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.

PETRO CHEM ENVIRONMENTAL SERVICES, INC.

Oxnard 10/90

LFG EFD

3D 9D

10/6/90

Formaldehyde = 0.0006 gr [illegible] = [illegible] $\times 10^{-5}$

average w/ [illegible]

= [illegible] $\times 10^{-5}$ + [illegible] $\times 10^{-3}$)/2 [illegible] $\times 10^{-4}$

Acetaldehyde = [illegible] = [illegible] $\times 10^{-5}$
Acrolein = 0.0006 / 15.6 = [illegible] $\times 10^{-5}$

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SUMMARY OF RESULTS

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 10-16-90
REPORT #:62-308

Method 430
Formaldehyde Results

Test Run	#1	#2	#3	average
Time	1405	1515	1620	
Formaldehyde ug/l	50	50	50	
Sample vol, l	0.042	0.037	0.035	
Formaldehyde, ug	2.10	1.85	1.75	
Vm std DSCF	2.01	2.16	2.15	
Vm std DSCM	0.057	0.061	0.061	
Volume Flow, DSCFM 1/	5404	5461	5393	
Concentrations :				
ug/dscf	1	1	1	1
ug/dscm	37	30	29	32
ppm	0.03	0.02	0.02	0.02
Emissions :				
lb/hr	0.0007	0.0006	0.0005	0.0006

1/ See Method st-16 data

2/ All emissions reported are "less than" or the lower limit of detection

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 10-16-90
REPORT #:62-308

Method 430
Acetaldehyde Results

Test Run	#1	#2	#3	average
Time	1405	1515	1620	
Formaldehyde ug/l	50	50	50	
Sample vol, l	0.042	0.037	0.035	
Formaldehyde, ug	2.10	1.85	1.75	
Vm std DSCF	2.01	2.16	2.15	
Vm std DSCM	0.057	0.061	0.061	
Volume Flow, DSCFM 1/	5404	5461	5393	
Concentrations :				
ug/dscf	1	1	1	1
ug/dscm	37	30	29	32
ppm	0.03	0.02	0.02	0.02
Emissions :				
lb/hr	0.0007	0.0006	0.0005	0.0006

1/ See Method st-16 data

2/ All emissions reported are "less than" or the lower limit of detection

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 10-16-90
REPORT #:62-308

Method 430
Acrolein Results

Test Run	#1	#2	#3	average
Time	1405	1515	1620	
Formaldehyde ug/l	50	50	50	
Sample vol, l	0.042	0.037	0.035	
Formaldehyde, ug	2.10	1.85	1.75	
Vm std DSCF	2.01	2.16	2.15	
Vm std DSCM	0.057	0.061	0.061	
Volume Flow, DSCFM 1/	5404	5461	5393	
Concentrations :				
ug/dscf	1	1	1	1
ug/dscm	37	30	29	32
ppm	0.03	0.02	0.02	0.02
Emissions :				
lb/hr	0.0007	0.0006	0.0005	0.0006

1/ See Method st-16 data

2/ All emissions reported are "less than" or the lower limit of detection

COMPANY : PACIFIC ENERGY
UNIT : OXNARD LANDFILL ICE #2
Date : 10-16-90
Report : 62-308

CARB 422 Summary, ppb
Light Molecular Weight Hydrocarbons, GCMS

Compound	Run #1 ppb	Run #2 ppb	Run #3 ppb	average ppb	
Acetone	1.0 *	1.2	2.4	1.5	
Acrylonitrile	0.0	0.0	0.0	0.0	1
Benzene	40.0	46.0	49.0	45.0	
2-Butanone, MEK	0.1 *	0.1 *	0.1 *	~~0.1~~	
Bromodichloromethane	0.1 *	0.1 *	0.1 *	~~0.1~~	
Carbon Disulfide	0.2 *	0.2 *	0.2 *	~~0.2~~	
Carbontetrachloride	0.1 *	0.1 *	0.1 *	~~0.1~~	
Chlorobenzene	0.7	0.5	0.6	0.6	
Chloroethane	0.1 *	0.1 *	0.1 *	~~0.1~~	
Chloroform	0.1 *	0.1 *	0.1 *	~~0.1~~	
Chloromethane	5.8	6.7	7.1	6.5	
Chloropicrin	0.0	0.0	0.0	0.0	1
Dibromochloromethane	0.1 *	0.1 *	0.1 *	~~0.1~~	
1,2-Dibromoethane	0.0	0.0	0.0	0.0	1
1,4-Dichlorobenzene	0.0	0.0	0.0	0.0	1
1,1-Dichloroethane	0.1 *	0.1 *	0.1 *	~~0.1~~	
1,2-Dichloroethane	0.1 *	0.1 *	0.1 *	~~0.1~~	
1,1-Dichloroethene	0.1 *	0.1 *	0.1 *	~~0.1~~	
Dichloromethane	3.4	5.3	110.0	39.6	
1,2-Dichloropropane	0.1 *	0.1 *	0.1 *	~~0.1~~	
1,4-Dioxane	0.0	0.0	0.0	0.0	1
Ethylbenzene	4.2	5.3	6.8	5	
2-Hexanone	0.1 *	0.1 *	0.1 *	0.1	
Hydrogen Sulfide	0.0	0.0	0.0	0.0	1
4-Methyl-2-Pentanone, MIBK	0.1 *	0.1 *	0.1 *	0.1	
Styrene	0.2 *	0.2 *	0.2 *	0.2	
Tetrachloroethene, PCE	12.0	1.5	1.8	5	
Toluene	27.0	32.0	32.0	30	
1,1,1-Trichloroethane, TCA	0.8	2.9	2.9	2	
1,1,2-Trichloroethane	0.1 *	0.1 *	0.1 *	0.1	
Trichloroethene, TCE	0.9	0.9	0.9	0.9	
Trichlorotrifluoroethane, f	0.2 *	0.4	0.4	0.3	
Trichlorofluoromethane	0.5	1.0	1.1	1	
Vinyl Chloride	3.6	3.6	3.9	3.7	
Xylenes	9.3	9.3	10.0	9.5	

*= less than the detection limit

1/ these compounds were not analyzed

COMPANY: PACIFIC ENERGY
UNIT : OXNARD LANDFILL ICE #2
Date : 10-16-90
Report : 62-308

CARB 422 Summary, lb/hr
Light Molecular Weight Hydrocarbons, GCMS

Compound	Run #1 lb/hr	Run #2 lb/hr	Run #3 lb/hr	average lb/hr	
Acetone	4.96E-05	*5.95E-05	1.19E-04	7.6E-05	
Acrylonitrile	0.00E+00	0.00E+00	0.00E+00	0.0E+00	1
Benzene	1.98E-03	3.07E-03	3.27E-03	2.8E-03	
2-Butanone, MEK	4.96E-06	*6.15E-06	*6.15E-06	* 5.8E-06	
Bromodichloromethane	4.96E-06	*1.39E-05	*1.39E-05	* 1.1E-05	
Carbon Disulfide	9.91E-06	*1.30E-05	*1.30E-05	* 1.2E-05	
Carbontetrachloride	4.96E-06	*1.32E-05	*1.32E-05	* 1.0E-05	
Chlorobenzene	3.47E-05	4.81E-05	5.77E-05	4.7E-05	
Chloroethane	4.96E-06	*5.51E-06	*5.51E-06	* 5.3E-06	
Chloroform	4.96E-06	*1.02E-05	*1.02E-05	* 8.5E-06	
Chloromethane	2.87E-04	2.89E-04	3.06E-04	2.9E-04	
Chloropicrin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	1
Dibromochloromethane	4.96E-06	*1.78E-05	*1.78E-05	* 1.4E-05	
1,2-Dibromoethane	0.00E+00	0.00E+00	0.00E+00	0.0E+00	1
1,4-Dichlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.0E+00	1
1,1-Dichloroethane	4.96E-06	*8.46E-06	*8.46E-06	* 7.3E-06	
1,2-Dichloroethane	4.96E-06	*8.46E-06	*8.46E-06	* 7.3E-06	
1,1-Dichloroethene	4.96E-06	*8.29E-06	*8.29E-06	* 7.2E-06	
Dichloromethane	1.68E-04	3.85E-04	7.99E-03	2.8E-03	
1,2-Dichloropropane	4.96E-06	*9.65E-06	*9.65E-06	* 8.1E-06	
1,4-Dioxane	0.00E+00	0.00E+00	0.00E+00	0.0E+00	1
Ethylbenzene	2.08E-04	4.80E-04	6.16E-04	4.3E-04	
2-Hexanone	4.96E-06	*8.54E-06	*8.54E-06	* 7.3E-06	
Hydrogen Sulfide	0.00E+00	0.00E+00	0.00E+00	0.0E+00	1
4-Methyl-2-Pentanone, MIBK	4.96E-06	*8.54E-06	*8.54E-06	* 7.3E-06	
Styrene	9.91E-06	*1.55E-05	*1.55E-05	* 1.4E-05	
Tetrachloroethene, PCE	5.95E-04	2.13E-04	2.55E-04	3.5E-04	
Toluene	1.34E-03	2.52E-03	2.52E-03	2.1E-03	
1,1,1-Trichloroethane, TCA	3.96E-05	3.31E-04	3.31E-04	2.3E-04	
1,1,2-Trichloroethane	4.96E-06	*1.14E-05	*1.14E-05	* 9.3E-06	
Trichloroethene, TCE	4.46E-05	1.01E-04	1.01E-04	8.2E-05	
Trichlorotrifluoroethane,	f9.91E-06	*6.41E-05	6.41E-05	4.6E-05	
Trichlorofluoromethane	2.48E-05	1.17E-04	1.29E-04	9.0E-05	
Vinyl Chloride	1.78E-04	1.92E-04	2.08E-04	1.9E-04	
Xylenes	4.61E-04	8.42E-04	9.06E-04	7.4E-04	

*= less than the detection limit

1/ these compounds were not analyzed

COMPANY: PACIFIC ENERGY
UNIT : OXNARD LANDFILL ICE #2
DATE : 10-16-90
REPORT#: 62-308

CARB 422 Summary, ppb
Light Molecular Weight Hydrocarbons, GCMS

Compound	Run #1 ppb	Run #2 ppb	Run #3 ppb	average ppb
Dichlorobenzene	0.2 *	0.2 *	0.2 *	0.2
1,2-Dibromoethane	0.2 *	0.2 *	0.2 *	0.2
1,4-Dioxane	0.2 *	0.2 *	0.3	0.2

*- less than the detection limit

COMPANY: PACIFIC ENERGY
UNIT : OXNARD LANDFILL ICE #2
DATE : 10-16-90
REPORT#: 62-308

CARB 422 Summary, lb/hr
Light Molecular Weight Hydrocarbons, GCMS

Compound	Run #1 lb/hr	Run #2 lb/hr	Run #3 lb/hr	average lb/hr
Dichlorobenzene	2.49E-05	*2.49E-05	*2.49E-05	* 2.5E-05
1,2-Dibromoethane	2.97E-05	*2.97E-05	*2.97E-05	* 3.0E-05
1,4-Dioxane	1.50E-05	*1.50E-05	*2.26E-05	1.8E-05

* less than the detection limit

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
REPORT #: 62-308
DATE: 10-16-90

Summary of Results for Phenolic Compounds

Pollutant	Test	Vm std	DSCFM	Total ug		gr/DSCF	lb/hr
Phenol	1	34.53	5404	70.6	*	3.15E-05	1.46E-03
	2	34.75	5461	71.6	*	3.17E-05	1.49E-03
	3	34.34	5393	74.6	*	3.35E-05	1.55E-03
				average	*	3.22E-05	1.50E-03
3/4-Methyl phenol m/p-cresol	1	34.53	5404	70.6	*	3.15E-05	1.46E-03
	2	34.75	5461	71.6	*	3.17E-05	1.49E-03
	3	34.34	5393	74.6	*	3.35E-05	1.55E-03
	average				*	3.22E-05	1.50E-03
2-Methyl-phenol o-cresol	1	34.53	5404	70.6	*	3.15E-05	1.46E-03
	2	34.75	5461	71.6	*	3.17E-05	1.49E-03
	3	34.34	5393	74.6	*	3.35E-05	1.55E-03
	average				*	3.22E-05	1.50E-03

* Values reported are lower detection limit

INTRODUCTION

INTRODUCTION

At the request of Pacific Energy Systems, Petro Chem Environmental Services (PCES) performed a series of source tests on one Superior internal combustion engine. The unit is located at the Oxnard Landfill and uses landfill gas as fuel. The purpose of the testing was to document emissions of various pollutants to satisfy the requirements for the State of California AB2588, Air Toxics "Hot Spots" Information and Assessment Act of 1987. The following tests were performed:

Pollutant	Date	Method	No. Runs
Benzene/Full Scan	10/16/90	CARB 422	3 + Blank
Formaldehyde, Acrolin Acetaldehyde	10/16/90	CARB 430	3 + Blank
Phenol	10/16/90	BAAQMD ST-16	3 + Blank

The samples were analyzed by the following laboratories:

Test Method	Analytical Laboratory
CARB 422	Coast to Coast Analytical of San Luis Obispo
CARB 430	Coast to Coast Analytical of San Luis Obispo
BAAQMD ST-16	Enesco Labs of Garden Grove

All sampling was conducted by Mr. Eric Charles and Mr. James Taplin of Petro Chem Environmental Services. Mr. Scott Davis supervised all testing and performed all testing equipment turnaround and method recovery procedures. Mr. Dennis Marsh of Pacific Energy Systems supervised all testing.

DISCUSSION

DISCUSSION

The testing of Pacific Energy System's Superior engine located at the Oxnard Landfill was conducted on October 16, 1990. All testing proceeded smoothly without any upsets due to testing equipment or engine operational problems. All testing was conducted upstream of the exhaust outlet. Two sample ports were placed on the same cross sectional plane 90 degrees apart, approximately five diameters downstream and two diameters upstream from disturbance in flow.

On July 31, 1990, a cyclonic flow check was conducted and showed an average angle of deviation of three degrees from sixteen traverse points (report #62-232).

SAMPLING METHODS

PETRO
CHEM
ENVIRONMENTAL
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3207 Antonino Avenue
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(805) 327-7300
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CARB METHOD 430: FORMALDEHYDE

The sampling apparatus consisted of a heated stainless steel probe followed by three midget impingers containing 15ml of acidified DNPH in the first two and silica gel in the third. The impinger train was connected to a vacuum pump/rotometer/dry gas meter assembly.
Prior to the test the impingers were cleaned with chromic acid, distilled water, methylene chloride, methanol, and oven dried. The impinger bottoms were sent to the analytical laboratory for charging. The impinger bottoms were charged, capped and returned to PCES for sampling within a 48 hour period of making the DNPH solution.

CARB METHOD 430 SAMPLING:

The charged impinger bottoms were stored in a friction top can with 1-2 inches of a activated charcoal and shipped to the sampling location. The impingers were uncapped, the impinger tops added and than the sampling train was assembled. The train was transported to the stack, and leak tested by closing the teflon stopcock at the first impinger while applying vacuum to the system. The stopcock was then opened and sampling proceeded at a sample rate of 1.0 lpm. (.035 ft/min). Upon completion of the test the train was leak tested again, and a 5ml distilled water probe wash was performed and allowed to drain into the first impinger. The train was then disconnected from the probe and lowered down to the mobile laboratory for sample recovery.
In the mobile laboratory the impinger tops were removed, impingers capped and sealed with teflon tape labeled, and placed back into the friction top can with activated charcoal. The samples were then shipped back to the analytical laboratory for extraction and analysis of formaldehyde by CARB Method 430, HPLC.
A field blank was similarly treated but, instead of sampling stack gas zero grade nitrogen was flushed through the impingers. A 5ml distilled water aliquot was added to the first impinger to represent a probe wash. A sample spike was performed by the analytical laboratory and that impinger was transported to the sample location where it remained for the duration of a test run. The sample spike was then sent back to the analytical laboratory along with the other samples for analysis.

PETRO
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METHOD 422 BENZENE

The sampling apparatus consisted of a heat traced stainless steel probe, teflon sample line, midget impinger moisture knockout, twenty liter tedlar bag housed in a rigid air tight container. The container was connected to a vacuum pump/rotometer/dry gas meter assembly.

The sampling apparatus was transported to the sample site and set up and leak tested by observing a zero reading on the rotometer. The sample probe/teflon line was purged with stack gas and the teflon stopcock of the midget impinger was opened to initiate sampling. Sampling was conducted over a one hour period, a final leak test was performed and the bag was recovered from the sample container. The contents of the impinger and distilled water rinsings were recovered into a villi vial and the vial was completely filled.

The samples were stored out of sunlight, packaged and sent to the analytical laboratory for analysis. The bag samples were analyzed by EPA Method TO14, GCMS modified for bag sample.

The condensate samples were analyzed by EPA Method 524.2/8240, purge and trap GCMS.

A bag blank (zero grade nitrogen) and distilled water were included with each sample set.

A laboratory spike was included with each sample set.

BAAQMD METHOD ST-16: PHENOLIC COMPOUNDS

METHOD ST-16 SAMPLING:

The sampling apparatus is the same as that which is described for EPA Method #5 and consisted of a quartz nozzle, heat traced quartz probe, borosilicate filter holder with a teflon-coated screen filter support, a teflon filter to impinger line and four modified Greenburg Smith impingers containing 100 ml 0.1N NaOH, 100 ml NaOH, dry and silica gel.

Prior to the testing all sampling equipment was cleaned with successive rinses of soapy water, tap water, 6N HNO3 soak, distilled H2O, and 0.1N NaOH. All sample containers were pre-cleaned by rinsing with 6N HNO3 rinse, distilled H2O and 0.1N NaOH.

The sample train was charged, a Whatman QMA Quartz fiber filter was placed into the filter holder and the probe/nozzle/filter was put together and all sampling equipment was sealed and transported to the stack for assembly.

The sampling equipment was assembled and leak tested at 10 inches Hg vacuum. The probe and filter components were heated to 250 + or - 25 degrees F. The probe was inserted into the stack and isokinetic sampling was initiated as per EPA Method #5.

Upon completion of a test the probe was withdrawn from the stack and leak tested at a vacuum equal to or greater than the maximum vacuum observed during the test. The equipment was then disassembled the filter to impinger line was rinsed with a known amount of 0.1N NaOH into the first impinger, and the components were then sealed with aluminum foil and transported to the mobile laboratory for sample recovery.

A field blank was similarly treated: charged, transported to the stack, leak tested, disassembled, and transported to the mobile laboratory for sample recovery. No additional gases were pulled through the field blank train.

METHOD ST-16 SAMPLE RECOVERY:

The filter and nozzle were separated from the probe. The probe was tilted and brushed three successive times while rinsing with 0.1N NaOH and rotating. Sterile surgical gloves were used during this process. All rinses were caught in an amber glass sample bottle. The nozzle, and filter top half were then similarly cleaned and the rinsings were combined with the probe wash. The filter was removed from the filter holder with teflon coated forceps, folded and placed into a petri dish.

The first, second and third impingers were disassembled, weighed, and their contents transferred to an amber sample bottle. The impingers cross overs and filter bottom half were rinsed three times with 0.1N NaOH, and the rinses were combined with the impingate sample.

Aliquots of the reagents grade chemicals and filters were recovered for analysis as reagent blanks. All samples were sealed, fluid levels marked, labeled and logged on a chain of custody form. Upon completion of the test they were transported to the laboratory for analysis.

METHOD ST-16 SAMPLE ANALYSIS:

The filter was digested and combined with the probe wash and impingate contents. The sample was then analyzed for phenolic compounds by gas chromatography.

The reagent blanks were similarly analyzed and an in-house spike was performed with a similar sample matrix, percent recoveries are reported.

METHOD 430 DATA

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 10-16-90
REPORT #:62-308

METHOD 430
FIELD DATA @ 70'

RUN #:	1	2	3
TIME:	1405	1515	1620
Vm (dry gas sampled)	2.1	2.25	2.25
Y (meter calib. factor)	0.984912	0.984912	0.984912
P bar (Barometric pressure)	30.5	30.5	30.5
P static (stack pressure, " H2O)	2.4	2.4	2.4
Delta H (differential meter press, " H2O)	0	0	0
Tm (meter temperature, R')	555	555	557
Vm(std),dscf	2.01	2.16	2.15
Vm(std),dscm	0.056916	0.061164	0.060881
Sample time	60	60	60

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 10-16-90
REPORT #:62-308

Method 430
Formaldehyde Results

Test Run	#1	#2	#3	average
Time	1405	1515	1620	
Formaldehyde ug/l	50	50	50	
Sample vol, l	0.042	0.037	0.035	
Formaldehyde, ug	2.10	1.85	1.75	
Vm std DSCF	2.01	2.16	2.15	
Vm std DSCM	0.057	0.061	0.061	
Volume Flow, DSCFM 1/	5404	5461	5393	
Concentrations :				
ug/dscf	1	1	1	1
ug/dscm	37	30	29	32
ppm	0.03	0.02	0.02	0.02
Emissions :				
lb/hr	0.0007	0.0006	0.0005	0.0006

1/ See Method st-16 data

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 10-16-90
REPORT #:62-308

Method 430
Acetaldehyde Results

Test Run	#1	#2	#3	average
Time	1405	1515	1620	
Formaldehyde ug/l	50	50	50	
Sample vol, l	0.042	0.037	0.035	
Formaldehyde, ug	2.10	1.85	1.75	
Vm std DSCF	2.01	2.16	2.15	
Vm std DSCM	0.057	0.061	0.061	
Volume Flow, DSCFM 1/	5404	5461	5393	
Concentrations :				
ug/dscf	1	1	1	1
ug/dscm	37	30	29	32
ppm	0.03	0.02	0.02	0.02
Emissions :				
lb/hr	0.0007	0.0006	0.0005	0.0006

1/ See Method st-16 data

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 10-16-90
REPORT #:62-308

Method 430
Acrolein Results

Test Run	#1	#2	#3	average
Time	1405	1515	1620	
Formaldehyde ug/l	50	50	50	
Sample vol, l	0.042	0.037	0.035	
Formaldehyde, ug	2.10	1.85	1.75	
Vm std DSCF	2.01	2.16	2.15	
Vm std DSCM	0.057	0.061	0.061	
Volume Flow, DSCFM 1/	5404	5461	5393	
Concentrations :				
ug/dscf	1	1	1	1
ug/dscm	37	30	29	32
ppm	0.03	0.02	0.02	0.02
Emissions :				
lb/hr	0.0007	0.0006	0.0005	0.0006

1/ See Method st-16 data

430 #1 FIELD DATA

Client: Pacific Energy Report #:
Location: Oxnard Engine #1
Operator: FLC/SAD
Date: 10/16/90
Run No: 1
Pump No.:
Meter Box No.: Pump/Meter #1 Factor:
Meter ΔH @:
Pitot Tube No.:

Post Test Leak Chk.

Leak Rate: 0.00 cfm
Vacuum: 6 (in Hg)

Pre Test LK CHK
RATE 0.000 cfm
VAC 6 IN Hg

Ambient Temp: 80
Barometric Pressure: 30.5
Static Pressure, (in Hg):
Assumed Moisture %:
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in):
Probe Liner Material:
Filter Number:
Duct Diam. (in):

Traverse Point number	Time: (e) min	Vacuum in Hg	Stack Temper. (Ts) °F	Velocity Head (ΔPs) (in)H₂O	Pressure Differencial across Orifice Meter ΔH (in H₂O) RATE	Gas Sample Volume (ft³)	Gas Sample Temp. at dry Gas Meter inlet (°F)	Gas Sample Temp. at dry Gas Meter outlet (°F)	Filter Holder Temperature: (°F)	Temperature Gas Leaving Condenser or Impinger (°F
	1405	4			.035	045.772				
	15	4			.035	046.121	96	96		
	25	4			.035	046.472				
	35	4			.035	046.821	95	95		
	45	4			.035	047.171				
	55	4			.035	047.522	96	94		
	15:05	4			.035	047.872				
						2.10				
								95>		
Total							avg.	avg.		
							avg.			

430 #2 FIELD DATA

Client: Pacific Energy Report #:
Location: Oxnard Engine #1
Operator: SAD
Date: 10/16/90
Run No: 2
Pump No.:
Meter Box No.: Pump/Meter Factor:
Meter ΔH @:
Pitot Tube No.:

Post Test Leak Chk.

Leak Rate: 0.000 cfm
Vacuum: 6 (in Hg)

Pretest LK chk
0.000 cfm
VAC 6 (in Hg)

Ambient Temp: 60
Barometric Pressure: 30.5
Static Pressure, (in Hg): 2.4
Assumed Moisture %: 20
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in):
Probe Liner Material: SS
Filter Number:
Duct Diam. (in):

Traverse Point number	Time: (e) min	Vacuum in Hg	Stack Temper. (Ts) °F	Velocity Head (ΔPs) (in)H_2O	Pressure Differencial across Orifice Meter ΔH (in H_2O) RATE	Gas Sample Volume (ft^3)	Gas Sample Temp. at dry Gas Meter inlet (°F)	Gas Sample Temp. at dry Gas Meter outlet (°F)	Filter Holder Temperature: (°F)	Temperature of Gas Leaving Condenser or Impinger (°F
START	15:15	4			.035 cfm	047.885	96	96		
	25	4			.035	048.235				
	35	4			.035	048.585				
	45	4			.035	048.935	95	95		
	55	4			.035	048.285				
	16:05	4			.035	049.635				
FINISH	16:15	4			.035	049.986	95	95		
						2.101				
								95		
Total							avg.	avg.		
							avg.			

430 #3 FIELD DATA

Client: Pacific Energy Report #:
Location: Oxnard Engine #1
Operator: JAT
Date: 10-16-90
Run No: 3
Pump No.:
Meter Box No.: pump meter Factor:
Meter ΔH @:
Pitot Tube No.:

Pre ~~Post~~ Test Leak Chk.

Leak Rate: 0.00 cfm
Vacuum: 6 (in Hg)

Ambient Temp: 75°
Barometric Pressure: 30.5
Static Pressure, (in Hg): 2.4
Assumed Moisture %: 20
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in):
Probe Liner Material: SS
Filter Number:
Duct Diam. (in):

Traverse Point number	Time: (e) min	Vacuum in Hg	Stack Temper. (Ts) °F	Velocity Head (ΔPs) (in)H₂O	Pressure Differencial across Orifice Meter ΔH (in H₂O) std	Gas Sample Volume (ft³)	Gas Sample Temp. at dry Gas Meter inlet (°F)	Gas Sample Temp. at dry Gas Meter outlet (°F)	Filter Holder Temperature: (°F)	Temperature Gas Leaving Condenser or Impinger (°F)
	16:20	4			.035	050.00				
	:30	4			.035	050.350	90	90		
	:40	4			.035	050.700				
	:50	4			.035	051.050				
	17:00	4			.035	051.400	97	97		
	:00	4			.035	051.750				
	17:20	4			.035	052.100	97	97		
						2.10 cf				
								97		
Total							avg.	avg.		
							avg.			

Coast-to-Coast Analytical Services

Coast-to-Coast
Analytical Services
141 Suburban Road
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: As Listed
Collected: 10/17/90
Received: 10/19/90
Tested: 10/31/90
Collected by: S. Davis

Attn: Faythe Blythe
Petro Chem Environmental
3207 Antonino Ave.
Bakersfield, CA 93308

Sample Description:

Job #62-308, PES, Oxnard Landfill,
Impingates As Listed

REPORT

LAB NUMBER	SAMPLE DESCRIPTION	LEVEL FOUND		
		ACETALDEHYDE ug/L	ACROLEIN ug/L	FORMALDEHYDE ug/L
METHOD----------		CARB 430	CARB 430	CARB 430
DETECTION LIMIT(PQL)**-----		50.	50.	50.
ANALYST----------		ML	ML	ML
G-4022-1	Samples #1 & 2, Run-1, Volume = 42 ml	<50.	<50.	<50.
G-4022-2	Samples #3 & 4, Run-2, Volume = 37 ml	<50.	<50.	<50.
G-4022-3	Samples #5 & 6, Run-3, Volume = 35 ml	<50.	<50.	<50.
G-4022-4	Samples #7 & 8, Blank Run, Volume = 31.5 ml	<50.	<50.	70.
G-4022-5	DNPH Reagent	<50.	<50.	<50.
	SPIKED AT	2200.	1600.	780.
	FOUND W/SPIKE	2000.	1400.	460.
	PERCENT RECOVERY	91.	88.	59.
G-4022-6	DNPH Blank Volume = 29 ml	<50.	<50.	70.

**Practical Quantitation Limit

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES

Shelli St. Clair

Shelli St. Clair, Group Leader

Stephen Havlicek for,

Mary Havlicek, Ph.D., President

11/01/90
G4022F.WR1/FORM1
MH/ml/ml/ss

CHEM ENVIRONMENTAL SERVICES, INC.
5207 Antonino Avenue
Bakersfield, California 933
(805) 327-7300
FAX (805) 327-3459

CHAIN OF CUSTODY RECORD

METHOD: 430

CLIENT: PES

JOB NO. 62-308

LOCATION: Oxnard Landfill

REPORT ATTN. TO: Scott Davis

P.O. #1016 $6 4022

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	SAMPLE TYPE liq.	filter	gas	ANALYSIS REQUIRED Form+
1	DNPH Imp #1 RUN #1	10/17	✓		-1	combine & ANALYZE EACH RUN seperately for total formaldehyde
2	DNPH Imp #2 RUN #1	10/17	✓			
3	DNPH Imp #1 RUN #2	10/17	✓		-2	total Formaldehyde " "
4	DNPH Imp #2 RUN #2	10/17	✓			
5	DNPH Imp #1 RUN #3	10/17	✓		-3	" "
6	DNPH Imp #2 RUN #3	10/17	✓			
7	DNPH Imp #1 BLANK RUN	10/17	✓		-4	" "
8	DNPH Imp #2 BLANK RUN	10/17	✓			
	Spike	10/17	✓		-5	Analyze total Formaldehyde
	DNPH BLANK	10/17	✓		-6	ANALYZE for Ng/L Formaldehyde
**	2 imp not used — DO NOT ANALYZE					

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
Scott Davis	10-17-90	[signature]	10/17/90
[signature]	10/18/90	[signature]	10/19/90
RELINQUISHED BY:	DATE	RECEIVED BY: Sealed intact	DATE 1200

METHOD 422 DATA

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 10-16-90
REPORT #:62-308

METHOD 422
FIELD DATA @ 70'

RUN #:	1	2	3
TIME:	915	1030	1150
Vm (dry gas sampled)	0.9	0.9	0.9
Y (meter calib. factor)	0.984912	0.984912	0.984912
P bar (Barometric pressure)	30.5	30.5	30.5
P static (stack pressure, " H2O)	2.4	2.4	2.4
Delta H (differential meter press, " H2O)	0	0	0
Tm (meter temperature, R')	546	551	553

Vm(std),dscf	0.88	0.87	0.87
Vm(std),dscm	0.024918	0.024635	0.024635
Sample time	60	60	60

COMPANY: PACIFIC ENERGY
UNIT : OXNARD LANDFILL ICE #2
Date : 10-16-90
Report : 62-308

CARB 422 RUN #1
Light Molecular Weight Hydrocarbons, GCMS

Compound		ppb	TOTAL lb/hr *
Acetone		1.0 *	4.96E-05 *
Acrylonitrile	1	0.0	0.00E+00
Benzene		40.0	1.98E-03
2-Butanone, MEK		0.1 *	4.96E-06 *
Bromodichloromethane		0.1 *	4.96E-06 *
Carbon Disulfide		0.2 *	9.91E-06 *
Carbontetrachloride		0.1 *	4.96E-06 *
Chlorobenzene		0.7	3.47E-05
Chloroethane		0.1 *	4.96E-06 *
Chloroform		0.1 *	4.96E-06 *
Chloromethane		5.8	2.87E-04
Chloropicrin	1	0.0	0.00E+00
Dibromochloromethane		0.1 *	4.96E-06 *
1,2-Dibromoethane		0.0	0.00E+00
1,4-Dichlorobenzen	1	0.0	0.00E+00
1,1-Dichloroethane		0.1 *	4.96E-06 *
1,2-Dichloroethane		0.1 *	4.96E-06 *
1,1-Dichloroethene		0.1 *	4.96E-06 *
Dichloromethane		3.4	1.68E-04
1,2-Dichloropropane		0.1 *	4.96E-06 *
1,4-Dioxane		0.0	0.00E+00
Ethylbenzene		4.2	2.08E-04
2-Hexanone		0.1 *	4.96E-06 *
Hydrogen Sulfide	1	0.0	0.00E+00
4-Methyl-2-Pentanone, MIBK		0.1 *	4.96E-06 *
Styrene		0.2 *	9.91E-06 *
Tetrachloroethene, PCE		12.0	5.95E-04
Toluene		27.0	1.34E-03
1,1,1-Trichloroethane, TCA		0.8	3.96E-05
1,1,2-Trichloroethane		0.1 *	4.96E-06 *
Trichloroethene, TCE		0.9	4.46E-05
Trichlorotrifluoroethane, f		0.2 *	9.91E-06 *
Trichlorofluoromethane		0.5	2.48E-05
Vinyl Chloride		3.6	1.78E-04
Xylenes		9.3	4.61E-04

*= less than the detection limit

1/ these compounds were not analyzed

DSCFM = 5404 see Method ST-16 DATA

UNIT : OXNARD LANDFILL ICE #2
Date : 10-16-90
Report : 62-308

CARB 422 RUN #2
Light Molecular Weight Hydrocarbons, GCMS

Compound		ppb		TOTAL lb/hr *	
Acetone		1.2		5.95E-05	
Acrylonitrile	1	0.0		0.00E+00	
Benzene		46.0		3.07E-03	
2-Butanone, MEK		0.1	*	6.15E-06	*
Bromodichloromethane		0.1	*	1.39E-05	*
Carbon Disulfide		0.2	*	1.30E-05	*
Carbontetrachloride		0.1	*	1.32E-05	*
Chlorobenzene		0.5		4.81E-05	
Chloroethane		0.1	*	5.51E-06	*
Chloroform		0.1	*	1.02E-05	*
Chloromethane		6.7		2.89E-04	
Chloropicrin	1	0.0		0.00E+00	
Dibromochloromethane		0.1	*	1.78E-05	*
1,2-Dibromoethane		0.0		0.00E+00	
1,4-Dichlorobenzen	1	0.0		0.00E+00	
1,1-Dichloroethane		0.1	*	8.46E-06	*
1,2-Dichloroethane		0.1	*	8.46E-06	*
1,1-Dichloroethene		0.1	*	8.29E-06	*
Dichloromethane		5.3		3.85E-04	
1,2-Dichloropropane		0.1	*	9.65E-06	*
1,4-Dioxane		0.0		0.00E+00	
Ethylbenzene		5.3		4.80E-04	
2-Hexanone		0.1	*	8.54E-06	*
Hydrogen Sulfide	1	0.0		0.00E+00	
4-Methyl-2-Pentanone, MIBK		0.1	*	8.54E-06	*
Styrene		0.2	*	1.55E-05	*
Tetrachloroethene, PCE		1.5		2.13E-04	
Toluene		32.0		2.52E-03	
1,1,1-Trichloroethane, TCA		2.9		3.31E-04	
1,1,2-Trichloroethane		0.1	*	1.14E-05	*
Trichloroethene, TCE		0.9		1.01E-04	
Trichlorotrifluoroethane, f		0.4		6.41E-05	
Trichlorofluoromethane		1.0		1.17E-04	
Vinyl Chloride		3.6		1.92E-04	
Xylenes		9.3		8.42E-04	

*= less than the detection limit

1/ these compounds were not analyzed

DSCFM = 5461 see Method ST-16 DATA

COMPANY: PACIFIC ENERGY
UNIT : OXNARD LANDFILL ICE #2
Date : 10-16-90
Report : 62-308

CARB 422 RUN #3
Light Molecular Weight Hydrocarbons, GCMS

Compound		ppb		TOTAL lb/hr *	
Acetone		2.4		1.19E-04	
Acrylonitrile	1	0.0		0.00E+00	
Benzene		49.0		3.27E-03	
2-Butanone, MEK		0.1	*	6.15E-06	*
Bromodichloromethane		0.1	*	1.39E-05	*
Carbon Disulfide		0.2	*	1.30E-05	*
Carbontetrachloride		0.1	*	1.32E-05	*
Chlorobenzene		0.6		5.77E-05	
Chloroethane		0.1	*	5.51E-06	*
Chloroform		0.1	*	1.02E-05	*
Chloromethane		7.1		3.06E-04	
Chloropicrin	1	0.0		0.00E+00	
Dibromochloromethane		0.1	*	1.78E-05	*
1,2-Dibromoethane		0.0		0.00E+00	
1,4-Dichlorobenzen	1	0.0		0.00E+00	
1,1-Dichloroethane		0.1	*	8.46E-06	*
1,2-Dichloroethane		0.1	*	8.46E-06	*
1,1-Dichloroethene		0.1	*	8.29E-06	*
Dichloromethane		110.0		7.99E-03	
1,2-Dichloropropane		0.1	*	9.65E-06	*
1,4-Dioxane		0.0		0.00E+00	
Ethylbenzene		6.8		6.16E-04	
2-Hexanone		0.1	*	8.54E-06	*
Hydrogen Sulfide	1	0.0		0.00E+00	
4-Methyl-2-Pentanone, MIBK		0.1	*	8.54E-06	*
Styrene		0.2	*	1.55E-05	*
Tetrachloroethene, PCE		1.8		2.55E-04	
Toluene		32.0		2.52E-03	
1,1,1-Trichloroethane, TCA		2.9		3.31E-04	
1,1,2-Trichloroethane		0.1	*	1.14E-05	*
Trichloroethene, TCE		0.9		1.01E-04	
Trichlorotrifluoroethane, f		0.4		6.41E-05	
Trichlorofluoromethane		1.1		1.29E-04	
Vinyl Chloride		3.9		2.08E-04	
Xylenes		10.0		9.06E-04	

*= less than the detection limit

1/ these compounds were not analyzed

DSCFM = 5393 see Method ST-15 DATA

COMPANY: PACIFIC ENERGY
UNIT : OXNARD LANDFILL ICE #2
DATE : 10-16-90
REPORT#: 62-308

CARB 422 RUN #1
Light Molecular Weight Hydrocarbons, GCMS

Compound	ppb	TOTAL lb/hr *
Dichlorobenzene	0.2	2.49E-05 *
1,2-Dibromoethane	0.2	2.97E-05 *
1,4-Dioxane	0.2	1.50E-05 *

*= less than the detection limit

DSCFM - 5404 see Method ST-16 data

COMPANY: PACIFIC ENERGY
UNIT : OXNARD LANDFILL ICE #2
DATE : 10-16-90
REPORT#: 62-308

CARB 422 RUN #2
Light Molecular Weight Hydrocarbons, GCMS

Compound	ppb	TOTAL lb/hr *
Dichlorobenzene	0.2	2.49E-05 *
1,2-Dibromoethane	0.2	2.97E-05 *
1,4-Dioxane	0.2	1.50E-05 *

*= less than the detection limit

DSCFM 5461 see Method ST-16 data

UNIT : OXNARD LANDFILL ICE #2
DATE : 10-16-90
REPORT#: 62-308

CARB 422 RUN #3
Light Molecular Weight Hydrocarbons, GCMS

Compound	ppb	TOTAL lb/hr *
Dichlorobenzene	0.2	2.49E-05 *
1,2-Dibromoethane	0.2	2.97E-05 *
1,4-Dioxane	0.3	2.26E-05

* less than the detection limit

DSCFM 5393 see Method ST-16 data

Benzenes Run #1 w/ Blank FIELD DATA

Client: Pacific Energy Report #: _____
Location: Orange C
Operator: JAT
Date: 10-16-90
Run No: 1 + Blank
Pump No.: —
Meter Box No.: Rotameter Factor: _____
Meter ΔH @: _____
Pitot Tube No.: _____

Post Test Leak Chk.

Leak Rate: 0.00 cfm
Vacuum: 2 (in Hg)

Ambient Temp: _____
Barometric Pressure: 30.50
Static Pressure, (in Hg): 2.4
Assumed Moisture %: 20
Nozzle Ident. No.: —
Aver. Calib. Nozzle Diam.(in): ~~Teflon~~
Probe Liner Material: Teflon
Filter Number: —
Duct Diam. (in): 17.5

Traverse Point number	Time: (e) min	Vacuum in Hg	Stack Temper. (Ts) °F	Velocity Head (ΔPs) (in)H_2O	Pressure Differencial across Orifice Meter ΔH (in H_2O)	Gas Sample Volume (ft^3)	Gas Sample Temp. at dry Gas Meter inlet (°F)	Gas Sample Temp. at dry Gas Meter outlet (°F)	Filter Holder Temperature: (°F)	Temperature of Gas Leaving Condenser or Last Impinger (°F)
	9:15	2			.015	41.8	86	86		
	:25	2			.015	41.95				
	:35	2			.015	42.10				
	:45	2			.015	42.25	[illegible]	[illegible]		
	:55	2			.015	42.40				
	10:05	2			.015	42.55				
	:15	2			.015	42.70	[illegible]	[illegible]		
						0.915				
								86		
	12.55	2			.015	044.77				
BLANK	:05	2			.015	44.92	88	88		
	:15	2			.015	45.07				
	:25	2			.015	45.22	88	88		
	:35	2			.015	45.37				
	:45	2			.015	45.52				
Total	13:55	2			.015	45.67	avg. 88	avg. 88		
						0.9[illegible]	avg. [illegible]			

Run #2 & #3 FIELD DATA

Client: Boise Cascade Report #: _____
Location: Oxnard
Operator: JAT
Date: 10-16-90
Run No: 2 & 3
Pump No.: —
Meter Box No.: Pump#1 Factor: _____
Meter ΔH @: —
Pitot Tube No.: —

Post Test Leak Chk.

Leak Rate: 0.00 cfm
Vacuum: 2 (in Hg)

Ambient Temp: _____
Barometric Pressure: 30.5
Static Pressure, (in Hg): 2.4
Assumed Moisture %: —
Nozzle Ident. No.: —
Aver. Calib. Nozzle Diam.(in): —
Probe Liner Material: TEFLON
Filter Number: —
Duct Diam. (in): 17.5

Traverse Point number	Time: (e) min	Vacuum in Hg	Stack Temper. (Ts) °F	Velocity Head (ΔPs) (in)H_2O	Pressure Differencial across Orifice Meter ΔH (in H_2O)	Gas Sample Volume (ft^3)	Gas Sample Temp. at dry Gas Meter inlet (°F)	Gas Sample Temp. at dry Gas Meter outlet (°F)	Filter Holder Temperature: (°F)	Temperature of Gas Leaving Condenser or Last Impinger (°F)
	10:30	2			.015	42.95	91	91		
	:40	2			.015	43.10				
Run #2	:50	2			.015	43.25	91	91		
	11:00	2			.015	43.40				
	:10	2			.015	43.55				
	:20	2			.015	43.70	91	91		
	:30	2			.015	43.85				
	"					(0.90)		(91)		
	11:50				.015	43.86				
	12:00				.015	44.01	93	93		
Run #3	:10				.015	44.16				
	:20				.015	44.31				
	:30				.015	44.46	93	93		
	:40				.015	44.61				
	:50				.015	44.76	93	93		
							avg.	avg.		
							avg.	93		

Coast-to-Coast Analytical Services

Coast-to-Coast
Analytical Services, Inc.
141 Suburban Road
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: G-3996-1
Collected: 10/16/90
Received: 10/18/90
Tested: 10/18/90
Collected by: E. Charles

ATTN: Scott Davis
Petro Chem Environmental
3207 Antonino Avenue
Bakersfield, CA 93308

GC/MS AMBIENT AIR ANALYSIS EPA TO-14
Sample Description:
Proj.#62-308, Pacific Energy Systems, Oxnard,
1 Run-1, Bag #1, Engine #1, Air

HAZARDOUS SUBSTANCE LIST		Detection Limit	Concentration	
Compound Analyzed	(CAS RN)	ppbv	ug/cu M	ppbv
Acetone	(67641)	1.0	not found	not found
Benzene	(71432)	0.1	140.	40.
Bromodichloromethane	(75274)	0.1	not found	not found
Bromomethane	(74839)	0.2	not found	not found
Bromoform	(75252)	0.1	not found	not found
2-Butanone (MEK)	(78933)	0.1	not found	not found
Carbon Disulfide	(75150)	0.2	not found	not found
Carbon Tetrachloride	(56235)	0.1	not found	not found
Chlorobenzene	(108907)	0.1	3.3	0.7
Chloroethane	(75003)	0.1	not found	not found
2-Chloroethylvinyl Ether	(110758)	1.0	not found	not found
Chloroform	(67663)	0.1	not found	not found
Chloromethane	(107302)	0.1	13.	5.8
Dibromochloromethane	(124481)	0.1	not found	not found
1,1-Dichloroethane	(75343)	0.1	not found	not found
1,2-Dichloroethane	(107062)	0.1	not found	not found
1,1-Dichloroethene	(75354)	0.1	not found	not found
c-1,2-Dichloroethene	(156605)	0.1	3.2	0.7
t-1,2-Dichloroethene	(156605)	0.1	not found	not found
Dichlorobenzenes	(25321226)	0.2	not found	not found
Dichloromethane	(75092)	1.0	13.	3.4
1,2-Dichloropropane	(78875)	0.1	not found	not found
cis-1,3-Dichloropropene	(10061015)	0.1	not found	not found
trans-1,3-Dichloropropene	(10061026)	0.1	not found	not found
Ethylbenzene	(100414)	0.2	20.	4.2
2-Hexanone	(591786)	0.1	not found	not found
4-Methyl-2-Pentanone (MIBK)	(624839)	0.1	not found	not found
Styrene	(100425)	0.2	not found	not found
1,1,2,2-Tetrachloroethane	(79345)	0.2	not found	not found
Tetrachloroethene (PCE)	(127184)	0.2	89.	12.
Toluene	(108883)	0.2	110.	27.
1,1,1-Trichloroethane (TCA)	(71556)	0.1	4.7	0.8
1,1,2-Trichloroethane	(79005)	0.1	not found	not found
Trichloroethene (TCE)	(79016)	0.1	5.2	0.9
Trichlorofluoromethane (F11)	(75694)	0.2	3.1	0.5
Trichlorotrifluoroethane	(76131)	0.2	not found	not found
Vinyl Acetate	(108054)	1.0	not found	not found
Vinyl Chloride	(75014)	0.1	10.	3.6
Xylenes	(1330207)	0.2	44.	9.3

Percent Recovery of Sample-Specific Quality Assurance Spike is: 106.

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES

Laurence R. Hilpert, Ph.D.
Vice President

MSD#1
10/26/90
G3996-1.wr1/HSL23
LRH/ec/gd/co

Coast-to-Coast Analytical Services

Coast-to-Coast
Analytical Services, Inc.
141 Suburban Road
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: G-3996-2
Collected: 10/16/90
Received: 10/18/90
Tested: 10/18/90
Collected by: E. Charles

GC/MS AMBIENT AIR ANALYSIS EPA TO-14

ATTN: Scott Davis
Petro Chem Environmental
3207 Antonino Avenue
Bakersfield, CA 93308

Sample Description:
Proj.#62-308, Pacific Energy Systems, Oxnard,
2 Run-2, Bag #2, Engine #1, Air

HAZARDOUS SUBSTANCE LIST Compound Analyzed	(CAS RN)	Detection Limit ppbv	Concentration ug/cu M	Concentration ppbv
Acetone	(67641)	1.0	3.1	1.2
Benzene	(71432)	0.1	160.	46.
Bromodichloromethane	(75274)	0.1	not found	not found
Bromomethane	(74839)	0.2	not found	not found
Bromoform	(75252)	0.1	not found	not found
2-Butanone (MEK)	(78933)	0.1	not found	not found
Carbon Disulfide	(75150)	0.2	not found	not found
Carbon Tetrachloride	(56235)	0.1	not found	not found
Chlorobenzene	(108907)	0.1	2.3	0.5
Chloroethane	(75003)	0.1	not found	not found
2-Chloroethylvinyl Ether	(110758)	1.0	not found	not found
Chloroform	(67663)	0.1	not found	not found
Chloromethane	(107302)	0.1	15.	6.7
Dibromochloromethane	(124481)	0.1	not found	not found
1,1-Dichloroethane	(75343)	0.1	not found	not found
1,2-Dichloroethane	(107062)	0.1	not found	not found
1,1-Dichloroethene	(75354)	0.1	not found	not found
c-1,2-Dichloroethene	(156605)	0.1	3.6	0.8
t-1,2-Dichloroethene	(156605)	0.1	not found	not found
Dichlorobenzenes	(25321226)	0.2	not found	not found
Dichloromethane	(75092)	1.0	20.	5.3
1,2-Dichloropropane	(78875)	0.1	not found	not found
cis-1,3-Dichloropropene	(10061015)	0.1	not found	not found
trans-1,3-Dichloropropene	(10061026)	0.1	not found	not found
Ethylbenzene	(100414)	0.2	25.	5.3
2-Hexanone	(591786)	0.1	not found	not found
4-Methyl-2-Pentanone (MIBK)	(624839)	0.1	not found	not found
Styrene	(100425)	0.2	not found	not found
1,1,2,2-Tetrachloroethane	(79345)	0.2	not found	not found
Tetrachloroethene (PCE)	(127184)	0.2	11.	1.5
Toluene	(108883)	0.2	130.	32.
1,1,1-Trichloroethane (TCA)	(71556)	0.1	17.	2.9
1,1,2-Trichloroethane	(79005)	0.1	not found	not found
Trichloroethene (TCE)	(79016)	0.1	5.2	0.9
Trichlorofluoromethane (F11)	(75694)	0.2	6.0	1.0
Trichlorotrifluoroethane	(76131)	0.2	2.9	0.4
Vinyl Acetate	(108054)	1.0	not found	not found
Vinyl Chloride	(75014)	0.1	10.	3.6
Xylenes	(1330207)	0.2	44.	9.3

Percent Recovery of Sample-Specific Quality Assurance Spike is: 105.

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES

Laurence R. Hilpert, Ph.D.
Vice President

MSD#1
10/26/90
G3996-2.wr1/HSL23
LRH/ec/gd/co

Coast-to-Coast Analytical Services

Coast-to-Coast
Analytical Services, Inc.
141 Suburban Road
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: G-3996-3
Collected: 10/16/90
Received: 10/18/90
Tested: 10/18/90
Collected by: E. Charles

ATTN: Scott Davis
Petro Chem Environmental
3207 Antonino Avenue
Bakersfield, CA 93308

GC/MS AMBIENT AIR ANALYSIS EPA TO-14
Sample Description:
Proj.#62-308, Pacific Energy Systems, Oxnard,
3 Run-3, Bag #3, Engine #1, Air

HAZARDOUS SUBSTANCE LIST Compound Analyzed	(CAS RN)	Detection Limit ppbv	Concentration ug/cu M	Concentration ppbv
Acetone	(67641)	1.0	6.3	2.4
Benzene	(71432)	0.1	170.	49.
Bromodichloromethane	(75274)	0.1	not found	not found
Bromomethane	(74839)	0.2	not found	not found
Bromoform	(75252)	0.1	not found	not found
2-Butanone (MEK)	(78933)	0.1	not found	not found
Carbon Disulfide	(75150)	0.2	not found	not found
Carbon Tetrachloride	(56235)	0.1	not found	not found
Chlorobenzene	(108907)	0.1	2.9	0.6
Chloroethane	(75003)	0.1	not found	not found
2-Chloroethylvinyl Ether	(110758)	1.0	not found	not found
Chloroform	(67663)	0.1	not found	not found
Chloromethane	(107302)	0.1	16.	7.1
Dibromochloromethane	(124481)	0.1	not found	not found
1,1-Dichloroethane	(75343)	0.1	not found	not found
1,2-Dichloroethane	(107062)	0.1	not found	not found
1,1-Dichloroethene	(75354)	0.1	not found	not found
c-1,2-Dichloroethene	(156605)	0.1	3.2	0.7
t-1,2-Dichloroethene	(156605)	0.1	not found	not found
Dichlorobenzenes	(25321226)	0.2	1.6	0.3
Dichloromethane	(75092)	1.0	410.	110.
1,2-Dichloropropane	(78875)	0.1	not found	not found
cis-1,3-Dichloropropene	(10061015)	0.1	not found	not found
trans-1,3-Dichloropropene	(10061026)	0.1	not found	not found
Ethylbenzene	(100414)	0.2	32.	6.8
2-Hexanone	(591786)	0.1	not found	not found
4-Methyl-2-Pentanone (MIBK)	(624839)	0.1	not found	not found
Styrene	(100425)	0.2	not found	not found
1,1,2,2-Tetrachloroethane	(79345)	0.2	not found	not found
Tetrachloroethene (PCE)	(127184)	0.2	13.	1.8
Toluene	(108883)	0.2	130.	32.
1,1,1-Trichloroethane (TCA)	(71556)	0.1	17.	2.9
1,1,2-Trichloroethane	(79005)	0.1	not found	not found
Trichloroethene (TCE)	(79016)	0.1	5.4	0.9
Trichlorofluoromethane (F11)	(75694)	0.2	6.6	1.1
Trichlorotrifluoroethane	(76131)	0.2	3.5	0.4
Vinyl Acetate	(108054)	1.0	not found	not found
Vinyl Chloride	(75014)	0.1	11.	3.9
Xylenes	(1330207)	0.2	48.	10.

Percent Recovery of Sample-Specific Quality Assurance Spike is: 108.

MSD#1
10/29/90
G3996-3.wr1/HSL23
LRH/ec/gd/co

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES

Laurence R. Hilpert, Ph.D.
Vice President

Coast-to-Coast Analytical Services

Coast-to-Coast
Analytical Services, Inc.
141 Suburban Road
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: G-3996-3dup
Collected: 10/16/90
Received: 10/18/90
Tested: 10/18/90
Collected by: E. Charles

ATTN: Scott Davis
Petro Chem Environmental
3207 Antonino Avenue
Bakersfield, CA 93308

GC/MS AMBIENT AIR ANALYSIS EPA TO-14
Sample Description:
Proj.#62-308, Pacific Energy Systems, Oxnard,
3 Run-3, Bag #3, Engine #1, Air, DUPLICATE

HAZARDOUS SUBSTANCE LIST Compound Analyzed	(CAS RN)	Detection Limit ppbv	Concentration ug/cu M	Concentration ppbv
Acetone	(67641)	1.0	6.5	2.5
Benzene	(71432)	0.1	150.	43.
Bromodichloromethane	(75274)	0.1	not found	not found
Bromomethane	(74839)	0.2	not found	not found
Bromoform	(75252)	0.1	not found	not found
2-Butanone (MEK)	(78933)	0.1	not found	not found
Carbon Disulfide	(75150)	0.2	not found	not found
Carbon Tetrachloride	(56235)	0.1	not found	not found
Chlorobenzene	(108907)	0.1	2.7	0.5
Chloroethane	(75003)	0.1	not found	not found
2-Chloroethylvinyl Ether	(110758)	1.0	not found	not found
Chloroform	(67663)	0.1	not found	not found
Chloromethane	(107302)	0.1	16.	7.1
Dibromochloromethane	(124481)	0.1	not found	not found
1,1-Dichloroethane	(75343)	0.1	not found	not found
1,2-Dichloroethane	(107062)	0.1	not found	not found
1,1-Dichloroethene	(75354)	0.1	not found	not found
c-1,2-Dichloroethene	(156605)	0.1	3.5	0.8
t-1,2-Dichloroethene	(156605)	0.1	not found	not found
Dichlorobenzenes	(25321226)	0.2	1.3	0.2
Dichloromethane	(75092)	1.0	390.	100.
1,2-Dichloropropane	(78875)	0.1	not found	not found
cis-1,3-Dichloropropene	(10061015)	0.1	not found	not found
trans-1,3-Dichloropropene	(10061026)	0.1	not found	not found
Ethylbenzene	(100414)	0.2	29.	6.1
2-Hexanone	(591786)	0.1	not found	not found
4-Methyl-2-Pentanone (MIBK)	(624839)	0.1	not found	not found
Styrene	(100425)	0.2	not found	not found
1,1,2,2-Tetrachloroethane	(79345)	0.2	not found	not found
Tetrachloroethene (PCE)	(127184)	0.2	13.	1.8
Toluene	(108883)	0.2	120.	29.
1,1,1-Trichloroethane (TCA)	(71556)	0.1	15.	2.5
1,1,2-Trichloroethane	(79005)	0.1	not found	not found
Trichloroethene (TCE)	(79016)	0.1	4.1	0.7
Trichlorofluoromethane (F11)	(75694)	0.2	6.3	1.0
Trichlorotrifluoroethane	(76131)	0.2	3.1	0.4
Vinyl Acetate	(108054)	1.0	not found	not found
Vinyl Chloride	(75014)	0.1	11.	3.9
Xylenes	(1330207)	0.2	44.	9.3

Percent Recovery of Sample-Specific Quality Assurance Spike is: 111.

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES

Laurence R. Hilpert, Ph.D.
Vice President

MSD#1
10/29/90
G3996-3d.wr1/HSL23
LRH/ec/gd/co

Coast-to-Coast Analytical Services

Coast-to-Coast
Analytical Services, Inc.
141 Suburban Road
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: G-3996-4
Collected: 10/16/90
Received: 10/18/90
Tested: 10/18/90
Collected by: E. Charles

ATTN: Scott Davis
Petro Chem Environmental
3207 Antonino Avenue
Bakersfield, CA 93308

GC/MS AMBIENT AIR ANALYSIS EPA TO-14
Sample Description:
Proj.#62-308, Pacific Energy Systems, Oxnard, Blank Bag #4, Air

HAZARDOUS SUBSTANCE LIST Compound Analyzed	(CAS RN)	Detection Limit ppbv	Concentration ug/cu M	Concentration ppbv
Acetone	(67641)	1.0	not found	not found
Benzene	(71432)	0.1	19.	5.5
Bromodichloromethane	(75274)	0.1	not found	not found
Bromomethane	(74839)	0.2	not found	not found
Bromoform	(75252)	0.1	not found	not found
2-Butanone (MEK)	(78933)	0.1	not found	not found
Carbon Disulfide	(75150)	0.2	not found	not found
Carbon Tetrachloride	(56235)	0.1	not found	not found
Chlorobenzene	(108907)	0.1	not found	not found
Chloroethane	(75003)	0.1	not found	not found
2-Chloroethylvinyl Ether	(110758)	1.0	not found	not found
Chloroform	(67663)	0.1	not found	not found
Chloromethane	(107302)	0.1	6.5	2.9
Dibromochloromethane	(124481)	0.1	not found	not found
1,1-Dichloroethane	(75343)	0.1	not found	not found
1,2-Dichloroethane	(107062)	0.1	not found	not found
1,1-Dichloroethene	(75354)	0.1	not found	not found
c-1,2-Dichloroethene	(156605)	0.1	not found	not found
t-1,2-Dichloroethene	(156605)	0.1	not found	not found
Dichlorobenzenes	(25321226)	0.2	not found	not found
Dichloromethane	(75092)	1.0	370.	98.
1,2-Dichloropropane	(78875)	0.1	not found	not found
cis-1,3-Dichloropropene	(10061015)	0.1	not found	not found
trans-1,3-Dichloropropene	(10061026)	0.1	not found	not found
Ethylbenzene	(100414)	0.2	12.	2.5
2-Hexanone	(591786)	0.1	not found	not found
4-Methyl-2-Pentanone (MIBK)	(624839)	0.1	not found	not found
Styrene	(100425)	0.2	not found	not found
1,1,2,2-Tetrachloroethane	(79345)	0.2	not found	not found
Tetrachloroethene (PCE)	(127184)	0.2	6.5	0.9
Toluene	(108883)	0.2	35.	8.5
1,1,1-Trichloroethane (TCA)	(71556)	0.1	7.4	1.2
1,1,2-Trichloroethane	(79005)	0.1	not found	not found
Trichloroethene (TCE)	(79016)	0.1	2.5	0.4
Trichlorofluoromethane (F11)	(75694)	0.2	2.5	0.4
Trichlorotrifluoroethane	(76131)	0.2	not found	not found
Vinyl Acetate	(108054)	1.0	not found	not found
Vinyl Chloride	(75014)	0.1	not found	not found
Xylenes	(1330207)	0.2	22.	4.7

Percent Recovery of Sample-Specific Quality Assurance Spike is: 101.

MSD#1
10/29/90
G3996-4.wr1/HSL23
LRH/ec/gd/co

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES

Laurence R. Hilpert, Ph.D.
Vice President

Coast-to-Coast Analytical Services

Coast-to-Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: As Listed
Collected: 10/16/90
Received: 10/18/90
Tested: 10/18/90
Collected by: E. Charles

SUPPLEMENTARY REPORT FOR AIR ANALYSIS BY EPA TO-14 (GC/MS)

ATTN: Scott Davis
Petro Chem Environmental
3207 Antonino Avenue
Bakersfield, CA 93308

Sample Description:

Proj.#62-308, Pacific Energy Systems, Oxnard
Tedlar Bags, Air Samples As Listed

EPA METHOD----------	TO-14
DETECTION LIMIT(PQL)*-----	1.
DATE/ANALYST----------	10-18-90/EJAC

LAB NUMBER	SAMPLE DESCRIPTION	LEVEL FOUND (ug/cu m) 1,2-DIBROMOETHANE	1,4-DIOXANE
G-3996-1	1 Run-1 Bag #1 Engine #1	not found	not found
G-3996-2	2 Run-2 Bag #2 Engine #1	not found	not found
G-3996-3	3 Run-3 Bag #2 Engine #1	not found	not found
G-3996-4	Blank Bag #4	not found	not found

*Practical Quantitation Limit

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES

L R Hilpert for

Mary Havlicek, Ph.D., President

MSD#1
11/12/90
G3996lm.wr1/SUPS3
LRH/ec/co

Coast to Coast

PETRO CHEM ENVIRONMENTAL SERVICES, INC.

3207 Antonino Avenue
Bakersfield, California 93388
(805) 327-7300
FAX (805) 327-3459

CHAIN OF CUSTODY RECORD

METHOD: 422 / 410 A Benzenes 327-7300

CLIENT: Pacific Energy Systems JOB NO. 62-308

LOCATION: Oxnard REPORT ATTN. TO: Scott Davis

P.O. # 1012

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	SAMPLE TYPE liq.	filter	gas	ANALYSIS REQUIRED
1	IC Engine #1 Run-1 Bag #1	10/16			✓	SG 3996-1 Benzenes by PID
2	" " Run-2 Bag #2	10/16			✓	" " -2
3	" " Run-3 Bag #3	10/16			✓	" " -3
4	" " Blank Bag #4	10/16			✓	" " -4
11	IC Engine #1 condensate run #1	10/16	✓			Cancelled 10-18-90 as per Scott Davis Samples sent back to Petro Chem " -5
12	" " run #2	10/16	✓			" -6
13	" " run #3	10/16	✓			" -7
14	" " Blank	10/16	✓			" -8
	impingers ?					

COMMENTS: Eric Checks

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
Eric Check	10-17-90	Todd Black	10/17/90
RELINQUISHED BY: Todd Black	DATE 10/17/90	RECEIVED BY: John Clark	DATE 10/18/90
RELINQUISHED BY:	DATE	RECEIVED BY: Sealed, intact	DATE

BAACM METHOD ST-16

DATA

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 10-16-90
REPORT #:62-308

METHOD ST-16
FIELD DATA @ 70'

RUN #:	1	2	3
TIME:	1050	1225	1515
Vm (dry gas sampled)	35.89	35.48	35.06
Y (meter calib. factor)	0.998880	0.99888	0.99888
P bar (Barometric pressure)	30.5	30.5	30.5
P static (stack pressure, " H2O)	2.4	2.4	2.4
Delta H (differential meter press, " H2O)	0.78	0.78	0.76
Tm (meter temperature, R')	562	552	552
Vol H2O mls	124.9	123.3	124.5
Vm(std),dscf	34.53	34.75	34.34
Bws-H2O vapor	0.1463	0.1439	0.1465
MF-moisture factor	0.8537	0.8561	0.8535
% CO2	7.3	7.5	7.2
% O2	8.4	8.4	8.4
% N2	84.3	84.1	84.4
Md-MW stk gas,dry	29.5	29.54	29.49
Ms-MW stk gas,wet	27.82	27.88	27.81
Cp-pitot tube	0.84	0.84	0.84
Avg sq rt ^p	1.789	1.806	1.783
T stack, R'	1431	1433	1427
Stack area,ft2	1.67	1.67	1.67
Vs-fps	166.36	167.88	165.6
Qstd-dscfm	5404	5461	5393
Area noz,ft2	1.73E-04	1.73E-04	1.73E-04
Sample time	60	60	60
% Isokinetic	102.9	102.5	102.6

COMPANY: PACIFIC ENERGY
UNIT : OXNARD LANDFILL ICE #2
DATE : 10-16-90
REPORT#: 62-308

Summary of Results for Phenolic Compounds

Pollutant	Test	Vm std	DSCFM	Total ug		gr/DSCF	lb/hr
Phenol	1	34.53	5404	70.6	*	3.15E-05	1.46E-03
	2	34.75	5461	71.6	*	3.17E-05	1.49E-03
	3	34.34	5393	74.6	*	3.35E-05	1.55E-03
				average	*	3.22E-05	1.50E-03
3/4-Methyl phenol	1	34.53	5404	70.6	*	3.15E-05	1.46E-03
	2	34.75	5461	71.6	*	3.17E-05	1.49E-03
	3	34.34	5393	74.6	*	3.35E-05	1.55E-03
average					*	3.22E-05	1.50E-03
2-Methel-phenol	1	34.53	5404	70.6	*	3.15E-05	1.46E-03
	2	34.75	5461	71.6	*	3.17E-05	1.49E-03
	3	34.34	5393	74.6	*	3.35E-05	1.55E-03
average					*	3.22E-05	1.50E-03

* Values reported are lower detection limit

COMPANY: Pacific Lightning Energy
REPORT #: 62-308
UNIT ID: #1
DATE: 10/16/90

ON-SITE DATA

SITE: Oxnard Landfill

RUN #:	#1	#2	#3
TIME:	1050-1155	1225-1330	1350-1455
Vm Dry sampled gas volume, dcf	35.69	35.48	35.00
Y Meter calibration factor (met# 1002 → ____)	.9988602 →		
P bar Barometric pressure, in Hg	30.50	30.50	30.50
P static Stack static pressure, in H_2	+2.4	+2.4	+2.4
Delta H Differential meter pressure, in H_2O	.78	.78	.76
Tm Meter temperature, deg F	102	92	92

Contents	Run 1 final	Run 1 tare	Run 1 net	Run 2 final	Run 2 tare	Run 2 net	Run 3 final	Run 3 tare	Run 3 net
100 mL, 1 N NaOH	731.0	573.8	157.2	750.8	603.2	147.6	742.8	572.1	170.7
100 mL, 1N NaOH	599.4	585.4	14.0	635.1	621.8	13.3	596.0	589.9	6.1
Dry	499.4	497.9	1.5	482.1	478.9	3.2	498.7	497.9	0.8
Silica	847.3	833.6	13.7	829.8	819.2	10.6	855.4	846.7	8.7
LW			-61.5			-51.4			-61.8
V lc, volume of H_2O, grams			124.9			123.3			124.5

	#1	#2	#3
CO_2 % Dry Volume	7.3	7.5	7.2
O_2 % Dry Volume	8.4	8.3	8.3
N_2 % Dry Volume	84.3	86.2	84.5
Cp Pitot tube coefficient (Pit# ____ ____ ____)	.84	.84	.84
Delta P Avg Delta-P, in H_2O	3.2	3.26	3.18
Ts Stack temperature, in deg F	971	973	967
As Stack area, sq. ft	1.67	1.67	1.67
Ds Stack Diameter, inches	17.5	17.5	17.5
Dn Nozzle diameter, inches	.178	.178	.178
Dur Sampling time, min	60	60	60
% Iso Mini Iso			

****

Filter #	QT 270	QT 271	QT 272
Filter tare weights, grams	0.82566	0.82512	.82560

INITIALS**

CONTROL BOX#: _____
Hi Δ P _____ Lo Δ P _____ Ave Δ P _____ Duct Temp. _____
Diameters before disturb _____ After _____
# of Points, total _____
Overall (inches) _____ Coupling _____

[illegible] FIELD DATA

Client: Pacific Energy Report #:
Location: OX Naval
Operator: ELC
Date: 10-16-90
Run No: #1
Pump No.: Rust
Meter Box No.: 1002 Factor:
Meter ΔH @: .900
Pitot Tube No.: CP .84

Pre/Post Test Leak Chk.

Leak Rate: 0.00 cfm
Vacuum: 10 (in Hg)

post leak ck 0.00

Vac 10

Ambient Temp:
Barometric Pressure: 30.50
Static Pressure, (in Hg): +2.4
Assumed Moisture %: 13 mmt 27.5
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in): .178
Probe Liner Material: Quartz
Filter Number:
Duct Diam. (in):

Traverse Point number	Time: (e) min	Vacuum in Hg	Stack Temper. (Ts) °F	Velocity Head (ΔPs) (in)H_2O	Pressure Differencial across Orifice Meter ΔH (in H_2O)		Gas Sample Volume (ft^3)	Gas Sample Temp. at dry Gas Meter inlet (°F)	Gas Sample Temp. at dry Gas Meter outlet (°F)	Filter Holder Temperature: (°F)		Temperature of Gas Leaving Condenser or La Impinger (°F)
1	10:50	4	971	27	.55	0.67	096.80	104	104	250	254	68
2	55	4	973	29	.57	0.71	99.54	104	98			
3	11:00	4	973	30	.58	0.73	102.38	104	99			
4	05	4	972	34	.61	0.81	105.27	105	97			
5	10	4	977	36	.63	0.85	108.33	105	97			
6	15	4	970	38	.65	0.90	111.49	107	102	249	255	68
p/c							114.73					
1	11:25	4	970	27	.55	0.67	114.73	105	100	244	253	68
2	30	4	968	27	.55	0.67	117.47	104	100			
3	35	4	964	30	.58	0.74	120.20	107	104			
4	40	4	970	35	.62	0.84	123.13	105	101			
5	45	4	972	37	.64	0.88	126.24	104	100			
6	50	4	969	38	.65	0.90	129.44	101	94			
EOT	55						132.69					
			971	32		0.780	150: 100.21		102			VOL = 53.67
Total								avg.	avg.			
Average							35.65 cu Feet	avg.				

Blind Stack FIELD DATA

Client: Pacific Energy Report #:
Location: Oxnard
Operator: JAT
Date: 10-16-90
Run No: 2
Pump No.: 1002
Meter Box No.: 1002 Factor:
Meter ΔH @: .900
Pitot Tube No.: Cl. 84.

Post Test Leak Chk.

Leak Rate: 0.01 cfm
Vacuum: 10 (in Hg)

Ambient Temp: 70°
Barometric Pressure: 30.50
Static Pressure, (in Hg): +2.4
Assumed Moisture %: 13
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in): .178
Probe Liner Material: Quartz
Filter Number:
Duct Diam. (in): 18"

Traverse Point number	Time: (e) min	Vacuum in Hg	Stack Temper. (Ts) °F	Velocity Head (ΔPs) (in)H_2O	Pressure Differencial across Orifice Meter ΔH (in H_2O)		Gas Sample Volume (ft^3)	Gas Sample Temp. at dry Gas Meter inlet (°F)	Gas Sample Temp. at dry Gas Meter outlet (°F)	Filter Holder Temperature: (°F)		Temperature of Gas Leaving Condenser or La Impinger (°F)
6	12:25		970	3.9	.65	0.92	133.80	100	99	250	252	
5	:30		976	3.7	.63	0.86	137.08	89	94			
4	:35		973	3.5	.61	0.82	140.22	91	90			
3	:40		974	3.0	.55	0.72	143.27	90	92			
2	:45		972	2.8	.54	0.68	146.10	91	89			
1	:50		970	2.7	.54	0.66	148.83	90	90			
P/C	:55						151.51			249	252	
6	1:00		971	3.8	.65	0.90	151.51	100	99	249	251	
5	:05		975	3.7	.63	0.86	154.74	90	93			
4	:10		973	3.6	.62	0.84	157.88	91	90			
3	:15		974	3.0	.57	0.72	160.98	90	92			
2	:20		971	3.9	.56	0.70	163.81	91	89			
1	:25		971	2.7	.54	0.66	166.59	90	92	248	252	
E.O.T	:30						169.28					
Total			973	3.26		0.78	35.18 cf	avg.	avg. 92	VEL	53.43	

Method 5I-10 FIELD DATA

Client: Pacific Energy Report #: _____
Location: Oxnard
Operator: JAT
Date: 10-16-90
Run No: 3
Pump No.: 1002
Meter Box No.: 1002 Factor: _____
Meter ΔH @: .900
Pitot Tube No.: CP-84

Post Test Leak Chk.

Leak Rate: 0.00 cfm
Vacuum: 10 (in Hg)

Ambient Temp: 70°
Barometric Pressure: 30.50
Static Pressure, (in Hg): +2.4
Assumed Moisture %: 20 mm 21.5
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .178
Probe Liner Material: Quartz
Filter Number: _____
Duct Diam. (in): _____

Traverse Point number	Time: (e) min	Vacuum in Hg	Stack Temper. (Ts) °F	Velocity Head (ΔPs) (in)H₂O	Pressure Differencial across Orifice Meter ΔH (in H₂O)		Gas Sample Volume (ft³)	Gas Sample Temp. at dry Gas Meter inlet (°F)	Gas Sample Temp. at dry Gas Meter outlet (°F)	Filter Holder Temperature: (°F)		Temperature Gas Leaving Condenser or Impinger (°F
1	1:50		984	2.6	.53	0.63	169.80	93	93	249	250	68
2	:55		986	2.6	.52	0.63	172.43	92	89			
3	2:00		985	3.0	.56	0.71	175.05	93	89			
4	:05		982	3.5	.61	0.82	177.87	93	89			
5	:10		936	3.6	.63	0.86	180.92	93	91			
6	:15		928	3.7	.64	0.89	184.06	92	91	250	251	
P/L	:20						187.25					
1	:25		984	2.7	.54	0.65	187.25	93	92	250	252	
2	:30		985	2.8	.54	0.67	189.93	93	89			
3	:35		986	3.1	.57	0.74	192.65	93	90			
4	:40		981	3.4	.60	0.80	195.51	94	90			
5	:45		936	3.6	.63	0.86	198.52	92	92			
6	:50		927	3.7	.64	0.89	201.66	93	92	251	251	
End T	:55						204.86					
			967	3.18			35.06 CF					
						0.76		avg	avg 92	UCL 52.64		

CALLAB-055415

Enseco, Inc. - Cal Lab Analytical
544 Industrial Bvd.

West Sacramento, California 95691
(916) 372-1393

Date Received : 22 OCT 90 11:55

Mr. Scott Davis
Petro Chem Environmental Services Inc. -
3207 Antonino Ave.
Bakersfield, California
93388

(805) 327-7300

Project ID,
EPA Case, RMA Lot : Petro Chem (62-30)Pacific Energy/Oxnard 10/22/90

P.O. Number :

Delivered By :

Storage Location : R18

Logged in by : TCLEARY

Nine samples received under COC in good condition. Delivered by UPS.

Sample ID	Enseco ID	Client's label info	Date/Time Samp.	Containers
055415-0001-SA	170199	#10 P/N-1	16 OCT 90	1-250AGJ
055415-0002-SA	170200	#11 IMP-1	16 OCT 90	1-500AGJ
055415-0003-SA	170201	#12 FILTER-1	16 OCT 90	1-PETRI
055415-0004-SA	170202	#13 P/N-2	16 OCT 90	1-250AGJ
055415-0005-SA	170204	#14 IMP-2	16 OCT 90	1-500AGJ
055415-0006-SA	170206	#15 FILTER-2	16 OCT 90	1-PETRI
055415-0007-SA	170207	#16 IMP-3	16 OCT 90	1-500AGJ
055415-0008-SA	170208	#17 P/N-3	16 OCT 90	1-250AGJ
055415-0009-SA	170209	#18 FILTER-3	16 OCT 90	1-PETRI

Samples not destroyed in testing are retained a maximum of thirty (30) days unless otherwise requested.

Client Manager: Tim Cleary

Phenols by Method TO-8

Method TO8

Client Name: Petro Chem Environmental Services Inc.
Client ID: #10 P/N-1
Lab ID: 055415-0001-SA
Matrix: GAS Sampled: 16 OCT 90 Received: 22 OCT 90
Authorized: 26 OCT 90 Prepared: NA Analyzed: 01 NOV 90

Parameter	Result	Units	Reporting Limit
Phenol	ND	ug/sample	16
2-Methylphenol	ND	ug/sample	16
3/4-Methylphenol	ND	ug/sample	16

ND = Not detected
NA = Not applicable

Reported By: Claire Hanamoto Approved By: Lisa Stafford

The cover letter is an integral part of this report.
Rev 230787

Phenols by Method TO-8

Method TO8

Client Name: Petro Chem Environmental Services Inc.
Client ID: #11 IMP-1
Lab ID: 055415-0002-SA
Matrix: GAS Sampled: 16 OCT 90 Received: 22 OCT 90
Authorized: 26 OCT 90 Prepared: NA Analyzed: 01 NOV 90

Parameter	Result	Units	Reporting Limit
Phenol	ND	ug/sample	52
2-Methylphenol	ND	ug/sample	52
3/4-Methylphenol	ND	ug/sample	52

ND = Not detected
NA = Not applicable

Reported By: Claire Hanamoto Approved By: Lisa Stafford

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Phenols by Method TO-8

Method TO8

Client Name: Petro Chem Environmental Services Inc.
Client ID: #12 FILTER-1
Lab ID: 055415-0003-SA
Matrix: GAS Sampled: 16 OCT 90 Received: 22 OCT 90
Authorized: 26 OCT 90 Prepared: NA Analyzed: 01 NOV 90

Parameter	Result	Units	Reporting Limit
Phenol	ND	ug/sample	2.6
2-Methylphenol	ND	ug/sample	2.6
3/4-Methylphenol	ND	ug/sample	2.6

ND = Not detected
NA = Not applicable

Reported By: Claire Hanamoto Approved By: Lisa Stafford

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Phenols by Method TO-8

Method TO8

Client Name: Petro Chem Environmental Services Inc.
Client ID: #13 P/N-2
Lab ID: 055415-0004-SA
Matrix: GAS
Authorized: 26 OCT 90

Sampled: 16 OCT 90
Prepared: NA

Received: 22 OCT 90
Analyzed: 01 NOV 90

Parameter	Result	Units	Reporting Limit
Phenol	ND	ug/sample	17
2-Methylphenol	ND	ug/sample	17
3/4-Methylphenol	ND	ug/sample	17

ND = Not detected
NA = Not applicable

Reported By: Claire Hanamoto

Approved By: Lisa Stafford

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Phenols by Method TO-8

Method TO8

Client Name: Petro Chem Environmental Services Inc.
Client ID: #14 IMP-2
Lab ID: 055415-0005-SA
Matrix: GAS
Authorized: 26 OCT 90

Sampled: 16 OCT 90
Prepared: NA

Received: 22 OCT 90
Analyzed: 01 NOV 90

Parameter	Result	Units	Reporting Limit
Phenol	ND	ug/sample	52
2-Methylphenol	ND	ug/sample	52
3/4-Methylphenol	ND	ug/sample	52

ND = Not detected
NA = Not applicable

Reported By: Claire Hanamoto

Approved By: Lisa Stafford

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Phenols by Method TO-8

Method TO8

Client Name: Petro Chem Environmental Services Inc.
Client ID: #17 P/N-3
Lab ID: 055415-0008-SA
Matrix: GAS Sampled: 16 OCT 90 Received: 22 OCT 90
Authorized: 26 OCT 90 Prepared: NA Analyzed: 01 NOV 90

Parameter	Result	Units	Reporting Limit
Phenol	ND	ug/sample	19
2-Methylphenol	ND	ug/sample	19
3/4-Methylphenol	ND	ug/sample	19

ND = Not detected
NA = Not applicable

Reported By: Claire Hanamoto Approved By: Lisa Stafford

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Phenols by Method TO-8

Method TO8

Client Name: Petro Chem Environmental Services Inc.
Client ID: #15 FILTER-2
Lab ID: 055415-0006-SA
Matrix: GAS Sampled: 16 OCT 90 Received: 22 OCT 90
Authorized: 26 OCT 90 Prepared: NA Analyzed: 01 NOV 90

Parameter	Result	Units	Reporting Limit
Phenol	ND	ug/sample	2.6
2-Methylphenol	ND	ug/sample	2.6
3/4-Methylphenol	ND	ug/sample	2.6

ND = Not detected
NA = Not applicable

Reported By: Claire Hanamoto Approved By: Lisa Stafford

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Phenols by Method TO-8

Method TO8

Client Name: Petro Chem Environmental Services Inc.
Client ID: #18 FILTER-3
Lab ID: 055415-0009-SA
Matrix: GAS Sampled: 16 OCT 90 Received: 22 OCT 90
Authorized: 26 OCT 90 Prepared: NA Analyzed: 01 NOV 90

Parameter	Result	Units	Reporting Limit
Phenol	ND	ug/sample	2.6
2-Methylphenol	ND	ug/sample	2.6
3/4-Methylphenol	ND	ug/sample	2.6

ND = Not detected
NA = Not applicable

Reported By: Claire Hanamoto Approved By: Lisa Stafford

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Phenols by Method TO-8

Method TO8

Client Name: Petro Chem Environmental Services Inc.
Client ID: #16 IMP-3
Lab ID: 055415-0007-SA
Matrix: GAS
Authorized: 26 OCT 90

Sampled: 16 OCT 90
Prepared: NA

Received: 22 OCT 90
Analyzed: 01 NOV 90

Parameter	Result	Units	Reporting Limit
Phenol	63	ug/sample	53
2-Methylphenol	ND	ug/sample	53
3/4-Methylphenol	ND	ug/sample	53

ND = Not detected
NA = Not applicable

Reported By: Claire Hanamoto

Approved By: Lisa Stafford

The cover letter is an integral part of this report.
Rev 230787

PETRO CHEM ENVIRONMENTAL SERVICES, INC.

3207 Antonino Avenue
Bakersfield, California 93388
(805) 327-7300
FAX (805) 327-3459

CHAIN OF CUSTODY RECORD

METHOD: ST-16

CLIENT: Pacific Energy Systems JOB NO. 62-308

LOCATION: Oxnard REPORT ATTN. TO: Scott Davis

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	SAMPLE TYPE liq.	filter	gas	ANALYSIS REQUIRED
10	Pacific Energy Oxnard meth. ST-16 phenols P/N 1	10/16	✓			Phenols + Cresols method ST-16 by HPLC
11	Pacific Energy Oxnard meth. ST-16 phenols Imp. 1	10/16	✓			Composite + analyze for Phenols + Cresols
12	Pacific Energy Oxnard meth. ST-16 phenols Filter #1	10/16		✓		method ST-16 by HPLC
13	Pacific Energy Oxnard meth. ST-16 phenols P/N 2	10/16	✓			" "
14	Pacific Energy Oxnard meth. ST-16 phenols Imp. 2	10/16	✓			" "
15	Pacific Energy Method ST-16 Phenols Filter 2	10/16		✓		
16	Pacific Energy Oxnard meth. ST-16 phenols Imp 3	10/16	✓			" "
17	Pacific Energy Oxnard meth ST-16 phenols P/N 3	10/16	✓			" "
18	Pacific Energy Oxnard meth. ST-16 phenols Filter #3	10/16		✓		

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
[signature]	10/17/90	[signature]	10/18/90
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
[signature]	10/18/90		
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

EQUIPMENT CALIBRATIONS

PETRO-CHEM ENVIRONMENTAL
DRY GAS METER CALIBRATION

DATE:10-12-90
OPERATOR:BDM
METER ID PUMPMETER

AMBIENT TEMP.	72
BAROMETRIC Pbar	29.52
TEST METER ID#:	S5M104564
TEST METER Mcf:	1.031

	APROXIMATE CFM		.02	.04	.1
STD	TEST METER VOLUME CF	INT.	0.00	0.00	0.00
		FINAL	5.01	5.25	5.01
		TOTAL	5.01	5.25	5.01
FIELD	GAS METER VOLUME CF	INT.	1.10	34.25	7.40
		FINAL	6.34	39.78	12.67
		TOTAL	5.24	5.53	5.27
STD	TEST METER TEMP F'		87	66	71
FIELD	GAS METER TEMP F'				
	IN		86	66	67.5
	OUT		86	66.5	70.5
	AVERAGE		86	66.25	69
STD	TEST METER PRES.(in H2O)		-1.30	-0.60	-0.30
FIELD	GAS METER PRES.(in H2O)		0	0	0
FIELD	GAS METER Mcf		.9839441	.9792627	.9764431

FIELD AVERAGE Mcf: .9849125

PETRO-CHEM ENVIRONMENTAL
DRY GAS METER CALIBRATION

DATE:10-9-90
OPERATOR:BDM
METER ID 1002

AMBIENT TEMP.	71
BAROMETRIC Pbar	30.22
TEST METER ID#:	S5M104564
TEST METER Mcf:	1.031

	APROXIMATE CFM		1	.75	.5	.3
STD	TEST METER VOLUME CF	INT.	0.00	0.00	0.00	0.00
		FINAL	10.541	7.386	10.01	10.01
		TOTAL	10.541	7.39	10.01	10.01
FIELD	GAS METER VOLUME CF	INT.	86.00	69.30	45.20	31.20
		FINAL	96.20	76.80	55.70	41.92
		TOTAL	10.20	7.50	10.50	10.72
STD	TEST METER TEMP F'		73	71	68	66
FIELD	GAS METER TEMP F'					
	IN		92	87	79	68
	OUT		78	74	69	62
	AVERAGE		85	80.5	74	65
STD	TEST METER PRES.(in H2O)		-1.30	-0.60	-0.30	-0.15
FIELD	GAS METER PRES.(in H2O)		2.72	1.35	.5	.18
FIELD	GAS METER Mcf		1.082293	1.030110	.9928480	.9604646

FIELD AVERAGE Mcf: 1.016429