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CARB METHOD 421

INTRODUCTION

The Method 421 sampling train was used to extract gas phase Hydrochloric Acid emissions. The extract was analyzed for Chloride by ion chromatography and quantified by reference to external standards or other suitable analytical method.

SAMPLE PREPARATION

Nozzle, probe, filter holder, and impingers were rinsed with deionized water. 100ml of impinger solution (3mM Sodium Bicarbonate and 2.4mM Sodium Carbonate) was placed in the first and the second impinger, the third impinger was left empty, and the fourth impinger was filled with approximately 400 grams of Silica gel.

SAMPLING PROCEDURE

The apparatus consisted of a nozzle, quartz probe and heated filter holder followed by a series of impinger/absorbers connected in tandem and immersed in an ice bath. The absorption train was followed by a vacuum pump, dry gas meter, and a calibrated restriction orifice fitted with a manometer and a sample gas bladder.

The computer was used in selection of suitable sampling points and nozzle size. The apparatus was leak tested, the filter temperature brought to temperature, and the nozzle was positioned at the first sampling point. The pump was immediately started and adjusted to obtain the isokinetic sampling rate.

Duct conditions were monitored throughout the sampling period with a type "S" pitot tube and a type "K" thermocouple simultaneously positioned at each traverse point. Conditions at the sampling apparatus and metering device were constantly monitored and regularly recorded on the data sheet. Isokinetic sampling rate was calculated by a computer.

On completion of the sampling, the apparatus was removed from the stack, leak checked, and transported to the laboratory.

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CARB METHOD 430

INTRODUCTION

The Method 430 sampling train was used to extract formaldehyde emissions. The extract was analyzed for formaldehyde by High Performance Liquid Chromatograph (HPLC).

SAMPLE PREPARATION

Probe and impingers were rinsed with 2,4 - dinitrophenyl-hydrazine (DNPH). 10ml of DNPH were placed in the first and the second impinger, the third impinger was left empty, and the fourth impinger was filled with approximately 25 grams of Silica gel.

SAMPLING PROCEDURE

The apparatus consisted of a quartz or stainless steel probe followed by a series of midget impinger/absorbers connected in tandem and immersed in an ice bath. The absorption train was followed by a vacuum pump, dry gas meter, and a calibrated restriction orifice fitted with a manometer and a sample gas bladder.

The amount of sample volume required for each run was determined by the following equation:

$$\text{Sample Volume} = A \times \frac{100}{B} \times \frac{100}{C} \times \frac{1}{D}$$

where:
- A = The analytical minimum detection limit (ng)
- B = Percent (%) of the sample required per analytical run
- C = Sample recovery (%)
- D = Regulatory limit, or other target concentration, (ng/dscm)

On completion of the sampling, the apparatus was removed from the stack, leak checked, and transported to the laboratory. Sampling rates will vary between 500-1000 ml/minute.

A blank train was prepared with DNPH solution and Ultra Pure N_2 gas was purged through the train at a rate and sampling duration equal to that of the test run.

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SAMPLE ANALYSIS

All samples were sealed from contamination and forwarded to the appropriate analytical Laboratory for analysis.

NOMENCLATURE

		SYMBOL IDENTIFICATION
An	=	Cross-sectional area of nozzle (ft^2)
Delta H	=	Average pressure differential across the orifice meter, (in H_2O)
%I	=	Isokinetic Rate
Mn	=	Total weight of pollutant collected, mg
Pbar	=	Barometric pressure at measurement site, (in Hg)
Pstd	=	Standard absolute pressure, 29.92 in Hg
Ps	=	Absolute stack gas pressure, (in Hg)
Tm	=	Absolute temperature at meter, (°R)
Tstd	=	Standard absolute temperature, (528°R)
Vlc	=	Volume of water condensed in impingers and silica gel, (ml)
Vm	=	Dry gas volume measured by dry gas meter, (dcf)
Vmstd	=	Dry gas volume measured by dry gas meter, corrected to standard conditions, (dscf)
Vs	=	Average stack gas velocity, (ft/sec)
Wd	=	Total quantity of formaldehyde-DNPH derivative in the sample, (ng)
Y	=	Dry gas meter calibration factor
Theta	=	Total sampling time (min)

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EQUATIONS

Sample Gas Flow

$$Vmstd = VmY \frac{(Tstd)}{Tm} \frac{(Pbar + \frac{Delta\ H}{13.6})}{Pstd}$$

Pollutant Concentrations

$$\frac{ng}{dscm} = \frac{Wd}{Vm(std)} \times 1000 \times \frac{30}{210}$$

Where: 30 = Molecular weight of formaldehyde (glgmole)
210 = Molecular weight of DNPH/formaldehyde derivative (g/gmole)
24.05 = RuT/P, L/g mole @ 293 degrees K and 1 atm

$$\frac{lb}{hr} = \frac{Ug}{Sample} * \frac{Sample}{DSCF} * \frac{DSCF}{Min} * \frac{1E-06g}{Ug} * \frac{1\ lb}{453.6g} * \frac{60\ min.}{hr} * \frac{30}{210}$$

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CARB METHOD 16

INTRODUCTION

The Method 16 sampling apparatus was used to collect total reduced sulfur compounds (H_2S, Methyl Mercaptan, Dimethyl Sulfide, and Dimethyl Dissulfide) in ten liter Tedlar bags.

SAMPLING PROCEDURE

The apparatus consisted of a stainless steel probe connected by teflon line to a Tedlar sample bag contained in an air tight canister. Upon evacuation of the air in the canister, sample gas was drawn into the bag.

On completion of each run, the bag sample was sealed and immediately transported to the laboratory. Sample was then drawn through a septum and injected into the GC/Flame Photometric Detector.

CALCULATIONS

$$\frac{lb}{hr} = PPB \times 1.583\ E\text{-}10 \times DSCFM \times M.W.$$

Where:

PPB = Parts per Billion (Volume)
1.583 E-10 = Conversion Factor
DSCFM = Dry Standard Cubic Feet Per Minute
M.W. = Molecular Weight of Specific Sulfur Compound (lb/lb-mole)

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CARB METHOD 422

INTRODUCTION

The Method 422 sampling apparatus was used to collect halogenated hydrocarbon compounds in ten liter Tedlar bags.

SAMPLING PROCEDURE

The apparatus consisted of a stainless steel probe connected by teflon line to a Tedlar sample bag contained in an air tight canister. Upon evacuation of the air in the canister, sample gas was drawn into the bag. The Tedlar bag was purged three times with sample gas, then filled to capacity.

On completion of each run, the bag sample was sealed and immediately transported to the laboratory. Sample was then drawn through a septum and injected into the GC with a suitable detector used for concentration determinations.

CALCULATIONS

$$\frac{lb}{hr} = PPBv * DSCFM * M.W. * 1.583\ E\text{-}10$$

Where: PPB = Parts Per Billion (Volume)
DSCFM = Dry Standard Cubic Feet of Exhaust
M.W. = Molecular Weight of Halogenated Hydrocarbon (lb/lb mole)
1.583 E-10 = Conversion Factor

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LIST OF APPENDICES

APPENDIX A - FIELD DATA SHEETS

APPENDIX B - ANALYTICAL LABORATORY RESULTS

APPENDIX C - FUEL ANALYSIS AND USAGE

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APPENDIX A

FIELD DATA SHEETS

SOUTH COAST ENVIRONMENTAL COMPANY

PLANT PEn TEST TYPE CARB 430 FIELD TEST DATA SHEET

FORMALDEHYDE

Date 4/2/91 Barometric Pressure 29.76

Test Location ICE #1 Static in. wg. +4.6

Run Number #1 Probe Type/Length 1'-SS.

Stack Diameter 18" Pitot Coefficient N/A

Operator RPL Meter Box No. Nutek

Filter No. N/A Nozzle No./Size N/A

Impinger Volumes/Weights				Gas Composition			
Contents	Final	Initial	Net	Time	CO_2	O_2	CO
15ml DNPH							
15ml DNPH							
Silica							
				Leak Rate		cfm	"Hg
				Initial		0.000	5
				Final		0.000	5
		Total					

Sample Point	Time	ΔP in wg	ΔH in wg	Gas Meter Volume Ft^3	Temperature °F Stack	Probe	Oven	Imp.	Gas Meter In	Out	Pump Vacuum in. Hg	$\sqrt{\Delta P}$	Comments
1	2:18			352.265					93	92	0.5"		RATE ≈ 0.28 @ .95LPM
2	2:28			352.590					97	95	0.5"		2:30 OFF
3	2:45			353.015					98	95	0.5"		2:37 RESTART
4	2:55			353.465					99	96	0.5"		
5	3:05			353.870					102	99	0.5"		$\sqrt{\Delta P}$ = 2.25
6	3:15			354.265					103	100	0.5"		T_m = 98
	3:25			354.515					104	100	0.5"		

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PLANT PEn TEST TYPE CARB 430 FIELD TEST DATA SHEET

Date 4/2/91
Test Location ICE #1
Run Number #2
Stack Diameter 18"
Operator KPL
Filter No. N/A

Barometric Pressure 29.76
Static in. wg. +4.6
Probe Type/Length 1'-S.S.
Pitot Coefficient N/A
Meter Box No. Nutek
Nozzle No./Size N/A

Start = 819 End = 919

Impinger Volumes/Weights			
Contents	Final	Initial	Net
15ml DNPH			
15ml DNPH			
Silica			
		Total	

Gas Composition			
Time	CO_2	O_2	CO

Leak Rate	cfm	"Hg
Initial	0.00	5
Final	0.00	5

Sample Point	Time	ΔP in wg	ΔH in wg	Gas Meter Volume Ft^3	Temperature °F Stack	Probe	Oven	Imp.	Gas Meter In	Out	Pump Vacuum in. Hg	$\sqrt{\Delta P}$	Comments
1	0000			354.660					84	84			$V_m = 2.08$
2	0010			355.020					84	85			$T_m = 88.5$
3	0020			355.375					85	87			
4	0030			355.675					87	88			
5	0040			356.060					92	93			
6	0050			356.405					96	97			
	0060			356.740									

SOUTH COAST ENVIRONMENTAL COMPANY

PLANT PEx TEST TYPE CARB 430 FIELD TEST DATA SHEET

Date 4/2/91
Test Location ICE #1
Run Number #3
Stack Diameter 18"
Operator KPL
Filter No. N/A

Barometric Pressure 29.76
Static in. wg. +4.6
Probe Type/Length 1'-S.S.
Pitot Coefficient N/A
Meter Box No. Nutek
Nozzle No./Size N/A

Start = 924 End = 1025

Impinger Volumes/Weights			
Contents	Final	Initial	Net
		Total	

Gas Composition			
Time	CO_2	O_2	CO

Leak Rate	cfm	"Hg
Initial	0.00	5
Final	0.00	5

Sample Point	Time	ΔP in wg	ΔH in wg	Gas Meter Volume Ft^3	Temperature °F Stack	Probe	Oven	Imp.	Gas Meter In	Gas Meter Out	Pump Vacuum in. Hg	$\sqrt{\Delta P}$	Comments
1	0000			356.650					99	100			V_m = 2.025
2	0010			357.10					100	101			T_m = 101
3	0020			357.400					100	101			
4	0030			357.741					102	103			
5	0040			358.044					102	103			
6	0050			358.370					102	103			
	0060			358.675									

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PLANT PEn-Otay TEST TYPE CARB#430 FIELD TEST DATA SHEET

Train Blank

Date 4/3/91

Test Location ICE #1

Run Number #4

Stack Diameter 18"

Operator KBJ

Filter No. N/A

Barometric Pressure 29.76

Static in. wg. +4.6

Probe Type/Length 1'-SS.

Pitot Coefficient 0.84

Meter Box No. Nutek

Nozzle No./Size N/A

Start = 1035 End = 1045

Impinger Volumes/Weights				
Contents	Final	Initial	Net	
		Total		

Gas Composition			
Time	CO_2	O_2	CO

Leak Rate	cfm	"Hg
Initial	0.00	5
Final		

Sample Point	Time	ΔP in wg	ΔH in wg	Gas Meter Volume Ft^3	Temperature °F Stack	Probe	Oven	Imp.	Gas Meter In	Gas Meter Out	Pump Vacuum in. Hg	$\sqrt{\Delta P}$	Comments
1	0000			358.682					102	101			V_m = 2.27
2	0010			359.130					102	102			T_m = 103
3	0020			359.45					104	102			
4	0030			359.85					104	102			
5	0040			360.23					103	105			
6	0050			360.570					104	103			
	0060			360.95					~~104~~	~~103~~			

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$\Delta H = \ldots$
$\Delta P = 0.01$

PLANT PEn TEST TYPE CARB 421-HCL FIELD TEST DATA SHEET

[illegible] Bucket Moisture = 13.5%

Date 4/2/91
Test Location ICE#1
Run Number 1
Stack Diameter 18"
Operator KGS/RPL
Filter No. HCL Filter#1

Barometric Pressure 29.76
Static in. wg. +4.6
Probe Type/Length 3'-Quartz
Pitot Coefficient 0.84
Meter Box No. Nutek
Nozzle No./Size 0.204
Start = 1230 End = 1400

Impinger Volumes/Weights			
Contents	Final	Initial	Net
1) 100 mL H_2O_2	775.0	583.63	191.4
2) 100 mL H_2O_2	585.7	568.21	17.5
3) KO	466.0	462.40	3.6
4) Silica gel	835.40	811.88	23.5
		Total	236.0

Gas Composition			
Time	CO_2	O_2	CO
	11.62	8.01	

Leak Rate	cfm	"Hg
Initial	0.00	15
Final	0.016	11"

Sample Point	Time	ΔP in wg	ΔH in wg	Gas Meter Volume Ft^3	Temperature °F Stack	Probe	Oven	Imp.	Gas Meter In	Gas Meter Out	Pump Vacuum in. Hg	$\sqrt{\Delta P}$	Comments
1	0000	4.0	3.01	362.380	710		127		96	97	11.0		$V_m = 77.77$
2	007.5	3.7	2.65	370.12	765		140		94	96	10.5		$\Delta H = 2.47$
3	015.0	3.8	2.78	376.13	739		152		94	95	11.5		$\Delta P = 3.38$
4	022.5	3.3	2.39	382.37	747		156		94	94	10.0		$T_m = 96$
5	030.0	3.2	2.31	388.94	753		160		93	94	9.8		$T_s = 744$
6	037.5	3.2	2.34	395.08	750		175		98	100	9.8		Time = 90 min
1	045.0	3.1	2.25	401.833	753		100		96	98	8.2		
2	052.5	3.8	2.76	408.20	747		156		95	96	11.0		
3	060.0	3.5	2.54	414.93	750		162		95	96	10.0		
4	067.5	3.2	2.36	421.48	728		171		95	96	9.4		
5	075.0	2.9	2.12	427.74	741		168		95	96	8.5		
6	082.5	3.0	2.12	433.91	750		170		95	96	8.50		
	090.0			440.150									

H = +0.5
ΔP = 40.1

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PLANT PEn-Otay TEST TYPE CARB 421-HCL FIELD TEST DATA SHEET

Yellow Bucket

Impinger Volumes/Weights				Gas Composition			
Contents	Final	Initial	Net	Time	CO_2	O_2	CO
Na_2HCO_3	724.2	583.8	140.4		11.62	8.01	
Na_2HCO_3	623.1	607.0	16.1				
KO	496.1	494.0	2.1				
Silica Gel	836.0	821.0	15.0	Leak Rate		cfm	"Hg
				Initial		0.00	11
				Final		0.00	15
		Total	173.6				

Date 4/5/91
Test Location ICE #1
Run Number #2
Stack Diameter 18"
Operator KRS
Filter No. HCL #2

Barometric Pressure 29.61
Static in. wg. +4.6
Probe Type/Length 3'-S.S.
Pitot Coefficient 0.84
Meter Box No. Notek
Nozzle No./Size 0.195

Start = 810 End = 940

Sample Point	Time	ΔP in wg	ΔH in wg	Gas Meter Volume Ft^3	Temperature °F Stack	Probe	Oven	Imp.	Gas Meter In	Gas Meter Out	Pump Vacuum in. Hg	$\sqrt{\Delta P}$	Comments
1	0000	4.1	2.32	443.395	850		87		79	83	15.0		
2	007.5	4.1	2.34	449.71	847		87		84	86	15.0		$\sqrt{m}$ = 71.979
3	015.0	3.6	2.06	456.23	849		124		84	88	13.0		ΔP = 3.63
4	022.5	3.6	2.06	460.91	851		140		85	90	11.6		ΔH = 2.10
5	030.0	3.3	1.89	466.04	853		148		88	92	10.0		T_s = 849.2
6	037.5	3.2	1.85	473.00	850		160		90	93	10.5		T_m = 91.3
1	045.0	4.05	2.34	478.78	851		162		91	92	15.0		
2	052.5	4.05	2.36	485.38	846		179		94	96	15.0		
3	060.0	3.7	2.16	491.83	845		180		94	96	14.5		
4	067.5	3.8	2.21	497.41	848		180		97	97	15.0		
5	075.0	3.2	1.87	504.00	848		182		96	98	12.0		
6	082.5	3.0	1.75	510.01	852		185		98	99	11.0		
	090.0			515.374									

11±0.5
ΔP=10.0

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PLANT P.E.N TEST TYPE CARB METH. #421 HCL FIELD TEST DATA SHEET

Date 4/9/91
Test Location BCS #1 OUTLET
Run Number #3
Stack Diameter 18"
Operator RAL
Filter No. HCL #3

Barometric Pressure 29.61
Static in. wg. +4.6
Probe Type/Length 3'-S.S.
Pitot Coefficient 0.84
Meter Box No. Nutek
Nozzle No./Size 0.195

Start = 1030 End = 1200

Impinger Volumes/Weights			
Contents	Final	Initial	Net
100 ml NaHCO3	729.8	570.10	159.7
" "	587.0	563.0	24.0
K.O.	492.7	485.7	7.0
Silica Gel	852.6	834.5	18.1
		Total	208.8

Gas Composition			
Time	CO_2	O_2	CO
	11.62	8.01	

Leak Rate	cfm	"Hg
Initial	0.00	15
Final	0.00	10

Sample Point	Time	ΔP in wg	ΔH in wg	Gas Meter Volume Ft³	Temperature °F Stack	Probe	Oven	Imp.	Gas Meter In	Gas Meter Out	Pump Vacuum in. Hg	$\sqrt{\Delta P}$	Comments
1	0000	4.0	2.36	576.017	851		98		103	105		7.0	V_m = 74.123
2	007.5	4.1	2.44	523.23	849		106		108	110		8.0	ΔH = 2.16
3	015.0	3.5	2.02	529.05	850		118		104	105		7.0	ΔP = 3.64
4	022.5	3.8	2.25	535.02	850		134		104	105		8.0	T_m = 105
5	030.0	3.4	2.01	541.83	848		148		104	106		6.0	T_s = 851
6	037.5	3.1	1.83	547.32	852		161		104	106		6.0	Time = 90 min
7	045.0	4.05	2.39	552.93	852		164		104	106		8.0	
8	052.0	4.0	2.36	559.58	852		171		104	104		8.0	
9	060.0	3.8	2.24	565.38	851		173		103	105		7.4	
10	067.5	3.8	2.24	572.00	851		177		104	104		7.4	
11	075.0	3.4	2.00	578.70	851		180		103	104		7.0	
12	082.5	2.9	1.71	585.16	850		183		103	104		5.5	
	090.0			590.140									

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PLANT Yka-Otay TEST TYPE CARB-421 (HCL) FIELD TEST DATA SHEET

Fuel Sample (Fuel Flow rate = 588 scfm)

Date 4/5/91 Barometric Pressure 29.61

Test Location ICE #1-Inlet Static in. wg. N/A

Run Number #1 Probe Type/Length Teflon

Stack Diameter N/A Pitot Coefficient N/A

Operator KBS/RPL Meter Box No.

Filter No. N/A Nozzle No./Size N/A

Start = 1320 End = 1400

Impinger Volumes/Weights				Gas Composition			
Contents	Final	Initial	Net	Time	CO_2	O_2	CO
Na_2HCO_3							
Na_2HCO_3							
KO							
Silica Gel				Leak Rate		cfm	"Hg
				Initial		0.00	9
				Final		0.00	4
		Total					

Sample Point	Time	ΔP in wg	ΔH in wg	Gas Meter Volume Ft^3	Temperature °F Stack	Probe	Oven	Imp.	Gas Meter In	Gas Meter Out	Pump Vacuum in. Hg	$\sqrt{\Delta P}$	Comments
1	0000			590.430					94	96	2		Rate = 0.75 cfm
2	0010			597.00					93	96	2		V_m = 29.85
3	0020			605.93					91	94	2		T_m = 93.
4	0030			612.74					90	91	2		
5	0040			620.275							2		$V_{m\,std}$ = 28.23

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SOUTH COAST ENVIRONMENTAL COMPANY
1915 MCKINLEY AVENUE
SUITE E
LA VERNE, CA 91750
(714) 596-6540

6600 - 7000

FILE REF: ST11

INTERNAL COMBUSTION ENGINE FIELD DATA AND EMISSION DATA FORM

FACILITY: Pacific Energy
DATE: 4-3-91
PROJECT I.D. #: T-1259

TEST NO.
BAROMETRIC PRESSURE: 29.76
AMBIENT TEMP:

UNIT	Pacific Energy		
RATED HP			
RATED RPM			
SITE			
TIME			
ACTUAL BHP			
ACTUAL RPM	910		
% LOAD GKW/NKW	1959 / 1680		
FUEL TEMP	70°		
FUEL PRES			
FUEL USAGE	588 SCFM		
Manifold vac pres	13.8		
% CO2	11.62		11.62
% O2	8.12	8.12	8.12
NOx, ppm	160	160	160
NOx, 15%O2			
NOx, LB/HR			
CO, ppm	253	252	253
CO, 15%O2			
CO, LB/HR			
BTU/CF	555		
NO2	40 less		

COMMENTS: Temperature Left 1044°F Right 1038°F 861°F Post

1915 McKinley Ave.
Suite E
La Verne, CA 91750
714-596-6540
714-596-5619 (FAX)

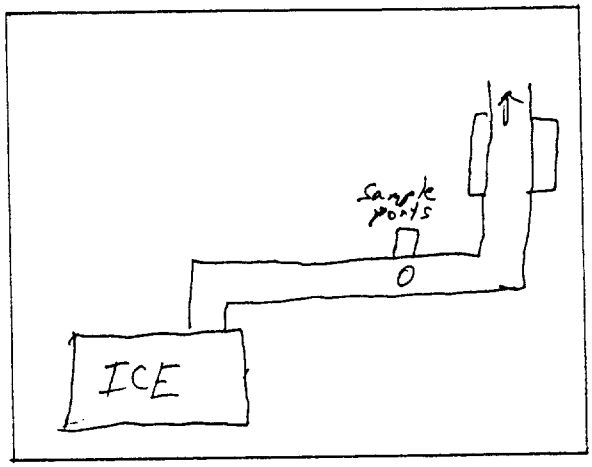
SOUTH COAST ENVIRONMENTAL COMPANY
1915 MCKINLEY AVENUE
SUITE E
LA VERNE, CA 91750
(714) 596-6540

FILE REF: ST12

SAMPLE POINT LOCATION DATA SHEET

FACILITY: PEn
PROJECT #: T1265
DATE: 4/2/91
STACK DIMENSIONS: L=
W= 18"
H=

UPSTREAM DIST./
EQUIVALENT DIAMETERS 8
DOWNSTREAM DIST./
EQUIVALENT DIAMETERS 2
NO. OF SAMPLING POINTS
SAMPLING PORT DIMENSIONS:
DIA.= 3"
PROTRUSION DIST.= ~~8~~ 13"



SAMPLE POINT	% OF STACK DIAMETER	DISTANCE FROM STACK WALL (IN.)	DISTANCE FROM SAMPLE PORT (IN.)
1	95.6	17.0	30.0
2	85.4	15.4	28.4
3	70.4	12.7	25.7
4	29.6	5.3	18.3
5	14.6	2.6	15.6
6	4.4	1.0	14.0

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714-596-5619 (FAX)

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APPENDIX B

ANALYTICAL LABORATORY RESULTS

16-Aug 91
Talked to Bob

AIR TOXICS LTD.

Stationary Source Test Method - Formaldehyde

(CARB Method 430)

High Pressure Liquid Chromatography

Calculated to one only

Field Sample I.D.	Lab Sample I.D.	File Name	Sample Date	Analyzed For	Total Volume (mL)	Dilution Factor	MDL (uG)	Amount (uG)
RUN #1	910418-01A	4040927	4/2/91	Formaldehyde	45	21	21	700
RUN #2	910418-02A	4040926	4/3/91	Formaldehyde	38	21	21	480
RUN #3	910418-03A	4040924	4/3/91	Formaldehyde	39	21	21	590
RUN #3 DUPLICATE	910418-03B	4040922	4/3/91	Formaldehyde	39	21	21	550
BLANK TRAIN	910418-04A	4040920	4/3/91	Formaldehyde	32	1	1	2.4
Trip Blank	910418-05A	4040928	NA	Formaldehyde	15	1	1	Not Detected
Lab Blank	910418-07A	4040915	NA	Formaldehyde	15	1	1	Not Detected
								% Recovery
Trip Spike	910418-06A	4040919	NA	Formaldehyde	15	1	1	71
Lab Spike	910418-08A	4040918	NA	Formaldehyde	15	1	1	93

Ave

Extraction Date: 4/8/91

Analysis Date: 4/9/91

COMMENTS: NA=Not Applicable

Bob or Linda
916-638-9892

Enseco
A Corning Company

Enseco - CRL
7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 891-5917

May 2, 1991

SOUTH COAST ENVIRONMENTAL CO.
1915 McKINLEY AVENUE, SUITE E
LA VERNE, CA 91750
ATTN: MR. KEITH SHANNON

Analysis No.: G-9109928-001/005
Date Sampled: 3-APR-1991
5-APR-1991
Date Sample Rec'd: 9-APR-1991
Project: T1265 PEn

Enclosed with this letter is the report on the chemical and physical analyses on the samples from ANALYSIS NO: G-9109928-001/005 shown above.

The samples were received by CRL in a chilled state, intact and with the chain-of-custody record attached.

Note that ND means not detected at the reporting limit expressed. The reporting limit is raised to reflect the dilution factor of the sample.

Preliminary data were provided on April 30, 1991 at 2:28 P.M.

Reviewed

Approved

The Report Cover Letter is an integral part of this report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purposes without authorization is prohibited.

Enseco
A Corning Company

Laboratory Report

SOUTH COAST ENVIRONMENTAL CO.
1915 McKINLEY AVENUE, SUITE E
LA VERNE, CA 91750
ATTN: MR. KEITH SHANNON
Project: T1265 PEn

Analysis No.: G-9109928-001
Date Sampled: 3-APR-1991
Date Sample Rec'd: 9-APR-1991
Sample Type: LIQUID

Sample ID: RUN 1 HCL-FILTER #1, FRONT HALF, BACK HALF

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Hydrochloric Acid, as Cl (CARB 421)	ug/sample	33800	1080	ND	25	04/29/91	04/29/91	RJ
'otal Impinger Volume (ML)	ml	527	NA	NA	NA	04/26/91	04/26/91	SF