HORIZON

Air Measurement Services, Inc.

D02-001-FR

AB 2588 TOXIC EMISSIONS TEST RESULTS ON A GAS-FIRED COGENERATION FACILITY

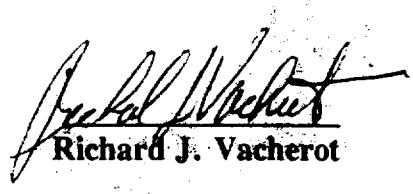
DEXZEL COMBINED CYCLE FACILITY AUTHORITY TO OPERATE PERMIT NO. 488001 (A)

Prepared for:

DIAMOND (DEXZEL) ENERGY, INC.
Attn: Mr. Bruce Wertz
633 West Fifth Street, Suite 2800
Los Angeles, California 90071

Date Submitted:

July 8, 1992



Richard J. Vacherot

HORIZON
Air Measurement Services, Inc.
(805) 498-8781

July 8, 1992

Mr. Bruce Wertz
Diamond (Dexzel) Energy, Inc.
633 West Fifth Street, Suite 2800
Los Angeles, California 90071

Dear Mr. Wertz:

Please find enclosed three copies of the source test report entitled, "AB 2588 Toxic Emissions Test Results on a Gas-Fired Cogeneration Facility" for submittal to Kern County Air Pollution Control District (KCAPCD).

If you have any questions, please call me at (805) 498-8781.

Sincerely,

HORIZON AIR MEASUREMENT SERVICES, INC.

Richard J. Vacherot
President

RV:lmg

Enclosures

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont.)

1. INTRODUCTION

Under the requirements of AB 2588 "Air Toxics 'Hot Spots' Information and Assessment Act of 1987", DEXZEL, INC. is required to conduct an emissions testing program on the combined cycle facility located in Bakersfield, California. The major components of the cogeneration facility include a 29.1 megawatt (MW) natural gas-fired General Electric Model LM-2500 Combustion Gas Turbine Generator (CGTG) with an un-fired Heat Recovery Steam Generator (HRSG).

From May 27 through May 29, 1992, HORIZON AIR MEASUREMENT SERVICES, INC. completed the emissions testing program in accordance with the procedures of the Test Plan which had been approved by Kern County APCD. Mr. Luis Parades observed all testing conducted on May 29, 1992. Testing was conducted at the cogeneration system exhaust stack to quantify concentration and emission rate of the following compounds:

Parameter	Test Method
Flow Rate	CARB Method 1/2 (in conjunction with Method 429)
Moisture	CARB Method 4 (in conjunction with Method 429)
Fixed Gases	CARB Method 3
Acetaldehyde	CARB Method 430
Formaldehyde	CARB Method 430
Acrolein	CARB Method 430
Benzene	CARB Method 410A
Ethyl Benzene	CARB 410A/PID-GC
Propylene	CARB Method 422/FID-GC
Toluene	CARB Method 422/PID-GC
Xylenes	CARB Method 422/PID-GC
Naphthalene	CARB Method 429
Polycyclic Aromatic Hydrocarbons	CARB Method 429
Ammonia	BAAQMD Method ST-1B

Three, replicate test runs were conducted under normal operating conditions for each parameter of interest. In addition to the cogeneration system stack, the headspace of a stock tank and wash tank was quantified for concentration of the following compounds:

Parameter	Test Method
Benzene	CARB Method 410A
Toluene	CARB Method 422/PID-GC
Xylenes	CARB Method 422/PID-GC
Ethyl Benzene	CARB Method 422/PID-GC
Hydrogen Sulfide	EPA Method 11
C_1-C_6 Hydrocarbons	EPA Method 18

Three, replicate test runs were conducted for each parameter of interest at each of one stock/wash tanks. The results of the testing program are summarized in Section 2. Emission source information is provided in Section 3. Section 4 and 5 detail the sampling/analytical and QA/QC procedures, respectively.

Can not field blank corrected

2. SUMMARY OF RESULTS

2.1 Cogeneration Stack

2.1.1 Speciated VOC's (Benzene, Toluene, Xylene, Ethyl Benzene, Propylene

Three, replicate 60-minute test runs were completed for benzene, toluene, xylene, ethyl benzene (BTXE) and propylene emissions determination. All three test runs were conducted during the PAH Run #2. The results of the three test runs are provided in Table 2-1. All xylene and ethyl benzene samples were below the detection limit of 0.2 parts per billion, by volume (ppb, v/v). Benzene concentration and emission rate averaged 0.33 ppb and 0.00051 pounds per hour (lb/hr), respectively. The standard deviation between the three test runs, based on concentration, was 0.07 ppb. Toluene concentrations and emission rates averaged 2.74 ppb and 0.0050 lbs/hour, respectively. The standard deviation of the measured concentrations is 0.82 ppb. Propylene concentration and emission rate averaged 2.92 ppb and 0.0024 lbs/hour, respectively. The standard deviation was 0.04 ppb.

No sampling or analytical problems were encountered during VOC testing. All field blank values were below the detection limit with the exception of toluene, which was measured at 0.28 ppb. Reported concentrations and emission rates are not blank corrected.

2.1.2 Aldehydes (Formaldehyde, Acetaldehyde, Acrolein)

The results of the three, replicate 120-minute test runs for aldehyde are provided in Table 2-2. All reported values are field blank corrected. Formaldehyde concentration and emission rate average 11 ppb and 0.0064 lbs/hr, respectively. Formaldehyde concentration standard deviation is 5.5 ppb. The average sample formaldehyde concentration was only 36 percent greater than those of the average field blank. This is less than the desired 5:1 ratio between sample and field blank concentration. This was due to the fact that the observed formaldehyde concentrations (11 ppb average) were well below the target concentration of 1 ppm used for pre-test protocol calculations. All DNPH solutions were pre-test blank-checked within 48 hours of use and all

TABLE 2-1

Summary of Concentration and Emission Rates
Benzene, Toluene, Xylene, Ethyl Benzene and Propylene
Dexzel Corporation
May 28, 1992

	TEST RUN #			
	1	2	3	
Date	5/28/92	5/28/92	5/28/92	
Time	0900-1000	1005-1105	1108-1208	
STACK GAS CHARACTERISTICS				
Temperature (°F)	197	197	197	
Moisture (%)	8.9	8.9	8.9	
Fixed Gases (%)				
O_2	14.6	14.6	14.6	
CO_2	3.6	3.6	3.6	
N_2	81.8	81.8	81.8	
Flow Rate				
dscfm	124,020	124,020	124,020	
acfm	171,508	171,508	171,508	
EMISSIONS				**FIELD BLANK**
Concentration (ppb)				
Benzene	0.34	0.26	0.40	<0.1
Toluene	3.68	2.17	2.37	0.28
Xylene	<0.2	<0.2	<0.2	<0.2
Propylene	2.83	3.39	2.54	<0.1
Ethyl Benzene	<0.2	<0.2	<0.2	<0.2
Emission Rates (lb/hr)				
Benzene	0.00052	0.00040	0.00061	<0.00015
Toluene	0.0067	0.0039	0.0043	0.00051
Xylene	<0.00041	<0.00041	<0.00041	<0.00021
Propylene	0.0023	0.0028	0.0021	<0.00008
Ethyl Benzene	<0.00041	<0.00041	<0.00041	<0.00021

Note: Values preceded by "<" are below detection limit values.
Note: Values are not blank corrected.

TABLE 2-2
Summary of Concentration and Emission Rates
Aldehydes
Dexzel Corporation
May 27/28, 1992

	TEST RUN #		
	1	2	3
Date	5/27/92	5/28/92	5/28/92
Time	1713-1913	0856-1056	1339-1539
STACK GAS CHARACTERISTICS			
Temperature (°F)	197	197	197
Moisture (%)	7.1	8.8	8.0
Fixed Gases (%)			
O_2	14.6	14.6	14.5
CO_2	3.6	3.6	3.7
N_2	81.8	81.8	81.8
Flow Rate			
dscfm	126,843	124,020	122,956
acfm	171,990	171,508	168,551
EMISSIONS			
Concentration (ug/dscf)			
Formaldehyde	0.59	0.20	0.37
Acetaldehyde	1.2	*	*
Acrolein	0.21	0.25	0.32
Concentration (ppb)			
Formaldehyde	17	6	11
Acetaldehyde	24	*	*
Acrolein	3	4	5
Emission Rates (lb/hr)			
Formaldehyde	0.0099	0.0033	0.0061
Acetaldehyde	0.021	*	*
Acrolein	0.004	0.004	0.005

Note: Values preceded by "<" are below detection limit values.
Note: Values are field blank corrected.

* Field blank value exceeded that of the sample.

samples were extracted within one week of collection. The sample spike was within 93.6 percent of its true value.

Two of the three acetaldehyde runs' (Run 2 and 3) sample concentration was below that of the field blank. Run #1 field-blank corrected values were 24 ppb and 0.021 lbs/hr. The sample spike recovery was 108.1 percent.

Acrolein concentration and emission rate averaged 4 ppb and 0.004 lbs/hr, respectively. The acrolein concentration standard deviation was 1 ppb. The average acrolein sample concentration was 8.5 times the average field blank value. Two of the three field blanks were below the detection limit. The sample spike was 100.5 percent of its true value.

2.1.3 Polycyclic Aromatic Hydrocarbons (PAH's)

The results of the three, replicate 180-minute PAH test runs are provided in Table 2-3. All values preceded by "<" were below the detection; reported values are detection limit values. Reported values are not field blank corrected. Blank train values are provided in parenthesis adjacent to the corresponding sample value. All blank train values were below the detection limit with the exception of naphthalene and phenanthrene. No sampling or analytical problems were encountered during the test program.

2.1.4 Ammonia

The results of the three, replicate 60-minute ammonia test runs are provided in Table 2-4. The average ammonia concentration and emission rate was 0.97 ppm and 0.31 lbs/hr, respectively. The concentration standard deviation is 0.24 ppm. No sampling or analytical problems were encountered during the ammonia testing.

Two Runs
Below
Field Blank

TABLE 2-3
Summary of Emission Rates
Polycyclic Aromatic Hydrocarbons
May 27/28, 1992

	RUN #		
	1	2	3
Date	5/27/92	5/28/92	5/28/92
Time	1353-1800	0831-1154	1253-1610
STACK GAS CHARACTERISTICS			
Temperature (°F)	197	197	197
Moisture (%)	7.2	8.9	8.1
Fixed Gases (%)			
O_2	14.6	14.6	14.5
CO_2	3.6	3.6	3.7
N_2	81.8	81.8	81.8
Flow Rate (dscfm)	126,843	124,020	122,956
(acfm)	171,990	171,508	168,551
PAH SPECIES EMISSIONS (mg/hr)			
Naphthalene	258 (170)	179 (157)	190 (155)
Acenaphthylene	<2.7 (<2.7)	2.6 (<2.5)	<2.0 (<2.5)
Acenaphthene	<4.0 (<2.7)	<2.5 (<2.5)	<2.5 (<2.5)
Fluorene	15 (<2.7)	4.3 (<2.5)	6.5 (<2.5)
Phenanthrene	77 (13)	38 (12)	30 (12)
Anthracene	<4.4 (<3.3)	<3.0 (<3.1)	<2.5 (<3.0)
Fluoranthene	10 (<3.3)	7.0 (<3.1)	3.6 (<3.0)
Pyrene	3.7 (<3.3)	4.2 (<3.1)	2.0 (<3.0)
Benz (a) Anthracene	<4.4 (<4.4)	<3.5 (<4.1)	<4.0 (<4.0)
Benz (b) Fluoranthene	<2.2 (<4.4)	<1.5 (<2.0)	<1.5 (<2.0)
Benzo (k) Fluoranthene	<2.2 (<2.2)	<1.5 (<2.0)	<1.5 (<2.0)
Benzo (a) Pyrene	3.0 (<2.2)	<2.0 (<2.0)	<2.0 (<2.0)
Benzo (g,h,i) Perylene	<2.7 (<2.7)	<2.0 (<2.5)	<2.0 (<2.0)
Chrysene	<4.9 (<4.4)	<4.0 (<4.1)	<4.0 (<4.0)
Dibenz (a,h) Anthracene	<4.4 (<4.4)	<4.0 (<4.1)	<4.0 (<4.0)
Indeno (1,2,3-cd) Pyrene	<4.4 (<4.4)	<4.0 (<4.1)	<4.0 (<4.0)

Note: Values preceded by "<" are below the detection limit values.
Note: Blank train values are provided in parenthesis.

TABLE 2-4
Summary of Emission Rates
Ammonia
Dexzel Cogeneration
May 27/28, 1992

	RUN #		
	1	2	3
Date	05/27/92	05/28/92	05/28/92
Time	1748-1848	1100-1200	1445-1545
STACK GAS CHARACTERISTICS			
Temperature (°F)	197	197	197
Moisture (%)	7.2	8.9	8.1
Fixed Gases (%)			
O_2	14.6	14.6	14.5
CO_2	3.6	3.6	3.7
N_2	81.8	81.8	18.8
Flow Rate (dscfm)	126,843	124,020	122,956
(acfm)	171,990	171,508	168,551
AMMONIA EMISSIONS			
Concentration (mg/dscf)	0.014	0.023	0.020
Concentration (ppm)	0.72	1.2	1.0
Emission Rate (lbs/hr)	0.235	0.383	0.319

2.2 Jerry Lee Wash Tank #T-402

The results, on a weight fraction basis, of the Jerry Lee Wash Tank #T-402 testing are provided in Table 2-5. Benzene, xylenes and toluene were all below the detection limit. Toluene concentration averaged 41.4 ppm, v/v or 0.00027 weight fraction of toluene to weight fraction headspace gas (wt/wt). Hydrogen sulfide (H_2S) concentration averaged 7.6 ppm, v/v or 0.000018 wt/wt. Toluene and H_2S concentration standard deviation was 1.6 ppm and 1.9 ppm, respectively. No sampling or analytical problems were encountered during any phase of the testing.

2.3 Ferne Lease Stock Tank #5395

The results, on a weight fraction basis, of the Ferne Lease Wash Tank #5395 are provided in Table 2-5. Xylene and ethylbenzene were below the detection limit for all test runs. Benzene concentration averaged 0.098 ppm, v/v or 5.4×10^{-7} wt/wt. Toluene concentration averaged 54.0 ppm, v/v or 0.00035 wt/wt. Hydrogen sulfide concentration averaged 1.1 ppm, v/v or 2.7×10^{-6} wt/wt. The standard deviation of benzene, toluene and hydrogen sulfide concentration was 0.007 ppb, 54 ppb and 1.1 ppb, respectively. No sampling or analytical problems were encountered during the Ferne Lease Stack Tank testing.

TABLE 2-5

Summary of Pollutant Weight Fractions - Tank Headspace
Jerry Lee Wash Tank #T-402 and Ferne Lease Stock Tank #5395
Dexzel Cogeneration
May 29, 1992

	WEIGHT FRACTION (wt fraction pollutant/wt fraction headspace gas)		
Run #	1	2	3
JERRY LEE WASH TANK #T-402			
Benzene	$<2.2 \times 10^{-7}$	$<2.2 \times 10^{-7}$	$<2.2 \times 10^{-7}$
Toluene	2.7×10^{-4}	2.8×10^{-4}	2.6×10^{-4}
Xylenes	$<1.3 \times 10^{-6}$	$<1.3 \times 10^{-6}$	$<1.3 \times 10^{-6}$
Ethylbenzene	$<6.0 \times 10^{-7}$	$<6.0 \times 10^{-7}$	$<6.0 \times 10^{-7}$
Hydrogen Sulfide	1.8×10^{-5}	1.4×10^{-5}	2.3×10^{-5}
FERNE LEASE STACK TANK #5395			
Benzene	5.2×10^{-7}	5.2×10^{-7}	5.8×10^{-7}
Toluene	3.6×10^{-4}	3.4×10^{-4}	3.5×10^{-4}
Xylenes	$<1.3 \times 10^{-6}$	$<1.3 \times 10^{-6}$	$<1.3 \times 10^{-6}$
Ethylbenzene	$<6.0 \times 10^{-7}$	$<6.0 \times 10^{-7}$	$<6.0 \times 10^{-7}$
Hydrogen Sulfide	3.6×10^{-6}	2.6×10^{-6}	1.9×10^{-6}

3. EMISSION SOURCE INFORMATION

3.1 Facility Description

The facility consists of a single natural gas fired General Electric Model LM-2500 turbine equipped with a 29.1 MW electrical generator located at Dexzel Combined Cycle Facility, Bakersfield, California. The facility controls nitrogen oxides emissions using a Babcock-Hitachi selective catalytic reduction (SCR) control system equipped with water and ammonia injection. The gas turbine is equipped with a heat recovery steam generator (HRSG). The Dexzel Combined Cycle Facility is owned by Dexzel Incorporated and operated by UC Operating Services (UCOS).

3.2 Emissions Source Description

3.2.1 Cogeneration System Stack

The single exhaust stack (95 inches in diameter) sampling location is approximately three diameters (25 feet) downstream of the HRSG entry into the base of the stack and one half diameter upstream (approximately 4 feet) of the stack exit. Twenty-four traverse points were used for velocity determination and PAH sample collection.

3.2.2 Stock Tanks

The stock tanks (3) act as a collection point for crude oil heated to a minimum of 165°F in preparation for shipment to the refinery. There are two "Ferne Lease Stock Tanks", each equipped with vapor recovery. Each tank is 21 feet in diameter by 16 feet high with a fixed roof and contains heating coils.

The "Jerry Lee Lease Stock Tank" is also 21 feet in diameter and 16 feet high with a fixed roof and heating coils. One of the Ferne lease stock tanks' headspace, Tank #5395, was tested.

3.2.3 Wash Tank

The wash tanks act as a gathering point for oil/water separation prior to being stored and heated for shipment. There are two wash tanks at the facility.

One wash tank is a "Ferne Lease Wash Tank" equipped with vapor recovery. This bolted wash tank is 15 feet in diameter by 24 feet high with a fixed roof and contains no heating coils. The second wash is a "Jerry Lee Wash Tank" with no vapor recovery. The bolted wash tank is 21 feet in diameter by 24 feet high with a fixed roof and no heating coil. The Jerry Lee Wash tank, Tank #T-402, headspace was tested.

3.3 Process Data

3.3.1 Cogeneration System

All replicate test runs were conducted as close to normal, maximum rated load as possible during the test period. All other operating parameters were set at "normal" operating values. Table 3-1 provides the operating parameter values which were monitored by Dexzel, Inc. during each test run.

3.3.2 Stock and Wash Tanks

Each of the stock and wash tanks were tested under normal operating conditions. Stock and wash tank levels were noted on each, respective, field data sheet (Appendix C).

TABLE 3-1

System Operating Parameters
Dexzel Cogeneration System
May 27/28, 1992

	TEST RUN #		
	1	2	3
Time	(1353-1800)	(0831-1154)	(1253-1610)
Output, MW	22.2	22.4	22.2
Fuel Flow, scfh	239,543	241,414	243,521
Ammonia Flow, lb/hr	6.16	6.45	5.56
SCR Inlet Temp, °F	725.6	725.8	725.1
SCR Pressure Drop, in H_2O	0.6287	0.6254	0.6269
Steam Flow lbs/hr	73,276	73,832	73,953
CTG Water Injection, gpm	16.16	16.28	16.18

Note: Test Run #'s correspond to PAH test run numbers. Aldehyde and ammonia test runs were completed within the corresponding numbered PAH test run. All speciated VOC test runs were conducted during PAH Test Run #2.

4. SOURCE TEST PROCEDURES

The compounds and parameters of interest, the associated test methodology, the number of replicate test runs and test run duration is provided in Table 4-1. The specific sampling/analytical procedures to be utilized for each parameter of interest are detailed in subsequent subsections.

4.1 Polycyclic Aromatic Hydrocarbons (PAH) - CARB Method 429

HORIZON used a sampling train that conformed to CARB Method 429 specifications for PAH determination. Stack gases were withdrawn through a glass buttonhook nozzle and a heated glass lined probe followed by a filter assembly containing a pre weighed glass fiber filter. A thermocouple and pitot tube was connected to the probe per CARB Method 429. The cyclone bypass and filter assembly were maintained at approximately 250 degrees Fahrenheit ($\pm$ 25 degrees Fahrenheit).

Following the filter assembly were three foot 5/8" OD Teflon tube, a water cooled condenser and sorbent module (XAD) followed by three glass impingers. The sorbent module contained approximately 150 grams of pre-cleaned, blank checked XAD-2 resin. The condensing coil and sorbent module were mounted vertically and their temperature maintained at 60 degrees Fahrenheit or less. The first impinger was of the modified design with the exception of having the stem cut to six inches. The second and third impingers were of the modified Greenburg Smith design. The first impinger contained 100 ml of distilled deionized water. The second impinger was empty. The last contained a pre-weighed amount of silica gel. An umbilical cord connected the last impinger to the flow control console containing a leakless, lubricated vane pump, dry gas meter, calibrated orifice, and a 0-5 inch magnahelic gauge.

TABLE 4-1
Compounds/Parameters of Interest
Dexzel, Inc.

PARAMETER	NUMBER OF REPLICATE TESTS PER SOURCE	NOMINAL TEST RUN DURATION (minutes)	TEST METHOD
Flow Rate	3	180	CARB Method 1/2 (in conjunction with Method 429)
Fixed Gases (CO_2, O_2, CO, N_2)	3	180	CARB Method 3
Moisture	3	180	CARB Method 4 (in conjunction with Method 429)
Acetaldehyde	3	120	CARB Method 430
Acrolein	3	120	CARB Method 430
Formaldehyde	3	120	CARB Method 430
Benzene	3	60	CARB Method 410
Propylene	3	60	CARB Method 422/FID-GC Analysis
Toluene	3	60	CARB Method 422/PID-GC Analysis
Xylenes	3	60	CARB Method 422/PID-GC Analysis
Ethyl Benzene	3	60	CARB Method 422/PID-GC Analysis
Polycyclic Aromatic Hydrocarbons	3	180	CARB Method 429
Hydrogen Sulfide	3	30 - 60	Modified CARB Method 15
Ammonia	3	60	BAAQMD Method ST-1

A leak check of the pitot tube lines and sampling trains was conducted prior to and after each sampling run and prior to and after either changing any of the constituents of the train or disconnecting the umbilical cord to facilitate transport of the train. Leak checks prior to each sampling run were conducted at 15 inches mercury vacuum to insure a leak rate of no greater than 0.02 cfm. Leak checks at the conclusion of each run were conducted at the highest vacuum reached during that test run.

Upon completion of the sample run, the nozzle, probe, and front half of the filter holder were brushed and rinsed with acetone, hexane, and methylene chloride (sample container #1). The filter was replaced in its original glass petri dish pending analysis. The sorbent module (XAD) was capped off with ground glass fittings, covered with pre-treated aluminum foil and refrigerated pending analysis. The back half of the filter housing, Teflon jumper and the water condenser were subsequently rinsed with acetone, hexane, and methylene chloride into sample container #2. The volume of water collected in the first three impingers were determined volumetrically. The moisture collected in the silica gel in the last impinger was determined gravimetrically with a calibrated balance accurate to 0.1 grams. These two measurements were used to calculate stack gas moisture content as per CARB Method 429. After the impinger #1 contents were collected in Container #3, the impinger was rinsed with acetone, hexane and methylene chloride and added to container #3. After impingers 2 and 3 contents were placed in container #4, the impingers and all connecting glassware was rinsed with distilled, deionized water into container #4.

All sample bottles and filter containers were sealed with Teflon tape and all liquid levels are marked. All sample bottles were amber glass jars with Teflon-lined caps. All samples were kept on ice pending analyses. A blank train was assembled on-site, leak-checked, recovered and analyzed in the exact manner as the samples. Field blanks of all sorbent filters and solutions were obtained and analyzed in the same manner as the samples.

All samples were extracted per CARB Method 429 by Zenon Laboratories. The sample portion extracts were combined, as allowed by CARB, for each sample and analyzed using selective ion low resolution mass spectrometry. All reported emission results are accompanied by the blank train values. Any elevated field blank values are identified and discussed.

4.2 Aldehydes (Formaldehyde, Acrolein, Acetaldehyde) - CARB Method 430

Aldehydes (formaldehyde, acrolein, acetaldehyde) emissions were determined in accordance with CARB Method 430 "Determination of Formaldehyde Emissions from Stationary Sources". In this method stack gas is withdrawn form the stack through a series of midget impingers containing a aqueous acidic solution of 2,4-dinitrophenyl-hydrazine (DNPH) solution (used within 48 hours of preparation). Aldehydes react with DNPH by nucleophilic addition on the carbonyl followed by 1,2 elimination of water and the formulation of 2,4 dinitrophenyl hydrazone.

HORIZON used a sampling train which conforms to CARB Method 430 specifications. Stack gases were withdrawn from a single traverse point through a heated Teflon probe followed by a Teflon sample line. Following the probe were three glass midget impingers. The first two impingers contained 10 ml of 0.05% DNPH/2N HCL reagent; the third impinger contained a weighed amount of silica gel.

An umbilical cord was connected between the last impinger and the flow control system. The control system consisted of a calibrated rotometer equipped with a needle valve, an accumulator and a vacuum pump. Prior to and at the conclusion of each test run, the probe inlet flow was measured using a SKC bubble meter to confirm the rotometer setting flow rate, during the test run. The sample flow was maintained at 250 cubic centimeters (cc) per minute throughout the test run as indicated on the rotometer. Rotometer sampling rate was recorded at 10-minute intervals over each 120-minute test run. The impingers were kept on ice during sampling to maintain a sample temperature of less than 60°F at the last impinger.

A leak check of the sampling train was conducted prior to and at the conclusion of each test run by plugging the probe tip and turning on the sampling pump. If the rotometer indicates no flow, the sample system was deemed leak-free. Upon completion of the test run the sample line was rinsed with 2 ml of impinger solution into the first impinger. The sample line was then rinsed with 1 ml of reagent water into the first impinger. The impinger contents were then combined into a leaktight septum vial which was weighed and refrigerated pending analysis.

Prior to field sampling, four reagent blanks of the impinger solution were analyzed to verify anticipated reagent blank levels (reagent blank levels were expected to be 0.8 μg formaldehyde per 10 ml of solution). In addition, three field blanks were carried through all the required steps for sample preparation and analysis. A field blank consists of an impinger and sample line which is similar to a sampling impinger. One matrix spike was also conducted as specified in Method 430. All reported emission values were field blank-corrected.

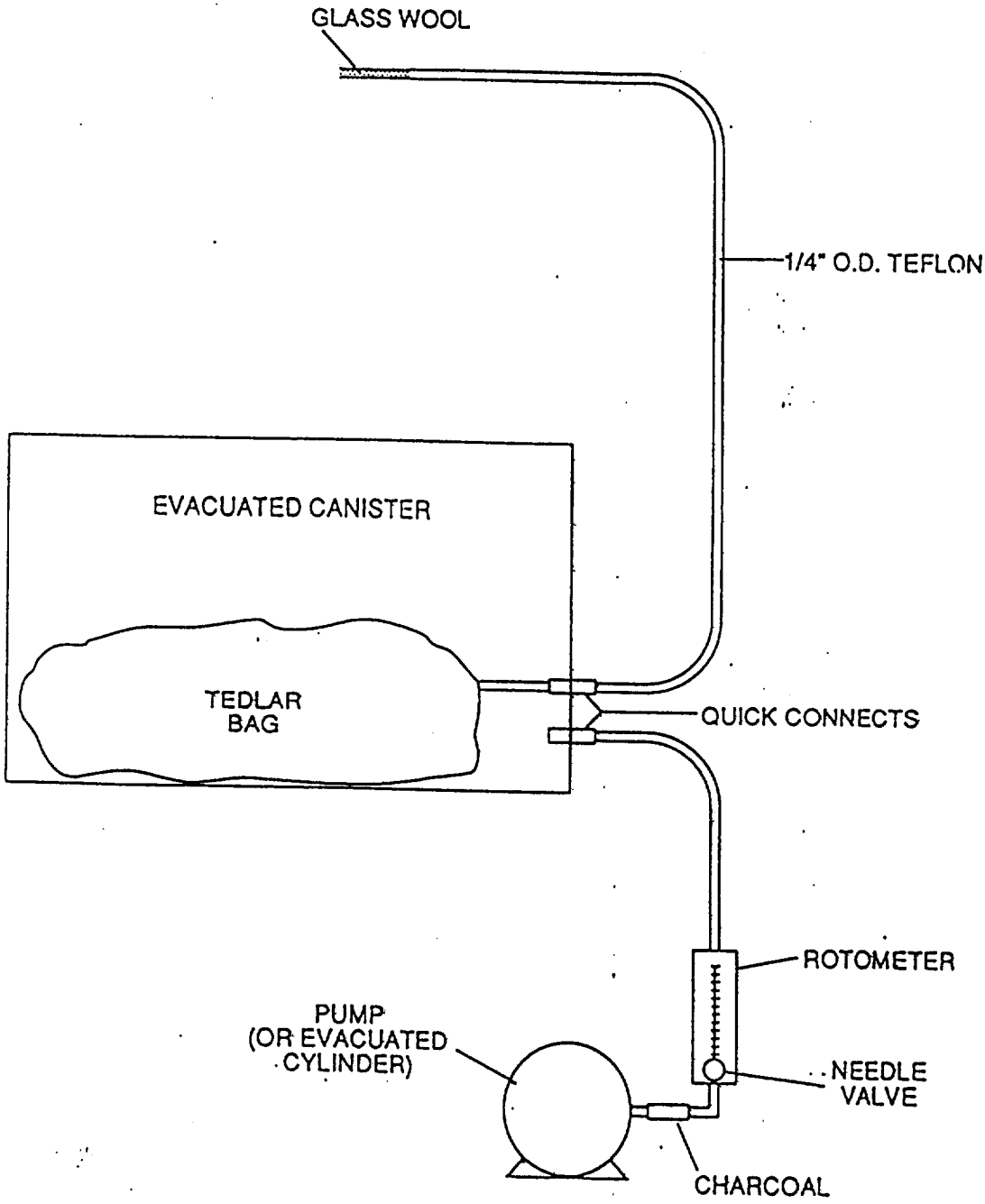
4.3 Benzene - CARB Method 410A

Benzene emissions were determined in accordance with CARB Method 410A entitled "Determination of Benzene from Stationary Sources". A stack gas sample was collected using the Tedlar bag - evacuated canister system as depicted in Figure 4-1.

The evacuated canister ("lung") sampling system is capable of collecting an integrated, representative sample while ensuring sample integrity. The system consisted of a 1/4" O.D. Teflon probe/sample line, containing glass wool to remove particulate, a 10-liter leak-free, non-reactive Tedlar bag contained in a leak-free evacuation drum. All system components coming in contact with sample were constructed of Teflon, glass or stainless steel. The sample was collected by evacuating the canister at a constant rate over the sampling period using a rotometer/needle valve and a vacuum pump.

Prior to each sampling run, the evacuated canister which contains the Tedlar bag was leak checked at 2" Hg vacuum. The sample train upstream of the Tedlar bag was then purged with stack gas. At the conclusion of each test run, each Tedlar bag sample was sealed and stored in an opaque container pending analyses.

All samples were analyzed within 48 hours using gas chromatography in accordance with CARB Method 410 using a gas chromatograph equipped with a photoionization detector. A field blank sample was also collected and analyzed for benzene, propylene, toluene and xylenes.



TEDLAR BAG - EVACUATED CANISTER SAMPLING SYSTEM

FIGURE 4-1

4.4 Propylene

Propylene concentration was determined from the Tedlar bag samples collected for benzene as described in Section 4.3. The sample was analyzed within 48 hours using a gas chromatograph equipped with a flame ionization detector.

4.5 Toluene, Xylenes and Ethyl Benzene

Toluene and xylene samples were collected in accordance with CARB Method 410/422. The Tedlar bag samples collected for benzene/propylene were also analyzed for toluene and xylenes using appropriate photoionization detection/gas chromatographic techniques.

4.6 Fixed Gases (O_2, CO_2, N_2)

Fixed gas determination were conducted in accordance with CARB Method 3. A Tedlar bag sample was collected using the evacuated canister collection system as described in Section 4.3. Subsequent samples were analyzed on-site using an Orsat analyzer for O_2, CO_2 and N_2 concentration.

4.7 Ammonia - BAAQMD Method ST-1B

HORIZON used a sampling train that conformed to BAAQMD Method ST-1B specifications for ammonia determination (Figure 4-2). Stack gases were withdrawn through a stainless steel straight nozzle and a heated glass lined probe followed by a three foot 5/8" O.D. Teflon tube.

Following the Teflon tube was four glass impingers. The first and second impingers were of the modified Greenburg Smith design, containing 100 mls of 0.1 N HCl. The third impinger was empty. The last contained a pre-weighed amount of silica gel. An umbilical cord connected the last impinger to the flow control console containing a leakless, lubricated vane pump, dry gas meter, calibrated orifice, and a dual 0-5 inch H_2O magnahelic gauge.

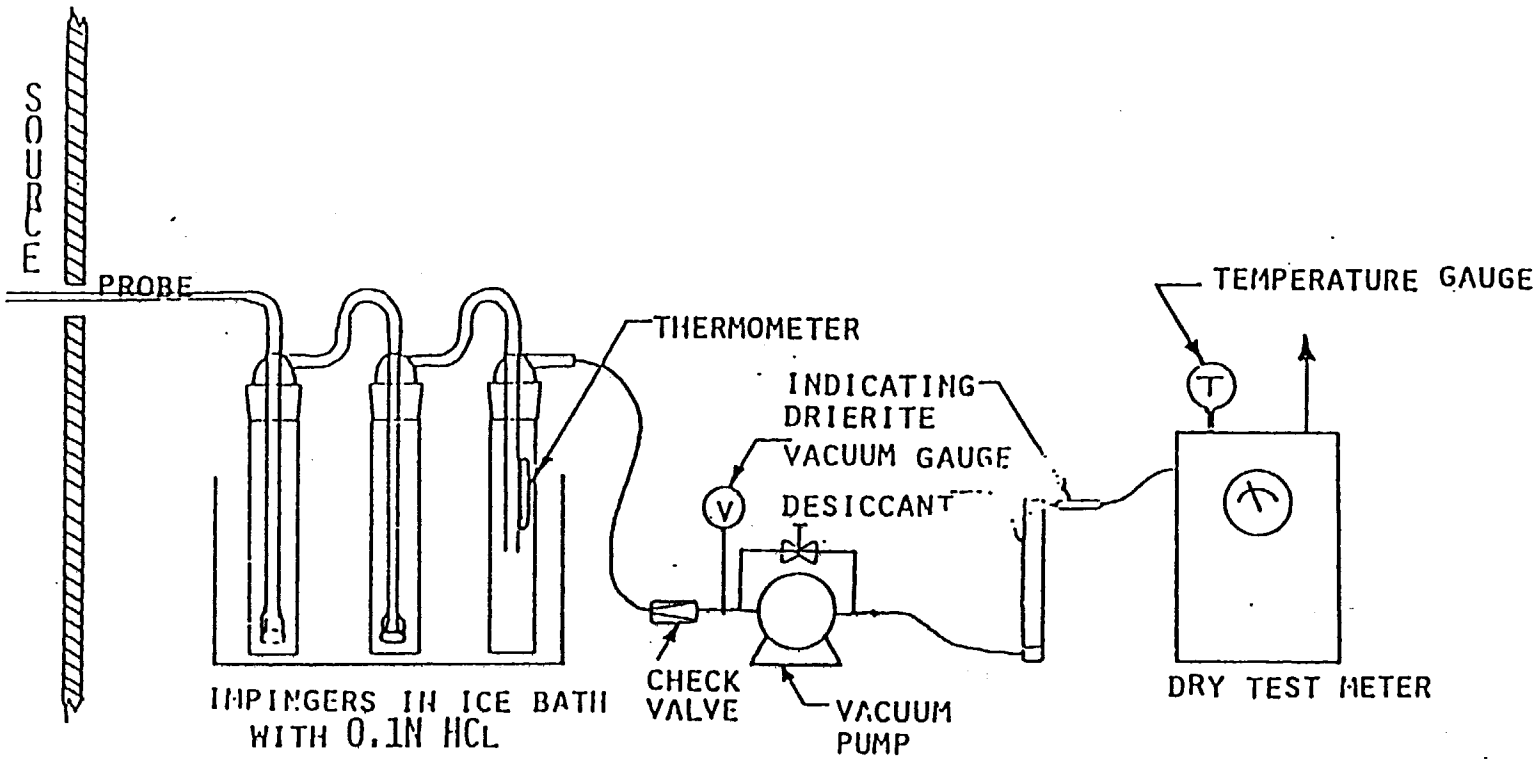


Figure 4-2
AMMONIA SAMPLING TRAIN

A leak check of the pitot tube lines and sampling trains was conducted prior to and after each sampling run and prior to and after either changing any of the constituents of the train or disconnecting the umbilical cord to facilitate transport of the train.

Leak checks prior to each sampling run were conducted at 15 inches mercury vacuum to insure a leak rate of no greater that 0.02 cfm. Leak checks at the conclusion of each run were conducted at the highest vacuum reached during the test run.

Upon completion of the sample run the nozzle was removed. The nozzle and probe were brushed and rinsed with deionized water. The volume of water collected in the first two impingers were determined volumetrically. The moisture collected in the silica gel in the last impinger was determined gravimetrically with a calibrated balance. These two measurements were used to calculate stack gas moisture as per BAAQMD Method ST-1B. The impinger contents were then collected and all connecting glassware and impingers were rinsed with deionized water and placed in the same container.

All sample bottles were sealed with Teflon tape and all liquid levels were marked. All samples were refrigerated pending analyses. The ammonia concentration was determined using BAAQMD Method ST-1 by West Coast Analytical. Field blanks of all solutions were obtained and analyzed in the same manner as the samples.

4.8 Hydrogen Sulfide

Hydrogen sulfide (H_2S) emissions were determined using US EPA Method 11 "Determination of Hydrogen Sulfide Content of Fuel Gas Streams in Petroleum Refineries". In this method, H_2S is collected from the tank headspace in a series of midget impingers and absorbed in pH 3.0 cadmium sulfate ($CdSO_4$) to form cadmium sulfide (CdS). The latter compound is then measured idiometrically.

The sampling apparatus consisted of a 1/4" OD Teflon probe, a sampling valve, a series of six midget impingers, a calibrated dry gas meter, a vane pump and a calibrated orifice.

The first impinger contained 15 ml of three percent hydrogen peroxide solution; the second impinger was empty; the third, fourth and fifth impinger each contained 15 ml of cadmium sulfate solution. Glass/quartz wool was placed in the second impinger to remove particulate and H_2O_2

mist, respectively. The sixth impinger contained silica gel. A leak check was conducted prior to and at the conclusion of each test run.

The sampling/probe line was purged with tank headspace gas prior to each test run. Sample was collected for 30-minutes at a nominal rate of one liter per minute (lpm) over each test run. At the conclusion of the test run the impinger train was purged with scrubbed ambient air at one lpm for fifteen to twenty minutes. The contents of the third, fourth and fifth impingers was released into a 500 ml iodine flask. Samples were analyzed per Method 11, on site, approximately 30 minutes after collection.

4.9 Speciated Hydrocarbons (C_1-C_7)

Speciated hydrocarbon samples were collected from the tank headspace in accordance with EPA Method 18, using the evacuated canister - Tedlar bag procedure detailed in Section 4.3. Subsequent samples were analyzed for C_1-C_7 hydrocarbon species using GC-FID techniques.

APPENDIX A

Computer Printout of Results

EXZEL COGENERATION
ILDALE, CA

PAH'S

		RUN	RUN	RUN	RUN	RUN
RUN NUMBER	******	1	2	3	1A	1A
DATE OF RUN	******	5-27-92	5-28-92	5-28-92	5-27-92	5-27-92
CLOCK TIME: INITIAL	******	1353	831	1253		
CLOCK TIME: FINAL	******	1800	1154	1610		
AVG. STACK TEMPERATURE	DEGREES F	196.5	197	197.4	198	195
AVG. SQUARE DELTA P	INCHES H20	0.9247	0.9183	0.9042	0.9032	0.9463
NOZZLE DIAMETER	INCHES	na	0.236	0.236	0.214	0.237
BAROMETRIC PRESSURE	IN. HG.	30.05	30.02	30.05	30.05	30.05
SAMPLING TIME	MIN.	180	180	180	90	90
SAMPLE VOLUME	CUBIC FEET	145.546	156.434	154.338	63.891	81.655
AVG. METER TEMP.	DEGREES F	92	90	90	91	93
AVG. DELTA H	IN. H20	2.05	2.43	2.32	1.53	2.57
DGM CALIB. FACTOR [Y]	******	1.0016	1.0016	1.0016	1.0016	1.0016
WATER COLLECTED	MILLITERS	229	309	276	101	128
CO 2	PERCENT	3.6	3.6	3.7	3.6	3.6
2	PERCENT	14.6	14.6	14.5	15.6	15.6
CO	PERCENT	0.0	0.0	0.0	0.0	0.0
N 2	PERCENT	81.8	81.8	81.8	80.8	80.8
STACK AREA	SQUARE INCHES	7088	7088	7088	7088	7088
STATIC PRESSURE	INCHES WG.	-0.30	-0.30	-0.32	-0.30	-0.30
PITOT COEFFICIENT	******	0.84	0.84	0.84	0.84	0.84
SAMPLE VOLUME DRY	DSCF	138.64	149.60	147.65	60.88	77.72
WATER AT STD.	SCF	10.8	14.6	13.0	4.7	6.0
MOISTURE	PERCENT	7.2	8.9	8.1	7.2	7.2
MOLE FRACTION DRY GAS	******	0.93	0.91	0.92	0.93	0.93
MOLECULAR WT.DRY	LB/LB MOLE	29.16	29.16	29.17	29.20	29.20
EXCESS AIR	PERCENT	209	209	204	272	272
MOLECULAR WT. WET	LB/LB MOLE	28.35	28.17	28.27	28.39	28.39
STACK GAS PRESSURE	INCHES HG.	30.03	30.00	30.03	30.03	30.03
STACK VELOCITY	AFPM	3494	3484	3424	3415	3569
VOLUMETRIC FLOWRATE, DRY STD.	DSCFM	126843	124020	122956	123676	129892
VOLUMETRIC FLOWRATE, ACTUAL	ACFM	171990	171508	168551	168072	175685
ISOKINETIC RATIO	PERCENT	ERR	107	106	106	105

DEXZEL

CALCULATIONS FOR GRAIN LOADING AND EMISSION RATES

		RUN	RUN	RUN
		1	2	3
RUN NUMBER	******	5-27-92	5-28-92	5-28-92
DATE OF RUN	******	1353	831	1253
CLOCK TIME: INITIAL	******	1800	1154	1610
CLOCK TIME: FINAL	******			

PAH EMISSION RATES

		WEIGHT (ug)	CONC. (mg/dscf)	EMISSION RATE (mg/hr)	WEIGHT (ug)	CONC. (mg/dscf)	EMISSION RATE (mg/hr)	WEIGHT (ug)	CONC. (mg/dscf)	EMISSION RATE (mg/hr)
NAPHTHALENE		4.700	3.39E-05	258.002	3.600	2.41E-05	179.067	3.800	2.57E-05	189.870
ACENAPHTHYLENE	*	0.050	3.61E-07	2.745	0.052	3.48E-07	2.587 *	0.040	2.71E-07	1.999
ACENAPHTHENE	*	0.072	5.19E-07	3.952 *	0.050	3.34E-07	2.487 *	0.050	3.39E-07	2.498
FLUORENE		0.270	1.95E-06	14.821	0.086	5.75E-07	4.278	0.130	8.80E-07	6.496
PHENANTHRENE		1.400	1.01E-05	76.852	0.760	5.08E-06	37.803	0.600	4.06E-06	29.980
ANTHRACENE	*	0.080	5.77E-07	4.392 *	0.060	4.01E-07	2.984 *	0.050	3.39E-07	2.498
FLUORANTHENE		0.190	1.37E-06	10.430	0.140	9.36E-07	6.964	0.071	4.81E-07	3.548
PYRENE		0.068	4.90E-07	3.733	0.084	5.62E-07	4.178	0.041	2.78E-07	2.049
BENZ(A)ANTHRACENE	*	0.080	5.77E-07	4.392 *	0.070	4.68E-07	3.482 *	0.080	5.42E-07	3.997
CHRYSENE	*	0.090	6.49E-07	4.940 *	0.080	5.35E-07	3.979 *	0.080	5.42E-07	3.997
BENZO(b)FLUORANTHENE	*	0.040	2.89E-07	2.196 *	0.030	2.01E-07	1.492 *	0.030	2.03E-07	1.499
BENZO(K)FLUORANTHENE	*	0.040	2.89E-07	2.196 *	0.030	2.01E-07	1.492 *	0.030	2.03E-07	1.499
BENZO(A)PYRENE		0.055	3.97E-07	3.019 *	0.040	2.67E-07	1.990 *	0.040	2.71E-07	1.999
BENZO(G,H,I)PERYLENE	*	0.050	3.61E-07	2.745 *	0.040	2.67E-07	1.990 *	0.040	2.71E-07	1.999
DIBENZ(A,H)ANTHRACENE	*	0.080	5.77E-07	4.392 *	0.080	5.35E-07	3.979 *	0.080	5.42E-07	3.997
INDENO[1,2,3-cd]PYRENE	*	0.080	5.77E-07	4.392 *	0.080	5.35E-07	3.979 *	0.080	5.42E-07	3.997

* - sample was below the reportable limit.

DEXZEL

CALCULATIONS FOR GRAIN LOADING AND EMISSION RATES

BLANK TRAINS

		RUN	RUN	RUN
RUN NUMBER	******	1	2	3
DATE OF RUN	******	5-27-92	5-28-92	5-28-92
CLOCK TIME: INITIAL	******	1353	831	1253
CLOCK TIME: FINAL	******	1800	1154	1610

PAH EMISSION RATES

		WEIGHT (ug)	CONC. (mg/dscf)	EMISSION RATE (mg/hr)	WEIGHT (ug)	CONC. (mg/dscf)	EMISSION RATE (mg/hr)	WEIGHT (ug)	CONC. (mg/dscf)	EMISSION RATE (mg/hr)
NAPHTHALENE		3.100	2.24E-05	170.172	3.100	2.07E-05	157.706	3.100	2.10E-05	154.894
ACENAPHTHYLENE	*	0.050	3.61E-07	2.745 *	0.050	3.34E-07	2.544 *	0.050	3.39E-07	2.498
ACENAPHTHENE	*	0.050	3.61E-07	2.745 *	0.050	3.34E-07	2.544 *	0.050	3.39E-07	2.498
FLUORENE	*	0.050	3.61E-07	2.745 *	0.050	3.34E-07	2.544 *	0.050	3.39E-07	2.498
PHENANTHRENE		0.230	1.66E-06	12.626	0.230	1.54E-06	11.701	0.230	1.56E-06	11.492
ANTHRACENE	*	0.060	4.33E-07	3.294 *	0.060	4.01E-07	3.052 *	0.060	4.06E-07	2.998
FLUORANTHENE	*	0.060	4.33E-07	3.294 *	0.060	4.01E-07	3.052 *	0.060	4.06E-07	2.998
PYRENE	*	0.060	4.33E-07	3.294 *	0.060	4.01E-07	3.052 *	0.060	4.06E-07	2.998
BENZ(A)ANTHRACENE	*	0.080	5.77E-07	4.392 *	0.080	5.35E-07	4.070 *	0.080	5.42E-07	3.997
CHRYSENE	*	0.080	5.77E-07	4.392 *	0.080	5.35E-07	4.070 *	0.080	5.42E-07	3.997
BENZO(b)FLUORANTHENE	*	0.040	2.89E-07	2.196 *	0.040	2.67E-07	2.035 *	0.040	2.71E-07	1.999
BENZO(K)FLUORANTHENE	*	0.040	2.89E-07	2.196 *	0.040	2.67E-07	2.035 *	0.040	2.71E-07	1.999
BENZO(A)PYRENE	*	0.040	2.89E-07	2.196 *	0.040	2.67E-07	2.035 *	0.040	2.71E-07	1.999
BENZO(G,H,I)PERYLENE	*	0.050	3.61E-07	2.745 *	0.050	3.34E-07	2.544 *	0.050	3.39E-07	2.498
DIBENZ(A,H)ANTHRACENE	*	0.080	5.77E-07	4.392 *	0.080	5.35E-07	4.070 *	0.080	5.42E-07	3.997
INDENO[1,2,3-cd]PYRENE	*	0.080	5.77E-07	4.392 *	0.080	5.35E-07	4.070 *	0.080	5.42E-07	3.997

* - sample was below the reportable limit.

EXZEL

ogeneration Facility
LANT: DEXZEL, INC.
LOCATION: OILDALE, CA

ALDEHYDES

		RUN	RUN	RUN
RUN NUMBER	******	1	2	3
DATE OF RUN	******	5-27-92	5-28-92	5-28-92
LOCK TIME: INITIAL	******	1713	856	1339
CLOCK TIME: FINAL	******	1913	1056	1539
VG. STACK TEMPERATURE	DEGREES F	197	197	197
VG. SQUARE DELTA P	INCHES H20	0.9247	0.9183	0.9042
NOZZLE DIAMETER	INCHES	NA	NA	NA
AROMETRIC PRESSURE	IN. HG.	30.07	30.02	30.05
AMPLING TIME	MIN.	120	120	120
SAMPLE VOLUME	CUBIC FEET	1.085	1.064	1.095
AVG. METER TEMP.	DEGREES F	87	76	87
VG. DELTA H	IN. H20	NA	NA	NA
GM CALIB. FACTOR [Y]	******	1.0000	1.0000	1.0000
WATER COLLECTED	MILLITERS	NA	NA	NA
O 2	PERCENT	3.6	3.6	3.7
2	PERCENT	14.6	14.6	14.5
CO	PERCENT	0.0	0.0	0.0
N 2	PERCENT	81.8	81.8	81.8
CK AREA	SQUARE INCHES	7088.0	7088.0	7088.0
ATIC PRESSURE	INCHES WG.	-0.30	-0.30	-0.32
PITOT COEFFICIENT	******	0.84	0.84	0.84
AMPLE VOLUME DRY	DSCF	1.04	1.04	1.05
ATER AT STD.	SCF	0.0	0.0	0.0
MOISTURE	PERCENT	7.2	8.9	8.1
OLE FRACTION DRY GAS	******	0.93	0.91	0.92
OLECULAR WT.DRY	LB/LB MOLE	29.16	29.16	29.17
EXCESS AIR	PERCENT	209	209	204
MOLECULAR WT. WET	LB/LB MOLE	28.36	28.17	28.27
TACK GAS PRESSURE	INCHES HG.	30.05	30.00	30.03
TACK VELOCITY	AFPM	3493	3484	3424
VOLUMETRIC FLOWRATE, DRY STD.	DSCFM	126843	124020	122956
OLUMETRIC FLOWRATE, ACTUAL	ACFM	171990	171508	168551

RAIN LOADING AND EMISSON RATES

FORMALDAHYDE BLANK TRAIN	ug/sample	1.11	1.11	1.11
OTAL FORMALDAHYDE WEIGHT	ug/sample	1.72	1.32	1.50
FORMALDAHYDE CONCENTRATION	ug/dscf	0.58862	0.20284	0.37293
FORMALDAHYDE CONCENTRATION	ppb	17	6	11
ORMALDAHYDE EMISSION RATE	mg/hr	4479.7	1509.4	2751.3
ORMALDAHYDE EMISSION RATE	lb/hr	0.0099	0.0033	0.0061
ACETALDAHYDE BLANK	ug/sample	0.30	0.30	0.30
TOTAL ACETALDAHYDE WEIGHT	ug/sample	1.59	0.11	0.23
CETALDAHYDE CONCENTRATION	ug/dscf	1.24478	-0.18352	-0.06694
CETALDAHYDE CONCENTRATION	ppb	24	-4	-1
ACETALDAHYDE EMISSION RATE	mg/hr	9473.5	-1365.6	-493.8
CETALDAHYDE EMISSION RATE	lb/hr	0.0209	-0.0030	-0.0011
CROLEIN BLANK	ug/sample	0.07	0.07	0.07
OTAL ACROLEIN WEIGHT	ug/sample	0.29	0.33	0.40
ACROLEIN CONCENTRATION	ug/dscf	0.21229	0.25114	0.31556
ACROLEIN CONCENTRATION	ppb	3	4	5
ROLEIN EMISSION RATE	mg/hr	1615.6	1868.7	2328.0
ROLEIN EMISSION RATE	lb/hr	0.004	0.004	0.005

EMISSION RATES - SPECIATED VOLATILE ORGANIC COMPOUNDS
PLANT: DEXZEL, INC.
LOCATION: OILDALE, CA

SAMPLE LOCATION: COGENERATION STACK
CONTAMINANT: BENZENE 78.0

RUN #		1	2	3	Field Blank
DATE		5-28-92	5-28-92	5-28-92	5-28-92
SAMPLE VOLUME	standard liters				
CONCENTRATION	ug/liter	0.0011	0.0009	0.0013	0.0003
CONCENTRATION	ppm,v/v	0.00034	0.00026	0.00040	0.00010
FLOWRATE	scfm	124020	124020	124020	124020
EMISSION RATE	grams/second	0.000066	0.000050	0.000077	0.000019
EMISSION RATE	lbs/hour	0.00052	0.00040	0.00061	0.00015

SAMPLE LOCATION: COGENERATION STACK
CONTAMINANT:PROPYLENE 42.0

RUN #		1	2	3	Field Blank
DATE		5-28-92	5-28-92	5-28-92	5-28-92
SAMPLE VOLUME	standard liters				
CONCENTRATION	ug/liter	0.0050	0.0060	0.0045	0.0002
CONCENTRATION	ppm,v/v	0.0028	0.0034	0.0025	0.0001
FLOWRATE	scfm	124020	124020	124020	124020
EMISSION RATE	grams/second	0.000294	0.000352	0.000264	0.000010
EMISSION RATE	lbs/hour	0.00233	0.00279	0.00209	0.00008

SAMPLE LOCATION: COGENERATION STACK
CONTAMINANT:TOLUENE 92.0

RUN #		1	2	3	Field Blank
DATE		5-28-92	5-28-92	5-28-92	5-28-92
SAMPLE VOLUME	standard liters				
CONCENTRATION	ug/liter	0.0143	0.0084	0.0092	0.0011
CONCENTRATION	ppm,v/v	0.00368	0.00217	0.00237	0.00028
FLOWRATE	scfm	124020	124020	124020	124020
EMISSION RATE	grams/second	0.000836	0.000493	0.000539	0.000064
EMISSION RATE	lbs/hour	0.00662	0.00391	0.00427	0.00050

SAMPLE LOCATION: COGENERATION STACK
CONTAMINANT:XYLENES 106.0

RUN #		1	2	3	Field Blank
DATE		5-28-92	5-28-92	5-28-92	5-28-92
SAMPLE VOLUME	standard liters				
CONCENTRATION	ug/liter	< 0.0009	< 0.0009	< 0.0009	< 0.0004
CONCENTRATION	ppm,v/v	< 0.00020	< 0.00020	< 0.00020	< 0.00010
FLOWRATE	scfm	124020	< 124020	< 124020	< 124020
EMISSION RATE	grams/second	< 0.000052	< 0.000052	< 0.000052	< 0.000026
EMISSION RATE	lbs/hour	< 0.00041	< 0.00041	< 0.00041	< 0.00021

SAMPLE LOCATION: COGENERATION STACK
CONTAMINANT:ETHYLBENZ 106.0

RUN #		1	2	3	Field Blank
DATE		5-28-92	5-28-92	5-28-92	5-28-92
SAMPLE VOLUME	standard liters				
CONCENTRATION	ug/liter	< 0.0009	< 0.0009	< 0.0009	< 0.0004
CONCENTRATION	ppm,v/v	< 0.00020	< 0.00020	< 0.00020	< 0.00010
FLOWRATE	scfm	124020	124020	124020	124020
EMISSION RATE	grams/second	< 0.000052	< 0.000052	< 0.000052	< 0.000026
EMISSION RATE	lbs/hour	< 0.00041	< 0.00041	< 0.00041	< 0.00021

DEXZEL

MMONIA SLIP TESTING
PLANT: DEXZEL COGENERATION PLANT
LOCATION: OILDALE, CA

		Run 1	Run 2	Run 3
JN NUMBER	******	Ammonia	Ammonia	Ammonia
DATE OF RUN	******	5-27-92	5-28-92	5-28-92
CLOCK TIME: INITIAL	******	1748	1100	1445
LOCK TIME: FINAL	******	1848	1200	1545
AVG. STACK TEMPERATURE	DEGREES F	NA	NA	NA
VG. SQUARE DELTA P	INCHES H20	NA	NA	NA
OZZLE DIAMETER	INCHES	NA	NA	NA
BAROMETRIC PRESSURE	IN. HG.	30.07	30.05	30.05
SAMPLING TIME	MIN.	60	60	60
AMPLE VOLUME	CUBIC FEET	45.982	45.283	47.116
VG. METER TEMP.	DEGREES F	NA	NA	NA
AVG. DELTA H	IN. H20	1.70	1.70	1.70
M CALIB. FACTOR [Y]	******	0.9788	0.9788	0.9788
ATER COLLECTED	MILLITERS	34	89	96
CO 2	PERCENT	3.6	3.6	3.7
O 2	PERCENT	14.6	14.6	14.5
	PERCENT	0.0	0.0	0.0
N	PERCENT	81.8	81.8	81.8
STACK AREA	SQUARE INCHES	7088	7088	7088
ATIC PRESSURE	INCHES WG.	-0.30	-0.30	-0.30
TOT COEFFICIENT	******	0.84	0.84	0.84
SAMPLE VOLUME DRY	DSCF	51.345	50.531	52.577
ATER AT STD.	SCF	1.6	4.2	4.5
OISTURE	PERCENT	3.0	7.7	7.9
MOLE FRACTION DRY GAS	******	0.97	0.92	0.92
MOLECULAR WT.DRY	LB/LB MOLE	29.16	29.16	29.17
CESS AIR	PERCENT	208.71	208.71	204.36
OLECULAR WT. WET	LB/LB MOLE	28.83	28.30	28.28
STACK GAS PRESSURE	INCHES HG.	30.05	30.03	30.03
ACK VELOCITY	AFPM	3493	3484	3424
OLUMETRIC FLOWRATE, DRY STD.	DSCFM	126843	124020	122956
VOLUMETRIC FLOWRATE, ACTUAL	ACFM	171990	171508	168551

EMISSION RATES

monia				
ncentration	mg/sample	0.72	1.18	1.03
Concentration	ppm	0.72	1.21	1.01
ncentration	mg/dscf	0.0140	0.0234	0.0196
ission Rate	lbs/hr	0.2353	0.3831	0.3186

SITE:DEXZEL COGENERATION

LOCATION: OILDALE, CA

JERRY LEE WASHTANK #T-402

RUN #:		1	2	3
DATE:		5-29-92	5-29-92	5-29-92
START TIME:		842	956	1108
END TIME:		912	1026	1138
DGM Volume	liters	29.42	29.59	29.54
DGM Temp.	F	80	84	87
Standard Temp.	F	60	60	60
Bar. Press.	inches	30.00	30.00	30.00
Standard Press	inches	29.92	29.92	29.92
DGM Cal Factor	Y	1.0437	1.0437	1.0437
Standard DGM Volume		29.65	29.60	29.39
Iodide,sample	ml	50	50	50
Iodide,blank	ml	50	50	50
Iodide, Std.	N	0.0110	0.0110	0.0110
Titrant,sample	ml	45.82	46.2	45.3
Titrant,blank	ml	47.68	47.68	47.68
Titrant,Std.	N	0.010	0.010	0.010
H2S Conc.	mg/dscm	10.7	8.5	13.8
H2S Conc.	ppm	7.5	6.0	9.7

FERNE LEASE TANK #5395

RUN #:		1	2	3
DATE:		5-29-92	5-29-92	5-29-92
START TIME:		907	1039	1202
END TIME:		1007	1140	1302
DGM Volume	liters	60.15	62.5	61.65
DGM Temp.	F	86	90	98
Standard Temp.	F	60	60	60
Bar. Press.	inches	30.00	30.00	30.00
Standard Press	inches	29.92	29.92	29.92
DGM Cal Factor	Y	1.0386	1.0386	1.0386
Standard DGM Volume		59.66	61.54	59.83
Iodide,sample	ml	50	50	50
Iodide,blank	ml	50	50	50
Iodide, Std.	N	0.0110	0.0110	0.0110
Titrant,sample	ml	46.93	47.1	47.3
Titrant,blank	ml	47.68	47.68	47.68
Titrant,Std.	N	0.010	0.010	0.010
H2S Conc.	mg/dscm	2.1	1.6	1.1
H2S Conc.	ppm	1.5	1.1	0.8

HEAD SPACE MOLECULAR WEIGHT

FACILITY:DEXZEL
SOURCE: JERRY LEE TANK #T-402

RUN #: 1

	Concentration,v/v (ppm)		MW		Weight Fraction	
C1	886000		16			
C2	101		30		12.5	
C3	4.4		44		0.8	
C4	48.5		58		11.6	
C5	9.9		72		2.9	
C6	19.3		86		6.9	
C7	59.2		100		24.4	
	242.3			MWtnmhc	59.1	
				MWthc	16.0	
Benzene	0.04	*	78		2.2E-07	*
Toluene	41		92		2.7E-04	
Xylenes	0.18	*	106		1.3E-06	*
E.benzene	0.08	*	106		6.0E-07	*
H2S	7.4		34		1.8E-05	

FACILITY:DEXZEL
SOURCE: JERRY LEE TANK #T-402

RUN #: 2

	Concentration,v/v (ppm)		MW		Weight Fraction	
C1	882000		16			
C2	44.6		30		5.5	
C3	3		44		0.5	
C4	42.2		58		10.1	
C5	4.1		72		1.2	
C6	28.8		86		10.2	
C7	91		100		37.6	
	213.7			MWtnmhc	65.2	
				MWthc	16.0	
Benzene	0.04	*	78		2.2E-07	*
Toluene	43.2		92		2.8E-04	
Xylenes	0.18	*	106		1.3E-06	*
E.benzene	0.08	*	106		6.0E-07	*
H2S	5.9		34		1.4E-05	

RUN #: 3

	Concentration,v/v (ppm)		MW		Weight Fraction	
C1	838000		16			
C2	90.8		30		11.2	
C3	4.1		44		0.7	
C4	44.8		58		10.7	
C5	9.4		72		2.8	
C6	20.8		86		7.4	
C7	53.9		100		22.2	
	223.8			MWtnmhc	55.1	
				MWthc	16.0	
Benzene	0.04	*	78		2.2E-07	*
Toluene	40		92		2.6E-04	
Xylenes	0.18	*	106		1.3E-06	*
E.benzene	0.08	*	106		6.0E-07	*
H2S	9.6		34		2.3E-05	

HEAD SPACE MOLECULAR WEIGHT

FACILITY:DEXZEL
SOURCE: FERNE LEASE TANK # 5395

RUN #: 1

	Concentration,v/v (ppm)		MW		Weight Fraction	
C1	445000		16			
C2	76.5		30		9.5	
C3	7.9		44		1.4	
C4	198		58		47.4	
C5	29.4		72		8.7	
C6	56.1		86		19.9	
C7	81.2		100		33.5	
	449.1			MWtnmhc	120.5	
				MWthc	16.1	
Benzene	0.094		78		5.2E-07	
Toluene	56.2		92		3.6E-04	
Xylenes	0.18	*	106		1.3E-06	*
E.benzene	0.08	*	106		6.0E-07	*
H2S	1.5		34		3.6E-06	

FACILITY:DEXZEL
SOURCE: FERNE LEASE TANK # 5395

RUN #: 2

	Concentration,v/v (ppm)		MW		Weight Fraction	
C1	445000		16			
C2	79.4		30		9.8	
C3	8.3		44		1.5	
C4	195		58		46.7	
C5	28.5		72		8.5	
C6	48		86		17.0	
C7	66.7		100		27.5	
	425.9			MWtnmhc	111.0	
				MWthc	16.1	
Benzene	0.095		78		5.2E-07	
Toluene	52.5		92		3.4E-04	
Xylenes	0.18	*	106		1.3E-06	*
E.benzene	0.08	*	106		6.0E-07	*
H2S	1.1		34		2.6E-06	

FACILITY:DEXZEL
SOURCE: FERNE LEASE TANK # 5395

RUN #: 3

	Concentration,v/v (ppm)		MW		Weight Fraction	
C1	440000		16			
C2	78.1		30		9.7	
C3	8		44		1.5	
C4	191		58		45.7	
C5	26.7		72		7.9	
C6	45.4		86		16.1	
C7	61.1		100		25.2	
	410.3			MWtnmhc	106.1	
				MWthc	16.1	
Benzene	0.106		78		5.8E-07	
Toluene	53.4		92		3.5E-04	
Xylenes	0.18	*	106		1.3E-06	*
E.benzene	0.08	*	106		6.0E-07	*
H2S	0.8		34		1.9E-06	

APPENDIX B

Laboratory Data

Zenon Environmental Laboratories - Certificate of Analysis

Client Information
Name: Horizon Air Measurment
Project: D02-001

Lab Information
Contact: RM
Project: AN920566
Date: 92/07/01

Notes:
"-" = Not Analysed
"<" = Less than Method Detection Limit
All results are method blank corrected
CARB429 PAH analyses are corrected for internal recoveries
"NS"= Surrogates not spiked

Client ID:		METHOD	D201-FB	D201-BT	D201-1	D201-2	D201-3
Lab ID:		BLANK	014573 92	014574 92	014575 92	014576 92	014577 92
Component	Units:						
Naphthalene	ug	<0.1	3.3	3.1	4.7	3.6	3.8
Acenaphthylene		<0.05	<0.05	<0.05	<0.05	0.052	<0.04
Acenaphthene		<0.05	<0.05	<0.05	<0.072	<0.05	<0.05
Fluorene		<0.05	<0.05	<0.05	0.27	0.086	0.13
Phenanthrene		<0.1	0.26	0.23	1.4	0.76	0.6
Anthracene		<0.1	<0.08	<0.06	<0.08	<0.06	<0.05
Fluoranthene		<0.1	<0.08	<0.06	0.19	0.14	0.071
Pyrene		<0.1	<0.08	<0.06	0.068	0.084	0.041
Benz(a)anthracene		<0.1	<0.1	<0.08	<0.08	<0.07	<0.08
Chrysene		<0.1	<0.1	<0.08	<0.09	<0.08	<0.08
Benzo(b)fluoranthene		<0.05	<0.05	<0.04	<0.04	<0.03	<0.03
Benzo(k)fluoranthene		<0.05	<0.05	<0.04	<0.04	<0.03	<0.03
Benzo(a)pyrene		<0.05	<0.05	<0.04	0.055	<0.04	<0.04
Indeno(1,2,3-c,d)pyrene		<0.1	<0.1	<0.08	<0.08	<0.08	<0.08
Dibenzo(a,h)anthracene		<0.1	<0.1	<0.08	<0.08	<0.08	<0.08
Benzo(g,h,i)perylene		<0.05	<0.05	<0.05	<0.05	<0.04	<0.04
INTERNAL RECOVERIES	%						
Naphthalene-2H8		50	41	53	64	71	62
Acenaphthylene-2H8		55	47	58	64	67	68
Acenaphthene-2H10		55	43	59	63	66	70
Fluorene-2H10		70	69	85	120	120	100
Phenanthrene-2H10		69	73	87	82	85	88
Anthracene-2H10		62	64	74	52	58	62
Fluoranthene-2H10		74	69	82	63	63	67
Pyrene-2H10		75	67	82	66	66	68
Benz(a)anthracene-2H12		91	78	93	100	110	110
Chrysene-2H12		92	71	81	78	91	90
Benzo(b)fluoranthene-2H12		100	85	97	100	100	110
Benzo(k)fluoranthene-2H12		88	77	78	69	78	76
Benzo(a)pyrene-2H12		90	67	79	64	79	76
Indeno(1,2,3-c,d)pyrene-2H12		78	69	95	92	90	92
Dibenzo(a,h)anthracene-2H14		94	89	110	97	100	100
Benzo(g,h,i)perylene-2H12		95	73	89	76	84	82
SURROGATE RECOVERIES	%						
Benzo(e)pyrene-2H12		NS	68	72	79	92	89
Terphenyl-2H14		NS	68	78	82	86	86

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

LABORATORY ANALYSIS REPORT

DNPH solutions were analyzed for formaldehyde, acetaldehyde, and acrolein by high performance liquid chromatography.

Report Date : June 12, 1992
Date Received : May 29, 1992
Date Analyzed : June 4, 1992
P.O. No. : Verbal
Client Proj. # : D02-001

		ug/sample		
AtmAA Lab. No.	Sample ID	Formal.	Acetal.	Acrolein
91502-29	FB 1	0.63	0.22	< 0.02
91502-30	FB 2	0.50	0.12	< 0.02
91502-31	FB 3	0.54	0.11	0.07
91502-32	1A	1.72	1.59	0.29
91502-33	2A	1.32	0.11	0.33
91502-34	3A/BB	1.50	0.23	0.40
REPEAT:				
91502-29	FB 1	0.62	0.19	< 0.02
91502-29 spiked		4.25	6.11	5.49
ug spiked		3.87	5.45	5.46
% recovery		93.6	108.1	100.5
Det. Limit		0.06	0.02	0.02

Dr. Kochy Fung
Air Programs Director

CHAIN OF CUSTODY RECORD

Client/Project Name: Dexzel Inc.

Project Location: Oildale, CA

Project No.: D02-001

Field Logbook No.:

Sampler: (*Signature*) [signature]

Chain of Custody Tape No.:

Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample	formaldehyde	acetaldehyde	acrolein	wt. (sample site)	wt. (laboratory)	* spike one sample per method 430	REMARKS
FB1	5-27-92		91502-29		✓	✓	✓	37.6g	38.0		
FB2	↓		91502-30		✓	✓	✓	38.5	39.1		
FB3			91502-31		✓	✓	✓	38.3	38.9		
1A			91502-32		✓	✓	✓	45.0g	45.4		combine samples for analysis
1B					✓	✓	✓	41.4g	41.8		
2A	5/25/92		91502-33		✓	✓	✓	43.1g	44.2		combine samples for analysis
2B	↓				✓	✓	✓	42.0g	43.2		
3A / 3B			91502-34		✓✓	✓✓	✓✓	46.0g / 41.8g	46.2 / 42.4		combine samples for analysis

Relinquished by: (*Signature*)	Date	Time	Received by: (*Signature*)	Date	Time
[signature]	5/29/92	1215	Robert R. Halk	5-29-92	1215
Robert R. Halk	5-29-92	1432	[signature]	5-29-92	1432
Relinquished by: (*Signature*)	Date	Time	Received for Laboratory: (*Signature*)	Date	Time

Sample Disposal Method:

Disposed of by: (*Signature*) — Date — Time

SAMPLE COLLECTOR

HORIZON AIR MEASUREMENT SERVICES
996 Lawrence Drive, Suite 108
Newbury Park, CA 91320 (805) 498-8781

ANALYTICAL LABORATORY

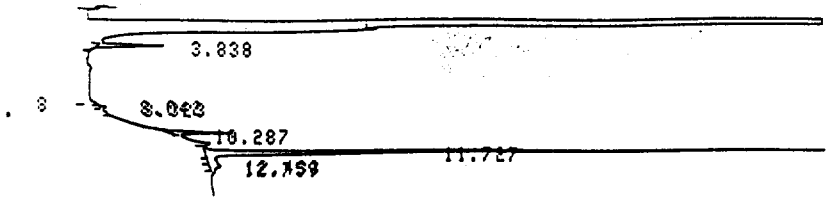
Nº 1125

LABORATORY ANALYSIS REPORT

DNPH solutions were analyzed for aldehydes by high performance liquid chromatography.

Report Date : May 26, 1992
Date Shipped : May 26, 1992
Date Analyzed : May 26, 1992
P.O. No. :
Client Proj. # :

	ug/ml		
DNPH Blank	HCHO	CH3CHO	Acrolein
1	0.09	<0.01	<0.01
2	0.08	<0.01	<0.01
3	0.08	<0.01	<0.01
4	0.08	<0.01	<0.01
Average	0.08	<0.01	<0.01



CHROMATOGRAM 1 MEMORIZED

PKNO	TIME	RRT	AREA	MK	IDNO	CONC	NAME
1	3.838	0.3273	20183		2	0.1031	HCHO
4	11.727	1	138785		1	1.3307	HXNAL
		TOTAL	158968			1.4338	

ug/ml extract

CHROMATOGRAM 1 MEMORIZED

PKNO	TIME	RRT	AREA	MK	IDNO	CONC	NAME
1	3.689	0.3182	16858		2	0.0863	HCHO
4	11.593	1	135118		1	1.3008	HXNAL
		TOTAL	151976			1.3871	

ug/ml extract

CHROMATOGRAM 1 MEMORIZED

PKNO	TIME	RRT	AREA	MK	IDNO	CONC	NAME
1	3.788	0.3234	17313		2	0.0886	HCHO
4	11.713	1	138273		1	1.3265	HXNAL
		TOTAL	155586			1.4151	

ug/ml extract

CHROMATOGRAM 1 MEMORIZED

PKNO	TIME	RRT	AREA	MK	IDNO	CONC	NAME
1	3.775	0.3223	17908		2	0.0916	HCHO
3	8.7	0.7428	1743		4	0.0537	ACTONE
5	11.713	1	136949		1	1.3157	HXNAL
		TOTAL	156592			1.461	

ug/ml extract

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

LABORATORY ANALYSIS REPORT

Benzene, Toluene, Ethylbenzene, m + p-xylenes, o-xylene, & Propylene
Analysis in Tedlar Bag Samples

Report Date:	June 4, 1992
Client:	Horizon/Dexzel
P.O. No.:	Verbal
Source Location:	Oildale, CA
Source Test Date:	May 28, 1992
Date Received:	May 29, 1992
Date Analyzed:	May 30, & June 1, 1992

ANALYSIS DESCRIPTION

Benzene, toluene, ethylbenzene, m + p-xylenes, o-xylene, and propylene were analyzed by photoionization detection/gas chromatography (PID/GC).

AtmAA Lab No.:	91502-19	91502-20	91502-21	91502-22
Sample I.D.:	D201-1	D201-2	D201-3	D201-FB
	BTXEP	BTXEP	BTXEP	BTXEP
Components:	(Concentration in ppb, v/v)			
Benzene	0.34	0.26	0.40	< 0.1
Toluene	3.68	2.17	2.37	0.28
Ethylbenzene	< 0.2	< 0.2	< 0.2	< 0.1
m + p-xylenes	< 0.2	< 0.2	< 0.2	< 0.1
o-xylene	< 0.2	< 0.2	< 0.2	< 0.1
Propylene	2.83	3.39	2.54	< 0.1

Michael L. Porter
Laboratory Director

QUALITY ASSURANCE SUMMARY
(Repeat Analysis)

P.O. No.: Verbal
Client Proj. No.: D02-001

Components:	Sample ID	Repeat Analysis Run #1	Repeat Analysis Run #2	Mean Conc.	% Diff. From Mean
		(Concentration in ppb, v/v)			
Benzene	3-BTXEP	0.39	0.41	0.40	3.2
	FB-BTXE	<0.1	<0.1	---	---
Toluene	3-BTXEP	2.34	2.40	2.37	1.3
	FB-BTXE	0.24	0.31	0.28	13
Ethylbenzene	3-BTXEP	<0.2	<0.2	---	---
	FB-BTXE	<0.1	<0.1	---	---
m+p-xylenes	3-BTXEP	<0.2	<0.2	---	---
	FB-BTXE	<0.1	<0.1	---	---
o-xylene	3-BTXEP	<0.2	<0.2	---	---
	FB-BTXE	<0.1	<0.1	---	---
Propylene	3-BTXEP	2.74	2.35	2.54	7.7

A set of 4 Tedlar bag samples, laboratory numbers 91502-(19-22) was analyzed for benzene, toluene, ethylbenzene, m + p-xylenes, o-xylene, and propylene. Agreement between repeat analysis is a measure of precision and is shown above in the column "% Difference from Mean." Repeat analyses are an important part of AtmAA's quality assurance program. The average % Difference from Mean for 4 repeat measurements from the sample set of 4 Tedlar bag samples is 6.3%.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
Dexel Inc.	Oildale, CA
Project No.	**Field Logbook No.**
DOX-001	
Sampler: (Signature)	**Chain of Custody Tape No.**
R Vucker	

ANALYSES: BTX, E, propylene

Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample							REMARKS
D201-1-BTXEP	5/20/92		91502-19	10 l Tedlar bag	✓						Run 1
D201-2-BTXEP			91502-20		✓						2
D201-3-BTXEP			91502-21		✓						3
D201-FB-BTXEP			91502-22		✓						Field Blank

	Date	Time		Date	Time
Relinquished by: (Signature) R Vucker	5-29-92	1215	Received by: (Signature) Robert Hall	5-29-92	1215
Relinquished by: (Signature) Robert Hall	5-29-92	1432	Received by: (Signature)	5/29/92	1432
Relinquished by: (Signature)	Date	Time	Received for Laboratory: (Signature)	Date	Time
Sample Disposal Method:	Disposed of by: (Signature)			Date	Time

SAMPLE COLLECTOR

HORIZON AIR MEASUREMENT SERVICES
996 Lawrence Drive, Suite 108
Newbury Park, CA 91320 (805) 498-8781

ANALYTICAL LABORATORY

No 1129

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
Dexol Inc.	Oildale, CA
Project No.	**Field Logbook No.**
DOL-001	
Sampler: (Signature)	**Chain of Custody Tape No.**
[signature]	

ANALYSES: BTX,E prep only

Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample							REMARKS
D201-1-BTXEP	5/20/92		91502-19	10 l Tedlar bag	✓						Run 1
D201-2-BTXEP			91502-20		✓						2
D201-3-BTXEP			91502-21		✓						3
D201-FB-BTXEP			91502-22		✓						Field Blank

	Date	Time		Date	Time
Relinquished by: (Signature) [signature]	5/21/92	1215	Received by: (Signature) [signature]	5-29-92	1215
Relinquished by: (Signature) [signature]	5-29-92	1432	Received by: (Signature) [signature] 5-29-92 1432	5/29/92	1432
Relinquished by: (Signature)			Received for Laboratory: (Signature)		
Sample Disposal Method:			Disposed of by: (Signature)		

SAMPLE COLLECTOR

HORIZON AIR MEASUREMENT SERVICES
996 Lawrence Drive, Suite 108
Newbury Park, CA 91320 (805) 498-8781

ANALYTICAL LABORATORY

Nº 1129

WEST COAST
ANALYTICAL
SERVICE, INC.
ANALYTICAL CHEMISTS

June 12, 1992

HORIZON AIR MEASUREMENT
996 Lawrence Drive
Suite 108
Newbury Park, CA 91320

Attn: Rich Vacherot

JOB NO. 21502 S

LABORATORY REPORT

Samples Received: Four (4) Liquid Samples
Date Received: 6-2-92
Purchase Order No: Proj#: D02-001/Proj. Nm: Dexzel Cogeneration

The samples were analyzed as follows:

Samples Analyzed	Analysis	Results
Four (4) liquids	Ammonia by BAAQMD No.1	Table 1

Michael Shelton
Technical Director

D. J. Northington, Ph.D.
President

9840 Alburtis Avenue • Santa Fe Springs, California 90670 • 310/948-2225 • FAX 310/948-5850

WEST COAST ANALYTICAL SERVICE, INC.

HORIZON AIR MEASUREMENT
Mr. Rich Vacherot

Job #21502
June 12, 1992

LABORATORY REPORT

Table 1

Ammonia by BAAQMD No.1

Sample ID	Parts Per Million (mg/L)	Sample Volume (L)	Total mg
D02-001-NH_3-1	1.4	0.50	0.72
D02-001-NH_3-2	2.3	0.52	1.18
D02-001-NH_3-3	1.9	0.54	1.03
D02-001-NH_3-FB	ND	0.28	ND<0.03
Detection Limit	0.1	----	----

ND - Not Detected

Date Analyzed: 6-11-92

Matrix Spike/Matrix Spike Duplicate Quality Control Summary

Sample: D02-001-NH3-3
Units: Total mg
Method: BAAQMD No.1

Analyte	Sample Result	Amount Spiked	MS Result	% Rec MS	MSD Result	% Rec MSD	RPD
AMMONIA	1.03	4.32	5.72	109	5.83	111	2

QC Limits

Analyte	RPD Warning	RPD Control	% Recovery Control
AMMONIA	15	25	50-150

WCAS

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
Dezel Cogeneration	Oildale, CA
Project No.	**Field Logbook No.**
D02-001	
Sampler: (Signature) R. Vuchot	**Chain of Custody Tape No.**

ANALYSES: NH_3 (BAAQMD SF-1)

Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample	REMARKS
✓ D02-001-NH_3-1	5/27/92			BAAQMD SF-1	
✓ D02-001-NH_3-2	5/28/92			↓	
✓ D02-001-NH_3-3	↓				
✓ D02-001-NH_3-FB					

	Date	Time		Date	Time
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received for Laboratory: (Signature) Lauren Mottason WCAS	6/2/92	1:50
Sample Disposal Method:			Disposed of by: (Signature)		

SAMPLE COLLECTOR

HORIZON AIR MEASUREMENT SERVICES
996 Lawrence Drive, Suite 108
Newbury Park, CA 91320 (805) 498-8781

ANALYTICAL LABORATORY

West Coast Analytical
ATTN: Bob Olsen

Nº 1132

CLIENT: Dexel Corp. DATE: 5/28/97

UNIT : WASH/STOCK TANKS JOB NO.: D02-001

METHOD: EPA 11 SAMPLE ID: _____

Run #	Tank	Time	Vol-end	Vol-begin	Titrant Volume		
Iodine	Standardization						
	Normality of Sodium thiosulfate = 0.0100 N						
			24.95	2.2	22.75		
			23.4	0.7	22.7		
			(25 x 0.0100)	/ 22.73 ml	= 0.010999		
#1	BLANK	1020	48.3	0.62	47.68		
#2	BLANK	1020	47.8	0.10	47.70		
#1	JL WASH TANK	1020	45.92	0.10	45.82		
#1	FERNE LEASE STOCK TANK	~~1020~~ 1100	47.75	0.82	46.93		
#2	JL WASH TANK	1130	46.80	0.60	46.2		
#2	FERNE LEASE STOCK TANK	1230	47.7	0.60	47.10		
#3	JL WASH TANK	1230	45.4	0.1	45.3		
#3	FERNE LEASE STOCK TANK	1350	47.6	0.3	47.3		

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

LABORATORY ANALYSIS REPORT

C1-C6 Hydrocarbons Analysis in Tedlar Bag Samples

Report Date: June 4, 1992
Client: Horizon/Dexzel
P.O. No.: Verbal
Source Location: Oildale, CA
Source Test Date: May 28, 1992

Date Received: May 29, 1992
Date Analyzed: May 30, 1992

ANALYSIS DESCRIPTION

C1-C6 hydrocarbons are analyzed by FID/GC using a non-polar capillary column temperature programmed from -60 to +210 degrees C. Eluted peaks are grouped by carbon number for quantitation.

AtmAA Lab No.:	91502-23	91502-23	91502-24	91502-25	91502-25	91502-26
Sample I.D.:	DEX-JL TB-1	repeat	DEX-JL TB-2	DEX-JL TB-3	repeat	DEX-FER TB-1
Component:	(ppmv as component)					
C1	886000	886000	882000	838000		445000
C2	101	91.7	44.6	90.8	90.3	76.5
C3	4.36	3.76	2.97	4.06	3.91	7.90
C4	48.5	47.9	42.2	44.8	43.7	198
C5	9.89	9.80	4.12	9.35	8.72	29.4
C6	19.3	19.6	28.8	20.8	18.8	56.1

LABORATORY ANALYSIS REPORT

C1-C6 Hydrocarbons Analysis in Tedlar Bag Samples

Report Date:	June 4, 1992
Client:	Horizon/Dexzel
P.O. No.:	Verbal
Source Location:	Oildale, CA
Source Test Date:	May 28, 1992
Date Received:	May 29, 1992
Date Analyzed:	May 30, 1992

ANALYSIS DESCRIPTION

C1-C6 hydrocarbons are analyzed by FID/GC using a non-polar capillary column temperature programmed from -60 to +210 degrees C. Eluted peaks are grouped by carbon number for quantitation.

AtmAA Lab No.:	91502-27	91502-28	91502-28
Sample I.D.:	DEX-FER TB-2	DEX-FER TB-3	repeat
	(ppmv as component)		
Component:			
C1	445000	440000	443000
C2	79.4	78.1	78.2
C3	8.29	8.03	8.15
C4	195	191	190
C5	28.5	26.7	26.7
C6	48.0	45.4	45.0

Michael L. Porter
Laboratory Director

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

LABORATORY ANALYSIS REPORT

Benzene, Toluene, Ethylbenzene, m + p-xylenes, & o-xylene,
Analysis in Tedlar Bag Samples

Report Date:	June 4, 1992
Client:	Horizon/Dexzel
P.O. No.:	Verbal
Source Location:	Oildale, CA
Source Test Date:	May 28, 1992
Date Received:	May 29, 1992
Date Analyzed:	May 30, 1992

ANALYSIS DESCRIPTION

Benzene, toluene, ethylbenzene, m + p-xylenes, and o-xylene were analyzed by photoionization detection/ gas chromatography (PID/GC).

AtmAA Lab No.:	91502-23	91502-24	91502-25	91502-26	91502-27	91502-28
Sample I.D.:	DEX-JL TB-1	DEX-JL TB-2	DEX-JL TB-3	DEX-FER TB-1	DEX-FER TB-2	DEX-FER TB-3
Components:	(Concentration in ppb, v/v)					
Benzene	< 40	< 40	< 40	93.7	95.4	106
Toluene	41000	43200	40000	56200	52500	53400
Ethylbenzene	< 80	< 80	< 80	< 80	< 80	< 80
m + p-xylenes	< 100	< 100	< 100	< 100	< 100	< 100
o-xylene	< 80	< 80	< 80	< 80	< 80	< 80

Michael L. Porter
Laboratory Director

QUALITY ASSURANCE SUMMARY
(Repeat Analysis)

P.O. No.: Verbal
Client Proj. No.: D02-001

Components:	Sample ID	Repeat Analysis Run #1	Repeat Analysis Run #2	Mean Conc.	% Diff. From Mean
		(Concentration in ppb, v/v)			
Benzene	JL-TB-3	< 40	< 40	---	---
	FER-TB-3	102	111	106	4.2
Toluene	JL-TB-3	39500	40400	40000	1.1
	FER-TB-3	52600	54200	53400	1.5
Ethylbenzene	JL-TB-3	< 80	< 80	---	---
	FER-TB-3	< 80	< 80	---	---
m + p-xylenes	JL-TB-3	< 100	< 100	---	---
	FER-TB-3	< 100	< 100	---	---
o-xylene	JL-TB-3	< 80	< 80	---	---
	FER-TB-3	< 80	< 80	---	---

A set of 6 Tedlar bag samples, laboratory numbers 91502-(23-28) was analyzed for benzene, toluene, ethylbenzene, m + p-xylenes, and o-xylene. Agreement between repeat analysis is a measure of precision and is shown above in the column "% Difference from Mean." Repeat analyses are an important part of AtmAA's quality assurance program. The average % Difference from Mean for 3 repeat measurements from the sample set of 6 Tedlar bag samples is 2.3%.

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

LABORATORY ANALYSIS REPORT

C7 Hydrocarbons Analysis in Tedlar Bag Samples

Report Date:	June 4, 1992
Client:	Horizon/Dexzel
P.O. No.:	Verbal
Source Location:	Oildale, CA
Source Test Date:	May 28, 1992
Date Received:	May 29, 1992
Date Analyzed:	May 30, 1992

ANALYSIS DESCRIPTION

C7 hydrocarbons are analyzed by FID/GC using a non-polar capillary column temperature programmed from -60 to +210 degrees C. Eluted peaks are grouped by carbon number for quantitation.

AtmAA Lab No.:	91502-23	91502-23	91502-24	91502-25	91502-25	91502-26
Sample I.D.:	DEX-JL TB-1	repeat	DEX-JL TB-2	DEX-JL TB-3	repeat	DEX-FER TB-1
	(ppmv as componet)					
Component:						
C7		59.2	91.0	53.9	56.7	81.2
>C7 as C7					207	

LABORATORY ANALYSIS REPORT

C7 Hydrocarbons Analysis in Tedlar Bag Samples

Report Date:	June 4, 1992
Client:	Horizon/Dexzel
P.O. No.:	Verbal
Source Location:	Oildale, CA
Source Test Date:	May 28, 1992
Date Received:	May 29, 1992
Date Analyzed:	May 30, 1992

ANALYSIS DESCRIPTION

C7 hydrocarbons are analyzed by FID/GC using a non-polar capillary column temperature programmed from -60 to +210 degrees C. Eluted peaks are grouped by carbon number for quantitation.

AtmAA Lab No.:	91502-27	91502-28	91502-28
Sample I.D.:	DEX-FER TB-2	DEX-FER TB-3	repeat
	(ppmv as component)		
Component:			
C7	66.7	62.8	61.1
> C7 as C7			285

Michael L. Porter
Laboratory Director

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
Dexzel	Oildale, CA
Project No.	**Field Logbook No.**
D02-001	
Samplers: (Signature)	**Chain of Custody Tape No.**
R Weichet	

ANALYSES: BTXE; C1-C6 hydrocarbons

Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample							REMARKS
DEX-JL-TB-1			5/28/92 91502-23	Tedlar Bag	✓	✓					
DEX-JL-TB-2			91502-24		✓	✓					
DEX-JL-TB-3			91502-25		✓	✓					
~~DEX-JL~~ DEX-FEL-TB-1			91502-26		✓	✓					
DEX-FEL-TB-2			91502-27		✓	✓					
DEX-FEL-TB-3			91502-28		✓	✓					
DEX-FEL-FB					✓						

	Date	Time		Date	Time
Relinquished by: (Signature)	5/29/92	1215	Received by: (Signature)	5-29-92	1215
Relinquished by: (Signature)	5-29-92	1432	Received by: (Signature)	5/29/92	1432
Relinquished by: (Signature)	Date	Time	Received for Laboratory: (Signature)	Date	Time
Sample Disposal Method:			Disposed of by: (Signature)	Date	Time

SAMPLE COLLECTOR

HORIZON AIR MEASUREMENT SERVICES
996 Lawrence Drive, Suite 108
Newbury Park, CA 91320 (805) 498-8781

ANALYTICAL LABORATORY

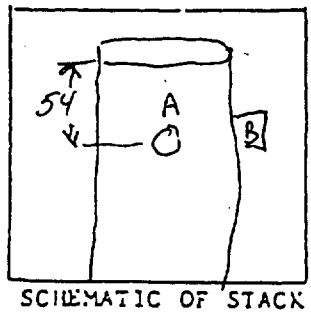
Nº 1133

APPENDIX C

Field Data

METHOD 2 GAS VELOCITY AND VOLUME DATA FORM

PLANT PEXZELL (CO-GEN)
DATE 5-27-92
RUN NO. INITIAL TRAVERSE
STACK DIAMETER, in. 95"
BAROMETRIC PRESSURE, in.Hg. 30.05
STATIC PRESSURE IN STACK(P_g), in. Hg. -0.33
OPERATORS RJH, ADP, RV



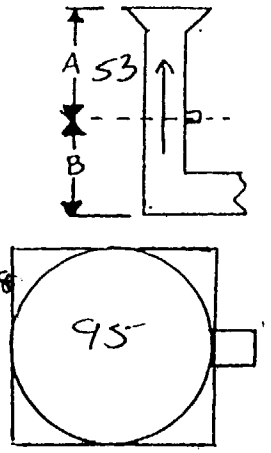
SCHEMATIC OF STACK CROSS SECTION

Field data

Traverse point number	Position, in.	Velocity head (Δp_s), in. H_2O	Stack temp., °F	Cyclonic flow determination: Δp_s at 0° reference	Cyclonic flow determination: Angle (α) which yields a null Δp
1	2.00	0.68	197	5 →	
2	6.37	0.92	199	3	
3	11.21	0.88	199	0	
4	16.82	0.94	199	0 →	
5	23.75	0.98	199	0	
6	33.82	1.25	196	0	
7	61.18	1.00	196	0 →	
8	71.25	0.86	197	0	
9	78.19	0.88	197	0	
10	83.79	0.92	197	0	
11	88.64	0.98	196	0	
12	93.01	1.10	195	5	
B-1		0.68	194	3	
2	SAME	0.86	194	3	
3	AS	~~0.86~~ 0.90	196	3	
4	ABOVE	0.90	198	0	
5		0.84	193	0	
6		0.74	200	0	
7		0.74	200	0	
8		0.70	198	0	
9		0.80	198	3	
10		0.86	197	0	
11		1.00	198	3	
12		1.00	199	3	
				Average angle (α)	

LEAK ✓ - OK

PLANT: DEXZEII
LOCATION: BAKERSFIELD
COUNTY: KERN
UNIT: COGEN
DATE: 5-27-92
RUN NO./METHOD: 1 PAH pg 1.
COLD BOX NO.: 3 1.0016 1.7959
METER BOX NO.: Y = 0.~~9904~~ ΔH@ = ~~1.7646~~
METER FACTOR: 31
PITOT #/ FACTOR: 0.840
PYROMETER #: 10-1
MAGNEHELIC FACTOR: ΔP 0-5 ΔH 0-5



FILTER NO. PAH-1
AMBIENT TEMP.: 85
BARAMETRIC PRESS.,IN.HG.: 30.05
ASSUMED MOISTURE: 5.%
HEATER BOX SETTING: 250
PROBE LENGTH,FT. 10' g/MSS
NOZZLE DIAMETER,IN.: 0.214 (c-2)
PROBE HEATER SETTING: 250
APPROX.WIND VEL.,MPH: 0-10
SAMPLE BOX TEMP.,(F): <60
DRI-RRITE WT. : —
STATIC PREASURE: -0.30 "H2O
OFFSET = 20" 8½" FLANGE

TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O 0.68P	√ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM),FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)	(011)
1				1353.00	199	0.~~68~~		1.~~22~~ RH	466.122	89	91	~~<60~~ RH	<60	58
2	Bag leak	✓	- ok	7.5	198	0.72		1.~~35~~ RH	471.4	87	89	12	<60	57
3	End leak	✓	- ok	15.0	198	0.76		1.~~40~~ RH	477.2	88	90	8.0	<60	57
4				22.5	198	0.80		1.50	482.4	~~88~~ RH	94	8.0	<60	56
5				30.0	198	0.76		1.40	486.80	85	93	9.0	<60	56
6				37.5	198	0.74		1.40	491.80	89	95	9.0	<60	56
7				45.0	197	0.70		1.30	498.20	89	96	8.0	<60	57
8				52.5	199	0.74		1.40	502.20	90	94	8.0	<60	57
9				60.0	198	0.84		1.55	507.16	90	95	10	<60	58
10				67.5	198	0.96		1.80	512.50	90	95	11	<60	58
11				75.0	197	1.05		1.98	519.0	90	94	11.5	<60	57
12				82.5	196	1.10		2.05	524.0	90	92	12.0		
STOP	ZERO			90.0					530.013					
	SPAN													
AVERAGE					198 / 195			0.9032	1.529	63.891		96.1		

Change Suppress

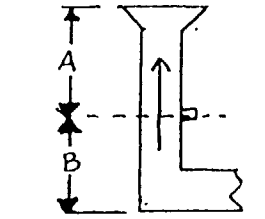
PITOT LEAK CHECK:
BEFORE: TOP ΔP= 0.82 BOTTOM ΔP= 0.66
ΔP= 0.52 ΔP= 0.66
AFTER: TOP ΔP= 0.66 BOTTOM ΔP= 0.71
ΔP= 0.655 ΔP= 0.71

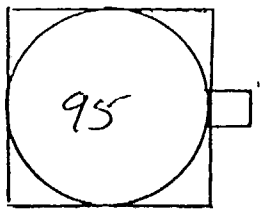
SAMPLE TRAIN LEAK:
BEFORE= 0.017 CFM@ 15 IN. HG.
AFTER= 0.017 CFM@ 12 IN. HG.

COMMENTS: PURGE

Broke Nozzle Replace, leak ✓ Before

PLANT: Dexzell
LOCATION: Boise Site
COUNTY: Kent
UNIT: Cogen
DATE: 5-27-92
RUN NO./METHOD: PAH #1 Pg 2
COLD BOX NO.:
METER BOX NO.: 1
METER FACTOR: Y = 1.0016
PITOT #/ FACTOR: 0.84
PYROMETER #:
MAGNEHELIC FACTOR: ΔP ΔH





FILTER NO.
AMBIENT TEMP.: 85
BARAMETRIC PRESS.,IN.HG.:
ASSUMED MOISTURE: 5%
HEATER BOX SETTING: 250
PROBE LENGTH,FT. 10' 9/nss
NOZZLE DIAMETER,IN.: ~~0.244~~ 0.237
PROBE HEATER SETTING: 250
APPROX.WIND VEL.,MPH: 0-10
SAMPLE BOX TEMP.,(F): <60
DRI-RRITE WT. :
STATIC PREASURE: ____ "H2O ____

TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM),FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
B - 1				1630 00	195	0.76		2.20	530.337	89	91	11	<60
2				7.5	198	0.90		2.60	536.50	91	95	13	<60
3				15.0	195	0.86		2.92	544.0	90	95	11	<60
4				22.5	197	0.98		2.80	550.9	91	94	14	<60
5				30.0	194	0.98		2.80	556.5	91	93	14	<60
6				37.5	192	1.00		2.90	564.2	91	93	15	<60
7				45.0	194	0.90		2.60	570.9	91	94	14.5	<60
8				52.5	195	0.86		2.42	578.1	92	93	14	<60
9				60.0	198	0.84		2.40	585.2	92	97	13	<60
10				67.5	196	0.86		2.42	591.40	92	95	13	<60
11				75.0	195	0.90		2.80	598.40	92	95	13.5	~
12				82.5	196	0.92		2.65	604.6	92	94	14.0	<60
STOP	ZERO			90.0					611.992				
	SPAN						0.9463						
AVERAGE					195		0.9559	2.568	81.655		92.6		

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

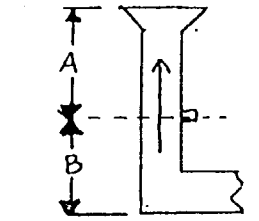
198 / 196.5

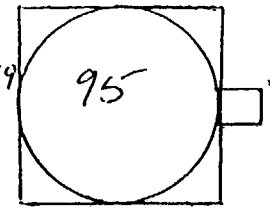
LEAK CHECK AFTER NOZZLE REPLACE
SAMPLE TRAIN LEAK:
BEFORE= 0.015 CFM@ 15 IN. HG.
AFTER= 0.017 CFM@ 15 IN. HG.
2nd Test

COMMENTS: PURGE ____

1'96.5 0.9717 2.048 146.546 91.9

PLANT: DEXZELL
LOCATION: BAKERSFIELD
COUNTY: KERN
UNIT: CO-GEN
DATE: 5-28-92
RUN NO./METHOD: 2 PAH 1&1
COLD BOX NO.: 5
METER BOX NO.: I
METER FACTOR: Y = 1.0016, ΔH@ = 1.2959
PITOT #/ FACTOR: 0.840
PYROMETER #: 10-1
MAGNEHELIC FACTOR: ΔP 0-5 ΔH 0-5





FILTER NO.: ~~PAH~~ PAH-2
AMBIENT TEMP.: 77
BARAMETRIC PRESS.,IN.HG.: 30.02
ASSUMED MOISTURE: 5%
HEATER BOX SETTING: 250
PROBE LENGTH,FT.: 10' #1 glass
NOZZLE DIAMETER,IN.: 0.236
PROBE HEATER SETTING: 250
APPROX.WIND VEL.,MPH: 0-10
SAMPLE BOX TEMP.,(F): <60
DRI-RRITE WT.:
STATIC PREASURE: - 0.30 "H2O 2.2 PT #4

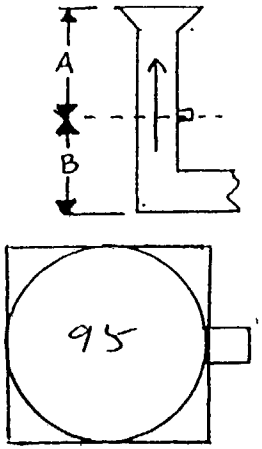
TRAVERSE POINT NUMBER	DISTANCE INCHES Coil Temp	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM),FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
1	52			831 00	195	0.70		2.00	613.305	80	84	8.0	<60
2	52			7.5	195	0.70		2.00	614.712/615.330	82	91	8.0	<60
3	53			15.0	196	0.74		2.15	624.9	83	93	8.5	<60
4	53			22.5	197	0.76		2.20	631.6	84	93	9.0	<60
5	53			30.0	196	0.76		2.2	637.20	85	91	9.0	<60
6	54			37.5	196	0.74		2.15	643.70	87	92	8.5	<60
7	53			45.0	196	0.72		2.05	649.9	87	93	8.0	<60
8	52			52.5	196	0.68		1.90	655.2	88	93	8.0	<60
9	53			60.0	197	0.70		2.00	661.8	88	92	8.0	<60
10	53			67.5	197	0.84		2.50	667.1	89	92	10	<60
11	53			75.0	197	0.94		2.7	674.5	89	93	11	<60
12	53			82.5	197	1.00		2.8	681.3	89	93	11.5	<60
STOP	ZERO			90.0					688.107				
	SPAN							-619.33	+1.407				
AVERAGE	53				195.4		0.8778	2.220	74.184		88.8		

PITOT LEAK CHECK:
BEFORE: TOP ΔP= 0.46 BOTTOM ΔP= 0.92
ΔP= 0.46 ΔP= 0.92
AFTER: TOP ΔP= BOTTOM ΔP=
ΔP= ΔP=

SAMPLE TRAIN LEAK:
BEFORE= 0.015 CFM@ 15 IN. HG.
AFTER= 0.017 CFM@ 13 IN. HG.

COMMENTS: PURGE

PLANT: Dexzel
LOCATION: Bakersfield
COUNTY: Kern
UNIT: GO-GEN
DATE: 5-28-92
RUN NO./METHOD: PAH #2 pg 2
COLD BOX NO.: 5
METER BOX NO.: 1
METER FACTOR: Y = 1.0016
PITOT #/ FACTOR: 0.840
PYROMETER #: 10-1
MAGNEHELIC FACTOR: ΔP 0-5 ΔH 0-5



FILTER NO. PAH-2
AMBIENT TEMP.: 79
BARAMETRIC PRESS.,IN.HG.:
ASSUMED MOISTURE: 5%
HEATER BOX SETTING: 250
PROBE LENGTH,FT. 10' #1
NOZZLE DIAMETER,IN.: 0.236
PROBE HEATER SETTING: 250
APPROX.WIND VEL.,MPH: 0-10
SAMPLE BOX TEMP.,(F): <60
DRI-RRITE WT. :
STATIC PREASURE: _____ "H2O _____

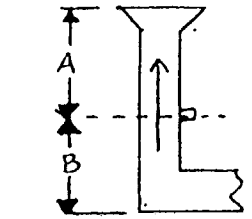
TRAVERSE POINT NUMBER	DISTANCE INCHES / Coil Temp	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM), FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
1	53			1024 00	197	~~0.80~~ 0.68 2H 1.9		~~2.25~~	688.107	89	88	9.0	<60
2	53			7.5	196	0.70		2.00	694.90	89	91	10.0	<60
3	52			15.0	200	0.84		2.40	700.60	88	93	10.5	<60
4	52			22.5	200	0.90		2.60	707.35	90	96	11.0	<60
5	53			30.0	200	1.10		3.15	715.4	90	96	12.0	<60
6	53			37.5	200	1.05		3.0	722.6	90	92	11.5	<60
7	53			45.0	199	1.05 RH		3.0 2H	728.5	90	92	11.5	<60
8	54			52.5	197	1.00 0.90	2.6	~~2.60~~	735.8	89	90	10.0	<60
9	55			60.0	198	0.84		2.40	743.1	89	92	10.5	<60
10	55			67.5	197	0.98		2.80	749.1	89	91	11.2	<60
11	54			75.0	199	1.05		3.0	755.9	89	91	11.7	<60
12	54			82.5	200	1.00		2.85	763.1	89	91	11.5	<60
STOP	ZERO .			90.0					770.357				
	SPAN										~~88.7~~ 90 IN		
AVERAGE					198.6 IN / 195.4 / 197		0.958 / 0.9183 IN	2.64 / 2.43 P	82.250 IN		~~88.8~~ 89.7		

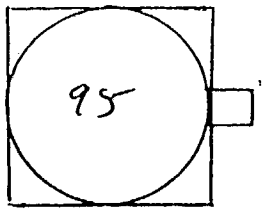
PITOT LEAK CHECK:
BEFORE: TOP ΔP= _____ BOTTOM ΔP= _____
ΔP= _____ ΔP= _____
AFTER: TOP ΔP= _____ BOTTOM ΔP= _____
ΔP= _____ ΔP= _____

SAMPLE TRAIN LEAK:
BEFORE= 156.434 CFM@ _____ IN. HG.
AFTER= _____ CFM@ _____ IN. HG.

COMMENTS: PURGE _____

PLANT: DEXZELL
LOCATION: BAKERSFIELD
COUNTY: KERN
UNIT: COGEN
DATE: 5-28-92
RUN NO./METHOD: 3 PAH Rg 1
COLD BOX NO.: 6
METER BOX NO.: 1
METER FACTOR: Y = 1.0016 ΔH@ = 1.7954
PITOT #/ FACTOR: 0.846
PYROMETER #: 10-1
MAGNEHELIC FACTOR: ΔP 0-5 ΔH 0-5





FILTER NO. PAH-3
AMBIENT TEMP.: 87
BARAMETRIC PRESS.,IN.HG.: 30.05
ASSUMED MOISTURE: 5%
HEATER BOX SETTING: 250
PROBE LENGTH,FT. 10' q/lass
NOZZLE DIAMETER,IN.: 0.236
PROBE HEATER SETTING: 250
APPROX.WIND VEL.,MPH: 0-10
SAMPLE BOX TEMP.,(F): <60
DRI-RRITE WT. :
STATIC PREASURE: -0.32 "H2O

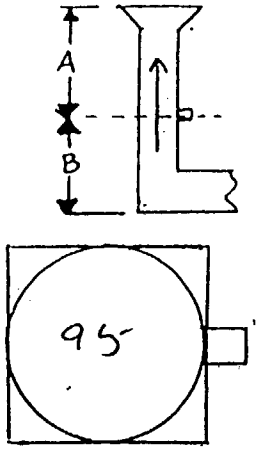
TRAVERSE POINT NUMBER	~~DISTANCE INCHES~~ (CYCLE TIME)	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM), FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
1	53			1253 00	199	0.68		1.90	771.607	89	89	9.0	<60
2	53			7.5	197	0.70		2.00	777.7	87	91	9.5	<60
3	54			15.0	197	0.74		2.15	783.3	88	89	10.0	<60
4	53			22.5	198	0.74		2.15	788.8	88	89	10.0	<60
5	52			30.0	196	0.72		2.10	796.1	88	88	10	<60
6	53			37.5	196	0.72		2.10	802.0	88	88	10	<60
7	52			45.0	196	0.70		2.00	807.7	87	88	9.5	<60
8	53			52.5	196	0.74		2.15	813.6	86	89	10.0	<60
9	53			60.0	196	0.78		2.20	820.5	88	90	10.5	<60
11	54			67.5	197	0.80		2.25	825.8	87	90	10.5	<60
11	55			75.0	197	0.97		2.60	833.60	88	93	11.5	<60
12	55			82.5	198	0.94		2.30	839.4	89	94	10.5	<60
STOP	ZERO			90					845.486				
	SPAN												
AVERAGE					196.9		0.8756	2.14	73.879		88.8		

PITOT LEAK CHECK:
BEFORE: TOP ΔP= 0.48 ΔP= 0.48
AFTER: TOP ΔP= 0.55 ΔP= 0.545
BOTTOM ΔP= 0.62 ΔP= 0.62
BOTTOM ΔP= 0.32 ΔP= 0.325

SAMPLE TRAIN LEAK:
BEFORE= 0.012 CFM@ 15 IN. HG.
AFTER= 0.010 CFM@ 11 IN. HG.

COMMENTS: PURGE -

PLANT: Dexzell
LOCATION:
COUNTY:
UNIT:
DATE: 5-28-92
RUN NO./METHOD: 3 pm4 pg 2
COLD BOX NO.:
METER BOX NO.: 1
METER FACTOR: Y = 1.0016
PITOT #/ FACTOR: 0.840
PYROMETER #: 10-1
MAGNEHELIC FACTOR: ΔP 0-5 ΔH 0-5



FILTER NO. PM-3
AMBIENT TEMP.:
BARAMETRIC PRESS.,IN.HG.: 30.05
ASSUMED MOISTURE: 25O
HEATER BOX SETTING:
PROBE LENGTH,FT. 10' 9/16SS
NOZZLE DIAMETER,IN.: 0.276
PROBE HEATER SETTING: 250
APPROX.WIND VEL.,MPH: 0-10
SAMPLE BOX TEMP.,(F):
DRI-RRITE WT. :
STATIC PREASURE: "H2O

TRAVERSE POINT NUMBER	~~DISTANCE INCHES~~ Go:l	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM), FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
1	53			1440 00	195	0.62		1.80 1.8	845.486	90.	91	9.5	<60
2	54			7.5	198.	0.88		2.50	852.10	90.	96	9.0	<60
3	56			15.0	198.	0.86		2.40	857.6	91	96	8.5	<60
4	58			22.5	198.	0.86		2.40	864.7	91	93	8.5	<60
5	56			30.0	198.	0.90		2.65	870.8	91	92	9.5	<60
6	54			37.5	198.	1.05		3.00	878.0	89	91	10.5	<60
7	53			45.0	198.	0.90		2.65	884.1	90	91	9.5	<60
8	52			52.5	198.	0.88		2.50	8919	89	90	9.0	<60
9	52			60.0	198.	0.86		2.40	898.6	89	91	8.5	<60
10	53			67.5	198	0.86		2.40	905.2	90	91	8.5	<60
11	53			75.0	198	0.90		2.65	912.0	91	91	9.5	<60
12	53			82.5	198	0.90		2.65	919.0	90	91	9.5	<60
STOP	ZERO			90					925.945				
	SPAN												
AVERAGE					197.8 / 197.4		0.9377 / 0.9642	2.50 / 2.32	80.459 / 154.398	91.0	~~879~~		

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

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

COMMENTS: PURGE ____

METHOD 8 - PARTICULATE CLEAN-UP SHEET

Date 5/22/92
Run No. 1-PAH
Sample Recovered by RV
Sample Box No. _____

Client Dexol Inc
WO No. D02-001
Plant Dexol Cogeneration

PARTICULATE - FRONT HALF

Nozzle & Probe Acetone Wash — Lab No. _____ Residue: _____ mg

Cyclone & Flask Acetone Wash — Lab No. _____ Residue: _____ mg

Filter No.	Lab No.	Weight
_____	_____	_____ mg
_____	_____	_____ mg
_____	_____	_____ mg
_____	_____	_____ mg

Total Filter Particulate _____ mg

Front Half Total _____ mg

MOISTURE

Impinger No.	Final Weight	Initial Weight	Net Weight
1	296	100	196
2	0	0	0
_____	_____	_____	_____

Total Imp. Gain 196 g

SILICA GEL

Container No.	Final Weight	Initial Weight	Net Weight
Silgel	268	235	33
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Total Si. Gel Gain 33 g

Total Moisture 229 g

METHOD 8 - PARTICULATE CLEAN-UP SHEET

Date 5/25/92
Run No. 2 - PM1
Sample Recovered by RV
Sample Box No. _____

Client Dexcel
WO No. DEX-CO1
Plant COGENERATION

PARTICULATE - FRONT HALF

Nozzle & Probe Acetone Wash — Lab No. _____ Residue: _____ mg

Cyclone & Flask Acetone Wash — Lab No. _____ Residue: _____ mg

Filter No.	Lab No.	Weight
_____	_____	_____ mg
_____	_____	_____ mg
_____	_____	_____ mg
_____	_____	_____ mg

Total Filter Particulate _____ mg

Front Half Total _____ mg

MOISTURE

Impinger No.	Final Weight	Initial Weight	Net Weight
1	485.0 RV / 386.0 RV 273	100	385 286 RV / 273
2	0	0	0
3			

Total Imp. Gain 273 RV / 286.0 g

SILICA GEL

Container No.	Final Weight	Initial Weight	Net Weight
Si Gel	321.5	285.5	36

Total Si. Gel Gain 360 g

Total Moisture 325 309 g

25. 76

818 Sq in 3335-00 7.1 .88

METHOD 8 - PARTICULATE CLEAN-UP SHEET

Date Dexcel 5/26/92 Client Dexcel
Run No. 3 AM WO No. 92-001
Sample Recovered by RV Plant Oakdale, CA
Sample Box No. _____

PARTICULATE - FRONT HALF

Nozzle & Probe Acetone Wash Lab No. _____ Residue: _____ mg
Cyclone & Flask Acetone Wash Lab No. _____ Residue: _____ mg

Filter No.	Lab No.	Weight
_____	_____	_____ mg
_____	_____	_____ mg
_____	_____	_____ mg
_____	_____	_____ mg

Total Filter Particulate _____ mg

Front Half Total _____ mg

MOISTURE

Impinger No.	Final Weight	Initial Weight	Net Weight
1	3465	2000	2465
2	0	0	0

Total Imp. Gain 2465 g

SILICA GEL

Container No.	Final Weight	Initial Weight	Net Weight
Si 6d	350	319.4	30.6

Total Si. Gel Gain 30.6 g

Total Moisture 2776.1 g

CLIENT: Dexzel

UNIT : Cogen

METHOD: Formaldahyde

DATE: 5-27-92

JOB NO.: W02-001

SAMPLE ID: Dex-Form-1

Baro 30.07

page 1

RUN #1

(SKC)

Time	Rotometer setting	cc/min		Ambient (°F) Temp			
713 00	50 cc	255		88.2		LEAK ✓ @ Roto - OK	
10 ~~25~~	50	255		88.6			
20 ~~45~~	50	255		89.4			
30 ~~265~~	50	255		89.2			
40 ~~385~~	50	255		88.8			
50 ~~505~~	50	255		87.8			
1813 60 ~~625~~	50	255		86.2			
70 ~~745~~	50	255		85.4			
80 ~~865~~	50	255		84.3			
90 ~~985~~	50	255		84.0			
100 ~~1105~~	50	255		84.2		END LEAK ✓ - OK	
110 ~~1225~~	50	255		84.2			
TOP 120 ~~1345~~	50			86.6	°F AVG	Tempeerature	
			Rotometer	Setting =	50		
Beg Cal with SKC Bubble meter			C1	C2	C3		
			255 cc/min	254 cc/min	256 cc/min	Avg =	255 cc/min
D Cal			258 cc/min	256 cc/min	255 cc/min	Avg =	

CLIENT: Dexzell

UNIT : COGEN

METHOD: FORMALDAHYDE

DATE: 5-28-92

JOB NO.: W02-001

SAMPLE ID: DEX-CG-FORM-2

BARO = 30.02

Time / SAMPLE	DATA	SET POINT cc/MIN	Actual flow	AMBIEN Temp			
00	856	53	248	75.8			
10	906	53	248	74.3			
20	916	53	248	74.4			
30	926	53	248	75.8			
40	936	53	248	75.0			
50	946	53	248	75.2			
60	956	53	248	75.5			
70	1006	53	248	75.8			
80	1016	53	248	76.4			
90	1026	53	248	76.1			
100	1036	53	248	77.4			
110	1046	53	248	78.8			
STOP 120	1056						
AVERAGE		53	248	75.9			

CALIBRATIONS cc/min

		Roto setting	C_1	C_2	C_3	Avg	
BEGINING		53	248	248	248	248	250.9
ENDING			252	253	256	253.7	

BEGINING LEAK ✓ - ROTO = Ø (OK)

CLIENT: DEXZELL

DATE: 5-28-92

UNIT : COGEN

JOB NO.: W02-001

METHOD: Formaldahyde #3

SAMPLE ID:

TIME			Rotometer cc/min	SKC cc/min		Ambient °F	
			5				
00	1339 ~~1334~~ **		53	256		82.5	
10	1349 ~~1344~~ **		53	256		84.2	
20	1354 ~~1354~~ **		5.3	256		84.3	
30	1409		53	256		85.3	
40	1419		53	256		86.1	
50	1429		53	256		88.1	
60	1439		53	256		88.3	
70	1449		53	256		86.8	
80	1459		53	256		87.2	
90	1509		53	256		86.8	
100	1519		53	256		85.6	
110	1529		53	256		86.7	
STOP 110	1539						
			CALIBRATION	cc/min			
			C1	C2	C3	AVG	
BEGINNING			.257	.256	.256	256	258.5
ENDING			0.261	261	261	261	

Beg leak ✓ - OK

End leak ✓ - OK

HORIZON
Air Measurement Services

SAMPLE DATA SHEETS

DATE: 5/28/92

CLIENT: DEXZEL

PROJECT NO.: D02-003

OPERATOR: AS

RUN NO.: #1, 2 & 3

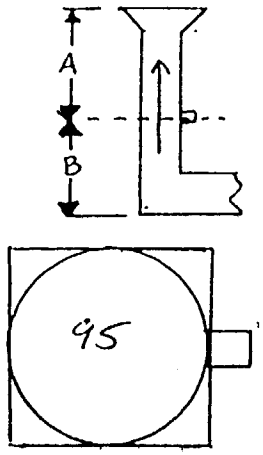
LOCATION: BAKERSFIELD, CA

AMBIENT TEMP: 90°

SORBENT TYPE	PUMP NO.	START TIME	FINISH TIME	ELAPSED TIME	COMMENTS
1. TEDLAR BTXE #1		0900	1000	1 hr	150 cc/m
TXE #2		1005	1105	1 hr	
BTXE #3		1108	1208	1 hr	

REMARKS: All bags taken during PAH #2 run

PLANT: Dexzel
LOCATION: Bakersfield
COUNTY: Kern
UNIT: COGEN
DATE: 5-27-92
RUN NO./METHOD: 1 NH3
COLD BOX NO.:
METER BOX NO.: 2 Y@ = 1.7041
METER FACTOR: Y = 0.9788
PITOT #/ FACTOR: NA
PYROMETER #: NA
MAGNEHELIC FACTOR: ΔP NA ΔH



FILTER NO. NA
AMBIENT TEMP.: 85
BARAMETRIC PRESS.,IN.HG.: 30.05 30.07
ASSUMED MOISTURE: 5%
HEATER BOX SETTING: NA
PROBE LENGTH,FT. 5' glass
NOZZLE DIAMETER,IN.: NA
PROBE HEATER SETTING: NA
APPROX.WIND VEL.,MPH: 0-10
SAMPLE BOX TEMP.,(F): <60
DRI-RRITE WT. : —
STATIC PREASURE: — "H2O —

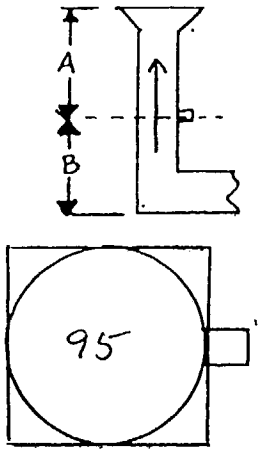
TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM),FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
Center of Stack				1745 00	NA	NA	NA	1.7	580.575	96	100	5	<60
				05									
				1758 10				1.70	588.40	99	104	5	<60
				15									
				1808 20				1.70	595.20	99	103	5	<60
				25									
				1818 30				1.70	603.40	98	102	5	<60
				35									
				1828 40				1.70	610.90	99	103	5	<60
				45									
				1838 50				1.70	618.40	98	103	5	<60
				55									
STOP	ZERO			1848 60					626.557				
	SPAN												
AVERAGE				60 min				1.70	45.982		100.3		

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

SAMPLE TRAIN LEAK:
BEFORE= 0.017 CFM@ 15 IN. HG.
AFTER= 0.01 CFM@ 6 IN. HG.

COMMENTS: PURGE 1850 - 1910

PLANT: DEXZEL
LOCATION: BAKERSFIELD
COUNTY: KERN
UNIT: CO-GEN
DATE: 5-28-92
RUN NO./METHOD: 2 NH3
COLD BOX NO.: 2
METER BOX NO.: 2
METER FACTOR: Y = 0.9788 ΔH@ = 1.7041
PITOT #/ FACTOR: NA
PYROMETER #: NA
MAGNEHELIC FACTOR: ΔP ΔH 0-5



FILTER NO. NA
AMBIENT TEMP.: 80
BARAMETRIC PRESS.,IN.HG.: 30.05
ASSUMED MOISTURE: 5%
HEATER BOX SETTING: —
PROBE LENGTH,FT. 5' glass
NOZZLE DIAMETER,IN.: NA
PROBE HEATER SETTING: NA
APPROX.WIND VEL.,MPH: 0-10
SAMPLE BOX TEMP.,(F): 260
DRI-RRITE WT. :
STATIC PREASURE: NA "H2O

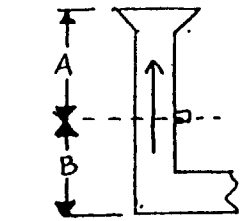
TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM),FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
Center				1100 00	NA	NA	NA	1.70	640.697	90	92	8	<66
				10				1.7	647.1	91	92	8	<60
				20				1.7	655.0	91	91	8	<60
				30				1.7	662.5	91	91	8	<60
				40				1.7	671.5	90	90	8	<66
				50				1.7	678.3	90	91	8	<60
				STOP 60					685.980				
								1.70	45.283		90.8		
	ZERO												
	SPAN												
AVERAGE													

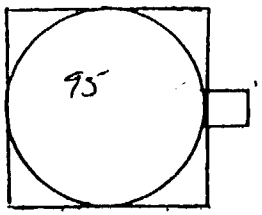
PITOT LEAK CHECK:
BEFORE: TOP ΔP= NA ΔP= NA BOTTOM ΔP= NA ΔP= NA
AFTER: TOP ΔP= NA ΔP= NA BOTTOM ΔP= NA ΔP= NA

SAMPLE TRAIN LEAK:
BEFORE= 0.005 CFM@ 15 IN. HG.
AFTER= 0.007 CFM@ 10 IN. HG.

COMMENTS: PURGE 1102 - 1122

PLANT: DEXZEL
LOCATION: Bakersfield
COUNTY: KERN
UNIT: COGEN
DATE: 5-28-92
RUN NO./METHOD: 3 NH3
COLD BOX NO.: 2
METER BOX NO.: 2
METER FACTOR: Y = 0.9738 ΔH@ = 1.7041
PITOT #/ FACTOR: NA
PYROMETER #: NA
MAGNEHELIC FACTOR: ΔP NA ΔH 0-5





FILTER NO. NA
AMBIENT TEMP.: 87
BARAMETRIC PRESS.,IN.HG.: 30.05
ASSUMED MOISTURE: 5%
HEATER BOX SETTING: NA
PROBE LENGTH,FT. 5' 4/NOSS
NOZZLE DIAMETER,IN.: —
PROBE HEATER SETTING: —
APPROX.WIND VEL.,MPH: 0-10
SAMPLE BOX TEMP.,(F): <60
DRI-RRITE WT. : —
STATIC PREASURE: — "H2O

TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM),FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
				1445 00	NA	NA	NA	1.7	701.687	93	92	8	<60
				10				1.7	709.2	93	94	8	<60
				20				1.7	716.6	93	94	8	<60
				30				1.7	724.6	93	94	8	<60
				40				1.7	733.3	94	94	8	<60
				50				1.7	740.4	93	94	8	<60
				STOP 60					748.803				
	ZERO												
	SPAN							1.7	47.116		93.4		
AVERAGE													

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

SAMPLE TRAIN LEAK:
BEFORE= 0.007 CFM@ 15 IN. HG.
AFTER= 0.007 CFM@ 10 IN. HG.

COMMENTS: PURGE 1547 - 1607

Imp. 347 - 271 = 76
S.Gal 328.5 - 308.22 = 20.3

METHOD 8 - PARTICULATE CLEAN-UP SHEET

Date 5/22/92
Run No. 1-NH3
Sample Recovered by AP
Sample Box No. _____

Client Dexzel Pix
WO No. D02-001
Plant Dexzel Cogeneration

PARTICULATE - FRONT HALF

Nozzle & Probe Acetone Wash — Lab No. _____ Residue: _____ mg

Cyclone & Flask Acetone Wash — Lab No. _____ Residue: _____ mg

Filter No.	Lab No.	Weight
_____	_____	_____ mg
_____	_____	_____ mg
_____	_____	_____ mg
_____	_____	_____ mg

Total Filter Particulate _____ mg

Front Half Total _____ mg

MOISTURE

Impinger No.	Final Weight	Initial Weight	Net Weight
1	2265	200	26.5
2			
_____	_____	_____	_____

Total Imp. Gain 26.5 g

SILICA GEL

Container No.	Final Weight	Initial Weight	Net Weight
Si.Gel	289.7	282.7	7.0
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Total Si. Gel Gain 7.0 g

Total Moisture 33.5 g

METHOD 8 - PARTICULATE CLEAN-UP SHEET

Date 5/28/92 Client Dexzol
Run No. 2-NH_3 WO No. D02-001
Sample Recovered by RV Plant Cogeneration
Sample Box No. _____

PARTICULATE - FRONT HALF

Nozzle & Probe Acetone Wash Lab No. _____ Residue: _____ mg

Cyclone & Flask Acetone Wash Lab No. _____ Residue: _____ mg

Filter No.	Lab No.	Weight	
_____	_____	_____	mg
_____	_____	_____	mg
_____	_____	_____	mg
_____	_____	_____	mg

Total Filter Particulate _____ mg

Front Half Total _____ mg

MOISTURE

Impinger No.	Final Weight	Initial Weight	Net Weight
1&2	2735	2000	735

Total Imp. Gain 735 g

SILICA GEL

Container No.	Final Weight	Initial Weight	Net Weight
Si Gel	2841.0	2683	157

Total Si. Gel Gain 157 g

Total Moisture 892 g

ORSAT DATA SHEET
METHOD 3

Facility: Dexzel Cogeneration Job #: D02-001

Source: Cogeneration Stack Date: 5/27/92

Run #: 1 By: RV

Gas \ Run	1		2		3		Avernge Net Volume
	Actual Reading	Net	Acutal Reading	Net	Actual Reading	Net	
CO_2		3.6		3.6		3.6	3.6
O_2 (Net is Actual O_2 minus Actual CO_2 Reading)	18.2	14.6	18.2	14.6	18.2	14.6	14.6
CO (Net is Actual CO minus Actual O_2 reading)							
N_2 (Net is 100 minus Acutal CO reading)							

ORSAT DATA SHEET
METHOD 3

Facility: Dexter Cogeneration

Job #: DC2-001

Source: Cogeneration Stack

Date: 5/25/92

Run #: 2

By: BV

Gas \ Run	1		2		3		Average Net Volume
	Actual Reading	Net	Acutal Reading	Net	Actual Reading	Net	
CO_2		3.6		3.6		3.6	3.6
O_2 (Net is Actual O_2 minus Actual CO_2 Reading)	18.2	14.6	18.2	14.6	18.2	14.6	14.6
CO (Net is Actual CO minus Actual O_2 reading)							
N_2 (Net is 100 minus Acutal CO reading)							

ORSAT DATA SHEET
METHOD 3

Facility: Dexzol Cogeneration

Job #: 202-001

Source: Cogeneration Stack

Date: 5/20/92

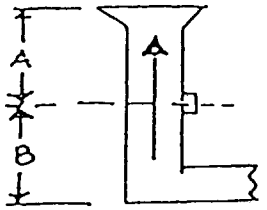
Run #: 3

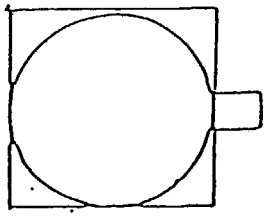
By: RV

Gas \ Run	1		2		3		Average Net Volume
	Actual Reading	Net	Acutal Reading	Net	Actual Reading	Net	
CO_2		3.7		3.6		3.7	3.7
O_2 (Net is Actual O_2 minus Actual CO_2 Reading)	18.0	14.3	18.2	14.6	18.2	14.5	14.5
CO (Net is Actual CO minus Actual O_2 reading)							
N_2 (Net is 100 minus Acutal CO reading)							81.8

DOZ-COI

PLANT: DEXZEL
LOCATION: BAKERSFIELD
COUNTY: KERN
UNIT: JERRY LEE WASH TANK
DATE: 5/29/92
RUN NO./METHOD: 1 H2S
COLD BOX NO.:
METER BOX NO.: 1.0487
METER FACTOR: Y=1.0076 H@=1.7159
PITOT #/ FACTOR: —
PYROMETER #: —
MAGNEHELIC FACTOR: ΔP — ΔH SKC





FILTER NO.: —
AMBIENT TEMP.:
BARAMETRIC PRESS.,IN.HG.:
ASSUMED MOISTURE: 2%
HEATER BOX SETTING: —
PROBE LENGTH,FT.: Teflon
NOZZLE DIAMETER,IN.: —
PROBE HEATER SETTING: —
APPROX.WIND VEL.,MPH: 0-5
SAMPLE BOX TEMP.,(F): 90
STATIC PREASURE: — "H2O
OFFSET: — in. PORT DIA.: — in. (M / F)

TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM),FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm).	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
Style	START			0842				1.084	927.002	74	73	<1	
				0852					927.340	87	80	<1	
				0902					927.691	84	81	<1	
	STOP			0912					928.041				
				=					=		=		
				30 min									
									1.039		80		
	ZERO						pos cal	1.064	29.42 ℓ				
	SPAN												
AVERAGE													

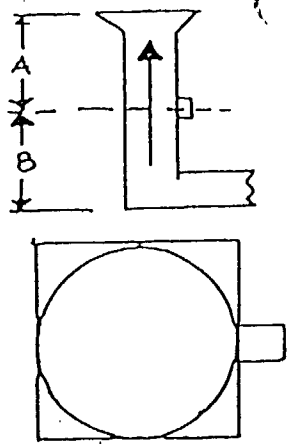
PITOT LEAK CHECK:
BEFORE: TOP ΔP= BOTTOM ΔP=
ΔP= ΔP=
AFTER: TOP ΔP= BOTTOM ΔP=
ΔP= ΔP=

SAMPLE TRAIN LEAK:
BEFORE= 0 CFM@ 6 IN. HG.
AFTER= 0 CFM@ 6 IN. HG.

COMMENTS: PURGE 15.

D02-001

PLANT: DEXZEL
LOCATION: BAKERSFIELD
COUNTY: KERN
UNIT: Jerry Lee Wash Tank
DATE: 5/29/92
RUN NO./METHOD: 2 H_2S
COLD BOX NO.: —
METER BOX NO.: 1
METER FACTOR: ~~y = 1.0014~~ y = 1.7959
PITOT #/ FACTOR: 1.0437
PYROMETER #: —
MAGNEHELIC FACTOR: ΔP — ΔH SAME



FILTER NO.: —
AMBIENT TEMP.:
BARAMETRIC PRESS.,IN.HG.:
ASSUMED MOISTURE: 2%
HEATER BOX SETTING: —
PROBE LENGTH,FT.: —
NOZZLE DIAMETER,IN.: —
PROBE HEATER SETTING: —
APPROX.WIND VEL.,MPH: 0-5
SAMPLE BOX TEMP.,(F): —
STATIC PREASURE: — "H2O
OFFSET: — in. PORT DIA.: — in. (M / F)

TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM), FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
				START →	0956			1.054	928.901	85	84	1	
					1								
					1006				929.250	85	84	1	
					1016				929.598	84	83	1	
				STOP	1026				929.946				
									=		=		
								1.054	1.045		84		
									29.594				
	ZERO												
	SPAN												
AVERAGE													

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

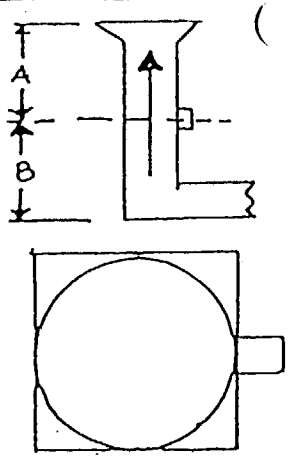
SAMPLE TRAIN LEAK:
BEFORE= 0 CFM@ 4.5 IN. HG.
AFTER= 0 CFM@ 4.5 IN. HG.

COMMENTS: PURGE 15 mn

HORIZON

120C-001

PLANT: DEXZEL
LOCATION: BAKERSFIELD
COUNTY: KERN
UNIT: Jerry Lee Wash Trm
DATE: 5/29/92
RUN NO./METHOD: 3 H2S
COLD BOX NO.: -
METER BOX NO.: 1
METER FACTOR: y=1.0016 H@ 1.7959
PITOT #/ FACTOR: -
PYROMETER #: -
MAGNEHELIC FACTOR: ΔP - ΔH SKC



FILTER NO.: -
AMBIENT TEMP.:
BARAMETRIC PRESS.,IN.HG.:
ASSUMED MOISTURE: 2%
HEATER BOX SETTING: -
PROBE LENGTH,FT.: Teflon
NOZZLE DIAMETER,IN.: /
PROBE HEATER SETTING: /
APPROX.WIND VEL.,MPH: 0-5
SAMPLE BOX TEMP.,(F): Ice
STATIC PREASURE: - "H2O
OFFSET: ~ in. PORT DIA.: - in. (M / F)

TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM), FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
			START	11:08	41			1.084~	930.839	88	83	9	
				11:18					931.182	89	86	1	
				11:28					931.534	89	86		
				11:38					931.882				
									~		2		
									1.043		87		
								1.084~	29.54 l				
	ZERO												
	SPAN												
AVERAGE													

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

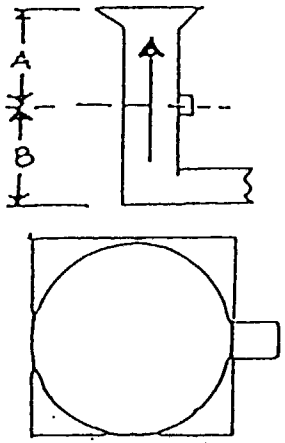
SAMPLE TRAIN LEAK:
BEFORE= 0 CFM@ 4 IN. HG.
AFTER= 0 CFM@ 4 IN. HG.

COMMENTS: PURGE 15 mm

HORIZON

DUC-001

PLANT: DEXZEL
LOCATION: BAKERSFIELD CA
COUNTY: KERN
UNIT: FERNR WASH TM
DATE: 5/29/92
RUN NO./METHOD: 1 H2S
COLD BOX NO.: -
METER BOX NO.: 2
METER FACTOR: 1.09788 AH@=1.7041
PITOT #/ FACTOR: 1.0366
PYROMETER #: -
MAGNEHELIC FACTOR: ΔP - ΔH SKC



FILTER NO. ^
AMBIENT TEMP.:
BARAMETRIC PRESS.,IN.HG.:
ASSUMED MOISTURE: 2%
HEATER BOX SETTING: -
PROBE LENGTH,FT. teflon
NOZZLE DIAMETER,IN.: -
PROBE HEATER SETTING: -
APPROX.WIND VEL.,MPH: 0-5.
SAMPLE BOX TEMP.,(F): 85°
STATIC PREASURE: - "H2O
OFFSET: - in. PORT DIA.: - in. (M / F)

TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM), FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
		START	—	0907				1.044	759.908	82	82	1	
				0917					760.262	86	83	1	
				0927					760.615	92	86	1	
				0937					760.942	90	87	1	
				0947					761.306	88	87	1	
				0957				1	761.669	88	87		
	ZERO	STOP	—	1007					762.032				
	SPAN								=		=		
AVERAGE								1.034	2.124		86		

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

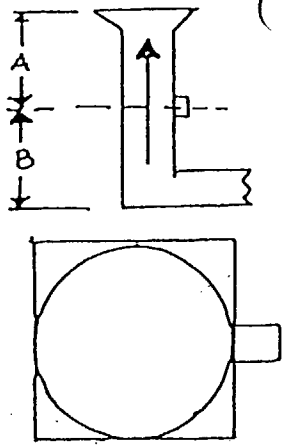
SAMPLE TRAIN LEAK:
BEFORE= 0 CFM@ 7 IN. HG.
AFTER= 0 CFM@ 7 IN. HG.

COMMENTS: PURGE 15

HORIZON

DO7-201

PLANT: DEXZEL
LOCATION: BAKERSFIELD CA
COUNTY: KERN
UNIT: FRONT WEST TANK
DATE: 5/29/92
RUN NO./METHOD: 2 H_2S
COLD BOX NO.: -
METER BOX NO.: 2
METER FACTOR: Y= 0.9788 HR = 1.7041
PITOT #/ FACTOR: 1.0386
PYROMETER #: -
MAGNEHELIC FACTOR: ΔP - ΔH SAC



FILTER NO.: -
AMBIENT TEMP.:
BARAMETRIC PRESS.,IN.HG.:
ASSUMED MOISTURE: 2%
HEATER BOX SETTING: ~
PROBE LENGTH,FT.: Teflon
NOZZLE DIAMETER,IN.: -
PROBE HEATER SETTING: -
APPROX.WIND VEL.,MPH: 0-5
SAMPLE BOX TEMP.,(F): 90°
STATIC PREASURE: - "H2O
OFFSET: - in. PORT DIA.: - in. (M / F)

TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	VELOCITY HEAD IN. H2O √ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM),FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	GAS SAMPLE TEMP. @DRY GAS METER OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
			START	1039				1.034 ~	762.586	90	89	i	
				1049					762,944	90	89	1	
				1059					763.301	90	89	1	
				1109					763.676	91	89	1	
				1119					764.042	91	90	1	
				1129					764.397	91	90		
	ZERO			~~1139~~ 1140					764.793		=		
	SPAN			6 min					=				
AVERAGE									2.207		90		

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

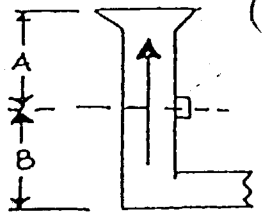
62.50 L
SAMPLE TRAIN LEAK:
BEFORE= 0 CFM@ 4.5 IN. HG.
AFTER= 0 CFM@ 4.5 IN. HG.

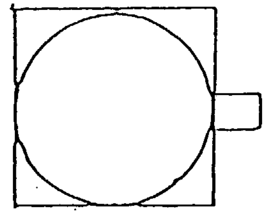
COMMENTS: PURGE 15mn

HORIZON

D07-001

PLANT: Dexzel
LOCATION: Bakersfield
COUNTY: Kern
UNIT: ~~Sulfur~~ Water Tank
DATE: 5/29/92
RUN NO./METHOD: 3 H_2S
COLD BOX NO.: -
METER BOX NO.: # 2
METER FACTOR: ~~.9541.0016~~ ~~HC=1.9148~~
PITOT #/ FACTOR: Y=0.9788 HC=1.7041
PYROMETER #: Y=1.0386
MAGNEHELIC FACTOR: ΔP - ΔH SxC





FILTER NO.: -
AMBIENT TEMP.:
BARAMETRIC PRESS.,IN.HG.:
ASSUMED MOISTURE: 2%
HEATER BOX SETTING: -
PROBE LENGTH,FT.: Teflon
NOZZLE DIAMETER,IN.: =
PROBE HEATER SETTING: -
APPROX.WIND VEL.,MPH: 0-5
SAMPLE BOX TEMP.,(F): 90
STATIC PREASURE: / "H2O
OFFSET: — in. PORT DIA.: / in. (M / F)

TRAVERSE POINT NUMBER	DISTANCE INCHES	O2 (%)	CO2 (%)	SAMPLE TIME MIN.	STACK TEMP. (Ts), F	VELOCITY HEAD IN. H2O ΔP	√ΔP	PRESSURE DIFF ORIFICE METER (ΔH) IN.H2O	DRY GAS SAMPLE VOLUME (VM),FT.	GAS SAMPLE TEMP. @DRY GAS METER INLET (Tm),	OUTLET (TM)	PUMP VACUUM IN.HG	TEMP. LAST IMPINGER (F)
				1202				1,014	765.451	95	94	1	
				1212					765.820	97	95	1	
				1222					766.178	99	96	1	
				1232					766.535	100	97	1	
				1242					766.904	101	98	1	
				1252					767.260	102	99	1	
	ZERO			1302					767.628		=		
	SPAN								=		98		
AVERAGE									2.177				

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

61.65 l
BEFORE= 0
AFTER= 0

SAMPLE TRAIN LEAK:
CFM@ 6½ IN. HG.
CFM@ 6½ IN. HG.

COMMENTS:
PURGE 15.

HORIZON

INTEGRATED BAG SAMPLING DATA FORM

Run number 1

Date 5-29-92 Plant DEXZEL

Sampling location JERRY LEE NON VAPOR RECOVERY TANK T-402

Barometric pressure _____

Ambient temp. °F 75 TANK ~~Stack~~ temp. °F 132

Operator RH, AR, RV

OIL & WATER

Time	Traverse point	Rate meter flow, rate (Q), cm^3/min	% Dev.[a]
838	12" INTO TANK ~~ABOVE~~	300 cc/min	
848 10		300	
858 20		300	
908 STOP 30		300	
		Avg =	

[a] $\%\ Dev. = \left(\frac{Q - Q_{avg}}{Q_{avg}}\right) 100$; must be $\leq 10\%$.

TANK level about 1/2 full

LEAK F - OK

INTEGRATED BAG SAMPLING DATA FORM

Run number 2

Date 5-29-92 Plant DEXZELL

Sampling location JERRY LEE TANK T-402

Barometric pressure _____

Ambient temp. °F 80 ~~Stack~~ TANK temp. °F 132

Operator _____

	Time	Traverse point	Rate meter flow, rate (Q), cm^3/min	% Dev.[a]
	909		300	
	919		300	
	929		300	
STOP	939		300	
			Avg =	

[a] % Dev. = $\left(\frac{Q - Q_{avg}}{Q_{avg}}\right)$ 100; must be ≤10%.

TANK ABOUT 1/2 FULL CND 4' FROM TOP

LEAK ✓ OK

INTEGRATED BAG SAMPLING DATA FORM

Run number 3

Date 5-29-92 Plant DEXTER

Sampling location JERRY LEE TANK # T-402

Barometric pressure _____

Ambient temp. °F _____ Stack temp. °F 130

Operator RH, AP, RV

Time	Traverse point	Rate meter flow, rate (Q), cm^3/min	% Dev.[a]
1105		300	
1115		300	
1125		300	
1135		300	
		Avg =	

[a] % Dev. = $\left(\frac{Q - Q_{avg}}{Q_{avg}}\right)$ 100; must be ≤10%.

TANK LEVEL 4' FROM TOP

LEAK ✓ - ok

INTEGRATED BAG SAMPLING DATA FORM

Run number 1

Date 5-29-92 Plant DEXZEL

Sampling location FENCE 5795 (VAPOR RECOVERY

Barometric pressure _____

Ambient temp. °F 75 ~~Stack~~ TANK temp. °F 110

Operator RJH, AP, RV

CRUDE OIL

Time	Traverse point	Rate meter flow, rate (Q), cm^3/min	% Dev.[a]
840	12" ~~INTO~~ TANK ~~ABOVE~~	300 cc/min	
850 10		300	
900 20		300	
910 STOP 30		300	
		Avg =	

[a] % Dev. = $\left(\frac{Q - Q_{avg}}{Q_{avg}}\right)$ 100; must be ≤10%.

TANK LEVEL 6' FROM TOP

LEAK ✓ - OK

INTEGRATED BAG SAMPLING DATA FORM

Run number 2

Date 5-29-92 Plant Dexzel

Sampling location 2

Barometric pressure FERNE TANK 5395

Ambient temp. °~~F~~ 80 ~~Stack~~ TANK temp. °C 110

Operator

Time	Traverse point	Rate meter flow, rate (Q), cm^3/min	% Dev.[a]
915		300	
925		300	
935		300	
945		300	
		Avg =	

[a] $\%\ \text{Dev.} = \left(\frac{Q - Q_{avg}}{Q_{avg}}\right) 100$; must be $\leq 10\%$.

TANK LEVEL ABOUT 6" FROM TOP

LEAK ✓ - OK

INTEGRATED BAG SAMPLING DATA FORM

Run number 3

Date 5-29-92 Plant _____

Sampling location FERNE TANK # 5395

Barometric pressure _____

Ambient temp. °F _____ Stack temp. °F 116

Operator _____

Time	Traverse point	Rate meter flow, rate (Q), cm^3/min	% Dev.[a]
1156		300	
1206		300	
1216		300	
1226		300	
		Avg =	

[a] % Dev. $= \left(\frac{Q - Q_{avg}}{Q_{avg}}\right) 100$; must be $\leq 10\%$.

TANK LEVEL 6' FROM TOP

LEAK ✓ - OK

APPENDIX D

Operating Data

TURBINE GAS GEN SPEED 9,766 RPM AT NOON

ME	CTG MW	FUEL FLW CORR. SCFH	NH3 FLW #/HR	EXH. FLW #/HR	SCR INLT TEMP °F	SCR DP "H2O	H.P STM FLW #/HR	CTG NOX WTR WJ. GPM
1200	22.20	239020	5.39	537987	724	.6213	73668	16.30
1230	22.28	240366	5.5	538072	724.6°F	.6253	73489	16.46
1300	22.34	240882	4.9	540589	726	.6267	73838	16.45
1330	22.26	240561	5.0	536847	725.8	.6260	73501	16.35
1400	22.22	239683	4.97	538663	725.8	.6267	73571	16.29
1430	22.19	239827	4.76	539860	725.2	.6267	73418	16.19
1500	22.26	239197	5.43	538975	725.8	.6261	73085	16.08
1530	22.22	240500	5.49	538031	725.2	.6260	72812	16.18
1600	22.26	238862	5.72	537660	724.8	.6287	73609	16.12
1630	22.21	239973	6.94	539627	725.4	.6300	73,775	16.05
1700	22.17	238387	6.84	535490	725.8	.6307	73041	16.24
1730	22.22	239517	7.54	537061	726.2	.6333	73,802	16.17
1800	22.2	239742	7.74	539983	726.6	.6300	72429	16.14
1830	22.25	239687	7.87	538103	725.8	.6280	72,924	16.10
1900	22.23	238748	7.36	538226	725.6	.6300	73,559	16.03
1930	22.2	239408	7.13	537132	726.2	.6280	73429	15.90
2000								

TURBINE GAS GEN. SPEED 9,766 RPM AT NOON WED. 1200

	CTG MW	FUEL FLW CORR. SCFH	NH3 FLW # HR	EXH. FLW # HR	SCR INLT TEMP °F	SCR DP "H2O	H.P STM FLW # HR	CTG NOX WTR INJ. GPM
	22.20	239020	5.39	537987	724	.6213	73668	16.30
30	22.28	240366	5.5	538072	724.6°F	.6253	73489	16.46
00	22.34	240882	4.9	540589	726	.6267	73838	16.45
30	22.26	240561	5.0	536847	725.8	.6260	73501	16.35
00	22.22	239683	4.97	538663	725.8	.6267	73571	16.29
30	22.19	239827	4.76	539860	725.2	.6267	73418	16.19
00	22.26	239197	5.43	538975	725.8	.6261	73085	16.08
30	22.22	240500	5.49	538031	725.2	.6260	72812	16.18
00	22.26	238862	5.72	537660	724.8	.6287	73609	16.12
30	22.21	239973	6.94	539627	725.4	.6300	73,775	16.05
00	22.17	238387	6.84	535490	725.8	.6307	73041	16.24
30	22.22	239517	7.54	537061	726.2	.6333	73,802	16.17
00	22.2	239742	7.74	539983	726.6	.6300	72429	16.14
30	22.25	239687	7.87	538103	725.8	.6280	72,924	16.10
	22.23	238748	7.36	538226	725.6	.6300	73,559	16.03
30	22.2	239408	7.13	537132	726.2	.6280	73429	15.90
00		5/28	THUR.					
00	22.5	243237	6.24	540909	726.4	.6233	74198	16.36
30	22.52	242929	6.07	541861	726.2	.6247	74286	16.47
00	22.5	242812	5.68	541640	725.8	.6247	74006	16.44
30	22.48	242627	6.32	540960	725.8	.6227	74172	16.54
00	22.5	241876	6.05	541367	725.4	.6267	73541	16.20
30	22.5	241330	5.94	541435	725	.6227	74194	16.46
00	22.45	241483	5.81	539820	725.3	.6230	74008	16.25
30	22.35	241400	5.32	539954	725.3	.6267	74182	16.38
00	22.32	241048	5.87	539651	725.3	.6260	74047	16.26
30	22.20	239786	5.35	539820	725.2	.6263	73726	16.32
00	22.30	239894	5.10	540073	725.0	.6267	73892	16.35
30	22.27	240226	4.64	536390	725.2	.6273	74300	16.20
00	22.21	247931	5.29	539202	725	.6267	73627	16.04
30	22.20	247893	6.01	539287	725	.627	73628	16.05
00	22.18	247871	6.67	539567	725	.628	74453	16.07
30	22.20	239923	6.26	539659	725	.612	74282	16.06
00	22.18	247562	6.14	540109	725.2	.614	73401	16.1

APPENDIX E

Calibration Data

Magnehelic Gauge Bi-Monthly Calibratio

0" - 1" Range

Date: 05-22-92

Barometric Pressure: 29.17

Calibrated by: A. Pecaut

Target	1.0"		1.0"	
Magnahelic serial #	R90207MR96		R910710SC117	
Leak Check (y/n):	Yes		Yes	
	reference	gauge	reference	gauge
	0.20	0.20	0.20	0.20
	0.40	0.40	0.40	0.40
	0.60	0.59	0.60	0.60
	0.80	0.78	0.80	0.79
Correction Factor:	1.00	0.98	1.00	0.99
		1.0169		1.0084

Date: 5/22/92

Calibrated by: [signature]

HORIZON

Magnehelic Gauge Calibration Data

0-5.0" Range

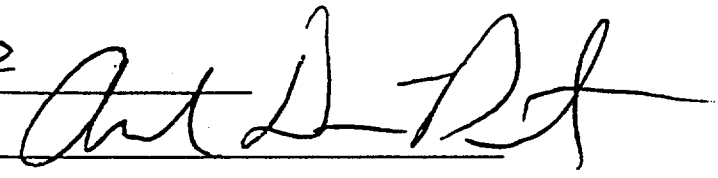
Date: 05-22-92

Barometric Pressure: 29.17 "Hg

Calibrated by: A. Pecaut

Reference serial #	R81207CS28		R81117LG11	
	reference	gauge	reference	gauge
	1.00	0.980	1.00	1.00
	2.00	1.950	2.00	1.90
	3.00	2.900	3.00	2.90
	4.00	3.850	4.00	3.95
	5.00	4.900	5.00	4.95
Corection Factor		1.0288		1.0204

Date: 5/22/92

Calibrated by: 

HORIZON

Magnehelic Gauge Bi-Monthly Calibration Data
0"-5" Range

Date: 01-10-92

Barometric Pressure: 29.23 "Hg

Calibrated by: A. Pecaut

RANGE	0-5.0"		0-5.0"		0-5.0"		0-5.0"		0-5.0"	
Magnahelic serial #	R81207CS28		R81117LG11		R890412RR9		R89041319888		4911022MP159	
Leak Check (y/n):	Yes		Yes		Yes		Yes		Yes	
	refrence	gauge	reference	gauge	reference	gauge	reference	gauge	reference	gauge
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2.0	2.0	2.1	2.0	2.1	2.0	2.1	2.0	2.1	2.0	2.0
3.0	3.0	3.1	2.9	3.0	3.0	3.1	3.0	3.1	3.0	2.9
Corection Factor		0.976		0.975		0.962		0.968		1.017

Date: 1-16-92

Calibrated by: [signature]

Control Box Calibration Data

ate: 05-04-92 Calibrated by: A. Pecaut

DGM number: 1 Barometric Pressure: 29.18

rifice setting (H)	Gas Volumes: Wet Test (cu.ft)	Gas Volumes: Dry Gas Initial (cu.ft)	Gas Volumes: Dry Gas Final (cu.ft)	Temperatures: DGM Initial (F)	Temperatures: DGM final (F)	Temperatures: WTM (F)	Time (min)	Y	H@
0.5	4.406	298.832	303.355	87	89	72	11	1.0022	1.7486
1	5.595	304.154	309.883	86	87	72	10	1.0007	1.7972
1	6.178	309.883	316.194	86	87	72	11	1.0031	1.7836
1	6.151	316.194	322.482	86	87	72	11	1.0023	1.7993
1.5	6.870	392.426	399.422	87	87	77	10	0.9965	1.8202
2	7.908	400.230	408.230	88	89	77	10	1.0046	1.8266
						AVERAGE		1.0016	1.7959

alibrated by: _____

eviewed by: _____

HORIZON

Control Box Calibration Data

)ate: 06-24-92 Calibrated by: A. Pecaut

DGM number: 1 Barometric Pressure: 29.07

Gas Volumes				Temperatures			Time	Y
SKC reading (lpm.)	Wet Test (cu.ft)	Dry Gas Initial (cu.ft)	Dry Gas Final (cu.ft)	DGM Initial (F)	DGM final (F)	WTM (F)	(min)	
1.05	1.134	75.998	77.088	81	81	78	30	1.0434
1.06	1.141	77.137	78.233	81	81	78	30	1.0441

							AVERAGE	1.0437

alibrated by: _____

-eviewed by: _____

Control Box Calibration Data

Date: 05-22-92 Calibrated by: A. Pecaut

DGM number: 2 Barometric Pressure: 29.27

Orifice setting (H)	Gas Volumes: Wet Test (cu.ft)	Dry Gas Initial (cu.ft)	Dry Gas Final (cu.ft)	Temperatures: DGM Initial (F)	DGM final (F)	WTM (F)	Time (min)	Y	H@
0.5	2.10708	537.702	539.852	72	75	74	5.00	0.9779	1.6298
1	5.81056	540.209	546.137	75	80	75	10	0.9823	1.7082
1	2.90138	546.137	549.117	79	81	75	5	0.9803	1.7048
1	8.07066	549.117	557.447	81	84	75	14	0.9800	1.7194
1.5	6.96546	557.917	565.151	83	87	75	10	0.9772	1.7585
2	7.99561	565.652	573.976	85	89	76	10	0.9754	1.7795
						AVERAGE		0.9788	1.7041

Calibrated by: _____

Reviewed by: _____

HORIZON

Control Box Calibration Data

Date: 06-24-92 Calibrated by: A. Pecaut

DGM number: 2 Barometric Pressure: 29.07

	Gas Volumes			Temperatures			Time	Y
SKC reading (lpm.)	Wet Test (cu.ft)	Dry Gas Initial (cu.ft)	Dry Gas Final (cu.ft)	DGM Initial (F)	DGM final (F)	WTM (F)	(min)	
1.05	1.149	336.093	337.200	76	78	78	30	1.0333
1.05	1.543	337.283	338.760	78	80	78	40	1.0439

						AVERAGE		1.0386

Calibrated by: _____

Reviewed by: _____

Control Box Calibration Data

ate: 05-22-92
eter Box Number 3
Orifice Number: 1112
GM Number: NA

Calibrated by: A. Pecaut
Barometric Pressure: 29.27
Wet Test Meter Cf: 0.9746

	Gas Volumes			Temperatures			Time	Y	H@
Orifice setting (H)	Wet Test (cu.ft)	Dry Gas Initial (cu.ft)	Dry Gas Final (cu.ft)	DGM Initial (F)	DGM final (F)	WTM (F)	(min)		
0.5	2.916	561.355	564.364	89	90	74	7.0	0.9707	1.7049
1	6.352	564.662	571.202	88	91	74	11.0	0.9716	1.7744
1	2.887	571.202	574.161	90	91	74	5.0	0.9778	1.7716
1	3.458	574.161	577.722	91	91	74	6.0	0.9741	1.7765
1.5	7.020	578.038	585.233	90	93	74	10.0	0.9784	1.7945
2	8.090	585.587	594.158	92	94	74	10.0	0.9479	1.7967
						AVERAGE		0.9701	1.7698

alibrated by: _____

eviewed by: _____

HORIZON

Thermocouple Calibration Data

Date: 3-24-92
Calibrated by: A. Pecaut

	Ice Water		Ambient Air		Boiling Water	
Termocouple ID	reference	Tc	reference	Tc	reference	Tc
Cold Box #1	33	33	66	66	204	206
Cold Box #2	33	34	65	64	204	205
Cold Box #3	33	33	67	67	204	206
Cold Box #4	33	34	67	67	203	205
Cold Box #5	33	33	68	67	204	204
Filter Box #1	33	34	68	68	206	208
Filter Box #2	33	33	67	67	206	209
DGM #1 In	35	35	67	69	203	204
DGM #1 Out	34	35	67	68	202	203
DGM #2 In	34	34	67	68	202	203
DGM #2 Out	35	35	67	67	204	205
DGM #3 In	34	35	68	68	204	206
DGM #3 Out	33	33	68	67	204	204

Calibrated by: _____

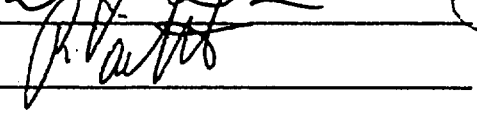
Reviewed by: _____

Thermocouple Calibration Data

Date: 02/28/92
Calibrated by: A. Pecaut

	Ice Water		Ambient Air		Boiling Water	
Termocouple ID	reference	Tc	reference	Tc	reference	Tc
3-1	32	32	68	67	205	208
3-2	32	32	69	67	205	210
3-3	32	32	70	69	203	206
3-4	32	32	70	70	204	208
3-5	32	32	70	69	205	209
5-1	***	***	70	75	***	***
5-2	31	32	70	70	203	206
5-3	30	31	70	70	203	207
5-4	30	32	70	71	203	207
5-5	31	31	70	71	202	206

Calibrated by: 

Reviewed by: 

MANUFACTURER'S CALIBRATION CERTIFICATE

The following record shows the accuracy of your digital flowmeter at tested flow rates compared to NBS (NIST) calibrated standard TN 242118 TELEDYNE HBM-1A #1337.

CALIBRATION DATE: 01/18/91
INTERNAL UNIT #: 5548 SERIAL #: 311114

CALIBRATION FLOW (ml/min)	% ERROR
50.21	-0.65
498.71	0.53
2979.87	0.65

PRESSURE (mb): 1017
TEMPERATURE (C): 23
REL. HUMIDITY (%): 54

CALIBRATED BY: LvL

NOZZLE CALIBRATION

Date 5/22/91 Calibrated by AP

Nozzle identification number	D_1, in.	D_2, in.	D_3, in.	ΔD, in.	D_{avg}
C-1	.142	.141	.143	.002	.142
C-2	.214	.215	.213	.002	.214
C-3	.307	.308	.308	.001	.308
C-4	.492	.496	.494	.004	.494

where:

$D_{1,2,3,}$ = nozzle diameter measured on a different diameter, in.
Tolerance = measure within 0.001 in.

ΔD = maximum difference in any two measurements, in.
Tolerance = 0.004 in.

D_{avg} = average of D_1, D_2, and D_3.

Nozzle calibration data.

NOZZLE CALIBRATION

Date 5/26/92 Calibrated by AP

Nozzle identification number	D_1, in.	D_2, in.	D_3, in.	ΔD, in.	D_{avg}
GLASS #3	0.236	0.236	0.237	0.001	0.236
#13	0.236	0.237	0.237	0.001	0.237

where:

$D_{1,2,3,}$ = nozzle diameter measured or a different diameter, in.
Tolerance = measure within 0.001 in.

ΔD = maximum difference in any two measurements, in.
Tolerance = 0.004 in.

D_{avg} = average of D_1, D_2, and D_3.

Nozzle calibration data.

Pitot ID# 10-1

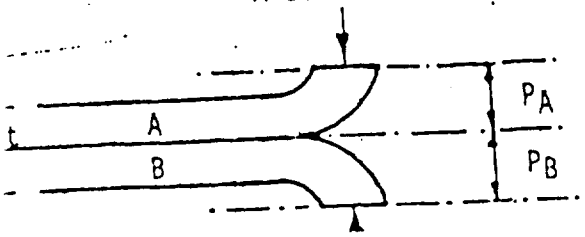
TYPE S PITOT TUBE INSPECTION DATA FORM

Tubing diameter, D_t 0.378 in.

Pitot Tube Assembly Level? (Yes) / No

Pitot Tube Openings Damaged? Yes / (No)

A-SIDE PLANE

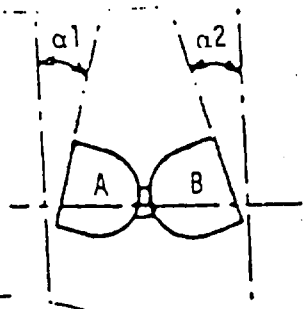


NOTE:

$\begin{cases} 1.05\ D_t < P < 1.50\ D_t \\ P_A = P_B \end{cases}$

P_A = 0.563 in.

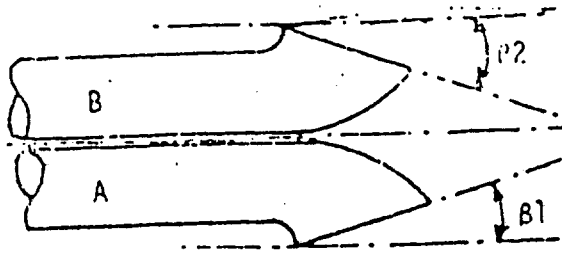
P_B = 0.564 in.



α_1 = 2 °

α_2 = 1 °

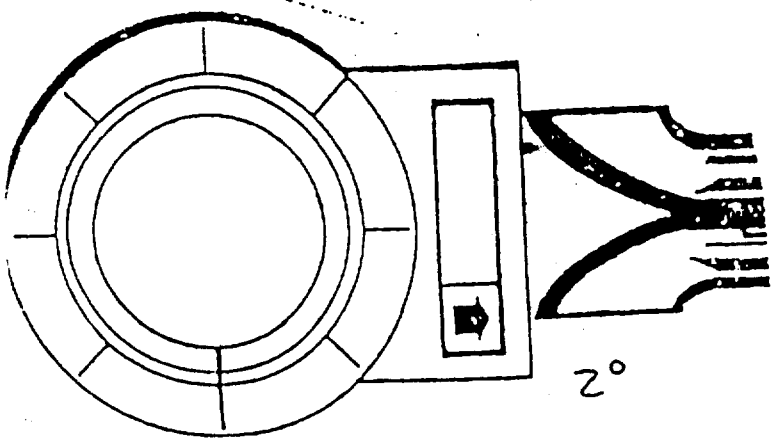
(<10°)

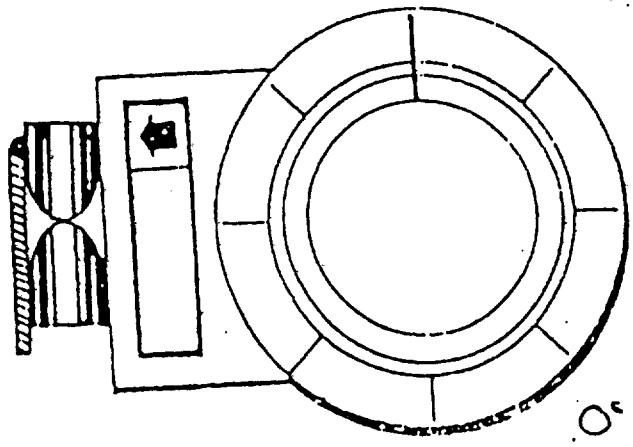


β_1 0 °

β_2 0 °

(< 5°)





Level Position to Find γ

Z = A sin γ 0.035 in. (< 1/8 in.)

Level Position to find θ

W = A sin θ 0 in. (< 1/32 in.)

Comments Used to be pitot ID# S-3

Checked by: AP Date: 11/22/91

Calibration Required? No

APPENDIX F

Calculations

Facility Diesel Cogeneration
Source Stack
Run 2 - PAH

Job No. D02-001
Date 7/7/92
Calc/Review PR

SAMPLE CALCULATIONS

Particulate Isokinetic Sampling

1. Calculations for stack volume and Isokinetic Ratio

Time	Dry Gas Meter ft^3	Pitot ΔP, in. H_2O	Orifice ΔH, in. H_2O	Dry Gas Temp ^oF In	Dry Gas Temp ^oF Out	Stack Static Pressure in. H_2O	Stack Temp ^oF
T	VM	ΔP	PM	TMI	TMO	PST	TS

1. DN - Nozzle Diameter, inches = 0.236 in.
2. PB = Barometric Pressure, inches Hg = 30.02 in. Hg
3. TT = Net Sampling Time, minutes = 180 min.
4. VM = VM final - VM initial = Sample Gas Volume, ft^3 = 156.434 ft^3

4A. VML = Use only if any final or intermediate leak check rate is over 0.02 cfm

LI = Leak rate after any given sampling period, cfm

TLI = Total time of sampling period in which leak occurred, min.

VML = VM - [(L1 - 0.02) TL1 + (L2 - 0.02) TL2 + (L3 - 0.02) TL3 + L4 + 0.02) TL4]

= ( ) - [(- 0.02)( )+(- 0.02)( )+(- 0.02)( )+(- 0.02)( )]

= ( ) - [( )+( )+( )+( )]

= ( ) - ( ) = _____ ft^3

5. TM = Average Dry Gas Temperature at Meter, ^oF

$$TM = \frac{\text{Avg. TMI + Avg. TMO}}{2} = \frac{\quad + \quad}{2} = 90\ ^oF$$

6. PM = Average Orifice Pressure Drop, inches H_2O = 2.43 ÷ 13.6 = ___ in.Hg

PM = Avg. Δ H

7. Volume of dry gas sampled at standard conditions,[a] dscf

$$VMSTD = \frac{528\,(Y)(VM)\left(PB + \frac{PM}{13.6}\right)}{29.92\,(TM + 460)}$$

Y = dry gas meter calibration factor 1.0016

$$= \frac{528\,(\quad)(\quad)(\quad)}{29.92\,(\quad)} = 149.578\ ft^3$$

Job No. D02-04
Run No. 2-PM

8. VW = Total Water Collected = gm H_2O Silica gel + ml Imp. H_2O = ml

( ) + ( ) = 309

9. Volume of water vapor at standard conditions, scf

VW gas = 0.04715 × VW = scf = 0.04715 (309) = 14.569 ft^3

10. Percent moisture in stack gas

$$\%M = \frac{100 \times VW\ gas}{VMSTD + VW\ gas} = \frac{100\ (14.567)}{(149.518) + (14.569)} = \frac{(\quad\cdot\quad)}{(\quad)} = 8.88$$

= 8.88 %

11. Mole fraction of dry gas

$$MD = \frac{100 - \%M}{100} = \frac{100 - (8.88)}{100} = 0.9112$$

12. Molecular weight of dry stack gas

$$MWD = (\%CO_2 \times \frac{44}{100}) + (\%O_2 \times \frac{32}{100} + \left[(\%CO + \%N_2) \times \frac{28}{100}\right]$$

= (3.6 × 0.44) + (14.6 0.32) + (81.8 × 0.28)

= ( ) + ( ) + ( ) = 29.16 lb/lb mole dry

12A. %EA = % Excess Air = $\frac{[(\%\ O_2 - 0.5\ (\%CO)] \times 100}{[(0.264(\%N_2)] - (\%\ O_2) + 0.5\%\ (CO)}$

$$= \frac{(\quad - \quad) \times 100}{[(0.264\ (\quad)] - (\quad) + 0.5\ (\quad)}$$

$$= \frac{(\quad) \times 100}{(\quad) - (\quad) + (\quad)} = \quad\%$$

13. Molecular weight of wet stack gas

MW = MWD × MD + 18 (1 - MD)

= (29.16) (0.9112) + 18(1 - 0.9112)

= ( ) + ( ) = 28.169 lb/lb mole wet

14. AS, = Stack Area, square inches

Circular, $= \left(\frac{\text{Stack diameter}}{2}\right)^2 \pi = \left(\frac{95}{2}\right)^2 \pi =$ 7088 sq. in.

Rectangular, = Length × width=( )( ) = sq. in.

15. PS = Stack Pressure, absolute, inches Hg = PB ± AV PST

PST = Stack static pressure

Job No. D02-001
Run No. 2-PAH

PST in. Hg = $\frac{\text{PST in. } H_2O}{13.6} = \frac{.30}{13.6} =$ .0022 in. Hg

PS = PB ± Avg. PST = (0.022) (30.02) = 30.020 in. Hg

16. TS = Average Stack Temperature, 197 °F + 460 = 657 °R

TS = Average TS $\sqrt{TS_{AV} + 460} =$ 25.632

17. $SDE_{AV} = (\sqrt{\Delta P})_{AV} \times \sqrt{TS_{AV} + 460}$ = (0.9183) (25.632) = 23.538

18. Stack gas velocity at stack conditions, afpm

$VS = 5130^{(e)} \times Cp \times \text{Avg. (SDE)} \times \left[\frac{1}{PS \times MW}\right]^{\frac{1}{2}} = \text{afpm}$ Cp = pitot tube coefficient

$= 5130 \times (0.84) \times (23.538) \times \left[\frac{1}{(30.00)(28.169)}\right]^{\frac{1}{2}} =$ 3489 afpm

19. Stack gas volumetric flow rate at standard conditions,[c] dscfm

$Q_s = \frac{528 \times VS \times AS \times MD \times PS}{(29.92)(144)(TS + 460)} = \text{dscfm}$

$= \frac{528 (3489) \times (7088) \times (0.9112) \times (30.00)}{29.92 \times 144 (657)} =$ 124,186 dscfm

20. Stack gas volumetric flow rate at stack conditions, acfm[d]

$Q_a = \frac{29.92 \times QS (TS + 460)}{(528) (PS) (MD)} = \text{acfm}$

$= \frac{29.92 (124,186)(657)}{528 (30.00)(0.9112)} =$ 171,736 acfm

21. Percent isokinetics

$\% I = \frac{1,039^{(f)} \times (TS + 460) \times VMSTD}{VS \times TT \times PS \times MD \times (DN)^2} =$ 1067

---

[a] Dry standard cubic feet at 68°F (528R) and 29.92 in. Hg.

[b] Standard conditions at 68°F (528R) and 29.92 in. Hg.

[c] Dry standard cubic feet per minute at 68°F (528) and 29.92 in. Hg.

[d] Actual cubic feet per minute

[e] $5130 = 85.5 \frac{ft}{sec}\left[\frac{(lb/lb\ mole)(in.\ Hg)}{(°R)(in.\ H_2O)}\right]^{\frac{1}{2}} \times 60\ sec/min$

$f_{1039} = \frac{29.92 \text{ in. Hg}}{528 \text{ Deg}R} \times \frac{144 \text{ in.}^2}{ft^2} \times \frac{4}{\pi} \times 100$

Emission Rate Example Calculations

1. PAH – Run #1

$$\text{Naphthalene} = \frac{4.7\ \mu g}{\text{sample}} \times \frac{\text{sample}}{138.64\ \text{dscf}} \times \frac{126843\ \text{dscf}}{\text{min}} \times \frac{60\ \text{min}}{1\ \text{hr}} \times \frac{1\ \text{mg}}{1000\ \mu g}$$

$$\text{mg/hr} = 258\ \text{mg/hr}$$

2. Aldehydes – Formaldehyde – Run #1

$$\text{mg/hr} = \left(\frac{1.72\ \mu g/\text{sample} - 1.11\ \mu g/\text{blank}}{1.04\ \text{dscf/sample}}\right) \times \frac{126{,}843\ \text{dscf}}{\text{min}} \times \frac{60\ \text{min}}{1\ \text{hr}} \times \frac{1\ \text{mg}}{1000\ \mu g}$$

$$\text{mg/hr} = 4464\ \text{mg/hr}$$

3. Benzene – Run #1

$$\text{lbs/hr} = 0.00034\ \text{ppm} \times 0.0422 \times 78 \times \frac{1\ m^3}{35.31\ ft^3} \times \frac{1\ \text{lb}}{453{,}590\ \text{mg}} \times \frac{124020\ \text{dscf}}{\text{min}} \times \frac{60\ \text{min}}{1\ \text{hr}}$$

$$= 0.00052\ \text{lbs/hour}$$

4. Ammonia – Run #1

$$\text{lbs/hr} = 0.72\ \text{mg/sample} \times \frac{\text{SAMPLE}}{51.345\ \text{dscf}} \times \frac{126843\ \text{dscf}}{\text{min}} \times \frac{60\ \text{min}}{\text{hr}} \times \frac{\text{lb}}{453.6\ \text{g}}$$

$$\text{lbs/hr} = 0.2353\ \text{lbs/hour}$$

WEIGHT FRACTION CALCULATIONS

In order to convert tank headspace chemical concentrations for the AB 2588 program from parts per million volume to parts per million weight, the tank headspace sample will be analyzed for C_1 through C_6 hydrocarbons in addition to the specific AB 2588 listed substances. The following calculations will be followed to convert the volumetric concentrations to weight fractions.

First the total nonmethane hydrocarbon concentration will be determined.

$$C_{NMHC} = \sum_{n=2}^{6} C_n$$

where:

C_{NMHC} = Total volumetric nonmethane hydrocarbon concentration
C_n = Volumetric concentration of C_2 to C_6 hydrocarbons

Next, an average molecular weight of the nonmethane hydrocarbons will be determined. This is accomplished by multiplying the molecular weight of the C_2 to C_6 hydrocarbons by a ratio of each hydrocarbon concentration to the total nonmethane hydrocarbon concentration. The equation to be used is presented below.

$$MW_{NMHC} = \frac{\sum_{n=2}^{6} C_n MW_n}{C_{NMHC}}$$

where:

MW_{NMHC} = Average molecular weight of total nonmethane hydrocarbons
MW_n = Molecular weight of each C_2 to C_6 hydrocarbon

MW_{C_2} = 30 lb/lb-mole
MW_{C_3} = 44 lb/lb-mole
MW_{C_4} = 58 lb/lb-mole
MW_{C_5} = 72 lb/lb-mole
MW_{C_6} = 86 lb/lb-mole

The molecular weights of C_2 to C_6 hydrocarbons were calculated using the carbon to hydrogen ratio of C_NH_{2N+2}.

Next, an average total hydrocarbon molecular weight is calculated. The average molecular weight is simply the concentration of the methane and nonmethane hydrocarbons multiplied by their respective molecular weights, with the sum divided by the total hydrocarbon concentration. The equation reads as follows:

$$MW_{THC} = \frac{(C_{CH_4})(MW_{CH_4}) + (C_{NMHC})(MW_{NMHC})}{C_{CH_4} + C_{NMHC}}$$

where:

C_{CH_4} = Volumetric concentration of methane
MW_{CH_4} = Molecular weight of methane (16 lb/lb-mole)

Finally, the weight fraction of each AB 2588 compound can be determined. The following equation is utilized.

$$Wt_i = \frac{(C_i)(MW_i)}{(C_{CH_4} + C_{NMHC})(MW_{THC})}$$

where:

Wt_i = Weight fraction of the AB 2588 compound
C_i = Volumetric concentration of the AB 2588 compound
MW_i = Molecular weight of the AB 2588 compound

APPENDIX G

Correspondences

RESOURCE MANAGEMENT AGENCY

RANDALL L. ABBOTT
DIRECTOR

DAVID PRICE III
ASSISTANT DIRECTOR

Air Pollution Co
WILLIAM J. RC

Environmental Health S
STEVE McCALLEY.

Planning & Development
TED JAMES, AIC

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 2

To Debra Bailey | From Luis Rivedeneira

Co. KCAPCD

Phone # 861-3682

Fax # 805-861-2040

Co. Dexzel Cogen/Diamond Energy

Fax # 805-259-5894

AIR POLLUTION CONTROL DISTRICT

May 18, 1992

Mr. Bruce Wertz
Diamond Energy, Inc.
633 W. Fifth St., Suite 2800
Los Angeles, CA 90071

Subject: Biennial Toxic Emission Inventory Plan (BTEIP)
Air Toxics Hot Spots Information and Assessment Act

Regarding: Diamond Energy/Dexzel Cogeneration Source Test

Received: April 27, 1992

Dear Mr. Wertz:

As required by AB2588, the District has reviewed and conditionally approved the source test protocol, subject to the following conditions:

1. CARB Method 430:

   The District requires Dexzel Cogeneration to use the revised CARB 430 Formaldehyde test method. As stated in the method, the Pre-Test Protocol must be submitted for District review and approval at least 48 hours before the source sampling is scheduled to begin.

   Pre-Test Protocol →

2. Stock/Wash Tank Sampling and Analysis:

   A. Emissions Calculations:

      The District requires the emission rates of AB2588 toxic compounds, from petroleum product storage tanks, to be calculated in terms of pounds of toxic per pound of Total Organic Gas (TOG). Please submit sample calculation for determination of TOG emissions from crude storage tanks and the application of source test data to the TOG calculation.

B. Hydrogen Sulfide:

The District requires the use of ST-28 or EPA method 11 for sampling and analysis of Hydrogen Sulfide.

3. QA/QC Audit:

A. Field Inspection:

Please note the District will perform a QA/QC audit of the Dexzel source test. The audit will consist of a field inspection of sampling equipment and methodology to ensure strict conformance with CARB approved procedures.

B. Laboratory Data:

The analytical results will be audited for conformance to CARB approved analytical procedures. Please submit copies, when available, of GC and HPLC chromatograms for all calibration, blank, and sample analysis. The District also requires sample calculations of concentrations and emission rates as derived from GC and HPLC chromatograms, i.e. strip charts.

The District requires the additional information by May 25, this will allow the District two days for review prior to testing.

The District may find it necessary to request additional information and/or require an on-site inspection in the course of reviewing the BTEIP.

Thank you for your cooperation. Should you have any questions, please contact Mr. Luis Paredes or myself, at (805) 861-3682.

Sincerely,

WILLIAM J. RODDY
AIR POLLUTION CONTROL OFFICER

William H. Weese

William Weese
Supervisor Technical Services
Compliance Division

HORIZON
Air Measurement Services, Inc.
(805) 498-8781

D2-01-C1

May 20, 1992

Mr. Luis R. Paredes
Kern County Air Pollution Control District
2700 "M" Street, Suite 275
Bakersfield, CA 93301

Dear Mr. Paredes:

In response to your comments, dated May 18, 1992, concerning the Dexel Cogeneration Source Test Plan, HORIZON is submitting the following Pre-test Protocol for aldehyde testing per our conversation earlier this morning.

We are basing all Planned Sample Volume (PSV) and Planned Sample Time (PST) upon formaldehyde, since formaldehyde is expected to have the highest blank value.

According to our calculations (Table 1) based upon a typical DNPH reagent blank level of 60 ng/ml and your stated sample rate requirement of 100 cc/min, a sample run time of four hours will be required to ensure a TAC of 1 ppm formaldehyde.

Within 48 hours of the start of the test program, four pre-test blanks will be obtained and analyzed to ensure anticipated reagent blank levels are within the expected levels used for the PSV and PST calculations.

Sincerely,

HORIZON AIR MEASUREMENT SERVICES, INC.

Richard J. Vacherot
President

RV:pve

TABLE 1
Sample Volume/ Time Calculations
Method 430

3.5.1 Planned Sample Volume (PSV)

Assume:

TAC = 1 ppm
= 1.25 mg HCHO/dscm
= 1.83 mg HC_3CHO/dscm

ESTFB = 1.5 X 60 mg HCHO/ml X 30 ml = 2700 mg

where, C_{RB} = 10 mg HCHO/ml
V_{ST} = 30 ml
R = 95%

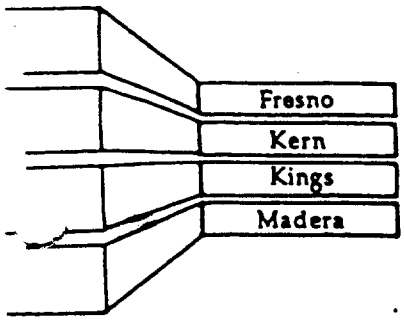
$$PSV_{HCHO} = \frac{10 \times 2700}{1000} \times \frac{100}{95} \times \frac{1}{1.25}$$

PSV_{HCHO} (liters) = 22.74 liters

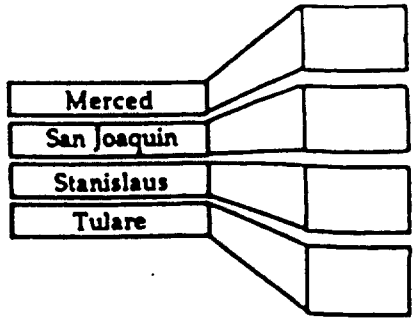
3.5.2 Planned Sample Time (PST)

$$PST \text{ (minutes)} = \frac{22.74 \text{ liters}}{0.1 \text{ L/min}}$$

= 227 minutes
= 3.78 hours (4 hours)



San Joaquin Valley
Unified Air Pollution Control District



May 26, 1992

Mr. John Dydo
Diamond Energy, Inc.
633 W. 5th, Suite 2800
Los Angeles, CA 90071

Subject: Biennial Toxic Emission Inventory Plan (BTEIP)
Air Toxics Hot Spots Information and Assessment Act

Regarding: Dexzel Source Test, CARB method 430 flow rate

Date Received: May 20, 1992

Dear Mr. Dydo :

As required by AB2588, the District has reviewed and approved the Source Test Protocol revisions listed below:

CARB method 430:

The flow rate will be changed from 100 ml/min to 250 ml/min.

Thank you for your cooperation. Should you have any questions, please contact Mr. Luis Paredes or myself at (805) 831-3682.

Sincerely,

DAVID L. CROW
EXECUTIVE DIRECTOR/APCO

MARK BOESE
DEPUTY APCO

William H. Weese

William H. Weese
Toxic Assessment Manager
Southern Region

DEXZEL, INC.
FILE#
DATE: MAY 29 1992
DISTRIBUTION:
HORIZON
JOHN HALEY - CUPT

WW/TP

David L. Crow • Executive Director / APCO
P.O. Box 1312 • Fresno, California 93715 • 2314 Mariposa Street #100 • (209) 488-3330 • FAX (209) 488-3134