

SOURCE TEST REPORT
for
**PARTICULATE, OXIDES OF NITROGEN
AND VISIBLE EMISSIONS**

**PACKAGE BOILER OUTLET
BOILER NUMBER 16
OKEELANTA CORPORATION
SOUTH BAY, FLORIDA**

**FDEP PERMIT NUMBER AC50-191876
PSD-FL-169**

JULY 14, 1994

Prepared for:

**OKEELANTA CORPORATION
6 MILES S. OF SOUTH BAY
SOUTH BAY, FLORIDA 33493**

Prepared by:

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345-94-19

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PSD-FL-169

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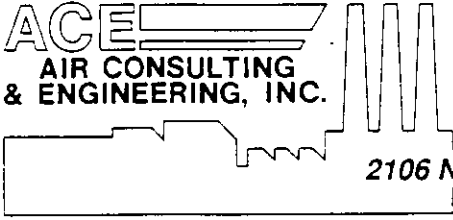
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REPORT CERTIFICATION

To the best of my knowledge, all applicable field and analytical procedures comply with Florida Department of Environmental Protection requirements and all test data and plant operating data are true and correct.

Dagmar Hick

Dagmar Hick

7/21/94

Date

1.0 INTRODUCTION

On July 14, 1994, Air Consulting and Engineering, Inc. (ACE), conducted particulate, Oxides of Nitrogen (NO_x), and visible emission testing on the Outlet Stack of Boiler 16 at Okeelanta Corporation (Okeelanta) in South Bay, Florida.

The following United States Environmental Protection Agency (EPA) Methods were utilized; EPA Method 5 (particulate), EPA Method 7E (NO_x), and EPA Method 9 (visible emissions).

A Thermo Electron Model 10AR chemiluminescent NO_x analyzer, analyzer was used for the testing.

Mr. Angelo Archbold of Okeelanta coordinated testing and provided production data.

Mr. Sterling Jordan of the Florida Department of Environmental Protection (FDEP) in Ft. Myers witnessed the compliance test.

2.0 SUMMARY AND DISCUSSION OF RESULTS

Table 1 summarizes the emission results and flue gas parameters.

Test results reported in pounds per million BTU were calculated using the Fuel Factor for oil (9190 dscf/MMBTU) and also using the boiler operating parameters.

Particulate emissions averaged 1.38 pounds per hour (lbs/Hr), 0.0084 pounds per million BTU (lbs/MMBTU)(heat input based on steam rate) and 0.0082 lbs/MMBTU (F-Factor). Permitted emissions are 11.0 lbs/Hr and 0.054 lbs/MMBTU.

Oxides of Nitrogen emissions averaged 28.10 lbs/Hr, 0.169 lbs/MMBTU (heat input based on steam rate) and 0.161 lbs/MMBTU (F-Factor). Permitted standards are 36.9 lbs/Hr and 0.18 lbs/MMBTU.

Boiler 16 was tested while firing Number 2 Diesel oil.

Production rate summaries and boiler operation parameters are provided in Appendix F. These data were obtained from control room recordings of steam flow, temperature, and pressure as well as feed water temperature and pressure. Steam integrator and oil meter readings were recorded at the beginning and at the end of each particulate run.

Visible emissions averaged 0.0 percent opacity for the highest six minute period, which is within the permitted standard of 20 percent and 27 percent for one 6-minute period per hour (see Appendix E for visible emission data).

Computer printouts, field data sheets, laboratory data, and strip chart copies are presented in Appendices A, B, C, and D, respectively.

Table 1 Emission Summary
 Boiler 16 - Package Boiler
 Okeelanta Corporation
 South Bay, Florida
 July 14, 1994

Run Number	Time	Flow Rate SCFMD	Oxygen %	Particulate Emissions				ppm	NOx Emissions			
				lbs/Hr	lbs/MMBTU F-Factor	lbs/MMBTU Heat Input steam	lbs/MMBTU* Heat Input oil		lbs/Hr	lbs/MMBTU F-Factor	lbs/MMBTU Heat Input steam	lbs/MMBTU* Heat Input oil
1	0934-1040	34727	6.28	1.53	0.0096	0.0103	0.0095	111.9	27.83	0.175	0.187	0.174
2	1202-1305	38617	6.27	1.62	0.0092	0.0097	0.0091	102.6	28.38	0.161	0.170	0.159
3	1350-1452	40461	5.93	0.99	0.0052	0.0053	0.0051	96.9	28.08	0.148	0.150	0.144
AVERAGE	---	37935	6.16	1.38	0.0082	0.0084	0.0079	103.8	28.10	0.161	0.169	0.159

*The oil heat input is based on 150,000 BTU/gallon and initial and final oil meter reading.

F-Factor for oil = 9190 DSCF/MMBTU

$$\text{lbs/MMBTU} = \frac{\text{Emissions (lbs/Hr)}}{\text{Heat Input (MMBTU/Hr)}} \quad \text{or} \quad \text{lbs/MMBTU} = F \text{ (lbs/DSCF)} \left(\frac{20.9}{20.9 - \% \text{ O}_2} \right)$$

Allowable Emissions:

PM = 11.0 lbs/Hr 0.054 lbs/MMBTU

NO_x = 36.9 lbs/Hr 0.18 lbs/MMBTU

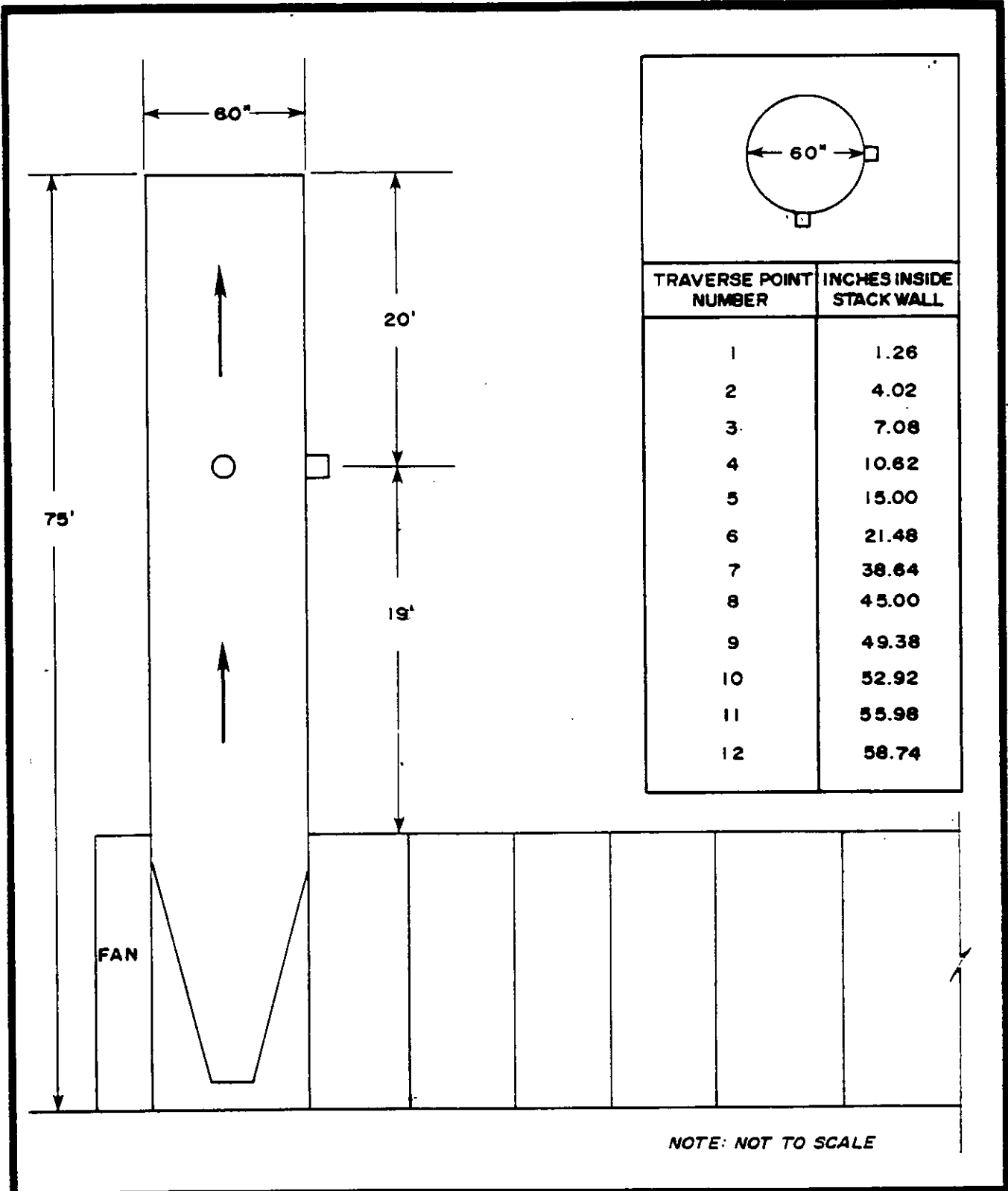
3.0 PROCESS DESCRIPTION AND OPERATION

Boiler Number 16 at Okeelanta Corporation is a Babcock and Wilcox Model FM 120-97 package boiler using Coen's LO-NOx burners and is designed for up to 40% flue gas recirculation (FGR). The FGR rate is varied automatically according to steam load and air to fuel ratio by means of a mechanical linkage. The boiler is fired with Number 2 diesel oil. It's maximum permitted steam production is 150,000 lbs/Hr. During the compliance test, an average of 119,643 lbs/Hr of steam was achieved.

Boiler operating parameters and steam flow chart are presented in Appendix F.

4.0 SAMPLING POINT LOCATION

Figure 1 is a schematic of the exhaust stack with sampling locations.



**FIGURE 1.
 SAMPLING POINT LOCATION
 BOILER NO. 16
 OKEELANTA SUGAR CORPORATION
 SOUTH BAY, FLORIDA**

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5.0 FIELD AND ANALYTICAL PROCEDURES

5.1 *Particulate Matter Sampling and Analysis--EPA Method 5 (Glass Probe)*

Particulate matter samples were collected by the particulate matter emission measurement method specified by the United States Environmental Protection Agency. A schematic diagram of the sampling train used is shown in Figure 2. All particulate matter captured from the nozzle to, and including, the filter was included in the calculation of the emission rate of particulate matter.

PREPARATION OF EQUIPMENT

1. **FILTERS** - Gelman type "A" filters were placed in a drying oven for two hours at 105 degrees C, removed and placed in a standard desiccator containing indicating silica gel, allowed to cool for two hours, and weighed to the nearest 0.1 mg. The filters were then re-desiccated for a minimum of six hours and weighed to a constant weight (less than 0.5 mg change from previous weighing). The average of the two constant weights was used as the tare weight.
2. **NOZZLE, FILTER HOLDER, AND SAMPLING PROBE** - The nozzle, filter holder, and sampling probe were washed vigorously with soapy water and brushes, rinsed with distilled water and acetone, and dried prior to the test program. All openings on the sampling equipment were sealed while in transit to the test site.
3. **IMPINGERS** - The Greenburg-Smith impingers were cleaned with a warm soapy water solution and brushes, rinsed with distilled water and acetone, and dried. The impingers were sealed tightly during transit.

TEST PROCEDURE

Prior to performing the actual particulate matter sample runs, certain stack and stack gas parameters were measured. These preliminary measurements

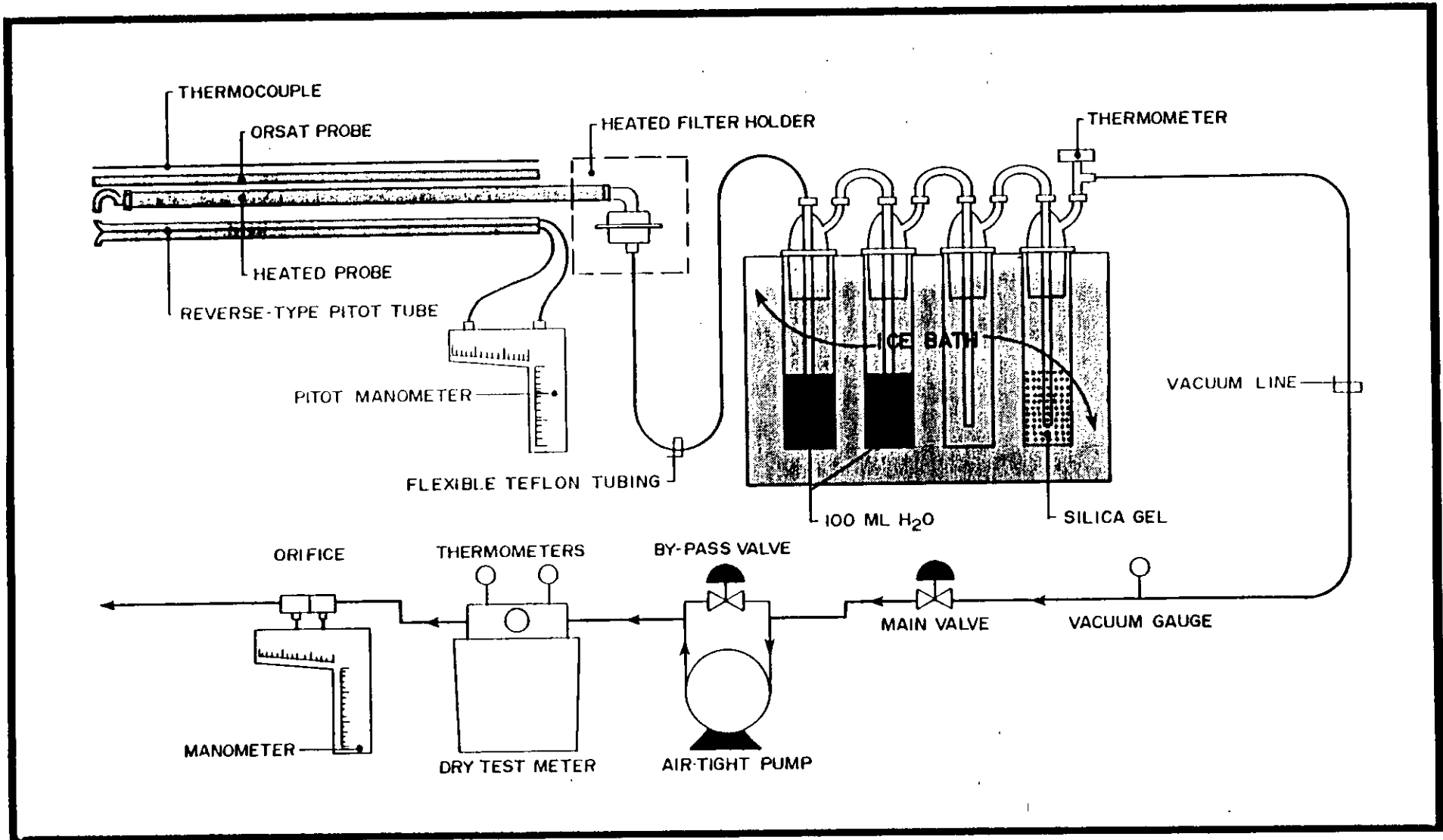


FIGURE 2
EPA METHOD 5 SAMPLING TRAIN

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included the average gas temperature, the stack gas velocity head, the stack gas moisture content, and the stack dimensions at the point where the tests were being performed. The stack gas temperature was determined by using a bi-metallic thermocouple and calibrated pyrometer. Velocity head measurements were made with calibrated type "S" pitot tube and an inclined manometer. Velocity head measurements of 0.05 inches H₂O or less were measured utilizing a micromanometer.

The sampling traverse points were selected so that a representative sample could be extracted from the gas stream. The traverse points were located in the center of equal areas, the number of which were dependent upon the distance upstream and downstream from flow disturbances.

Each particulate matter test run consisted of sampling for a specific amount of time at each traverse point. The type "S" pitot tube was connected to the sampling probe so that an instantaneous velocity head measurement could be made at each traverse point while making the test run. The stack gas temperature was also measured at each traverse point. Nomographs were used to calculate the isokinetic sampling rate at each traverse point during each test run.

The gases sampled passed through the following components: a stainless steel nozzle and glass probe; a glass fiber filter; two impingers each with 100 ml

of distilled deionized water; one impinger dry; one impinger with 200 grams of silica gel; a flexible sample line; an air-tight pump; a dry test meter; and a calibrated orifice. The second impinger had a standard tip, while the first, third, and fourth impingers had modified tips with a 0.5 inch I.D. opening.

Sample recovery was accomplished by the following procedures:

1. The pre-tared filter was removed from its holder and placed in Container 1 and sealed. (This is usually performed in the lab.)
2. All sample-exposed surfaces prior to the filter were washed with acetone and placed in Container 2, sealed and the liquid level marked.
3. The volume of water from the first three impingers was measured for the purpose of calculating the moisture in the stack gas and then discarded.
4. The used silica gel from the fourth impinger was transferred to the original tared container and sealed.

LABORATORY ANALYSIS

The three sample containers from each sample run were analyzed according to the following procedures:

1. The filter was dried at 105 degrees C for three hours, desiccated for a minimum of one hour, and weighed to the nearest 0.1 mg. A minimum of two such weighings six hours apart was made to determine constant weight.
2. The acetone from Container 2 was transferred to a tared beaker and evaporated to dryness at ambient temperature and pressure, desiccated for 24 hours, and weighed to the nearest 0.1 mg. A minimum of two such weighings six hours apart were made to determine constant weight.
3. The used silica gel in its tared container was weighed to the nearest 0.1 gram.

The total sample weight included the weight of material collected on the filter plus the weight of material collected in the nozzle, sampling probe, and front half of the filter holder.

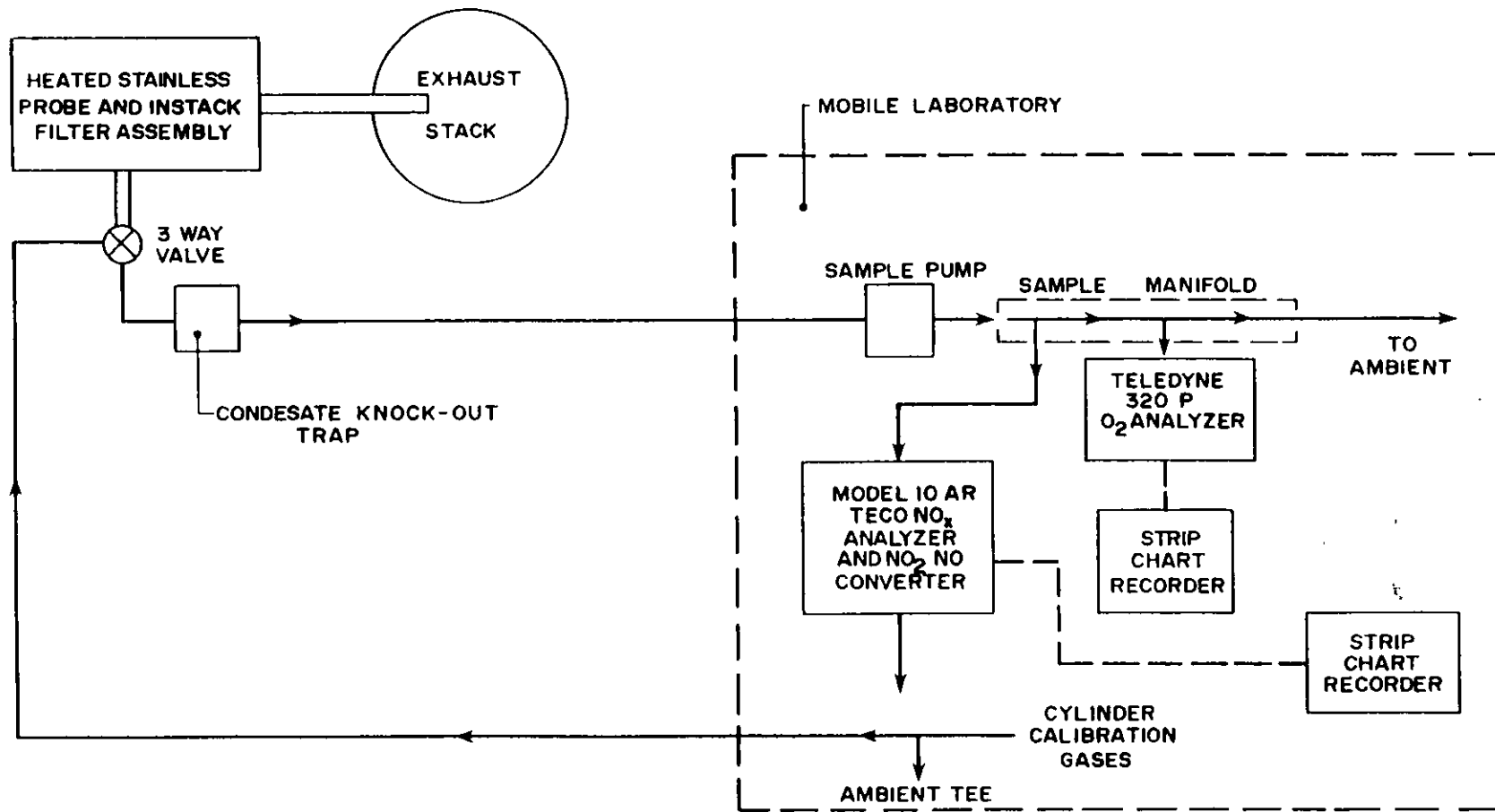
DATA

The field data sheets, calculation sheets, and nomenclature definitions are included in the appendices of this report.

5.2 Determination of Nitrogen Oxides Emissions From Stationary Sources (Instrumental Analyzer Procedure)--EPA Method 7E

The sampling system is shown in Figure 3. A sample was drawn from the stack at a rate of approximately 2 SCFH. A stainless steel probe and filter assembly was followed by a three-way stainless steel valve. The sample was pumped through a non-heated 1/4" O.D. TEFLON sampling line and condensate trap housed in an ice bath. Calibration gases were introduced at the sampling interface (the three way valve) through another 1/4" O.D. TEFLON line that was not heated. The sample pump delivered gases to a manifold system where one stream was sent to a Thermo Electron Model 10 AR Chemiluminescent Analyzer, converted to nitric oxide, reacted with ozone, and a chemiluminescent response measured by a photomultiplier. A second stream was delivered to a Teledyne 320P O₂ analyzer. A third stream was dumped to the ambient air. All instrument responses were recorded on strip chart recorders. The sampling system yields NO_x and O₂ concentrations on a dry gas basis.

All calibration gases were certified NBS traceable.



SOURCE: ACE, Inc.

FIGURE 3
EPA METHOD 7E SAMPLING SCHEMATIC

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5.3 Visible Emissions Testing--EPA Method 9

The visible emission tests were performed in accordance with EPA Method 9. The observers maintain semi-annual FDER certification for the performance of visible emission tests.

All procedures listed in Method 9 were followed including observer's position relative to the sun, distance from the stack, and line of sight. These items are noted on the visible emission data sheet. Observations were made at 15-second intervals and recorded to the nearest five percent. The final opacity was determined by calculating the highest consecutive six minute average during the observation period.

APPENDIX A

**COMPLETE EMISSION DATA
WITH SAMPLE CALCULATIONS**

AIR CONSULTING AND ENGINEERING, INC.
PARTICULATE EMISSION RESULTS

PLANT: OKEELANTA CORPORATION
 SOURCE: BOILER 16
 LOCATION: SOUTH BAY, FLORIDA
 DATE: JULY 14, 1994
 RUN: 1
 TIME: 0934-1040

TOTAL TIME	60 MIN.	PROBE WASH	8.9 MG
BAROMETRIC PRESS.	30.2 IN.HG	FILTER	7.5 MG
STACK PRESS.	30.2 IN.HG	TOTAL	16.4 MG
STACK AREA	19.635 SQFT		
STACK TEMP.	376 F		
Y FACTOR	1.0105	OXYGEN	6.28 %
NOZZLE DIAMETER	0.3 IN	CARBON DIOXIDE	9.60 %
NOZZLE AREA	0.000491 SQFT	NITROGEN	84.12 %
AVG.VEL.HEAD	0.764 IN.H2O	EXCESS AIR	39.42821 %
ORIFICE DIFF.	2.963 IN.H2O		
METER TEMP.	87.42 F		
METER VOLUME	49.676 CUBFT		
CONDENSATE VOL	188.5 ML		

VOLUME WATER VAPOR	8.886 SCF
VOLUME STD. DRY GAS	49.223 SCF
TOTAL SAMPLE VOLUME	58.108 SCF
PERCENT MOISTURE	15.292
PERCENT DRY AIR	84.708
MOLECULAR WGT.DRY FLUE GAS	29.787
MOLECULAR WGT. WET FLUE GAS	27.985
SPECIFIC GRAVITY FLUE GAS	0.970
CP	0.84

VELOCITY FLUE GAS	54.58743 FPS
ACTUAL VOLUMETRIC FLOW RATE	64309.45 ACFM
ACTUAL VOLUMETRIC FLOW RATE DRY	54475.30 ACFMD
STD. VOLUMETRIC FLOW RATE DRY	34727.43 SCFMD
EMISSION CONCENTRATION	0.0051 GR/DSCF
EMISSION RATE	1.527 LB/HR
PERCENT ISOKINETIC	94.5 %
F FACTOR	9190 SCF/MMBTU
EMISSION CONC.	0.0096 LB/MMBTU

AIR CONSULTING AND ENGINEERING, INC.
PARTICULATE EMISSION DATA

PLANT: OKEELANTA CORPORATION
 SOURCE: BOILER 16
 LOCATION: SOUTH BAY, FLORIDA
 DATE: JULY 14, 1994
 RUN: 1

TRAVERS POINT NUMBER	VEL. HEAD IN.H2O	SQRT VEL. HEAD	STACK TEMP. F	ORIFICE PRES.DIFF IN.H2O	METER TEMP. F
1-1	0.980	0.990	393	4.90	80
1-2	0.980	0.990	392	4.90	81
1-3	0.720	0.849	378	3.60	81
1-4	0.550	0.742	371	2.75	82
1-5	0.580	0.762	373	2.90	83
1-6	0.800	0.894	394	4.00	83
1-7	0.660	0.812	402	3.30	84
1-8	0.640	0.800	399	3.20	84
1-9	0.490	0.700	385	2.45	85
1-10	0.420	0.648	368	2.10	86
1-11	0.500	0.707	372	2.50	87
1-12	0.480	0.693	372	2.40	88
2-1	0.490	0.700	366	2.45	88
2-2	0.500	0.707	367	2.50	89
2-3	0.510	0.714	367	2.55	90
2-4	0.480	0.693	368	2.40	90
2-5	0.440	0.663	367	2.20	90
2-6	0.450	0.671	369	2.25	91
2-7	0.510	0.714	369	2.55	91
2-8	0.560	0.748	371	2.80	92
2-9	0.660	0.812	373	3.30	92
2-10	0.650	0.806	370	3.25	93
2-11	0.610	0.781	370	3.05	94
2-12	0.560	0.748	368	2.80	94
AVERAGES		0.764	376	2.963	87.42

AIR CONSULTING AND ENGINEERING, INC.
PARTICULATE EMISSION RESULTS

PLANT: OKEELANTA CORPORATION
 SOURCE: BOILER 16
 LOCATION: SOUTH BAY, FLORIDA
 DATE: JULY 14, 1994
 RUN: 2
 TIME: 1202-1305

TOTAL TIME	60 MIN.	PROBE WASH	10.3 MG
BAROMETRIC PRESS.	30.2 IN.HG	FILTER	6.5 MG
STACK PRESS.	30.2 IN.HG	TOTAL	16.8 MG
STACK AREA	19.635 SQFT		
STACK TEMP.	390 F		
Y FACTOR	1.0105	OXYGEN	6.27 %
NOZZLE DIAMETER	0.3 IN	CARBON DIOXIDE	10.00 %
NOZZLE AREA	0.000491 SQFT	NITROGEN	83.73 %
AVG. VEL. HEAD	0.823 IN.H2O	EXCESS AIR	39.59653 %
ORIFICE DIFF.	3.429 IN.H2O		
METER TEMP.	92.29 F		
METER VOLUME	53.907 CUBFT		
CONDENSATE VOL	137 ML		

VOLUME WATER VAPOR	6.458 SCF
VOLUME STD. DRY GAS	53.003 SCF
TOTAL SAMPLE VOLUME	59.461 SCF
PERCENT MOISTURE	10.861
PERCENT DRY AIR	89.139
MOLECULAR WGT. DRY FLUE GAS	29.851
MOLECULAR WGT. WET FLUE GAS	28.564
SPECIFIC GRAVITY FLUE GAS	0.990
CP	0.84

VELOCITY FLUE GAS	58.64148 FPS
ACTUAL VOLUMETRIC FLOW RATE	69085.53 ACFM
ACTUAL VOLUMETRIC FLOW RATE DRY	61582.05 ACFMD
STD. VOLUMETRIC FLOW RATE DRY	38616.99 SCFMD
EMISSION CONCENTRATION	0.0049 GR/DSCF
EMISSION RATE	1.616 LB/HR
PERCENT ISOKINETIC	91.5 %
F FACTOR	9190 SCF/MMBTU
EMISSION CONC.	0.0092 LB/MMBTU

AIR CONSULTING AND ENGINEERING, INC.
PARTICULATE EMISSION DATA

PLANT: OKEELANTA CORPORATION
 SOURCE: BOILER 16
 LOCATION: SOUTH BAY, FLORIDA
 DATE: JULY 14, 1994
 RUN: 2

TRAVERS POINT NUMBER	VEL. HEAD IN.H2O	SQRT VEL. HEAD	STACK TEMP. F	ORIFICE PRES.DIFF IN.H2O	METER TEMP. F
1-1	0.720	0.849	399	3.60	86
1-2	0.640	0.800	389	3.20	86
1-3	0.560	0.748	380	2.80	86
1-4	0.550	0.742	379	2.75	87
1-5	0.520	0.721	376	2.60	87
1-6	0.460	0.678	373	2.30	88
1-7	0.380	0.616	369	1.90	87
1-8	0.510	0.714	369	2.55	88
1-9	0.520	0.721	380	2.60	90
1-10	0.720	0.849	381	3.60	90
1-11	0.720	0.849	377	3.60	92
1-12	0.670	0.819	372	3.35	92
2-1	0.660	0.812	371	3.30	93
2-2	0.960	0.980	392	4.80	93
2-3	1.000	1.000	396	5.00	94
2-4	0.940	0.970	398	4.70	95
2-5	0.870	0.933	399	4.35	95
2-6	0.820	0.906	402	4.10	96
2-7	0.720	0.849	407	3.60	97
2-8	0.730	0.854	407	3.65	98
2-9	0.680	0.825	411	3.40	98
2-10	0.680	0.825	413	3.40	98
2-11	0.770	0.877	414	3.85	99
2-12	0.660	0.812	403	3.30	100
AVERAGES		0.823	390	3.429	92.29

AIR CONSULTING AND ENGINEERING, INC.
PARTICULATE EMISSION RESULTS

PLANT: OKEELANTA CORPORATION
 SOURCE: BOILER 16
 LOCATION: SOUTH BAY, FLORIDA
 DATE: JULY 14, 1994
 RUN: 3
 TIME: 1350-1452

TOTAL TIME	60 MIN.	PROBE WASH	5.7 MG
BAROMETRIC PRESS.	30.2 IN.HG	FILTER	4.7 MG
STACK PRESS.	30.2 IN.HG	TOTAL	10.4 MG
STACK AREA	19.635 SQFT		
STACK TEMP.	398 F		
Y FACTOR	1.0105	OXYGEN	5.90 %
NOZZLE DIAMETER	0.3 IN	CARBON DIOXIDE	10.00 %
NOZZLE AREA	0.000491 SQFT	NITROGEN	84.10 %
AVG. VEL. HEAD	0.887 IN.H2O	EXCESS AIR	36.19099 %
ORIFICE DIFF.	4.146 IN.H2O		
METER TEMP.	108.21 F		
METER VOLUME	58.846 CUBFT		
CONDENSATE VOL	184.8 ML		

VOLUME WATER VAPOR	8.711 SCF
VOLUME STD. DRY GAS	56.336 SCF
TOTAL SAMPLE VOLUME	65.047 SCF
PERCENT MOISTURE	13.392
PERCENT DRY AIR	86.608
MOLECULAR WGT. DRY FLUE GAS	29.836
MOLECULAR WGT. WET FLUE GAS	28.251
SPECIFIC GRAVITY FLUE GAS	0.980
CP	0.84

VELOCITY FLUE GAS	63.85830 FPS
ACTUAL VOLUMETRIC FLOW RATE	75231.47 ACFM
ACTUAL VOLUMETRIC FLOW RATE DRY	65156.10 ACFMD
STD. VOLUMETRIC FLOW RATE DRY	40461.47 SCFMD
EMISSION CONCENTRATION	0.0028 GR/DSCF
EMISSION RATE	0.986 LB/HR
PERCENT ISOKINETIC	92.8 %
F FACTOR	9190 SCF/MMBTU
EMISSION CONC.	0.0052 LB/MMBTU

AIR CONSULTING AND ENGINEERING, INC.
PARTICULATE EMISSION DATA

PLANT: OKEELANTA CORPORATION
SOURCE: BOILER 16
LOCATION: SOUTH BAY, FLORIDA
DATE: JULY 14, 1994
RUN: 3

TRAVERS POINT NUMBER	VEL. HEAD IN.H2O	SQRT VEL. HEAD	STACK TEMP. F	ORIFICE PRES.DIFF IN.H2O	METER TEMP. F
1-1	1.000	1.000	398	5.00	95
1-2	1.000	1.000	401	5.00	95
1-3	0.960	0.980	402	4.80	95
1-4	0.970	0.985	404	4.85	96
1-5	0.860	0.927	403	4.30	96
1-6	0.840	0.917	401	4.20	97
1-7	0.700	0.837	398	3.50	98
1-8	0.670	0.819	401	3.35	98
1-9	0.680	0.825	401	3.40	99
1-10	0.700	0.837	401	3.50	99
1-11	0.660	0.812	400	3.30	99
1-12	0.720	0.849	399	3.60	100
2-1	0.760	0.872	389	4.18	100
2-2	0.740	0.860	393	4.07	100
2-3	0.720	0.849	392	3.96	100
2-4	0.700	0.837	394	3.85	110
2-5	0.660	0.812	394	3.63	110
2-6	0.610	0.781	391	3.36	110
2-7	0.680	0.825	398	3.74	120
2-8	0.830	0.911	399	4.57	130
2-9	0.850	0.922	404	4.68	130
2-10	1.000	1.000	404	5.50	140
2-11	0.840	0.917	397	4.62	140
2-12	0.830	0.911	393	4.57	140
AVERAGES		0.887	398	4.146	108.21

	SAMPLE CALCULATIONS - RUN 1	
NOZZLE AREA (FT2)	$(Dn/12)^2 \times 3.141604$	0.000490
VOLUME H2O (FT3)	$0.04707 \times Vm$	8.88589
STD. VOLUME (FT3)	$17.64 \times Vm \times Yx$	49.22254
	$(PB+ORIFICE/13.6)/Tm$	
PERCENT H2O	$Vwv/(Vwv+Vs) \times 100$	15.29191
Mw DRY	$((\%O2 \times 0.32) + (\%CO2 \times 0.44) + (100 - (\%O2 + \%CO2)) \times 0.28$	29.7872
Mw WET	$(MwDRY \times (1 - \%H2O/100) + \%H2O \times 0.18$	27.98471
%EXCESS AIR	$O2 / ((0.264 \times N2) - O2) \times 100$	39.42821
STACK VEL. (FPS)	$85.49 \times 0.84 \times (AVG.SQRT.VEL.HD) \times Ts / (Ps \times MwWET)^{0.5}$	54.58743
% ISOKINETIC	$xAn \times Ps \times 60 \times (1 - \%H2O/100)$	94.48681
VOL. FLOW (ACFM)	$FPS \times 60 \times As$	24849949
STD. FLOW (SCFMD)	$ACFM \times (528/Ts) \times (1 - \%H2O/100) \times (Ps/29.92)$	34727.43
PM (LB/HR)	$PROBE+FILTER \text{ mg}/453600 \times (SCFMD/SCF) \times 60$	1.527307
PM (LB/SCF)	$PROBE+FILTER \text{ mg}/453600/SCF$	
GRAINS/SCF	$LB/SCF \times 7000$	0.005130

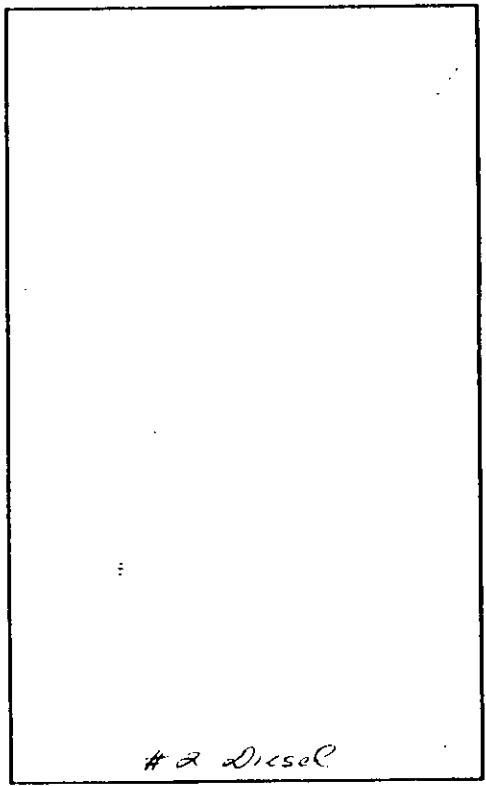
APPENDIX B
FIELD DATA SHEETS

STACK SAMPLING FIELD DATA SHEET



2106 N. W. 67th PLACE, Suites 9&10
GAINESVILLE, FLORIDA 32606

PLANT Alcolac Corporation
SOURCE Banks, Ia
PLANT LOCATION South Bay, Florida
TYPE OF SAMPLING TRAIN EPA 5/6
TYPE OF SAMPLES PM 1502
DATE 7/14/94 RUN NO. 1
TIME START 0934 TIME END 094 1040
SAMPLE TIME 3.51 (min/pt) = 60 Total min
ASSUMED MOISTURE _____ % FDA _____
NOMOGRAPH C_p 5.0 PITOT CORR. .84
P_b 30.20 "Hg P_s 30.20 "Hg
WEATHER _____ TEMP _____ °F
METER BOX NO. 6 H 2.04P Y 1.0105
NOZZLE CAL. .300 .300 .300 = .300
STACK DIMENSIONS 60" DIA
STACK AREA 19.635 ft² EFFECTIVE _____ ft²
STACK HEIGHT 75 ft.
STACK DIAMETER: UPSTRM. _____ DNSTRM. _____
PORT SIZE 4 in. NIPPLE LENGTH 4.5 in.
U CORD LENGTH 2001
REMARKS:
Sterling Jordan EDEP EL Myus



#2 Diesel

MAT'L PROCESSING RATE _____
GAS METER READINGS: FINAL 477.394 ft³
INITIAL 429.718 ft³
NET 49.676 ft³
FILTER NO. 5553 IMP. VOL. GAIN 174 ml.
SIL GEL NO. 38 WT. GAIN 14.5 ml.
TOTAL CONDENSATE 188.5 ml.

ORSAT

	1	2	3	4	AVG.
% CO ₂					9.6
% O ₂					6.28
% CO					
% N ₂					

F₀ = _____ F₀ RANGE = _____

ORSAT ANALYZER _____

LEAK CHECKS

PRE 0.002 cfm 15 "Hg POST 0.002 cfm 15 "Hg
METER BOX/PUMP OK GAS SAMPLE SYST. OK
ORSAT BAG OK
PITOT TUBE NO. 73 PRE-TEST OK
POST-TEST(+) .0004" H₂O/Sec
POST-TEST(-) .0004" H₂O/Sec
PYROMETER NO. MR-3
BOX OPERATOR Fib PROBE HOLDER Blue man

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL / COMMENTS	CLOCK TIME	GAS METER READING (FT ³)	STACK VELOCITY HEAD	METER ORIFICE PRESS. DIFF. ("H ₂ O)		STACK GAS TEMP (°F)	SAMPLE BOX TEMP (°F)	LAST IMPINGER TEMP (°F)	DRY GAS METER TEMP (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
					CALC.	ACTUAL					
1-1		0937	430.01	0.98	4.90	4.90	393	278	54.6	34.50	4.0
2			432.31	0.98	4.90	4.90	392	281	55.0	81	6.0
3			434.78	0.98	3.60	3.60	378	281	58.2	81	5.0
4			436.81	0.55	2.75	2.75	371	281	59.7	82	4.0
5			438.82	0.58	2.90	2.90	372	280	59.6	83	4.0
6			441.19	0.80	4.00	4.00	394	281	59.8	83	5.0

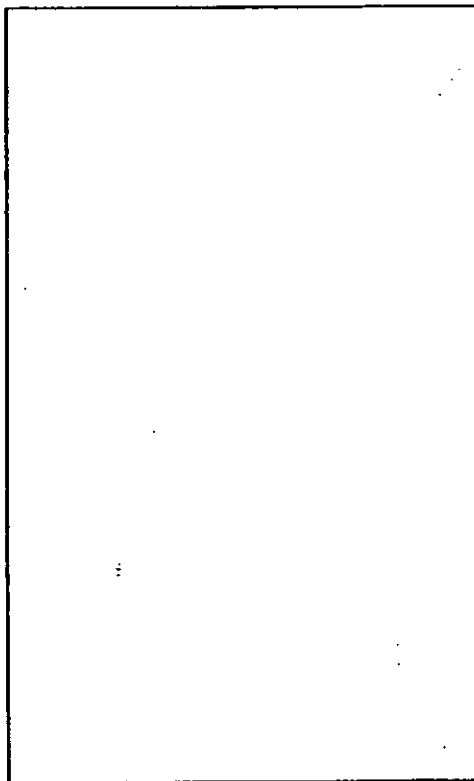
STACK SAMPLING FIELD DATA SHEET



2106 N. W. 67th PLACE · Suites 9B10
GAINESVILLE, FLORIDA · 32606

TEST ID K-2
PAGE _____ OF _____

PLANT Chalant Corporation
SOURCE Boiler
PLANT LOCATION South Bay, Florida
TYPE OF SAMPLING TRAIN PM EPA 516
TYPE OF SAMPLES PM/SO2
DATE 7/14/94 RUN NO. 2
TIME START 1202 TIME END 1305
SAMPLE TIME 2.5 (min/pt) = 60 Total min
ASSUMED MOISTURE _____ % FDA _____
NOMOGRAPH C_p 5.0 PITOT CORR. .84
P_b 30.20 "Hg P_s 30.20 "Hg
WEATHER _____ TEMP. _____ °F
METER BOX NO. 6 H 2.048 Y 1.0105
NOZZLE CAL. .300 .300 .300 .300
STACK DIMENSIONS 60" DIA
STACK AREA 19.635 ft² EFFECTIVE _____ ft²
STACK HEIGHT 75 ft
STACK DIAMETER: UPSTRM. _____ DNSTRM. _____
PORT SIZE 4 in. NIPPLE LENGTH 4.5 in.
U CORD LENGTH 200'
REMARKS: _____



MAT'L PROCESSING RATE _____
GAS METER READINGS: FINAL 531.422 ft³
INITIAL 477.515 ft³
NET 53.907 ft³
FILTER NO. 5356 IMP. VOL. GAIN 135 ml.
SIL GEL NO. 23 WT. GAIN 2.0 ml.
TOTAL CONDENSATE 137.0 ml.

ORSAT

	1	2	3	4	AVG.
% CO ₂					10.0
% O ₂					6.7
% CO					
% N ₂					

F₀ = _____ F₀ RANGE = _____

ORSAT ANALYZER _____

LEAK CHECKS

PRE 0.001 cfm 15 "Hg POST 0.001 cfm 14 "Hg
METER BOX/PUMP OK GAS SAMPLE SYST. OK
ORSAT BAG OK
PITOT TUBE NO. 73 PRE-TEST OK
POST-TEST(+) 0.0064"1 1 H₂O/Sec
POST-TEST(-) 0.0064"1 H₂O/Sec
PYROMETER NO. AK 3
BOX OPERATOR Fitch PROBE HOLDER Bourneau

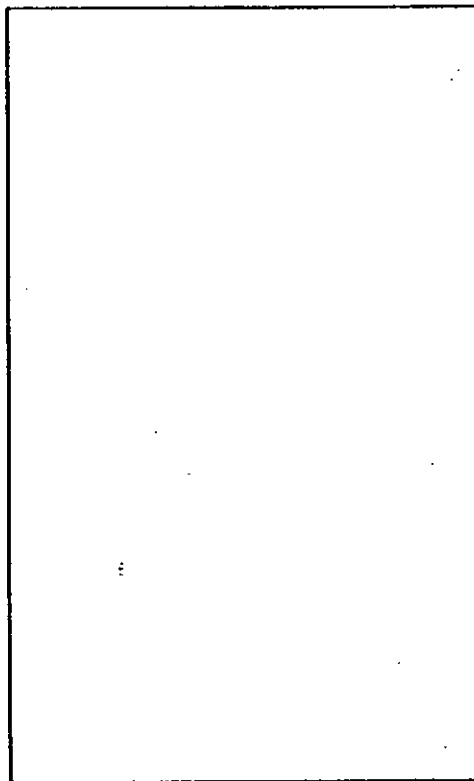
PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL /COMMENTS	CLOCK TIME	GAS METER READING (FT.3)	STACK VELOCITY HEAD	METER ORIFICE PRESS. DIFF. ("H ₂ O)		STACK GAS TEMP (°F)	SAMPLE BOX TEMP (°F)	LAST IMPINGER TEMP F	DRY GAS METER TEMP (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
					CALC.	ACTUAL					
1-1		7:00	479.80	572	3.60	3.60	399	285	63.3	86	4.0
2			482.09	565	3.20	3.20	389	284	62.0	86	4.0
3			484.02	558	2.80	2.80	389	288	58.9	86	4.0
4			486.19	555	2.75	2.75	379	284	59.2	87	4.0
5			488.15	552	2.60	2.60	376	280	56.7	87	3.0
6			489.15	546	2.30	2.3	372	282	56.3	88	3.0

STACK SAMPLING FIELD DATA SHEET



2106 N. W. 67th PLACE · Suites 9&10
GAINESVILLE, FLORIDA · 32606

PLANT Blue Canopy Corporation
SOURCE Boiler #16
PLANT LOCATION South Bay, Florida
TYPE OF SAMPLING TRAIN EPA 3/6
TYPE OF SAMPLES PM/502
DATE 7/14/94 RUN NO. 3
TIME START 1350 TIME END 601452
SAMPLE TIME 2.51 (min/pt) = 60 Total min
ASSUMED MOISTURE _____ % FDA _____
NOMOGRAPH C_p 2.0 PITOT CORR. .84
P_b 30.20 "Hg P_s 30.30 "Hg
WEATHER _____ TEMP. _____ °F
METER BOX NO. 6 H 2.048 Y 1.0105
NOZZLE CAL. .300 .300 .300 .300
STACK DIMENSIONS 60" DIA
STACK AREA 19.635 ft² EFFECTIVE _____ ft²
STACK HEIGHT 75 ft
STACK DIAMETER: UPSTRM. _____ DNSTRM. _____
PORT SIZE 4 in. NIPPLE LENGTH 4.5 in.
U CORD LENGTH 200'
REMARKS: _____



MAT'L PROCESSING RATE _____
GAS METER READINGS: FINAL 590.488 ft³
INITIAL 531.642 ft³
NET 58.846 ft³
FILTER NO. 5357 IMP. VOL. GAIN 176 ml.
SIL GEL NO. 4 WT. GAIN 8.8 ml.
TOTAL CONDENSATE 184.8 ml.

ORSAT

	1	2	3	4	AVG.
% CO ₂					10.0
% O ₂					5.9
% CO					
% N ₂					

F₀ = _____ F₀ RANGE = _____

ORSAT ANALYZER _____

LEAK CHECKS

PRE 0.002 cfm 15 "Hg POST 0.002 cfm 16 "Hg
METER BOX/PUMP OK GAS SAMPLE SYST. OK
ORSAT BAG OK
PITOT TUBE NO. 73 PRE-TEST OK
POST-TEST(+) 0.009 4" 1 _____ H₂O/Sec
POST-TEST(-) 0.008 4" 1 _____ H₂O/Sec
PYROMETER NO. ATK-3
BOX OPERATOR Fick PROBE HOLDER Bauman

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL / COMMENTS	CLOCK TIME	GAS METER READING (FT. ³)	STACK VELOCITY HEAD	METER ORIFICE PRESS. DIFF. ("H ₂ O)		STACK GAS TEMP (°F)	SAMPLE BOX TEMP (°F)	LAST IMPINGER TEMP F	DRY GAS METER TEMP (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
					CALC.	ACTUAL					
1-1		1352	537.32	1.00	5.00	5.00	398	281	63.6	95	5.0
2			537.02	1.00	5.00	5.00	401	278	63.5	95	5.0
3			539.61	0.96	4.80	4.80	402	276	63.3	95	5.0
4			542.51	0.97	4.85	4.85	404	276	62.1	96	5.0
5			544.99	0.84	4.30	4.30	403	279	62.0	96	5.0
6			547.51	0.84	4.20	4.20	401	280	62.1	97	5.0

APPENDIX C
LABORATORY ANALYSIS

SOURCE Okeobaha Boiler 16



BALANCE CHECK:

1st GROSS WT. - 0.0 0.5 5001 10.0 10.0001 100.0 99.9999

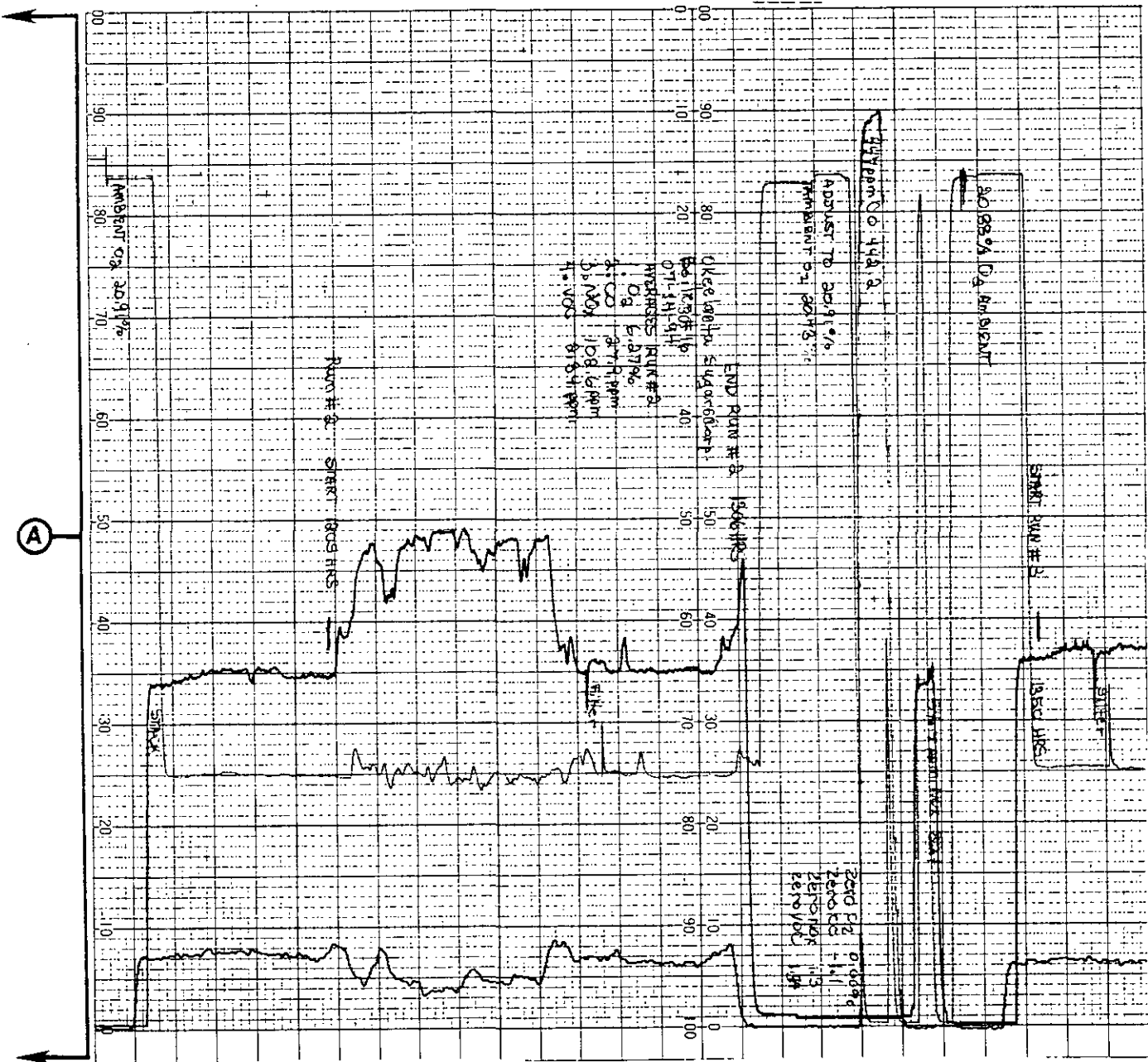
2nd GROSS WT. - 0.0 0.5 5004 10.0 10.0001 100.0 99.9999
 3rd 11 99.9997

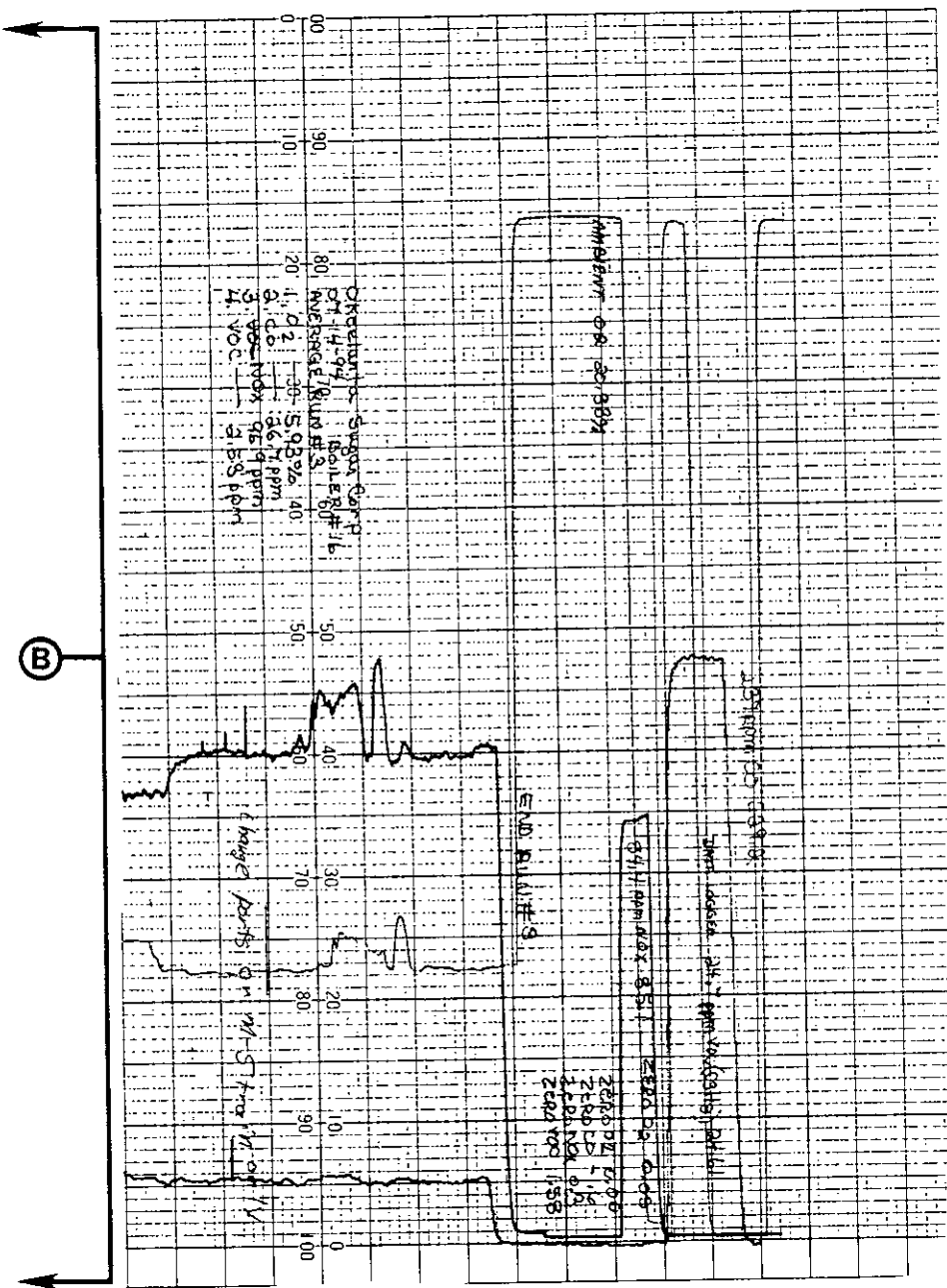
DATE 7/18/94 TIME 1445 XRH 49 BY: (INIT.) CPS
 Temp = 74

DATE 7-19-94 TIME 0800 XRH 48 BY: (INIT.) SLN
7-19-94 1630 48.78 SLN

RUN I.D.	FILTER/CONT. NO.	VOLUME (ml)	1st GROSS WT. (g)	2nd GROSS WT. (g)	AVG GROSS WT. (g)	TARE WT. (g)	SUB NET WT. (g)	BLANK (g)	NET WT. (mg)
Filters									
1	5553	NA	.4030	.4035	.4033	.3958	.0075		7.5
2	5356	↓	.4032	.4037	.4034	.3969	.0065		6.5
3	5357	↓	.4048	.4047	.4048	.4001	.0047		4.7
BLANK	4798		.4023	.4023	.4023	.4018	0.0005		0.5
Washes									
		Wash Mass (g)							
1	162	105.3	107.4964	107.4941	107.4943	107.4854	0.0089		8.9
2	164	116.6	108.8808	108.8787	108.8789	108.8686	0.0103		10.3
3	166	117.6	104.0657	104.0637	104.0638	104.0581	0.0057		5.7
BLANK	98	125.5	101.0504	101.0488	101.0490	101.0504	—		
WASHES									
1	162			107.4944					
2	164			108.8791					
3	166			104.0639					
B	98			101.0492					

APPENDIX D
STRIP CHART COPIES





END

APPENDIX E

VISIBLE EMISSION DATA

VISIBLE EMISSION OBSERVATION FORM

OBSERVATION DATE 7/14/94 START TIME 0935 STOP TIME 1035

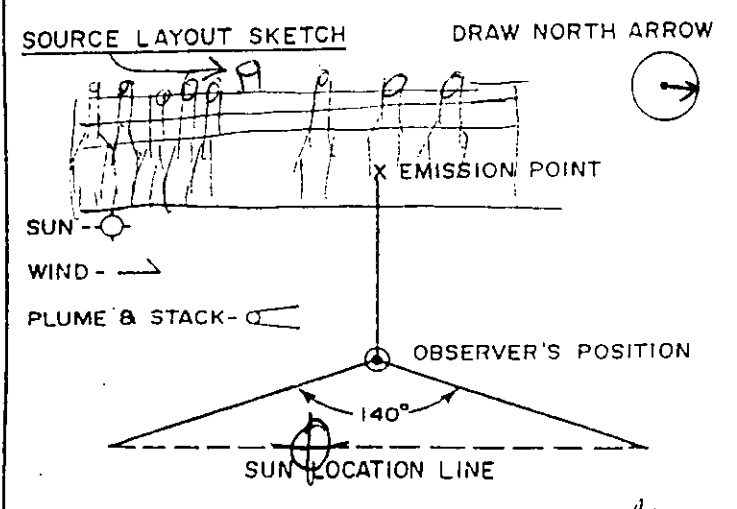
SOURCE NAME Okeelanta Sugar Corp.
 ADDRESS US-27 (South of South Bay)
 CITY South Bay STATE FL ZIP 33493
 PHONE _____ SOURCE I.D. NUMBER Boiler No. 16

PROCESS EQUIPMENT Power boiler OPERATING MODE 100% #2 diesel
 CONTROL EQUIPMENT (None) N/A OPERATING MODE N/A 100/135

DESCRIBE EMISSION POINT 60" dia. vert. stack exit STOP same
 HEIGHT ABOVE GROUND LEVEL 70' STOP 70' HEIGHT REL. TO OBSERVER 70' STOP 70'
 DISTANCE FROM OBSERVER 300' STOP same DIRECTION FROM OBSERVER West STOP West

DESCRIBE EMISSIONS not visible STOP same
 EMISSION COLOR clear STOP clear PLUME TYPE: CONT. FUGITIVE WATER.
 WATER DROPLETS PRESENT: NO YES IF WATER DROPLET PLUME: ATTACHED DETACHED

POINT IN PLUME AT WHICH OPACITY WAS DETERMINED 3' above outlet STOP same
 DESCRIBE BACKGROUND Blue sky STOP same
 BACKGROUND COLOR Blue STOP Blue SKY CONDITIONS scattered
 WIND SPEED 3-5 STOP 5-6 WIND DIRECTION East STOP east
 AMBIENT TEMP. ~85° F STOP same WET BULB TEMP. not recorded RH % ~70



COMMENTS: No other sources operating
No visible emissions
 I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS
 SIGNATURE Strolling & Radom - JED TITLE PE DATE 7/14/94

SEC MIN	0	5	30	45	SEC MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD 0 NUMBER OF READINGS ABOVE WERE 5
 RANGE OF OPACITY READINGS MINIMUM 0 MAXIMUM 0

OBSERVER'S NAME (PRINT) Charles G. Simon
 OBSERVER'S SIGNATURE Charles G. Simon DATE 7/14/94
 ORGANIZATION Air Consulting & Engineering
 CERTIFIED BY Eastern Tech. Assoc. DATE 7/13/94
 VERIFIED BY _____ DATE _____

APPENDIX F
BOILER PARAMETERS

AIR CONSULTING AND ENGINEERING, INC.

BOILER OPERATION PARAMETERS

PLANT: OKEELANTA CORPORATION	DATE: 7/14/94
LOCATION: SOUTH BAY, FLORIDA	RUN: 1
SOURCE: BOILER NUMBER 16	TIME: 0938-1039

TIME INTERVAL 61 MIN

OIL:

FINAL OIL	3099132
INITIAL OIL	3098045
FACTOR	1

STEAM:

FINAL STEAM	295709
INITIAL STEAM	295601
FACTOR	1000
TEMPERATURE	729 F
PRESSURE	370 PSIG
	385 PSIA

FEEDWATER:

TEMPERATURE	217 F
PRESSURE	605 PSIG
	620 PSIA

HEAT INPUT:

STEAM	1379.8 BTU/LB
FEEDWATER	186.1 BTU/LB
NET STEAM	1193.7 BTU/LB
STEAM RATE	106230 LB/HR

BOILER EFFICIENCY	85 %
TOTAL FUEL HEAT INPUT	149.18 MMBTU/HR
STEAM CALIBRATION FACTOR	1

OIL	1069.18 GPH
OIL	150000 BTU/GAL

TOTAL HEAT INPUT (OIL)	160.38 MMBTU/HR
------------------------	-----------------

AIR CONSULTING AND ENGINEERING, INC.

BOILER OPERATION PARAMETERS

PLANT: OKEELANTA CORPORATION	DATE: 7/14/94
LOCATION: SOUTH BAY, FLORIDA	RUN: 2
SOURCE: BOILER NUMBER 16	TIME: 1205-1306

TIME INTERVAL 61 MIN

OIL:

FINAL OIL	3102000
INITIAL OIL	3100791
FACTOR	1

STEAM:

FINAL STEAM	295998
INITIAL STEAM	295877
FACTOR	1000
TEMPERATURE	723 F
PRESSURE	361 PSIG
	376 PSIA

FEEDWATER:

TEMPERATURE	218 F
PRESSURE	606 PSIG
	621 PSIA

HEAT INPUT:

STEAM	1376 BTU/LB
FEEDWATER	187.1 BTU/LB
NET STEAM	1188.9 BTU/LB
STEAM RATE	119016 LB/HR
BOILER EFFICIENCY	85 %
TOTAL FUEL HEAT INPUT	166.47 MMBTU/HR
STEAM CALIBRATION FACTOR	1

OIL	1189.18 GPH
OIL	150000 BTU/GAL
TOTAL HEAT INPUT (OIL)	178.38 MMBTU/HR

AIR CONSULTING AND ENGINEERING, INC.

BOILER OPERATION PARAMETERS

PLANT: OKEELANTA CORPORATION	DATE: 7/14/94
LOCATION: SOUTH BAY, FLORIDA	RUN: 3
SOURCE: BOILER NUMBER 16	TIME: 1349-1452

TIME INTERVAL 63 MIN

OIL:

FINAL OIL	3104287
INITIAL OIL	3102924
FACTOR	1

STEAM:

FINAL STEAM	296218
INITIAL STEAM	296091
FACTOR	1000
TEMPERATURE	708 F
PRESSURE	347 PSIG
	362 PSIA

FEEDWATER:

TEMPERATURE	213 F
PRESSURE	609 PSIG
	624 PSIA

HEAT INPUT:

STEAM	1369.2 BTU/LB
FEEDWATER	181.07 BTU/LB
NET STEAM	1188.13 BTU/LB
STEAM RATE	133684 LB/HR
BOILER EFFICIENCY	85 %
TOTAL FUEL HEAT INPUT	186.86 MMBTU/HR
STEAM CALIBRATION FACTOR	1

OIL	1298.10 GPH
OIL	150000 BTU/GAL
TOTAL HEAT INPUT (OIL)	194.71 MMBTU/HR

BOILER OPERATION PARAMETERS

PLANT Okeelanta Sugar Corp.

BOILER NUMBER 16

DATE 07-13-94 RUN NUMBER 1

OIL METER FACTOR 1

STEAM INTEGRATOR FACTOR 1000

SCRUBBER(S) PRESS. DROP _____

OPERATOR SIGNATURE _____

SCRUBBER(S) GPM _____

SCRUBBER(S) H₂O LEVEL _____

Fh (if applicable) _____

INITIAL INTEGRATOR 295601

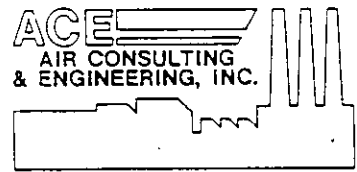
FINAL INTEGRATOR 295709

0938

1039

TIME	OIL METER READING	STEAM			FEEDWATER	
		LEBS. FLOW	TEMP.	PRESSURE	TEMP.	PRESSURE
0937						
0937	3098045	107000	733	375	215	600
0951	3098312	110000	733	383	215	605
1008	3098610	108000	728	364	217	605
1021	3098840	108000	727	361	218	610
1038	3099132	107000	725	368	218	605
		AV.	729	370	217	605
				+15		+15
				385		620
				1379.8 BTU		186.1

EMISSION SUMMARY Boiler Operating Parameters



PLANT: Okeelanta Sugar Corp.

SOURCE: Boiler # 1b

DATE: 07-14-94

Run #3

PAGE 1 OF 1

2106 N.W. 67th PLACE Sultes 9&10
GAINESVILLE, FLORIDA 32606
(904) 335-1889

Initial Integrator 296091 1350 HRS Final Integrator 296218 ¹⁴⁴

Time	OIL		STEAM		Feedwater	
	meter reading	LBS flow	Temp.	Press.	Temp	Press.
1349	3102924	130000	705	346	218	603
1404	3103256	130000	708	345	213	610
1419	3103574	135000	708	346	212	605
1437	3103965	138000	706	343	211	610
1452	3104387	132000	712	353	212	615
		AV.	708	347	213	609
				+ 15		+ 15
				362		624
	STEAM Integrator factor		1000			
	Oil Integrator factor		1			
					1369.2 BTU	186.07 BTU

APPENDIX G

**QUALITY ASSURANCE
AND
CHAIN OF CUSTODY**

STANDARD METER CALIBRATION
Meter Number 1040616 - S

Air Consulting and Engineering, Inc. (ACE) uses a dry gas meter for the calibration standard. This meter has been calibrated against a wet test meter in triplicate. This data was used to generate a standard meter calibration curve (see next page). Field meter calibrations are corrected to this curve using the following formula:

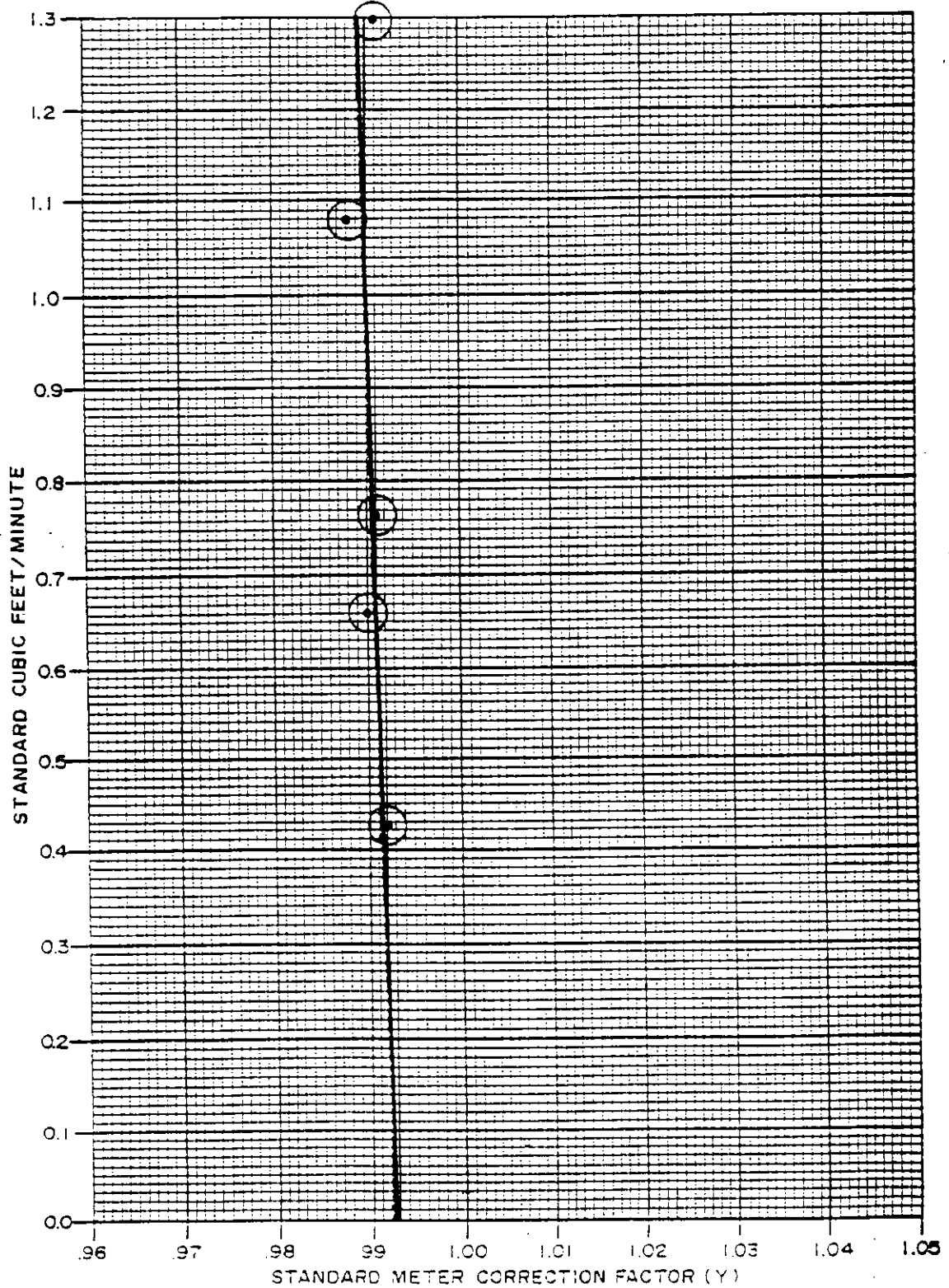
$$Y_a \times Y_s = Y$$

Y_a = actual ratio of field meter to standard meter

Y_s = ratio of standard meter to wet test meter at a given
flow rate (from Calibration Curve)

Y = corrected ratio of field meter

The dry standard meter was calibrated on July 12, 1993, and is checked and/or recalibrated at least annually.



STANDARD METER CALIBRATION
 CURVE
 JULY 12, 1993-SERIAL NO. 1040616 (SOUTH)

NOTE: CALIBRATED AGAINST 1 FT³ / REV. WET TEST
 METER AT ESE, INC.

AIR CONSULTING
 and
 ENGINEERING

AIR CONSULTING & ENGINEERING

STANDARD METER CALIBRATION

DATE 7-12-93

LEAK CHECK 0.000 CFM at 12 In. Hg.

METER SERIAL NUMBER 104066 (SOUTH)

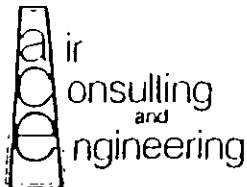
BAROMETRIC PRESSURE 30.16 In. Hg.

STD GAS METER TEMPERATURE 76 °F / ASTM GLASS THERMOMETER TEMPERATURE 76 °F

WET ΔH	STD ΔH	GAS VOLUME, WET TEST METER			GAS VOLUME, STD GAS METER			TEMP WET TEST METER (°F)	TEMP OF STD METER (°F)	TIME (Minutes)
		INITIAL	FINAL	ACTUAL ft ³	INITIAL	FINAL	ACTUAL ft ³			
-3	-1.63	0.000	5.100	5.100	761.399	766.552	5.153	75	78	12
-3	-1.63	0.000	5.110	5.110	766.552	771.718	5.166	75	76	12
-3	-1.63	0.000	5.093	5.093	771.718	776.873	5.155	75	76	12
-4	-1.2	0.000	5.298	5.298	777.783	783.158	5.375	75	76	8
-4	-1.2	0.000	5.299	5.299	783.158	788.538	5.380	75	76	8
-4	-1.2	0.000	5.297	5.297	788.538	793.914	5.376	75	76	8
-5	-1.5	0.000	5.002	5.002	719.913	725.008	5.095	74	76	6.50
-5	-1.5	0.000	7.001	7.001	725.009	735.113	7.104	74	76	9.05
-5	-1.5	0.000	5.012	5.012	732.113	737.203	5.090	75	76	6.62
-7	-2.4	0.000	6.517	6.517	796.774	803.417	6.643	75	76	6
-7	-2.4	0.000	5.424	5.424	803.417	808.959	5.543	75	76	5
-7	-2.4	0.000	5.422	5.422	808.959	814.492	5.533	75	76	5
-9.5	-2.7	0.000	5.710	5.710	740.453	746.259	5.796	75	76	5
-9.5	-2.7	0.000	5.694	5.694	746.259	752.053	5.794	75	76	5
-9.5	-2.7	0.000	5.690	5.690	753.647	759.444	5.797	75	75	6

CALIBRATED BY: Ray Q. Brown

	Y	SCFMD	Y	SCFMD	Y	SCFMD	Y	SCFMD	Y	SCFMD
1	0.993	0.423	0.990	0.659	0.989	0.767	0.989	1.081	0.994	1.136
2	0.993	0.424	0.990	0.659	0.993	0.771	0.986	1.079	0.991	1.133
3	0.991	0.422	0.990	0.659	0.990	0.753	0.988	1.079	0.988	1.132
AVG	0.992	0.424	0.990	0.659	0.991	0.764	0.988	1.080	0.991	1.134



NOTE: CALIBRATED AGAINST 1 FT³/REV. WET TEST METER AT ESE

AIR CONSULTING & ENGINEERING

ANNUAL METER CALIBRATION

DATE 04-01-94

LEAK CHECK 0.000 CFM at 15 In. Hg.

METER BOX NUMBER 6

BAROMETRIC PRESSURE 30.18 In. Hg.

DRY GAS METER TEMPERATURE 79 °F / ASTM GLASS THERMOMETER TEMPERATURE 79 °F

ΔHS	AVERAGE ΔHD	GAS VOLUME, STANDARD METER			GAS VOLUME, DRY GAS METER			TEMP STD METER	TEMP OF DRY METER	TIME (Minutes)	TIMER
		INITIAL	FINAL	ACTUAL ft ³	INITIAL	FINAL	ACTUAL ft ³				
-0.33	.50	771.100	781.100	10.000	406.142	416.269	10.127	79	90	27.73	
-0.48	1.00	760.400	770.400	10.000	395.415	405.430	10.015	79	90	19.09	
-0.65	1.50	739.100	749.100	10.000	374.110	384.080	9.970	79	90	15.41	
-0.78	2.00	728.400	738.400	10.000	363.500	373.407	9.907	79	90	13.69	
-1.10	3.00	717.700	727.700	10.000	352.931	362.797	9.866	79	90	11.00	
-1.30	4.00	694.200	704.200	10.000	340.448	350.265	9.817	79	88	9.60	

DELTA H	Ya	SCFM	Ys	Y
2.133	1.006	0.356	0.992	0.998
2.029	1.015	0.517	0.991	1.005
1.976	1.020	0.641	0.991	1.011
2.080	1.025	0.722	0.991	1.016
2.014	1.027	0.898	0.991	1.018
2.053	1.026	1.029	0.990	1.015
MEAN:	2.048	1.020	0.991	1.010

CALIBRATED BY: Gerald P Gauthreaux

AIR CONSULTING & ENGINEERING, inc.

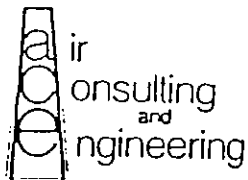
POST TEST CALIBRATION

DATE 07-18-94 METER BOX NUMBER 6 LEAK CHECK 0.00 CFM at 15 in. Hg.
 CLIENT Keelanta Sugar Corp. SOURCE #16 Boiler THERMOCOUPLE NUMBER 78 PYROMETER NUMBER ATK-3
 FLIGHT SERVICE Pb. — in. Hg. ACE BAROMETER Pb. 30.21 in. Hg.
 ASTM GLASS THERMOMETER 374 °F / THERMOCOUPLE 377 °F ASTM GLASS THERMOMETER 86 °F / METER TEMP 86 °F

ΔHS	AVERAGE ΔHD	GAS VOLUME, STANDARD METER			GAS VOLUME, DRY GAS METER			TEMP STANDARD METER	TEMP OF DRY METER	TIME (Minutes)	MAX. VACUUM in. Hg.
		INITIAL	FINAL	ACTUAL ft ³	INITIAL	FINAL	ACTUAL ft ³				
-1.1	3.50	242.900	252.900	10.000	649.722	659.460	9.738	99 86	99	10.19	6.0
-1.1	3.50	252.900	262.900	10.000	659.460	669.400	9.740	86	99	10.20	6.0
-1.1	3.50	263.200	273.200	10.000	669.490	679.	9.735	87	100	10.20	6.0

CALIBRATED BY: *Gerard P. Gauthier*

DELTA H	Ya	SCFM	Ys	Y
2.034	1.042	0.958	0.991	1.033
2.038	1.042	0.957	0.991	1.032
2.042	1.043	0.956	0.991	1.033
MEAN:	2.038	1.042	0.991	1.033



DATE CALIBRATED 5-17-93

PITOT TUBE 73

IS PITOT TUBE ASSEMBLY LEVEL yes

ARE PITOT TUBE OPENINGS DAMAGED NO

$\alpha_1 = \underline{0}^\circ (<10^\circ)$, $\alpha_2 = \underline{1}^\circ (<10^\circ)$, $\beta_1 = \underline{4}^\circ (<5^\circ)$, $\beta_2 = \underline{0}^\circ (<5^\circ)$

$\gamma = \underline{1}^\circ$ $\phi = \underline{2}^\circ$ $A = \underline{0.9999}$ in. = (Pa + Pb)

$z = A \sin \gamma = \underline{0.017}$ in. < 0.32 / < 1/8 in.

$w = A \sin \phi = \underline{0.035}$ in. < 0.08 / < 1/32 in.

$P_a = \underline{0.4990}$ in. $P_b = \underline{0.5009}$ in. $D_t = \underline{.400}$

WAS CALIBRATION REQUIRED yes

THERMOCOUPLE CALIBRATION

SOURCE (SPECIFY)	ASTM GLASS THERMOMETER WITH MERCURY (°F)	PYROMETER (°F)	DEGREE DIFFERENCE	PERCENT DIFFERENCE
ICE BATH	<u>35</u>	<u>35</u>	<u>0</u>	<u>0.0</u>
AMBIENT	<u>87</u>	<u>89</u>	<u>2</u>	<u>0.4</u>
HOT OVEN	<u>327</u>	<u>329</u>	<u>2</u>	<u>0.4</u>

CALIBRATED BY: Gerard P. Ganthony

FDER - MAXIMUM 5° DIFFERENCE

EPA $\left[\frac{(\text{REF. TEMP. } ^\circ\text{F} + 460^\circ) - (\text{PYROMETER TEMP. } ^\circ\text{F} + 460^\circ)}{\text{REF. TEMP. } ^\circ\text{F} + 460^\circ} \right] 100 \leq 1.5\%$

DATE 6/22/94

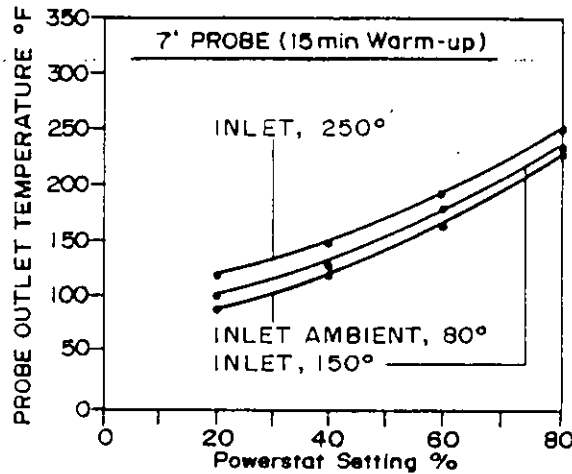
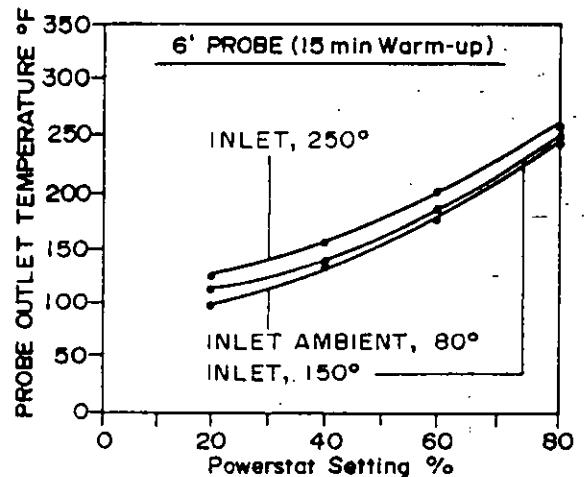
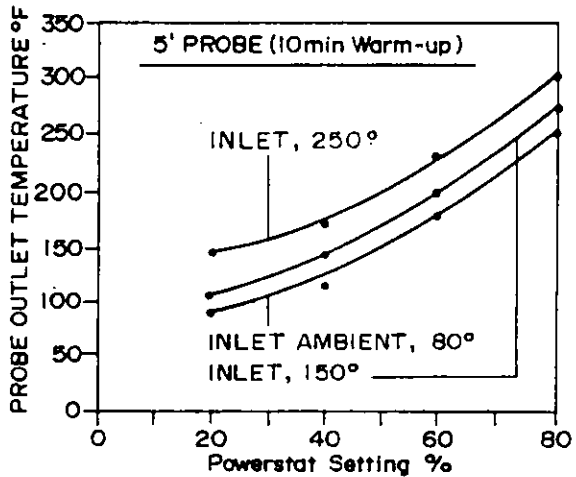
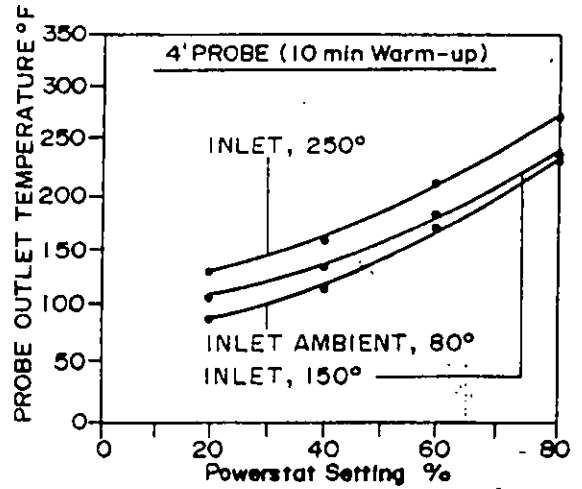
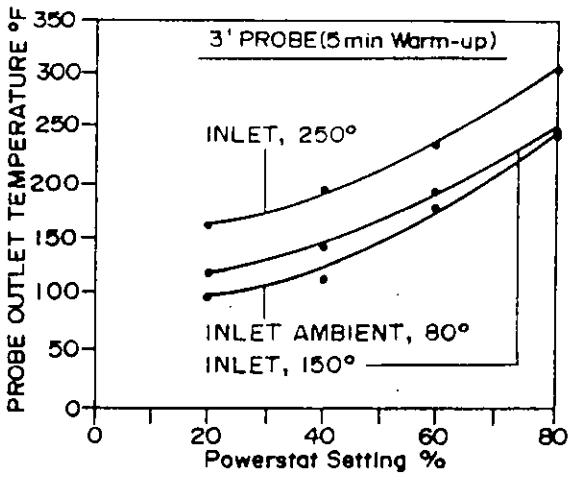
PYROMETER NUMBER Atkins #3

SOURCE (SPECIFY)	GLASS THERMOMETER WITH NBS MERCURY (°F)	PYROMETER (°F)	DEGREE DIFFERENCE	PERCENT DIFFERENCE
ICE BATH	<u>32</u>	<u>32</u>	<u>0</u>	<u>0</u>
AMBIENT	<u>82</u>	<u>83</u>	<u>1</u>	<u>0.2</u>
HOT OVEN	<u>400</u>	<u>404</u>	<u>4</u>	<u>0.8</u>

FDER - MAXIMUM 5° DIFFERENCE

EPA $\left[\frac{(\text{REF. TEMP. } ^\circ\text{F} + 460^\circ) - (\text{PYROMETER TEMP. } ^\circ\text{F} + 460^\circ)}{\text{REF. TEMP. } ^\circ\text{F} + 460^\circ} \right] 100 \leq 1.5\%$

CALIBRATED BY: Gerard Jantzen



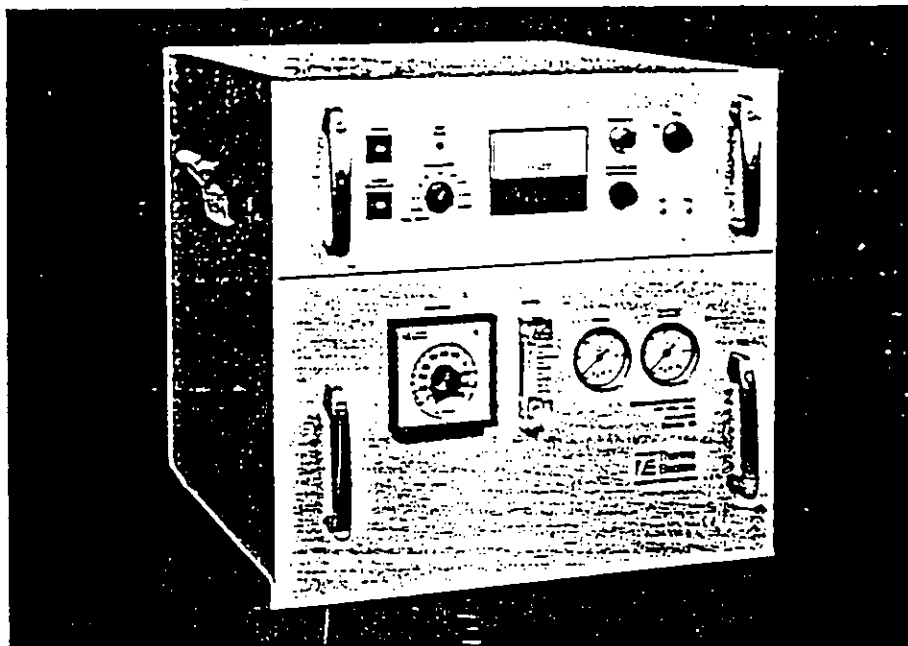
NOTE: Flow rate held constant at 0.75; 50% change in flow rate has little effect on probe temperature.

PROBE GRAPH

AIR CONSULTING
and
ENGINEERING

Chemiluminescent NO/NO_x Analyzer

Model 10 For Continuous Source Gas Monitoring



Thermo Electron's Model 10 NO/NO_x Analyzer is based on the chemiluminescent reaction between nitric oxide (NO) and ozone (O₃) according to the reaction:



Light emission results when the electronically excited NO₂ molecules revert to their ground state.

A front panel mode switch provides for either a direct readout of the NO concentration in the sample being analyzed ("NO" mode) or the total NO_x concentration ("NO_x" mode). When the Model 10 is placed in the "NO_x" mode, the sample stream passes through a NO_x-to-NO converter prior to entering the reaction chamber for subsequent analysis.

Key Features

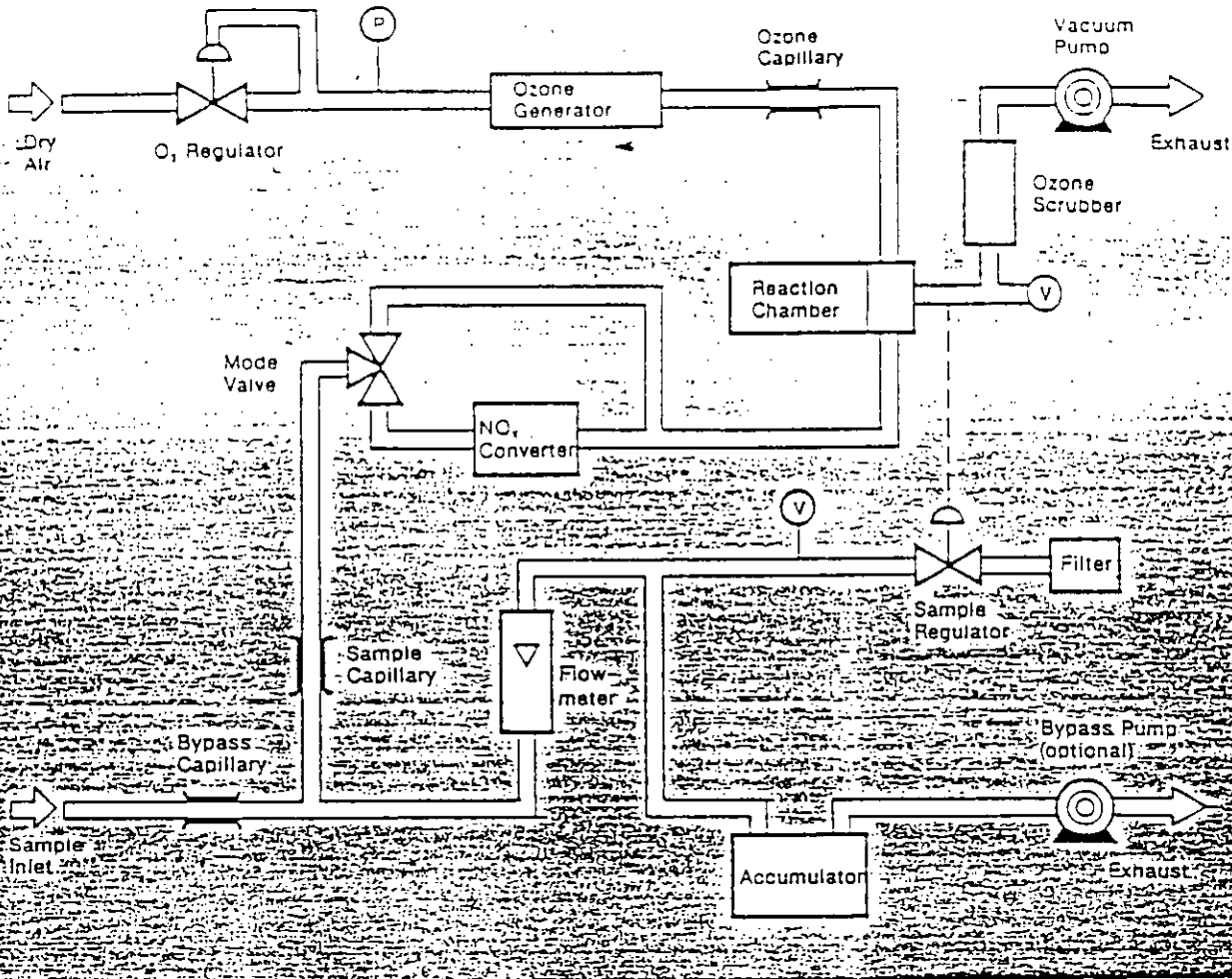
- Selective detection of NO or NO_x
- Eight ranges, from 2.5 to 10,000 ppm FS
- Continuous monitoring with rapid response
- Linear on all ranges
- Field proven reliability
- Insensitive to changes in sample flow

Model 10 Specifications*

Ranges	0-2.5 ppm	0-250 ppm
	0-10 ppm	0-1000 ppm
	0-25 ppm	0-2500 ppm
	0-100 ppm	0-10,000 ppm
Minimum Detectable Concentration	.05 ppm	
Noise	Less than 1% of FS	
Reproducibility	1% of FS	
Operating Temperature Extremes	0-40°C	
Response Time (0-90%)	~1.5 second NO mode	
	~1.7 second NO _x mode	
Zero Stability	± 1 ppm in 24 hours	
Span Stability	± 1% in 24 hours	
Linearity	± 1% from 0.05 to 10,000 ppm**	
Power Requirements	1000 watts, 115 ± 10 volts, 60 Hz standard. Also available in 115V 50 Hz, and 210 ± 15 volts, 50 Hz versions	
Physical Dimensions	19" wide x 17" high x 20" deep	
Instrument Weight	75 lbs. (including pump)	
Outputs	Two standard outputs supplied: 1) 0-10V; 2) Field selectable from 0-10V, 5V, 1V, 100mV or 10mV. (ma options available.)	

*Specifications are typical and subject to change without notice.

**With O₃ Feed; With dry air, linearity to 2000 ppm.



As illustrated in the above diagram, sample gas enters the Model 10, flows through the bypass capillary, and divides. Most of the sample flows through the flowmeter, accumulator, bypass pump, and exhausts. Only a small amount of sample flows through the sample capillary for analysis. The bypass pump in conjunction with the sample regulator maintain a constant pressure differential across the sample capillary, thus maintaining constant sample flow for analysis. This plumbing network makes the analyzer insensitive to pressure fluctuation in the sample inlet.

From the sample capillary, the sample to be analyzed is either directed through the NO_x to NO converter or around it, depending on the choice of the operator. In the reaction chamber the sample reacts with ozone to produce the light emission and is exhausted. The ozone is produced internally from dry air entering through the oxygen regulator and ozonator. The light emission is sensed by the photomultiplier tube and amplified.

Options

0-001 Bypass pump assembly includes pump, snock tray, accumulator, tubing, and fittings.

Accessory Instruments

Model 700 Heated Capillary Module
 Model 606H Heated Particulate Filter
 Model 800 Sample Gas Conditioner
 Model 900 Sample Gas Conditioner

**Thermo
 Electron**
 CORPORATION

Environmental Instruments Division

108 South Street
 Hookinton, MA 01748
 Telephone (617) 435-5321
 Telex 948325

QUALITY ASSURANCE MEASUREMENTS

Determination of Response Time

With the probe positioned at a suitable location in the stack, the analyzers were stabilized with a zero calibration gas (ambient air for NO_x and high level NO_x/N_2 for the O_2 monitor). The three way valve was then switched to the sample position and the time necessary for the monitoring system to reach stable response was measured. The system was then stabilized with the high level calibration gas for O_2 (ambient air), and a similar test performed. After three repetitions of this test, all six responses for each monitor were evaluated and the slowest response time recorded became the documented response time. All subsequent testing was performed at 1-minute per test point plus the documented response time.

Calibration Check

NBS calibration gases were utilized for testing. The span range for this test was 1500 ppm. Three NO_x/NO calibration gases were used. One 11.8 O_2/N_2 gas was utilized. Ambient air was used for the O_2 span gas and for the NO_x zero gas. One of the NO/N_2 calibration gases was used as the O_2 analyzer zero gas. With these gases, monitor accuracy was demonstrated by calibrating the instruments using zero and high level calibration gases. Each of the other gases were then inserted. Acceptable responses for these gases are $\leq 2\%$ of span (30 ppm).

NO_2 -NO Converter

Before arriving at the test site, NO_2 -NO converter test was conducted by filling a Tedlar bag approximately 50% with the high level NO/N_2 gas. The remainder of the bag was then filled with ambient air and immediately attached to the NO_x analyzer while in the NO_x mode. The analyzer output was recorded for 30 minutes during which time the stable response must not drift over 2% of span to be considered acceptable.

Interference Test

Manufacturer's certification of interference response to SO_2 , CO, CO_2 , and O_2 is submitted with the test report.

SPECIFICATION
FOR
TELEDYNE ANALYTICAL INSTRUMENTS
MODEL 320P-4
PORTABLE OXYGEN ANALYZER
(WITH BUILT-IN PUMP)

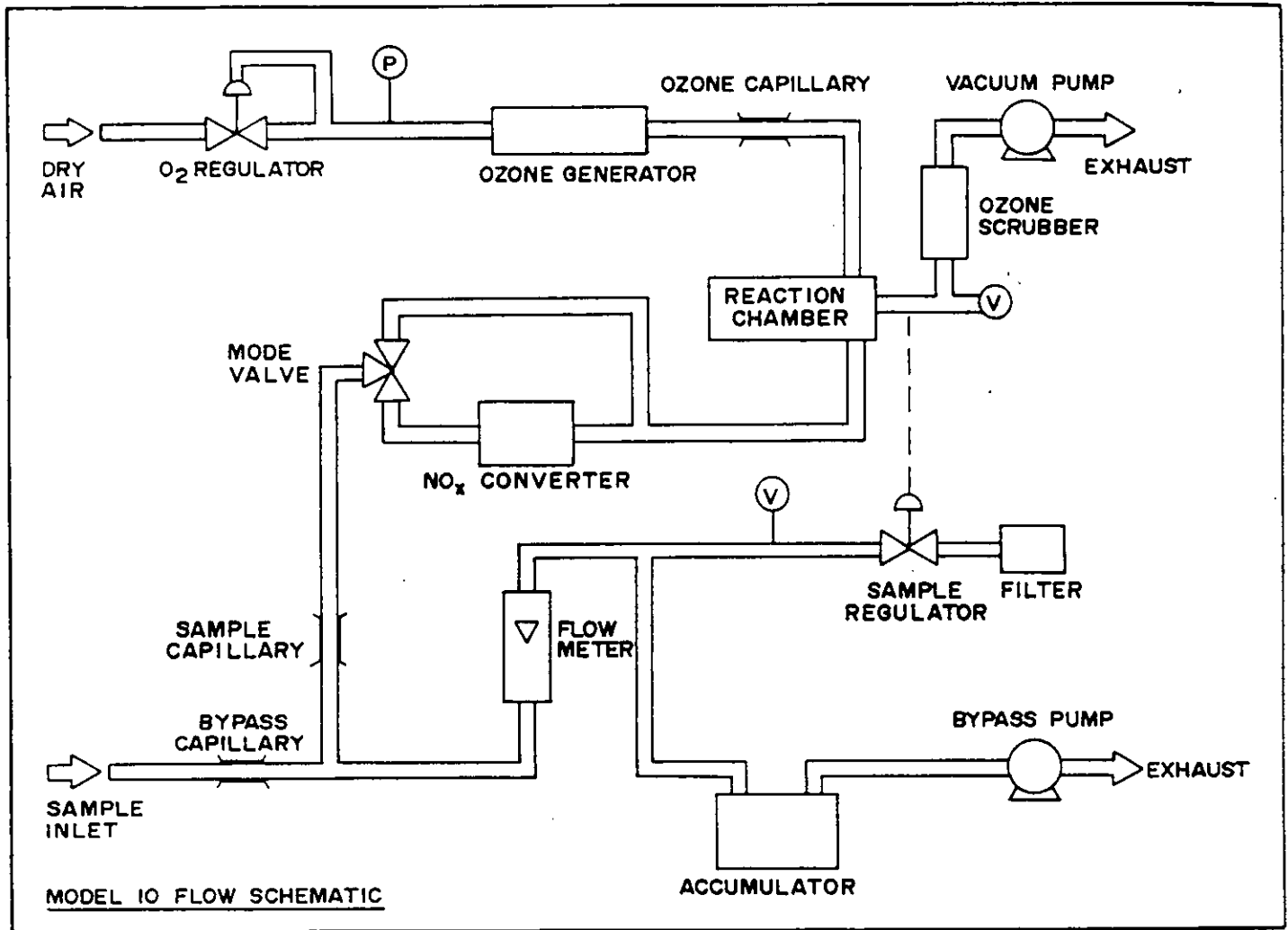
Ranges:	0-5, 0-10, 0-25% O ₂
Sensitivity:	0-5% of Full Scale
Accuracy:	±1% of full scale at constant temperature; ±5% of reading or ±1% of full scale, whichever is greater, throughout the operating temperature range.
Operating Temperature:	30-125° F.
Response Time:	Class B-1, 90% in less than 5 seconds.
Signal Output:	Internal, high resolution meter External, 0-100 mv DC full Scale
Micro-Fuel Cell:	Class B-1, Life is dependent upon duty cycle (e.g. 2.5 years, assuming 10% duty cycle in air). continuous duty in air 6 months.
Power Requirements:	2 NiCad rechargeable batteries. Batteries fully charged provide 1 month's continuous operation. Charging time overnight (14 hours). Charger built-in requires 115VAC, 50-60 Hz, power.

PUMP SPECIFICATION

Type:	Diaphragm
Duty:	Designed for Intermittant use.
Flow Rate:	3 to 4 scfh (about 1500 - 2000 cc/min) 5 VDC supplied by Amplifier batteries. (30 - 40 hrs. per charge)
Max. Vacuum:	60" water column

NOTE: TELEDYNE DOES NOT PUBLISH INTERFERENCE DATA BUT ACCORDING TO MR. JEFF BURKS OF CORPORATE ENGINEERING, THE B-1 FUEL CELL HAS NO INTERFERENCES, SO₂, NO_x, CO₂, AND CO EFFECT ONLY CELL LIFE, NOT ACCURACY

NO. - NO
CONVERTER CHECK



As illustrated in the above diagram, sample gas enters the Model 10, flows through the bypass capillary, and divides. Most of the sample flows through the flowmeter, accumulator, bypass pump, and exhausts. Only a small amount of sample flows through the sample capillary for analysis. The bypass pump in conjunction with the sample regulator maintain a constant pressure differential across the sample capillary, thus maintaining constant sample flow for analysis. This plumbing network makes the analyzer insensitive to pressure fluctuation in the sample inlet.

From the sample capillary, the sample to be analyzed is either directed through the NO_x to NO converter or around it, depending on the choice of the operator. In the reaction chamber the sample reacts with ozone to produce the light emission and is exhausted. The ozone is produced internally from dry air entering through the oxygen regulator and ozonator. The light emission is sensed by the photomultiplier tube and amplified.

Options

10-001 Bypass pump assembly includes pump, shock tray, accumulator, tubing, and fittings.

Accessory Instruments

- Model 700 Heated Capillary Module
- Model 606H Heated Particulate Filter
- Model 800 Sample Gas Conditioner
- Model 900 Sample Gas Conditioner



Scott Specialty Gases, Inc.

6141 EASTON ROAD, P.O. BOX 310, PLUMSTEADVILLE, PA 18949-0310 (215) 766-8861 FAX: (215) 766-0320

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
Air Consulting & Eng.
Suite #4
2106 Nw 67Th Place
Gainesville, FL 32606

Assay Laboratory
Scott Specialty Gases, Inc.
6141 Easton Road
P.O. Box 310
Plumsteadville, PA 18949-0310

Purchase Order 1077
Scott Project # 01-50245-004

ANALYTICAL INFORMATION

Certified to exceed the minimum specifications of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number AAL21478 **Certification Date** 09-09-93 **Expiration Date** 09-09-95
Cylinder Pressure 2000 psig **Previous Certification Dates** None

ANALYZED CYLINDER

Components

Nitric Oxide
Total Oxides of Nitrogen
Balance Gas: Nitrogen

Certified Concentration

84.5 ppm
84.6 ppm

Analytical Uncertainty*

±1% NIST Directly Traceable
Reference Value Only

*Analytical uncertainty is inclusive of usual known error sources which at least includes reference standard error & precision of the measurement processes.

REFERENCE STANDARD

Type GMIS **Expiration Date** 11-19-93 **Cylinder Number** ALM017849 **Concentration** 74.9 ppm NO in N₂

INSTRUMENTATION

Instrument/Model/Serial # NO: Teco/10/9741111S **Last Date Calibrated** 08-19-93 **Analytical Principle** Chemiluminescent

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Nitric Oxide	Date: 09-01-93 Response Units: Volts Z1=0.0031 R1=6.6653 T1=7.5116 R2=6.6835 Z2=0.0044 T2=7.5233 Z3=0.0054 T3=7.5267 R3=6.6849 Avg. Conc. of Cust. Cyl. 84.3 ppm	Date: 09-09-93 Response Units: Volts Z1=0.0002 R1=6.6280 T1=7.5060 R2=6.6452 Z2=0.0066 T2=7.4933 Z3=0.0072 T3=7.4776 R3=6.6280 Avg. Conc. of Cust. Cyl. 84.6 ppm	Concentration=A+Bx+Cx ² +Dx ³ +Ex ⁴ r=0.99999 NTRM1684 Constants: A=5.5323E-02 B=1.1135E+01 C=0.0000E+00 D=0.0000E+00 E=0.0000E+00

Special Notes

Analyst Wesley Bleiler

NATIONAL SPECIALTY GASES
630 UNITED DRIVE
DURHAM, NC 27713
(919) 544-3772

CERTIFICATE OF ANALYSIS-EPA PROTOCOL MIXTURES

REFERENCE #: 88-29297 CYLINDER #:CC38923 CYL. PRESSURE:2000PSIG
EXPIRATION DATE: 2/1/96 LAST ANALYSIS DATE:2/1/94
CUSTOMER: CRYOTECH P.O.#
METHOD: ANALYZED ACCORDING TO
EPA TRACEABILITY PROTOCOL FOR
ASSAY AND CERTIFICATION OF
GASEOUS CALIBRATION STANDARDS-
SEPTEMBER 1993:G-1

STANDARD:
SRM #:1685B

CYL #:CLM4908

CONC.:244.4PPM

INSTRUMENT:

COMPONENT: BECKMAN CHEMILUMINESCENT

MODEL #: 951A

SERIAL #: 010572

LAST CAL.: 1/3/94

COMPONENT:	NO	<u>REPLICATE CONC.</u>	
MEAN CONC:	143PPM	DATE: 1/25/94	DATE: 2/1/94
		142PPM	141PPM
		143PPM	143PPM
		144PPM	142PPM

COMPONENT:	NO2	<u>REPLICATE CONC.</u>	
MEAN CONC:	LESS THAN 0.1PPM	DATE:	DATE:

COMPONENT:		<u>REPLICATE CONC.</u>	
MEAN CONC:		DATE:	DATE:

BALANCE GAS:N2

NATIONAL SPECIALTY GASES
630 UNITED DRIVE
DURHAM, NC 27713
(919) 544-3772

CERTIFICATE OF ANALYSIS-EPA PROTOCOL MIXTURES

REFERENCE #: 88-29173 CYLINDER #:CC117215 CYL. PRESSURE:2000PSIG
EXPIRATION DATE:1/27/96 LAST ANALYSIS DATE:1/27/94
CUSTOMER: CRYOTECH P.O.#
METHOD: ANALYZED ACCORDING TO
EPA TRACEABILITY PROTOCOL FOR
ASSAY AND CERTIFICATION OF
GASEOUS CALIBRATION STANDARDS-
SEPTEMBER 1993:G-1

STANDARD:
SRM #:1685B

CYL #:CLM4908

CONC.:244.4PPM

INSTRUMENT:

COMPONENT: BECKMAN CHEMILUMINESCENT

MODEL #: 951A

SERIAL #: 0101572

LAST CAL.: 1/3/94

COMPONENT:	NO	<u>REPLICATE CONC.</u>	
MEAN CONC:	240PPM	DATE: 1/20/94	DATE: 1/27/94
		239PPM	240PPM
		240PPM	238PPM
		241PPM	239PPM

COMPONENT:	NO2	<u>REPLICATE CONC.</u>	
MEAN CONC:	2.04PPM	DATE:	DATE:

COMPONENT:		<u>REPLICATE CONC.</u>	
MEAN CONC:		DATE:	DATE:

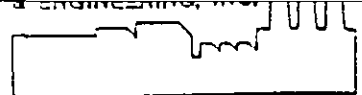
BALANCE GAS:N2

PLANT: Okelanta Corporation

SOURCE: Boiler 66

DATE: 9/14/94

PAGE OF



2106 N.W. 67th PLACE - Suites 9&10
GAINESVILLE, FLORIDA 32606
(904) 335-1889

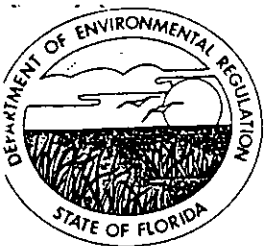
NO _x	CALIBRATION GAS	MONITOR VALUE ppm	DIFFERENCE ppm	% SPAN
	240	239.5	0.5	
	143	142.5	0.5	
	84.5	83.0	1.5	

O ₂	CALIBRATION GAS	MONITOR VALUE ppm	DIFFERENCE ppm	% SPAN

CO	CALIBRATION GAS	MONITOR VALUE ppm	DIFFERENCE ppm	% SPAN

APPENDIX H

**FDEP PERMIT NUMBER AC50-191876
PSD-FL-169**



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

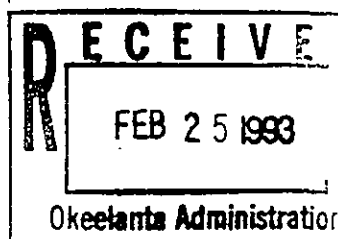
Lawton Chiles, Governor

Virginia B. Wetherell, Secretary

February 18, 1993

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Pablo A. Carreno
Director of Mill & Refinery Operation
Okeelanta Corporation
Post Office Box 86
South Bay, Florida 33493



Dear Mr. Carreno:

Re: Revision to Construction Permit No. AC50-191876
(PSD-FL-169)

The Department is in receipt of your request and supporting data to operate No. 2 fuel oil fired boiler No. 16 during the sugar cane crop season (November through February) in lieu of firing No. 6 fuel oil in the other boilers at the Okeelanta Corporation mill which is located in Palm Beach County, 6 miles south of South Bay. This request is acceptable, with conditions, and the referenced permit is amended:

FROM

Specific Condition No. 5:

Air pollutant emissions shall not exceed any of the quantities listed below:

Pollutant	lbs/MMBtu	Emissions		Compliance Test Method
		lbs/hr	TPY	EPA Test Methods (July 1, 1990)
PM	0.054	11.0	23.1	5
PM ₁₀	0.027	5.5	11.6	201 or 201A
SO ₂	0.51	105.5	132.9	Certified Fuel Analysis
NO _x	0.18*	36.9	77.5	7, 7A, 7E
CO	0.20	41.0	86.1	10
VOC	0.09	18.5	38.7	25
VE	20% opacity (6-minute average) except 27% (max.) for 1 6-minute period/hr.			9

* 30-day rolling average as determined from the NO_x monitor data.

Specific Condition No. 10:

The boiler shall not operate for more than 175 days (4,200 hours) during any 12 month period. The boiler shall only operate during the off-season months (March through October).

TO:

Specific Condition No. 5:

Air pollutant emissions shall not exceed any of the quantities listed below:

Pollutant	lbs/MMBtu	Emissions		Compliance Test Method EPA Test Methods (July 1, 1990)
		lbs/hr	TPY**	
PM	0.054	11.0	23.1	5
PM ₁₀	0.027	5.5	11.6	201 or 201A
SO ₂	0.51	105.5	132.9	Certified Fuel Analysis
NO _x	0.18*	36.9	77.5	7, 7A, 7E
CO	0.20	41.0	86.1	10
VOC	0.09	18.5	38.7	25
VE	20% opacity (6-minute average) except 27% (max.) for 1 6-minute period/hr.			9

* 30-day rolling average as determined from the NO_x monitor data.

** Emissions during the period from March 1 to October 31.

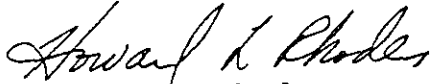
Specific Condition No. 10:

The boiler shall not operate for more than 175 days (4,200 hours) during the off-season months (March through October). During the crop season (November through February), the heat input to boiler No. 16 is limited to the equivalent reduction in heat input from No. 6 fuel oil for the existing bagasse/No. 6 fuel oil fired boilers at this sugar mill. It shall not be operated as a replacement to a functional bagasse fired boiler when bagasse fuel is available. Total oil consumption (fuel oils No. 2 and No. 6) by all boilers at this facility (boilers Nos. 4, 5, 6, 10, 11, 12, 14, 15, and 16) shall not exceed 3.2×10^6 gallons during the crop season (November through February) and total maximum steam production shall not exceed 1,012,000 lbs/hr.

Mr. Pablo A. Carreno
Revision to AC50-191876
Page 3

A copy of this letter shall be attached to the referenced permit and shall become a part of that permit.

Sincerely,



Howard L. Rhodes
Director
Division of Air Resources
Management

HLR/WH/plm

Attach: Okeelanta's September 25, 1992, letter ✓
DER's October 15, 1992, letter ✓
Okeelanta's November 13, 1992, letter ✓
Okeelanta's January 25, 1993, letter

cc: David Knowles, SD
Stephanie Brooks, SED
Gregg Worley, EPA
Jim Stormer, PBC
David Buff, P.E.
Brian Mitchell, NPS

Attachments Available Upon Request

PERMIT # 16

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT

In the matter of an
Application for Permit by:

DER File No. AC 50-191876
Palm Beach County


Mr. Pablo A. Carreno
Director of Mill and Refinery Operations
Okeelanta Corporation
P. O. Box 86
South Bay, Florida 33493

Enclosed is Permit Number AC 50-191876 to construct an oil fired steam boiler (No. 16) at your sugar mill located on U.S. Highway 27, 6 miles south of South Bay, Palm Beach County, Florida, issued pursuant to Section(s) 403, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION



C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 7-30-91 to the listed persons.

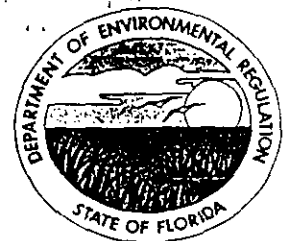
Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to
§120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.

Keri Decker
(Clerk)

7-30-91
(Date)

Copies furnished to:
David Knowles, South Dist.
Isidore Goldman SE Dist.
Jim Stormer, Palm Beach Co.
David Buff, P.E.
Jewell Harper, EPA
C. Shaver, NPS



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

PERMITTEE:

Okeelanta Corporation
P.O. Box 86
South Bay, Florida 33493

Permit Number: AC 50-191876
PSD-FL-169

Expiration Date: March 1, 1993
County: Palm Beach
Latitude/Longitude: 26°35'00" N
80°45'00" W

Project: Oil Fired Steam Boiler
No. 16

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

Construction of a 150,000 lbs steam/hr, No. 2 oil fired, 205 MMBtu/hr heat input Babcock & Wilcox Model FM 120-97 package boiler using Coen's LO-NO_x burners and designed for 12% flue gas recirculation (or equivalent boiler with controls) equipped with a 5 ft. diameter by 75 ft. high stack. The boiler will be located at the permittee's existing sugar mill (SIC 2061) that is approximately 6 miles south of South Bay, Palm Beach County, Florida off of U.S. Highway 27. The UTM coordinates of this site are Zone 17, 524.9 km E and 2940.1 km N.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Application received Jan. 29, 1991.
2. KBN letter dated Feb. 19, 1991.
3. BACT Determination.
4. KBN letter dated June 5, 1991.
5. Palm Beach County Health Unit letter dated June 5, 1991.
6. NPS letter dated July 1, 1991.
7. KBN letter dated July 9, 1991.

PERMITTEE:
Okeelanta Corporation

Permit Number: AC 50-191876
PSD-FL-169
Expiration Date: March 1, 1993

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to the public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve

PERMITTEE:
Okeelanta Corporation

Permit Number: AC 50-191876
PSD-FL-169
Expiration Date: March 1, 1993

GENERAL CONDITIONS:

compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

- a. Have access to and copy any records that must be kept under the conditions of the permit;
- b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend upon the nature of the concern being investigated.

8. If, for any reasons, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

- a. a description of and cause of non-compliance; and
- b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitting source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida

PERMITTEE:
Okeelanta Corporation

Permit Number: AC 50-191876
PSD-FL-169
Expiration Date: March 1, 1993

GENERAL CONDITIONS:

Statues. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in the Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes Determination of Prevention of Significant Deterioration (PSD), Determination of Best Available Control Technology (BACT), and Compliance with New Source Performance Standards (NSPS).

14. The permittee shall comply with the following:

- a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulation by the Department.
- b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

PERMITTEE:
Okeelanta Corporation

Permit Number: AC 50-191876
PSD-FL-169
Expiration Date: March 1, 1993

GENERAL CONDITIONS:

- c. Records of monitoring information shall include:
- the date, exact place, and time of sampling or measurements;
 - the person responsible for performing the sampling or measurements;
 - the dates analyses were performed;
 - the person responsible for performing the analyses;
 - the analytical techniques or methods used; and
 - the results of such analyses.

15. When request by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

Construction Details

1. The boiler shall be a flue gas recirculation type and equipped with low NO_x distillate oil burners. The design shall be for a heat release rate greater than 70,000 Btu/hr-ft³.
2. The stack sampling facilities shall comply with F.A.C. Rule 17-2.700(4).
3. The 5 ft. diameter stack shall have a minimum height of 75 ft.
4. The boiler shall be equipped with instruments to measure the opacity of the stack emissions and the steam production, temperature, and pressure.

PERMITTEE:
Okeelanta Corporation

Permit Number: AC 50-191876
PSD-FL-169
Expiration Date: March 1, 1993

SPECIFIC CONDITIONS:

Emission Restrictions

5. Air pollutant emissions shall not exceed any of the quantities listed below:

Pollutant	lbs/MMBtu	Emissions		Compliance Test Method
		lbs/hr	TPY	EPA Test Methods (July 1, 1990)
PM	0.054	11.0	23.1	5
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SO ₂	0.51	105.5	132.9	Certified Fuel Analysis
NO _x	0.18*	36.9	77.5	7, 7A, 7E
CO	0.20	41.0	86.1	10
VOC	0.09	18.5	38.7	25
VE	20% opacity (6-minute average) except 27% (max.) for 1 6-minute period/hr.			9

* 30-day rolling average as determined from the NO_x monitor data.

Compliance Requirements

6. Particulate matter, visible emissions, and nitrogen oxides emissions tests shall be conducted annually while the boiler is operating between 90-100% of its permitted capacity (135-150,000 lbs steam/hr). The volume and sulfur content of each fuel oil delivery shall be kept in a log for a minimum of 3 years. The continuous emissions monitoring data will be evaluated to determine the highest concentration of NO_x in lbs/MMBtu for any 30-day rolling average during the proceeding year. Tests for other pollutants may be required when the Department has good reason to believe the emission standard is being exceeded.

Federal Requirements

7. Boiler No. 16 shall comply with all applicable requirements of 40 CFR 60, including Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Unit (December 18, 1989).

40 CFR 60.7, Notification and record keeping. Timely notification of the items listed to the Department (South District), Palm Beach County Public Health Unit (PBCPHU), and EPA.

PERMITTEE:
Okeelanta Corporation

Permit Number: AC 50-191876
PSD-FL-169
Expiration Date: March 1, 1993

SPECIFIC CONDITIONS:

40 CFR 60.8, Compliance tests. Minimum of 30 days prior notice of the initial compliance tests which must be conducted between 60 to 180 days of initial startup of the source to the Department and EPA.

40 CFR 60.42b, Standard for sulfur dioxide. Sulfur content of the No. 2 distillation oil fuel shall not exceed 0.5%. Annual off-season average shall not exceed 0.3% sulfur. The permittee shall maintain fuel analysis or receipts to confirm compliance with this condition.

40 CFR 60.43b, Standard for particulate matter. Visible emissions shall not exceed 20% opacity (6-minute average), except for one 6-minute period per hour of not more than 27% opacity.

40 CFR 60.44b, Standard for nitrogen oxides for high heat release boiler No. 16, expressed as NO₂, is 0.20 lbs/MMBtu.

40 CFR 60.45b, Sulfur dioxide compliance tests, fuel receipts or analysis for sulfur content is required to confirm compliance with this condition.

40 CFR 60.46b, Particulate and nitrogen oxides compliance tests. Method 9 test required to determine compliance with the opacity standard. Method 7, 7A, or 7E test for nitrogen oxides.

40 CFR 60.47b, Sulfur dioxide monitoring. Fuel analysis or receipts required to confirm compliance with this condition.

40 CFR 60.48b, Particulate and nitrogen oxides monitoring. Continuous emissions monitor required to measure opacity.

40 CFR 60.49b, Reporting and record keeping requirements. Permittee required to report date of initial start up, design heat input capacity, fuels used, annual capacity factor, performance test data, plan to monitor NO_x, nitrogen content of the distillate oil, opacity, nitrogen dioxide emissions, monitor down time, "F" factor, exceedances, and other information required by this paragraph.

Operation Requirements

8. Only No. 2 fuel oil containing a maximum of 0.5% sulfur (off-season average of 0.3% sulfur) shall be used as fuel.

PERMITTEE:
Okeelanta Corporation

Permit Number: AC 50-191876
PSD-FL-169
Expiration Date: March 1, 1993

SPECIFIC CONDITIONS:

9. Maximum heat input to the boiler shall not exceed 1,463 gallons per hour of No. 2 distillate fuel oil (205 MMBtu/hr).

10. The boiler shall not operate for more than 175 days (4,200 hours) during any 12 month period. The boiler shall only operate during the off-season months (March through October).

11. Steam production shall not exceed 150,000 lbs/hr.

Administrative Requirements

12. The permittee shall maintain a log that shows the boiler's operation time, steam production, and fuel consumption.

13. The Department's South District and the PBCPHU shall be notified in writing at least 30 days in advance of the initial compliance test and 15 days in advance of any annual compliance tests to be conducted on this boiler.

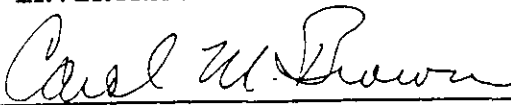
14. Stack test results shall be submitted to the Department and the PCBPHU within 45 days of the test.

15. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

16. An application for an operation permit must be submitted to the South District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this 29th day
of July, 1991.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION



Carol M. Browner, Secretary

Best Available Control Technology (BACT) Determination
Okeelanta Corporation
Palm Beach County

The applicant plans to permanently install a 205 MMBtu/hr No. 2 oil-fired steam boiler at their facility 6 miles south of South Bay, Florida. The boiler will be used to supply process steam. The boiler is scheduled to operate during the off-season of April through October (4,200 hours) when the other boilers at this facility are shutdown.

A BACT determination is required for particulates and sulfur dioxide as set forth in the Florida Administrative Code Rule 17-2.600(6) - Emissions Limiting and Performance Standards. In addition, the Department performed a BACT determination for nitrogen oxides (NOx) since those emissions are greater than the PSD significant rate of 40 tons per year.

BACT Determination Request by the Applicant:

Particulate, sulfur dioxide, nitrogen oxides emissions to be controlled by the firing of No. 2 fuel oil with a 0.5% sulfur content.

Date of Receipt of a BACT Application:

January 29, 1991

BACT Determined by DER:

The amount of particulate and sulfur dioxide emissions from the boiler will be limited by the firing of No. 2 fuel oil with a 0.3% off season average and a 0.5% maximum sulfur content.

Nitrogen oxides emissions shall not exceed 0.18 lbs/MMBtu heat input using low NOx burners/flue gas recirculation.

BACT Determination Rationale:

Sulfur in fuel is a primary air pollution concern in that most of the fuel sulfur becomes SO₂ and particulate emissions from fuel burning are related to the sulfur content. The Department has determined that the firing of No. 2 fuel oil with an off-season average of 0.3% sulfur and maximum of 0.5% sulfur content is BACT for particulates and SO₂. These sulfur content limitations are representative of what has been recently established as BACT for oil-fired equipment.

APPENDIX I
PROJECT PARTICIPANTS

PROJECT PARTICIPANTS

AIR CONSULTING AND ENGINEERING, INC.

Gerard Gauthreaux
Field Testing
Post Test Calibration

Fred R. Bauman
Field Testing

Charles G. Simon, Ph.D.
Visible Emissions Observer

Stephen L. Neck, P.E.
Laboratory Analysis

Dagmar Fick
Field Testing
Computer Analysis
Report Preparation

Candace V. Taylor
Document Production

OKEELANTA CORPORATION

Angelo Archbold
Test Coordinator

FLORIDA DEPT. OF ENVIRONMENTAL PROTECTION

Sterling Jordan
Test Observer