AB2588 SOURCE TEST REPORT

PACIFIC ENERGY SYSTEMS
6055 E. Washington Blvd.
Commerce, CA 90040

ATTENTION: Mr. Terence Hee

UNIT TESTED:

Oxnard Landfill
rior Internal Combustion Engine #2

DATE TESTED:

July 23 thru July 27, 1990

DATE REPORTED:

October 24, 1990

EMISSIONS DETERMINATION OF:

CARB Method 429: PAH
CARB Method 430: Formaldehyde
od 436: As,Be,Cd,Cr,Cu,Pb,Mg,Hg,Ni,Se,Zn
CARB Method 423: As
hod 425: Total Chrome/Hexavalent Chromium
CARB Method 421: HCL
CARB Method 13B: HFL

Report: 62-232

Tested by: JEM
Jim Marchesini

Reviewed by: JEM

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SUMMARY OF RESULTS

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
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Summary of Results for PAH Emissions; CARB Method 429

Pollutant			gr/DSCF	lb/hr
Naphthalene	Average		1.12E-05	5.53E-04
Acenaphthylene	Average		4.65E-08	2.30E-06
Acenaphthene	Average	*	1.56E-07	7.74E-06
Fluorene	Average	*	4.68E-08	2.32E-06
Phenanthrene	Average		2.00E-07	9.90E-06
Anthracene	Average	*	4.18E-08	2.07E-06
Fluoranthene	Average		3.87E-08	1.92E-06
Pyrene	Average		5.67E-08	2.81E-06
Benzo(a)anthracene	Average	*	2.71E-08	1.34E-06
Chrysene	Average		2.64E-08	1.31E-06
Benzo(b)floranthene	Average		3.25E-08	1.61E-06
Benzo(k)floranthene	Average	*	4.78E-08	2.37E-06
Benzo(a)pyrene	Average	*	8.01E-08	3.97E-06
Dibenz(a,h)anthracene	Average	*	1.00E-07	4.97E-06
Benzo(g,h,i)perylene	Average	*	7.45E-08	3.69E-06
Indeno(1,2,3-cd)pyrene	Average	*	7.88E-08	3.90E-06

* Values reported are lower detection limit

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
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Method 430
Formaldehyde Results

Test Run	#1	#2	#3	average
Time	814	825	818	
Formaldehyde ug/l	5900	750	50	
Sample vol, l	0.033	0.033	0.031	
Formaldehyde, ug	195	25	2	
Vm std DSCF	2.06	20.4	20.5	
Vm std DSCM	0.058	0.058	0.058	
Volume Flow, DSCFM 1/	5747	5747	5747	
Concentrations :				
ug/dscf	95	1	0	32
ug/dscm	3357	427	27	1270
ppm	2.49	0.03	0.00	0.84
Emissions :				
lb/hr	0.0657	0.0008	0.0001	0.0222

1/ See Method 436 and Method 423 field data

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
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Summary of Results for Metal Emissions

CARB Method 436

Pollutant	Run			gr/DSCF	lb/hr
Arsenic	1		*	4.74E-07	2.34E-05
	2			5.34E-07	2.66E-05
	3			4.65E-07	2.31E-05
		Average		4.91E-07	2.44E-05
Beryllium	Run			gr/DSCF	lb/hr
	1		*	1.90E-07	9.38E-06
	2		*	2.11E-07	1.05E-05
	3		*	1.85E-07	9.21E-06
		Average	*	1.95E-07	9.70E-06
Cadmium	Run			gr/DSCF	lb/hr
	1			4.11E-06	2.03E-04
	2			4.59E-06	2.28E-04
	3			7.97E-08	3.96E-06
		Average		2.93E-06	1.45E-04
Chromium	Run			gr/DSCF	lb/hr
	1			2.78E-07	1.38E-05
	2			4.92E-07	2.45E-05
	3			5.01E-07	2.49E-05
		Average		4.24E-07	2.11E-05
Copper	Run			gr/DSCF	lb/hr
	1			1.86E-07	9.22E-06
	2			1.23E-07	6.10E-06
	3			2.47E-06	1.23E-04
		Average		9.27E-07	4.61E-05
Lead	Run			gr/DSCF	lb/hr
	1		*	4.74E-07	2.34E-05
	2		*	4.99E-07	2.48E-05
	3		*	4.63E-07	2.30E-05
		Average	*	4.79E-07	2.38E-05

* Values reported are lower detection limit

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
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Summary of Results for Metal Emissions

CARB Method 436

Pollutant	Run			gr/DSCF	lb/hr
Manganese	1		*	1.33E-06	6.59E-05
	2		*	9.99E-07	4.97E-05
	3			9.25E-07	4.60E-05
		Average		1.09E-06	5.39E-05
Mercury	1		*	5.66E-08	2.80E-06
	2		*	1.45E-07	7.20E-06
	3		*	6.10E-08	3.03E-06
		Average	*	8.74E-08	4.34E-06
Nickel	1			5.79E-07	2.86E-05
	2			5.14E-07	2.56E-05
	3			5.15E-07	2.56E-05
		Average		5.36E-07	2.66E-05
Selenium	1		*	7.57E-07	3.75E-05
	2		*	4.99E-07	2.48E-05
	3		*	4.63E-07	2.30E-05
		Average	*	5.73E-07	2.84E-05
Zinc	1			3.76E-06	1.86E-04
	2			3.14E-06	1.56E-04
	3			4.93E-06	2.45E-04
		Average		3.94E-06	1.96E-04

* Values reported are lower detection limit

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
REPORT #:62-232
DATE: 7-24 thru 7-27-90

Summary of Results for Metal Emissions

CARB Method 436

Pollutant	mg/l	Sample Vol. (ml)	Vm std	SCFM		gr/DSCF	lb/hr
Arsenic	0.024	350	49.1	630		2.63E-06	1.42E-05
Beryllium	0.002	350	49.1	630	*	2.20E-07	1.19E-06
Cadmium	0.0021	350	49.1	630		2.31E-07	1.25E-06
Chromium	0.011	350	49.1	630		1.21E-06	6.53E-06
Copper	0.002	350	49.1	630		2.20E-07	1.19E-06
Lead	0.005	350	49.1	630	*	5.49E-07	2.97E-06
Manganese	0.01	350	49.1	630	*	1.10E-06	5.93E-06
Mercury	0.0016	522	49.1	630		2.62E-07	1.42E-06
Nickel	0.13	350	49.1	630		1.43E-05	7.71E-05
Selenium	0.005	350	49.1	630	*	5.49E-07	2.97E-06
Zinc	0.085	350	49.1	630		9.33E-06	5.04E-05

* Values reported are lower detection limit

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
REPORT #: 62-232
DATE: 7-24 thru 7-27-90

Summary of Results for Metal Emissions

mgs metal / Kg fuel: Method 436

Pollutant	mg/l	Sample Vol. (ml)	Total mgs		mgs/Kg Fuel
Arsenic	0.024	350	8.40E-03		4.45E-06
Beryllium	0.002	350	7.00E-04	*	3.71E-07
Cadmium	0.0021	350	7.35E-04		3.90E-07
Chromium	0.011	350	3.85E-03		2.04E-06
Copper	0.002	350	7.00E-04		3.71E-07
Lead	0.005	350	1.75E-03	*	9.27E-07
Manganese	0.01	350	3.50E-03	*	1.85E-06
Mercury	0.0016	522	8.35E-04		4.43E-07
Nickel	0.13	350	4.55E-02		2.41E-05
Selenium	0.005	350	1.75E-03	*	9.27E-07
Zinc	0.085	350	2.98E-02		1.58E-05

Test Duration	90 minutes
Fuel Rate=	630 scfm
Total fuel Consumption=	5670 scf
Total Kgs Fuel Consumed=	1886.92 Kgs
Fuel Specific Volume=	13.63 cu.ft./lb
U.S. to Metric Weigth Conversion=	0.45359 Kgs/lb

* Values reported are lower detection limit

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
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Summary of Results for Arsenic

Test	Fraction	Vm std	DSCFM	Total ug		gr/DSCF	lb/hr
1	p/n	44.18	5787	0.88	*	3.07E-07	1.52E-05
	Filter	44.18	5787	0.62		2.16E-07	1.07E-05
	Imp	44.18	5787	1.30	*	4.53E-07	2.25E-05
				total		9.76E-07	4.85E-05
2	p/n	44.32	5805	0.73	*	2.54E-07	1.26E-05
	Filter	44.32	5805	0.62		2.15E-07	1.07E-05
	Imp	44.32	5805	3.00	*	1.04E-06	5.19E-05
				total		1.51E-06	7.53E-05
3	p/n	43.59	5695	0.65	*	2.30E-07	1.12E-05
	Filter	43.59	5695	0.38		1.34E-07	6.56E-06
	Imp	43.59	5695	3.00	*	1.06E-06	5.18E-05
				total		1.42E-06	6.96E-05
				Three Run Average		1.30E-06	6.44E-05

* Values Reported are lower detection limit

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
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Summary of Results for Total Chrome and Hexavalent Chrome

Test	Fraction	Vm std	DSCFM	Total ug		gr/DSCF	lb/hr
1	p/n	44.30	5808	2.4	*	8.34E-07	4.16E-05
	Filt/Imp	44.30	5808	5.3	*	1.84E-06	9.18E-05
	Total Chrome				*	2.68E-06	1.33E-04
1	p/n	44.30	5808	4.6	*	1.60E-06	7.97E-05
	Filt/Imp	44.30	5808	10.4	*	3.62E-06	1.80E-04
	Total Hexavalent Chrome				*	5.21E-06	2.60E-04
2	p/n	44.18	5787	2.3	*	8.02E-07	3.98E-05
	Filt/Imp	44.18	5787	4.9	*	1.71E-06	8.48E-05
	Total Chrome				*	2.51E-06	1.25E-04
2	p/n	44.18	5787	4.5	*	1.57E-06	7.79E-05
	Filt/Imp	44.18	5787	9	*	3.14E-06	1.56E-04
	Total Hexavalent Chrome				*	4.71E-06	2.34E-04
3	p/n	44.18	5787	2.3	*	8.02E-07	3.98E-05
	Filt/Imp	44.18	5787	5.0	*	1.74E-06	8.65E-05
	Total Chrome				*	2.54E-06	1.26E-04
3	p/n	44.18	5787	4.4	*	1.53E-06	7.62E-05
	Filt/Imp	44.18	5787	9.9	*	3.45E-06	1.71E-04
	Total Hexavalent Chrome				*	4.98E-06	2.47E-04
	Total Chrome: Average of three runs					2.58E-06	1.28E-04
	Hexavalent Chrome: Average of three runs					4.97E-06	2.47E-04

* Values Reported are lower detection limit

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
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Summary of Results for Hydrochloric Acid

Pollutant	Test	Vm std	DSCFM	Total ug	gr/DSCF	lb/hr
Hydro-chloric Acid	1	43.12	5755	4860	1.74E-03	8.57E-02
	2	43.92	5769	4820	1.69E-03	8.37E-02
	3	43.68	5752	4950	1.75E-03	8.61E-02
				average	1.72E-03	8.52E-02
Blank 1/		43.57	5759	8510	3.01E-03	1.49E-01

1/ High Sample Blank Recorded For Run #4

* Values Reported are lower detection limit

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
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Summary of Results for Hydrogen Fluoride

Pollutant	Test	Vm std	DSCFM	Total mg	gr/DSCF	lb/hr
Hydrogen	1	45.15	5744	1.6	5.46E-04	2.69E-02
fluoride	2	45.17	5716	1.4	4.77E-04	2.34E-02
	3	45.64	5764	1.4	4.72E-04	2.34E-02
				average	4.98E-04	2.46E-02

* 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
PAH	7/24,25,26,90	CARB 429	3 + Blank
Formaldehyde	7/27/90	CARB 430	3 + Blank
As,Be,Cd,Cr,Cv,Pb,Mn,Hg, Ni,Se,Zn	7/24,27/90	CARB 436	3 + Blank
As	7/24,27/90	CARB 423	3 + Blank
Cr,Crt6	7/25/90	CARB 425	3 + Blank
HCL	7/26/90	CARB 421	3 + Blank
HFL	7/23/90	EPA 13B	3 + Blank

The samples were analyzed by the following laboratories:

Test Method	Analytical Laboratory
CARB 429	Triangle Laboratories of Texas
CARB 430	Coast to Coast Analytical of San Luis Obispo
CARB 436	Enesco Labs of Garden Grove
CARB 423	Enesco Labs of Garden Grove
CARB 425	Enesco Labs of Garden Grove
CARB 421	Enesco Labs of Garden Grove
EPA 13B	Zalco Labs of Bakersfield

All sampling was conducted by Mr. John Nylin of Petro Chem Environmental Services. Mr. James Marchesini 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 began on July 23, and continued through July 27, 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.

Prior to testing a cyclonic flow check was conducted and showed an average angle of deviation of five degrees from sixteen traverse points.

Metals emissions were determined by sampling the inlet fuel gas and outlet exhaust gas. Fuel gas consumption rates were documented to determine the units inlet metals rate. CARB Method 436 was used to determine metals exhaust emission rate.

All methods consisted of sixteen point traverses from two ports (eight points/port) and sampled for one hour. The exception was for the CARB 429 testing which consisted of three-three hour runs.

METHOD 429 PAH

METHOD 429 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 condenser line, XAD-2 resin trap and four modified Greenburg Smith impingers containing 100 ml DI H2O, 100 ml DI H2O dry and silica gel.

Prior to the testing all sampling equipment was cleaned with successive rinses of soapy water, tap water, chronic acid, distilled water, methanol toluene, and methylene chloride. All sample containers were pre-cleaned by rinsing with methanol toluene and methylene chloride. Soapy water, tap, chromic acid, distilled water, methanol, toluene, methylene chloride.

The sample train was charged, a pre-cleaned 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 with hexane rinsed foil 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.

Triplicate test runs were performed. All lasting 180 minutes.

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 and the components were then sealed with aluminum hexane rinsed 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 429 SAMPLE RECOVERY:

The filter and nozzle were separated from the probe. The probe was tilted and brushed three successive times while rinsing with methylene toluene and methylene chloride 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 wrapped in hexane rinsed foil, placed into a petri dish and sealed with teflon tape.

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 methanol toluene and methylene chloride, 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.

CARB METHOD 430: FORMALDEHYDE

The sampling apparatus consisted of a heated stainless steel probe, followed by three midget impingers containing 15 ml 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 sample location. The impingers were uncapped, the impinger tops added and then 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 the vacuum to the system. The stopcock was then opened and sampling proceeded at a sample rate of 1.01pm. (.035 ft/min). Upon completion of the test the train was leak tested again, and a 5 ml distilled water probe wash was performed and allowed to drain into the first impinger. The train was then disconnected from the probe and lowed down to 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 5 ml 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.

METHOD 436: MULTIMETALS
Cr,Cd,As,Ni,Mn,Be,Cu,Zn,Pb,Se,P,Ti,Ag,Sb,Ba,Hg

METHOD 436 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 six modified Greenburg Smith impingers containing 100 ml 5% HNO3, 10% H2O2, 100 ml 5% HNO3, 10% H2O2 dry, 100 ml Acidified KMnO4, 100 ml Acidified KMnO4 dry and silica gel.

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

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 HNO3 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 436 SAMPLE RECOVERY:

The filter and nozzle were separated from the probe. The probe was tilted and brushed three successive times while rinsing with Acetone 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 afore mentioned procedure was repeated with 0.1N HNO_3 and placed into a second rinse jar. 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 and cross overs were rinsed three times with 0.1N HNO_3, and the rinses were combined with the impingate sample.

The forth and fifth impingers were disassembled, weighted, and their contents transferred to amber sample bottles. The impingers were then rinsed three times with Acidified $KMnO_4$, 8N HCL, and combined with 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 436 SAMPLE ANALYSIS:

For each test five samples are generated for analysis. Method 436 protocol details the analysis of metals using cold vapor atomic absorption, inductively coupled Argon plasma emission spectroscopy (ICAP), and Graphite furnace atomic absorption (GFAAS).

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

METHOD 423: ARSENIC (As)

METHOD 423 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 DI Distilled H_2O, 100 ml DI Distilled H_2O dry and silica gel.

Prior to the testing all sampling equipment was cleaned with successive rinses of soapy water, tap water, 6N HNO_3 soak, distilled H_2O, and 0.1N NaOH. All sample containers were pre-cleaned by rinsing with 6N HNO_3 rinse and distilled H_2O 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 423 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 423 SAMPLE ANALYSIS:

The filter was digested and combined with the probe wash and impingate contents. The sample was then analyzed for Arsenic by Hydride atomic absorption (CARB 423).

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

METHOD 425: HEXAVALENT CHROMIUM (Cr+6) AND TOTAL CHROMIUM (Cr)

METHOD 425 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 DI distilled H2O, 100 ml DI distilled H2O, dry and silica gel.

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

The sample train was charged, a teflon coated glass 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 DI Distilled H2O 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 425 SAMPLE RECOVERY:

The filter and nozzle were separated from the probe. The probe was tilted and brushed three successive times while rinsing with DI Distilled H2O 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 DI Distilled H2O, 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 425 SAMPLE ANALYSIS:

The probe/nozzle rinse was analyzed separately. The filter was digested and combined with the probe wash and impingate contents. A portion of the sample was analyzed for Hexavalent Chromium by the Diphenylcarbazide calorimetric method. The remainder of the sample was analyzed for total Chromium by atomic absorption.

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

METHOD 421: HYDROCHLORIC ACID (HCL)

METHOD 421 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 sodium bicarbonate/sodium carbonate solution, 100 ml sodium bicarbonate/sodium carbonate solution, dry and silica gel.

Prior to the testing all sampling equipment was cleaned with successive rinses of soapy water, tap water, and distilled H2O. All sample containers were pre-cleaned by rinsing with sodium bicarbonate/sodium carbonate solution rinse and distilled H2O.

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 sodium bicarbonate/sodium carbonate solution 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 421 SAMPLE RECOVERY:

The filter and nozzle were separated from the probe. The probe was tilted and brushed three successive times while rinsing with sodium bicarbonate/sodium carbonate solution 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 sodium bicarbonate/sodium carbonate solution, 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 421 SAMPLE ANALYSIS:

The filter was digested and combined with the probe wash and impingate contents. The sample was analyzed for Chloride by ion chromagraphy conductivity detection.

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

METHOD 13B: FLUORIDE

METHOD 13B 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 DI H2O, 100 ml DI H2O dry and silica gel.

Prior to the testing all sampling equipment was cleaned with successive rinses of soapy water, tap water, and distilled H2O. All sample containers were pre-cleaned by rinsing with 6N HN03 rinse and distilled H2O.

The sample train was charged, a Whatman filter was placed into the filter holder and installed between the 3rd and 4th impinger. The probe/nozzle bypass 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 13B SAMPLE RECOVERY:

The filter and nozzle were separated from the probe. The probe was tilted and brushed three successive times while rinsing with DI H2O and rotating. Sterile surgical gloves were used during this process. All rinses were caught in an amber glass sample bottle. The nozzle was 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 DI H2O, 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 429 DATA

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-26-90
REPORT #:62-232

METHOD 429
FIELD DATA @ 70'

RUN #:	1	2	3
TIME:	814	825	818
Vm (dry gas sampled)	130.02	131.43	130.4
Y (meter calib. factor)	0.991696	0.991696	0.991696
P bar (Barometric pressure)	30.25	30.34	30.4
P static (stack pressure, " H2O)	2.1	2.1	2.1
Delta H (differential meter press, " H2O)	1.05	1.06	1.05
Tm (meter temperature, R°)	562	566	566
Vol H2O mls	397.1	408.1	412.8
Vm(std),dscf	123.25	124.08	123.35
Bws-H2O vapor	0.1324	0.1348	0.1368
MF-moisture factor	0.8676	0.8652	0.8632
% CO2	7.3	7.6	7.3
% O2	8.2	8	8
% N2	84.5	84.4	84.7
Md-MW stk gas,dry	29.5	29.54	29.49
Ms-MW stk gas.wet	27.98	27.98	27.92
Cp-pitot tube	0.84	0.84	0.84
Avg sq rt √p	1.852	1.881	1.868
T stack, R'	1363	1399	1398
Stack area,ft2	1.67	1.67	1.67
Vs-fps	168.34	172.97	171.72
Qstd-dscfm	5783	5790	5750
Area noz,ft2	1.97E-04	1.97E-04	1.97E-04
Sample time	180	180	180
% Isokinetic	100.4	101	101.1

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
REPORT #:62-232
DATE: 7-24 thru 7-27-90

Summary of Results for PAH Emissions

CARB Method 429; Run-1

Pollutant	ng/train	Vm std	DSCFM		gr/DSCF	lb/hr
Naphthalene						
Total	.102320	123.25	5783		1.28E-05	6.34E-04
Acenaphthylene						
Total	374	123.25	5783	*	4.67E-08	2.32E-06
Acenaphthene						
Total	2080	123.25	5783	*	2.60E-07	1.29E-05
Fluorene						
Total	332	123.25	5783	*	4.15E-08	2.06E-06
Phenanthrene						
Total	1800	123.25	5783		2.25E-07	1.12E-05
Anthracene						
Total	311	123.25	5783	*	3.89E-08	1.93E-06
Fluoranthene						
Total	490	123.25	5783		6.12E-08	3.04E-06
Pyrene						
Total	625	123.25	5783		7.81E-08	3.87E-06
Benzo(a)anthracene						
Total	208	123.25	5783	*	2.60E-08	1.29E-06
Chrysene						
Total	304	123.25	5783		3.80E-08	1.88E-06
Benzo(b)floranthene						
Total	169	123.25	5783		2.11E-08	1.05E-06
Benzo(k)floranthene						
Total	356	123.25	5783	*	4.45E-08	2.21E-06
Benzo(a)pyrene						
Total	659	123.25	5783	*	8.23E-08	4.09E-06
Dibenz(a,h)anthracene						
Total	726	123.25	5783	*	9.07E-08	4.50E-06
Benzo(g,h,i)perylene						
Total	525	123.25	5783	*	6.56E-08	3.25E-06
Indeno(1,2,3-cd)pyrene						
Total	556	123.25	5783	*	6.95E-08	3.45E-06

* Values reported are lower detection limit

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

Summary of Results for PAH Emissions

CARB Method 429; Run-2

Pollutant	ng/train	Vm std	DSCFM		gr/DSCF	lb/hr
Naphthalene Total	80430	124.08	5790		9.98E-06	4.96E-04
Acenaphthylene Total	301	124.08	5790		3.74E-08	1.86E-06
Acenaphthene Total	484	124.08	5790	*	6.01E-08	2.98E-06
Fluorene Total	462	124.08	5790		5.73E-08	2.85E-06
Phenanthrene Total	1470	124.08	5790		1.82E-07	9.06E-06
Anthracene Total	318	124.08	5790	*	3.95E-08	1.96E-06
Fluoranthene Total	252	124.08	5790		3.13E-08	1.55E-06
Pyrene Total	287	124.08	5790		3.56E-08	1.77E-06
Benzo(a)anthracene Total	198	124.08	5790	*	2.46E-08	1.22E-06
Chrysene Total	132	124.08	5790		1.64E-08	8.14E-07
Benzo(b)floranthene Total	253	124.08	5790	*	3.14E-08	1.56E-06
Benzo(k)floranthene Total	376	124.08	5790	*	4.67E-08	2.32E-06
Benzo(a)pyrene Total	572	124.08	5790	*	7.10E-08	3.53E-06
Dibenz(a,h)anthracene Total	770	124.08	5790	*	9.56E-08	4.75E-06
Benzo(g,h,i)perylene Total	564	124.08	5790	*	7.00E-08	3.48E-06
Indeno(1,2,3-cd)pyrene Total	617	124.08	5790	*	7.66E-08	3.80E-06

* Values reported are lower detection limit

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

Summary of Results for PAH Emissions

CARB Method 429; Run-3

Pollutant	ug/train	Vm std	DSCFM		gr/DSCF	lb/hr
Naphthalene Total	85690	123.35	5750		1.07E-05	5.28E-04
Acenaphthylene Total	444	123.35	5750	*	5.54E-08	2.73E-06
Acenaphthene Total	1190	123.35	5750	*	1.49E-07	7.33E-06
Fluorene Total	334	123.35	5750		4.17E-08	2.06E-06
Phenanthrene Total	1540	123.35	5750		1.92E-07	9.49E-06
Anthracene Total	378	123.35	5750	*	4.72E-08	2.33E-06
Fluoranthene Total	190	123.35	5750		2.37E-08	1.17E-06
Pyrene Total	451	123.35	5750		5.63E-08	2.78E-06
Benzo(a)anthracene Total	246	123.35	5750	*	3.07E-08	1.52E-06
Chrysene Total	200	123.35	5750	*	2.50E-08	1.23E-06
Benzo(b)floranthene Total	360	123.35	5750	*	4.49E-08	2.22E-06
Benzo(k)floranthene Total	418	123.35	5750	*	5.22E-08	2.57E-06
Benzo(a)pyrene Total	697	123.35	5750	*	8.70E-08	4.29E-06
Dibenz(a,h)anthracene Total	918	123.35	5750	*	1.15E-07	5.65E-06
Benzo(g,h,i)perylene Total	704	123.35	5750	*	8.79E-08	4.34E-06
Indeno(1,2,3-cd)pyrene Total	724	123.35	5750	*	9.04E-08	4.46E-06

* Values reported are lower detection limit

PAH Method 429

COMPANY: PACIFIC ENERGY
REPORT #:
UNIT ID: OXNARD UNIT #2
DATE: 7-24-90

ON-SITE DATA

SITE: OUTLET

		RUN #:	#1	#2	#3
		TIME:	7-24-90 8:14-11:14	7-25-90 8:25-11:25	7-26-90 8:18-11:18
Vm	Dry sampled gas volume, dcf		130.02	131.43	130.4
Y	Meter calibration factor (met#___ ___ ___)		.991696	.991696	.991696
P bar	Barometric pressure, in Hg		30.25	30.34	30.40
P static	Stack static pressure, in H_2		2.1	2.1	2.1
Delta H	Differential meter pressure, in H_2O		1.05	1.06	1.05
Tm	Meter temperature, deg F		102	106	106

Contents	7-24-90 Run 1 final	tare	net	7-25-90 Run 2 final	tare	net	7-26-90 Run 3 final	tare	net
H_2O 100ml	855.0	603.1	251.9	856.9	594.1	262.8	861.1	582.8	278.3
H_2O 100ml	667.3	552.2	115.1	676.2	557.4	118.8	661.4	557.2	104.2
KO	471.2	470.0	1.2	470.9	470.6	0.30	472.7	469.2	3.5
Silica	880.4	851.5	28.9	783.2	757.0	26.20	798.7	771.9	26.8
V lc, volume of H_2O, grams			397.1			408.1			412.8

		#1	#2	#3
CO_2	% Dry Volume	7.3	7.6	7.3
O_2	% Dry Volume	8.2	8.0	8.0
N_2	% Dry Volume	84.5	84.4	84.7
Cp	Pitot tube coefficient (Pit# ___ ___ ___)	.84	.84	.84
Delta P Avg	Delta-P, in H_2O	3.43	3.54	3.49
Ts	Stack temperature, in deg F	903	939	938
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	.190	.190	.190
Dur	Sampling time, min	180	180	180
% Iso	Mini Iso	100.20	100.29	100.22

****

Filter #		BLANK 7-27-90		
Filter tare weights, grams				
	P/N	70.16	55.8, 8.6	79.6 / 48.8, 20.3
	Meoh/ TOL/ $MeCl_2$	51.8	49.2, 3.6	72.9 / 29.9, 16.7
		16.2, 17.7	49.8, 8.6	12.2, 33.7 / 19.3, 17.8
INITIALS**	RINSE VOLUMES SL/CON.	14.7, 7.3	23.7, 86.5	29.0, 36.0 / 55.2, 20.4
		18.2, 7.4	22.3, 31.5	13.2, 23.6 / 23.9, 22.3
		18.6	13.3, 22.4	19.4, 31.6 / 40.2
	IMPINGER	20.3	34.7	30.2 / 34.9
	Duct Temp.		22.3	20.3 / 23.8
			31.0	24.8 / 20.4

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

Method 429; PAH FIELD DATA

Client: PACIFIC ENERGY Report #: _____
Location: OXNARD UNIT-2
Operator: JON JEN
Date: 7-24-95
Run No: 1
Pump No.:
Meter Box No.: 1002 Factor: _____
Meter ΔH @: .95
Pitot Tube No.: 35-2

Post Test Leak Chk.

Leak Rate: _____ cfm
Vacuum: _____ (in Hg)

Ambient Temp: 65° F.
Barometric Pressure: 30.25
Static Pressure, (in Hg): +2.1
Assumed Moisture %: 13.0 MW_w = 27.5
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .19
Probe Liner Material: QUARTZ
Filter Number: 0
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) Calc	ΔH	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)
8	8:14	5.0	943	4.10	.766	1.18	62.40	95	90		58.8
7	8:25.25	6.0	947	4.05	.765	1.17	71.02	100	91		57.6
6	8:36.50	6.0	945	3.85	.745	1.12	79.45	100	90		47.6
5	8:47.75	6.0	941	3.65	.725	1.07	87.90	100	88		51.2
4	8:59	5.5	901	3.10	.681	.95	96.06	103	90		46.6
3	9:10.25	6.0	865	3.15	.694	.98	103.72	100	89		50.2
2	9:21.50	5.0	852	2.85	.668	.91	111.53	105	92		52.1
1	9:32.75	5.0	852	2.85	.668	.91	119.05	105	92		53.8
	9:44						126.69				
								avg.	avg.		
Total								avg.			
Average											

Meth. 429; PAH FIELD DATA

Client: Pacific Energy Report #: ____
Location: Oxnard Unit #2
Operator: JDN/JEM
Date: 7-24-90
Run No: 1 (cont'd.)
Pump No.: hi-flo
Meter Box No.: 1002 Factor: ____
Meter ΔH @: .900
Pitot Tube No.: 3G-2

Post Test Leak Chk.
Leak Rate: <.001 cfm
Vacuum: 8.0 (in Hg)

Ambient Temp: 65°F
Barometric Pressure: 30.25
Static Pressure, (in Hg): 2.1
Assumed Moisture %: 13 MW_{wet} = 27.5
Nozzle Ident. No.: ____
Aver. Calib. Nozzle Diam.(in): .190
Probe Liner Material: Quartz
Filter Number: Ø
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 rate (in H_2O) ΔH	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)
1	9:44	5.5	852	2.85	.671 .92	126.69	109	94		52.4
2	9:55.25	5.5	852	2.85	.671 .92	134.22	109	94		51.6
3	10:06.50	6.0	865	3.20	.715 1.02	141.77	114	101		49.4
4	10:17.75	6.0	868	3.15	.707 1.00	149.80	111	100		51.4
5	10:29	6.0	940	3.60	.741 1.08	157.76	116	103		54.6
6	10:40.15	6.5	944	3.80	.766 1.14	166.15	122	106		56.8
7	10:51.50	6.5	944	4.0	.786 1.19	174.75	120	108		55.4
8	11:02.75	6.5	944	4.0	.786 1.19	183.59	120	108		55.2
	11:14					192.42				
		X=	903	3.43				102		
					ΔH = 1.05	130.02				
					ISO= 100.20					
					velfps= 169.70					
							avg.	avg.		
Total							avg.			
Average										

PAH-2 FIELD DATA

Client: Par. Energy Report #: _____
Location: Oxnard #2
Operator: JDN/JFM
Date: 7-25-90
Run No: 2 (cont'd)
Pump No.: Gast
Meter Box No.: 1002 Factor: _____
Meter ΔH @: .90
Pitot Tube No.: 32-2

Post Test Leak Chk.
Leak Rate: .012 cfm
Vacuum: 8.5 (in Hg)

Ambient Temp: 75°F
Barometric Pressure: 30.34
Static Pressure, (in Hg): 21
Assumed Moisture %: 13
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .190
Probe Liner Material: quartz
Filter Number: _____
Duct Diam. (in): 17.5

erse Point umber	Time: (e) min	Vacuum in Hg	Stack Temper. (Ts) °F	Velocity Head (ΔPs) (in)H_2O	Pressure Differencial across Orifice Meter ΔH rate (in H_2O)	ΔH	Gas Sample Volume (ft^3)	Gas Sample Temp. at dry Gas Meter inlet (°F)	outlet (°F)	Filter Holder Temperature: (°F)	Temperature of Gas Leaving Condenser or Last Impinger (°F)
1	9:55	5.5	931	3.15	.693	.96	450.96	112	105		50.6
2	10:06	5.5	931	3.15	.693	.96	458.76	112	105		50.8
3	10:17.5	5.5	937	3.20	.695	.97	466.56	109	105		51.8
4	10:28.75	5.5	937	3.45	.722	1.04	474.38	109	105		55.2
5	10:40	6.0	938	3.60	.737	1.08	482.50	109	105		55.8
6	11:51.25	6.0	941	3.75	.751	1.11	490.76	110	104		58.0
7	11:02.5	6.0	940	3.90	.765	1.15	499.23	108	104		58.8
8	11:13.75	6.0	942	4.0	.776	1.18	507.84	110	104		59.0
	11:25						516.63				
			$\bar{X}$ = 939	3.54					106		
					ΔH = 1.06						
					√ = 100.29						
					vel fps = 174.52						
								avg.	avg.		

PAH-2

FIELD DATA

Client: Pac. Energy Report #: _____
Location: Oxnard #2
Operator: JDN/JEM
Date: 7-25-90
Run No: 2
Pump No.: Gast
Meter Box No.: 1002 Factor: _____
Meter ΔH @: .90
Pitot Tube No.: 39-2

Post Test Leak Chk.

Leak Rate: _____ cfm
Vacuum: _____ (in Hg)

Pre-Test
.01 cfm
8.0 in Hg

Ambient Temp: 70°F
Barometric Pressure: 30.34
Static Pressure, (in Hg): 29.4
Assumed Moisture %: 13
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .190
Probe Liner Material: Quartz
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) cal'd	ΔH	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)
8	8:25	6.0	949	4.15	.776	1.20	385.20	98	78		47.6
7	8:36.25	6.0	948	4.10	.780	1.20	393.97	111	98		46.0
6	8:47.50	6.0	944	3.95	.767	1.16	402.74	109	100		47.8
5	8:58.75	5.5	944	3.65	.741	1.08	411.37	111	103		55.4
4	9:10	5.0	940	3.10	.682	.94	419.71	109	102		57.2
3	9:21.25	5.0	936	3.25	.702	.98	427.38	112	104		50.0
2	9:32.50	5.0	931	3.20	.697	.97	435.28	111	104		53.2
1	9:43.75	5.0	931	3.20	.697	.97	443.12	111	104		53.4
	9:55						450.96				
								avg.	avg.		
Total								avg.			
Average											

Meths/429 PAH-3 FIELD DATA

Client: PACIFIC ENERGY Report #: _____
Location: OXNARD UNIT #2
Operator: JON JEM
Date: 7-26-90
Run No: 3
Pump No.: GAST
Meter Box No.: 1002 Factor: _____
Meter ΔH @: .90
Pitot Tube No.: 3Q-2

Pre- ~~Post~~ Test Leak Chk.
Leak Rate: .016 cfm
Vacuum: 6.0 (in Hg)

Ambient Temp: _____
Barometric Pressure: 30.40
Static Pressure, (in Hg): +2.0
Assumed Moisture %: 13 $MW_d = 27.5$
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .19
Probe Liner Material: QUARTZ
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)
					r	ΔH					
8	8:18	3.5	950	4.15	.782	1.21	664.00	110	96		53.8
7	8:29.25	3.5	942	4.0	.774	1.18	672.82	115	97		54.8
6	8:40.50	3.5	942	3.9	.770	1.16	681.53	117	104		53.2
5	8:51.75	3.0	940	3.6	.743	1.08	690.19	118	107		61.0 ice.
4	9:03	3.0	931	3.2	.705	.98	698.60	118	112		49.8
3	9:14.25	3.0	933	3.15	.694	.96	706.55	110	110		52.4
2	9:25.50	3.0	930	3.10	.691	.95	714.36	112	111		53.0
1	9:36.75	3.0	928	3.10	.692	.95	722.15	114	111		53.6
	9:48						729.86				
								avg.	avg.		
Total											
Average								avg.			

Meth 4/29 PAH FIELD DATA

Client: Pac. Energy Report #: _____
Location: Oxnard #2
Operator: JDN / JEM
Date: 7-26-90
Run No: 3 (cont'd)
Pump No.: Gast
Meter Box No.: 1002 Factor: _____
Meter ΔH @: .900
Pitot Tube No.: 3G-2

Post Test Leak Chk.
Leak Rate: .008 cfm
Vacuum: 5.0 (in Hg)

Ambient Temp: 75°
Barometric Pressure: 30.40
Static Pressure, (in Hg): 2.0
Assumed Moisture %: 13
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .190
Probe Liner Material: Quartz
Filter Number: _____
Duct Diam. (in): 17.5

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)	ΔH	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 of Gas Leaving Condenser or Last Impinger (°F)
1	9:48	3.5	930	3.10	.680	.94	729.86	100	105		56.0
2	9:59.25	3.5	932	3.15	.686	.95	737.51	101	106		55.4
3	10:10.50	3.5	933	3.20	.691	.97	745.23	101	106		54.8
4	10:21.75	4.0	935	3.40	.708	1.01	753.06	96	105		55.6
5	10:33	4.5	943	3.55	.726	1.05	761.00	109	99		59.6
6	10:44.25	4.5	947	3.70	.737	1.09	769.20	107	96		65.0
7	10:55.5	4.5	947	3.85	.753	1.13	777.49	108	97		52.6
8	11:06.75	4.5	947	3.90	.760	1.14	785.90	109	99		54.4
	11:18	~~XX~~					794.40				
		X=	938	3.49					106		
					ΔH= 1.05						
					ΣSO= 100.22						
					√pfms= 173.17						
Total								avg.	avg.		
Average								avg.			

CASE NARRATIVE
TRIANGLE LABORATORIES OF HOUSTON, INC.
12823 PARK ONE DRIVE
SUGAR LAND, TX 77478
(713) 240-5330

DATE: October 23, 1990

TLH PROJECT NO: TLH #158

OBJECTIVE: Determination of polyaromatic hydrocarbons (PAHs) in MM5 trains.

METHOD

Method: California Air Resources Board Method 429 (CARB 429) adopted September 12, 1989.

PAH Extraction and Cleanup:

A modification of CARB 429 was approved to permit analysis of a single pooled extract from all sample containers. An alternate standard (d_{10}-anthracene) was spiked into impinger water in the separatory funnel just prior to extraction. The impinger extract was combined with XAD-2 resin from the trap in a Soxhlet extraction apparatus. Following addition of internal standards, the soxhlet extraction was performed in the manner prescribed in CARB 429. The deuterated standards were spiked at 50 and 100 µg levels.

Following extraction, the samples were brought to 25 ml final volume with methylene chloride and stored in the dark at 4°C. A 0.5 ml sample portion was combined with a 0.5 ml portion of the recovery standard and submitted to GC-MS for final analysis.

GC/MS

High resolution gas chromatography and high resolution mass spectrometry (HRGC/HRMS) were used for analysis of the sample extracts.

The calibration range for PAH extracts was from 0.1 - 5.0 ng/µl. For diluted samples the calibration range represents 5 - 250 µg per train.

The GC-MS analysis conditions are listed below:

GC CONDITIONS:

GC:	HP5890
Column:	60m x 0.25mm DB-5
Injector:	Splitless, 30 sec. valve time, 300°C
Interface Temp:	300°C
Program:	125°C for 5.5 min then 10°/min to 300°C final temperature and hold

MS INSTRUMENT:

Selected Ion Recording Mode

See Table 1 for PAH ions monitored

Total cycle time for SIR mode was less than 1 sec/cycle

Resolving power: 5000 (10% valley definition)

REPORT
The report is divided into the following sections:

1. Sample Documentation
2. Sample Data
3. Calibration Data

These sections provide all available information for complete sample tracking and sample review, including quality assurance evaluations.

1. Sample Documentation: This section provides information on sample tracking and handling during shipment, receiving and processing. Included are the chain-of-custody and log-in instrument sheets.

2. Sample Data: This section contains tabulated results along with raw data that is useful for data review and quality assurance or for reconstructing the results. Included in this section is the following information:

   a. Quantitation Report
   b. Interim Report
   c. Chromatograms

Quantitation Report:The quantitation report is headed by the filename, Client ID and TLH sample number, sample ID and project number, sample size and matrix, CONCAL and ICAL information, spike file used for the calculations, and further shipment information. An internal alternate and surrogate standard recovery summary containing the following information is found at the end of the report:

Concentration
% recovery
Retention times and flags

Interim Report: The interim report is headed by the analogous sample information and filenames of the pertinent calibration data. It provides tabulated raw data (retention times, areas) along with ion ratios and recoveries.

Chromatograms: Mass Chromatograms corresponding to the ions monitored for each analyte and each standard and instrument performance monitoring compound (PFK), are included for each sample. Each trace is headed by information corresponding to the mass being monitored.

3. Calibration Data: The calibration data are presented for the daily calibration (CCAL) as well as the initial calibration (ICAL). The performance check solution (PCS) runs that precede any type of calibration procedure and conclude a 12-hour run period are also included.

The calibration data are used to establish the valid range for quantitation, and to verify analyte identification criteria. They are reported as:

a. Calibration Check
b. Chromatograms

Calibration Check: Calculated response factors, retention time data, as well as the percent difference are presented in the CONCAL summary.

The ICAL summary provides information on response factors over the calibration range, along with the variance in data as determined by the percent relative standard deviation.

Chromatograms: Mass Chromatograms and areas of integrated peaks corresponding to the standards present in the calibration solutions are included. This data can be used to reconstruct the calculated RF, %D, %RSD, RT, RRT, and ratio results.

RESULTS AND DISCUSSION

A summary of the results is presented below:

PAH ANALYSIS
(Values listed in ng)

Analyte	Method Blank	Blank Run 1	Run 2	Run 3	Run 4
Naphthalene	76930	18590	102320	80430	85690	46760
2-Methyl-Naphthalene	ND	978	8210	7340	8240	1750
2-Chloro-Naphthalene	ND	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	301	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	462	334	ND
Phenanthrene	ND	ND	1800	1470	1540	ND
Anthracene	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	490	252	190	ND
Pyrene	ND	ND	625	287	451	ND
Benz-a-Anthracene	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	304	132	ND	ND
Benzo-b-Fluoranthene	ND	ND	ND	ND	ND	ND
Benzo-k-Fluoranthene	ND	ND	ND	ND	ND	ND
Benzo-e-Pyrene	ND	ND	ND	ND	ND	ND
Benzo-a-Pyrene	ND	ND	ND	ND	ND	ND
Perylene	ND	ND	ND	ND	ND	ND
Indeno-[123-cd]-Pyrene	ND	ND	ND	ND	ND	ND
Dibenz-[ah]-Anthracene	ND	ND	ND	ND	ND	ND
Benzo-[ghi]-Perylene	ND	ND	ND	ND	ND	ND

ND = not detected

Standard solution spiking.
The following standards were spiked at 50,000 ng:
d8-Naph, d10-2-Me-Naph, d7-2-Cl-Naph, d8-Acenaph, d10-Acenaph then, d10-Fluorene, d10-Phenan, d10-Fluoran, d10-Pyrene, d12-B-a-Anth, d12-Chrysene, d10-Anth, d14-Terphenyl.
The following standards were spiked at 100,000 ng:
d12-B-b-Fluoran, d12-B-k-Fluoran, d12-B-a-Pyrene, d12-Perylene, d12-I-123-cd-Py, d14-DiB-ah-Anth, d12-B-ghi-Pery, d12-B-e-Pyrene.

The method blank showed the presence of 77 μg Naphthalene. This is attributed to contaminants known to exist in the XAD-2 resin.

The sample labeled "Blank" shows the presence of 18.5 μg of Naphthalene and small amounts of 2-Methyl-Naphthalene.

Samples Run 1, Run 2, Run 3, and Run 4 were found to contain Naphthalene quantities ranging from 47 to 102 μg of Naphthalene, and other PAHs in smaller quantities.

The method blank and the samples show good recoveries that are within the QC advisory limit with the exception of the following: sample Run 1 shows recoveries for d8-Acenaphthylene and d12-Perylene that are below the QC advisory limit, and sample Run 3 shows recovery for d8-Acenaphthylene that is also below the QC advisory limit. Based on signal-to-noise ratios that far exceed the proposed 10:1 limit, these recoveries are considered acceptable. No quantities of the corresponding analytes were detected in the two samples.

CALCULATIONS

RRF	=	relative response factor
n	=	analyte
i	=	internal standard
s	=	surrogate standard
r	=	recovery standard
A	=	area for ion monitored
$\overline{RRF}$	=	mean RRF
% RSD	=	percent relative standard deviation
σ_{n-1}	=	standard deviation
% D	=	% difference between ICAL and CCAL
Q	=	Quantity
W	=	weigh of sample extracted, g
V	=	volume of sample extracted, L
R	=	recovery, %
RPD	=	relative percent difference, %
C_1, C_2	=	sample and duplicate sample concentrations
A (in DL equation)	=	for analyte: area of the noise in the quantitation ion for Fluorene
	=	for standard: area of the d10-Fluorene internal standard
DL	=	detection limit

$$RRF_n = \frac{A_n * Q_i}{A_i * Q_n}$$

$$RRF_i = \frac{A_i * Q_r}{A_r * Q_i}$$

$$RRF_s = \frac{A_s * Q_r}{A_r * Q_s}$$

$$\% \text{ RSD} = \frac{\sigma_{n-1}}{\overline{RRF}} * 100$$

$$\% \text{ D} = \frac{|\overline{RRF}_{ICAL} - RRF_{CCAL}|}{\overline{RRF}_{ICAL}} * 100$$

$$Q_n = \frac{A_n * Q_i}{A_i * (RRF_{CCAL})_n}$$

$$Q_i = \frac{A_i * Q_r}{A_r * (RRF_{CCAL})_i}$$

$$Q_s = \frac{A_s * Q_r}{A_r * (RRF_{CCAL})_s}$$

$$R_i(\%) = \frac{A_i * Q_r}{A_r * (RRF_{CCAL})_i * Q_i} * 100$$

$$R_s\ (\%) = \frac{A_s * Q_r}{A_r * (RRF_{CCAL})_s * Q_s} * 100$$

$$DL = \frac{2.5 * A_A * Q_i}{A_i * RRF_{CCAL}}$$

Triangle Laboratories of Houston, Inc.
PAHH ANALYSIS (a)

FILE NAME....:	E001531	CLIENT ID....:	PETROCHEM	TLI NUMBER....:	2-19-3
CONCAL.....:	E001525	SAMPLE ID....:	TLI BLANK		
ANALYST.....:	XL	ANALYSIS DATE:	10/19/90	PROJECT NUMBER:	158
SAMPLE SIZE..:	1.00	SAMPLE MATRIX:	MMS	DATE RECEIVED.:	/ /
ICAL DATE....:	10/19/90	SAMPLE ORIGIN:	CALIFORNI	DATE COLLECTED:	/ /
SPIKE FILE...:	SPPAH429			SHIPMENT NO...:	61171542

NAME	AMT(ng)	NUMBER	DL	RT	FLAGS
Naph	76930			5:03	
2-Me-Naph	ND		237		
2-Cl-Naph	ND		268		
Acenaphthen	ND		376		
Acenaph	ND		224		
Fluorene	ND		323		
Phenan	ND		322		
Anth	ND		319		
Fluoran	ND		95.9		
Pyrene	ND		96.2		
B-a-Anth	ND		200		
Chrysene	ND		158		
B-b-Fluoran	ND		249		
B-k-Fluoran	ND		356		
B-e-Pyrene	ND		321		
B-a-Pyrene	ND		429		
Perylene	ND		718		
I-123-cd-Py	ND		596		
DiB-ah-Anth	ND		711		
B-ghi-Pery	ND		575		

SURROGATE RECOVERY SUMMARY (TYPE A)

NAME	AMT (ng)	% REC.	RT	FLAGS
d14-Terphenyl	56790	114	19:13	

ALTERNATE STANDARDS RECOVERY SUMMARY (TYPE A)

NAME	AMT (ng)	% REC.	RT	FLAGS
d10-Anth	46170	92.3	14:56	

PAHH_RPT rev:1.01

FILE NAME....:	E001531	CLIENT ID....:	PETROCHEM	TLI NUMBER....:	2-19-3
CONCAL.....:	E001525	SAMPLE ID....:	TLI BLANK		
ANALYST.....:	XL	ANALYSIS DATE:	10/19/90	PROJECT NUMBER:	158
SAMPLE SIZE..:	1.00	SAMPLE MATRIX:	MM5	DATE RECEIVED.:	/ /
ICAL DATE....:	10/19/90	SAMPLE ORIGIN:	CALIFORNI	DATE COLLECTED:	/ /
SPIKE FILE...:	SPPAH429			SHIPMENT NO...:	61171542

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RT	FLAGS
d8-Naph	46640	93.3	5:00	___
d10-2-Me-Naph	48430	96.9	7:03	___
d7-2-Cl-Naph	49800	99.6	8:39	___
d8-Acenaph	45270	90.5	9:58	___
d10-Acenaphthen	45580	91.2	10:31	___
d10-Fluorene	52560	105	12:03	___
d10-Phenan	50560	101	14:48	___
d10-Fluoran	49070	98.1	18:05	___
d10-Pyrene	46710	93.4	18:39	___
d12-B-a-Anth	43160	86.3	21:49	___
d12-Chrysene	44860	89.7	21:54	___
d12-B-b-Fluoran	95000	95.0	24:42	___
d12-B-k-Fluoran	84500	84.5	24:47	___
d12-B-a-Pyrene	80570	80.6	25:42	___
d12-Perylene	85090	85.1	25:58	___
d12-I-123-cd-Py	91150	91.2	30:02	___
d14-DiB-ah-Anth	88340	88.3	30:07	___
d12-B-ghi-Pery	82280	82.3	31:15	___

|_____ __/__/__| PAHH_RPT rev:1.01

Triangle Laboratories of Houston, Inc.
PAHH ANALYSIS (a)

10/22/90

FILE NAME....:	E001533	CLIENT ID....:	PETROCHEM	TLI NUMBER....:	2-19-2
CONCAL.....:	E001525	SAMPLE ID....:	BLANK		
ANALYST.....:	XL	ANALYSIS DATE:	10/19/90	PROJECT NUMBER:	158
SAMPLE SIZE..:	1.00	SAMPLE MATRIX:	MM5	DATE RECEIVED.:	08/31/90
ICAL DATE....:	10/19/90	SAMPLE ORIGIN:	CALIFORNI	DATE COLLECTED:	07/30/90
SPIKE FILE...:	SPPAH429			SHIPMENT NO...:	61171542

NAME	AMT(ng)	NUMBER	DL	RT	FLAGS
Naph	18590			4:54	_B_
2-Me-Naph	978			7:02	___
2-Cl-Naph	ND		246		___
Acenaphthen	ND		347		___
Acenaph	ND		183		___
Fluorene	ND		308		___
Phenan	ND		302		___
Anth	ND		299		___
Fluoran	ND		84.8		___
Pyrene	ND		81.7		___
B-a-Anth	ND		167		___
Chrysene	ND		132		___
B-b-Fluoran	ND		219		___
B-k-Fluoran	ND		300		___
B-e-Pyrene	ND		248		___
B-a-Pyrene	ND		331		___
Perylene	ND		612		___
I-123-cd-Py	ND		511		___
DiB-ah-Anth	ND		619		___
B-ghi-Pery	ND		488		___

SURROGATE RECOVERY SUMMARY (TYPE A)

NAME	AMT (ng)	% REC.	RT	FLAGS
d14-Terphenyl	63100	126	19:10	___

ALTERNATE STANDARDS RECOVERY SUMMARY (TYPE A)

NAME	AMT (ng)	% REC.	RT	FLAGS
d10-Anth	58820	118	14:53	___

|_____ __/__/__|

PAHH_RPT rev:1.01

FILE NAME....:	E001533	CLIENT ID....:	PETROCHEM	TLI NUMBER....:	2-19-2
CONCAL.....:	E001525	SAMPLE ID....:	BLANK		
ANALYST.....:	XL	ANALYSIS DATE:	10/19/90	PROJECT NUMBER:	158
SAMPLE SIZE..:	1.00	SAMPLE MATRIX:	MM5	DATE RECEIVED.:	08/31/90
ICAL DATE....:	10/19/90	SAMPLE ORIGIN:	CALIFORNI	DATE COLLECTED:	07/30/90
SPIKE FILE...:	SPPAH429			SHIPMENT NO...:	61171542

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RT	FLAGS
d8-Naph	46560	93.1	4:51	___
d10-2-Me-Naph	49420	98.8	6:56	___
d7-2-Cl-Naph	48890	97.8	8:33	___
d8-Acenaph	50290	101	9:54	___
d10-Acenaphthen	44740	89.5	10:26	___
d10-Fluorene	49780	99.6	11:59	___
d10-Phenan	48720	97.4	14:44	___
d10-Fluoran	50200	100	18:01	___
d10-Pyrene	49750	99.5	18:36	___
d12-B-a-Anth	46790	93.6	21:46	___
d12-Chrysene	48400	96.8	21:51	___
d12-B-b-Fluoran	97730	97.7	24:39	___
d12-B-k-Fluoran	90740	90.7	24:43	___
d12-B-a-Pyrene	94390	94.4	25:39	___
d12-Perylene	90270	90.3	25:54	___
d12-I-123-cd-Py	96190	96.2	29:59	___
d14-DiB-ah-Anth	91670	91.7	30:03	___
d12-B-ghi-Pery	87710	87.7	31:11	___

|_____ __/__/__| PAHH_RPT rev:1.01

B = BLANK CONTAMINATION

Triangle Laboratories of Houston, Inc.
PAHH ANALYSIS (a)

10/22/90

FILE NAME....:	E001534	CLIENT ID....:	PETROCHEM	TLI NUMBER....:	2-17-1
CONCAL.....:	E001525	SAMPLE ID....:	RUN 1		
ANALYST.....:	XL	ANALYSIS DATE:	10/19/90	PROJECT NUMBER:	158
SAMPLE SIZE..:	1.00	SAMPLE MATRIX:	MM5	DATE RECEIVED.:	08/31/90
ICAL DATE....:	10/19/90	SAMPLE ORIGIN:	CALIFORNI	DATE COLLECTED:	07/24/90
SPIKE FILE...:	SPPAH429			SHIPMENT NO...:	61171542

NAME	AMT(ng)	NUMBER	DL	RT	FLAGS
Naph	102320			4:56	_B_
2-Me-Naph	8210			7:05	___
2-Cl-Naph	ND		260		___
Acenaphthen	ND		374		___
Acenaph	ND		2080		___
Fluorene	ND		332		___
Phenan	1800			14:52	___
Anth	ND		311		___
Fluoran	490			18:08	___
Pyrene	625			18:43	___
B-a-Anth	ND		208		___
Chrysene	304			22:00	___
B-b-Fluoran	ND		257		___
B-k-Fluoran	ND		356		___
B-e-Pyrene	ND		493		___
B-a-Pyrene	ND		659		___
Perylene	ND		1620		___
I-123-cd-Py	ND		556		___
DiB-ah-Anth	ND		726		___
B-ghi-Pery	ND		525		___

SURROGATE RECOVERY SUMMARY (TYPE A)

NAME	AMT (ng)	% REC.	RT	FLAGS
d14-Terphenyl	63160	126	19:14	___

ALTERNATE STANDARDS RECOVERY SUMMARY (TYPE A)

NAME	AMT (ng)	% REC.	RT	FLAGS
d10-Anth	47050	94.1	14:56	___

|_____ __/__/__|

PAHH_RPT rev:1.01

Triangle Laboratories of Houston, Inc.
PAHH ANALYSIS (a)

10/22/90

FILE NAME....:	E001534	CLIENT ID....:	PETROCHEM	TLI NUMBER....:	2-17-1
CONCAL.....:	E001525	SAMPLE ID....:	RUN 1		
ANALYST.....:	XL	ANALYSIS DATE:	10/19/90	PROJECT NUMBER:	158
SAMPLE SIZE..:	1.00	SAMPLE MATRIX:	MM5	DATE RECEIVED.:	08/31/90
ICAL DATE....:	10/19/90	SAMPLE ORIGIN:	CALIFORNI	DATE COLLECTED:	07/24/90
SPIKE FILE...:	SPPAH429			SHIPMENT NO...:	61171542

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RT	FLAGS
d8-Naph	46860	93.7	4:53	___
d10-2-Me-Naph	51680	103	6:58	___
d7-2-Cl-Naph	52310	105	8:36	___
d8-Acenaph	4990	9.97	9:56	_V_
d10-Acenaphthen	46900	93.8	10:29	___
d10-Fluorene	52190	104	12:03	___
d10-Phenan	53020	106	14:48	___
d10-Fluoran	49450	98.9	18:05	___
d10-Pyrene	48960	97.9	18:39	___
d12-B-a-Anth	42490	85.0	21:49	___
d12-Chrysene	46410	92.8	21:55	___
d12-B-b-Fluoran	94280	94.3	24:43	___
d12-B-k-Fluoran	86550	86.5	24:48	___
d12-B-a-Pyrene	53670	53.7	25:43	___
d12-Perylene	38660	38.7	25:58	_V_
d12-I-123-cd-Py	99920	99.9	30:03	___
d14-DiB-ah-Anth	88430	88.4	30:07	___
d12-B-ghi-Pery	92160	92.2	31:16	___

|_____ __/__/__|

PAHH_RPT rev:1.01

B = BLANK CONTAMINATION
V = RECOVERY BELOW QC ADVISORY LIMIT; DATA VALID BASED ON SIGNAL-TO-NOISE RATIO

FILE NAME....:	E001535	CLIENT ID....:	PETROCHEM	TLI NUMBER....:	2-17-2
CONCAL.....:	E001525	SAMPLE ID....:	RUN 2		
ANALYST.....:	XL	ANALYSIS DATE:	10/19/90	PROJECT NUMBER:	158
SAMPLE SIZE..:	1.00	SAMPLE MATRIX:	MM5	DATE RECEIVED.:	08/31/90
ICAL DATE....:	10/19/90	SAMPLE ORIGIN:	CALIFORNI	DATE COLLECTED:	07/24/90
SPIKE FILE...:	SPPAH429			SHIPMENT NO...:	61171542

NAME	AMT(ng)	NUMBER	DL	RT	FLAGS
Naph	80430			4:56	_B_
2-Me-Naph	7340			7:05	___
2-Cl-Naph	ND		246		___
Acenaphthen	301			10:36	___
Acenaph	ND		484		___
Fluorene	462			12:08	___
Phenan	1470			14:52	___
Anth	ND		318		___
Fluoran	252			18:08	___
Pyrene	287			18:42	___
B-a-Anth	ND		198		___
Chrysene	132			21:59	___
B-b-Fluoran	ND		253		___
B-k-Fluoran	ND		376		___
B-e-Pyrene	ND		428		___
B-a-Pyrene	ND		572		___
Perylene	ND		840		___
I-123-cd-Py	ND		617		___
DiB-ah-Anth	ND		770		___
B-ghi-Pery	ND		564		___

SURROGATE RECOVERY SUMMARY (TYPE A)

NAME	AMT (ng)	% REC.	RT	FLAGS
d14-Terphenyl	61610	123	19:14	___

ALTERNATE STANDARDS RECOVERY SUMMARY (TYPE A)

NAME	AMT (ng)	% REC.	RT	FLAGS
d10-Anth	28430	56.9	14:57	___

|_____ __/__/__| PAHH_RPT rev:1.01

Triangle Laboratories of Houston, Inc.
PAHH ANALYSIS (a)

10/22/90

FILE NAME....:	E001535	CLIENT ID....:	PETROCHEM	TLI NUMBER....:	2-17-2
CONCAL.....:	E001525	SAMPLE ID....:	RUN 2		
ANALYST.....:	XL	ANALYSIS DATE:	10/19/90	PROJECT NUMBER:	158
SAMPLE SIZE..:	1.00	SAMPLE MATRIX:	MM5	DATE RECEIVED.:	08/31/90
ICAL DATE....:	10/19/90	SAMPLE ORIGIN:	CALIFORNI	DATE COLLECTED:	07/24/90
SPIKE FILE...:	SPPAH429			SHIPMENT NO...:	61171542

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RT	FLAGS
d8-Naph	48230	96.5	4:52	___
d10-2-Me-Naph	54100	108	6:58	___
d7-2-Cl-Naph	55940	112	8:36	___
d8-Acenaph	21700	43.4	9:56	___
d10-Acenaphthen	47300	94.6	10:30	___
d10-Fluorene	55420	111	12:03	___
d10-Phenan	52350	105	14:48	___
d10-Fluoran	47510	95.0	18:05	___
d10-Pyrene	45060	90.1	18:39	___
d12-B-a-Anth	45120	90.2	21:49	___
d12-Chrysene	46810	93.6	21:55	___
d12-B-b-Fluoran	96610	96.6	24:43	___
d12-B-k-Fluoran	82760	82.8	24:48	___
d12-B-a-Pyrene	62520	62.5	25:43	___
d12-Perylene	75200	75.2	25:58	___
d12-I-123-cd-Py	91180	91.2	30:03	___
d14-DiB-ah-Anth	84250	84.3	30:07	___
d12-B-ghi-Pery	86820	86.8	31:16	___

|_____ __/__/__|

PAHH_RPT rev:1.01

B = BLANK CONTAMINATION

Triangle Laboratories of Houston, Inc.
PAHH ANALYSIS (a)

FILE NAME....:	E001536	CLIENT ID....:	PETROCHEM	TLI NUMBER....:	2-17-3
CONCAL.....:	E001525	SAMPLE ID....:	RUN 3		
ANALYST.....:	XL	ANALYSIS DATE:	10/19/90	PROJECT NUMBER:	158
SAMPLE SIZE..:	1.00	SAMPLE MATRIX:	MM5	DATE RECEIVED.:	08/31/90
ICAL DATE....:	10/19/90	SAMPLE ORIGIN:	CALIFORNI	DATE COLLECTED:	07/24/90
SPIKE FILE...:	SPPAH429			SHIPMENT NO...:	61171542

NAME	AMT(ng)	NUMBER	DL	RT	FLAGS
Naph	85690			4:56	_B_
2-Me-Naph	8240			7:05	___
2-Cl-Naph	ND		298		___
Acenaphthen	ND		444		___
Acenaph	ND		1190		___
Fluorene	334			12:08	___
Phenan	1540			14:52	___
Anth	ND		378		___
Fluoran	190			18:07	___
Pyrene	451			18:42	___
B-a-Anth	ND		246		___
Chrysene	ND		200		___
B-b-Fluoran	ND		360		___
B-k-Fluoran	ND		418		___
B-e-Pyrene	ND		522		___
B-a-Pyrene	ND		697		___
Perylene	ND		1110		___
I-123-cd-Py	ND		724		___
DiB-ah-Anth	ND		918		___
B-ghi-Pery	ND		704		___

SURROGATE RECOVERY SUMMARY (TYPE A)

NAME	AMT (ng)	% REC.	RT	FLAGS
d14-Terphenyl	61800	124	19:14	___

ALTERNATE STANDARDS RECOVERY SUMMARY (TYPE A)

NAME	AMT (ng)	% REC.	RT	FLAGS
d10-Anth	51200	102	14:56	___

|_____ __/__/__|

PAHH_RPT rev:1.01

Triangle Laboratories of Houston, Inc.
PAHH ANALYSIS (a)

10/22/90

FILE NAME....: E001536	CLIENT ID....: PETROCHEM	TLI NUMBER....: 2-17-3
CONCAL.....: E001525	SAMPLE ID....: RUN 3	
ANALYST.....: XL	ANALYSIS DATE: 10/19/90	PROJECT NUMBER: 158
SAMPLE SIZE..: 1.00	SAMPLE MATRIX: MM5	DATE RECEIVED.: 08/31/90
ICAL DATE....: 10/19/90	SAMPLE ORIGIN: CALIFORNI	DATE COLLECTED: 07/24/90
SPIKE FILE...: SPPAH429		SHIPMENT NO...: 61171542

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RT	FLAGS
d8-Naph	48130	96.3	4:53	___
d10-2-Me-Naph	47040	94.1	6:59	___
d7-2-Cl-Naph	54010	108	8:36	___
d8-Acenaph	10310	20.6	9:56	_V_
d10-Acenaphthen	46750	93.5	10:29	___
d10-Fluorene	50870	102	12:03	___
d10-Phenan	51590	103	14:48	___
d10-Fluoran	47790	95.6	18:05	___
d10-Pyrene	44950	89.9	18:39	___
d12-B-a-Anth	42420	84.8	21:49	___
d12-Chrysene	42900	85.8	21:55	___
d12-B-b-Fluoran	79600	79.6	24:42	___
d12-B-k-Fluoran	87030	87.0	24:47	___
d12-B-a-Pyrene	59980	60.0	25:42	___
d12-Perylene	66770	66.8	25:58	___
d12-I-123-cd-Py	90860	90.9	30:03	___
d14-DiB-ah-Anth	82690	82.7	30:07	___
d12-B-ghi-Pery	81360	81.4	31:15	___

|_____ __/__/__|

PAHH_RPT rev:1.01

B = BLANK CONTAMINATION
V = RECOVERY BELOW QC ADVISORY LIMIT; DATA VALID BASED ON SIGNAL-TO-NOISE RATIO

Triangle Laboratories of Houston, Inc.
PAHH ANALYSIS (a)

FILE NAME....:	E001532	CLIENT ID....:	PETROCHEM	TLI NUMBER....:	2-19-1
CONCAL.....:	E001525	SAMPLE ID....:	RUN 4		
ANALYST.....:	XL	ANALYSIS DATE:	10/19/90	PROJECT NUMBER:	158
SAMPLE SIZE..:	1.00	SAMPLE MATRIX:	MM5	DATE RECEIVED.:	08/31/90
ICAL DATE....:	10/19/90	SAMPLE ORIGIN:	CALIFORNI	DATE COLLECTED:	07/23/90
SPIKE FILE...:	SPPAH429			SHIPMENT NO...:	61171542

NAME	AMT(ng)	NUMBER	DL	RT	FLAGS
Naph	46760			4:54	_B_
2-Me-Naph	1750			7:04	___
2-Cl-Naph	ND		245		___
Acenaphthen	ND		323		___
Acenaph	ND		176		___
Fluorene	ND		324		___
Phenan	ND		320		___
Anth	ND		317		___
Fluoran	ND		92.6		___
Pyrene	ND		86.2		___
B-a-Anth	ND		168		___
Chrysene	ND		140		___
B-b-Fluoran	ND		237		___
B-k-Fluoran	ND		295		___
B-e-Pyrene	ND		264		___
B-a-Pyrene	ND		353		___
Perylene	ND		640		___
I-123-cd-Py	ND		519		___
DiB-ah-Anth	ND		630		___
B-ghi-Pery	ND		462		___

SURROGATE RECOVERY SUMMARY (TYPE A)

NAME	AMT (ng)	% REC.	RT	FLAGS
d14-Terphenyl	60600	121	19:13	___

ALTERNATE STANDARDS RECOVERY SUMMARY (TYPE A)

NAME	AMT (ng)	% REC.	RT	FLAGS
d10-Anth	51610	103	14:55	___

|_____ __/__/__|

PAHH_RPT rev:1.01

Triangle Laboratories of Houston, Inc.
PAHH ANALYSIS (a)

FILE NAME....:	E001532	CLIENT ID....:	PETROCHEM	TLI NUMBER....:	2-19-1
CONCAL.....:	E001525	SAMPLE ID....:	RUN 4		
ANALYST.....:	XL	ANALYSIS DATE:	10/19/90	PROJECT NUMBER:	158
SAMPLE SIZE..:	1.00	SAMPLE MATRIX:	MM5	DATE RECEIVED.:	08/31/90
ICAL DATE....:	10/19/90	SAMPLE ORIGIN:	CALIFORNI	DATE COLLECTED:	07/23/90
SPIKE FILE...:	SPPAH429			SHIPMENT NO...:	61171542

INTERNAL STANDARDS RECOVERY SUMMARY

NAME	AMT (ng)	% REC.	RT	FLAGS
d8-Naph	46120	92.2	4:51	____
d10-2-Me-Naph	47210	94.4	6:57	____
d7-2-Cl-Naph	48790	97.6	8:34	____
d8-Acenaph	51720	103	9:55	____
d10-Acenaphthen	47580	95.2	10:28	____
d10-Fluorene	46950	93.9	12:01	____
d10-Phenan	45620	91.2	14:47	____
d10-Fluoran	45610	91.2	18:04	____
d10-Pyrene	46780	93.6	18:39	____
d12-B-a-Anth	45980	92.0	21:48	____
d12-Chrysene	45520	91.0	21:54	____
d12-B-b-Fluoran	89570	89.6	24:42	____
d12-B-k-Fluoran	91570	91.6	24:47	____
d12-B-a-Pyrene	87880	87.9	25:42	____
d12-Perylene	85590	85.6	25:58	____
d12-I-123-cd-Py	93900	93.9	30:02	____
d14-DiB-ah-Anth	89430	89.4	30:07	____
d12-B-ghi-Pery	91900	91.9	31:15	____

|_____ __/__/__|

PAHH_RPT rev:1.01

B = BLANK CONTAMINATION

METHOD 429 : PAH

PETRO CHEM ENVIRONMENTAL SERVICES, INC.

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

CHAIN OF CUSTODY RECORD

PROJECT: PACIFIC ENERGY OXNARD ICE #2

JOB NO. 232

SAMPLED BY: JEM

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE liq.	filter	gas	NO. CONTRS.	ANALYSIS REQUIRED
50	PACIFIC ENERGY METHOD 429 P/N-1	7-24-90		✓			1	Composite & analyze for PAH - method 429.
53	FILTER-1			✓			1	
51	SL/CON-1				✓		1	Front half & back half
54	TRAP-1				✓		1	
52	IMP-1			✓			1	Back half separate what?
55	PACIFIC ENERGY METHOD 429 P/N-2	7-25-90		✓			1	" "
58	FILTER-2			✓			1	
56	SL/CON-2				✓		1	
59	TRAP-2				✓		1	
57	IMP-2			✓			1	

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
James E Markgraf	8-3-90	[illegible]	8/3/90
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

PETRO
CHEM
ENVIRONMENTAL
SERVICES, INC.

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

CHAIN OF CUSTODY RECORD

PROJECT: PACIFIC ENERGY OXNARD ICE #2

JOB NO. 232

SAMPLED BY: JEM

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE liq.	filter	gas	NO. CONTRS.	ANALYSIS REQUIRED
60	PACIFIC ENERGY METHOD 429 P/N-3	7-26-90		✓			1	
63	FILTER-3				✓		1	
61	SL/CON-3			✓			1	
64	TRAP-3				✓		1	
62	IMP-3			✓				
65	PACIFIC ENERGY METHOD 429 P/N-4	7-23-90		✓			1	
68	FILTER-4				✓		1	
66	SL/CON-4			✓			1	
69	TRAP-4				✓		1	
67	IMP-4			✓			1	

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DAT
RELINQUISHED BY:	DATE	RECEIVED BY:	DAT
RELINQUISHED BY:	DATE	RECEIVED BY:	DAT
RELINQUISHED BY:	DATE	RECEIVED BY:	DAT

CHAIN OF CUSTODY RECORD

CT: PACIFIC ENERGY — JOB NO. 232 — SAMPLED BY: JON

OXNARD ICE #2

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE liq.	SAMPLE TYPE filter	SAMPLE TYPE gas	NO. CONTRS.	ANALYSIS REQUIRED
70	PACIFIC ENERGY Method 429 MeOH BLANK	7-30		✓				HOLD
71	PACIFIC ENERGY Method 429 H_2O BLANK	↓		✓				
72	PACIFIC ENERGY Method 429 $MeCl_2$ BLANK			✓				
73	PACIFIC ENERGY Method 429 TOLUENE BLANK			✓				
74	PACIFIC ENERGY Method 429 FILTER BLANK				✓			
75	PACIFIC ENERGY Method 429 TRAP BLANK	↓			✓			

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
James E Markowitz		Todd Bligh	8/3/90
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

15822

TRIANGLE LABORATORIES, INC.

XAD PUF VOST

TRAPS PREPARATION WORK ORDER FORM

Shipped 5/26/90

PLEASE RETURN THIS FORM WITH THE SAMPLES AFTER THE SAMPLING SESSION

Reference No: ____
P.O. Number: 00266
Customer ID: Petrochem

Order Date: 5.22.90
Due Date: 5.29.90 TUES

Type & No. of Traps: (5) XAD ___ PUF ___ VOST ___ Filter

Sample History

XAD Resin Batch No.: T547 from Supelco
PUF ▶ Sandwiched with XAD resin: yes / no
PUF ▶ Screen Required: yes / no
→ USB-S + USB-C

Fortification: XAD: (yes) / no PUF: yes / no Spiking Date: 5/26/90 BR
Spiking Sln ID: (0) BS4-85-4 1000 µL (D) SS-39-18/1A 100 µL
Nominal Conc.: (0) 50 ~~ng/µL~~ µg/mL (D) 0.1 ng/µL

Nature & Amount of Surrogates:

37C14-2,3,7,8-TCDD	10 ng
13C12-2,3,4,7,8-PeCDF	10 ng
13C12-1,2,3,4,7,8-HxCDF	10 ng
13C12-1,2,3,4,7,8-HxCDD	10 ng
13C12-1,2,3,4,7,8,9-HpCDF	10 ng
Other: ____	___ ng
____	___ ng

JOINT PROJECT YES / NO

OBSERVER: G.R. Also spike w/ 50ug terphenyl-d^{14}

Analysis Requisition

Selections circled by JEM
Date: 8-3-90

MM5 Front Half (separate): yes / no
MM5 Back Half (separate): yes / no
MM5 Front & Back Halves Pooled: (yes) / no

VOST Tandem: yes / no
VOST Separate: yes / no
PUF & Filter Pooled: y/n

PCDD / PCDF

Mono- through Octachlorinated: yes / no
Tri- through Octachlorinated: yes / no
Tetra- through Octachlorinated: yes / no
Confirmation of 2,3,7,8-TCDF: yes / no
Toxicity Equivalency Factor: yes / no

ORGANICS

HSL: yes / no
PAH: (yes) / no
PAHH: yes / no
PCB: yes / no
PCBH: yes / no

Others: DO NOT Analyze Reagent Blanks HOLD 70-75

Shipping Information

Special Requirements: Chain-of-Custody Seal: yes / no
Chain-of-Custody Form: yes / no
Others: ____

Mail to the attention of: Tim Brennan by 5.29.90 (date)

Mailing Address: Petrochem Environmental Services
(street address) 3207 Hanning Avenue
Air Bill No.: Bakersfield, CA 93308

Ph: (805) 327-7300
Fax: ____

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

METHOD 430
FIELD DATA @ 70'

	RUN #:	1	2	3
	TIME:	814	825	818
Vm (dry gas sampled)		2.25	2.25	2.25
Y (meter calib. factor)		0.969159	0.969159	0.969159
P bar (Barometric pressure)		30.25	30.25	30.25
P static (stack pressure, " H2O)		2.1	2.1	2.1
Delta H (differential meter press, " H2O)		0	0	0
Tm (meter temperature, R°)		568	572	570
Vm(std),dscf		2.06	2.04	2.05
Vm(std),dscm		0.058332	0.057766	0.058049
Sample time		60	60	60

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

Method 430
Formaldehyde Results

Test Run	#1	#2	#3	average
Time	814	825	818	
Formaldehyde ug/l	5900	750	50	
Sample vol, l	0.033	0.033	0.031	
Formaldehyde, ug	195	25	2	
Vm std DSCF	2.06	20.4	20.5	
Vm std DSCM	0.058	0.058	0.058	
Volume Flow, DSCFM 1/	5747	5747	5747	
Concentrations :				
ug/dscf	95	1	0	32
ug/dscm	3357	427	27	1270
ppm	2.49	0.03	0.00	0.84
Emissions :				
lb/hr	0.0657	0.0008	0.0001	0.0222

1/ See Method 436 and Method 423 field data

Method 430 Formal. FIELD DATA

Client: Pacific Energy Report #: _____
Location: OXNARD UNIT #2
Operator: JDN TE
Date: 7-27-95
Run No: 1
Pump No.: small blast
Meter Box No.: Pump MH1 Factor: _____
Meter ΔH @: _____
Pitot Tube No.: _____

Post Test Leak Chk.
Leak Rate: 1.001 cfm
Vacuum: 5 (in Hg)

Ambient Temp: _____
Barometric Pressure: _____
Static Pressure, (in Hg): 2.0
Assumed Moisture %: 13.5
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): 1/4"
Probe Liner Material: SS
Filter Number: _____
Duct Diam. (in): 17.5

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)	~~PROBE~~ ~~Filter Holder~~ Temperature: (°F)	Temperature of Gas Leaving Condenser or Last Impinger (°F)
						871.79	110	112	370	
	8:33	Ø			Ø	872.19	107	104		
	8:45	Ø			Ø	872.54	106	104		
	8:56	Ø			Ø	872.90	103	105	376	
	9:06	Ø			Ø	873.27	109	109		
	9:19	Ø			Ø	873.53	108	108		
	9:27	Ø			Ø	874.04				
	9:43									
Total							avg.	avg.		
Average							avg.			

Meth. 430 FIELD DATA

Client: Pac. Energy Report #: _____
Location: Oxnard #2
Operator: JDN / JEM
Date: 7-27-90
Run No: 2
Pump No.: Small gast
Meter Box No.: Pump unit Factor: _____
Meter ΔH @: _____
Pitot Tube No.: _____

Post Test Leak Chk.
Leak Rate: .011 cfm
Vacuum: 5 (in Hg)

Ambient Temp: 70°
Barometric Pressure: _____
Static Pressure, (in Hg): 2.0
Assumed Moisture %: 13.0
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .25
Probe Liner Material: SS
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)
	9:48	Ø	Ø	Ø	Ø	874.04	109	107	364	
	9:58	Ø	Ø	Ø	Ø	874.45	112	108		
	10:08	Ø	Ø	Ø	Ø	874.85	113	110	361	
	10:18	Ø	Ø	Ø	Ø	875.24	112	111		
	10:28	Ø	Ø	Ø	Ø	875.64	116	114	361	
	10:38	Ø	Ø	Ø	Ø	876.03	112	111		
	10:44					876.29				
							avg.	avg.		
Total							avg.			
Average										

Meth. 430 FIELD DATA

Client: Pac. Energy Report #:
Location: Oxnard #2
Operator: JDN/JEM
Date: 7-27-90
Run No: 3
Pump No.: Small gast
Meter Box No.: Pyrometer Factor:
Meter ΔH @:
Pitot Tube No.:

Post Test Leak Chk.
Leak Rate: <.001 cfm
Vacuum: 5 (in Hg)

876.345
2.415
878.595

Ambient Temp: 70°F
Barometric Pressure:
Static Pressure, (in Hg): 2.6
Assumed Moisture %: 13
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in): .75
Probe Liner Material: SS
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)
						876.345	113	110	362	
	10:50	Ø	Ø	Ø	Ø	876.760	111	111		
	11:00	Ø	Ø	Ø	Ø	877.155	113	114	361	
	11:10	Ø	Ø	Ø	Ø	877.61	107	109		
	11:22	Ø	Ø	Ø	Ø	878.10	107	108	361	
	11:34	Ø	Ø	Ø	Ø	878.595				
	11:49									
							avg.	avg.		
Total							avg.			
Average										

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: 07/27/90
Received: 07/31/90
Tested: As Listed
Collected by: JDN

ATTN: Faythe Blythe
Petro Chem Environmental
3207 Antonino Avenue
Bakersfield, CA 93308

Sample Description:

Proj. #232, Pacific Energy, Oxnard
Ice #2, Impingates, Samples As Listed

REPORT

LAB NUMBER	SAMPLE DESCRIPTION	LEVEL FOUND FORMALDEHYDE (ug/L)	(ug)
METHOD----------		CARB 430	2.
DETECTION LIMIT(PQL)**-----		50.	
DATE/ANALYST----------		08/03/90/RM	
G-2797-1	Run 1, Imp. 1 & 2, Volume = 33 ml.	5900.	195.
G-2797-2	Run 2, Imp. 1 & 2, Volume = 33 ml.	750.	25.
G-2797-3	Run 3, Imp. 1 & 2, Volume = 31 ml.	<50.	<2.
G-2797-4	Run 4, Imp. 1 & 2, Volume = 28 ml.	150.	4.
G-2797-5	Field Blank, Imp. 1, Volume = 30 ml.	100.	3.
G-2797-6	Spike Volume = 30 ml.	1000.	31.
	SPIKED AT	1400.	42.
	PERCENT RECOVERY	73.	

**Practical Quantitation Limit

HPLC
08/06/90
G2797F.WR1/FORM1
MH/ml

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES
Mary Havlicek, Ph.D., President

CHAIN OF CUSTODY RECORD

PROJECT: PACIFIC ENERGY OXNARD ICE #2

JOB NO. 232

SAMPLED BY: JDN

SG 2797

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE liq.	filter	gas	NO. CONTRS	ANALYSIS REQUIRED
80	PACIFIC ENERGY method 430 RUN-1 IMP 1 of 2	7-27-90		✓		-1		Composite & Analyze for TOTAL FORMALDEHYDE by HPLC
81	PACIFIC ENERGY method 430 RUN-1 2 of 2			✓				
82	PACIFIC ENERGY method 430 RUN-2 1 of 2			✓		-2		" "
83	PACIFIC ENERGY method 430 RUN-2 2 of 2			✓				
84	Pacific Energy method 430 RUN-3 1 of 2			✓		-3		" "
85	PACIFIC ENERGY method 430 RUN-3 2 of 2			✓				
86	PACIFIC ENERGY method 430 RUN-4 1 of 2			✓		-4		" "
87	PACIFIC ENERGY method 430 RUN-4 2 of 2			✓				
88	PACIFIC ENERGY method 430 DNPH BLANK 1 of 2			✓		-5		ANALYZE FOR µg/L FORMALDEHYDE BY HP
89	PACIFIC ENERGY method 430 DNPH BLANK 2 of 2			✓		-7		(X-TRA) DO NOT ANALYZE
90	PACIFIC ENERGY method 430 SPIKE 1 of 1	↓				-6		ANALYZE FOR TOTAL FORMALDEHYDE BY HP

COMMENTS: * 89 = back-up blank if # 88 breaks

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
[signature]	7-30-90	[signature] Scale control	7-3-90
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

RECEIVED AUG 20 1990

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

METHOD 436
FIELD DATA @ 70'

RUN #:	1	2	3
TIME:	1155	1657	1422
Vm (dry gas sampled)	46.9	46.52	45.9
Y (meter calib. factor)	0.991696	0.991696	0.991696
P bar (Barometric pressure)	30.25	30.25	30.25
P static (stack pressure, " H2O)	2.1	2.1	2.1
Delta H (differential meter press, " H2O)	1.06	1.06	1.04
Tm (meter temperature, R')	568	562	558
Vol H2O mls	150	150.6	136.8
Vm(std),dscf	43.99	44.1	43.82
Bws-H2O vapor	0.139	0.1392	0.1288
MF-moisture factor	0.861	0.8608	0.8712
% CO2	7.6	7.4	7.6
% O2	8.1	7.9	7.8
% N2	84.3	84.7	84.6
Md-MW stk gas,dry	29.54	29.5	29.53
Ms-MW stk gas,wet	27.94	27.9	28.04
Cp-pitot tube	0.84	0.84	0.84
Avg sq rt ^p	1.876	1.892	1.873
T stack, R'	1387	1397	1395
Stack area,ft2	1.67	1.67	1.67
Vs-fps	172.14	174.36	172.05
Qstd-dscfm	5767	5798	5799
Area noz,ft2	1.97E-04	1.97E-04	1.97E-04
Sample time	64	64	64
% Isokinetic	101.1	100.8	100.2

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

Summary of Results for Metal Emissions

CARB Method 436; Run-1

Pollutant	mg/l	Sample Vol. (ml)	Vm std	DSCFM		gr/DSCF	lb/hr
Arsenic							
p/n	0.005	126	43.99	5767	*	2.21E-07	1.09E-05
Filter	0.001	1000	43.99	5767	*	3.50E-07	1.73E-05
Imp	0.005	486	43.99	5767	*	8.51E-07	4.21E-05
					Total	4.74E-07	2.34E-05
Beryllium							
p/n	0.002	126	43.99	5767	*	8.82E-08	4.37E-06
Filter	0.0004	1000	43.99	5767	*	1.40E-07	6.93E-06
Imp	0.002	486	43.99	5767	*	3.40E-07	1.68E-05
					Total	1.90E-07	9.38E-06
Cadmium							
p/n	0.14	126	43.99	5767		6.18E-06	3.06E-04
Filter	0.0001	1000	43.99	5767	*	3.50E-08	1.73E-06
Imp	0.036	486	43.99	5767		6.12E-06	3.03E-04
					Total	4.11E-06	2.03E-04
Chromium							
p/n	0.0028	126	43.99	5767		1.24E-07	6.11E-06
Filter	0.0013	1000	43.99	5767		4.55E-07	2.25E-05
Imp	0.0015	486	43.99	5767		2.55E-07	1.26E-05
					Total	2.78E-07	1.38E-05
Copper							
p/n	0.0026	126	43.99	5767		1.15E-07	5.67E-06
Filter	0.0002	1000	43.99	5767	*	7.00E-08	3.46E-06
Imp	0.0022	486	43.99	5767		3.74E-07	1.85E-05
					Total	1.86E-07	9.22E-06
Lead							
p/n	0.005	126	43.99	5767	*	2.21E-07	1.09E-05
Filter	0.001	1000	43.99	5767	*	3.50E-07	1.73E-05
Imp	0.005	486	43.99	5767	*	8.51E-07	4.21E-05
					Total	4.74E-07	2.34E-05

* Values reported are lower detection limit

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

Summary of Results for Metal Emissions

CARB Method 436; Run-1

Pollutant	mg/l	Sample Vol. (ml)	Vm std	DSCFM		gr/DSCF	lb/hr
Manganese							
p/n	0.01	126	43.99	5767	*	4.41E-07	2.18E-05
Filter	0.0053	1000	43.99	5767	*	1.86E-06	9.18E-05
Imp	0.01	486	43.99	5767	*	1.70E-06	8.42E-05
					Total	1.33E-06	6.59E-05
Mercury							
p/n	0.0005	126	43.99	5767	*	2.21E-08	1.09E-06
Filter	0.00008	1000	43.99	5767	*	2.80E-08	1.39E-06
ImpHNO3	0.0004	486	43.99	5767	*	6.81E-08	3.37E-06
ImpKMNO4	0.0004	527	43.99	5767	*	7.38E-08	3.65E-06
					Total	5.66E-08	2.80E-06
Nickel							
p/n	0.005	126	43.99	5767	*	2.21E-07	1.09E-05
Filter	0.0019	1000	43.99	5767		6.65E-07	3.29E-05
Imp	0.005	486	43.99	5767	*	8.51E-07	4.21E-05
					Total	5.79E-07	2.86E-05
Selenium							
p/n	0.005	126	43.99	5767	*	2.21E-07	1.09E-05
Filter	0.001	1000	43.99	5767	*	3.50E-07	1.73E-05
Imp	0.01	486	43.99	5767	*	1.70E-06	8.42E-05
					Total	7.57E-07	3.75E-05
Zinc							
p/n	0.13	126	43.99	5767		5.73E-06	2.84E-04
Filter	0.0061	1000	43.99	5767		2.14E-06	1.06E-04
Imp	0.02	486	43.99	5767	*	3.40E-06	1.68E-04
					Total	3.76E-06	1.86E-04

* Values reported are lower detection limit

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

Summary of Results for Metal Emissions

CARB Method 436; Run-2

Pollutant	mg/l	Sample Vol. (ml)	Vm std	DSCFM		gr/DSCF	lb/hr
Arsenic							
p/n	0.005	128	44.1	5798	*	2.23E-07	1.11E-05
Filter	0.0013	1000	44.1	5798		4.54E-07	2.26E-05
Imp	0.005	530	44.1	5798	*	9.25E-07	4.60E-05
					Total	5.34E-07	2.66E-05
Beryllium							
p/n	0.002	128	44.1	5798	*	8.94E-08	4.45E-06
Filter	0.0005	1000	44.1	5798	*	1.75E-07	8.69E-06
Imp	0.002	530	44.1	5798	*	3.70E-07	1.84E-05
					Total	2.11E-07	1.05E-05
Cadmium							
p/n	0.15	128	44.1	5798		6.70E-06	3.34E-04
Filter	0.0001	1000	44.1	5798	*	3.49E-08	1.74E-06
Imp	0.038	530	44.1	5798		7.03E-06	3.50E-04
					Total	4.59E-06	2.28E-04
Chromium							
p/n	0.0037	128	44.1	5798		1.65E-07	8.23E-06
Filter	0.0011	1000	44.1	5798		3.84E-07	1.91E-05
Imp	0.005	530	44.1	5798		9.25E-07	4.60E-05
					Total	4.92E-07	2.45E-05
Copper							
p/n	0.0017	128	44.1	5798		7.60E-08	3.78E-06
Filter	0.0002	1000	44.1	5798	*	6.98E-08	3.47E-06
Imp	0.0012	530	44.1	5798		2.22E-07	1.10E-05
					Total	1.23E-07	6.10E-06
Lead							
p/n	0.005	128	44.1	5798	*	2.23E-07	1.11E-05
Filter	0.001	1000	44.1	5798	*	3.49E-07	1.74E-05
Imp	0.005	530	44.1	5798	*	9.25E-07	4.60E-05
					Total	4.99E-07	2.48E-05

* Values reported are lower detection limit

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

Summary of Results for Metal Emissions

CARB Method 436; Run-2

Pollutant	mg/l	Sample Vol. (ml)	Vm std	DSCFM		gr/DSCF	lb/hr
Manganese							
p/n	0.01	128	44.1	5798	*	4.47E-07	2.22E-05
Filter	0.002	1000	44.1	5798	*	6.98E-07	3.47E-05
Imp	0.01	530	44.1	5798	*	1.85E-06	9.21E-05
					Total	9.99E-07	4.97E-05
Mercury							
p/n	0.0005	128	44.1	5798	*	2.23E-08	1.11E-06
Filter	0.0008	1000	44.1	5798	*	2.79E-07	1.39E-05
ImpHNO3	0.0004	530	44.1	5798	*	7.40E-08	3.68E-06
ImpKMNO4	0.0004	578	44.1	5798	*	8.07E-08	4.02E-06
					Total	1.45E-07	7.20E-06
Nickel							
p/n	0.0005	128	44.1	5798	*	2.23E-08	1.11E-06
Filter	0.0017	1000	44.1	5798		5.94E-07	2.95E-05
Imp	0.005	530	44.1	5798	*	9.25E-07	4.60E-05
					Total	5.14E-07	2.56E-05
Selenium							
p/n	0.005	128	44.1	5798	*	2.23E-07	1.11E-05
Filter	0.001	1000	44.1	5798	*	3.49E-07	1.74E-05
Imp	0.005	530	44.1	5798	*	9.25E-07	4.60E-05
					Total	4.99E-07	2.48E-05
Zinc							
p/n	0.073	128	44.1	5798		3.26E-06	1.62E-04
Filter	0.007	1000	44.1	5798		2.44E-06	1.22E-04
Imp	0.02	530	44.1	5798		3.70E-06	1.84E-04
					Total	3.14E-06	1.56E-04

* Values reported are lower detection limit

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

Summary of Results for Metal Emissions

CARB Method 436; Run-3

Pollutant	mg/l	Sample Vol. (ml)	Vm std	DSCFM		gr/DSCF	lb/hr
Arsenic							
p/n	0.0052	100	43.82	5799		1.83E-07	9.09E-06
Filter	0.001	1000	43.82	5799	*	3.51E-07	1.75E-05
Imp	0.005	490	43.82	5799	*	8.61E-07	4.28E-05
					Total	4.65E-07	2.31E-05
Beryllium							
p/n	0.002	100	43.82	5799	*	7.03E-08	3.50E-06
Filter	0.0004	1000	43.82	5799	*	1.41E-07	6.99E-06
Imp	0.002	490	43.82	5799	*	3.44E-07	1.71E-05
					Total	1.85E-07	9.21E-06
Cadmium							
p/n	0.0009	100	43.82	5799		3.16E-08	1.57E-06
Filter	0.0001	1000	43.82	5799	*	3.51E-08	1.75E-06
Imp	0.001	490	43.82	5799	*	1.72E-07	8.57E-06
					Total	7.97E-08	3.96E-06
Chromium							
p/n	0.0091	100	43.82	5799		3.20E-07	1.59E-05
Filter	0.00087	1000	43.82	5799		3.06E-07	1.52E-05
Imp	0.0051	490	43.82	5799		8.78E-07	4.37E-05
					Total	5.01E-07	2.49E-05
Copper							
p/n	0.0031	100	43.82	5799		1.09E-07	5.42E-06
Filter	0.0002	1000	43.82	5799	*	7.03E-08	3.50E-06
Imp	0.042	490	43.82	5799		7.23E-06	3.60E-04
					Total	2.47E-06	1.23E-04
Lead							
p/n	0.005	100	43.82	5799	*	1.76E-07	8.74E-06
Filter	0.001	1000	43.82	5799	*	3.51E-07	1.75E-05
Imp	0.005	490	43.82	5799	*	8.61E-07	4.28E-05
					Total	4.63E-07	2.30E-05

* Values reported are lower detection limit

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

Summary of Results for Metal Emissions

CARB Method 436; Run-3

Pollutant	mg/l	Sample Vol. (ml)	Vm std	DSCFM		gr/DSCF	lb/hr
Manganese							
p/n	0.01	100	43.82	5799		3.51E-07	1.75E-05
Filter	0.002	1000	43.82	5799	*	7.03E-07	3.50E-05
Imp	0.01	490	43.82	5799	*	1.72E-06	8.57E-05
					Total	9.25E-07	4.60E-05
Mercury							
p/n	0.001	100	43.82	5799	*	3.51E-08	1.75E-06
Filter	0.00008	1000	43.82	5799	*	2.81E-08	1.40E-06
ImpHNO3	0.0004	490	43.82	5799	*	6.89E-08	3.43E-06
ImpKMNO4	0.0004	611	43.82	5799	*	8.59E-08	4.27E-06
					Total	6.10E-08	3.03E-06
Nickel							
p/n	0.0085	100	43.82	5799		2.99E-07	1.49E-05
Filter	0.0011	1000	43.82	5799		3.87E-07	1.92E-05
Imp	0.005	490	43.82	5799	*	8.61E-07	4.28E-05
					Total	5.15E-07	2.56E-05
Selenium							
p/n	0.005	100	43.82	5799	*	1.76E-07	8.74E-06
Filter	0.001	1000	43.82	5799	*	3.51E-07	1.75E-05
Imp	0.005	490	43.82	5799	*	8.61E-07	4.28E-05
					Total	4.63E-07	2.30E-05
Zinc							
p/n	0.13	100	43.82	5799		4.57E-06	2.27E-04
Filter	0.0041	1000	43.82	5799		1.44E-06	7.17E-05
Imp	0.051	490	43.82	5799		8.78E-06	4.37E-04
					Total	4.93E-06	2.45E-04

* Values reported are lower detection limit

COMPANY: PACIFIC ENERGY
REPORT #:
UNIT ID: SHARD UNIT #2
DATE: 7-24-90

MULTI METALS

ON-SITE DATA

SITE: OUTLET

RUN #:	#1	#2	#3
TIME:	7-24-90 1155-1259	7-24-90 1657-1801	7-27-90 1422-1526

Vm Dry sampled gas volume, dcf	46.9	46.52	45.99
Y Meter calibration factor (met# 1002 →)	.991696	.991696	.991696
P bar Barometric pressure, in Hg	30.25	30.25	30.35
P static Stack static pressure, in H_2	+2.1	2.1	2.1
Delta H Differential meter pressure, in H_2O	1.06	1.06	1.04
Tm Meter temperature, deg F	108	102	98

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
5% HNO_3	843.6	624.9	218.7	825.0	638.5	186.5	773.6	584.1	189.5
5% HNO_3	621.6	607.1	14.5	624.1	607.6	16.5	581.6	571.9	9.7
10	465.6	465.0	0.60	467.9	464.6	3.3	472.6	472.1	0.50
4% $KMnO_4$	586.9	586.9	3.0	593.6	591.2	2.4	595.6	595.1	0.50
$KMnO_4$	601.2	600.4	0.80						
Silica	758.2	749.9	8.3	778.1	768.9	9.2	809.5	801.2	
			-95.9			-69.3			-63.4
V Line Wash lc, volume of H_2O, grams			150.0			150.6			136.8

		#1	#2	#3
CO_2	% Dry Volume	7.6	7.4	7.6
O_2	% Dry Volume	8.1	7.9	7.8
N_2	% Dry Volume	84.3	84.7	84.6
Cp	Pitot tube coefficient (Pit# ____ ____ ____)	.84	.84	.84
Delta P	Avg Delta-P, in H_2O	3.52	3.58	3.51
Ts	Stack temperature, in deg F	927	937	935
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	0.19	0.19	0.19
Dur	Sampling time, min	64	64	64
% Iso	Mini Iso	100.10	99.92	100.45

****

		BLANK			
Filter #			QT178	QT179	QT180
Filter tare weights, grams			.77530	.75431	.75412
PIN .1N HNO_3	I	____	263.9	297.3	276.7
	F	____	135.7	158.3	173.6
Impingers .1N HNO_3 1,2	I	____	324.8	32.8	295.2
	F	____	264.1	224.5	199.4

INITIALS**

CONTROL BOX#: 1
Hi ΔP _____ Lo ΔP _____ Ave ΔP (5% HNO_3 Impingers) Duct Temp. _____
Diameters before disturb _____ After _____
# of Points, total _____
Overall (inches) _____ Coupling _____

Impingers 4,5,6 N HCl $KMnO_4$ Impingers	I. ____	544.3	533.6	424.4
	F ____	280.1	256.4	209.3

Multi - Metals FIELD DATA

Client: Pac. Energy Report #: _____
Location: Oxnard #2
Operator: JPN/JEM
Date: 7-24-90
Run No: 1
Pump No.: Goast
Meter Box No.: 1007 Factor: _____
Meter ΔH @: .900
Pitot Tube No.: _____

Post Test Leak Chk.

Leak Rate: _____ cfm
Vacuum: _____ (in Hg)

Ambient Temp: 75°F
Barometric Pressure: 30.25
Static Pressure, (in Hg): 2.1
Assumed Moisture %: 13.0 MW_{wet} = 27.5
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .190
Probe Liner Material: quartz
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)	ΔH	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)
8	11:55	5.5	946	3.90	.770	1.15	192.80	110	109		
7	:59	5.5	946	3.90	.770	1.15	195.90	110	109		
6	12:03	5.5	946	3.85	.762	1.14	199.00	109	108		
5	:07	5.0	945	3.60	.742	1.08	202.03	113	109		
4	:11	5.0	937	3.15	.691	.95	205.00	109	105		
3	:15	5.0	939	3.15	.695	.96	207.76	113	108		
2	:19	5.5	888	3.25	.715	1.01	210.55	109	106		
1	:23	5.5	888	3.25	.715	1.01	213.41	109	106		
	:27						216.27				
								avg.	avg.		
Total											
Average.								avg.			

Multi-Metals FIELD DATA

Client: Pac. Energy Report #:
Location: Oxnard #2
Operator: JDN / JFM
Date: 7-24-90
Run No: 1 (cont'd)
Pump No.: H1-F10
Meter Box No.: 1007 Factor:
Meter ΔH @: .900
Pitot Tube No.: 30-1

Post Test Leak Chk.
Leak Rate: .002 cfm
Vacuum: 10.0 (in Hg)

Ambient Temp: 75°F
Barometric Pressure: 30.25
Static Pressure, (in Hg): 2.1
Assumed Moisture %: 13 MW_{wet} = 27.5
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in): .190
Probe Liner Material: Quartz
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) rate	ΔH	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)
1	12:27	5.5	874	3.30	.726	1.04	216.27	111	107		
2	:31	5.5	874	3.30	.726	1.04	219.17	111	107		
3	:35	5.0	935	3.15	.689	.95	222.10	107	104		
4	:39	5.5	940	3.45	.721	1.03	224.84	108	105		
5	:43	5.5	948	3.6	.736	1.07	227.72	109	106		
6	:47	6.0	950	3.80	.761	1.13	230.61	113	110		
7	:51	6.0	937	3.85	.762	1.14	233.65	109	104		
8	:55	6.0	937	3.85	.762	1.14	236.71	107	104		
	:59						239.70				
		$\bar{X}$=	927	3.52					108		
					$\overline{\Delta H}$= 1.06						
					ISO= 100.10			avg.	avg.		
Total					vel fps= 173.42						
Average								avg.			

Multi-Metals FIELD DATA

Client: Pac. Energy Report #: _____
Location: Oxnard #2
Operator: JDN / JEM
Date: 7-24-90
Run No: 2
Pump No.: East
Meter Box No.: 1002 Factor: _____
Meter ΔH @: .900
Pitot Tube No.: 3Q-1

Post Test Leak Chk.

Leak Rate: _____ cfm
Vacuum: _____ (in Hg)

Ambient Temp: 80°F
Barometric Pressure: 30.25
Static Pressure, (in Hg): 2.1
Assumed Moisture %: 13.0 MW=27.5
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .190
Probe Liner Material: Quartz
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)	ΔH	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)
8	16:57	6.0	936	4.05	.768	1.18	289.90	96	96		
7	17:01	6.0	936	4.05	.768	1.18	293.00	96	96		
6	:05	5.5	938	3.90	.758	1.14	296.05	102	97		
5	:09	5.0	937	3.75	.743	1.10	299.07	102	96		
4	:13	4.5	935	3.30	.704	.99	302.09	107	101		
3	:17	4.5	938	3.30	.699	.99	304.93	104	97		
2	:21	4.5	940	3.25	.697	.97	307.70	107	100		
1	:25	4.5	940	3.25	.697	.97	310.51	107	100		
	:29						313.26				
Total								avg.	avg.		
Average								avg.			

MM5 - Metals FIELD DATA

Client: Pac. Energy Report #: _____
Location: Oxnard #2
Operator: JDN/JEM
Date: 7-24-90
Run No: 2 (cont'd)
Pump No.: Gast
Meter Box No.: 1002 Factor: _____
Meter ΔH @: .900
Pitot Tube No.: 3Q-1

Post Test Leak Chk.

Leak Rate: .006 cfm
Vacuum: 8.0 (in Hg)

Ambient Temp: 75°F
Barometric Pressure: 30.25
Static Pressure, (in Hg): 2.1
Assumed Moisture %: 13.0 MW_{wet} = 775
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .19
Probe Liner Material: quartz
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 Ratio (in H_2O) ΔH	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)
1	17:29	4.5	934	3.10	.679 .94	313.26	106	97		
2	:33	4.5	934	3.10	.679 .94	316.00	106	97		
3	:37	4.5	936	3.15	.686 .95	318.67	105	101		
4	:41	5.0	938	3.40	.712 1.01	321.37	105	100		
5	:45	5.5	934	3.70	.744 1.10	324.19	105	101		
6	:49	6.0	934	3.90	.764 1.15	327.08	106	100		
7	:53	6.0	934	4.0	.777 1.18	330.13	107	102		
8	:57	6.5	947	4.2	.791 1.22	333.24	108	103		
	18:01					336.42				
		$\bar{X}$=	937	3.58				102		
					ΔH = 1.06					
					ISO = 99.92					
Total					vp/fps = 175.57		avg.	avg.		
Average							avg.			

Metals - 3 FIELD DATA

Client: Pac. Enrgy Report #:
Location: Oxnard #2
Operator: JDN/JEM
Date: 7-24-90
Run No: 3 (cont'd)
Pump No.: (rear
Meter Box No.: 1002 Factor:
Meter ΔH @: 1.900
Pitot Tube No.: 30-1

Post Test Leak Chk.

Leak Rate: .006 cfm
Vacuum: 6.0 (in Hg)

Ambient Temp: 75°F
Barometric Pressure: 30.35
Static Pressure, (in Hg): 7.0
Assumed Moisture %: 13
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in): .19
Probe Liner Material: quartz
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)	ΔH	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)
1	14:54	4.0	930	3.35	.705	1.00	1010.00	106	96		
2	:58	4.0	930	3.35	.705	1.00	1012.83	106	96		
3	15:02	4.0	934	3.25	.691	.97	1015.69	101	94		
4	:06	4.0	932	3.10	.676	.93	1018.43	104	94		
5	:10	5.0	943	3.60	.725	1.06	1021.14	103	94		
6	:14	5.0	932	3.70	.737	1.09	1024.04	102	94		
7	:18	5.0	936	3.85	.752	1.13	1027.10	105	94		
8	:22		946	4.0	.765	1.16	1030.11	104	96		
	:26						1033.19				
		$\bar{x}$=	935	3.51					98		
					$\overline{\Delta H}$ = 1.04						
Total					ISO = 100.45			avg.	avg.		
Average					vplfps = 173.40			avg.			

Metals - 3 FIELD DATA

Client: Pac. Energy Report #: _____
Location: Oxnard #2
Operator: JDN / JEM
Date: 7-27-90
Run No: 3
Pump No.: Orast
Meter Box No.: 1002 Factor: _____
Meter ΔH @: .900
Pitot Tube No.: 30-1

Post Test Leak Chk.

Leak Rate: _____ cfm
Vacuum: _____ (in Hg)

Ambient Temp: 75°F
Barometric Pressure: 30.35
Static Pressure, (in Hg): 3.0
Assumed Moisture %: 13
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .19
Probe Liner Material: Quartz
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)	ΔH	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)
8	2:22	5.0	930	3.9	.752	1.14	987.20	94	95		
7	:26	5.0	932	3.85	.749	1.13	990.18	93	99		
6	:30	5.0	940	3.70	.733	1.08	993.17	101	93		
5	:34	4.5	935	3.60	.725	1.06	996.12	101	93		
4	:38	4.0	932	3.15	.681	.95	999.05	104	94		
3	:42	4.0	932	3.20	.685	.96	1001.77	103	93		
2	:46	4.0	933	3.30	.696	.99	1004.50	101	95		
1	:50	4.0	933	3.30	.696	.99	1007.27	101	95		
	:54						1010.00				
Total								avg.	avg.		
Average								avg.			

METALS

(Water - Total)

Client Name: Petro Chem Environmental Services Inc.
Client ID: #200 P/N-1
Lab ID: 054411-0001-SA Enseco ID: 162496
Matrix: AQUEOUS Sampled: 24 JUL 90 Received: 10 AUG 90
Authorized: 23 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Arsenic	ND	mg/L	0.0050	Method 206.2	29 AUG 90	05 SEP 90	
Beryllium	ND	mg/L	0.0020	Method 200.7	NA	30 AUG 90	
Cadmium	0.14	mg/L	0.025	Method 213.2	29 AUG 90	31 AUG 90	o
Chromium	0.0028	mg/L	0.0010	Method 218.2	29 AUG 90	05 SEP 90	
Copper	0.0026	mg/L	0.0010	Method 220.2	29 AUG 90	04 SEP 90	
Lead	ND	mg/L	0.0050	Method 239.2	29 AUG 90	06 SEP 90	
Manganese	ND	mg/L	0.010	Method 200.7	NA	30 AUG 90	
Mercury	ND	mg/L	0.00050	Method 245.1	30 AUG 90	31 AUG 90	r
Nickel	ND	mg/L	0.0050	Method 249.2	29 AUG 90	30 AUG 90	
Selenium	ND	mg/L	0.0050	Method 270.2	29 AUG 90	30 AUG 90	
Zinc	0.13	mg/L	0.020	Method 200.7	NA	30 AUG 90	

Note o : Reporting Limit raised due to high level of analyte present in sample.

Note r : Reporting limit changed due to sample volume limitations.

ND = Not detected
NA = Not applicable

Reported By: Grace Chang Approved By: Barry Votaw

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METALS

(Soil/Solid - Total)

Client Name: Petro Chem Environmental Services Inc.
Client ID: #204 FILTER-1
Lab ID: 054411-0003-SA Enseco ID: 162507
Matrix: FILTER Sampled: 24 JUL 90 Received: 10 AUG 90
Authorized: 23 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Arsenic	ND	mg/filte	0.0010	Method 7060	31 AUG 90	05 SEP 90
Beryllium	ND	mg/filte	0.00040	Method 6010	NA	04 SEP 90
Cadmium	ND	mg/filte	0.00010	Method 7131	31 AUG 90	04 SEP 90
Chromium	0.0013	mg/filte	0.00020	Method 7191	31 AUG 90	04 SEP 90
Copper	ND	mg/filte	0.00020	Method 7211	31 AUG 90	04 SEP 90
Lead	ND	mg/filte	0.0010	Method 7421	31 AUG 90	06 SEP 90
Mercury	ND	mg/filte	0.000080	Method 7471	29 AUG 90	30 AUG 90
Nickel	0.0019	mg/filte	0.0010	Method 7521	31 AUG 90	04 SEP 90
Selenium	ND	mg/filte	0.0010	Method 7740	31 AUG 90	05 SEP 90
Manganese	ND	mg/filte	0.0020	Method 6010	NA	04 SEP 90
Zinc	0.0061	mg/filte	0.0040	Method 6010	NA	04 SEP 90

ND = Not detected
NA = Not applicable

Reported By: Grace Chang Approved By: Barry Votaw

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METALS

(Water - Total)

Client Name: Petro Chem Environmental Services Inc.
Client ID: #203 HNO3-1
Lab ID: 054411-0002-SA Enseco ID: 162498
Matrix: AQUEOUS Sampled: 24 JUL 90 Received: 10 AUG 90
Authorized: 23 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Arsenic	ND	mg/L	0.0050	Method 206.2	29 AUG 90	05 SEP 90	
Beryllium	ND	mg/L	0.0020	Method 200.7	NA	30 AUG 90	
Cadmium	0.036	mg/L	0.010	Method 213.2	29 AUG 90	04 SEP 90	o
Chromium	0.0015	mg/L	0.0010	Method 218.2	29 AUG 90	04 SEP 90	
Copper	0.0022	mg/L	0.0010	Method 220.2	29 AUG 90	04 SEP 90	
Lead	ND	mg/L	0.0050	Method 239.2	29 AUG 90	06 SEP 90	
Manganese	ND	mg/L	0.010	Method 200.7	NA	30 AUG 90	
Mercury	ND	mg/L	0.00040	Method 245.1	30 AUG 90	31 AUG 90	r
Nickel	ND	mg/L	0.0050	Method 249.2	29 AUG 90	30 AUG 90	
Selenium	ND	mg/L	0.010	Method 270.2	29 AUG 90	30 AUG 90	G
Zinc	ND	mg/L	0.020	Method 200.7	NA	30 AUG 90	

Note o : Reporting Limit raised due to high level of analyte present in sample.

Note r : Reporting limit changed due to sample volume limitations.

Note G : Reporting Limit raised due to matrix interference.

ND = Not detected
NA = Not applicable

Reported By: Grace Chang Approved By: Barry Votaw

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METALS

(Water - Total)

Client Name: Petro Chem Environmental Services Inc.
Client ID: #205 P/N-2
Lab ID: 054411-0004-SA Enseco ID: 162508
Matrix: AQUEOUS Sampled: 24 JUL 90 Received: 10 AUG 90
Authorized: 23 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Arsenic	ND	mg/L	0.0050	Method 206.2	29 AUG 90	05 SEP 90	
Beryllium	ND	mg/L	0.0020	Method 200.7	NA	30 AUG 90	
Cadmium	0.15	mg/L	0.050	Method 213.2	29 AUG 90	31 AUG 90	o
Chromium	0.0037	mg/L	0.0010	Method 218.2	29 AUG 90	04 SEP 90	
Copper	0.0017	mg/L	0.0010	Method 220.2	29 AUG 90	04 SEP 90	
Lead	ND	mg/L	0.0050	Method 239.2	29 AUG 90	06 SEP 90	
Manganese	ND	mg/L	0.010	Method 200.7	NA	30 AUG 90	
Mercury	ND	mg/L	0.00050	Method 245.1	30 AUG 90	31 AUG 90	r
Nickel	ND	mg/L	0.0050	Method 249.2	29 AUG 90	30 AUG 90	
Selenium	ND	mg/L	0.0050	Method 270.2	29 AUG 90	30 AUG 90	
Zinc	0.073	mg/L	0.020	Method 200.7	NA	30 AUG 90	

Note o : Reporting Limit raised due to high level of analyte present in sample.

Note r : Reporting limit changed due to sample volume limitations.

ND = Not detected
NA = Not applicable

Reported By: Grace Chang Approved By: Barry Votaw

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METALS

(Soil/Solid - Total)

Client Name: Petro Chem Environmental Services Inc.
Client ID: #209 FILTER-2
Lab ID: 054411-0006-SA Enseco ID: 162510
Matrix: FILTER Sampled: 24 JUL 90 Received: 10 AUG 90
Authorized: 23 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Arsenic	0.0013	mg/filte	0.0010	Method 7060	31 AUG 90	05 SEP 90	
Beryllium	ND	mg/filte	0.00050	Method 6010	NA	04 SEP 90	i
Cadmium	ND	mg/filte	0.00010	Method 7131	31 AUG 90	04 SEP 90	
Chromium	0.0011	mg/filte	0.00020	Method 7191	31 AUG 90	04 SEP 90	
Copper	ND	mg/filte	0.00020	Method 7211	31 AUG 90	04 SEP 90	
Lead	ND	mg/filte	0.0010	Method 7421	31 AUG 90	06 SEP 90	
Mercury	ND	mg/filte	0.00080	Method 7471	29 AUG 90	30 AUG 90	
Nickel	0.0017	mg/filte	0.0010	Method 7521	31 AUG 90	04 SEP 90	
Selenium	ND	mg/filte	0.0010	Method 7740	31 AUG 90	05 SEP 90	
Manganese	ND	mg/filte	0.0020	Method 6010	NA	04 SEP 90	
Zinc	0.0070	mg/filte	0.0040	Method 6010	NA	04 SEP 90	

Note i : Reporting limit changed due to high background in the sample.

ND = Not detected
NA = Not applicable

Reported By: Grace Chang Approved By: Barry Votaw

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METALS

(Water - Total)

Client Name: Petro Chem Environmental Services Inc.
Client ID: #208 HNO3-2
Lab ID: 054411-0005-SA Enseco ID: 162509
Matrix: AQUEOUS Sampled: 24 JUL 90 Received: 10 AUG 90
Authorized: 23 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Arsenic	ND	mg/L	0.0050	Method 206.2	29 AUG 90	05 SEP 90	
Beryllium	ND	mg/L	0.0020	Method 200.7	NA	30 AUG 90	
Cadmium	0.038	mg/L	0.010	Method 213.2	29 AUG 90	31 AUG 90	o
Chromium	0.0050	mg/L	0.0010	Method 218.2	29 AUG 90	04 SEP 90	
Copper	0.0012	mg/L	0.0010	Method 220.2	29 AUG 90	04 SEP 90	
Lead	ND	mg/L	0.0050	Method 239.2	29 AUG 90	06 SEP 90	
Manganese	ND	mg/L	0.010	Method 200.7	NA	30 AUG 90	
Mercury	ND	mg/L	0.00040	Method 245.1	30 AUG 90	31 AUG 90	r
Nickel	ND	mg/L	0.0050	Method 249.2	29 AUG 90	30 AUG 90	
Selenium	ND	mg/L	0.0050	Method 270.2	29 AUG 90	30 AUG 90	
Zinc	0.020	mg/L	0.020	Method 200.7	NA	30 AUG 90	

Note o : Reporting Limit raised due to high level of analyte present in sample.

Note r : Reporting limit changed due to sample volume limitations.

ND = Not detected
NA = Not applicable

Reported By: Grace Chang Approved By: Barry Votaw

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METALS

(Water - Total)

Client Name: Petro Chem Environmental Services Inc.
Client ID: #210 P/N-3
Lab ID: 054411-0007-SA Enseco ID: 162511
Matrix: AQUEOUS Sampled: 27 JUL 90 Received: 10 AUG 90
Authorized: 23 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Arsenic	0.0052	mg/L	0.0050	Method 206.2	29 AUG 90	05 SEP 90	
Beryllium	ND	mg/L	0.0020	Method 200.7	NA	30 AUG 90	
Cadmium	0.00090	mg/L	0.00050	Method 213.2	29 AUG 90	05 SEP 90	
Chromium	0.0091	mg/L	0.0010	Method 218.2	29 AUG 90	04 SEP 90	
Copper	0.0031	mg/L	0.0010	Method 220.2	29 AUG 90	04 SEP 90	
Lead	ND	mg/L	0.0050	Method 239.2	29 AUG 90	06 SEP 90	
Manganese	0.010	mg/L	0.010	Method 200.7	NA	30 AUG 90	
Mercury	ND	mg/L	0.0010	Method 245.1	30 AUG 90	31 AUG 90	r
Nickel	0.0085	mg/L	0.0050	Method 249.2	29 AUG 90	31 AUG 90	
Selenium	ND	mg/L	0.0050	Method 270.2	29 AUG 90	30 AUG 90	
Zinc	0.13	mg/L	0.020	Method 200.7	NA	30 AUG 90	

Note r : Reporting limit changed due to sample volume limitations.

ND = Not detected
NA = Not applicable

Reported By: Grace Chang Approved By: Barry Votaw

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METALS

(Soil/Solid - Total)

Client Name: Petro Chem Environmental Services Inc.
Client ID: #214 FILTER-3
Lab ID: 054411-0009-SA Enseco ID: 162513
Matrix: FILTER Sampled: 27 JUL 90 Received: 10 AUG 90
Authorized: 23 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Arsenic	ND	mg/filte	0.0010	Method 7060	31 AUG 90	05 SEP 90
Beryllium	ND	mg/filte	0.00040	Method 6010	NA	04 SEP 90
Cadmium	ND	mg/filte	0.00010	Method 7131	31 AUG 90	04 SEP 90
Chromium	0.00087	mg/filte	0.00020	Method 7191	31 AUG 90	04 SEP 90
Copper	ND	mg/filte	0.00020	Method 7211	31 AUG 90	05 SEP 90
Lead	ND	mg/filte	0.0010	Method 7421	31 AUG 90	06 SEP 90
Mercury	ND	mg/filte	0.000080	Method 7471	29 AUG 90	30 AUG 90
Nickel	0.0011	mg/filte	0.0010	Method 7521	31 AUG 90	04 SEP 90
Selenium	ND	mg/filte	0.0010	Method 7740	31 AUG 90	05 SEP 90
Manganese	ND	mg/filte	0.0020	Method 6010	NA	04 SEP 90
Zinc	0.0041	mg/filte	0.0040	Method 6010	NA	04 SEP 90

ND = Not detected
NA = Not applicable

Reported By: Grace Chang Approved By: Barry Votaw

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Rev 230787

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A CORNING Company

METALS

(Water - Total)

Client Name: Petro Chem Environmental Services Inc.
Client ID: #213 HNO3-3
Lab ID: 054411-0008-SA Enseco ID: 162512
Matrix: AQUEOUS Sampled: 27 JUL 90 Received: 10 AUG 90
Authorized: 23 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Arsenic	ND	mg/L	0.0050	Method 206.2	29 AUG 90	05 SEP 90	
Beryllium	ND	mg/L	0.0020	Method 200.7	NA	30 AUG 90	
Cadmium	ND	mg/L	0.0010	Method 213.2	29 AUG 90	31 AUG 90	G
Chromium	0.0051	mg/L	0.0010	Method 218.2	29 AUG 90	04 SEP 90	
Copper	0.042	mg/L	0.0010	Method 220.2	29 AUG 90	05 SEP 90	o
Lead	ND	mg/L	0.0050	Method 239.2	29 AUG 90	06 SEP 90	
Manganese	ND	mg/L	0.010	Method 200.7	NA	30 AUG 90	
Mercury	ND	mg/L	0.00040	Method 245.1	30 AUG 90	31 AUG 90	r
Nickel	ND	mg/L	0.0050	Method 249.2	29 AUG 90	31 AUG 90	
Selenium	ND	mg/L	0.0050	Method 270.2	29 AUG 90	30 AUG 90	
Zinc	0.051	mg/L	0.020	Method 200.7	NA	30 AUG 90	

Note G : Reporting Limit raised due to matrix interference.

Note o : Reporting Limit raised due to high level of analyte present in sample.

Note r : Reporting limit changed due to sample volume limitations.

ND = Not detected
NA = Not applicable

Reported By: Grace Chang Approved By: Barry Votaw

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

Enseco
A CORNING Company

METALS

(Water - Total)

Client Name: Petro Chem Environmental Services Inc.
Client ID: #215 P/N-4
Lab ID: 054411-0010-SA Enseco ID: 162514
Matrix: FILTER Sampled: 27 JUL 90 Received: 10 AUG 90
Authorized: 23 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Arsenic	ND	mg/L	0.0050	Method 206.2	29 AUG 90	05 SEP 90	
Beryllium	ND	mg/L	0.0020	Method 200.7	NA	30 AUG 90	
Cadmium	ND	mg/L	0.0010	Method 213.2	29 AUG 90	31 AUG 90	G
Chromium	0.030	mg/L	0.0020	Method 218.2	29 AUG 90	04 SEP 90	o
Copper	0.0011	mg/L	0.0010	Method 220.2	29 AUG 90	05 SEP 90	
Lead	ND	mg/L	0.010	Method 239.2	29 AUG 90	06 SEP 90	G
Manganese	ND	mg/L	0.010	Method 200.7	NA	30 AUG 90	
Mercury	ND	mg/L	0.0010	Method 245.1	30 AUG 90	31 AUG 90	r
Nickel	ND	mg/L	0.0050	Method 249.2	29 AUG 90	31 AUG 90	
Selenium	ND	mg/L	0.010	Method 270.2	29 AUG 90	30 AUG 90	G
Zinc	0.12	mg/L	0.020	Method 200.7	NA	30 AUG 90	

Note G : Reporting Limit raised due to matrix interference.

Note o : Reporting Limit raised due to high level of analyte present in sample.

Note r : Reporting limit changed due to sample volume limitations.

ND = Not detected
NA = Not applicable

Reported By: Grace Chang Approved By: Barry Votaw

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Rev 230787

METALS

(Soil/Solid - Total)

Client Name: Petro Chem Environmental Services Inc.
Client ID: #219 FILTER-4
Lab ID: 054411-0012-SA Enseco ID: 162516
Matrix: FILTER Sampled: 27 JUL 90 Received: 10 AUG 90
Authorized: 23 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Wet wt. Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Arsenic	ND	mg/filte	0.0010	Method 7060	31 AUG 90	05 SEP 90
Beryllium	ND	mg/filte	0.00040	Method 6010	NA	04 SEP 90
Cadmium	ND	mg/filte	0.00010	Method 7131	31 AUG 90	04 SEP 90
Chromium	0.00070	mg/filte	0.00020	Method 7191	31 AUG 90	04 SEP 90
Copper	0.00028	mg/filte	0.00020	Method 7211	31 AUG 90	07 SEP 90
Lead	ND	mg/filte	0.0010	Method 7421	31 AUG 90	06 SEP 90
Mercury	ND	mg/filte	0.000080	Method 7471	29 AUG 90	30 AUG 90
Nickel	ND	mg/filte	0.0010	Method 7521	31 AUG 90	06 SEP 90
Selenium	ND	mg/filte	0.0010	Method 7740	31 AUG 90	05 SEP 90
Manganese	ND	mg/filte	0.0020	Method 6010	NA	04 SEP 90
Zinc	ND	mg/filte	0.0040	Method 6010	NA	04 SEP 90

ND = Not detected
NA = Not applicable

Reported By: Grace Chang Approved By: Barry Votaw

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

METALS

(Water - Total)

Client Name: Petro Chem Environmental Services Inc.
Client ID: #218 HNO3-4
Lab ID: 054411-0011-SA Enseco ID: 162515
Matrix: AQUEOUS Sampled: 27 JUL 90 Received: 10 AUG 90
Authorized: 23 AUG 90 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Arsenic	ND	mg/L	0.0050	Method 206.2	29 AUG 90	05 SEP 90	
Beryllium	ND	mg/L	0.0020	Method 200.7	NA	30 AUG 90	
Cadmium	ND	mg/L	0.0010	Method 213.2	29 AUG 90	31 AUG 90	G
Chromium	0.016	mg/L	0.0010	Method 218.2	29 AUG 90	04 SEP 90	
Copper	0.0013	mg/L	0.0010	Method 220.2	29 AUG 90	05 SEP 90	
Lead	ND	mg/L	0.0050	Method 239.2	29 AUG 90	06 SEP 90	
Manganese	ND	mg/L	0.010	Method 200.7	NA	30 AUG 90	
Mercury	ND	mg/L	0.00040	Method 245.1	30 AUG 90	31 AUG 90	r
Nickel	ND	mg/L	0.0050	Method 249.2	29 AUG 90	31 AUG 90	
Selenium	ND	mg/L	0.0050	Method 270.2	29 AUG 90	30 AUG 90	
Zinc	0.049	mg/L	0.020	Method 200.7	NA	30 AUG 90	

Note G : Reporting Limit raised due to matrix interference.

Note r : Reporting limit changed due to sample volume limitations.

ND = Not detected
NA = Not applicable

Reported By: Grace Chang Approved By: Barry Votaw

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

Enseco
A CORNING Company

[X] 7440 Lincoln Way, Garden Grove, CA 92641, (714) 898-6370
[ ] 2810 Bunsen Ave., Unit A Ventura, CA 93003, (805) 650-0546
[ ] 2325 Skyway Dr., Unit K, Santa Maria, CA 93455, (805) 922-2776
[ ] 9537 Telstar Ave., Unit 118, El Monte, CA 91731, (818) 442-8400
[ ] Mobile Labs, (800) ENSECO 8

CHAIN OF CUSTODY RECORD

Date 8/09/90 Page 1 of 1

Lab Number 022114

CLIENT ENSECO-CAL

ADDRESS 7440 LINCOLN WAY
GARDEN GROVE, CA 92641

PROJECT NAME
PETRO CHEM (233) PACIFIC ENERGY / SALINAS LANDFILL ICE

CONTRACT / PURCHASE ORDER / QUOTE #

PROJECT MANAGER
KEVIN DUDDS

PHONE NUMBER
(714) 898-6370

SITE CONTACT

ANALYSES

Sample No. / Identification	Date	Time	Lab Sample Number	SAMPLE TYPE LIQ.	AIR	SOLID	No. of Containers	LABD 416 - Hg 2 COMPOSITE; CAM 416 - As, Ba, Cd, Cr, Cu, Pb, Mo, Hg, Ni, Se, Ag, Tl, Zn, Pb							Sample Condition/ REMARKS
#6 $KMnO_4$ IMP #4 & #7 $KMnO_4$ IMP #5	8/02		022114-001	✓			2	X							
#8 HNO_3 (IMP 1+2)	↓		022114-002	✓			1		X						

SAMPLERS: (Signature)

Received by: (Signature) | Date | Time

Relinquished by: (Signature) Ken Burley

Received by: (Signature) | Date 8/09/90 | Time 5:30 pm

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Enseco Terms and Conditions, unless a contract or purchase order has been executed and is cited above.

Relinquished by: (Signature) | Date | Time

Received for Laboratory by: Peter Baff

Date RECEIVED	Time	Date ACCEPTED	Time
8-10-90	0900	8-10-90	0900

Method of Shipment: P.O. #'s TO BE FAXED

Special Instructions: * NOTE #8 (022114-002) ALSO REQUIRES "P" ANALYSIS

SAMPLE DISPOSITION:
1. Storage time requested: _____ days
(Samples will be stored for 30 days without additional charges; thereafter storage charges will be billed at the published rates.)
2. Sample to be returned to client: Y N
(Enseco will dispose of unreturned samples at no extra charge. Disposal will be by incineration wherever possible; otherwise, as appropriate, according to legal requirements.)

DISTRIBUTION: White with report, Yellow to [illegible]

Enseco
A CORNING Company

☒ 7440 Lincoln Way, Garden Grove, CA 92641, (714) 898 6370
☐ 2810 Bunsen Ave., Unit A Ventura, CA 93003, (805) 650 0546
☐ 2325 Skyway Dr., Unit K, Santa Maria, CA 93455, (805) 922 2776
☐ 9537 Telstar Ave., Unit 118, El Monte, CA 91731, (818) 442 8400
☐ Mobile Labs, (800) ENSECO 8

CHAIN OF CUSTODY RECORD

Date 8/09/90 Page 1 of 2

Lab Number 022112

CLIENT ENSECO - CRL

ADDRESS 7440 LINCOLN WAY
GARDEN GROVE, CA 92641

PROJECT NAME
PETRO CHEM (232) PACIFIC ENERGY/

CONTRACT / PURCHASE ORDER / QUOTE # OXNARD ICE #2

PROJECT MANAGER
KEVIN DUDDS

PHONE NUMBER
(714) 898-6370

SITE CONTACT

ANALYSES

CAM 17 Metals + Hg; Ca, Co, Cu, Pb, Mn, Hg

Sample No. / Identification	Date	Time	Lab Sample Number	SAMPLE TYPE LIQ.	AIR	SOLID	No. of Containers		Sample Condition/ REMARKS
# 200 P/N-1	7/24		022112-017	✓			1	X	
# 203 HNO_3-1			-018	✓			1	X	
# 204 FILTER-1			-019			✓	1	X	
# 205 P/N-2			-020	✓			1	X	
# 208 HNO_3-2			-021	✓			1	X	
# 209 FILTER-2	↓		-022			✓	1	X	
# 210 P/N-3	7/27		-023	✓			1	X	
# 213 HNO_3-3			-024	✓			1	X	
# 214 FILTER-3			-025			✓	1	X	
# 215 P/N-4	↓		↓ -026	✓			1	X	

SAMPLERS: (Signature)

Received by: (Signature) — Date — Time

Relinquished by: (Signature) Kim Bailey

Received by: (Signature) — Date 8/09/90 — Time 5:30 PM

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Enseco Terms and Conditions, unless a contract or purchase order has been executed and is cited above.

Relinquished by: (Signature)

Date	Time	Received for Laboratory by:	Date RECEIVED	Time	Date ACCEPTED	Time
		Peter Baff	8/10/90	0900	8-10-90	0900

Method of Shipment:

Special Instructions:

SAMPLE DISPOSITION:
1. Storage time requested: _____ days
(Samples will be stored for 30 days without additional charges; thereafter storage charges will be billed at the published rates.)
2. Sample to be returned to client: Y N
(Enseco will dispose of unreturned samples at no extra charge. Disposal will be by incineration wherever possible; otherwise, as appropriate, according to legal requirements.)

Enseco
A CORNING Company

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2810 Bunsen Ave., Unit A Ventura, CA 93003, (805) 650 0546
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Mobile Labs, (800) ENSECO 8

CHAIN OF CUSTODY RECORD

Date 8/09/90 Page 2 of 2

Lab Number 022112

CLIENT ENECO - CRL

ADDRESS

PROJECT NAME
PETRO CHEM

CONTRACT / PURCHASE ORDER / QUOTE #

PROJECT MANAGER

PHONE NUMBER

SITE CONTACT

ANALYSES

CARB 436 - Al, Be, Cd, Cr, Cu, Pb, Mn, Hg, Ni, Se, Zn
COMPOSITE 2 FOR Hg

Sample No. / Identification	Date	Time	Lab Sample Number	SAMPLE TYPE LIQ.	AIR	SOLID	No. of Containers			Sample Condition/ REMARKS
* 218 HNO3-4	7/27		022112-027	✓			1	K		
* 219 FILTER-4	↓		-028			✓	1	K		
* 502 HNO3-INLET	↓		-029	✓			1	K		
* 201 KMnO4-1 * 202 KMnO4-1	7/24		-030	✓			2		X	
* 206 KMnO4-2 * 207 KMnO4-2	↓		-031	✓			2		X	
* 211 -3 * 212 -3	7/27		-032	✓			2		X	
* 216 -4 * 217 -4	↓		-033	✓			2		X	
* 500 -INLET * 501 -INLET	↓		-034	✓			2		X	

SAMPLERS: (Signature)	Received by: (Signature)	Date	Time
Relinquished by: (Signature) Don Bailey	Received by: (Signature)	Date 8/09/90	Time 5:30 PM
Relinquished by: (Signature)	Received for Laboratory by: Peter Goff	Date RECEIVED 8-10-90	Time 0900
		Date ACCEPTED 8-10-90	Time 0900

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Enseco Terms and Conditions, unless a contract or purchase order has been executed and is cited above.

Method of Shipment:

Special Instructions:

SAMPLE DISPOSITION:
1. Storage time requested: _____ days
(Samples will be stored for 30 days without additional charges; thereafter storage charges will be billed at the published rates.)
2. Sample to be returned to client: Y N
(Enseco will dispose of unreturned samples at no extra charge. Disposal will be by incineration wherever possible; otherwise, as appropriate, according to legal requirements.)

Enseco
A CORNING Company

Mercury, Cold Vapor AA (Total)

Method 245.1

Client Name: Petro Chem Environmental Services Inc.
Matrix: AQUEOUS Received: 10 AUG 90
Units: mg/L Authorized: 23 AUG 90

Lab ID	Client ID	Result	Reporting Limit	Date Prepared	Date Analyzed	
054411-0014-SA	#201 KMNO4-1 202 KMN	ND	0.00040	30 AUG 90	31 AUG 90	r
054411-0015-SA	#206 KMNO4-2 207 KMN	ND	0.00040	30 AUG 90	31 AUG 90	r
054411-0016-SA	#211 KMNO4-3 212 KMN	ND	0.00040	30 AUG 90	31 AUG 90	r
054411-0017-SA	#216 KMNO4-4 217 KMN	ND	0.00040	30 AUG 90	31 AUG 90	r
054411-0018-SA	#500 KMNO4-INLET 501	0.0016	0.00040	30 AUG 90	31 AUG 90	r
054411-0019-SA	#6 KMNO4 IMP WASH #	ND	0.00040	30 AUG 90	31 AUG 90	r

Note r : Reporting limit changed due to sample volume limitations.

ND = Not detected
NA = Not applicable

Reported By: Deena Gantt Approved By: Barry Votaw

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

METHOD 430: MULTIMETALS

PETRO CHEM ENVIRONMENTAL SERVICES, INC.

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

CHAIN OF CUSTODY RECORD

PROJECT: PACIFIC ENERGY OXNARD ICE #2 JOB NO. 232 SAMPLED BY: JEM

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE liq.	filter	gas	NO. CONTRS.	ANALYSIS REQUIRED
200	PACIFIC ENERGY MULTI METALS P/N-1	7-24-90		✓			1	
204	FILTER-1				✓		1	
203	HNO_3-1			✓			1	
201	$KMnO_4$-1			✓			1	
202	$KMnO_4$-1			✓			1	
205	PACIFIC ENERGY MULTIMETALS P/N-2	7-24-90		✓			1	
209	FILTER-2				✓		1	
208	HNO_3-2			✓			1	
206	$KMnO_4$-1			✓			1	
207	$KMnO_4$-1			✓			1	

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
James E Parkison			
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

PETRO
CHEM
ENVIRONMENTAL
SERVICES, INC.

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

CHAIN OF CUSTODY RECORD

PROJECT: PACIFIC ENERGY OXNARD ICE #2 JOB NO. 232 SAMPLED BY: JEM

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE liq.	filter	gas	NO. CONTRS	ANALYSIS REQUIRED
210	PACIFIC ENERGY MULTI METALS P/N-3	7-27-90		✓			1	
214	FILTER-3				✓		1	
213	HNO_3-3			✓			1	
211	$KMnO_4$-3			✓			1	
213	$KMnO_4$-3			✓			1	
215	PACIFIC ENERGY MULTIMETALS P/N-4	7-27-90		✓			1	
219	FILTER-4				✓		1	
218	HNO_3-4			✓			1	
216	$KMnO_4$-4			✓			1	
217	$KMnO_4$-4			✓			1	

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

CHAIN OF CUSTODY RECORD

Method 436

PACIFIC ENERGY OXNARD ICE #2

JOB NO. 232

SAMPLED BY: JDN

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE lig.	SAMPLE TYPE filter	SAMPLE TYPE gas	NO. CONTRS	ANALYSIS REQUIRED
20	PACIFIC ENERGY MULTIMETAL 0.1N HNO_3 BLANK	7-22-90		—				
21	$KMnO_4$ BLANK			—				HOLD SAMPLES AS NOT ANALYZE
22	HNO_3 / H_2O_2 BLANK			—				
23	8N HCL BLANK			—				
24	H_2O BLANK			—				
25	FILTER BLANK				—			

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
James E Markham	8-6-90	Frank Bush	6/8/90
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

CHAIN OF CUSTODY RECORD

PROJECT: PACIFIC ENERGY OXNARD ICE 2 JOB NO. 232 SAMPLED BY: JDN

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE lig.	filter	gas	NO. CONTRS.	ANALYSIS REQUIRED
500	PACIFIC ENERGY-INLET MULTIMETALS KMnO4	7-27-90		✓				
501	PACIFIC ENERGY-INLET MULTIMETALS KMnO4	7-27-90		✓				
502	PACIFIC ENERGY-INLET MULTIMETALS HNO3 INLET	7-27-90		✓				

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

METHOD 436 inlet
FIELD DATA @ 70'

	OUTLET
RUN #:	1
TIME:	1215
Vm (dry gas sampled)	76.26
Y (meter calib. factor)	1.019675
P bar (Barometric pressure)	30.35
P static (stack pressure, " H2O)	
Delta H (differential meter press, " H2O)	0.5
Tm (meter temperature, R')	541
Vol H2O mls	12.9
Vm(std),dacf	77.37
Bwa-H2O vapor	0.0078
MF-moisture factor	0.9922

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

Summary of Results for Metal Emissions

CARB Method 436

Pollutant	mg/l	Sample Vol. (ml)	Vm std	SCFM		gr/DSCF	lb/hr
Arsenic	0.024	350	49.1	630		2.63E-06	1.42E-05
Beryllium	0.002	350	49.1	630	*	2.20E-07	1.19E-06
Cadmium	0.0021	350	49.1	630		2.31E-07	1.25E-06
Chromium	0.011	350	49.1	630		1.21E-06	6.53E-06
Copper	0.002	350	49.1	630		2.20E-07	1.19E-06
Lead	0.005	350	49.1	630	*	5.49E-07	2.97E-06
Manganese	0.01	350	49.1	630	*	1.10E-06	5.93E-06
Mercury	0.0016	522	49.1	630		2.62E-07	1.42E-06
Nickel	0.13	350	49.1	630		1.43E-05	7.71E-05
Selenium	0.005	350	49.1	630	*	5.49E-07	2.97E-06
Zinc	0.085	350	49.1	630		9.33E-06	5.04E-05

* Values reported are lower detection limit

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

Summary of Results for Metal Emissions

mgs metal / Kg fuel: Method 436

Pollutant	mg/l	Sample Vol. (ml)	Total mgs		mgs/Kg Fuel
Arsenic	0.024	350	8.40E-03		4.45E-06
Beryllium	0.002	350	7.00E-04	*	3.71E-07
Cadmium	0.0021	350	7.35E-04		3.90E-07
Chromium	0.011	350	3.85E-03		2.04E-06
Copper	0.002	350	7.00E-04		3.71E-07
Lead	0.005	350	1.75E-03	*	9.27E-07
Manganese	0.01	350	3.50E-03	*	1.85E-06
Mercury	0.0016	522	8.35E-04		4.43E-07
Nickel	0.13	350	4.55E-02		2.41E-05
Selenium	0.005	350	1.75E-03	*	9.27E-07
Zinc	0.085	350	2.98E-02		1.58E-05

Test Duration	90	minutes
Fuel Rate=	630	scfm
Total fuel Consumption=	5670	scf
Total Kgs Fuel Consumed=	1886.92	Kgs
Fuel Specific Volume=	13.63	cu.ft./lb
U.S. to Metric Weigth Conversion=	0.45359	Kgs/lb

* Values reported are lower detection limit

PACIFIC ENERGY INLET METALS CALCULATIONS mg Metal/kg Fuel Consumed:

$$\frac{\text{mg}}{\text{Liter}} * \frac{\text{Sample Volume (mls)}}{\frac{1000\ \text{ml}}{1\ \text{Liter}}} = \text{Total mg Metal}$$

$$\text{Test Duration 90 minutes} * 630\ \frac{\text{SCF}}{\text{minute}} = 56{,}700\ \text{Total Fuel Consumed}$$

$$\frac{56{,}700\text{cf}}{13.63\ \frac{\text{cu.ft}}{\text{lb}}} = 4{,}159.94\ \text{lbs of Fuel Consumed}$$

$$4{,}159.94\ \text{lbs Fuel} * .45359\ \frac{\text{Kgs}}{\text{lb}} = 1886.91\ \text{Kgs Fuel Consumed}$$

FOR ARSENIC:

$$\frac{8.40 * 10^{-3}\ \text{Arsenic mgs}}{1886.91\ \text{Kgs Fuel}} = 4.45 * 10^{-6}\ \frac{\text{mg Arsenic}}{1\ \text{Kg Fuel}}$$

COMPANY: [illegible] INC.
REPORT #:
UNIT ID: OXNARDICE #2
DATE: 7-27-90

MULTI METALS
INLET

ON-SITE DATA

SITE:

RUN #: #1 #2 #3
TIME: 1215-1345

Vm	Dry sampled gas volume, dcf	76.20			
Y	Meter calibration factor (met# 1004)	30.35			
P bar	Barometric pressure, in Hg	-			
P static	Stack static pressure, in H_2	.50			
Delta H	Differential meter pressure, in H_2O	81			
Tm	Meter temperature, deg F				

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
SO_2+NO_3	612.5	609.1	3.4						
DI-H	529.5	588.3	-58.8						
K.O.	463.6	460.9	2.7						
Permanent	605.9	565.2	40.7						
Impinger	600.8	598.1	2.7						
Silica	822.8	800.6	22.2						
V lc, volume of H_2O, grams			12.9						

		#1	#2	#3
CO_2	% Dry Volume			
O_2	% Dry Volume			
N_2	% Dry Volume			
Cp	Pitot tube coefficient (Pit#)			
Delta P	Avg Delta-P, in H_2O			
Ts	Stack temperature, in deg F			
As	Stack area, sq. ft			
Ds	Stack Diameter, inches			
Dn	Nozzle diameter, inches			
Dur	Sampling time, min			
% Iso	Mini Iso			

****

Filter #
Filter tare weights, grams

SO_2+NO_3 1st, 2nd Impin I 124.5
F 106.3

Permanent 4th 5th Imp I 424.6
F 61.9

INITIALS**

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

CARB Multimetals test FIELD DATA

Client: PACIFIC ENERGY Report #: _____
Location: OXNARD UNIT #2
Operator: JEN . JDN
Date: 7-27-95
Run No: 1 INLET FUEL GAS
Pump No.: GAST
Meter Box No.: 1004 Factor: _____
Meter ΔH @: 1.11
Pitot Tube No.: —

PRE Post Test Leak Chk.
Leak Rate: <.001 cfm
Vacuum: 10 (in Hg)

POST TEST LEAK RATE = <.001 @ 10 IN Hg.

Ambient Temp: —
Barometric Pressure: 30.35
Static Pressure, (in Hg): —
Assumed Moisture %: —
Nozzle Ident. No.: —
Aver. Calib. Nozzle Diam.(in): —
Probe Liner Material: TEFLON
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 of Gas Leaving Condenser or Last Impinger (°F)
FUEL GAS	1215	4			.50	326.02	78	78		
INLET TO	1225	4			.50		84	77		
COMPRESSOR	1235	4			.50		84	78		
	1245	4			.50		84	78		
	1255	4			.50		83	78		
	1305	4			.50		82	78		
	1315	4			.50		82	78		
	1325	4			.50		82	78		
	1335	4			.50		83	79		
	1345	4			.50		82	79		
	1355	4			.50		83	79		
	1405	4			.50		83	79		
	15	4			.50		83	79		
	25				.50		83	79		
	35				.50		83	79		
	45				.50		83	79		
Total							avg.	avg.		
Average						402.28	avg.			

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

METHOD 423
FIELD DATA @ 70'

RUN #:	1	2	3
TIME:	1441	1829	1515
Vm (dry gas sampled)	46.69	46.42	45.9
Y (meter calib. factor)	0.991696	0.991696	0.991696
P bar (Barometric pressure)	30.25	30.25	30.25
P static (stack pressure, " H2O)	2.1	2.1	2.1
Delta H (differential meter press, " H2O)	1.06	1.06	1.03
Tm (meter temperature, R')	563	558	561
Vol H2O mls	150.3	149.3	152.6
Vm(std),dscf	44.18	44.32	43.59
Bws-H2O vapor	0.1388	0.1376	0.1422
MF-moisture factor	0.8612	0.8624	0.8578
% CO2	7.4	7.5	7.5
% O2	8	8	7.9
% N2	84.6	84.5	84.6
Md-MW stk gas,dry	29.5	29.52	29.52
Ms-MW stk gas,wet	27.9	27.93	27.88
Cp-pitot tube	0.84	0.84	0.84
Avg sq rt ^p	1.889	1.892	1.863
T stack, R'	1399	1397	1395
Stack area,ft2	1.67	1.67	1.67
Vs-fps	174.21	174.26	171.62
Qstd-dscfm	5787	5805	5695
Area noz,ft2	1.97E-04	1.97E-04	1.97E-04
Sample time	64	64	64
% Isokinetic	101.2	101.2	101.4

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

Summary of Results for Arsenic

Test	Fraction	Vm std	DSCFM	Total ug		gr/DSCF	lb/hr
1	p/n	44.18	5787	0.88	*	3.07E-07	1.52E-05
	Filter	44.18	5787	0.62		2.16E-07	1.07E-05
	Imp	44.18	5787	1.30	*	4.53E-07	2.25E-05
				total		9.76E-07	4.85E-05
2	p/n	44.32	5805	0.73	*	2.54E-07	1.26E-05
	Filter	44.32	5805	0.62		2.15E-07	1.07E-05
	Imp	44.32	5805	3.00	*	1.04E-06	5.19E-05
				total		1.51E-06	7.53E-05
3	p/n	43.59	5695	0.65	*	2.30E-07	1.12E-05
	Filter	43.59	5695	0.38		1.34E-07	6.56E-06
	Imp	43.59	5695	3.00	*	1.06E-06	5.18E-05
				total		1.42E-06	6.96E-05
				Three Run Average		1.30E-06	6.44E-05

* Values Reported are lower detection limit

METHOD 423 ARSENIC

COMPANY: PACIFIC ENERGY
REPORT #:
UNIT ID: OXNARD ICE #2
DATE: 7-24-90

ON-SITE DATA

SITE: OUTLET

	RUN #:	#1	#2	#3
	TIME:	7-24-90 1441 - 1547	7-24-90 1629-1933	7-24-90 1215-1319
Vm	Dry sampled gas volume, dcf	96.69	90.42	45.9
Y	Meter calibration factor (met# 1002 ___ ___)	.9916965	.9916965	.9916965
P bar	Barometric pressure, in Hg	30.25	30.25	30.35
P static	Stack static pressure, in H_2	-2.1	2.1	2.1
Delta H	Differential meter pressure, in H_2O	1.06	1.06	1.03
Tm	Meter temperature, deg F	103	98	101

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
H_2O	807.8	608.4	199.4	763.9	586.3	177.6	762.3	581.5	180.8
H_2O	621.0	604.3	16.7	631.3	604.3	27.0	607.1	586.9	20.2
KO	467.6	465.7	1.90	467.2	460.7	6.5	466.7	464.2	2.5
Silica	732.5	721.4	11.1	809.1	793.3	15.8	813.9	803.7	10.2
Line Wash	INNaOH		-78.8			-77.6			-61.1
V lc, volume of H_2O, grams			150.3			149.3			152.6

		#1	#2	#3
CO_2	% Dry Volume	7.4	7.5	7.5
O_2	% Dry Volume	8.0	8.0	7.9
N_2	% Dry Volume	84.6	84.5	84.6
Cp	Pitot tube coefficient (Pit# ___ ___ ___)	.84	.84	.84
Delta P Avg	Delta-P, in H_2O	3.57	3.58	3.47
Ts	Stack temperature, in deg F	939	937	935
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	.190	.19	.19
Dur	Sampling time, min	64	64	64
% Iso	Mini Iso	99.42	100.35	100.35

****

Filter #	Blank	QT182	QT183	QT184
Filter tare weights, grams		.76506	.77338	.75791
	201.7	200.00	218.5	215.5
P/N .INNaOH	F 150.6	50.4	93.2	129.9
	I 150.6	286.2	295.7	212.6
Impingers .INNaOH	F 97.7	200.00	213.5	46.0

INITIALS**

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

ARSENIC METHOD 1423 FIELD DATA

Client: PACIFICORP Report #: _____ PRE ~~Post~~ Test Leak Chk.
Location: QUAD UNIT #2
Operator: JCH JDN
Date: 7-24-90
Run No: 1
Pump No.: GAST
Meter Box No.: 1022 Factor: _____
Meter ΔH @: .90
Pitot Tube No.: 3Q-1

Leak Rate: 40.001 cfm
Vacuum: 10 (in Hg)

4.0 MIN/POINT

Ambient Temp: _____
Barometric Pressure: 30.25
Static Pressure, (in Hg): +2.1
Assumed Moisture %: 13 MW_{out}: 27.5
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .19
Probe Liner Material: QUARTZ
Filter Number: 182 QT
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) RATE	ΔH	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)
8	1441	3	939	4.0	.765	1.17	240.43	99	97	250	
7	45	3	944	3.9	.769	1.15	243.5	113	105	250	
6	49	3	945	3.9	.761	1.14	246.6	107	99		
5	53	3	949	3.85	.760	1.13	249.6	111	103	250	
4	57	3	930	3.3	.701	0.99	252.6	104	98		
3	1501	3	946	3.2	.698	0.97	255.4	114	107		
2	05	3	944	3.3	.706	0.99	258.2	110	106	250	
1	09	3	945	3.3	.698	0.98	261.0	104	99		
	1513	3					263.77			250	
								avg.	avg.		
Total								avg.			
Average											

ARB Conn. Method 423 FIELD DATA

Client: PACIFIC ENERGY Report #: _____
Location: OXNARD UNIT #2
Operator: JFW JDN
Date: 7-24-90
Run No: 1 CONT
Pump No.: GAST
Meter Box No.: 1002 Factor: _____
Meter ΔH @: .90
Pitot Tube No.: 3Q-1

Post Test Leak Chk.

Leak Rate: 0.001 cfm
Vacuum: 10 (in Hg)

Ambient Temp: _____
Barometric Pressure: 30.25
Static Pressure, (in Hg): +2.1
Assumed Moisture %: 13 MW = 27.5
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .618
Probe Liner Material: QUARTZ
Filter Number: 182 QT
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) RATE	ΔH1	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)
8	1515	3	947	4.02	.786	1.22	263.77	102	99	250	
7	19	3	934	4.0	.769	1.17	266.9	101	98		
6	23	3	934	3.9	.762	1.15	269.9	104	99	251	
5	27	3	934	3.7	.741	1.10	273.1	103	98		
4	31	3	935	3.4	.710	1.01	276.1	103	99	253	
3	35	3	934	3.1	.678	0.93	278.9	102	98		
2	39	3	934	3.1	.679	0.94	281.6	104	98	251	
1	43	3	934	3.1	.679	0.94	284.3	104	98	250	
	1507						287.12				
							46.69				
	64 MIN		939	3.57							
					ISO =		99.42		103		
					1.06						
Total								avg.	avg.		
Average								avg.			

Arsenic FIELD DATA

Client: Pac. Energy Report #:
Location: Oxnard Unit #2
Operator: JDN / JEM
Date: 7-24-90
Run No: 2
Pump No.: Hi-Flo
Meter Box No.: 1007 Factor:
Meter ΔH @: 900
Pitot Tube No.:

Post Test Leak Chk.

Leak Rate: cfm
Vacuum: (in Hg)

Ambient Temp: 70°F
Barometric Pressure: 30.25
Static Pressure, (in Hg): 2.1
Assumed Moisture %: 13.0 MW = 27.5
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in): .19
Probe Liner Material: Quartz
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)
1	18:29	4.0	934	3.10	.674	.93	337.40	97	97		
2	:33	4.0	934	3.10	.674	.93	340.11	97	97		
3	:37	4.0	936	3.10	.675	.93	342.82	100	96		
4	:41	4.5	937	3.40	.706	1.01	345.52	100	96		
5	:45	4.5	939	3.75	.741	1.10	348.35	100	95		
6	:49	5.0	937	3.95	.761	1.15	351.30	100	95		
7	:53	5.0	939	3.95	.760	1.15	354.34	100	95		
8	:57	5.0	948	4.10	.772	1.18	357.40	100	95		
	19:01						360.53				
								avg.	avg.		
Total											
Average								avg.			

Arsenic FIELD DATA

Client: Pac. Energy Report #: _____
Location: Oxnard #2
Operator: JDN/JEM
Date: 7-24-90
Run No: 2 (cont'd)
Pump No.: Gast
Meter Box No.: 1002 Factor: _____
Meter ΔH @: .900
Pitot Tube No.: 30-1

Post Test Leak Chk.

Leak Rate: .003 cfm
Vacuum: 7.0 (in Hg)

Ambient Temp: 70°F
Barometric Pressure: 30.25
Static Pressure, (in Hg): 2.1
Assumed Moisture %: 13 MW = 27.5
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .190
Probe Liner Material: Quartz
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) Rate	ΔH	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)
8	1901	5.5	930	4.00	.767	1.17	360.53	100	95		
7	1905	5.5	930	4.00	.767	1.17	363.60	100	95		
6	1909	5.0	935	3.90	.763	1.15	366.72	106	99		
5	1913	5.0	937	3.75	.741	1.10	369.77	101	94		
4	1917	4.5	935	3.40	.709	1.01	372.70	103	97		
3	1921	4.0	938	3.35	.700	.99	375.51	101	94		
2	1925	4.0	940	3.25	.692	.97	378.30	103	96		
1	1929	4.0	940	3.25	.692	.97	381.09	103	96		
	1933						383.82				
		X̄=	937	3.58			46.48		98		
					ΔH = 1.06						
					ISO = 100.35						
Total					velfps = 175.50			avg.	avg.		
Average								avg.			

Arsenic - 3 FIELD DATA

Client: Pac. Entergy Report #:
Location: Onward #7
Operator: JDN/JEM
Date: 7-27-90
Run No: 3 (cont'd)
Pump No.: Gast
Meter Box No.: 1002 Factor:
Meter ΔH @: .900
Pitot Tube No.: 30-1

Post Test Leak Chk.

Leak Rate: <.001 cfm
Vacuum: 8.0 (in Hg)

Ambient Temp: 75°F
Barometric Pressure:
Static Pressure, (in Hg): 2.0
Assumed Moisture %: 13.0 MW_{wet} = 77.5
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in): .190
Probe Liner Material: quartz
Filter Number: QT 184
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)	ΔH	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)
1	12;47	4.0	934	3.25	.694	.99	961.20	106	96		
2	;51	4.0	934	3.25	.694	.98	963.95	106	96		
3	;55	4.0	933	3.20	.690	.96	966.75	107	97		
4	;59	4.0	931	3.10	.681	.94	969.43	108	98		
5	13;03	5.0	930	3.55	.730	1.06	972.22	109	99		
6	;07	5.0	942	3.65	.734	1.05	975.04	107	97		
7	;11	5.0	937	3.75	.746	1.11	978.00	106	98		
8	;15	5.0	946	3.85	.755	1.13	980.95	108	99		
	;19						984.00				
		$\bar{X}$ =	935	3.47					101		
					$\overline{\Delta H}$ = 1.03						
Total					$\Sigma\Delta$ = 100.35			avg.	avg.		
Average					velfps = 172.43			avg.			

Arsenic - 3 FIELD DATA

Client: Pac. Energy Report #: _____
Location: Oxnard #2
Operator: JDN/JEM
Date: 7-27-90
Run No: 3
Pump No.: Gast
Meter Box No.: 1007 Factor: _____
Meter ΔH @: .900
Pitot Tube No.: 32-1

Post Test Leak Chk.

Leak Rate: _____ cfm
Vacuum: _____ (in Hg)

Ambient Temp: 75°F
Barometric Pressure: 30.35
Static Pressure, (in Hg): 2.0
Assumed Moisture %: 13.0 $M_{w_{wet}}$ = 27.5
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .190
Probe Liner Material: Quartz
Filter Number: QT 184
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)	Δt	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)
8	12:15	5.0	938	3.90	.751	1.14	938.10	95	96		
7	:19	5.0	939	3.8	.745	1.11	941.32	103	94		
6	:23	5.0	936	3.75	.746	1.11	944.29	107	97		
5	:27	4.5	934	3.65	.735	1.08	947.20	107	95		
4	:31	4.0	929	3.10	.680	.94	950.02	108	96		
3	:35	4.5	931	3.15	.683	.95	952.85	106	95		
2	:39	4.5	933	3.3	.699	.99	955.61	107	94		
1	:43	4.5	933	3.3	.699	.99	958.50	107	94		
	:47						961.20				
								avg.	avg.		
Total											
Average								avg.			

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-005
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: LIQUID

Project: 232 PACIFIC ENERGY/OXNARD ICE #2
Sample ID: #100 P/N-1

CARB IMPINGER Prepared by CARB PREP By WG

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Arsenic (CARB 423)	ug	ND	0.88	ND	1.5	08/22/90	08/28/90	JB
Total Impinger Volume (ML)	ml	146	NA	NA	NA	08/29/90	08/29/90	JW

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-007
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: FILTER

Project: 232 PACIFIC ENERGY/OXNARD ICE #2
Sample ID: #102 FILTER-1

CARB FILTER Prepared by CARB PREP By WG

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Arsenic (CARB 423)	ug	0.62	0.15	ND	.15	08/22/90	08/28/90	JB

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-006
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: LIQUID

Project: 232 PACIFIC ENERGY/OXNARD ICE #2
Sample ID: #101 IMP-1

CARB IMPINGER Prepared by CARB PREP By WG

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Arsenic (CARB 423)	ug	ND	1.3	ND	1.5	08/22/90	08/28/90	JB
Total Impinger Volume (ML)	ml	210	NA	NA	NA	08/29/90	08/29/90	JW

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-008
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: LIQUID

Project: 232 PACIFIC ENERGY/OXNARD ICE #2
Sample ID: #103 P/N-2

CARB IMPINGER Prepared by CARB PREP By WG

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Arsenic (CARB 423)	ug	ND	0.73	ND	1.5	08/22/90	08/28/90	JB
Total Impinger Volume (ML)	ml	122	NA	NA	NA	08/29/90	08/29/90	JW

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-010
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: FILTER

Project: 232 PACIFIC ENERGY/OXNARD ICE #2
Sample ID: #105 FILTER-2

CARB FILTER Prepared by CARB PREP By WG

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Arsenic (CARB 423)	ug	0.62	0.15	ND	.15	08/22/90	08/28/90	JB

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-009
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: LIQUID

Project: 232 PACIFIC ENERGY/OXNARD ICE #2
Sample ID: #104 IMP-2

CARB IMPINGER Prepared by CARB PREP By WG

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Arsenic (CARB 423)	ug	ND	3.0	ND	1.5	08/22/90	08/28/90	JB
Total Impinger Volume (ML)	ml	500	NA	NA	NA	08/29/90	08/29/90	JW

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-011
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: LIQUID

Project: 232 PACIFIC ENERGY/OXNARD ICE #2
Sample ID: #106 P/N-3

CARB IMPINGER Prepared by CARB PREP By WG

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Arsenic (CARB 423)	ug	ND	0.65	ND	1.5	08/22/90	08/28/90	JB
Total Impinger Volume (ML)	ml	162	NA	NA	NA	08/29/90	08/29/90	JW

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-013
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: FILTER

Project: 232 PACIFIC ENERGY/OXNARD ICE #2
Sample ID: #108 FILTER-3

CARB FILTER Prepared by CARB PREP By WG

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Arsenic (CARB 423)	ug	0.38	0.15	ND	.15	08/22/90	08/28/90	JB

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-012
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: LIQUID

Project: 232 PACIFIC ENERGY/OXNARD ICE #2
Sample ID: #107 IMP-3

CARB IMPINGER Prepared by CARB PREP By WG

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Arsenic (CARB 423)	ug	ND	3.0	ND	1.5	08/22/90	08/28/90	JB
Total Impinger Volume (ML)	ml	500	NA	NA	NA	08/29/90	08/29/90	JW

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-014
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: LIQUID

Project: 232 PACIFIC ENERGY/OXNARD ICE #2
Sample ID: #109 P/N-4

CARB IMPINGER Prepared by CARB PREP By WG

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Arsenic (CARB 423)	ug	ND	0.80	ND	1.5	08/22/90	08/28/90	JB
Total Impinger Volume (ML)	ml	133	NA	NA	NA	08/29/90	08/29/90	JW

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-015
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: LIQUID

Project: 232 PACIFIC ENERGY/OXNARD ICE #2
Sample ID: #110 IMP-4

CARB IMPINGER Prepared by CARB PREP By WG

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Arsenic (CARB 423)	ug	ND	1.3	ND	1.5	08/22/90	08/28/90	JB
Total Impinger Volume (ML)	ml	210	NA	NA	NA	08/29/90	08/29/90	JW

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A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-016
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: FILTER

Project: 232 PACIFIC ENERGY/OXNARD ICE #2
Sample ID: #111 FILTER-4

CARB FILTER Prepared by CARB PREP By WG

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Arsenic (CARB 423)	ug	ND	0.15	ND	.15	08/22/90	08/28/90	JB

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-007/014
Date Sampled: 24-JUL-1990
27-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: FILTER

Project: 232 PACIFIC ENERGY/OXNARD ICE #2

Matrix Spike/Matrix Spike Duplicate Report

Sample Number	Parameter (Method)	Units	Observed Concentration Sample	MS	MSD	Amt. Spiked	% Recovery MS	MSD	Avg.	% RPD
9022112-006	ARSENIC (CARB 423)	ug	.002	0.94	0.98	1.00	94	98	96	4

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-007/014
Date Sampled: 24-JUL-1990
27-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: FILTER

Project: 232 PACIFIC ENERGY/OXNARD ICE #2

Laboratory Control Sample Report

QC Batch	Parameter (Method)	Amt. Spiked	Units	Avg. Spike Recov.	Acceptable Range	Rel. Pct. Diff.	Acceptable Range
L90247016	ARSENIC (CARB 423)	1.00	ug	94.	78-120	0.	20

Laboratory Control Sample Report Cross-Reference

QC Batch	Date	Parameter (Method)	Sample Nos.
L90247016	28-AUG-1990	ARSENIC (CARB 423)	G-9022112-007 G-9022112-010 G-9022112-013 G-9022112-016

Matrix Spike/Matrix Spike Duplicate Report Cross-Reference

QC Batch	Date	Parameter (Method)	Sample Nos.
9022112-006	28-AUG-1990	ARSENIC (CARB 423)	G-9022112-007 G-9022112-010 G-9022112-013 G-9022112-016

METHOD 423; ARSENIC

PETRO CHEM ENVIRONMENTAL SERVICES, INC.

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

CHAIN OF CUSTODY RECORD

PROJECT: PACIFIC ENERGY OXNARD ICE #2 JOB NO. 232 SAMPLED BY: JEM

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE liq.	filter	gas	NO. CONTRS.	ANALYSIS REQUIRED
100	PACIFIC ENERGY METHOD 423 P/N-1	7-24-90		✓			1	
102	FILTER-1				✓		1	
101	IMP-1			✓			1	
103	P/N-2			✓			1	
105	FILTER-2				✓		1	
104	IMP-2			✓			1	
106	P/N-3			✓			1	
108	FILTER-3				✓		1	
107	IMP-3			✓			1	

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
James E Mackstin			
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

PETRO
CHEM
ENVIRONMENTAL
SERVICES, INC.

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

CHAIN OF CUSTODY RECORD

PROJECT: PACIFIC ENERGY OXNARD ICE #2

JOB NO. 232

SAMPLED BY: JEM

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE lig.	filter	gas	NO. CONTRS.	ANALYSIS REQUIRED
109	PACIFIC ENERGY METHOD 423 P/N-4			✓			1	
111	FILTER-4				✓		1	
110	IMP-4			✓			1	
112	FILTER BLANK				✓		1	
113	H_2O BLANK			✓			1	
114	.1N NaOH BLANK			✓			1	

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

METHOD 425
FIELD DATA @ 70'

RUN #:	1	2	3
TIME:	1200	1344	1510
Vm (dry gas sampled)	47.01	46.86	46.77
Y (meter calib. factor)	0.991696	0.991696	0.991696
P bar (Barometric pressure)	30.34	30.34	30.34
P static (stack pressure, " H2O)	2.1	2.1	2.1
Delta H (differential meter press, " H2O)	1.06	1.07	1.06
Tm (meter temperature, R')	567	567	565
Vol H2O mls	147.1	150.2	147.9
Vm(std),dscf	44.3	44.16	44.23
Bws-H2O vapor	0.1359	0.1387	0.1367
MF-moisture factor	0.8641	0.8613	0.8633
% CO2	7	7	7.1
% O2	8.4	8.2	8.2
% N2	84.6	84.8	84.7
Md-MW stk gas,dry	29.46	29.45	29.46
Ms-MW stk gas,wet	27.9	27.86	27.89
Cp-pitot tube	0.84	0.84	0.84
Avg sq rt ^p	1.884	1.887	1.887
T stack, R'	1395	1396	1399
Stack area,ft2	1.67	1.67	1.67
Vs-fps	173.24	173.7	173.8
Qstd-dscfm	5808	5801	5805
Area noz,ft2	1.97E-04	1.97E-04	1.97E-04
Sample time	64	64	64
% Isokinetic	101.1	100.9	101

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

Summary of Results for Total Chrome and Hexavalent Chrome

Test	Fraction	Vm std	DSCFM	Total ug		gr/DSCF	lb/hr
1	p/n	44.30	5808	2.4	*	8.34E-07	4.16E-05
	Filt/Imp	44.30	5808	5.3	*	1.84E-06	9.18E-05
	Total Chrome				*	2.68E-06	1.33E-04
1	p/n	44.30	5808	4.6	*	1.60E-06	7.97E-05
	Filt/Imp	44.30	5808	10.4	*	3.62E-06	1.80E-04
	Total Hexavalent Chrome				*	5.21E-06	2.60E-04
2	p/n	44.18	5787	2.3	*	8.02E-07	3.98E-05
	Filt/Imp	44.18	5787	4.9	*	1.71E-06	8.48E-05
	Total Chrome				*	2.51E-06	1.25E-04
2	p/n	44.18	5787	4.5	*	1.57E-06	7.79E-05
	Filt/Imp	44.18	5787	9	*	3.14E-06	1.56E-04
	Total Hexavalent Chrome				*	4.71E-06	2.34E-04
3	p/n	44.18	5787	2.3	*	8.02E-07	3.98E-05
	Filt/Imp	44.18	5787	5.0	*	1.74E-06	8.65E-05
	Total Chrome				*	2.54E-06	1.26E-04
3	p/n	44.18	5787	4.4	*	1.53E-06	7.62E-05
	Filt/Imp	44.18	5787	9.9	*	3.45E-06	1.71E-04
	Total Hexavalent Chrome				*	4.98E-06	2.47E-04
	Total Chrome; Average of three runs					2.58E-06	1.28E-04
	Hexavalent Chrome; Average of three runs					4.97E-06	2.47E-04

* Values Reported are lower detection limit

CHROM + HEX CHROM
METHOD 425

COMPANY: PACIFIC ENERGY
REPORT #:
UNIT ID: OXNARD UNIT #2
DATE: 7-25-90

ON-SITE DATA

SITE: OUTLET

RUN #:	#1	#2	#3
TIME:	1200-1307	1340-1451	1510-1612

Vm	Dry sampled gas volume, dcf	47.01	46.86	46.77
Y	Meter calibration factor (met# 1002 ⟶)	.991696	.991696	.991696
P bar	Barometric pressure, in Hg	30.34	30.34	30.34
P static	Stack static pressure, in H_2	2.1	2.1	2.1
Delta H	Differential meter pressure, in H_2O	1.06	1.07	1.06
Tm	Meter temperature, deg F	107	107	105

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
H_2O	777.5	601.6	175.9	751.3	583.0	168.3	802.4	603.7	198.7
H_2O	623.0	602.9	20.1	599.0	577.1	21.9	618.7	601.7	17.0
[illegible]	467.6	464.4	3.2	466.1	460.7	5.4	466.4	463.6	2.80
Silica	788.9	778.1	10.8	797.2	783.0	14.2	798.1	788.4	9.70
Lin Wash			-62.9			-59.6			-80.3
V lc, volume of H_2O, grams			147.1			150.2			147.9

		#1	#2	#3
CO_2	% Dry Volume	7.0	7.0	7.1
O_2	% Dry Volume	8.4	8.2	8.2
N_2	% Dry Volume	84.6	84.8	84.7
Cp	Pitot tube coefficient (Pit# ____ ____ ____)	.84	.84	.84
Delta P	Avg Delta-P, in H_2O	3.55	3.56	3.56
Ts	Stack temperature, in deg F	935	936	939
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	.19	.19	.19
Dur	Sampling time, min	64	64	64
% Iso	Mini Iso	100.55	100.16	100.[illegible]
Filter #		—	—	—
Filter tare weights, grams		—	—	—
	Blank I	430.2		
	F	117.6		
IMP	I	436.3	418.4	417.9
	F	320.1	387.1	314.2
	I	362.2		
	F	241.4		
P/N	I	478.8	316.1	413.1
	F	306.9	147.0	230.5

INITIALS**

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

CHROMIUM METHOD 425 FIELD DATA

Client: PACIFIC ENERGY Report #: _____
Location: OXNARD UNIT #2
Operator: JEM JDN
Date: 7-25-90
Run No: 1
Pump No.: GAST
Meter Box No.: 1002 Factor: _____
Meter ΔH @: 1.90
Pitot Tube No.: 35-7

PRE ~~Post~~ Test Leak Chk.
Leak Rate: 0.001 cfm
Vacuum: 10 (in Hg)

Ambient Temp: _____
Barometric Pressure: 30.34
Static Pressure, (in Hg): 2.1
Assumed Moisture %: 13 mw=27.5
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .15
Probe Liner Material: QUARTZ
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 RATE (in H_2O) ΔH	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)
8	1200	2	935	3.8	.751 1.12	517.4	102	102	255	
7	04	2	939	3.9	.767 1.15	520.4	111	103		
6	08	2	932	3.8	.757 1.13	523.5	109	102	251	
5	12	2	938	3.7	.748 1.10	526.5	112	103		
4	16	2	935	3.4	.716 1.02	529.5	110	102		
3	20	2	933	3.2	.700 0.98	532.4	115	106	253	
2	24	2	931	3.2	.697 0.97	535.2	109	105		
1	28	2	933	3.2	.697 0.97	537.99	104	105	250	
	1232					540.8				
Total							avg.	avg.		
Average							avg.			

(METHOD 1/2/3/4/5) FIELD DATA

Client: [illegible] Report #: _____
Location: [illegible] #2
Operator: JEM
Date: 7-25-90
Run No: 1 CONT
Pump No.: GAST
Meter Box No.: 1W1 Factor: _____
Meter ΔH @: .95
Pitot Tube No.: 3Q-1

Post Test Leak Chk.

Leak Rate: .009 cfm
Vacuum: 9.0 (in Hg)

Ambient Temp: _____
Barometric Pressure: 30.39
Static Pressure, (in Hg): 2-1
Assumed Moisture %: 13 MW = 27.5
Nozzle Ident. No.: -
Aver. Calib. Nozzle Diam.(in): .19
Probe Liner Material: - GLASS
Filter Number: _____
Duct Diam. (in): 17.5

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) PLATE	ΔH	Gas Sample Volume (ft3)	Gas Sample Temp. at dry Gas Meter inlet (°F)	outlet (°F)	Filter Holder Temperature: (°F)	Temperature of Gas Leaving Condenser or Last Impinger (°F)
8	1235	2	939	4.0	.779	1.19	540.3	113	105	256	
7	39	2	935	4.1	.757	1.21		110	105		
6	03	2	935	3.9	.769	1.16	547.1	112	105	251	
5	07	2	936	3.7	.747	1.10		109	104		
4	51	2	937	3.4	.719	1.02	553.2	109	106	251	
3	55	2	935	3.2	.694	0.97		109	103		
2	59	2	936	3.2	.694	0.97	558.8	109	103	252	
1	1303	2	936	3.2	.694	0.97		109	103		
	07						SUM 41				
			935	3.55	Vm =		47.01		107		
					Qs =		100.55				
					fps =		174.5				
					ΔH =		1.06				
Total								avg.	avg.		
Average								avg.			

Chrom Method 425 FIELD DATA

Client: PACIFIC ENERGY Report #: _____
Location: OXNARD UNIT #2
Operator: JEM JON
Date: 7-25-90
Run No: 2
Pump No.: GAST
Meter Box No.: TWC Factor: _____
Meter ΔH @: .95
Pitot Tube No.: 3Q-1

PRE ~~Post~~ Test Leak Chk.
Leak Rate: .001 cfm
Vacuum: 10 (in Hg)

Ambient Temp: _____
Barometric Pressure: 30.34
Static Pressure, (in Hg): 2.1
Assumed Moisture %: 13 MW=27.5
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .18
Probe Liner Material: QUARTZ
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) Rate	ΔH	Gas Sample Volume (ft^3)	Gas Sample Temp. at dry Gas Meter inlet (°F)	outlet (°F)	Filter Holder Temperature: (°F)	Temperature of Gas Leaving Condenser or Last Impinger (°F)
8	1344	2	903	3.9	.751	1.13	566.90	96	96	251	
7	48	2	937	3.9	.762	1.10		110	105		
6	52	2	933	3.7	.746	1.10	573.0	107	103		
5	56	2	938	3.6	.738	1.09		111	105	255	
4	1400	2	935	3.4	.716	1.02	578.9	108	104		
3	04	2	939	3.2	.695	0.97		113	106		
2	08	2	930	3.3	.707	1.00	584.6	105	105	257	
1	12	2	930	3.3	.707	1.00		107	105		
	1416						590.31				
Total								avg.	avg.		
Average								avg.			

CLEAN [illegible] 425 FIELD DATA

Client: [illegible] Report #:
Location:
Operator: JDN JDN
Date: 7-25-90
Run No: 2 CONT
Pump No.: CONT
Meter Box No.: 1012 Factor:
Meter ΔH @: .90
Pitot Tube No.: 3.0-1

Post Test Leak Chk.

Leak Rate: 6.001 cfm
Vacuum: 10 (in Hg)

Ambient Temp:
Barometric Pressure: 30.34
Static Pressure, (in Hg): 2.1
Assumed Moisture %: 13 mvt 27.5
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in): .19
Probe Liner Material: - QUARTZ
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) RATE	ΔH	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)
8 14	1419	2	941	4.1	.792	1.21	590.31	115	108	254	
7 11	23	2	942	4.0	.774	1.13		108	103		
6 22	27	2	943	3.8	.763	1.13	596.6	115	109		
5 26	31	2	935	3.7	.745	1.10		107	102		
4 30	35	2	941	3.4	.720	1.02	602.6	114	107		
3 34	39	2	933	3.3	.704	0.99		108	101		
2 31	43	2	928	3.2	.697	0.97	608.3	111	104		
1 04	47	2	927	3.2	.697	0.97		112	105		
04	1451						613.76				
	64 min		936	3.56		Vm=	46.86		107		
						Qstd=	100.16				
						ΔH=	1.07				
Total						ΔPs=	174.72	avg.	avg.		
Average								avg.			

Carbon Method 425 FIELD DATA

Client: Pacific Energy Report #: ______
Location: OXNARD UNIT #2
Operator: TEW TDN
Date: 7-25-90
Run No: 3
Pump No.: GAST
Meter Box No.: 1002 Factor: ______
Meter ΔH @: .90
Pitot Tube No.: 3Q-1

PRE ~~Post~~ Test Leak Chk.

Leak Rate: 0.001 cfm
Vacuum: 10 (in Hg)

Ambient Temp: —
Barometric Pressure: 30.34
Static Pressure, (in Hg): ______
Assumed Moisture %: 13 MW_W = 27.5
Nozzle Ident. No.: —
Aver. Calib. Nozzle Diam.(in): .17
Probe Liner Material: QUARTZ
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) Rate	ΔH	Gas Sample Volume (ft^3)	Gas Sample Temp. at dry Gas Meter inlet (°F)	outlet (°F)	Filter Holder Temperature: (°F)	Temperature of Gas Leaving Condenser or Last Impinger (°F)
8	1510	5	936	3.8	.750	1.12	616.0	102	100	252	
7	14	5	940	3.9	.765	1.15		109	104		
6	18	5	935	3.85	.758	1.14	622.1	106	100		
5	22	5	938	3.83	.754	1.13		108	102		
4	26	5	933	3.3	.701	0.99	628.2	106	100		
3	30	5	940	3.2	.694	0.97		109	107		
2	34	5	935	3.1	.680	0.94	633.8	104	102		
1	38	5	935	3.1	.680	0.94		104	102		
	1542						639.13				
Total								avg. /	avg.		
Average								avg.			

CARB Mod. 1425 FIELD DATA

Client: PACIFIC ENERGY Report #: _____
Location: OXNARD UNIT #2
Operator: JEW JDN
Date: 7-25-90
Run No: 3 CUNT
Pump No.: GAST
Meter Box No.: 1002 Factor: _____
Meter ΔH @: .90
Pitot Tube No.: 3Q-1

Post Test Leak Chk.

Leak Rate: _____ cfm
Vacuum: _____ (in Hg)

Ambient Temp: –
Barometric Pressure: 30.34
Static Pressure, (in Hg): 2.1
Assumed Moisture %: 13 MW = 27.5
Nozzle Ident. No.: –
Aver. Calib. Nozzle Diam.(in): .19
Probe Liner Material: – QUARTZ
Filter Number: –
Duct Diam. (in): 17.5

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 H_2O) Run	ΔH	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)
8	1545	5	942	4.0	.772	1.17	639.13	107	102		
7	49	5	940	4.1	.774	1.20		106	99		
6	53	5	943	4.0	.778	1.18	645.3	111	103		
5	57	5	943	3.9	.748	1.12		104	99		
4	1601	5	945	3.4	.709	1.01	651.5	106	100		
3	05	5	942	3.3	.697	0.99		103	99		
2	09	5	937	3.2	.701	0.97	657.1	116	102		
1	13	5	932	3.2	.701	0.97		116	107		
	1617						662.77				
			939	3.56		Vm =	46.77		105		
						Qstd =	100.04				
						fps =	174.91				
						ΔH =	1.06				
Total								avg.	avg.		
Average								avg.			

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

August 31, 1990

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
BAKERSFIELD, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9021915-001/008
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Project: (232) PACIFIC ENERGY SYSTEMS
OXNARD ICE #2

Enclosed with this letter is the report on the chemical and physical analyses on the samples from ANALYSIS NO: G-9021915-001/008 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 within the parentheses. The detection limit is the reporting limit raised to reflect the dilution factor of the sample.

C. Rhodigan
Reviewed

Approved

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9021915-001/004
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Date Analyzed: 23-AUG-1990
10-AUG-1990
Sample Type: LIQUID

Project: (232) PACIFIC ENERGY SYSTEMS - OXNARD ICE #2

Sample ID	Chromium, Total ug CARB 425	Chromium, Hexavalent ug CARB 425	Total Impinger Volume ml ML
(300) P/N-1	ND(2.4)	ND(4.6)	231
(303) P/N-2	ND(2.3)	ND(4.5)	226
(306) P/N-3	ND(2.3)	ND(4.4)	221
(309) P/N-4	ND(1.8)	ND(3.6)	179
Blank	ND(2.4)	ND(0.02)	NA

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Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9021915-005/008
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Date Analyzed: 23-AUG-1990
10-AUG-1990
Sample Type: FILTER

Project: (232) PACIFIC ENERGY SYSTEMS - OXNARD ICE #2

Sample ID	Chromium, Total ug CARB 425	Chromium, Hexavalent ug CARB 425	Total Impinger Volume ml ML
(301 & 302) IMP-1 & FILTER-1 COMPOSITE	ND(5.3)	ND(10.4)	521
(304 & 305) IMP-2 & FILTER-2 COMPOSITE	ND(4.9)	ND(9.0)	488
(307 & 308) IMP-3 & FILTER-3 COMPOSITE	ND(5.0)	ND(9.9)	497
(310 & 311) IMP-4 & FILTER-4 COMPOSITE	ND(3.4)	ND(6.7)	335
Blank	ND(5.3)	ND(00.2)	NA

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN
Project: (232) PACIFIC ENERGY SYSTEMS - OXNARD ICE #2

Analysis No.: G-9021915-001/004
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: LIQUID

Matrix Spike/Matrix Spike Duplicate Report

Sample Number	Parameter (Method)	Units	Observed Concentration Sample	MS	MSD	Amt. Spiked	% Recovery MS	MSD	Avg.	% RPD
9021915-001	CHROMIUM, HEXAVALENT (CARB 425)	ug	ND	.041	.042	.04	103	105	104	2

Matrix Spike/Matrix Spike Duplicate Report Cross-Reference

QC Batch	Date	Parameter (Method)	Sample Nos.
9021915-001	10-AUG-1990	CHROMIUM, HEXAVALENT (CARB 425)	G-9021915-001 G-9021915-002 G-9021915-003 G-9021915-004

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A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN
Project: (232) PACIFIC ENERGY SYSTEMS - OXNARD ICE #2

Analysis No.: G-9021915-001/004
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: LIQUID

Laboratory Control Sample Report

QC Batch	Parameter (Method)	Amt. Spiked	Units	Avg. Spike Recov.	Acceptable Range	Rel. Pct. Diff.	Acceptable Range
L90222019	CHROMIUM, HEXAVALENT (CARB 425)	.040	ug	104.	67-129	2.	17
L90214001	CHROMIUM, TOTAL (CARB 425)	1.0	ug	91.	67-129	0.	17

Laboratory Control Sample Report Cross-Reference

QC Batch	Date	Parameter (Method)	Sample Nos.
L90214001	23-AUG-1990	CHROMIUM, TOTAL (CARB 425)	G-9021915-001
			G-9021915-002
			G-9021915-003
			G-9021915-004
L90222019	10-AUG-1990	CHROMIUM, HEXAVALENT (CARB 425)	G-9021915-001
			G-9021915-002
			G-9021915-003
			G-9021915-004

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A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN
Project: (232) PACIFIC ENERGY SYSTEMS - OXNARD ICE #2

Analysis No.: G-9021915-005/008
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: FILTER

Matrix Spike/Matrix Spike Duplicate Report

Sample Number	Parameter (Method)	Units	Observed Concentration Sample	MS	MSD	Amt. Spiked	% Recovery MS	MSD	Avg.	% RPD
9021915-001	CHROMIUM, HEXAVALENT (CARB 425)	ug	ND	.041	.042	.04	103	105	104	2

Enseco
A CORNING Company

Matrix Spike/Matrix Spike Duplicate Report Cross-Reference

QC Batch	Date	Parameter (Method)	Sample Nos.
9021915-001	10-AUG-1990	CHROMIUM, HEXAVALENT (CARB 425)	G-9021915-005 G-9021915-006 G-9021915-007 G-9021915-008

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Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN
Project: (232) PACIFIC ENERGY SYSTEMS - OXNARD ICE #2

Analysis No.: G-9021915-005/008
Date Sampled: 24-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: FILTER

Laboratory Control Sample Report

QC Batch	Parameter (Method)	Amt. Spiked	Units	Avg. Spike Recov.	Acceptable Range	Rel. Pct. Diff.	Acceptable Range
L90222019	CHROMIUM, HEXAVALENT (CARB 425)	.040	ug	104.	67-129	2.	17
L90214001	CHROMIUM, TOTAL (CARB 425)	1.0	ug	91.	67-129	0.	17

Laboratory Control Sample Report Cross-Reference

QC Batch	Date	Parameter (Method)	Sample Nos.
L90214001	23-AUG-1990	CHROMIUM, TOTAL (CARB 425)	G-9021915-005
			G-9021915-006
			G-9021915-007
			G-9021915-008
L90222019	10-AUG-1990	CHROMIUM, HEXAVALENT (CARB 425)	G-9021915-005
			G-9021915-006
			G-9021915-007
			G-9021915-008

METHOD 425 : CHPen + VI

PETRO CHEM ENVIRONMENTAL SERVICES, INC.

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

CHAIN OF CUSTODY RECORD

PROJECT: PACIFIC ENERGY OXNARD ICE #2 JOB NO. 232 SAMPLED BY: JEM

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE liq.	SAMPLE TYPE filter	SAMPLE TYPE gas	NO. CONTRS	ANALYSIS REQUIRED
300	PACIFIC ENERGY METHOD 425 P/N-1	7-24		✓			1	
302	FILTER-1				✓		1	
301	IMP-1			✓			1	
303	P/N-2			✓			1	
305	FILTER-2				✓		1	
304	IMP-2			✓			1	
306	P/N-3			✓			1	
308	FILTER-3				✓		1	
307	IMP-3			✓			1	

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
James E Marchesini			
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

PETRO
CHEM
ENVIRONMENTAL
SERVICES, INC.

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

CHAIN OF CUSTODY RECORD

PROJECT: PACIFIC ENERGY OXNARD ICE #2 JOB NO. 232 SAMPLED BY: JEM

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE liq.	filter	gas	NO. CONTRS	ANALYSIS REQUIRED
309	PACIFIC ENERGY METHOD 425 P/N-4	7-24-90		✓			1	
311	FILTER-4				✓		1	
310	IMP-4			✓			1	

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

CHAIN OF CUSTODY RECORD

ECT: JOB NO. SAMPLED BY:

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE lig.	filter	gas	NO. CONTRS	ANALYSIS REQUIRED
312	PACIFIC ENERGY Method 425 +H2O BLANK	7-29-90		—				HOLD
313	↓ FILTER BLANK	↓			—			DO NOT ANALYZE

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
James A Watson	8-6-90	Frank Blyth	8/6/90
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

COMPANY: PACIFIC ENERGY
DATE: 7-24 thru 7-27-90
UNIT: OXNARD LANDFILL ICE #2
REPORT #:62-232

METHOD 421
FIELD DATA @ 70'

RUN #:	1	2	3
TIME:	1153	1349	1530
Vm (dry gas sampled)	45.26	45.86	45.61
Y (meter calib. factor)	0.991696	0.991696	0.991696
P bar (Barometric pressure)	30.4	30.4	30.4
P static (stack pressure, " H2O)	2.1	2.1	2.1
Delta H (differential meter press, " H2O)	1.05	1.04	1.03
Tm (meter temperature, R')	562	559	559
Vol H2O mls	147.6	148.2	143.8
Vm(std),dscf	43.12	43.92	43.68
Bws-H2O vapor	0.1395	0.1378	0.1349
MF-moisture factor	0.8605	0.8622	0.8651
% CO2	7.1	7.1	7.1
% O2	8.3	8.3	8.3
% N2	84.6	84.6	84.6
Md-MW stk gas,dry	29.47	29.47	29.47
Ms-MW stk gas,wet	27.87	27.89	27.92
Cp-pitot tube	0.84	0.84	0.84
Avg sq rt ^p	1.873	1.876	1.863
T stack, R'	1397	1399	1396
Stack area,ft2	1.67	1.67	1.67
Vs-fps	172.28	172.61	171.14
Qstd-dscfm	5755	5769	5752
Area noz,ft2	1.97E-04	1.97E-04	1.97E-04
Sample time	64	64	64
% Isokinetic	99.3	100.9	100.6

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #: 62-232

Summary of Results for Hydrochloric Acid

Pollutant	Test	Vm std	DSCFM	Total ug	gr/DSCF	lb/hr
Hydro-chloric Acid	1	43.12	5755	4860	1.74E-03	8.57E-02
	2	43.92	5769	4820	1.69E-03	8.37E-02
	3	43.68	5752	4950	1.75E-03	8.61E-02
				average	1.72E-03	8.52E-02
Blank 1/		43.57	5759	8510	3.01E-03	1.49E-01

1/ High Sample Blank Recorded For Run #4

* Values Reported are lower detection limit

HCL Method 421

COMPANY: PACIFIC ENERGY
REPORT #:
UNIT ID: OXNARD UNIT #2
DATE: 7-26-90

ON-SITE DATA

SITE: OUTLET

RUN #:	#1	#2	#3
TIME:	1153-1306	1349-1453	1530-1634

		#1	#2	#3
Vm	Dry sampled gas volume, dcf	45.26	45.96	95.61
Y	Meter calibration factor (met# 1002 → ___)	.991696	.991696	.991696
P bar	Barometric pressure, in Hg	30.40	30.40	30.40
P static	Stack static pressure, in H_2	2.1	2.1	2.1
Delta H	Differential meter pressure, in H_2O	1.05	1.04	1.03
Tm	Meter temperature, deg F	102	99	99

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
Sodium Bi Carb	792.5	601.4	191.1	762.1	571.3	190.8	784.5	598.8	185.7
Sodium Bi Sodium Carb	609.1	595.2	13.9	582.1	569.9	12.2	619.6	595.6	19.0
KO	466.9	464.1	2.8	461.8	460.4	1.4	470.9	467.2	3.7
Silica	788.2	778.2	10.0	778.3	769.5	8.8	800.8	788.5	12.3
Line Wash			-70.2			-65.0			-76.9
V lc, volume of H_2O, grams			147.6			148.2			143.8

		#1	#2	#3
CO_2	% Dry Volume	7.1	7.1	7.1
O_2	% Dry Volume	8.3	8.3	8.3
N_2	% Dry Volume	84.6	84.6	84.5
Cp	Pitot tube coefficient (Pit# ___ ___ ___)	.84	.84	.84
Delta P	Avg Delta-P, in H_2O	3.51	3.52	3.47
Ts	Stack temperature, in deg F	937	939	936
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	.190	.190	.190
Dur	Sampling time, min	64	64	64
% Iso	Mini Iso	98.31	100.09	100.09

Filter #
Filter tare weights, grams — BLANK: QT173 .82255; QT174 .81859; QT175 .83014

P/N

IMPINGERS

I	341.2	366.0	294.4	348.2
F	226.3	225.1	134.6	158.8
I	317.7	207.2	134.6	461.7
F	272.4	129.9	85.0	308.2

INITIALS**

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

L-1 FIELD DATA

Client: [illegible] Report #:
Location: Exxon #2
Operator: JDN
Date: 4-26-90
Run No: 1 (combined)
Pump No.: Gast
Meter Box No.: 1002 Factor:
Meter ΔH @: 1.9
Pitot Tube No.: 32-1

Post Test Leak Chk.
Leak Rate: <.001 cfm
Vacuum: 6.0 (in Hg)

Ambient Temp: 75°F
Barometric Pressure: 30.40
Static Pressure, (in Hg): 2.1
Assumed Moisture %: 13
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in): .19
Probe Liner Material: Quartz
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) Γ	ΔH	Gas Sample Volume (ft^3)	Gas Sample Temp. at dry Gas Meter inlet (°F)	outlet (°F)	Filter Holder Temperature: (°F)	Temperature of Gas Leaving Condenser or Last Impinger (°F)
8	12:34	4.5	936	4.0	.766	1.17	817.96	103	96		
7	12:38	4.5	936	4.0	.766	1.17	821.07	103	96		
6	12:42	4.0	941	3.8	.752	1.12	824.14	110	99		
5	:46	3.5	935	3.6	.731	1.07	827.15	108	96		
4	:50	3.0	926	3.1	.681	.94	830.07	109	97		
3	:54	3.5	930	3.3	.702	.99	832.95	108	98		
2	:58	3.0	931	3.1	.676	.94	835.78	106	94		
1	13:02	3.0	931	3.1	.676	.94	838.46	106	94		
	:06						841.16				
		$\bar{X}$=	937	3.51					102		
					V_m = 45.26						
					$\overline{\Delta H}$ = 1.05						
					T_{SO} = 98.31						
					V_{plugs} = 173.61						
Total								avg.	avg.		
Average								avg.			

HCL-1 FIELD DATA

Client: Pac Gas & Elec Report #:
Location: Oxnard #2
Operator: JDN
Date: 7-26-90
Run No: 1
Pump No.: Gast
Meter Box No.: 1002 Factor:
Meter ΔH @: .900
Pitot Tube No.: 38-2

Post Test Leak Chk.
Leak Rate: cfm
Vacuum: (in Hg)

Ambient Temp: 70°F
Barometric Pressure: 30.40
Static Pressure, (in Hg): 2.0
Assumed Moisture %: 13
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in): .190
Probe Liner Material: Quartz
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		Filter Holder Temperature: (°F)	Temperature of Gas Leaving Condenser or Last Impinger (°F)
						ΔH		inlet (°F)	outlet (°F)		
8	11:53	4.5	939	3.95	.757	1.15	795.90	96	97		
7	11:57	4.5	942	3.85	.751	1.13	798.20	105	95		
6	12:01	4.0	946	3.70	.739	1.09	801.00	108	98		
5	12:05	3.5	943	3.6	.727	1.06	804.00	106	96		
4	12:09	3.0	943	3.2	.688	.96	806.93	109	97		
3	:13	3.0	940	3.15	.682	.95	809.61	107	96		
2	:17	3.5	939	3.35	.705	1.00	812.30	108	98		
1	:21	3.5	939	3.35	.705	1.00	815.12	108	98		
	:25						817.96				
Total								avg.	avg.		
Average								avg.			

IICL - 2

FIELD DATA

Client: Pac. Energy Report #: _____
Location: Cannon #2
Operator: JDH / JEM
Date: [illegible]
Run No: 2 (Cont'd)
Pump No.: (Gas)
Meter Box No.: 1002 Factor: _____
Meter ΔH @: .90
Pitot Tube No.: 30-1

Post Test Leak Chk.
Leak Rate: .002 cfm
Vacuum: 16.0 (in Hg)

Ambient Temp: 79.1°F
Barometric Pressure: 30.4
Static Pressure, (in Hg): 2.0
Assumed Moisture %: 13
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .19
Probe Liner Material: - Quartz
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)	ΔH	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)
1	1421	2.0	930	3.30	.698	.99	865.40	104	96		
2	1425	2.0	930	3.30	.698	.99	868.23	104	96		
3	1429	2.0	933	3.15	.683	.95	870.99	106	96		
4	1433	2.0	940	3.25	.693	.97	873.70	107	98		
5	1437	2.5	940	3.60	.726	1.06	876.45	104	95		
6	1441	2.5	944	3.75	.742	1.10	879.38	107	97		
7	1445	2.5	947	3.95	.748	1.12	882.40	104	94		
8	1449	3.0	946	4.00	.768	1.17	885.43	108	98		
	1453						888.46				
Total								avg.	avg.		
Average								avg.			

HCL-2 FIELD DATA

Client: Pac. Energy Report #: _____
Location: Oxnard #2
Operator: JW / TFM
Date: 2-26-92
Run No: 2 E
Pump No.: Orbit
Meter Box No.: 1003 Factor: _____
Meter ΔH @: 1.90
Pitot Tube No.: 30-1

Post Test Leak Chk.
Leak Rate: _____ cfm
Vacuum: _____ (in Hg)

Ambient Temp: 78° F
Barometric Pressure: 30.40
Static Pressure, (in Hg): 2.0
Assumed Moisture %: 13
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .119
Probe Liner Material: 9 Quartz
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)	ΔH	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)
8	13:49	2.0	950	3.85	.750	1.14	842.60	93	94		
7	13:53	2.0	948	3.95	.746	1.12	845.61	100	95		
6	:57	2.0	946	3.65	.725	1.07	848.56	99	93		
5	14:01	2.0	948	3.95	.718	1.04	851.46	103	95		
4	:05	1.5	935	3.15	.680	.95	854.30	105	93		
3	:09	2.0	930	3.25	.693	.98	857.00	105	95		
2	:13	2.0	932	3.4	.706	1.01	859.73	103	93		
1	:17	2.0	932	3.4	.706	1.01	862.55	103	95		
	:21						865.40				
			939	3.52	ΔH = 1.09			99.			
					ISO = 100.09						
					vel fps = 173.89		45.86				
Total								avg.	avg.		
Average								avg.			

HCL-3 FIELD DATA

Client: Pac. Fruit Report #: _____
Location: Oxnard #2
Operator: JDN / [illegible]M
Date: 7-26-90
Run No: 2
Pump No.: [illegible]
Meter Box No.: 1007 Factor: _____
Meter ΔH @: 1.75
Pitot Tube No.: [illegible]

Post Test Leak Chk.

Leak Rate: _____ cfm
Vacuum: _____ (in Hg)

Ambient Temp: 75°F
Barometric Pressure: 30
Static Pressure, (in Hg): 2.0
Assumed Moisture %: 15
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .19
Probe Liner Material: [illegible]
Filter Number: _____
Duct Diam. (in): 17.6

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)	ΔH	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 of Gas Leaving Condenser or Last Impinger (°F)
8	15:30	5.0	923	3.85	.749	1.13	890.50	97	92		
7	15:34	5.0	923	3.85	.749	1.13	893.50	97	92		
6	:38	5.0	937	3.75	.742	1.10	896.47	105	95		
5	:42	4.5	938	3.60	.779	1.07	899.45	107	96		
4	:46	4.0	937	3.10	.674	.93	902.41	105	93		
3	:50	4.0	935	3.15	.682	.95	905.10	107	95		
2	:54	4.0	930	3.35	.707	1.00	907.81	106	92		
1	:58	4.0	930	3.35	.707	1.00	910.61	106	92		
	16:02						913.45				
Total								avg.	avg.		
								avg.			

HCL-3 FIELD DATA

Client: [illegible] Report #:
Location: Oxnard #1
Operator: [illegible]
Date: 7-[illegible]
Run No: 3 (cont'd)
Pump No.:
Meter Box No.: 1007 Factor:
Meter ΔH @: 1.900
Pitot Tube No.: 28-1

Post Test Leak Chk.
Leak Rate: .008 cfm
Vacuum: 7.0 (in Hg)

Ambient Temp: 70°F
Barometric Pressure: 30.40
Static Pressure, (in Hg): 2.0
Assumed Moisture %: 13
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in): .190
Probe Liner Material: - 9 quartz
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) r	ΔH	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)
1	16:02	4.0	930	3.25	.693	.99	913.45	106	94		
2	:06	4.0	930	3.25	.693	.98	916.23	106	94		
3	:10	4.0	937	3.15	.680	.95	919.00	105	95		
4	:14	4.0	939	3.15	.680	.94	921.70	107	93		
5	:19	4.5	942	3.60	.726	1.06	924.41	106	94		
6	:22	4.5	948	3.65	.727	1.07	927.26	104	92		
7	:26	5.0	946	3.75	.740	1.10	930.18	106	94		
8	:30	5.0	950	3.85	.750	1.12	933.14	107	95		
	:34						936.11				
		$\bar{X}$=	936	3.47					99		
					$\overline{\Delta H}$ = 1.03						
Total					ΣD = 100.09			avg.	avg.		
					[illegible] 172.51			avg.			

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-001
Date Sampled: 26-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: LIQUID

Project: 232 PACIFIC ENERGY/OXNARD ICE #2
Sample ID: #20 P/N-1, #21 IMP-1 COMPOSITE

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Hydrochloric Acid, as Cl (CARB 421)	ug	4860	62	ND	25.0	08/31/90	08/31/90	RJ
Total Impinger Volume	mL	617	NA	NA	NA	08/31/90	08/31/90	WG

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-002
Date Sampled: 26-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: LIQUID

Project: 232 PACIFIC ENERGY/OXNARD ICE #2
Sample ID: #23 P/N-2, #24 IMP-2 COMPOSITE

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Hydrochloric Acid, as Cl (CARB 421)	ug	4,820	62	ND	25.0	09/04/90	09/04/90	RJ
Total Impinger Volume	mL	617	NA	NA	NA	09/04/90	09/04/90	WG

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-003
Date Sampled: 26-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: LIQUID

Project: 232 PACIFIC ENERGY/OXNARD ICE #2
Sample ID: #26 P/N-3, #27 IMP-3 COMPOSITE

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Hydrochloric Acid, as Cl (CARB 421)	ug	4950	68	ND	25.0	08/31/90	08/31/90	RJ
Total Impinger Volume	mL	680	NA	NA	NA	08/31/90	08/31/90	WG

Enseco
A CORNING Company

Laboratory Report

PETRO CHEM ENVIRONMENTAL SERVICES
3207 Antonino Avenue
Bakersfield, CA 93388
ATTN: MR. TIM BRENNAN

Analysis No.: G-9022112-004
Date Sampled: 26-JUL-1990
Date Sample Rec'd: 7-AUG-1990
Sample Type: LIQUID

Project: 232 PACIFIC ENERGY/OXNARD ICE #2
Sample ID: #29 P/N-4, #30 IMP-4 COMPOSITE

Parameter	Units	Sample Result	Sample RL	Blank Result	Blank RL	Date Prepared	Date Analyzed	By
Hydrochloric Acid, as Cl (CARB 421)	ug	8,510	530	ND	25.0	09/04/90	09/04/90	RJ
Total Impinger Volume	mL	265	NA	NA	NA	09/04/90	09/04/90	WG

METHOD 421: HCL

PETRO CHEM ENVIRONMENTAL SERVICES, INC.

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

CHAIN OF CUSTODY RECORD

PROJECT: PACIFIC ENERGY OXNARD TICE #2 JOB NO. 232 SAMPLED BY: JEM

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE liq.	SAMPLE TYPE filter	SAMPLE TYPE gas	NO. CONTRS.	ANALYSIS REQUIRED
20	PACIFIC ENERGY METHOD 421 P/N-1	7-26-90		✓			1	Analyze for HCl or analyze for total Chloride by ion chromatography w/ conductivity detector ???
22	FILTER-1				✓		1	
21	IMP-1			✓			1	
23	P/N-2			✓			1	
25	FILTER-2				✓		1	
24	IMP-2			✓			1	
26	P/N-3			✓			1	
28	FILTER-3				✓		1	
27	IMP-3			✓			1	

COMMENTS:

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
James Mathesius			
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

PETRO
CHEM
ENVIRONMENTAL
SERVICES, INC.

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

CHAIN OF CUSTODY RECORD

ROJECT: PACIFIC ENERGY OXNARD ICE #2 JOB NO. 232 SAMPLED BY: JEM

AMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE liq.	filter	gas	NO. CONTRS	ANALYSIS REQUIRED
29	PACIFIC ENERGY METH 0421 P/N-4	7-26-90		✓			1	
31	FILTER-4				✓		1	
30	IMP-4			✓			1	

OMMENTS:

ELINQUISHED BY:	DATE	RECEIVED BY:	DATE
ELINQUISHED BY:	DATE	RECEIVED BY:	DATE
ELINQUISHED BY:	DATE	RECEIVED BY:	DATE
ELINQUISHED BY:	DATE	RECEIVED BY:	DATE

PETRO
CHEM
ENVIRONMENTAL
SERVICES, INC.

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

CHAIN OF CUSTODY RECORD

ROJECT: Pacific Energy Oxnard ICE #2

JOB NO. 232

SAMPLED BY: Jer.

AMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE liq.	filter	gas	NO. CONTRS	ANALYSIS REQUIRED
32	Pacific Energy $Na_2CO_3/NaHCO_3$ Blank Method 421	7-26-90		✓			1	
33	Filter Blank				✓		1	

OMMENTS:

ELINQUISHED BY:	DATE	RECEIVED BY:	DATE
ELINQUISHED BY:	DATE	RECEIVED BY:	DATE
ELINQUISHED BY:	DATE	RECEIVED BY:	DATE
ELINQUISHED BY:	DATE	RECEIVED BY:	DATE

COMPANY: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #:62-232

METHOD 13B
FIELD DATA @ 70'

	RUN #:	1	2	3
	TIME:	1006	1211	1409
Vm (dry gas sampled)		47.57	47.84	48.08
Y (meter calib. factor)		0.991696	0.991696	0.991696
P bar (Barometric pressure)		30.24	30.24	30.24
P static (stack pressure, " H2O)		2	2	2
Delta H (differential meter press, " H2O)		0.98	0.98	1
Tm (meter temperature, R')		561	564	561
Vol H2O mls		150.3	156.8	160.6
Vm(std),dscf		45.15	45.17	45.64
Bws-H2O vapor		0.1362	0.1412	0.1428
MF-moisture factor		0.8638	0.8588	0.8572
% CO2		6.8	6.9	6.9
% O2		8.1	8.3	8.3
% N2		85.1	84.8	84.8
Md-MW stk gas,dry		29.41	29.44	29.44
Ms-MW stk gas,wet		27.86	27.82	27.81
Cp-pitot tube		0.84	0.84	0.84
Avg sq rt ^p		1.865	1.868	1.879
T stack, R'		1394	1398	1386
Stack area,ft2		1.67	1.67	1.67
Vs-fps		171.86	172.51	172.81
Qstd-dscfm		5744	5716	5764
Area noz,ft2		1.97E-04	1.97E-04	1.97E-04
Sample time		64	64	64
% Isokinetic		104.2	104.7	104.9

CLIENT: PACIFIC ENERGY
UNIT: OXNARD LANDFILL ICE #2
DATE: 7-24 thru 7-27-90
REPORT #: 62-232

Summary of Results for Hydrogen Fluoride

Pollutant	Test	Vm std	DSCFM	Total mg	gr/DSCF	lb/hr
Hydrogen fluoride	1	45.15	5744	1.6	5.46E-04	2.69E-02
	2	45.17	5716	1.4	4.77E-04	2.34E-02
	3	45.64	5764	1.4	4.72E-04	2.34E-02
				average	4.98E-04	2.46E-02

* Values Reported are lower detection limit

FLORIDES Method 13B

COMPANY: PACIFIC ENERGY
REPORT #:
UNIT ID: OXNARD LANDFILL - ICE # 2
DATE: 7-23-90

ON-SITE DATA

SITE: OUTLET

RUN #:	#1	#2	#3
TIME:	1006-1126	1211-1322	1409-1519

Vm	Dry sampled gas volume, dcf	47.57	47.84	48.08
Y	Meter calibration factor (met# 1002 → ____)	30.24	30.24	30.24
P bar	Barometric pressure, in Hg	+2.0	+2.0	+2.0
P static	Stack static pressure, in H_2	.98	.98	1.00
Delta H	Differential meter pressure, in H_2O	101	104	101
Tm	Meter temperature, deg F			

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
H_2O	764.7	614.0	150.7	812.3	618.0	194.3	797.0	615.6	181.4
H_2O	629.9	592.6	37.3	617.7	594.2	23.5	615.3	589.6	25.7
KO	502.7	491.0	11.7	467.5	465.1	2.40	496.1	490.0	6.10
Silica	797.7	778.5	19.2	762.6	751.4	11.2	786.9	773.7	16.2
Lin wash			-68.6			-74.6			-68.8
V lc, volume of H_2O, grams			150.3			156.8			160.6

		#1	#2	#3
CO_2	% Dry Volume	6.8	6.9	6.9
O_2	% Dry Volume	8.1	8.3	8.3
N_2	% Dry Volume	85.1	84.8	84.8
Cp	Pitot tube coefficient (Pit# ____ ____ ____)	.84	.84	.84
Delta P	Avg Delta-P, in H_2O	3.48	3.49	3.53
Ts	Stack temperature, in deg F	934	958	926
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	.190	.190	.190
Dur	Sampling time, min	64	64	64
% Iso	Mini Iso			

****

Filter #				
Filter tare weights, grams				
RINSE VOLUME	INIT	565.0	536.4	520.7
	FINAL	225.0	247.6	196.1
	VOL. mL			

INITIALS**

CONTROL BOX#: ____
Hi Δ P ____ Lo Δ P ____ Ave Δ P ____ Duct Temp. ____ 472.6
Diameters before disturb 7 After 3
# of Points, total 10
Overall (inches) 24 Coupling 6.5

BLANK INIT 93.1 FINAL

Run 4 FIELD DATA

Client: PSC Energy Report #:
Location: Oxmoor JCT #2
Operator: JIMMY M
Date: 7-23-90
Run No: 2 (Port 1)
Pump No.: Gast
Meter Box No.: 1002 Factor:
Meter ΔH @: .900
Pitot Tube No.: 30-1

Post Test Leak Chk.
Leak Rate: cfm
Vacuum: (in Hg)

Ambient Temp:
Barometric Pressure: 30.24
Static Pressure, (in Hg): -2.0
Assumed Moisture %: 10.0 MW
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in): .190
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)	ΔH	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 of Gas Leaving Condenser or Last Impinger (°F)
8	12:11	2.5	949	4.0	.794	1.10	963.40	101	102		
7	12:15	2.5	947	3.85	.779	1.06	966.58	102	100		
6	:19	2.5	945	3.80	.775	1.05	969.67	105	98		
5	:23	2.5	929	3.69	.761	1.01	972.78	108	99		
4	:27	2.5	936	3.10	.705	.88	975.83	106	98		
3	:31	2.5	934	3.15	.715	.90	978.63	111	102		
2	:35	2.5	930	3.15	.717	.90	981.49	112	103		
1	:39	2.5	930	3.15	.717	.90	984.36	112	103		
	:43						987.24				
								avg.	avg.		
Total								avg.			
Average											

Run 1 FIELD DATA

Client: Pac Energy Report #:
Location: Oxnard ICF #2
Operator: JDN/JEM
Date: 7-23-90
Run No: 2 (Part 2)
Pump No.: East
Meter Box No.: 1.002 Factor:
Meter ΔH @: 1.900
Pitot Tube No.: 30-1

Post Test Leak Chk.
Leak Rate: .002 cfm
Vacuum: 6.0 (in Hg)

Ambient Temp: 70°F
Barometric Pressure: 30.24
Static Pressure, (in Hg): 2.0
Assumed Moisture %: 10.0 M_{WWT} = 27.4
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in): .190
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 Ideal (in H_2O)	ΔH	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 Las Impinger (°F)
8	12:50	3.5	946	3.80	.776	1.05	987.24	105	100		
7	:54	3.5	946	3.80	.776	1.05	990.31	105	100		
6	:58	3.5	946	3.75	.774	1.04	993.40	109	100		
5	13:02	3.5	943	3.65	.764	1.02	996.52	109	100		
4	:06	3.0	943	3.20	.717	.91	999.53	110	102		
3	:10	3.0	931	3.30	.729	.94	1002.40	107	101		
2	:14	3.0	930	3.35	.734	.95	1005.31	106	101		
1	:18	3.0	930	3.35	.734	.95	1008.25	106	101		
	:22						1011.24				
	$\bar{X}$=		938	3.49			47.84		104		
					$\bar{\Delta H}$ = .98						
					I50 = 100.13						
					vp/fps = 173.64						
Total								avg.	avg.		
Average								avg.			

Run #2 FIELD DATA

Client: [illegible] Report #: _____
Location: Orange CC #2
Operator: JEM/JDN
Date: 7-12-90
Run No: 1 (Point 2)
Pump No.: Cast
Meter Box No.: 1002 Factor: _____
Meter ΔH @: 1.900
Pitot Tube No.: 30-1

Post Test Leak Chk.

Leak Rate: 0.00 cfm
Vacuum: 5.0 (in Hg)

Ambient Temp: 65°F
Barometric Pressure: 30.24
Static Pressure, (in Hg): 2.0
Assumed Moisture %: 10.0 MW_{wet}
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .19
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)	ΔH	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)
8	10:54	2.0	928	4.00	.796	1.11	938.40	100	98		
7	:58	2.0	930	3.85	.781	1.07	941.58	100	98		
6	11:02	2.0	952	3.75	.771	1.04	944.70	108	100		
5	:06	2.0	937	3.65	.763	1.02	947.80	107	98		
4	:10	2.0	934	3.05	.699	.87	950.82	108	98		
3	:14	2.0	930	3.05	.701	.87	953.63	109	98		
2	:18	2.0	928	3.10	.707	.89	956.41	110	98		
1	:22	2.0	928	3.15	.713	.90	959.23	110	98		
	:26						962.07				
X=			934	3.48					101		
					$\overline{\Delta H}$ = 0.98						
					TSD = 100.10						
					Vel fps = 172.92						
Total								avg.	avg.		
Average								avg.			

FLOSIDE 13B FIELD DATA

Client: PACIFICORP Report #:
Location: ICE #2
Operator: JDN JDN
Date: 6-23-95
Run No: 1
Pump No.: EAST
Meter Box No.: 1002 Factor:
Meter ΔH @: .90
Pitot Tube No.: 39-1

PRE ~~Post~~ Test Leak Chk.
Leak Rate: 0.001 cfm
Vacuum: 12 (in Hg)

Ambient Temp:
Barometric Pressure: 30.24
Static Pressure, (in Hg): +2.0
Assumed Moisture %: 10% MW_{wet} = 27.4
Nozzle Ident. No.:
Aver. Calib. Nozzle Diam.(in): .19
Probe Liner Material: QUARTZ
Filter Number:
Duct Diam. (in):

Traverse Point number	Time: (e) min	Vacuum in Hg	Stack Temper. (Ts) °F 932	Velocity Head (ΔPs) (in)H_2O 3.45	Pressure Differencial across Orifice Meter ΔH (in H_2O) Run ΔH		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)
8	10:06	2.0	935	3.75	.766	1.04	914.50	97	97		
7	10:10	2.0	930	3.85	.778	1.07	917.60	97	97		
6	:14	2.0	944	3.70	.762	1.02	920.70	105	93		
5	:18	2.0	932	3.70	.768	1.03	923.73	108	94		
4	:22	2.0	935	3.45	.742	.97	926.78	109	95		
3	:26	2.0	934	3.20	.714	.91	929.75	108	95		
2	:30	2.0	933	3.15	.710	.90	932.61	109	96		
1	:34	2.0	928	3.35	.734	.95	935.45	110	96		
	:38						938.40				
								avg.	avg.		
Total								avg.			
Average											

Fluoride FIELD DATA

Client: Pac. Energy Report #: _____
Location: Oxnard ICE #3
Operator: JDN/JFM
Date: 7-23-90
Run No: 3 (Part 1)
Pump No.: Gast
Meter Box No.: 1002 Factor: _____
Meter ΔH @: 1.900
Pitot Tube No.: 38-1

Post Test Leak Chk.

Leak Rate: _____ cfm
Vacuum: _____ (in Hg)

Ambient Temp: 70°F
Barometric Pressure: 30.24
Static Pressure, (in Hg): 2.0
Assumed Moisture %: 10.0 MW_{wet} = 27.6
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .190
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		Filter Holder Temperature: (°F)	Temperature of Gas Leaving Condenser or Last Impinger (°F)
					ΔH			inlet (°F)	outlet (°F)		
8	14:09	2.5	940	4.1	.801	1.12	12.40	98	97		
7	:13	2.5	940	4.1	.801	1.12	15.61	98	97		
6	:17	2.5	935	3.9	.789	1.08	18.82	107	98		
5	:21	2.5	938	3.7	.767	1.03	21.99	106	97		
4	:25	2.5	935	3.1	.706	.88	25.03	109	99		
3	:29	2.5	888	3.1	.715	.91	27.85	106	98		
2	:33	2.5	872	2.8	.684	.84	30.68	105	99		
1	:37	2.5	872	2.8	.684	.84	33.42	105	99		
	:41						36.20				
Total								avg.	avg.		
Average								avg.			

Duplicate FIELD DATA

Client: Pac. Energy Report #: _____
Location: Oxnard ICE #2
Operator: JDN / JEM
Date: 7-23-90
Run No: 3 (port 2)
Pump No.: Gast
Meter Box No.: 1002 Factor: _____
Meter ΔH @: .900
Pitot Tube No.: 3B-1

Post Test Leak Chk.
Leak Rate: < .001 cfm
Vacuum: 6.0 (in Hg)

Ambient Temp: 70°F
Barometric Pressure: 30.24
Static Pressure, (in Hg): -2.0
Assumed Moisture %: 10.0 MW_{wet} = 27.4
Nozzle Ident. No.: _____
Aver. Calib. Nozzle Diam.(in): .190
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)	ΔH	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)
8	14:47	2.5	942	3.95	.791	1.09	36.20	103	100		
7	:51	2.5	942	3.95	.791	1.09	39.36	103	100		
6	:55	2.5	941	3.90	.786	1.08	42.50	104	98		
5	:59	2.5	942	3.75	.770	1.04	45.64	104	98		
4	15:03	2.5	939	3.20	.715	.91	48.71	107	100		
3	:07	2.5	929	3.40	.737	.96	51.58	105	97		
2	:11	2.5	932	3.45	.743	.97	54.53	105	99		
1	:15	2.5	932	3.45	.743	.97	57.52	105	99		
	:19						60.48				
									101		
	X=		926	3.53							
					ΔH = 1.00						
					ISO = 100.18						
					vel fps = 173.71						
								avg.	avg.		
Total								avg.			
Average											

ZALCO LABORATORIES, INC.
Analytical & Consulting Services

Petro-Chem Environmental Service
3207 Antonino Avenue
Bakersfield, CA 93308

Laboratory No: 24593
Date Received: 8-3-90
Date Reported: 8-9-90

Job #90-232

Attention: Jim Marchesini

Sample: Water/Filter

Sample Description: Pacific Energy - Oxnard Ice #2
24593-1,2 Method 13 B H_2O Run 1 at 1030 Hrs
24593-3,4 Method 13 B H_2O Run 2 at 1230 Hrs
24593-5,6 Method 13 B H_2O Run 3 at 1430 Hrs
24593-7,8 Method 13 B H_2O Blank at 1600 Hrs
24593-9 Method 13 B H_2O Blank
Sampled by Jim Marchesini on 7-23-90

	Fluoride, F mg	Fluoride, F mg/l
24593-1,2	1.6	
24593-3,5	1.4	
24593-5,6	1.4	
24593-7,8	0.28	
24593-9	0.11	0.35

Richard L. Penner
Laboratory Director

RLP/jr

RECEIVED [illegible]

4309 Armour Avenue Bakersfield, California 93308
(805) 395-0539 FAX (805) 395-3069

24593

CHAIN OF CUSTODY RECORD

COPY

PROJECT: Pacific Energy Oxnard ICE #2 JOB NO. 232 SAMPLED BY: JDN

SAMPLE NO.	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE lig.	filter	gas	NO. CONTRS	ANALYSES REQUIRED
1	Meth. 13B H_2O Run 1 1 of 2	7/23	10:30	X			1	Composite & analyses for total fluoride by ISE
2	Meth. 13B H_2O Run 1 2 of 2	"	10:30	X	X		1	
3	Meth. 13B H_2O Run 2 1 of 2	"	12:30	X			1	" "
4	Meth. 13B H_2O Run 2 2 of 2	"	12:30	X	X		1	
5	Meth. 13B H_2O Run 3 1 of 2	"	14:30	X			1	" "
6	Meth. 13B H_2O Run 3 2 of 2	"	14:30	X	X		1	
7	Meth. 13B H_2O Blank 1 of 2	"	16:00	X			1	" "
8	Meth. 13B H_2O Blank 2 of 2	"	16:00	X	X		1	
9	Rental 13B H_2O BLANK			X			1	total fluoride by ISE

COMMENTS: Filters are already impacted w/ H_2O's.

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
Trish Black	8/3/90	KD Dmack	8/3/90
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
RELINQUISHED BY:	DATE	RECEIVED BY:	DATE

RECEIVED AUG 15 1990

PETRO-CHEM ENVIRONMENTAL
DRY GAS METER CALIBRATION

DATE:7-7-90
OPERATOR:DSG
METER ID PUMPMETER

AMBIENT TEMP.	85
BAROMETRIC Pbar	29.94
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	5.004	5.084	5.087
	TOTAL	5.004	5.08	5.09
FIELD GAS METER VOLUME CF	INT.	840.30	845.90	851.60
	FINAL	845.60	851.20	856.90
	TOTAL	5.30	5.30	5.30
STD TEST METER TEMP F'		85	87	87
FIELD GAS METER TEMP F'				
IN		85	87	87
OUT		82	86	86
AVERAGE		83.5	86.5	86.5
STD TEST METER PRES.(in H2O)		0.00	0.00	0.00
FIELD GAS METER PRES.(in H2O)		0	0	0
FIELD GAS METER Mcf		.9707405	.9880779	.9886609

FIELD AVERAGE Mcf: .9824931

PETRO-CHEM ENVIRONMENTAL
DRY GAS METER CALIBRATION

DATE:8-3-90
OPERATOR:DSG
METER ID 1004

AMBIENT TEMP.		90.25			
BAROMETRIC Pbar		29.97			
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	10.46	7.318	13.884	10.067
	TOTAL	10.46	7.32	13.88	10.07
FIELD GAS METER VOLUME CF	INT.	630.80	680.40	643.50	658.90
	FINAL	641.30	687.92	657.90	669.50
	TOTAL	10.50	7.52	14.40	10.60
STD TEST METER TEMP F'		87	92.5	88	90
FIELD GAS METER TEMP F'					
IN		107	111	105	104
OUT		91.5	97	93	94.5
AVERAGE		99.25	104	99	99.25
STD TEST METER PRES.(in H2O)		-1.30	-0.60	-0.30	-0.15
FIELD GAS METER PRES.(in H2O)		1.21	.7	.32	.09
FIELD GAS METER Mcf		1.046965	1.023113	1.013214	.9954061
FIELD AVERAGE Mcf:		1.019675			

PETRO-CHEM ENVIRONMENTAL
DRY GAS METER CALIBRATION

DATE:7-3-90
OPERATOR:BDM
METER ID 1002

AMBIENT TEMP. 84.75
BAROMETRIC Pbar 29.33
TEST METER ID#: S5M104564
TEST METER Mcf: 1.031

			APROXIMATE CFM 1	.75	.5	.3
STD TEST METER	INT.	0.00	0.00	0.00	0.00
VOLUME CF	FINAL	12.566	7.104	10.038	10.012
	TOTAL	12.566	7.10	10.04	10.01
FIELD GAS METER	INT.	577.20	631.20	592.10	606.30
VOLUME CF	FINAL	589.70	638.68	602.77	617.20
	TOTAL	12.50	7.48	10.67	10.90
STD TEST METER TEMP F'		79.5	87.5	82	86
FIELD GAS METER TEMP F'					
IN		87.5	102	89	94
OUT		81	94	84	88
AVERAGE		84.25	98	86.5	91
STD TEST METER PRES.(in H2O)		-1.30	-0.60	-0.30	-0.15
FIELD GAS METER PRES.(in H2O)		2.225	1.18	.49	.19
FIELD GAS METER Mcf		1.039768	.9950091	.9767852	.9552238

FIELD AVERAGE Mcf: .9916965

RUN TIME: 10.0 min
RATE .750 CFM