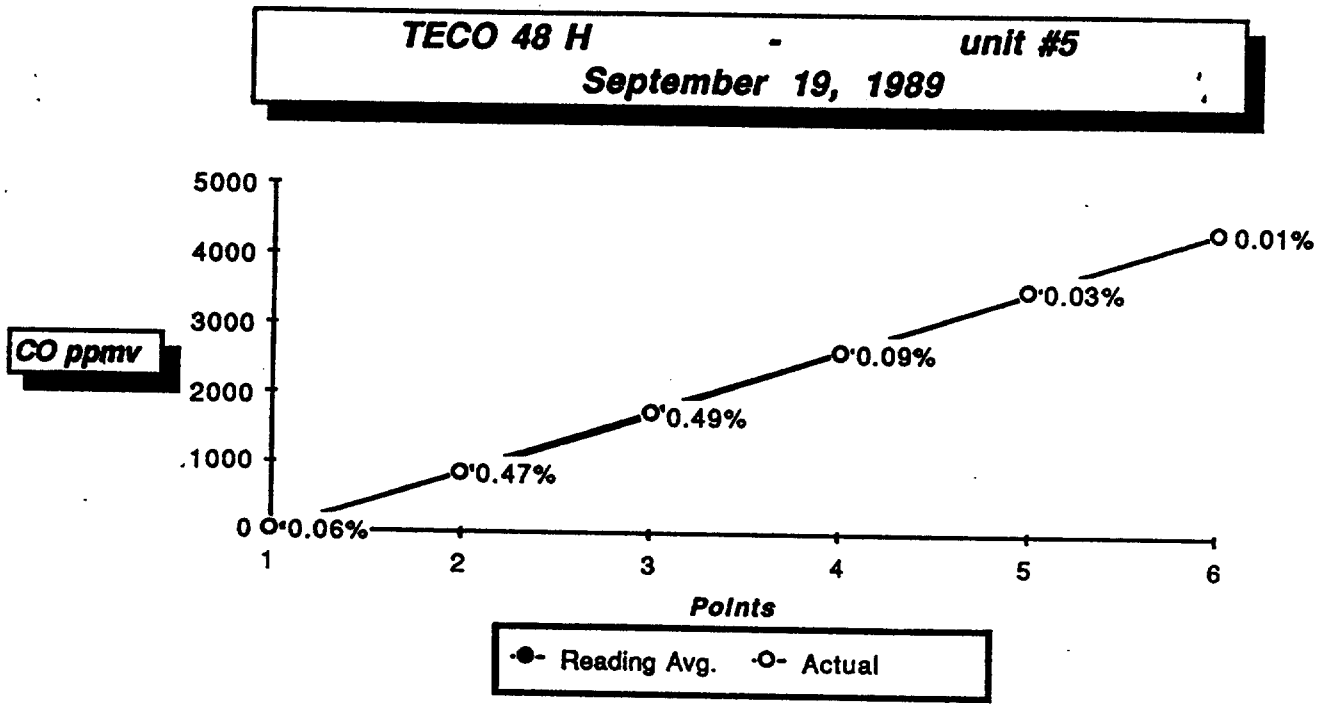

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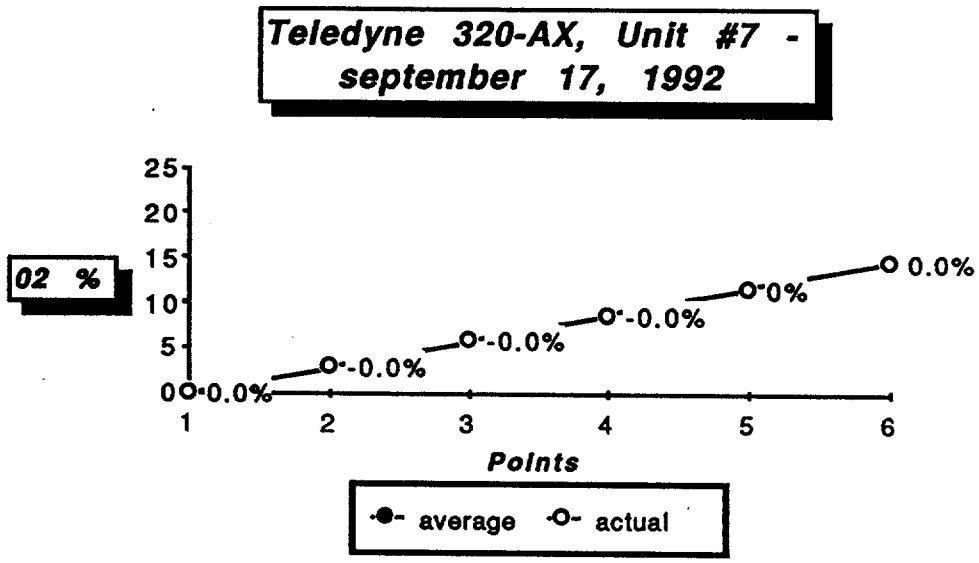
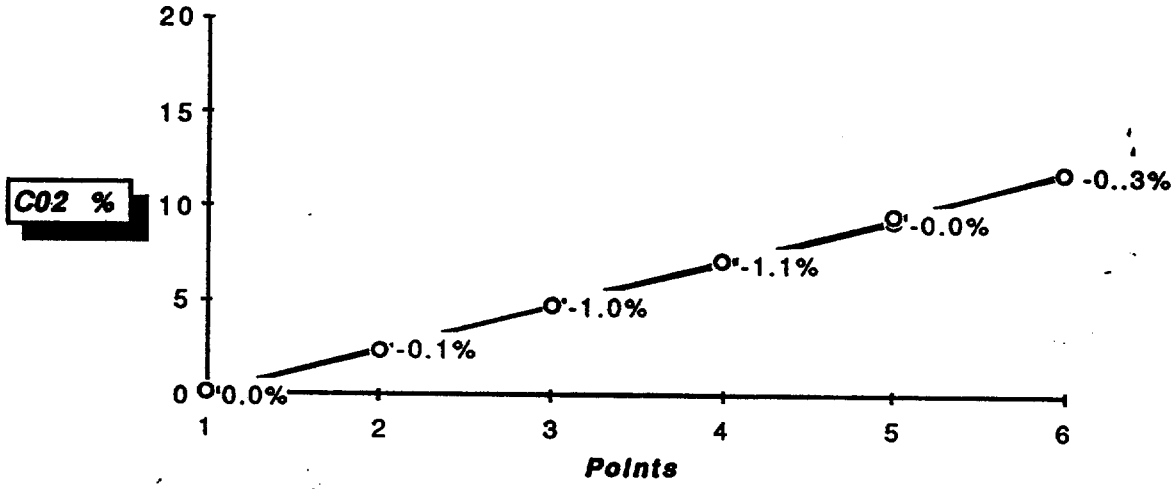


Model ACS 3300, BTC CO2 Unit #3
Linearity Calibration, 7/15/93



CO2 Analyzer Linearity Calibration
Model ACS-3300, Unit # 3
15-Jul-93

100 % span :	14.37	% of Range	0	20	40	60	80	100
Cal Gas Cyl :	CC105089	run # 1	0	2.86	5.54	8.40	11.5	14.34
Instr. Range :	20	run # 2	0	2.86	5.56	8.40	11.5	14.30
Verify Gas:	4.12	run # 3	0	2.84	5.54	8.40	11.5	14.30
Verify Cyl:	CC66814	average	0	2.85	5.55	8.40	11.50	14.31
Verify % Err:	0.20%	actual	0	2.87	5.75	8.62	11.50	14.37
		% dev from range	0.0%	-0.1%	-1.0%	-1.1%	0.0%	-0.3%

MAGNEHELIC CALIBRATION

DATE: 7/8/93
GAGE ID # M-1
RANGE 0-5 in. H20

REFERENCE ID # M-1

SCHEULED CALIBRATION:
SEMI ANNUAL [X]
BI-MONTHLY [ ]
OTHER [ ]

LEAK CHECK :

System:	† Set @ 10 in. H20	vacuum 10 in. P F	pressure 10 in. P F
Point:	†† Set @ 90 % FS in. H20	vacuum in. P F	pressure in. P F

Point	Incline Delta P *PInc*	Magnehelic Delta P *Pmag*	% Deviation *(Pinc-Pmag)/Pinc x 100*
1	1.00	1.00	0.000%
	1.00	1.00	0.000%
	1.00	1.00	0.000%
average	1.00	1.00	** 0.000%
2	2.00	1.97	1.500%
	2.00	1.97	1.500%
	2.00	1.97	1.500%
average	2.00	1.97	** 1.500%
3	3.00	2.98	0.667%
	3.00	2.98	0.667%
	3.00	2.98	0.667%
average	3.00	2.98	** 0.667%
4	4.00	3.85	3.750%
	4.00	3.85	3.750%
	4.00	3.85	3.750%
average	4.00	3.85	** 3.750%
5	5.00	4.96	0.800%
	5.00	4.96	0.800%
	5.00	4.96	0.800%
average	5.00	4.96	** 0.800%

STANDARD CORRECTION FACTOR	1.014
AVERAGE DEVIATION	0.013
STANDARD DEVIATION	0.013
95% CONFIDENCE INTERVAL	0.032
PRECISION(within +/- 3%)	-1.00

† If pressure or vacuum decreases by more than 1 in. in 5 minutes then remove from service.
†† If pressure or vacuum decreases by more than 5% in 5 minutes then remove from service.
** These values must be within +/- 5% before the magnehelic can be put into operation.

Calibration by: K.R.K *Reviewed by:* _____

MAGNEHELIC CALIBRATION

DATE: 7/8/93
GAGE ID # M-2
RANGE O-2 in. H20

REFERENCE ID # M-2

SCHEULED CALIBRATION:
SEMI ANNUAL [XXX]
BI-MONTHLY [ ]
OTHER [ ]

LEAK CHECK :

System:	† Set @ 10 in. H20	vacuum 10 in. P F	pressure 10 in. P F
Point:	†† Set @ 90 % FS in. H20	vacuum in. P F	pressure in. P F

Point	Incline Delta P *Pinc*	Magnehelic Delta P *Pmag*	% Deviation *(Pinc-Pmag)/Pinc x 100*
1	0.25	0.25	0.000%
	0.25	0.25	0.000%
	0.25	0.25	0.000%
average	0.25	0.25	** 0.000%
2	0.50	0.49	2.000%
	0.50	0.49	2.000%
	0.50	0.50	0.000%
average	0.50	0.49	** 1.333%
3	1.00	0.99	1.000%
	1.00	0.99	1.000%
	1.00	1.00	0.000%
average	1.00	0.99	** 0.667%
4	1.50	1.49	0.667%
	1.50	1.49	0.667%
	1.50	1.49	0.667%
average	1.50	1.49	** 0.667%
5	2.00	1.98	1.000%
	2.00	1.98	1.000%
	2.00	1.98	1.000%
average	2.00	1.98	** 1.000%

STANDARD CORRECTION FACTOR	**1.007**
AVERAGE DEVIATION	0.007
STANDARD DEVIATION	0.006
95% CONFIDENCE INTERVAL	0.016
PRECISION(within +/- 3%)	-1.00

† If pressure or vacuum decreases by more than 1 in. in 5 minutes then remove from service.
†† If pressure or vacuum decreases by more than 5% in 5 minutes then remove from service.
** These values must be within +/- 5% before the magnehelic can be put into operation.

Calibration by: K.R.K *Reviewed by:* _____

BTC ENVIRONMENTAL INCORPORATED

1536 Eastman Avenue
Ventura, CA 93003
(805) 644-1095

CHAIN OF CUSTODY RECORD

BILL TO Company: Air Tech
Address: 931791
Phone #: ( ) Contact:

PROJ. NO. 293-073
PROJECT NAME Charles Oliver & Son
SAMPLERS: (Signature)

NO.	DATE	TIME	COMP	GRAB	SAMPLE I.D.	NO. OF CONTAINERS	ANALYSIS: Total Residue	Gross Weight					REMARKS	CHECK IF RUSH
1	7-13		X		1	1		X					PM-10	
2					2			X						
3					3			X						
4					4		X							
5					5		X							
6					6			X						
7					7			X						
8					8			X						
9					9		X							
10					10		X							
11					11			X						
12					12			X						
13					13			X						
14					14		X							
15					15		X							

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The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

7/14/93 10:30

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	7-14-93 9:30	Gena Ditmore			

Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	NAME / ADDRESS / PHONE NO.

PINK COPY

BTC ENVIRONMENTAL INCORPORATED

1536 Eastman Avenue
Ventura, CA 93003
(805) 644-1095

BILL TO Company: Air test
Address: 31791
Phone #: ( ) Contact:

CHAIN OF CUSTODY RECORD

PROJ. NO. 293-073
PROJECT NAME Charles Oliver & Son
SAMPLERS: (Signature)

NO.	DATE	TIME	COMP	GRAB	SAMPLE I.D.	NO. OF CONTAINERS	Total Petroleum	L.L. HC	REMARKS
16	7-13				DI BLANK 150mL	1	X		
17	7-13				Acetone Blank	1	X		
18	7-13	6:30			Bag 1	1		X	Begin Analysis
19	7-13	10:30			Bag 2	1		X	within 48 hrs
20	7-13	11:10			Bag 3	1		X	
21	7-13				Blank	1		X	

CHECK IF RUSH

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	7-14 10:30	Gena Ditmore			

Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	NAME / ADDRESS

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SOURCE TESTING SAMPLE INFORMATION SHEET
****

PM10 PART. ANALYSIS
****

31791

METHOD: PM-10

CLIENT: CHARLES OLIVER & Son

LAB NO GIVEN:

PROJECT NAME.

PROJECT NO: 293-073

SITE: Codington

SAMPLER:

DATE SAMPLED: 7-13-93

NO.	RUN 1	# of cont	TOT VOL or FIL #	TOT RES	GROSS WT		
1	FILTER (slotted) +10	1	#T-11	N/A	X		
2	FILTER (slotted) +10	1	# T-10	N/A	X		
3	FILTER (solid) -10	1	# D-4	N/A	X		
4	IMPACTOR (front half) +10	1	150mL	X			
5	PROBE+IMPINGERS(back half) -10	1	575mL	X			

NO.	RUN 2	# of cont	TOT VOL or FIL #	TOT RES	GROSS WT		
6	FILTER (slotted) +10	1	# T-4	N/A	X		
7	FILTER (slotted) +10	1	# T-5	N/A	X		
8	FILTER (solid) -10	1	# G-161	N/A	X		
9	IMPACTOR (front half) +10	1	160mL	X			
10	PROBE+IMPINGERS(back half) -10	1	650mL	X			

NO.	RUN 3	# of cont	TOT VOL or FIL #	TOT RES	GROSS WT		
11	FILTER (slotted) +10	1	# Z-105	N/A	X		
12	FILTER (slotted) +10	1	# Z-106	N/A	X		
13	FILTER (solid) -10	1	# Y-39	N/A	X		
14	IMPACTOR (front half) +10	1	150mL	X			
15	PROBE+IMPINGERS(back half) -10	1	575mL	X			

Comments: 83