P.W. GILLIBRAND COMPANY
5131 Tapo Canyon Road
Simi Valley, CA 93039

0021

TOXIC EMISSIONS TESTING
Specialty Sand Drier
November 8, 1991

Prepared By:

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

Job Number
7002

Laboratory Report Number
291-178

Test Team Leader
Cam Donnahoo

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FORMALDYHDE SUMMARY

	ppmv	lb/hr
Run #1	1.09	0.195
Run#2	0.06	0.010
Run#3	3.34	0.549
Average	**1.50**	**0.251**

POLYCYCLIC AROMATIC HYDROCARBONS (PAH) SUMMARY CARB 429

Results in lb/hr

Compound	Run #1	Run #2	Run #3	AVERAGE
Acenaphthene	< 0.000211	< 0.000211	< 0.000211	**< 0.000211**
Acenaphthylene	< 0.000211	< 0.000211	< 0.000211	**< 0.000211**
Anthracene	< 0.000211	< 0.000211	< 0.000211	**< 0.000211**
Benzo(a)anthracene	< 0.000211	< 0.000211	< 0.000211	**< 0.000211**
Benzo(a)pyrene	< 0.001057	< 0.001057	< 0.001057	**< 0.001057**
Benzo(b)fluoranthene	< 0.001057	< 0.001057	< 0.001057	**< 0.001057**
Benzo(g,h,i)perylene	< 0.001057	< 0.001057	< 0.001057	**< 0.001057**
Benzo(k)fluoranthene	< 0.001057	< 0.001057	< 0.001057	**< 0.001057**
Chrysene	< 0.000211	< 0.000211	< 0.000211	**< 0.000211**
Dibenzo(a,h)anthracene	< 0.001057	< 0.001057	< 0.001057	**< 0.001057**
Fluoranthene	0.000488	0.000474	< 0.000211	**0.000391**
Fluorene	< 0.000211	< 0.000211	< 0.000211	**< 0.000211**
Indeno(1,2,3-cd)pyrene	< 0.001057	< 0.001057	< 0.001057	**< 0.001057**
Naphthalene	0.002992	0.005107	0.002337	**0.003478**
Phenanthrene	0.001226	0.001314	< 0.000211	**0.000917**
Pyrene	< 0.000211	< 0.000211	< 0.000211	**< 0.000211**

INTRODUCTION

INTRODUCTION

On November 8, 1991 BTC Environmental, Inc. performed source emissions tests for Polyaromatic Hydrocarbons (PAH's) and Formaldehyde from a baghouse at a sand drying facility. The facility is locatated at the P.W. Gillibrand Company at 5131 Tapo Canyon Road, Simi Valley, Califonia. All sampling was done in triplicate.

The system consists of a 86" X 59', 100 ton/hr diesel fired rotary drier equipped with a low NOx burner rated at 46 MMBTU/hr. The system dries specialty sand. The drier exhaust flows through a pulse jet baghouse. The unit was operating at 59 ton/hr during the testing. No problems were encountered during the testing.

SAMPLING AND ANALYTICAL PROCEDURES

STACK GAS ANALYSIS: Samples of the stack gas were taken from the exhaust stack through a refrigerated stack gas conditioner and analyzed for oxygen by a Teledyne 320AX electrochemical oxygen analyzer. The carbon dioxide was determined using an ACS (Fuji) NDIR analyzer. Readings were obtained continuously during each run and then averaged together.

STACK GAS VELOCITY & FLOW RATE: The stack gas velocity was determined by using an "S" type connected to a magnehelic gauge or an inclined manometer. The traverse utilized 24 sample points (6 points at each port). The stack consisted of four (4) sample ports and was 89" in diameter. A separate run was conducted to determine the moisture content of the stack gas.

The stack temperature was determined by 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 E.P.A. Method 32, equation 3-2. Stack velocities were calculated using E.P.A. Method 2, equation 2-9 and the gas volumetric flow rate was determined by equation 2-10.

PAH's EMISSIONS: The PAH's samples were collected in triplicate using a Lace Model 31 stack sampling system that conforms to CARB Method 429 requirements for PAH's sampling. The system consists of a glass nozzle, heated glass probe, heated glass filter, water cooled condenser, water cooled XAD sorbent cartridge and iced impingers (see CARB Method 429).

The samples were withdrawn from the stack isokinetically. The trains were sealed after sampling and the samples were retrieved in the laboratory. The samples were labeled, a chain of custody generated and sent out along with the travel blank to Calscience Environmental. The analytical results were reported in micrograms (µg) per sample and then converted into pounds per hour (lb/hr) using the sample volume collected through the train and the calculated stack gas flow rate. A travel blank was prepared and recovered in the field and submitted as a sample. The travel blank results were not subtracted from the other samples. A list of the results for each run and an average of all three runs is included in this report. A copy of the Calscience report has been included.

FORMALDEHYDE EMISSIONS: The formaldehyde (HCHO) samples were collected in triplicate using a teflon probe and two cooled screw top midget impingers and a calibrated sampling pump that conforms to CARB Method 430 requirements. The samples were withdrawn from the stack at a constant rate for 30 minutes. The impinger trains were rinsed and labeled in the field after sampling, placed on ice and returned to the lab. The samples were handled according to CARB Method 430, labeled, a chain of custody generated and sent out along with solution blanks to AtmAA Environmental Laboratory for analysis using HPLC. A travel blank was prepared and retrieved in the field. The analytical results were reported in micrograms (µg) per sample and then converted into parts per million and pounds per hour (lb/hr) by using the sample volume collected through the train and the calculated stack gas flow rate. A list of the results for each run and an average of all three runs is included in this report. A copy of the AtmAA report has been included.

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.

All calculations in lb/hr were done by using the flow rate of the exhaust stack gas. All values were calculated by using Ventura County APCD standard conditions of 70 °F and 29.92 in. Hg.

If you have any questions concerning this test or if we can be of further assistance, please feel free in calling any time at (805) 644-1095.

Respectfully submitted,

BTC Environmental, Inc.

Cam Donnahoo
Field Test Supervisor

Reviewed By:
Tom Porter:
Vice President - Air Test Division

cc: 2 - West Coast Environmental
Attn: John Hecht/Reese Martin

CALCULATIONS

Client: **P.W. Gillibrand**
Site: **Simi Valley**
Unit: **Sand Dryer**

Date: **11/8/91**
Type: ***T std = 70 F***
Run: **1**

FIELD DATA & CALCULATIONS SUMMARY

Vm	Metered Sample Gas Volume	**52.858**	**dcf**		
Lp	Avg. Leak Rate	0.000	cf		
Vn	Leak Corrected Sample Gas Volume	52.858	dcf		
Y	Dry Gas Meter Calibration Factor	**0.982**			
Pbar	Barometric Pressure	**28.35**	**in. Hg**		
Pg	Static Pressure	**-0.02**	**in. H20**		
Ps	Stack Pressure, Absolute	28.35	in. Hg		
Del. H	Dry Gas Meter Press. Differential, Average	**0.579**	**in. H20**		
Tm	Dry Gas Meter Temperature, Average	86.7	deg. F	**546.7**	**deg. R**
Vm(std)	Sample Gas Volume	**47.7501**	**dscf**		
Vm(wet)	Sample Gas Volume, Wet	51.2890	scf		
Vw(std)	Water Vapor Volume	0.0000	scf		
Bws	Water Content of Stack Gas	**0.069**		**6.9**	**%**
CO2	Carbon Dioxide, Dry	**2.2**	**%**		
O2	Oxygen, Dry	**18.7**	**%**		
N2	Nitrogen, Dry	79.2	%		
Md	Molecular Wt. of Stack Gas, Dry	**29.096**	**lb/lb mole**		
Ms	Molecular Wt. of Stack Gas, Wet	**28.331**	**lb/lb mole**		
Cp	Pitot Calibration Factor	**0.846**			
Del. P	Velocity Head, Average Square Root	**0.322**	**in. H20**		
Ts	Stack Gas Temperature, Average	**219.3**	deg. F	**679.3**	**deg. R**
As	Area of Stack	**43.20**	**sq ft**	89.0	in. dia.
Vs	Stack Gas Velocity	21.39	ft/sec		
Qa	Actual Flow Rate	55,453	cfm		
Qad	Actual Flow Rate, Dry	51,627	dcfm		
Q(std)	Stack Gas Flow Rate	**38,167**	**dscfm**		
An	Nozzle Area	**0.0004307**	**sq ft**	0.281	in. dia.
Theta	Sampling Time	**120**	**min.**		
I	Isokinetics	**99.2**	**%**		

Client: **P.W. Gillibrand**
Site: **Simi Valley**
Unit: **Sand Dryer**

Date: **11/8/91**
Type: ***T std = 70 F***
Run: **2**

FIELD DATA & CALCULATIONS SUMMARY

Vm	Metered Sample Gas Volume	**61.258**	**dcf**		
Lp	Avg. Leak Rate	0.000	cf		
Vn	Leak Corrected Sample Gas Volume	61.258	dcf		
Y	Dry Gas Meter Calibration Factor	**0.982**			
Pbar	Barometric Pressure	**28.41**	**in. Hg**		
Pg	Static Pressure	**-0.02**	**in. H20**		
Ps	Stack Pressure, Absolute	28.41	in. Hg		
Del. H	Dry Gas Meter Press. Differential, Average	**0.755**	**in. H20**		
Tm	Dry Gas Meter Temperature, Average	91.1	deg. F	**551.1**	**deg. R**
Vm(std)	Sample Gas Volume	**55.0379**	**dscf**		
Vm(wet)	Sample Gas Volume, Wet	59.1170	scf		
Vw(std)	Water Vapor Volume	0.0000	scf		
Bws	Water Content of Stack Gas	**0.069**		**6.9**	**%**
CO2	Carbon Dioxide, Dry	**2.2**	**%**		
O2	Oxygen, Dry	**18.7**	**%**		
N2	Nitrogen, Dry	79.2	%		
Md	Molecular Wt. of Stack Gas, Dry	**29.095**	**lb/lb mole**		
Ms	Molecular Wt. of Stack Gas, Wet	**28.329**	**lb/lb mole**		
Cp	Pitot Calibration Factor	**0.858**			
Del. P	Velocity Head, Average Square Root	**0.296**	**in. H20**		
Ts	Stack Gas Temperature, Average	**219.0**	deg. F	**679.0**	**deg. R**
As	Area of Stack	**43.20**	**sq ft**	89.0	in. dia.
Vs	Stack Gas Velocity	19.92	ft/sec		
Qa	Actual Flow Rate	51,631	cfm		
Qad	Actual Flow Rate, Dry	48,068	dcfm		
Q(std)	Stack Gas Flow Rate	**35,627**	**dscfm**		
An	Nozzle Area	**0.0004909**	**sq ft**	0.300	in. dia.
Theta	Sampling Time	**120**	**min.**		
I	Isokinetics	**107.4**	**%**		

Client: **P.W. Gillibrand**
Site: **Simi Valley**
Unit: **Sand Dryer**

Date: **11/8/91**
Type: ***T std = 70 F***
Run: **3**

FIELD DATA & CALCULATIONS SUMMARY

Vm	Metered Sample Gas Volume	**59.095**	**dcf**		
Lp	Avg. Leak Rate	0.000	cf		
Vn	Leak Corrected Sample Gas Volume	59.095	dcf		
Y	Dry Gas Meter Calibration Factor	**0.982**			
Pbar	Barometric Pressure	**28.41**	**in. Hg**		
Pg	Static Pressure	**-0.02**	**in. H20**		
Ps	Stack Pressure, Absolute	28.41	in. Hg		
Del. H	Dry Gas Meter Press. Differential, Average	**0.727**	**in. H20**		
Tm	Dry Gas Meter Temperature, Average	89.9	deg. F	**549.9**	**deg. R**
Vm(std)	Sample Gas Volume	**53.2034**	**dscf**		
Vm(wet)	Sample Gas Volume, Wet	57.1465	scf		
Vw(std)	Water Vapor Volume	0.0000	scf		
Bws	Water Content of Stack Gas	**0.069**		**6.9**	**%**
CO2	Carbon Dioxide, Dry	**2.2**	**%**		
O2	Oxygen, Dry	**18.7**	**%**		
N2	Nitrogen, Dry	79.2	%		
Md	Molecular Wt. of Stack Gas, Dry	**29.095**	**lb/lb mole**		
Ms	Molecular Wt. of Stack Gas, Wet	**28.330**	**lb/lb mole**		
Cp	Pitot Calibration Factor	**0.874**			
Del. P	Velocity Head, Average Square Root	**0.285**	**in. H20**		
Ts	Stack Gas Temperature, Average	**214.3**	deg. F	**674.3**	**deg. R**
As	Area of Stack	**43.20**	**sq ft**	89.0	in. dia.
Vs	Stack Gas Velocity	19.49	ft/sec		
Qa	Actual Flow Rate	50,509	cfm		
Qad	Actual Flow Rate, Dry	47,024	dcfm		
Q(std)	Stack Gas Flow Rate	**35,094**	**dscfm**		
An	Nozzle Area	**0.0004909**	**sq ft**	0.300	in. dia.
Theta	Sampling Time	**120**	**min.**		
I	Isokinetics	**105.4**	**%**		

FIELD DATA & CALCULATIONS SUMMARY

Client: **Gillibrand**
Site: **Simi Valley**
Unit: **Sand Dryer**

Date: **11/8/91**
Type: ***T std = 70 F***
Run: **1-Method 4**

Wlc	Water Condensate Weight	21.3	g		
Vlc	Water Condensate Volume	**21.3**	**ml**		
Vm	Metered Sample Gas Volume	**14.781**	**dcf**		
Lp	Avg. Leak Rate	0.000	cf		
Vn	Leak Corrected Sample Gas Volume	14.781	dcf		
Y	Dry Gas Meter Calibration Factor	**0.982**			
Pbar	Barometric Pressure	**28.33**	**in. Hg**		
Δ H	Dry Gas Meter Press. Differential, Average	**1.000**	**in. H20**		
Tm	Dry Gas Meter Temperature, Average	72.7	deg. F	**532.7**	**deg. R**
Vm(std)	Sample Gas Volume	**13.7085**	**dscf**		
Vm(wet)	Sample Gas Volume, Wet	14.7183	scf		
Vw(std)	Water Vapor Volume	1.0099	scf		
Bws	Water Content of Stack Gas	0.069		**6.9**	**%**
Theta	Sampling Time	**30**	**min.**		

BTC Environmental, Inc. - 1989

POLYCYCLIC AROMATIC HYDROCARBONS (PAH) ANALYSIS

CARB 429

Client : P.W. Gillibrand
Site : Simi Valley
Unit : Sand Dryer

T std: 70 °F

Date : 11/8/91
Job #: 7002
Lab #: 291-178

Run #	Sample Volume	Stack Flow Rate
1	Vm std: **47.7501** dscf	Q std: **38.167** dscfm

Compound Name	Lab Results µg	lb/hr
Acenaphthene	< 2.0	**< 0.000211**
Acenaphthylene	< 2.0	**< 0.000211**
Anthracene	< 2.0	**< 0.000211**
Benzo(a)anthracene	< 2.0	**< 0.000211**
Benzo(a)pyrene	< 10.0	**< 0.001057**
Benzo(b)fluoranthene	< 10.0	**< 0.001057**
Benzo(g,h,i)perylene	< 10.0	**< 0.001057**
Benzo(k)fluoranthene	< 10.0	**< 0.001057**
Chrysene	< 2.0	**< 0.000211**
Dibenzo(a,h)anthracene	< 10.0	**< 0.001057**
Fluoranthene	4.62	**0.000488**
Fluorene	< 2.0	**< 0.000211**
Indeno(1,2,3-cd)pyrene	< 10.0	**< 0.001057**
Naphthalene	28.3	**0.002992**
Phenanthrene	11.6	**0.001226**
Pyrene	< 2.0	**< 0.000211**

Equations:
lb/hr = [µg] * (60/(10^6*453.6)) * (Q std, stack) / Vm std

POLYCYCLIC AROMATIC HYDROCARBONS (PAH) ANALYSIS

CARB 429

Client : P.W. Gillibrand
Site : Simi Valley
Unit : Sand Dryer

T std: 70 °F

Date : 11/8/91
Job #: 7002
Lab #: 291-178

Run #	Sample Volume	Stack Flow Rate
2	Vm std: **55.0379** dscf	Q std: **35.627** dscfm

Compound Name	Lab Results µg	lb/hr
Acenaphthene	< 2.0	**< 0.000211**
Acenaphthylene	< 2.0	**< 0.000211**
Anthracene	< 2.0	**< 0.000211**
Benzo(a)anthracene	< 2.0	**< 0.000211**
Benzo(a)pyrene	< 10.0	**< 0.001057**
Benzo(b)fluoranthene	< 10.0	**< 0.001057**
Benzo(g,h,i)perylene	< 10.0	**< 0.001057**
Benzo(k)fluoranthene	< 10.0	**< 0.001057**
Chrysene	< 2.0	**< 0.000211**
Dibenzo(a,h)anthracene	< 10.0	**< 0.001057**
Fluoranthene	4.48	**0.000474**
Fluorene	< 2.0	**< 0.000211**
Indeno(1,2,3-cd)pyrene	< 10.0	**< 0.001057**
Naphthalene	48.3	**0.005107**
Phenanthrene	12.4	**0.001314**
Pyrene	< 2.0	**< 0.000211**

Equations:
lb/hr = [µg] * (60/(10^6*453.6)) * (Q std, stack) / Vm std

POLYCYCLIC AROMATIC HYDROCARBONS (PAH) ANALYSIS

CARB 429

Client : P.W. Gillibrand
Site : Simi Valley
Unit : Sand Dryer

T std: 70 °F

Date : 11/8/91
Job #: 7002
Lab #: 291-178

Run #	Sample Volume	Stack Flow Rate
3	Vm std: **53.2034** dscf	Q std: **35,094** dscfm

Compound Name	Lab Results µg	lb/hr
Acenaphthene	< 2.0	**< 0.000211**
Acenaphthylene	< 2.0	**< 0.000211**
Anthracene	< 2.0	**< 0.000211**
Benzo(a)anthracene	< 2.0	**< 0.000211**
Benzo(a)pyrene	< 10.0	**< 0.001057**
Benzo(b)fluoranthene	< 10.0	**< 0.001057**
Benzo(g,h,i)perylene	< 10.0	**< 0.001057**
Benzo(k)fluoranthene	< 10.0	**< 0.001057**
Chrysene	< 2.0	**< 0.000211**
Dibenzo(a,h)anthracene	< 10.0	**< 0.001057**
Fluoranthene	< 2.0	**< 0.000211**
Fluorene	< 2.0	**< 0.000211**
Indeno(1,2,3-cd)pyrene	< 10.0	**< 0.001057**
Naphthalene	22.1	**0.002337**
Phenanthrene	< 2.0	**< 0.000211**
Pyrene	< 2.0	**< 0.000211**

Equations:
lb/hr = [µg] * (60/(10^6*453.6)) * (Q std, stack) / Vm std

FORMALDYHDE

Client : Gillibrand
Site : Simi Valley
Unit : Sand Dryer

P bar: 28.39 in. Hg
T std: 70 °F
Pump #: Speedair

Date : 11/8/91
Job #: 7002
Lab #: 291-178

RUN ID	Q ml/min Avg.	Time min	V ml	Tm °F	Vstd dscm	Wd µg less blank	Cf µg/dscm	Cs ppmv
1	504	30	15,120	76	1.42E-02	19.29	1359.77	**1.09**
2	504	30	15,120	80	1.41E-02	1.05	74.57	**0.06**
3	504	30	15,120	82.5	1.40E-02	58.28	4158.03	**3.34**
							Average	**1.50**

ppm	Dscfm	lb/hr
1.09	38,167	0.195
0.06	35,627	0.010
3.34	35,094	0.549
	Average	**0.251**

Equations:
V = Q pump, ml/min * Time, min
Vstd = V * (Tstd/Tm) * (Pbar/Pstd)
Cf = Wd/ Vstd
Cs = Cf * 0.08205*(Tstd,°K) / 30 , 30 = MW of HCHO
lb/hr= ppm * MW * Dscfm * 0.0000001 * 1.885

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.

LABORATORY ANALYSIS

Calscience Environmental Laboratories, Inc.

ANALYTICAL REPORT

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

Date Sampled: 11/08/91
Date Received 11/11/91
Date Extracted: 11/13-14/91
Date Analyzed: 11/23-27/91
CEL Batch No.: 91-11-088
Page 1 of 3

Attn: Tom Porter
RE: Gillibrand/291-178

Method: CARB 429 by GC/MS

All analyte quantities are reported in ug/sample.

Sample Number: Run #1

Analyte	Concentration	Det'n Limit
Naphthalene	28.3	2
Acenaphthylene	ND	2
Acenaphthene	ND	2
Fluorene	ND	2
Phenanthrene	11.6	2
Anthracene	ND	2
Fluoranthene	4.62	2
Pyrene	ND	2
Benzo(a) Anthracene	ND	2
Chrysene	ND	2
Benzo(b) Fluoranthene	ND	2
Benzo(k) Fluoranthene	ND	10
Benzo(a) Pyrene	ND	10
Indeno(1,2,3-cd) Pyrene	ND	10
Dibenzo(a,h) Anthracene	ND	10
Benzo(g,h,i) Perylene	ND	10

Sample Number: Run #2

Naphthalene	48.3	2
Acenaphthylene	ND	2
Acenaphthene	ND	2
Fluorene	ND	2
Phenanthrene	12.4	2
Anthracene	ND	2
Fluoranthene	4.48	2
Pyrene	ND	2
Benzo(a) Anthracene	ND	2
Chrysene	ND	2
Benzo(b) Fluoranthene	ND	10
Benzo(k) Fluoranthene	ND	10
Benzo(a) Pyrene	ND	10
Indeno(1,2,3-cd) Pyrene	ND	10
Dibenzo(a,h) Anthracene	ND	10
Benzo(g,h,i) Perylene	ND	10

11631 Seaboard Circle, Stanton, CA 90680 • TEL: (714) 895-5494 • FAX: (714) 894-7501

Calscience Environmental Laboratories, Inc.

ANALYTICAL REPORT

BTC Environmental, Inc.	Date Sampled: 11/08/91
1536 Eastman Avenue	Date Received 11/11/91
Ventura, CA 93003	Date Extracted: 11/13-14/91
	Date Analyzed: 11/23-27/91
	CEL Batch No.: 91-11-088
	Page 2 of 3
Attn: Tom Porter	
RE: Gillibrand/291-178	Method: CARB 429 by GC/MS

All analyte quantities are reported in ug/sample.

Sample Number: Run #3

Analyte	Concentration	Det'n Limit
Naphthalene	22.1	2
Acenaphthylene	ND	2
Acenaphthene	ND	2
Fluorene	ND	2
Phenanthrene	ND	2
Anthracene	ND	2
Fluoranthene	ND	2
Pyrene	ND	2
Benzo(a) Anthracene	ND	2
Chrysene	ND	2
Benzo(b) Fluoranthene	ND	10
Benzo(k) Fluoranthene	ND	10
Benzo(a) Pyrene	ND	10
Indeno(1,2,3-cd) Pyrene	ND	10
Dibenzo(a,h) Anthracene	ND	10
Benzo(g,h,i) Perylene	ND	10

11631 Seaboard Circle, Stanton, CA 90680 • TEL: (714) 895-5494 • FAX: (714) 894-7501

Calscience Environmental Laboratories, Inc.

ANALYTICAL REPORT

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

Date Sampled: 11/08/91
Date Received 11/11/91
Date Extracted: 11/13-14/91
Date Analyzed: 11/23-27/91
CEL Batch No.: 91-11-088

Attn: Tom Porter
RE: Gillibrand/291-178

Method: CARB 429 by GC/MS

All analyte quantities are reported in ug/sample.

Sample Number: Travel Blank

Analyte	Concentration	Det'n Limit
Naphthalene	44.9	2
Acenaphthylene	ND	2
Acenaphthene	ND	2
Fluorene	ND	2
Phenanthrene	ND	2
Anthracene	ND	2
Fluoranthene	ND	2
Pyrene	ND	2
Benzo(a) Anthracene	ND	2
Chrysene	ND	2
Benzo(b) Fluoranthene	ND	10
Benzo(k) Fluoranthene	ND	10
Benzo(a) Pyrene	ND	10
Indeno(1,2,3-cd) Pyrene	ND	10
Dibenzo(a,h) Anthracene	ND	10
Benzo(g,h,i) Perylene	ND	10

Reviewed and Approved William H Christensen on 12/18/1991.
William H. Christensen
Laboratory Operations
Manager

ND denotes not detected at indicated detection limit.

Each sample was received by CEL, intact and with chain-of-custody attached.

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AtmAA Inc.
21354 Nordhoff St., Suite 113, Chatsworth, CA 91311 (818) 718-6070 • FAX (818) 718-9779
environmental consultants
laboratory services

November 18, 1991

LTR/497/91
3900

Tom Porter
BTC Environmental
1536 Eastman Ave.
Ventura, CA 93003

re: 291-178

Dear Tom:

Please find enclosed the laboratory analysis report four DNPH impinger samples received on Novemebr 11, 1991.

The samples were analyzed for formaldehyde by high performance liquid chromatography (HPLC).

Sincerely,

AtmAA, Inc.

Dr. Kochy Fung
Air Programs Director

KF/kp
Encl.

AtmAA Inc.
21354 Nordhoff St., Suite 113, Chatsworth, CA 91311 (818) 718-6070 • FAX (818) 718-9779
environmental consultants
laboratory services

LABORATORY ANALYSIS REPORT

DNPH impinger solutions were analyzed for formaldehyde (HCHO) by high performance liquid chromatography (HPLC).

Report Date : November 18, 1991
Date Received : November 11, 1991
Date Analyzed : November 11, 1991
P.O. No. : Verbal
Client Proj. # : 291-178

AtmAA ID No.	Sample ID	Formaldehyde ug/vial	Vol,ml
93161-31	Form Run #1	21.22	24.5
93161-32	Form Run #2	2.96	24.2
93161-33	Form Run #3	60.17	24.0
93161-34	Form Run Travel Blk.	1.91	24.2
93161-31	Form Run #1 (repeat)	21.20	24.5
	Det. Limit	0.26	24.3

Dr. Kochy Fung
Air Programs Director

Run Set Up Sheet

Client : Gillibrand
Site : Simi Valley
Unit: Sand Dryer

Date : 11/8/91
Job #: 7002
Lab #: 291-178

Method#:	4	Probe#:	-	Pryo#:	-
Run#:	1	Stack box#:	A	Nozzle#:	-
Hot box#:	-	Cold box#:	4	Pitot#:	-

Imp. #1:	gross	621.4
	tare	611.2
	final	10.2
Imp. #2:	gross	589.9
	tare	585.7
	final	4.2
Imp. #3:	gross	488.6
	tare	486.2
	final	2.4
Imp. #4:	gross	623.5
	tare	619.0
	final	4.5

Total 21.3

Probe blank _____ ml
Probe rinse _____ ml

Solution blank _____
Solution blank _____

Filter No: _____
Filter Tare wt. _____

	#	date
Solution Container		
Solution Container		

Sample Vol: start _____ ml
Imp# 1 finsh _____ ml
Amount Gained: _____ ml

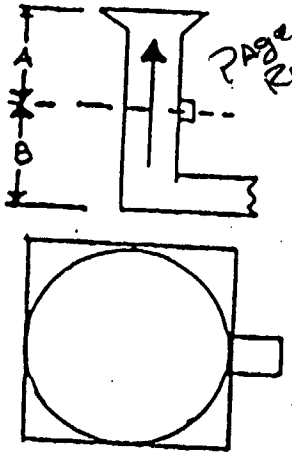
Sample Vol: start _____ ml
Imp #2 finsh _____ ml
Amount Gained: _____ ml

Total Vol #1 #2 & Rinse _____ ml

Comments: _____

FIELD DATA

PLANT: PW
LOCATION:
COUNTY:
UNIT:
DATE: 11/8/91
RUN NO./METHOD: 1 / PAH
COLD BOX NO.: 11
METER BOX NO.:
METER FACTOR:
PITOT #/ FACTOR:
PYROMETER #:
MAGNEHELIC FACTOR: ΔP ΔH



FILTER NO.
AMBIENT TEMP.:
BARAMETRIC PRESS.,IN.HG.:
ASSUMED MOISTURE:
HEATER BOX SETTING:
PROBE LENGTH,FT.
NOZZLE DIAMETER,IN.:
PROBE HEATER SETTING:
APPROX.WIND VEL.,MPH:
SAMPLE BOX TEMP.,(F):
STATIC PREASURE: "H2O
OFFSET: In. PORT DIA.: In. (M / F)

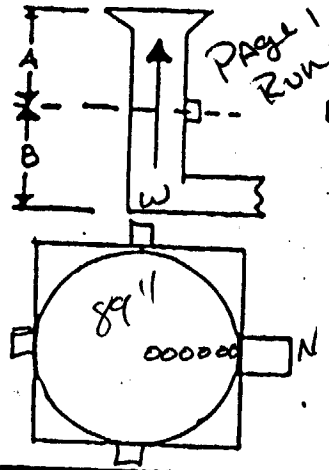
TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM), FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
1		18.1	2.4	0	223	0,02		0,09	354,195	86	86		
2		18.1	2.3	5	224	0,04		0,19	355,2	89	89	1	
3		18.0	2.4	10	226	0,09		0,52	357,1	90	90	3	
4 N		18.1	2.2	15	226	0.18		0.85	359.5	90	90.	4	
5		18.5	2.4	20	227	0,26		1,22	363,0	91	90		
6		18.3	2.0	25	219	0,35		1,67	366.6	91	91		
1		18.2	2.5	30 10	224	<0.02		0,09	370.281	91	91		
2		18.5	2.3	35 5	225	<0.02		0,69	372.3	92	91		
3		18.6	2.2	40 10	225	0,1		0.47	373.6	92	92		
4 &		18.6	2.0	45 15	225	0,13		0,62	375.6	92	92		
5		18.4	1.9	50 20	222	0,21		0,99	378.9	92	92		
6				55 25	224	0.24		1,44	381.7	92	92		
	ZERO	0.0	-0.1	60 30					384.635				
	SPAN	0.5	0.5										
AVERAGE		18.7	2.2	120	219,3		0,322	0,579	52,858	86,7			

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

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

COMMENTS: PURGE

PLANT: PW Gilbrand
LOCATION: Simi Val
COUNTY: Ventura
UNIT: Sand Dryer
DATE: 11/8/91
RUN NO./METHOD: 1
COLD BOX NO.: 11
METER BOX NO.: A
METER FACTOR: 0.9819
PITOT #/ FACTOR: #1 0.846
PYROMETER #: T2
MAGNEHELIC FACTOR: ΔP M-1 1.000 ΔH M-2 0.981



Page 1 Run 1

FILTER NO.
AMBIENT TEMP.: 76
BAROMETRIC PRESS.,IN.HG.: 28.35
ASSUMED MOISTURE: 10
HEATER BOX SETTING: ORC
PROBE LENGTH,FT. 5
NOZZLE DIAMETER,IN.: 0.259
PROBE HEATER SETTING: on
APPROX.WIND VEL.,MPH: Calm
SAMPLE BOX TEMP.,(F): 210
STATIC PREASURE: -.02 "H2O
OFFSET: 13 In. PORT DIA.: 8 In. (M / ⓔ)

TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%) 14.39	CO2 (%) 4.07	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	Σ VELOCITY HEAD IN. H2O ΔP	√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 S	2.0	18.4	3	0	158	0.02		0.1	331.777	75	75	1	
2 S	6.0	18.2	2	5	195	0.05		0.23	332.9	76	76	1	
3 S	10.5	18.1	1.9	10	217	0.02		0.09	334.1	80	77		
4 S	15.75	18.1	1.9	15	228	0.03		0.13	335.1	80	78.		
5 S	22.25	18.5	1.8	20	230	0.09		0.41	336.4	81	81		
6 S	31.5	18.6	1.7	25	224	0.06		0.27	338.3	83	82		
1 W		18.5	2.1	30/0	199	0.06		0.29	339.468	86	82		
2 W		18.6	2.0	35 5	222	0.08		0.37	341.0	87	86		
3 W		18.4	2.1	1040 DNZLE	222	0.15		0.71	343.4	87	86		
4 W		18.3	2.1	45 15	222	0.21		0.99	345	87	86		
5 W		18.2	2.1	5020	225	0.24		1.13	347.8	88	87	4	
6 W				55 25	225	0.26		1.23	351.3	88	88	5	
	ZERO			60 30					354.795				
	SPAN												
AVERAGE													

PITOT LEAK CHECK:
BEFORE: TOP ΔP= 1.9 ΔP= 1.9 BOTTOM ΔP= 2.7 ΔP= 2.7
AFTER: TOP ΔP= 2.9 ΔP= 2.5 BOTTOM ΔP= 2.5 ΔP= 2.5

SAMPLE TRAIN LEAK:
BEFORE= 0.000 CFM@ 14 IN. HG.
AFTER= 0.000 CFM@ 5 IN. HG.

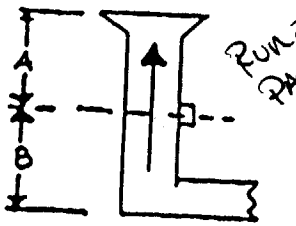
COMMENTS: PURGE F=4.86

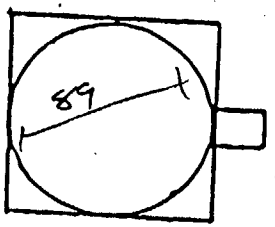
Mid 14 29.06
Mid 5 3 6.77
P 28.35

Fuel Rate 2gl/m

3.3.4

PLANT: Pac Gilroy
LOCATION: Simi Valley
COUNTY: Ventura
UNIT: Sandblaster
DATE: 11/8/96
RUN NO./METHOD: 2/PAR 5
COLD BOX NO.: 5
METER BOX NO.: A
METER FACTOR: 0.9819
PITOT #/ FACTOR: #2 .0858
PYROMETER #: #3
MAGNEHELIC FACTOR: ΔP m-1 1.000 ΔH m-2 0.981





FILTER NO. —
AMBIENT TEMP.: 89
BAROMETRIC PRESS.,IN.HG.: 28.41
ASSUMED MOISTURE: 20%
HEATER BOX SETTING: on
PROBE LENGTH,FT. 5
NOZZLE DIAMETER,IN.: .369
PROBE HEATER SETTING: on
APPROX.WIND VEL.,MPH: Calm
SAMPLE BOX TEMP.,(F): -
STATIC PREASURE: -.02 "H2O
OFFSET: 13 In. PORT DIA.: 8 In. (M / F)

TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN. 12:20	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)
57													
1	2.0			0	220	<0.02		35.15	384.989	90	90		
2	6.0			5	221	<0.02		.15	385.9	91	91		
3	10.5			10	222	0.09		.68	386.9	92	91		
4	17.75			15	224	0.11		.83	388.7	92	91		
5	22.5			20	224	0.2		1.51	392.8	92	91		
6	31.5			25	223	0.19		1.44	395.7	92	91	5	
1				30/0	222	0.09		.68	399.165	91	91		
2				5	224	0.11		0.83	402.1	90	90		
3				10	225	0.07		0.53	405.0	91	90		
4				15	225	0.12		0.90	407.5	91	91		
5				20	226	0.14		1.05	410.9	91	91		
6				25	214	0.10		0.77	413.1	91	91		
	ZERO			30									
	SPAN												
AVERAGE									415.714				

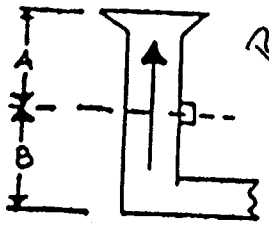
PITOT LEAK CHECK:
BEFORE: TOP ΔP= 3.1 ΔP= 3.1 BOTTOM ΔP= 2.8 ΔP= 2.8
AFTER: TOP ΔP= 2.2 ΔP= 2.2 BOTTOM ΔP= 2.5 ΔP= 2.5

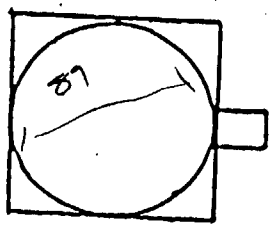
SAMPLE TRAIN LEAK:
BEFORE= 0.004 CFM@ 10 IN. HG.
AFTER= 0.009 CFM@ 15 IN. HG.

COMMENTS: PURGE

Table 202.9

PLANT:
LOCATION:
COUNTY:
UNIT:
DATE: 11/8/91
RUN NO./METHOD: 2/PAH5
COLD BOX NO.: 7
METER BOX NO.:
METER FACTOR:
PITOT #/ FACTOR:
PYROMETER #:
MAGNEHELIC FACTOR: ΔP ΔH





Run 2 Page 2

FILTER NO.
AMBIENT TEMP.:
BARAMETRIC PRESS.,IN.HG.:
ASSUMED MOISTURE:
HEATER BOX SETTING:
PROBE LENGTH,FT.
NOZZLE DIAMETER,IN.: .309
PROBE HEATER SETTING:
APPROX.WIND VEL.,MPH:
SAMPLE BOX TEMP.,(F):
STATIC PREASURE: "H2O
OFFSET: In. PORT DIA.: In. (M / F)

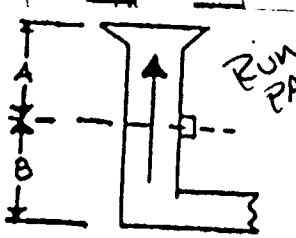
TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM),FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
1				0	225	.08	~~.060~~	0.6	415.714	91	91		
2				5	224	.12		.90	418.3	91	91		
3				10	226	.21		0.75	421.3	91	91		
4				15	220	0.06		0.46	423.5	91	91		
5				20	221	0.02		~~.12~~ 0.16	425.1	91	91		
6				25	221	<0.02		.15	427.3	91	90		
1				30/0	222	<0.02		.15	429.063	90	91		
2				5	213	<0.02		.15	431.8	90	91		
3				10	217	0.09		0.68	432.7	92	91		
4				15	220	0.13		0.99	439.1	92	92		
5				20	211	0.24		1.85	438.4	92	92		
6				25	163	0.21		1.75	442.7	92	92	10	
	ZERO			30					446.167				
	SPAN												
AVERAGE		18.7	2.2	120	2190		0.296	0.755	4.258	91.1			

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

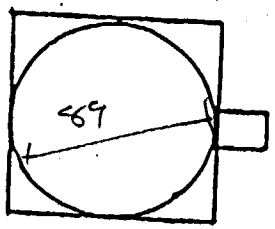
SAMPLE TRAIN LEAK:
BEFORE= CFM@ IN. HG.
AFTER= CFM@ IN. HG.

COMMENTS: PURGE

PLANT: PW Gilbreth
LOCATION: Simi Val
COUNTY: Ventura
UNIT: Sand Dryer
DATE: 11/8/91
RUN NO./METHOD: 3/PAH's
COLD BOX NO.: 6
METER BOX NO.: A
METER FACTOR: 0.9819
PITOT #/ FACTOR: ~~0.~~ 0.874
PYROMETER #: T7
MAGNEHELIC FACTOR: ΔP M-1 1.000 ΔH M-2 0.981



Run 3 Page 1



FILTER NO.
AMBIENT TEMP.: 84
BARAMETRIC PRESS.,IN.HG.: 28.41
ASSUMED MOISTURE: 20%
HEATER BOX SETTING: on
PROBE LENGTH,FT.: 5
NOZZLE DIAMETER,IN.: .380
PROBE HEATER SETTING: on
APPROX.WIND VEL.,MPH: Calm
SAMPLE BOX TEMP.,(F): 210
STATIC PREASURE: -.02 "H2O
OFFSET: 13 In. PORT DIA.: 8 In. (M / F)

TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	√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				0	219	<0.02		0.15	446.312	91	91		
2				5	190	<0.02		0.16	448.2	92	92		
3				16	202	0.09		.70	449.9	91	91		
4				15	206	0.13		1.02	452.6	92	92		
5				20	204	0.24		1.87	455.7	92	91	6	
6				25	155	0.20		1.58	459.4	91	91		
1				30/0	166	<0.02		016	463.300	91	91		
2				5	211	<0.02		.16	464.5	91	91		
3				10	217	0.07		.53	466.1	90	90		
4				15	224	0.15		1.13	469.7	90	90	5	
5				20	226	0.19		1.43	472.0	90	90		
6				25	226	0.21		1.58	475.6	90	90	8	
	ZERO			30									
	SPAN												
AVERAGE									479.329				

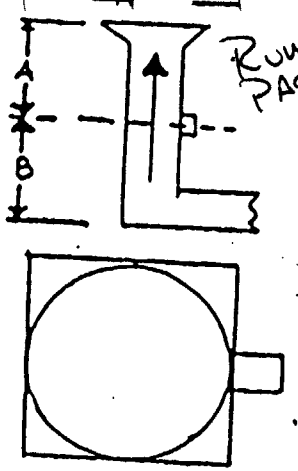
PITOT LEAK CHECK:
BEFORE: TOP ΔP= 2.9 ΔP= 2.9 BOTTOM ΔP= 3.0 ΔP= 3.0
AFTER: TOP ΔP= 1.4 ΔP= 1.4 BOTTOM ΔP= 2.0 ΔP= 2.6

SAMPLE TRAIN LEAK:
BEFORE= 0.000 CFM@ 12 IN. HG.
AFTER= 0.004 CFM@ 13 IN. HG.

COMMENTS: PURGE

T 2075

PLANT:
LOCATION:
COUNTY:
UNIT:
DATE:
RUN NO./METHOD: 3/PAHs
COLD BOX NO.:
METER BOX NO.:
METER FACTOR:
PITOT #/ FACTOR:
PYROMETER #:
MAGNEHELIC FACTOR: ΔP ΔH



Run 3 Page 2

FILTER NO.
AMBIENT TEMP.:
BAROMETRIC PRESS.,IN.HG.:
ASSUMED MOISTURE:
HEATER BOX SETTING:
PROBE LENGTH,FT.
NOZZLE DIAMETER,IN.: .325
PROBE HEATER SETTING:
APPROX.WIND VEL.,MPH:
SAMPLE BOX TEMP.,(F):
STATIC PREASURE: "H2O
OFFSET: In. PORT DIA.: In. (M / F)

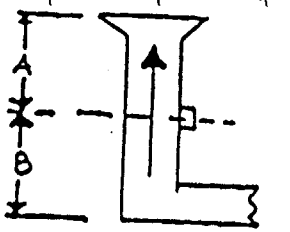
TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM),FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
1				0	221	0.03		.30	479.329	90	90		
2				5	223	0.07		.53	481.3	90	90		
3				10	224	0.1		0.75	483.7	89	89		
4				15	225	0.14		1.06	485.8	90	98.	8	
5				20	226	0.18		1.35	489.0	90	90	10	
6				25	222	0.16		1.21	491.8	89	89		
1				30 0	224	0.03		0.22	494.621	89	89		
2				5	221	0.04		0.30	496.2	88	88		
3				10	221	0.07		0.55	497.7	85	85		
4				15	223	0.05		0.37	500.0	88	88		
5				20	217	0.02		0.13	501.5	88	88		
6				25	216	0.03		0.21	503.8	88	88		
	ZERO			30					505.407				
	SPAN												
AVERAGE		18.7	2.2	120	219.3		0.285	0.727	59.095	89.9			

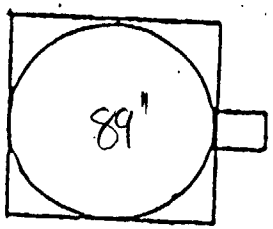
PITOT LEAK CHECK:
BEFORE: TOP ΔP= ΔP= BOTTOM ΔP= ΔP=
AFTER: TOP ΔP= ΔP= BOTTOM ΔP= ΔP=

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

COMMENTS: PURGE

PLANT: P.W. G.H. Brand
LOCATION: Simi Valley
COUNTY: Ventura
UNIT: Sand Dryer
DATE: 11/8/91
RUN NO./METHOD: 1-4 Modified
COLD BOX NO.: 4
METER BOX NO.: A
METER FACTOR: 0.9819
PITOT #/ FACTOR: —
PYROMETER #: —
MAGNEHELIC FACTOR: ΔP .1 ΔH .42





FILTER NO.
AMBIENT TEMP.: 76
BAROMETRIC PRESS.,IN.HG.: 28.33
ASSUMED MOISTURE: —
HEATER BOX SETTING: —
PROBE LENGTH,FT. —
NOZZLE DIAMETER,IN.: —
PROBE HEATER SETTING: —
APPROX.WIND VEL.,MPH: —
SAMPLE BOX TEMP.,(F): —
STATIC PREASURE: — "H2O
OFFSET: ____ In. PORT DIA.: ____ 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)
Center				8:00				1.0	315.628	70	70		
				10				1.0	320.215	72	72		
				20				1.0	325.204	76	76		
				30					330.409				
	ZERO												
	SPAN												
AVERAGE				30				1.0	14.781	72.3			

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 ____

FORMALDEHYDE/ACETALDEHYDE FIELD SHEET
CARB METHOD 430

Client : Gilbrand
Site : Simi Valley
Sample ID : Sand Dryer

Date : 11/8/91
Job# : 7002
Lab# : 291-178

SKC PUMP ID Number: Speedair Run Number: 1

	Start	Stop		Averages	
Sampling Time:	10:10	10:40	min.	30	Tot Min
Barometric press, (Pb):	28.36	28.36	in. Hg	28.36	in. Hg
Temperature, (Tm):	75	77	F	76	F

SKC PUMP ID Number: Speedair Run Number: 2

	Start	Stop		Averages	
Sampling Time:	12:20	12:50	min.	30	Tot Min
Barometric press, (Pb):	28.41	28.41	in. Hg	28.41	in. Hg
Temperature, (Tm):	79	81	F	80	F

SKC PUMP ID Number: Speedair Run Number: 3

	Start	Stop		Averages	
Sampling Time:	3:00	3:30	min.	30	Tot Min
Barometric press, (Pb):	28.41	28.41	in. Hg	28.41	in. Hg
Temperature, (Tm):	82	83	F	82.5	F

INSTRUMENT INFORMATION

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

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

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

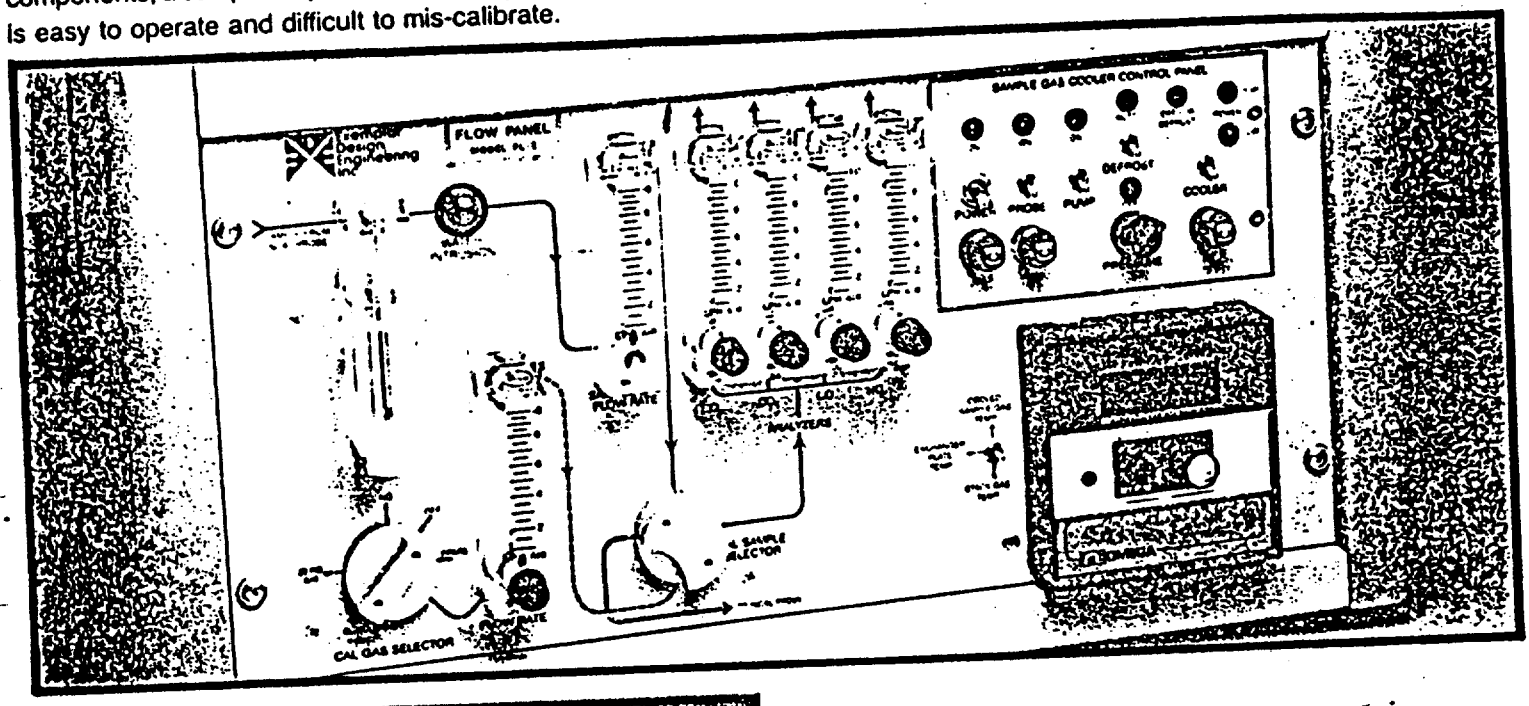
Unit No. - 4

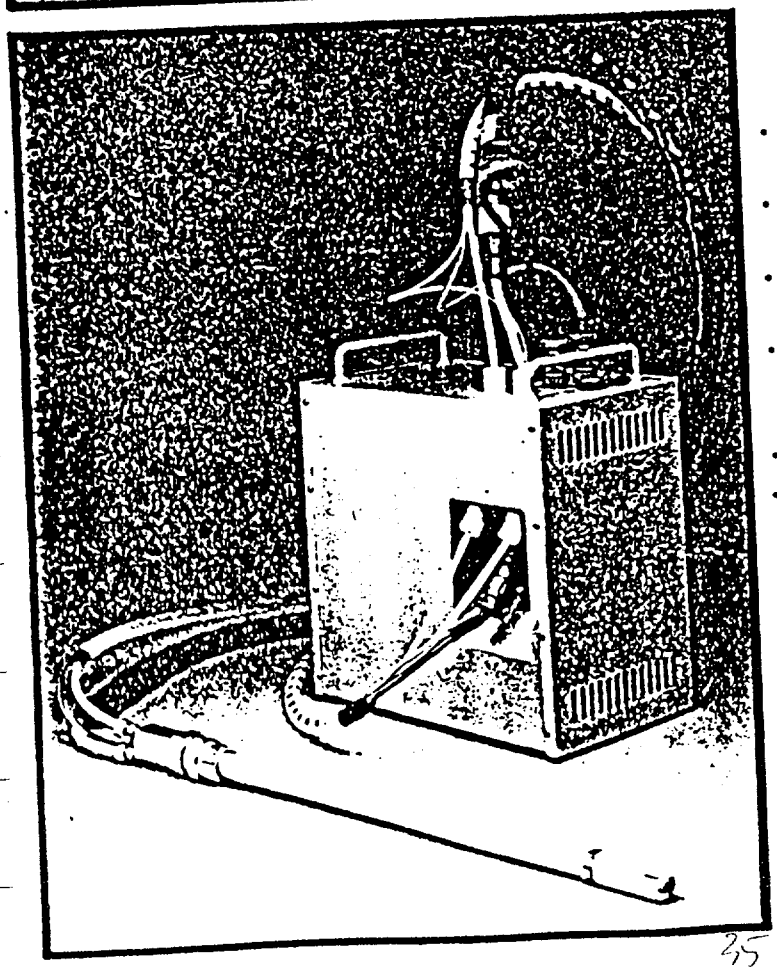
Manufacturer:	ACS (Fuji)
Model No.:	3300
Serial No.:	N9C5479T
Method:	NDIR
Range (%):	0-5 & 20

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.

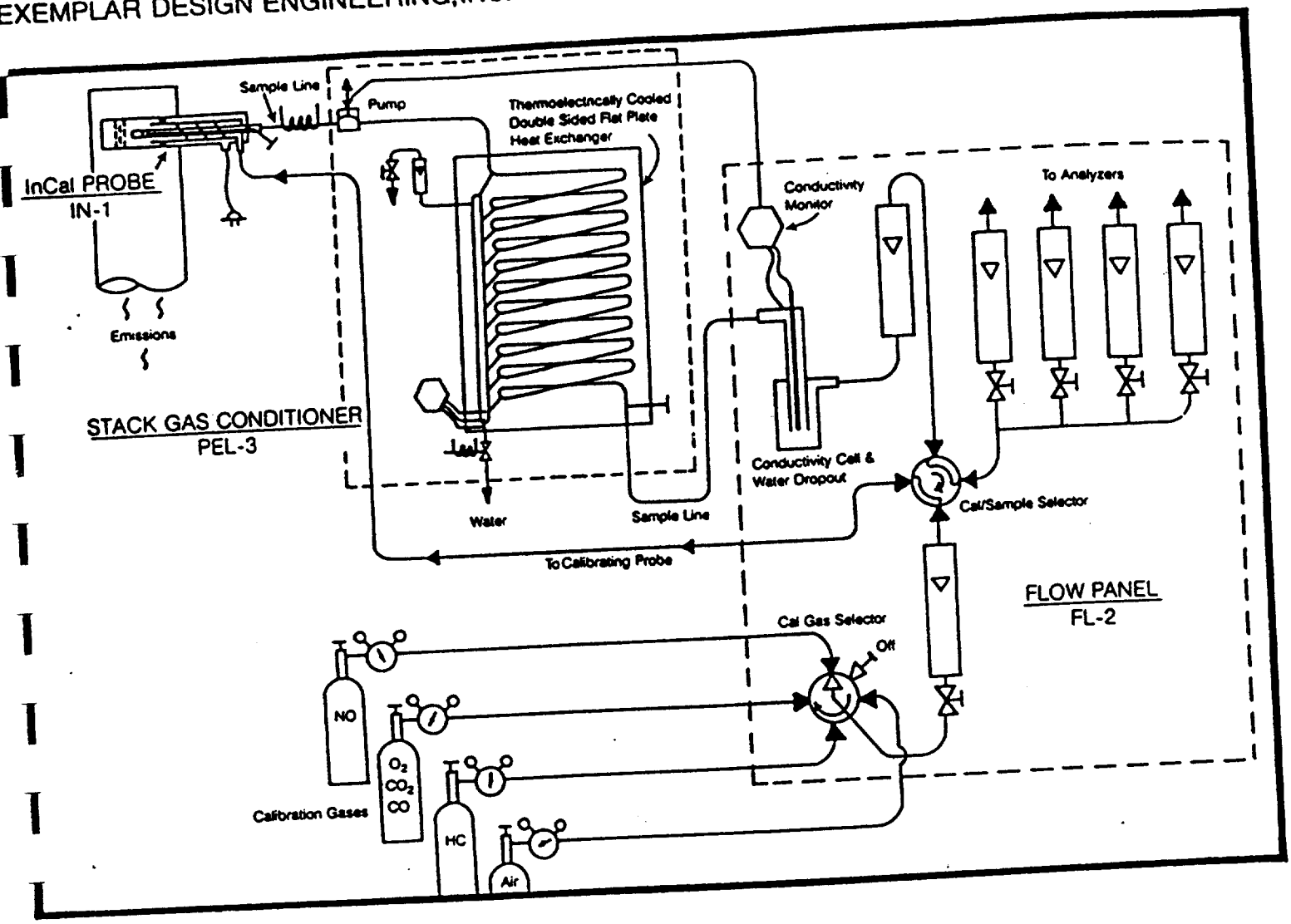
APPLICATIONS

- 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.

ESG-1 4/84

EXEMPLAR DESIGN ENGINEERING, INC.

Extractive Gas Sampling System



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.

SCOTT-MARRIN, INC.
2001 THIRD ST. • UNIT H • RIVERSIDE, CA 92507
TELEPHONE (714) 784-1240

REPORT OF ANALYSIS
NIST TRACEABLE GAS MIXTURES

BTCE01

TO:

TOM PORTER
BTC ENVIRONMENTAL, INC.
1536 EASTMAN AVE.
VENTURA, CA 93003

DATE: 07/15/91

CUSTOMER ORDER NUMBER: 4829

CYLINDER NUMBER	COMPONENT	CONCENTRATION(v/v)	NIST TRACEABLE REFERENCE STANDARD
CC50173	Oxygen	14.39 ± 0.14 %	SRM 2659
	Carbon Dioxide	4.07 ± 0.04 %	SRM 2626a
	Carbon Monoxide	411 ± 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:
J.T. Marrin

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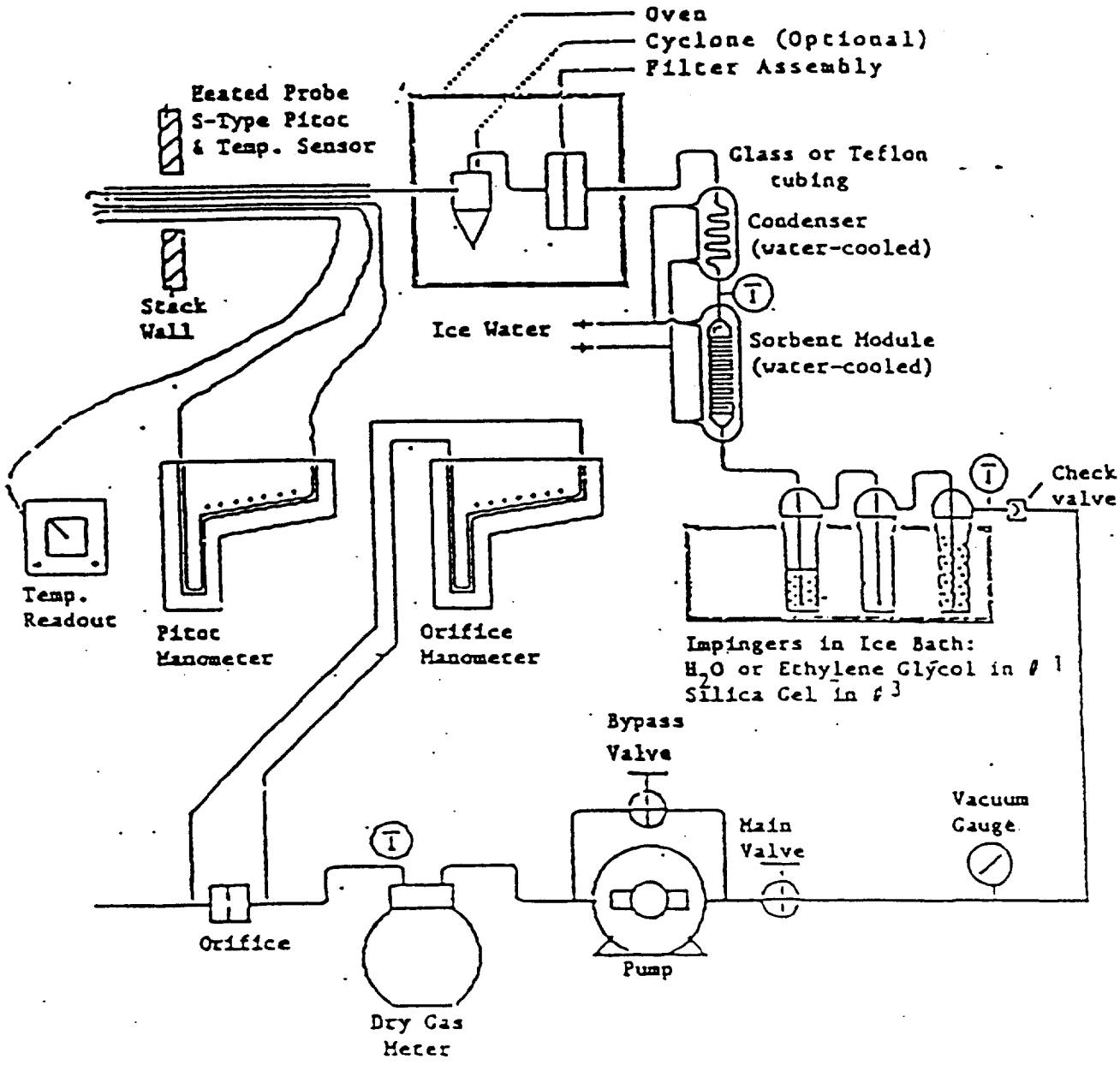
QUALITY ASSURANCE

FIGURE 1 PAH SAMPLING TRAIN



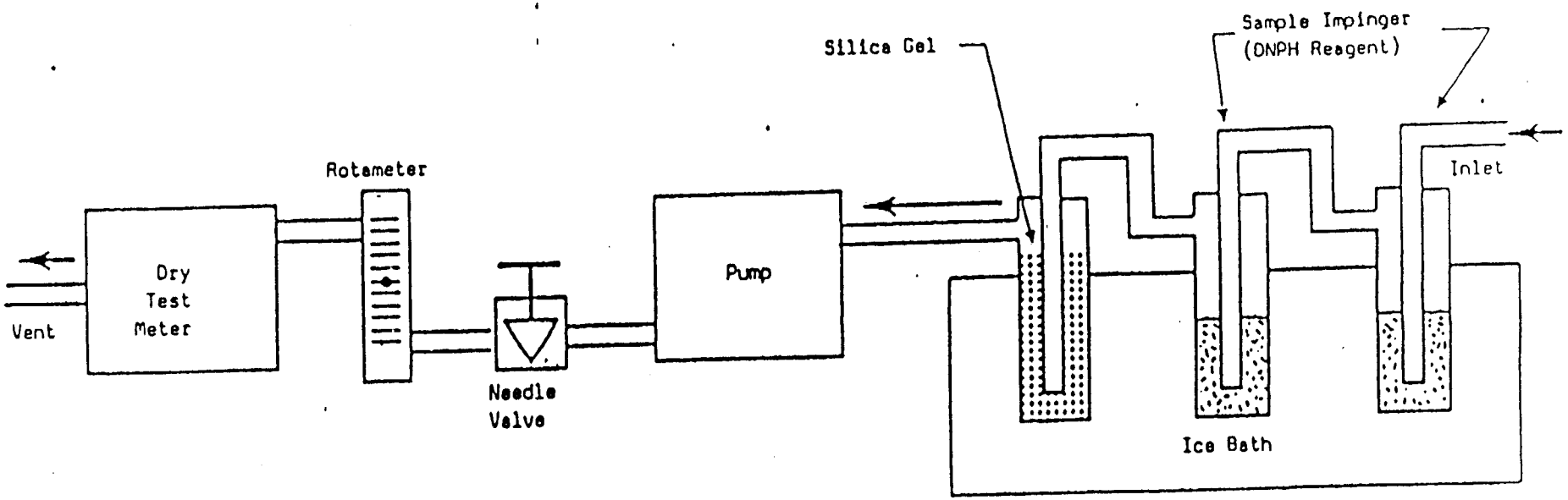
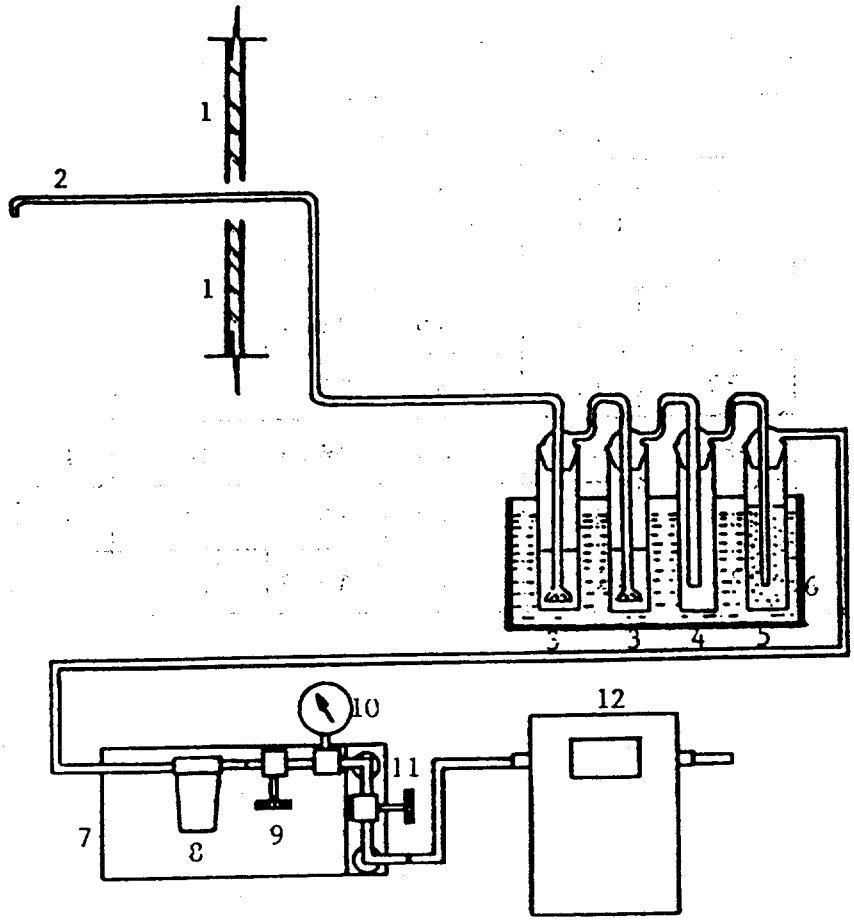


FIGURE 1. TYPICAL SAMPLING SYSTEM (13.2)
FORMALDEHYDE CARB METHOD 430



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

Impingement Train For Moisture

DRY GAS METER CALIBRATION

Date: 11/7/91 Unit: A

Ambient Conditions

Temp: 73.5 F/C

Baro: 30.04 in.Hg

ORIFICE MANOMETER SETTING D,H	GAS VOLUME WET TEST METER V,w	GAS VOLUME DRY GAS METER Vb,	wet test tw f	Temperature Dry IN Td,	Temperature Dry Out Tdo,	Temperature Ave f Td,	Time e min	Y	DH@Y
0.5	5	315.852	75	72	71	72.25	14.35	0.9793	2.3383
		310.779	75	73	73				
1	5	321.134	75	73	73	74.50	9.52	0.9434	2.0486
		315.852	75	75	77				
1.5	5	326.369	75	75	77	77.00	8.02	0.9991	2.1707
		321.364	75	78	78				
2	5	331.656	75	80	80	80.50	6.57	1.0060	1.9297
		326.659	75	81	81				
								0.9819	2.1218

Calibration by: RTR

Reviewed by: CDD

Meter Factor: 0.9819

Delta H: 2.1218

Equations:

Y= (Vw*Pb)*(Td+460))/Vdt-Vdb)+(DelH/13.6))*(((Wt+wt)/2)+460))

Del H = (0.0317*Del)*(((((WT+Wt)/2)÷460)*e)/Vw)^2)/((Pb*(Td+460)

SKC AIR PUMP

FLOW CALIBRATION DATA

Pump: Speedair

Date : 11/13/91

Pstd: 29.92 in. Hg

Tstd: 70 °F

Pbar: 29.93 in. Hg

Tm: 73 °F

Trial (#)	Volume (ml)	Time (sec)	Flow (ml/min)
1	300	34.92	515
2	300	35.29	510
3	300	35.54	506
4	300	35.47	507
5	300	35.47	507
6	300	35.48	507
7	300	35.72	504
8	300	35.71	504
9	300	35.82	503
10	300	35.72	504

Initials : ***CD***

Average Flow Rate: 506.9

Standard Flow Rate, Q std: 504 ml/min

Formulae:
Flow(ml/min)=[Vol(ml)/Time(sec)] * [(60sec/1min)
Q std = Q * (Tstd/Tm)*(Pbar/Pstd)

Apparatus:
Supelco #2-0428, 1000 ml Soap Film Flowmeter

Note: Inlet two tubes

PITOT TUBE CALIBRATION

Ambient Conditions

DATE: 2/15/91

TEMPERATURE 68 F

RH: _____ %

UNIT NUMBER: 3-5'

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	3958	*0.98*	*1.34*	*1.35*	0.847	0.001	0.843	0.001
2		*0.98*	*1.34*	*1.35*	0.847	0.001	0.843	0.001
3		*0.97*	*1.34*	*1.35*	0.842	0.003	0.839	0.003
Avg		0.98	1.34	1.35	~0.845	0.002*	~0.842	0.002*

AVERAGE: (Cp(s)A+Cp(s)B)/2 0.844

| ~Cp(s)A-~Cp(s)B | = 0.003 *

1	4412	*1.22*	*1.52*	*1.49*	0.887	0.000	0.887	0.000
2		*1.21*	*1.51*	*1.49*	0.886	0.000	0.886	0.000
3		*1.21*	*1.51*	*1.49*	0.886	0.000	0.886	0.000
Avg		1.21	1.51	1.49	~0.886	0.000*	~0.886	0.000*

AVERAGE: (Cp(s)A+Cp(s)B)/2 0.886

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

1	4613	*1.33*	*1.68*	*1.68*	0.881	0.001	0.881	0.001
2		*1.32*	*1.67*	*1.68*	0.880	0.001	0.880	0.001
3		*1.33*	*1.67*	*1.68*	0.883	0.002	0.883	0.002
Avg		1.33	1.67	1.68	~0.882	0.001*	~0.882	0.001*

AVERAGE: (Cp(s)A+Cp(s)B)/2 0.882

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

PITOT CALIBRATION VALUE: 0.874

~ Denotes average value

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

Calibrated by: SALLY *Reviewed by:* _____

PITOT TUBE CALIBRATION

Ambient Conditions

DATE: 6/20/91

TEMPERATURE 69 F

RH: _____ %

UNIT NUMBER: 3

BAROMETER: 29.97 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	4018	*1.00*	*1.41*	*1.40*	0.834	0.007	0.837	0.005
2		*1.01*	*1.39*	*1.39*	0.844	0.003	0.844	0.002
3		*1.01*	*1.39*	*1.39*	0.844	0.003	0.844	0.002
Avg		1.01	1.40	1.39	~0.841	0.005*	~0.841	0.003*

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

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

1	4357	*1.18*	*1.51*	*1.50*	0.875	0.000	0.875	0.000
2		*1.19*	*1.52*	*1.51*	0.876	0.001	0.876	0.001
3		*1.18*	*1.51*	*1.51*	0.875	0.000	0.875	0.000
Avg		1.18	1.51	1.51	~0.875	0.000*	~0.875	0.000*

AVERAGE: (Cp(s)A+Cp(s)B)/2 0.875

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

1	4578	*1.31*	*1.75*	*1.74*	0.857	0.001	0.857	0.001
2		*1.31*	*1.74*	*1.75*	0.859	0.002	0.859	0.002
3		*1.30*	*1.74*	*1.75*	0.856	0.001	0.856	0.001
Avg		1.31	1.74	1.75	~0.857	0.001*	~0.857	0.001*

AVERAGE: (Cp(s)A+Cp(s)B)/2 0.857

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

PITOT CALIBRATION VALUE: **0.858**

~ Denotes average value

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

Calibrated by: stu *Reviewed by:* _____

PITOT TUBE CALIBRATION

Ambient Conditions

DATE: 2/20/91

TEMPERATURE 70 F

RH: _____ %

UNIT NUMBER: 7/C-5'

BAROMETER: 29.87 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	3992	*1.00*	*1.40*	*1.40*	0.837	0.001	0.837	0.003
2		*0.99*	*1.39*	*1.40*	0.835	0.000	0.833	0.001
3		*0.99*	*1.39*	*1.40*	0.835	0.000	0.833	0.001
Avg		0.99	1.39	1.40	~0.836	0.001*	~0.834	0.002*

AVERAGE: (Cp(s)A+Cp(s)B)/2 0.835

| ~Cp(s)A-~Cp(s)B | = 0.002 *

1	4448	*1.24*	*1.66*	*1.66*	0.856	0.001	0.856	0.001
2		*1.23*	*1.65*	*1.66*	0.855	0.000	0.855	0.000
3		*1.23*	*1.65*	*1.66*	0.855	0.000	0.855	0.000
Avg		1.23	1.65	1.66	~0.855	0.000*	~0.855	0.000*

AVERAGE: (Cp(s)A+Cp(s)B)/2 0.855

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

1	4596	*1.31*	*1.79*	*1.79*	0.847	0.002	0.847	0.002
2		*1.32*	*1.79*	*1.79*	0.850	0.001	0.850	0.001
3		*1.32*	*1.79*	*1.80*	0.850	0.001	0.850	0.001
Avg		1.32	1.79	1.79	~0.849	0.001*	~0.849	0.001*

AVERAGE: (Cp(s)A+Cp(s)B)/2 0.849

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

PITOT CALIBRATION VALUE: 0.846

~ Denotes average value

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

Calibrated by: SALLY *Reviewed by:* _____

THERMO COUPLE CALIBRATION

Date: 7/23/91 Unit: T-7

Point	* Standard Temperature *Tstd* deg. F	Pyrometer Temperature *Tpyr* deg. F	Error % ** *(Tstd-Tpyr)/Tstd*
1 Ambient	69.8	72.6	0.53%
2 Ice	32.0	33.0	0.20%
3 Boil	212.0	211.4	0.09%
4 Oil			0.00%

Std. Corr. Factor 0.978

Calibration by: SW

Reviewed by: RTR

* Standard ID: ASTM #86429 -5+300C

* * in deg. K

THERMO COUPLE CALIBRATION

Date: 7/23/91 Unit: T-3

Point	* Standard Temperature *Tstd* deg. F	Pyrometer Temperature *Tpyr* deg. F	Error % ** *(Tstd-Tpyr)/Tstd*
1 Ambient	68.9	72.6	0.70%
2 Ice	32.0	33.2	0.24%
3 Boil	212.0	212.4	0.06%
4 Oil			0.00%

Std. Corr. Factor 0.970

Calibration by: SW

Reviewed by: RTR

* Standard ID: ASTM #86429 -5+300C

* * in deg. K

THERMO COUPLE CALIBRATION

Date: 7/23/91 Unit: T-2

Point	* Standard Temperature *Tstd* deg. F	Pyrometer Temperature *Tpyr* deg. F	Error % ** *(Tstd-Tpyr)/Tstd*
1 Ambient	71.6	72.6	0.19%
2 Ice	32.0	33.2	0.24%
3 Boil	212.0	212.0	0.00%
4 Oil			0.00%

Std. Corr. Factor 0.983

Calibration by: SW

Reviewed by: RTR

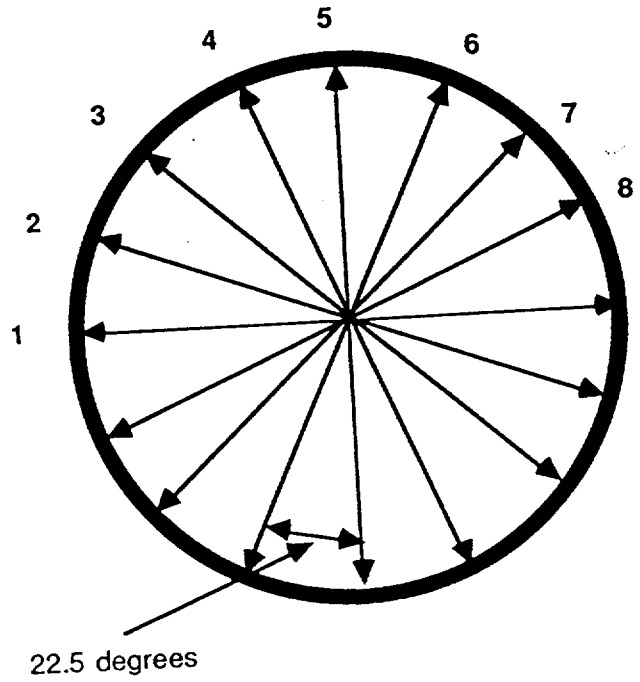
* Standard ID: ASTM #86429 -5+300C

* * in deg. K

Nozzle Calibration

Nozzle I.D. : 34

Date : 6/19/91



Points

1 - .299
2 - .299
3- .302
4- .302
5- .298
6- .300
7- .302
8- .301

Average Nozzle Diameter = .300

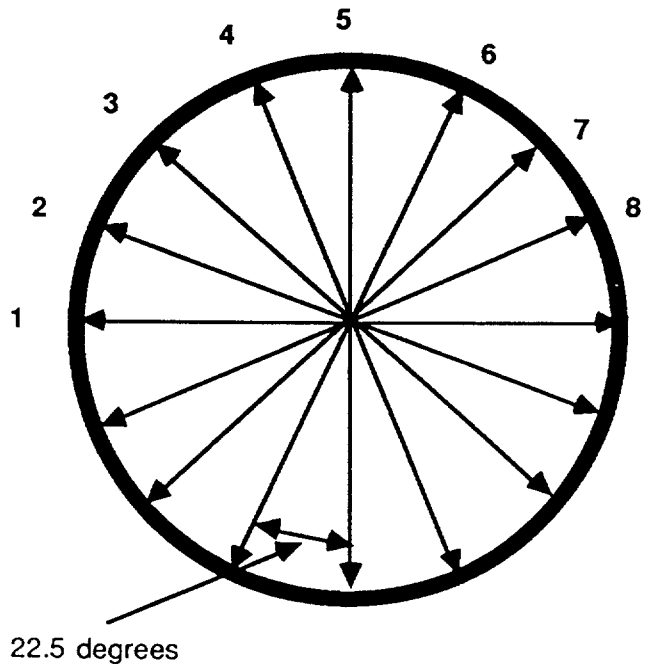
Reviewed :

Analyst : sally

BTC Environmental, Inc. - 1989

Nozzle Calibration

Nozzle I.D. : 28 Date : 6/19/91



Points

1 - .282
2 - .277
3- .284
4- .285
5- .280
6- .280
7- .277
8- .280

Average Nozzle Diameter = .281

Analyst : sally Reviewed :

BTC Environmental, Inc. - 1989

MAGNEHELIC CALIBRATION

DATE: 2/8/91
GAGE ID # M-1
RANGE 0-5" in. H20

SCHEULED CALIBRATION:
SEMI ANNUAL ☐
BI-MONTHLY ☐
OTHER ☐

REFERENCE ID # 0-10" DWYER MANO

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	4.95	4.95	0.000%
	4.95	4.95	0.000%
	4.95	4.95	0.000%
average	4.95	4.95	** 0.000%
2	4.00	4.00	0.000%
	4.00	4.00	0.000%
	4.00	4.00	0.000%
average	4.00	4.00	** 0.000%
3	3.10	3.10	0.000%
	3.10	3.10	0.000%
	3.10	3.10	0.000%
average	3.10	3.10	** 0.000%
4	2.00	2.00	0.000%
	2.00	2.00	0.000%
	2.00	2.00	0.000%
average	2.00	2.00	** 0.000%
5	1.20	1.20	0.000%
	1.20	1.20	0.000%
	1.20	1.20	0.000%
average	1.20	1.20	** 0.000%

STANDARD CORRECTION FACTOR	**1.000**
AVERAGE DEVIATION	0.000
STANDARD DEVIATION	0.000
95% CONFIDENCE INTERVAL	0.000
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: B0 BO TECH *Reviewed by:* _____

52

MAGNEHELIC CALIBRATION

DATE: 2/7/91
GAGE ID # M-2
RANGE 0-2 in. H20

SCHEULED CALIBRATION:
SEMI ANNUAL ☐
BI-MONTHLY ☐
OTHER ☐

REFERENCE ID # 0-10 DWYER MANO

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	1.91	1.90	0.524%
	1.91	1.90	0.524%
	1.91	1.90	0.524%
average	1.91	1.90	** 0.524%
2	1.71	1.75	2.339%
	1.71	1.74	1.754%
	1.71	1.74	1.754%
average	1.71	1.74	** 1.949%
3	1.33	1.37	3.008%
	1.33	1.37	3.008%
	1.33	1.37	3.008%
average	1.33	1.37	** 3.008%
4	1.21	1.24	2.479%
	1.21	1.24	2.479%
	1.21	1.24	2.479%
average	1.21	1.24	** 2.479%
5	0.70	0.72	2.857%
	0.70	0.72	2.857%
	0.70	0.72	2.857%
average	0.70	0.72	** 2.857%

STANDARD CORRECTION FACTOR	**0.981**
AVERAGE DEVIATION	0.022
STANDARD DEVIATION	0.009
95% CONFIDENCE INTERVAL	0.023
PRECISION(within +/- 3%)	-0.96

† 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: RTR *Reviewed by:* _____

BIC ENVIRONMENTAL INCORPORATED

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

Bill To Company:

Address:

Page 1 of 2

CHAIN OF CUSTODY RECORD

Phone #: (____) Contact:

PROJ. NO. 291-178 | PROJECT NAME Gillibrand

SAMPLERS: (Signature) Col/KR

NO.	DATE	TIME	COMP	GRAB	SAMPLE I.D.	NO. OF CONTAINERS	ANALYSIS PAH's	REMARKS
1	11/8		X		Rem #1 Front 1/2	1	X	Analyze according to CARB Method 429
2					" " Filter	1		
3					" " Back 1/2	1		Report results in ug/sample
4					" " XAD Resin	1		
5					" " Imp #1	1		
6					" " Imp #2	1		
7					Rem #2 Front 1/2	1		Sent to Cal Science 11/11/91
8					" " Filter	1		
9					" " Back 1/2	1		
10					" " XAD Resin	1	→ Spiked	
11					" " Imp #1	1		
12	↓		↓		" " Imp #2	1	↓	

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)
L Porter	11/11 6:50a	
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)
	11/11 3:25	

Relinquished by: (Signature)	Date/Time	Received by: (Signature)

Date/Time: 11/11/91 3:25pm

NAME

ADDRESS

PHONE NO.

WHITE COPY_____ CANARY COPY_____ PINK COPY_____

BILL TO Company:

Address:

Page 2 of 2

BTC ENVIRONMENTAL INCORPORATED

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

CHAIN OF CUSTODY RECORD

Phone #: ( ) Contact:

PROJ. NO. 241-128 | PROJECT NAME Gillibrand

SAMPLERS: (Signature) CD/KR

NO.	DATE	TIME	COMP	GRAB	SAMPLE I.D.	NO. OF CONTAINERS	ANALYSIS PAHs
13	11/8		X		#3 Front ½	1	X
14					" " Filter	1	
15					" " Back ½	1	
16					" " XAD Resin	1	
17					" " Imp #1	1	
18					" " Imp #2	1	
19			X		Trawl Bike Front ½	1	
20					" " Filter	1	
21					" " Back ½	1	
22					" " XAD Resin	1	
23					" " Imp #1	1	
27	↓		↓		" " Imp #2	1	↓

CHECK IF RUSH

REMARKS

Analyze according to CARB Method 429/430

Report result in ng/sample

Sent to Cal Science 11/11/91

→ Spiked

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)
Tom Potter	11/11 6:50a				
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	NAME	
	11/11 3:25		11/11/91 3:25pm	ADDRESS	
				PHONE NO.	

WHITE COPY CANARY COPY PINK COPY

BIC ENVIRONMENTAL INCORPORATED

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

CHAIN OF CUSTODY RECORD

Address: _____

Phone #: (___) _____ Contact: _____

PROJ. NO. 291-175 | PROJECT NAME Gillibrand

SAMPLERS: (Signature) [signature]

NO.	DATE	TIME	COMP	GRAB	SAMPLE I.D.	NO. OF CONTAINERS	AMALYSIS Formaldehyde						REMARKS	CHECK IF RUSH
													Atm AA #	
1	11/5		Y		Form Rem #1	1	X						9311121-31	Analyze according to CARB Method 430
2					" " #2	1	X						9311121-32	
3					" " #3	1	X						9311161-33	Report results in ug/sample
4	↓		↓		" " Travel Blk	1	X						9311161-34	

Sent to Atm AA 11/11/91

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)
[signature]	11/11 1630	[signature]			
Relinquished by: (Sighature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	NAME	
				ADDRESS	
				PHONE NO	

WHITE COPY ____ CANARY COPY ____ PINK COPY ____