STACK EMISSIONS SURVEY
DOLPHIN CONSTRUCTION COMPANY
(A WHOLLY OWNED SUBSIDIARY OF TEXAS INDUSTRIES)
ASPHALT CONCRETE DRUM-MIX PLANT
CALHOUN, LOUISIANA

APRIL 1987

FILE NUMBER 8760-602

Prepared By:

Western Environmental Services and Testing, Inc.
P.O. Box 7513
Beaumont, Texas 77706
(409) 899-4515

TEXAS INDUSTRIES, INC.

EXECUTIVE OFFICES: 8100 CARPENTER FREEWAY • DALLAS, TEXAS 75247 • (214) 637-3100

c/s

May 13, 1987

Chris CC
Jim C-JC

Mr. Tom Coerver
Administrator
Louisiana Department of Environmental Quality
P. O. Box 44096
Baton Rouge, Louisiana 70804

RE: Dolphin Construction Company
Portable Hot Mix Asphalt Plant
near Calhoun, Ouachita Parish, LA

Dear Mr. Coerver:

Please find enclosed three copies of our compliance stack emissions report as per Specific Condition 2 of Permit No. 7777-00022-00. These test results demonstrate that the facility is in compliance with the 0.04 grains/dscf limit as specified in 40 CFR 60 Subpart I.

If you have any questions concerning this matter please contact at this office.

Sincerely,

Jay Lindholm
Environmental Engineer

cc: J. Nelson BAll, Dolphin Construction
w/enclosure

JJL/mkp

TABLE OF CONTENTS

STACK EMISSIONS SURVEY
DOLPHIN CONSTRUCTION COMPANY
(A WHOLLY OWNED SUBSIDIARY OF TEXAS INDUSTRIES)
ASPHALT CONCRETE DRUM-MIX PLANT
CALHOUN, LOUISIANA

INTRODUCTION

Western Environmental Services and Testing, Inc. (WEST, Inc.) of Beaumont, Texas, conducted a Stack Emissions Survey at the Dolphin Construction Company's Asphalt Concrete Drum-Mix Plant located near Calhoun, Louisiana, on April 22, 1987. The purpose of this survey was to determine emissions of particulate matter from the Baghouse Stack of the rotary drying kiln while being fired with Number 2 Diesel. The plant was producing a virgin mix utilizing crushed concrete for aggregate.

Sampling followed the procedures set forth by the Louisiana Department of Environmental Quality, Air Quality Division, and the "New Source Performance Standards" as outlined in the Federal Register, Volume 39, Number 47, Friday, March 8, 1978, with revisions.

Persons present during the sampling were Mr. John Newton, State of Louisiana, Air Quality Division; Mr. Jay Lindholm, Texas Industries; Mr. Jerry Musgrove, Dolphin Construction; and Messrs. James E. Meador, Jr. and Scott Snedden, Western Environmental Services and Testing, Inc.

SUMMARY OF RESULTS

The principal conclusions are:

1. The emissions of particulate matter from the stack were 7.26 pounds per hour (0.0341 grains per dry standard cubic foot), based on averaging the three tests using the front-half collections of the EPA-type sampling train.

2. The allowable particulate emission rate is 0.04 grains per dry standard cubic foot, as stated in the "New Source Performance Standards" for asphalt concrete plants, outlined in the Federal Register, Volume 39, Number 47, Friday, March 8, 1978. The actual emissions were 85.2 percent of the permitted emissions.

SUMMARY OF RESULTS

Run Number	1	2	3
Stack Flow Rate - ACFM	53506	55327	51520
Stack Flow Rate - DSCFM*	24704	25374	24293
% Water Vapor - % Volume	33.69	33.68	31.59
% CO_2 - % Volume	5.7	6.0	5.6
% O_2 - % Volume	11.0	10.8	11.0
% Excess Air At Sampling Point	99	96	99
Particulates			
Probe,Cyclone & Filter Catch (C_{an}) grains/dscf*	0.0405	0.0368	0.0250
grains/cf at Stack Conditions (C_{at})	0.0186	0.0168	0.0117
lbs/hr (C_{aw})	8.574	8.003	5.205
Total Catch (C_{ao}) grains/dscf*	-----	-----	-----
grains/cf at Stack Conditions (C_{au})	-----	-----	-----
lbs/hr (C_{ax})	-----	-----	-----
Process Production Rate - tons/hr	219.8	226.5	216.3
Liquid A.C. Injection - tons/hr	13.9	14.3	14.2
Aggregate Moisture - Percent	6.9	6.9	6.9

* 68°F., 29.92 "Hg (20°C., 760 mm Hg)

DISCUSSION OF RESULTS

The three tests for particulates taken on the stack appeared to be valid representations of the actual emissions during the testing. The indicative parameters calculated from the field data were in close agreement. The moisture percentages were within 4.2 percent of the mean value. The measured flow rates (Q_S) were within 2.4 percent of the mean value. The rates of sampling for the three tests were well within the specified limits of the isokinetic rate, the greatest deviation being 8.0 percent.

The calculated "front-half" emissions (pounds per hour) of particulates from the three tests showed a range of -28.3 percent to +18.1 percent variation from the mean value.

DESCRIPTION OF PROCESS OPERATION

The asphalt concrete drum-mix plant at the Dolphin Construction Company's plant near Calhoun, Louisiana, is an Astec PDM-845-F with a pulse jet Baghouse, Model PBH-50, which exhausts into the atmosphere.

In an asphalt concrete drum-mix plant, sand, gravel, and coarse aggregate are conveyed into a rotary drying kiln. The kiln is heated by a continuous flame. Liquid asphalt is added in the rotary kiln where it is mixed with the hot, dry aggregate. Any dust and fine particles that are not entrained in the asphalt mix are channeled along with the dryer exhaust by an induced fan through the Baghouse. After passing through the Baghouse, the exhaust is ducted into the atmosphere via a stack. The asphalt is conveyed to a bin where it is stored until the asphalt can be transported to the paving site by truck.

DESCRIPTION OF SAMPLING LOCATION

The sampling ports are located on the rectangular baghouse exhaust stack located approximately 30 feet above the ground. The sampling was performed from six ports on the rectangular stack located 6 feet 1 inch (2.04 equivalent stack diameters) downstream of the stack inlet and 1 foot 7 inches (0.53 equivalent stack diameters) upstream of the stack outlet. The area of the stack is 1328 square inches. Port and wall thickness is 1-7/8 inches.

SAMPLING AND ANALYTICAL PROCEDURES

The sampling and analytical procedures used followed the procedures set forth by the Louisiana Department of Environmental Quality, Air Quality Division, and the Federal Register, Volume 39, Number 47, Friday, March 8, 1978, with revisions.

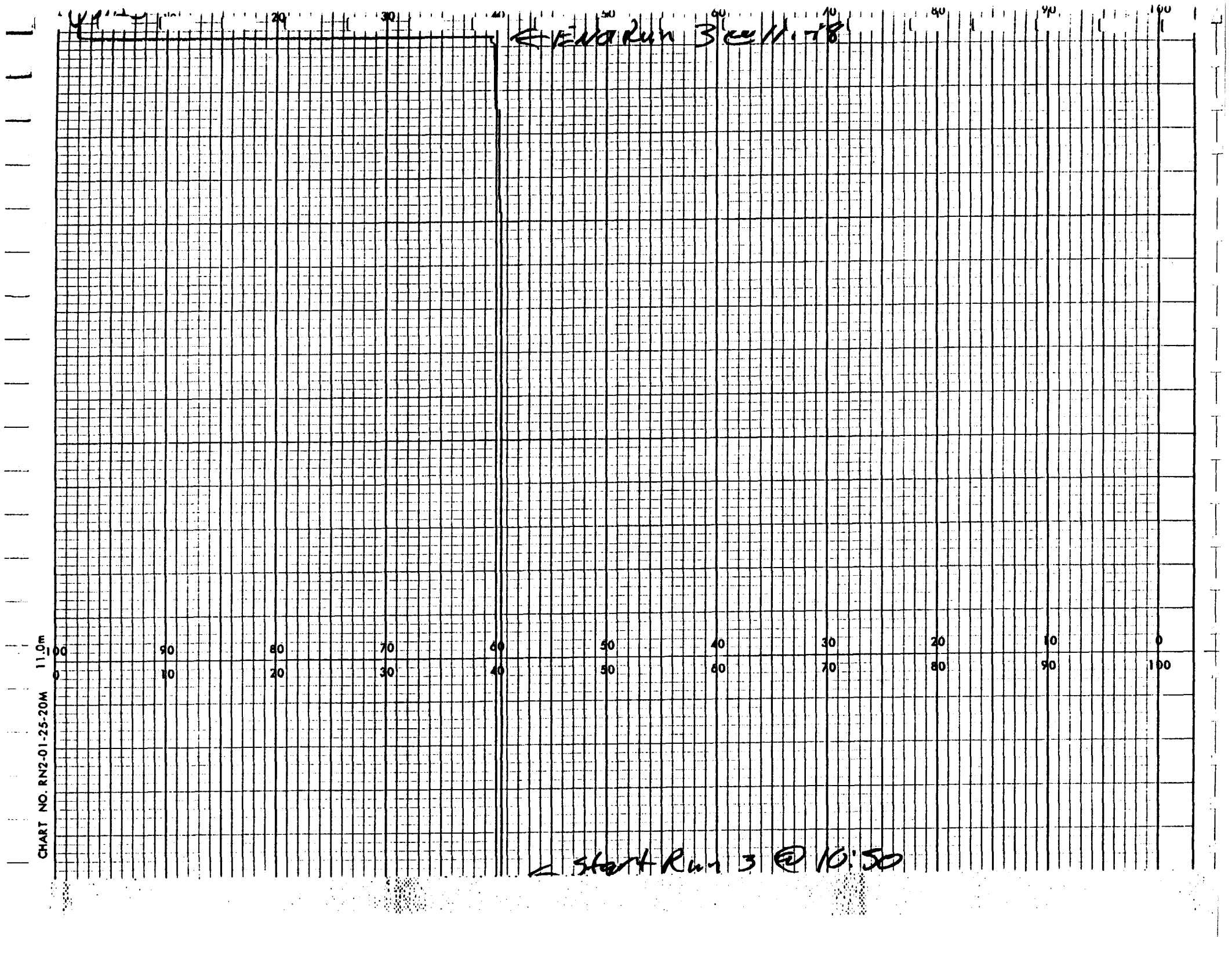
A preliminary velocity traverse was performed at each of the six ports in order to determine the uniformity of flow in the stack. Particulate samples of two-minute duration at each of the five traverse points were taken from each of the six ports using an EPA-type, heated, glass-lined probe. A total of 30 sample points were utilized.

Before each test, the sampling train was leak-checked at 15 inches of mercury at the nozzle. After each test, the train was again leak-checked at the highest recorded vacuum reading during the test. Final leak-checking was performed in order to predetermine the possibility of a diluted sample.

Before and after each test period, the pitot tubes were checked for leaks under both a vacuum and pressure. Also, the lines were checked for clearance and the zero manometer reading verified before and after each test.

The emissions were calculated from gravimetric analysis using the front-half collections of the EPA-type sampling train, in accordance with the EPA "New Source Performance Standards."

Orsat analyses were provided for each test using a grab-type sample.


End Run 3 @ 11:18
Start Run 3 @ 10:50
CHART NO. RN2-01-25-20M
11.0m

DESCRIPTION OF TESTS

Personnel from Western Environmental arrived at the plant at 0900 hours on Tuesday, April 21, 1987. After meeting with plant personnel, the equipment was moved onto the stack. Preliminary data were taken and adjustments made to plant operations. The sampling equipment was secured for the night at 1600 hours.

On Wednesday, April 22, test personnel arrived at the plant at 0730 hours. The equipment was readied for testing. Sampling began at 0836 hours and continued without difficulty until the completion of two tests at 1127 hours. Test three began at 1148, but was interrupted at 1158 hours for roadway construction equipment turnaround. The test resumed at 1306 hours and was completed at 1400 hours.

The equipment was moved off the stack and loaded into the mobile laboratory. All of the samples, which had been recovered immediately after each test, were taken to Western Environmental's laboratory in Beaumont, Texas, for further evaluation and analyses.

Testing at Dolphin Construction Company's asphalt concrete drum-mix plant located near Calhoun, Louisiana, was completed at 1530 hours on Wednesday, April 22, 1987.

James E. Meador, Jr.
Vice President

Alan D. Roylance
Manager of Operations

8760-602

APPENDICES

A. Location of Sampling Points

B. Source Emission Calculations

C. Calibration of Equipment

D. Field Testing Data

E. Analytical Data

F. Plant Operational Data

G. Chain of Custody

H. Resumes of Test Personnel

APPENDIX A

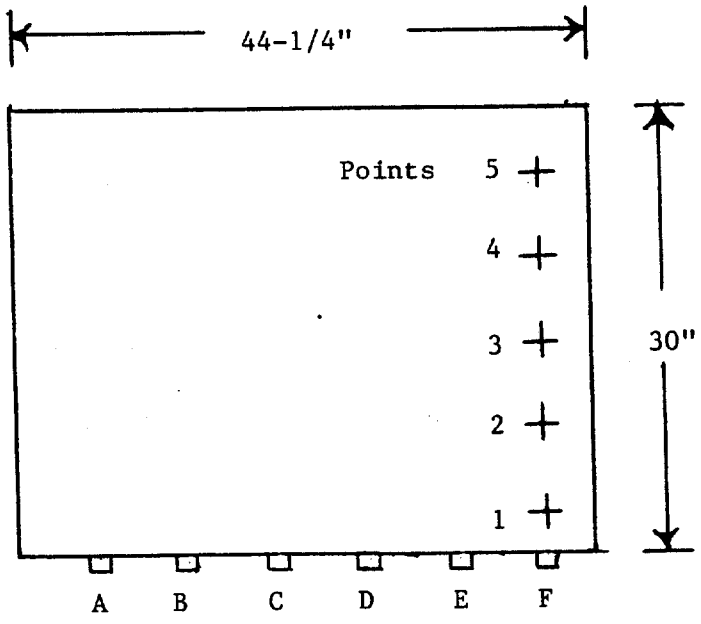
Location of Sampling Points

APPENDIX A

Location of Sampling Points
Drum Kiln Exhaust Stack

The sampling ports are located on the rectangular stack 6 feet 1 inch (2.04 equivalent stack diameters) downstream of the stack inlet and 1 foot 7 inches (0.53 equivalent stack diameters) upstream of the stack outlet. The locations of the sampling points were calculated as follows:

Area of the Stack	=	1328 square inches
Port and Wall Thickness	=	1-1/4 inches
Equivalent Stack Diameter	=	35.76 inches



8760-602

Looking Into Flow

APPENDIX B

Nomenclature and Equations for Calculation of Source Emissions

Nomenclature for Particulate Calculations

Symbol	English Units	Metric Units	Description
A_s	$in.^2$	m^2	Stack Area
C_{an}	gr/dscf	g/dscm	Particulate - Probe, Cyclone and Filter
C_{ao}	gr/dscf	g/dscm	Particulate - Total
C_{at}	gr/CF @ Stack Conditions	g/m^3	Particulate - Probe, Cyclone and Filter
C_{au}	gr/CF @ Stack Conditions	g/m^3	Particulate - Total
C_{aw}	lbs/hr	kg/hr	Particulate - Probe, Cyclone and Filter
C_{ax}	lbs/hr	kg/hr	Particulate - Total
C_p			Pitot Tube Calibration Factor
D_n	in.	m	Sampling Nozzle Diameter
%EA			Percent Excess Air At Sampling Point
g	32.2 ft/sec^2		Acceleration of Gravity
%I			Percent Isokinetic
%M			Percent Moisture in the Stack Gas by Volume

* 528° R, 29.92 "Hg (20°C, 760 mm Hg)

Symbol	English Units	Metric Units	Description
M_d			Mole Fraction of Dry Gas
mf	mg	mg	Particulate - Probe, Cyclone and Filter
M_{H_2O}	18 lb/lb-mole		Molecular Weight of Water
m_t	mg	mg	Particulate - Total
MW_{air}	lb/lb-mole	g/g-mole	Molecular Weight Of Stack Gas
MW	28.95 lb/ lb-mole		Molecular Weight Of Air
MW_d	lb/lb-mole	g/g-mole	Molecular Weight Of Dry Stack Gas
P_b	"Hg Absolute	mm Hg	Barometric Pressure
P_m	"H_2O	mm H_2O	Orifice Pressure Drop
P_s	"Hg Absolute	mm Hg	Stack Pressure
ΔP_s	"H_2O	mm H_2O	Velocity Head of Stack Gas
P_{std}	29.92 "Hg	760 mm Hg	Standard Barometric Pressure
Q_a	ACFM	m^3/hr	Stack Gas Volume At Actual Stack Conditions
Q_s	DSCFM	dscm/hr	Stack Gas Volume At 29.92 "Hg, 528°R, Dry
R	21.83 "Hg ft^3/lb-mole-°R		Universal Gas Constant

* 528°R, 29.92 "Hg (20°C, 760 mm Hg)

Symbol	English Units	Metric Units	Description
T_m	°F	°C	Average Gas Meter Temperature
T_t	min	min	Net Time of Test
T_s	°F	°C	Stack Temperature
T_{std}	528°R	293°K	Standard Temperature
V_m	ft^3	m^3	Volume of Dry Gas Sampled @ Meter Conditions
$V_{m_{std}}$	dscf	dscm	Volume of Dry Gas Sampled @ Standard Conditions
V_s	fpm	m/sec	Stack Velocity @ Stack Conditions
V_w	ml	ml	Total water Collected in Impingers And Silica Gel
$V_{w_{gas}}$	scf	scm	Volume of Water Vapor Collected @ Standard Conditions
ρ_{air}	0.0748 lbs/ft^3		Density of Air
ρ_{H_2O}	1 g/ml		Density of Water
ρ_{man}	51.63 lbs/ft^3		Density of Manometer Oil

Standard Conditions: 68°F, 29.92 "Hg (20°C, 760 mm Hg)

Example Particulate Calculations

1. Volume of Dry Gas Sampled At Standard Conditions.*

$$V_{m_{std}} = V_m \left[\frac{T_{std}}{T_m + 460} \right] \left[\frac{P_b + \frac{P_m}{13.6}}{P_{std}} \right]$$

$$V_{m_{std}} = 17.65\ V_m \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \right] = \text{dscf}$$

$$V_{m_{std}} = \text{dscf} \times 0.028317 = \text{dscm}$$

2. Volume of Water Vapor Collected At Standard Conditions.*

$$V_{w_{gas}} = \frac{(V_w - \text{gms } SO_2 - \text{gms } H_2S)\ \rho_{H_2O}\ R\ T_{std}}{P_{std}\ M_{H_2O}\ 453.6}$$

$$V_{w_{gas}} = 0.0472\ (V_w - \text{gms } SO_2 - \text{gms } H_2S) = \text{scf}$$

$$V_{w_{gas}} = \text{scf} \times 0.028317 = \text{scm}$$

3. Percent Moisture in Stack Gas.

$$\%M = \frac{V_{w_{gas}}}{V_{m_{std}} + V_{w_{gas}}} \times 100 = \%$$

* 528°R, 29.92 "Hg (20°C, 760 mm Hg)

4. Mole Fraction of Dry Gas.

$$M_d = \frac{100 - \%M}{100}$$

5. Average Molecular Weight of Dry Stack Gas.

$$MW_d = \left(\%CO_2 \times \frac{44}{100}\right) + \left(\%O_2 \times \frac{32}{100}\right) + \left(\%N_2 \times \frac{28}{100}\right) + \left(\%CO \times \frac{28}{100}\right) = \text{lb/lb-mole} = \text{g/g-mole}$$

6. Molecular Weight of Stack Gas.

$$MW = MW_d \times M_d + 18\ (1-M_d) = \frac{\text{lb}}{\text{lb-mole}} = \text{g/g-mole}$$

7. Percent Excess Air At Sampling Point.

$$\%EA = \frac{100\ (\%O_2 - 0.5\%\ CO)}{0.265\ (\%N_2) - (\%O_2) + 0.5\ (\%CO)}$$

8. Stack Pressure.

$$P_s = P_b + \frac{\text{stack pressure } "H_2O}{13.6} = "\text{Hg Absolute}$$

$$P_s = "\text{Hg Abs.} \times 25.4 = \text{mm Hg}$$

* 528°R, 29.92 "Hg (20°C, 760 mm Hg)

9. Stack Velocity At Stack Conditions.

$$V_s = C_p\ 60 \left[\frac{2g \times \rho_{man} \times P_{std} \times MW_{air} \times (T_s + 460) \times \Delta P_s}{12 \times \rho_{air} \times P_s \times MW \times T_{std}} \right]^{1/2}$$

$$V_s = 5123.8\ C_p \left[\frac{(T_s + 460)}{P_s \times MW} \right]^{\frac{1}{2}} \times \text{Average} \left[(\Delta P)^{\frac{1}{2}} \right] = \text{fpm}$$

$$V_s = \text{fpm} \times 0.00508 = \text{m/sec}$$

10. Dry Stack Gas Volume At Standard Conditions.*

$$Q_s = \frac{1}{144} V_s \times A_s \times M_d \times \frac{T_{std}}{T_s + 460} \times \frac{P_s}{P_{std}}$$

$$Q_s = \frac{0.123\ V_s \times A_s \times M_d \times P_s}{T_s + 460} = \text{DSCFM}$$

$$Q_s = \text{DSCFM} \times 1.6990 = \text{dscm/hr}$$

11. Actual Stack Gas Volume At Stack Conditions.

$$Q_a = \frac{V_s \times A_s}{144} = \text{ACFM}$$

$$Q_a = \text{ACFM} \times 1.6990 = \text{m}^3/\text{hr}$$

* 528°R, 29.92 "Hg (20°C, 760 mm Hg)

12. Percent Isokinetic

$$\%I = \frac{V_{m_{std}} \times (T_s + 460) \times P_{std} \times 100 \times 144}{M_d \times T_{std} \times P_s \times T_t \times V_s \times \frac{\pi D_n^2}{4}}$$

$$\%I = \frac{1039\ V_{m_{std}} \times (T_s + 460)}{M_d \times P_s \times T_t \times V_s\ D_n^2}$$

13. Particulate - Probe, Cyclone, and Filter.

$$C_{an} = \frac{m_f}{V_{m_{std}}} \times \frac{1\ gr}{64.8\ mg}$$

$$C_{an} = 0.0154\ \frac{m_f}{V_{m_{std}}} = gr/dscf$$

$$C_{an} = gr/dscf \times 2.290 = g/dscm$$

14. Particulate - Total.

$$C_{ao} = 0.0154 \times \frac{m_t}{V_{m_{std}}} = gr/dscf$$

$$C_{ao} = gr/dscf \times 2.290 = g/dscm$$

* 528°R, 29.92 "Hg (20°C, 760 mm Hg)

15. Particulate - Probe, Cyclone, and Filter At Stack Conditions.

$$C_{at} = C_{an} \times \frac{P_s}{P_{std}} \times \frac{(T_{std})}{(T_s + 460)} \times M_d$$

$$C_{at} = \frac{17.65 \times C_{an} \times P_s \times M_d}{T_s + 460} = gr/CF$$

$$C_{at} = gr/CF \times 2.290 = g/m^3$$

16. Particulate - Total, At Stack Conditions.

$$C_{au} = \frac{17.65 \times C_{ao} \times P_s \times M_d}{T_s + 460} = gr/CF$$

$$C_{au} = gr/CF \times 2.290 = g/m^3$$

17. Particulate - Probe, Cyclone, and Filter.

$$C_{aw} = C_{an} \times Q_s \times \frac{60 \text{ min}}{1 \text{ hr}} \times \frac{1 \text{ lb}}{7000 \text{ gr}}$$

$$C_{aw} = 0.00857 \times C_{an} \times Q_s = lbs/hr$$

$$C_{aw} = lbs/hr \times 0.4536 = kg/hr$$

18. Particulate - Total.

$$C_{ax} = 0.00857 \times C_{ao} \times Q_s = lbs/hr$$

$$C_{ax} = lbs/hr \times 0.4536 = kg/hr$$

* 528°R, 29.92 "Hg (20°C, 760 mm Hg)

STACK EMISSIONS SURVEY
DOLPHIN CONSTRUCTION COMPANY
(A WHOLLY OWNED SUBSIDIARY OF TEXAS INDUSTRIES)
ASPHALT CONCRETE DRUM-MIX PLANT
CALHOUN, LOUISIANA

APRIL 1987

FILE NUMBER 8760-602

SOURCE EMISSION CALCULATIONS

Symbol	Description	Units	KILN	KILN	KILN
Run No.			1	2	3
Date			4/22/87	4/22/87	4/22/87
Begin			0836 CDT	1022 CDT	1148 CDT
End			0943 CDT	1127 CDT	1400 CDT
P_b	barometric pressure	"Hg Abs. (mm Hg)	29.75 755.65	29.73 755.14	29.68 753.87
P_m	orifice pressure drop	"H_2O (mm H_2O)	1.12 28.41	1.10 27.85	0.96 24.40
V_m	volume dry gas sampled @ meter conditions	$ft.^3$ (m^3)	38.283 1.083	38.365 1.086	35.81 1.014
T_m	avg. gas meter temp	°F (°C)	68 20	78 25	86 30
$V_{m_{std}}$	volume dry gas sampled @ standard conditions*	dscf (dscm)	38.12 1.079	37.529 1.063	34.471 .976
V_w	total H_2O collected, impingers & silica gel	ml	410.4	403.7	337.3
$V_{w_{gas}}$	volume water vapor collected @ standard conditions*	scf (scm)	19.371 .549	19.055 .54	15.921 .451
%M	moisture in stack gas by volume	%	33.69	33.68	31.59

* 68°F, 29.92 "Hg (20°C, 760 mm Hg)

DOLPHIN CONSTRUCTION COMPANY
FILE NUMBER 8760-602

Source Emission Calculations

Symbol	Description	Units	KILN 1	KILN 2	KILN 3
M_d	mole fraction of dry gas	-----	.6631	.6632	.6841
CO_2		%	5.7	6	5.6
O_2		%	11	10.8	11
N_2		%	83.3	83.2	83.4
%EA	excess air @ sampling point	%	99	96	99
MW_d	molecular weight of dry stack gas	lb/lb-mole (g/g-mole)	29.35 29.35	29.39 29.39	29.34 29.34
MW	molecular weight of stack gas	lb/lb-mole (g/g-mole)	25.53 25.53	25.56 25.56	25.75 25.75
ΔP_s	velocity head of stack gas	"H_2O (mm H_2O)	1.867 47.42	1.97 50.04	1.716 43.59
T_s	stack temperature	°F (°C)	298 149	303 151	304 152
P_s	stack pressure	"Hg Abs. (mm Hg)	29.81 757.24	29.79 756.73	29.74 755.46
V_s	stack velocity @ stack conditions	fpm (m/sec)	5802 29.47	5999 30.48	5587 28.38
A_s	stack area	$in.^2$ (m^2)	1328 0.86	1328 0.86	1328 0.86
Q_s	dry stack volume @ standard conditions*	DSCFM (dscm/hr)	24704 41972.20	25374 43111.27	24293 41273.75
Q_a	actual stack gas volume @ stack conditions	ACFM (m^3/hr)	53506 90906.71	55327 94001.38	51520 87533.27

* 68°F, 29.92 "Hg (20°C, 760 mm Hg)

DOLPHIN CONSTRUCTION COMPANY
FILE NUMBER 8760-602

Source Emission Calculations

Symbol	Description	Units	KILN 1	KILN 2	KILN 3
T_t	net time of test	min.	60	60	60
D_n	sampling nozzle diam.	in. (m)	.201 .005	.201 .005	.201 .005
%I	percent isokinetic	%	108.03	103.55	99.35
m_f	particulate - probe, cyclone and filter	mg	100.3	89.7	56
m_t	particulate - total	mg	---	---	---
C_{an}	particulate - probe, cyclone and filter	gr/dscf* (g/dscm)	.0405 .0927	.0368 .0843	.025 .0573
C_{ao}	particulate - total	gr/dscf* (g/dscm)	--- ---	--- ---	--- ---
C_{at}	particulate - probe, cyclone and filter @ stack conditions	gr/cf (g/m^3)	.0186 .0426	.0168 .0385	.0117 .0268
C_{au}	particulate total @ stack conditions	gr/cf (g/m^3)	--- ---	--- ---	--- ---
C_{aw}	particulate - probe, cyclone and filter	lbs/hr (kg/hr)	8.574 3.889	8.003 3.63	5.205 2.361
C_{ax}	particulate - total	lbs/hr (kg/hr)	--- ---	--- ---	--- ---

* 68°F, 29.92 "Hg (20°C, 760 mm Hg)

APPENDIX C

Calibration of Equipment

APPENDIX C

Calibration Data

March 31, 1987

DRY GAS METERS

Unit Number	Calibration Factor
1	1.006
2	0.998
3	1.023
4	1.032

APPENDIX C

Calibration Data

March 31, 1987

PITOT TUBES

Pitot Length (effective length)	Calibration Factor		Pitot Length (effective length)	Calibration Factor	
28-1	High	0.821	122-1	High	0.828
	Low	0.818		Low	0.827
32-1	High	0.837	128-1	High	0.821
	Low	0.834		Low	0.826
32-2	High	0.829	132-1	High	0.837
	Low	0.826		Low	0.834
46-1	High	0.840	132-2	High	0.825
	Low	0.830		Low	0.827
49-1	High	0.839	156-1	High	0.834
	Low	0.837		Low	0.828
49-2	High	0.839			
	Low	0.836			
49-3	High	0.839			
	Low	0.840			
72-1	High	0.839			
	Low	0.837			
73-1	High	0.839			
	Low	0.838			
74-1	High	0.828			
	Low	0.826			
96-1	High	0.823			
	Low	0.827			

APPENDIX C

Calibration Data

March 31, 1987

NOZZLES

Set A

Nozzle No.	Diameter (inches)
1A	0.201
2A	0.229
3A	0.254
4A	0.302
5A	0.360
6A	0.384
7A	0.447
8A	0.497
9A	0.498
10A	0.573

Set B

Nozzle No.	Diameter (inches)
1B	0.127
2B	0.178
3B	0.236
4B	0.303
5B	0.358
6B	0.365
7B	0.498

Set I

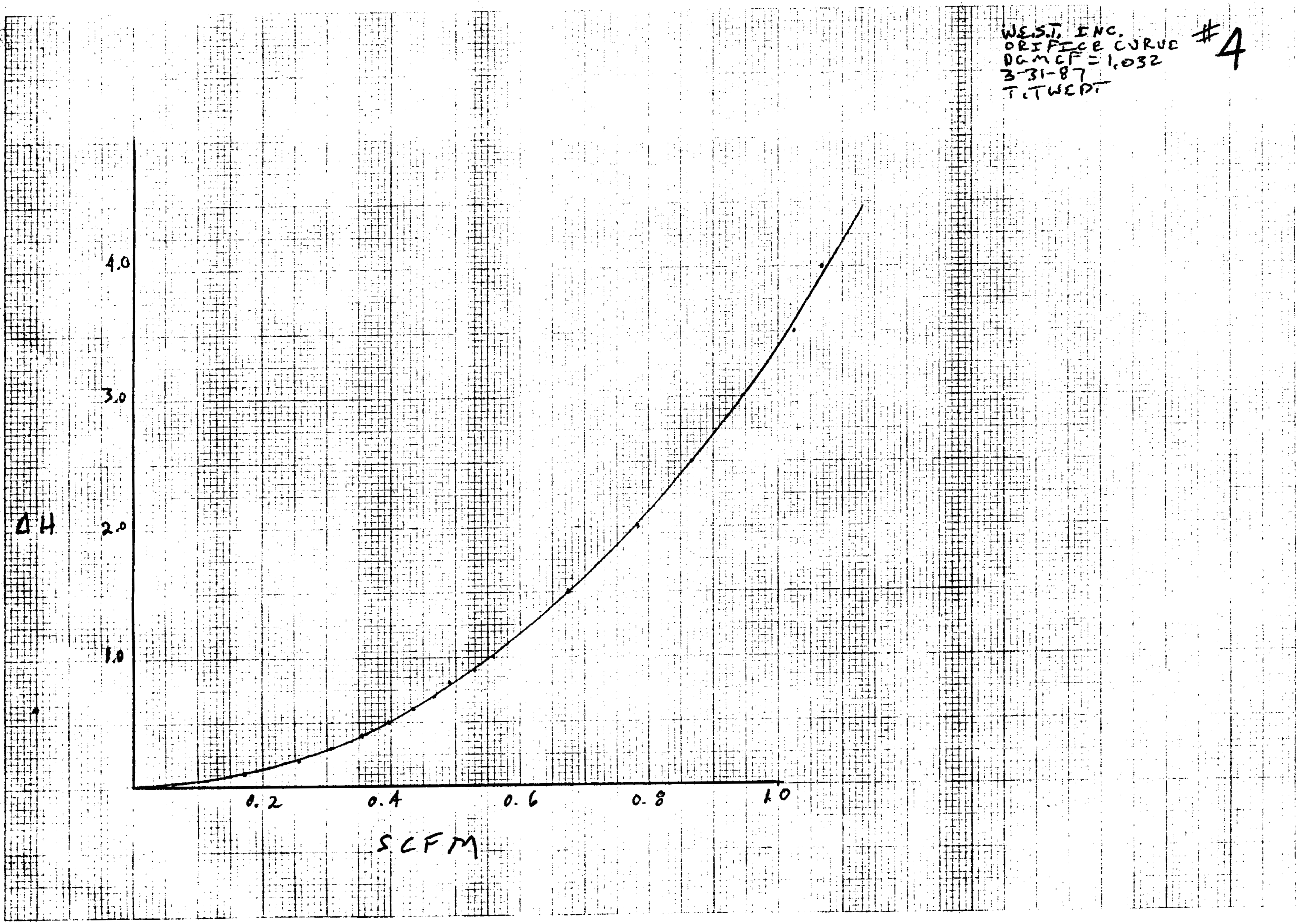
Nozzle No.	Diameter (inches)
I-1	0.126
I-2	0.194
I-3	0.244
I-4	0.310
I-5	0.370
I-6	0.416
I-7	0.490
I-8	0.570
I-9	0.614

Set II

Nozzle No.	Diameter (inches)
II-1	0.120
II-2	0.191
II-3	0.250
II-4	0.312
II-5	0.375
II-6	0.434
II-7	0.492
II-8	0.561
II-9	0.610

Set III

Nozzle No.	Diameter (inches)
III-1	0.129
III-2	0.230
III-3	0.245
III-4	0.370
III-5	0.366
III-6	0.427
III-7	0.500
III-8	0.560
III-9	0.608



APPENDIX D

Field Testing Data

Job No. 8760-103 | PART. FIELD DATA | Nomograph Setting ΔP 1.79 ΔH 1.07

Job Name TXI - DOLPHIN CONST. | Ambient Temp. °F 65

Run No. 1 | Assumed Moisture % 32

Location STACK | Read and Record at the Start of Each Test Point. | Probe Length 49"

Date 4-22-87 | Pitot Tube Leak Check INIT OK / FIN OK

Operator SNEDDEN - MEADOR | Initial Leak @ 15.0 "Hg = 0.000 cfm

Sample Box No. 4 | Meter Box No. 4 (Pm) | Final Leak @ 10.0 "Hg = 0.000 cfm (Tm)

ΔPs | Ts

Point	Clock Time	Dry Gas Meter, CF	Pitot in. H_2O	Orifice ΔH in. H_2O Desired	Orifice ΔH in. H_2O Actual	Pump Vacuum In. Hg Gauge	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp °F Inlet	Dry Gas Temp °F Outlet	Remarks
A-5	0836	145.975	2.60	1.55	1.55	7.0	290	270	274	50	62	62	
4	0839	147.40	2.60	1.55	1.55	7.0	291	267	269	48	63	62	
3	0842	148.87	2.30	1.40	1.40	6.5	293	278	262	48	64	62	
2	0842	150.23	2.10	1.25	1.25	6.0	294	263	270	49	65	62	
1	0844	151.54	1.75	1.05	1.05	5.0	294	267	270	51	66	62	
END	0846	152.794	—	—	—	—	—	—	—	—	—	—	
B-5	0847	152.794	2.10	1.25	1.25	5.5	295	270	260	55	66	63	
4	0849	154.11	2.10	1.25	1.25	6.0	297	266	260	54	67	63	
3	0851	155.40	1.70	1.00	1.00	5.0	299	260	263	55	68	63	
2	0853	156.71	1.30	0.78	0.78	4.0	298	244	252	56	68	63	
1	0855	157.66	1.00	0.60	0.60	3.5	297	265	249	58	68	64	
END	0857	158.598	—	—	—	—	—	—	—	—	—	—	
C-5	0858	158.598	2.30	1.40	1.40	6.5	299	264	246	62	69	64	
4	0900	160.02	2.00	1.20	1.20	6.0	298	261	245	56	70	64	
3	0902	161.23	1.70	1.00	1.00	5.0	298	255	247	53	70	64	
2	0904	162.45	1.10	0.66	0.66	3.5	294	264	253	56	71	65	
1	0906	163.47	0.90	0.54	0.54	3.0	292	249	238	57	71	65	
END	0908	164.292	—	—	—	—	—	—	—	—	—	—	

Pitot Tube Calibration Factor C_p 0.839 | Pitot Tube No. 49-2

Volume Collected V_m 38.233 ft³ | %CO_2 5.7 | %CO 0.0

Water Collected V_w 410.1 ml | %O_2 11.0 | %N_2 83.3

Time of Test T_t 60 min | Area Stack A_2 1328 in²

Baro. Press. P_b 29.75 "Hg | Stack Press. 10.85 in. H_2O

Sample Purge: Initial — Final —

Probe Tip No. 1-A | Probe Tip Dia. 0.201 in

V_m = Dry Gas Meter Calibration Factor 1.032 x 37.047

Dry Gas Meter Reading ____ ft³ - (T_t ____ min x Leak Rate ____ cfm)

M_F = 100.3 | M_T = —

Run No. 1

Location STACK

Date 4-22-87

PARTICULATE FIELD DATA

Point	Clock Time	Dry Gas Meter, CF	Pitot in. H_2O	Orifice ΔH in. H_2O		Pump Vacuum In. Hg Gauge	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp. °F	Dry Gas Temp °F		Remarks
				Desired	Actual						Inlet	Outlet	
D-5	0909	164.292	2.5	1.50	1.50	7.0	301	262	255	59	72	66	
4	0911	165.65	2.0	1.20	1.20	6.5	303	267	254	56	73	66	
3	0913	167.20	1.50	0.91	0.91	5.0	305	234	253	56	73	67	
2	0915	168.16	1.40	0.84	0.84	4.5	303	261	260	57	73	66	
1	0917	169.23	1.20	0.72	0.72	4.0	303	241	257	57	73	67	
END	0919	170.236	—	—	—	—	—	—	—	—	—	—	
E-5	0920	170.236	2.30	1.40	1.40	7.0	301	259	257	59	73	67	
4	0922	171.60	2.20	1.30	1.30	6.5	300	257	258	56	74	67	
3	0924	172.94	1.50	0.90	0.90	5.0	300	260	260	56	74	67	
2	0926	174.15	1.40	0.84	0.84	4.5	299	253	256	57	75	68	
1	0928	175.17	1.30	0.90	0.90	5.0	299	245	258	58	75	68	
END	0930	176.283	—	—	—	—	—	—	—	—	—	—	
F-5	0933	176.283	2.60	1.55	1.55	7.0	299	265	259	63	74	69	
4	0935	177.75	2.90	1.75	1.75	8.0	300	238	256	56	76	69	
3	0937	179.18	2.30	1.40	1.40	7.0	300	269	259	56	76	69	
2	0939	180.77	1.70	1.00	1.00	5.5	303	267	259	58	76	70	
1	0941	181.98	1.45	0.87	0.87	5.0	304	265	267	59	77	70	
END	0943	183.022	—	—	—	—	—	—	—	—	—	—	
ALL													

revised 4/85

IMPINGER CATCH

SAMPLE NO. 1

IMPINGER NO.	SOLUTION USED	AMOUNT OF SOLUTION (ml)	IMP. TIP CONFIGURATION	WEIGHT (grams)
1	DI.	100	modif	Final 865.8 Initial 587.0 Wt. Gain 278.8
2	DI.	100	G. Smith	Final 708.9 Initial 590.4 Wt. Gain 118.5
3	Dry	—	modif	Final 474.6 Initial 471.5 Wt. Gain 3.1
4	Silica	—	modif	Final 763.6 Initial 753.9 Wt. Gain 9.7
5				Final Initial Wt. Gain
6				Final Initial Wt. Gain
Flask	∅			Final Initial Wt. Gain

TOTAL WEIGHT GAIN OF IMPINGERS (grams) 410.1

DATE: 4/22/87

SIGNATURE: J. Meador

ORSAT ANALYSIS RESULTS
Gas Fractional Part

CO_2 5.7

O_2 11.0

CO 0.0

N_2 83.3

DATE: 4/22/87

SIGNATURE: J. Meador

TIME: 0918

4/85

Job No. 8760-103 | PART. FIELD DATA | Nomograph Setting ΔP 1.79 ΔH 1.00

Job Name TYI - DOLPHIN GNST. | Ambient Temp. °F 75

Run No. 2 | Assumed Moisture % 32

Location STACK | Read and Record at the Start of Each Test Point. | Probe Length 49"

Date 4-22-87 | Pitot Tube Leak Check INIT OK / FIN OK

Operator SNEDDEN - MEADER | Initial Leak @ 15.0 "Hg = 0.000 cfm

Sample Box No. 5 | Meter Box No. 4 | Final Leak @ 15.0 "Hg = 0.000 cfm

Δ Ps | Pm | Ts | Tm

Point	Clock Time	Dry Gas Meter, CF	Pitot in. H_2O	Orifice ΔH in. H_2O Desired	Orifice ΔH in. H_2O Actual	Pump Vacuum In. Hg Gauge	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp °F Inlet	Dry Gas Temp °F Outlet	Remarks
	1012	187.244											
F-5	1013	~~187.368~~	3.10	1.75	1.75	15.0	303	247	252	56	75	72	
4	1024	188.73	3.10	1.75	1.75	13.0	303	263	259	55	73	72	
3	1026	190.42	2.30	1.30	1.30	12.0	302	257	264	57	77	72	
2	1028	191.72	1.70	0.96	0.96	10.0	302	261	263	59	77	72	
1	1030	192.93	1.80	1.00	1.00	8.5	299		261	60	77	73	
END	1032	194.124	—	—	—	—	—	—	—	—	—	—	
E-5	1033	194.124	2.60	1.45	1.45	12.0	302	259	260	60	78	73	
4	1035	195.64	2.40	1.35	1.35	12.0	303	253	262	61	79	73	
3	1037	196.93	1.70	0.96	0.96	9.5	303	251	261	60	79	73	
2	1039	198.11	1.45	0.82	0.82	7.0	315	257	267	60	79	73	
1	1041	199.19	1.60	0.90	0.90	7.5	305	263	263	61	79	74	
END	1043	200.299	—	—	—	—	—	—	—	—	—	—	
D-5	1044	200.299	2.45	1.35	1.35	11.0	307	270	255	61	80	74	
4	1046	201.63	2.15	1.15	1.15	11.0	305	269	260	59	80	74	
3	1048	202.92	1.80	1.00	1.00	9.5	305	267	271	59	81	74	
2	1050	204.14	1.55	0.87	0.87	8.0	305	261	263	60	81	75	
1	1052	205.27	1.45	0.82	0.82	7.0	303	257	269	60	81	75	
END	1054	206.364	—	—	—	—	—	—	—	—	—	—	

Pitot Tube Calibration Factor C_p 0.839 | Pitot Tube No. 49-2

Volume Collected V_m 38.365 ft³ | %CO_2 6.0 | %CO 0.0

Water Collected V_w 403.7 ml | %O_2 10.8 | %N_2 83.2

Time of Test T_t 60 min | Area Stack A_2 1328 in²

Baro. Press. P_b 29.73 "Hg | Stack Press. + 0.85 in. H_2O

Sample Purge: Initial — Final —

Probe Tip No. 1-A | Probe Tip Dia. 0.201 in

V_m = Dry Gas Meter Calibration Factor 1.032 X 37.175

Dry Gas Meter Reading ____ ft³ - (T_t ____ min x Leak Rate ____ cfm)

M_F = 89.7 | M_T = ____

Run No. 2

Location STACK

Date 4-22-87

PARTICULATE FIELD DATA

Point	Clock Time	Dry Gas Meter, CF	Δ Ps Pitot in. H_2O	Pm Orifice ΔH in. H_2O Desired	Pm Orifice ΔH in. H_2O Actual	Ts Pump Vacuum In. Hg Gauge	Ts Stack Temp °F	Ts Probe Temp °F	Ts Oven Temp °F	Ts Effluent Temp °F	Tm Dry Gas Temp °F Inlet	Tm Dry Gas Temp °F Outlet	Remarks
C-5	1055	206.364	2.35	1.30	1.30	~~3~~ 1.0	303	253	265	62	81	75	
4	1057	207.71	2.05	1.15	1.15	10.5	305	251	262	60	82	75	
3	1059	209.06	1.80	1.00	1.00	9.0	305	247	264	59	82	75	
2	1101	210.17	1.50	0.85	0.85	8.0	304	245	267	60	82	76	
1	1103	211.23	1.05	0.59	0.59	5.5	299	241	251	60	82	76	
END	1105	212.213	—	—	—	—	—	—	—	—	—	—	
B-5	1106	212.213	1.90	1.05	1.05	9.0	302	265	255	62	82	76	
4	1108	213.40	2.00	1.10	1.10	9.5	302	265	269	59	83	76	
3	1110	214.64	2.10	1.15	1.15	9.5	302	261	269	59	83	77	
2	1112	216.14	2.10	1.15	1.15	9.5	303	257	269	59	84	77	
1	1114	217.17	1.20	0.62	0.62	6.0	299	239	257	59	84	77	
END	1116	218.176	—	—	—	—	—	—	—	—	—	—	
A-5	1117	218.176	2.05	1.15	1.15	9.5	302	~~302~~ 241	261	62	83	78	
4	1119	219.44	2.15	1.20	1.20	10.0	302	239	259	59	83	78	
3	1121	220.76	2.10	1.15	1.15	10.0	305	243	234	59	84	79	
2	1123	221.98	2.00	1.10	1.10	10.0	305	245	255	59	84	79	
1	1125	223.23	1.60	0.90	0.90	8.0	302	247	255	60	84	79	
END	1127	224.419	—	—	—	—	—	—	—	—	—	—	
ALL													

IMPINGER CATCH

SAMPLE NO. 2

IMPINGER NO.	SOLUTION USED	AMOUNT OF SOLUTION (ml)	IMP. TIP CONFIGURATION	WEIGHT (grams)
1	DI	100	modif	Final 891.4 Initial 575.8 Wt. Gain 315.6
2	DI	100	G. Smith	Final 667.3 Initial 591.1 Wt. Gain 76.2
3	Dry	—	modif	Final 497.6 Initial 494.5 Wt. Gain 3.1
4	Silica Gel	—	modif	Final 739.1 Initial 730.3 Wt. Gain 8.8
5				Final Initial Wt. Gain
6				Final Initial Wt. Gain
Flask	∅			Final Initial Wt. Gain

TOTAL WEIGHT GAIN OF IMPINGERS (grams) 4037

DATE: 4/22/87

SIGNATURE: J Meador

ORSAT ANALYSIS RESULTS
Gas Fractional Part

CO_2 6.0

O_2 10.8

CO 0.0

N_2 83.2

DATE: 4/22/87

SIGNATURE: J Meador

TIME: 1100

4/85

Job No. 8760-103 | PART. FIELD DATA | Nomograph Setting ΔP 1.79 ΔH 1.00

Job Name TX1 - DOLPHIN CONST. | Ambient Temp. °F 80

Run No. 3 | Assumed Moisture % 32

Location STACK | Read and Record at the Start of Each Test Point. | Probe Length 49"

Date 4-22-87 | Pitot Tube Leak Check INIT OK / FIN OK

Operator SNEDDEN - MEADOR | Initial Leak @ 15.0 "Hg = 0.000 cfm

Sample Box No. 6 | Meter Box No. 4 | Final Leak @ 10.0 "Hg = 0.000 cfm

ΔPs | Pm | Ts | Tm

Point	Clock Time	Dry Gas Meter, CF	Pitot in. H_2O	Orifice ΔH in. H_2O Desired	Orifice ΔH in. H_2O Actual	Pump Vacuum In. Hg Gauge	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp °F Inlet	Dry Gas Temp °F Outlet	Remarks
A-5	1148	224.782	2.15	1.20	1.20	5.5	302	236	249	61	83	80	
4	1150	226.13	2.15	1.20	1.20	5.5	302	239	249	59	83	80	
3	1152	227.33	2.05	1.15	1.15	5.5	302	249	249	53	84	80	
2	1134	228.61	1.93	1.10	1.10	5.5	304	251	242	55	84	81	
1	1156	229.89	1.60	0.90	0.90	4.5	305	243	250	54	84	80	
END	1158	231.012	—	—	—	—	—	—	—	—	—	—	STOP FOR PLANT
B-5	1306	231.012	1.60	0.90	0.90	4.5	310	247	267	54	83	81	
4	1308	232.15	2.50	1.40	1.40	6.5	309	255	262	61	84	81	
3	1310	233.37	2.50	1.40	1.40	6.5	309	257	260	61	84	81	
2	1312	234.91	1.60	0.90	0.90	4.5	309	259	267	55	85	81	
1	1314	236.09	1.40	0.79	0.79	4.0	307	261	264	57	85	82	
END	1316	237.173	—	—	—	—	—	—	—	—	—	—	
C-5	1317	237.173	1.65	0.93	0.93	5.0	307	263	269	64	85	82	
4	1319	238.35	2.15	1.20	1.20	6.0	309	265	271	59	87	82	
3	1321	239.58	2.10	1.15	1.15	6.0	309	264	271	57	87	82	
2	1323	240.90	1.30	0.73	0.73	4.0	309	262	265	57	88	82	
1	1325	241.94	1.40	0.79	0.79	4.5	306	260	257	59	88	83	
END	1327	243.002	—	—	—	—	—	—	—	—	—	—	

Pitot Tube Calibration Factor C_p 0.839 | Pitot Tube No. 49-2

Volume Collected V_m 35.810 ft³ | %CO_2 5.6 | %CO 0.0

Water Collected V_w 337.3 ml | %O_2 11.0 | %N_2 83.4

Time of Test T_t 60 min | Area Stack A_2 1328 in²

Baro. Press. P_b 29.68 "Hg | Stack Press. +0.85 in. H_2O

Sample Purge: Initial — Final —

Probe Tip No. 1-A | Probe Tip Dia. 0.201 in

V_m = Dry Gas Meter Calibration Factor 1.032 x 34.700

Dry Gas Meter Reading ____ ft³ − (T_t ____ min x Leak Rate ____ cfm)

M_F = 56.0 | M_T = —

Run No. 3

Location STACK

Date 4-22-87

PARTICULATE FIELD DATA

			ΔPs	Pm		Ts				Tm		
Point	Clock Time	Dry Gas Meter, CF	Pitot in. H_2O	Orifice ΔH in. H_2O Desired	Orifice ΔH in. H_2O Actual	Pump Vacuum In. Hg Gauge	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp °F Inlet	Dry Gas Temp °F Outlet	Remarks
D-5	1328	243.002	1.30	0.73	0.73	4.0	308	257	258	65	89	83	
4	1330	244.01	1.60	0.90	0.90	5.0	305	256	256	62	89	83	
3	1332	245.13	1.80	1.00	1.00	5.0	305	253	250	60	90	83	
2	1334	246.31	1.80	1.00	1.00	5.0	305	250	250	59	91	83	
1	1336	247.54	1.40	0.79	0.79	4.5	301	250	251	57	91	84	
END	1338	248.611	—	—	—	—	—	—	—	—	—	—	
E-5	1339	248.611	1.15	0.65	0.65	3.5	301	257	250	64	90	84	
4	1341	249.72	1.60	0.90	0.90	5.0	301	259	249	60	91	85	
3	1343	250.89	1.70	0.96	0.96	5.0	301	256	250	59	92	86	
2	1345	251.84	1.75	0.99	0.99	5.0	301	253	245	59	92	86	
1	1347	252.99	1.80	1.00	1.00	5.0	300	251	244	59	93	86	
END	1349	254.156	—	—	—	—	—	—	—	—	—	—	
F-5	1350	254.156	0.78	0.44	0.44	3.0	300	249	240	63	91	86	
4	1352	254.95	1.15	0.64	0.64	4.0	300	247	244	62	91	86	
3	1354	255.90	1.65	0.93	0.93	5.0	300	245	242	62	91	86	
2	1356	257.06	1.90	1.00	1.00	5.5	301	243	246	59	92	86	
1	1358	258.19	2.10	1.15	1.15	6.0	301	241	247	58	92	86	
END	1400	259.492	—	—	—	—	—	—	—	—	—	—	
AM													

IMPINGER CATCH

SAMPLE NO. 3

IMPINGER NO.	SOLUTION USED	AMOUNT OF SOLUTION (ml)	IMP. TIP CONFIGURATION	WEIGHT (grams)
1	DI	100	modif	Final 901.8 Initial 605.4 Wt. Gain 296.4
2	DI	100	G. Smith	Final 616.6 Initial 585.3 Wt. Gain 31.3
3	Dry	—	modif	Final 457.7 Initial 456.0 Wt. Gain 1.7
4	Silica Gel	—	modif	Final 802.0 Initial 794.1 Wt. Gain 7.9
5				Final Initial Wt. Gain
6				Final Initial Wt. Gain
Flask	∅			Final Initial Wt. Gain

TOTAL WEIGHT GAIN OF IMPINGERS (grams) 337.3

DATE: 4/22/87

SIGNATURE: J Meador

ORSAT ANALYSIS RESULTS
Gas Fractional Part

CO_2 5.6

O_2 11.0

CO 0.0

N_2 83.4

DATE: 4/22/87

SIGNATURE: J Meador

TIME: 1320

4/85

APPENDIX E

Analytical Data

WEST, Inc.

PARTICULATE ANALYSIS

Date April 28, 1987

Job No. 8760-602

Name Dolphin Construction (TXI), Calhoun, LA

Location Baghouse Exhaust

JEM

Run No. 1

	Filter No. N-173	Front Wash 300 ml	Impinger 1	Impinger 2
Final	0.6433	106.5229		
Initial	0.6041	106.4576		
	0.0392 = 39.2 mg	0.0653 = 65.3 mg − 4.2 blank = 61.1		

MF 100.3 mg MT — mg

Run No. 2

	Filter No. N-174	Front Wash 240 ml	Impinger 1	Impinger 2
Final	0.6464	108.2218		
Initial	0.6061	108.1690		
	0.0403 = 40.3 mg	0.0528 = 52.8 mg − 3.4 blank = 49.4		

MF 89.7 mg MT — mg

Run No. 3

	Filter No. N-175	Front Wash 345 ml	Impinger 1	Impinger 2
Final	0.6365	109.7281		
Initial	0.6057	109.6981		
	0.0308 = 30.8 mg	0.0300 = 30.0 mg − 4.8 blank = 25.2		

MF 56.0 mg MT — mg

Acetone Blank:

Volume 150 ml

Final 106.8925

Initial 106.8904

0.0021

Blank: 0.014 mg/ml Total Weight 2.1 mg

D.I. Water Blank

Volume _____ ml

Final

Initial _____

Blank: _____ mg/ml Total Weight _____

APPENDIX F

Plant Operational Data
(Recorded Automatically By Plant Instrumentation)

RUN 1

08:35 04/22/87

	DES %	ACT %	TPH
AGG	93.7	93.6	204.2
RCY	.0	.0	.0
AC	6.3	6.4	13.9
ASA	.5	.5	.07

MIX TPH =218.2
AC DENSITY = 8.51
AGG MOIST. = 6.9%
RCY MOIST. = .0%

08:52 04/22/87

	DES %	ACT %	TPH
AGG	93.7	93.7	207.1
RCY	.0	.0	.0
AC	6.3	6.3	14.0
ASA	.5	.5	.07

MIX TPH =221.1
AC DENSITY = 8.51
AGG MOIST. = 6.9%
RCY MOIST. = .0%

09:09 04/22/87

	DES %	ACT %	TPH
AGG	93.7	93.7	204.7
RCY	.0	.0	.0
AC	6.3	6.3	13.9
ASA	.5	.5	.07

MIX TPH =218.6
AC DENSITY = 8.51
AGG MOIST. = 6.9%
RCY MOIST. = .0%

09:25 04/22/87

	DES %	ACT %	TPH
AGG	93.7	93.7	206.1
RCY	.0	.0	.0
AC	6.3	6.3	13.9
ASA	.5	.5	.07

MIX TPH =220.0
AC DENSITY = 8.51
AGG MOIST. = 6.9%
RCY MOIST. = .0%

09:42 04/22/87

	DES %	ACT %	TPH
AGG	93.7	93.7	207.2
RCY	.0	.0	.0
AC	6.3	6.3	14.0
ASA	.5	.5	.07

MIX TPH =221.2
AC DENSITY = 8.51
AGG MOIST. = 6.9%
RCY MOIST. = .0%

RUN 2

X 10:15 04/22/87

	DES %	ACT %	TPH
AGG	93.7	93.7	211.5
RCY	.0	.0	.0
AC	6.3	6.3	14.2
ASA	.5	.5	.07

MIX TPH =225.7
AC DENSITY = 8.51
AGG MOIST. = 6.9%
RCY MOIST. = .0%

10:32 04/22/87

	DES %	ACT %	TPH
AGG	93.7	93.7	210.2
RCY	.0	.0	.0
AC	6.3	6.3	14.2
ASA	.5	.5	.07

MIX TPH =224.4
AC DENSITY = 8.51
AGG MOIST. = 6.9%
RCY MOIST. = .0%

10:49 04/22/87

	DES %	ACT %	TPH
AGG	93.7	93.7	215.9
RCY	.0	.0	.0
AC	6.3	6.3	14.5
ASA	.5	.5	.07

MIX TPH =230.5
AC DENSITY = 8.51
AGG MOIST. = 6.9%
RCY MOIST. = .0%

11:05 04/22/87

	DES %	ACT %	TPH
AGG	93.7	93.7	213.3
RCY	.0	.0	.0
AC	6.3	6.3	14.4
ASA	.5	.5	.07

MIX TPH =227.7
AC DENSITY = 8.51
AGG MOIST. = 6.9%
RCY MOIST. = .0%

X 11:22 04/22/87

	DES %	ACT %	TPH
AGG	93.7	93.7	210.1
RCY	.0	.0	.0
AC	6.3	6.3	14.0
ASA	.5	.5	.07

MIX TPH =224.2
AC DENSITY = 8.51
AGG MOIST. = 6.9%
RCY MOIST. = .0%

RUN 3

11:55 04/22/87

	DES %	ACT %	TPH
AGG	93.7	93.9	203.7
RCY	.0	.0	.0
AC	6.3	6.1	13.3
ASA	.5	.5	.07

MIX TPH =217.0
AC DENSITY = 8.51
AGG MOIST. = 6.9%
RCY MOIST. = .0%

12:12 04/22/87

	DES %	ACT %	TPH
AGG	93.7	93.7	210.0
RCY	.0	.0	.0
AC	6.3	6.3	14.1
ASA	.5	.5	.07

MIX TPH =224.1
AC DENSITY = 8.51
AGG MOIST. = 6.9%
RCY MOIST. = .0%

13:02 04/22/87

	DES %	ACT %	TPH
AGG	93.2	93.3	202.3
RCY	.0	.0	.0
AC	6.8	6.7	14.6
ASA	.5	.5	.07

MIX TPH =216.9
AC DENSITY = 8.51
AGG MOIST. = 6.9%
RCY MOIST. = .0%

13:18 04/22/87

	DES %	ACT %	TPH
AGG	93.2	93.2	194.7
RCY	.0	.0	.0
AC	6.8	6.8	14.3
ASA	.5	.5	.07

MIX TPH =209.0
AC DENSITY = 8.51
AGG MOIST. = 6.9%
RCY MOIST. = .0%

13:35 04/22/87

	DES %	ACT %	TPH
AGG	93.2	93.2	199.8
RCY	.0	.0	.0
AC	6.8	6.8	14.6
ASA	.5	.5	.07

APPENDIX G

Chain of Custody

WESTERN ENVIRONMENTAL SERVICES AND TESTING, INC.

Chain of Custody and Analysis Request

Job Number 8760-602 Date(s) Sampled April 22, 1987

Job Name Dolphin Construction Number of Runs 3

Source Location Calhoun, LA

Unit Tested Baghouse Exhaust Stack

Absorbing Solution/Analysis For

Run	Filter Number	Imp 1	Imp 2	Imp 3	Imp 4	Probe Wash
1	N-173	DI/moist	DI/moist	DRY/moist	silica gel/moist	Acetone/part.
2	N-174	"	"	"	"	"
3	N-175	"	"	"	"	"
4						

No_x: —

Other —

Total Number of Sample Bottles: 6 + Acetone Blank

Total Number of Filters: 3

Comments:

Person Responsible for Samples: J. Meador

Sample No.	Recovered by	Date	Time	Location
1	S. Snedden	4/22/87		on site
2	S. Snedden	4/22/87		on site
3	J. Meador	4/22/87		on site
4				

Samples Received By J. Meador for transport Date: 4/22/87 Time: 1500

Samples Received at Lab by Alan D. Rayburn Date: 4/26/87 Time: 1000

Samples Analyzed by Alan D. Rayburn Date: 4/28/87 Time: —

4/85