AP-42 Section Number: 1.8

Reference Number: 44

Title: Particulate Emissions Compliance Test Report Boiler #1: Atlantic Sugar Association

December 1990

Eastmount Engineering

Environmental Consultants — Air Quality Specialists

PARTICULATE EMISSIONS COMPLIANCE TEST REPORT

BOILER #1

0SW1-AS16

PREPARED FOR: Atlantic Sugar Association
P. O. Drawer B
Belle Glade, Florida 33430

CONCERNING: Particulate Emissions Testing
Atlantic Sugar Association
Boiler #1
Belle Glade, Florida Facility
December 11, 1990

PREPARED BY: Scott Lawton
Environmental Engineer
Eastmount Engineering, Inc.
420 Main Street
Walpole, MA 02081

I hereby certify that the information presented in this report is accurate and true to the best of my knowledge.

Scott Lawton
Environmental Engineer

18 JAN 91
Date

CHAIN OF CUSTODY

All filters and washes were in my custody at all times during the testing on Unit #1 at Atlantic Sugar Association's Belle Glade, Florida facility. This includes the time from initial taring before the test until final analysis at Eastmount's laboratory.

Scott Lawton
Environmental Engineer

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APPENDIX

I COMPENDIUM

Eastmount Engineering conducted a series of three EPA Method 5 test runs on December 11, 1990 to measure particulate emissions from Boiler #1 located at Atlantic Sugar Association's facility in Belle Glade, Florida.

The purpose of this test was to determine compliance with the rules of the Department of Environmental Regulation, Chapter 17-2.600 Air Pollution, Section 2.05 Prohibitive Acts, Subsection 6, Stationary Sources, Table II, Emission Limiting Standards.

Results of the test indicate that the particulate emissions averaged 0.216 pounds per million Btu, 53.7 pounds per hour. These results are compared to the allowable emission limit of 0.300 pounds per million Btu, 74.3 pounds per hour.

During testing the boiler was burning bagasse as fuel and operating at an average of 131,100 pounds of steam per hour. This load is approximately 131% of the permitted load of 100,000 pounds of steam per hour.

All testing was conducted in strict accordance with the Environmental Protection Agency Reference Methods 1 through 5 as found in the Federal Register (40 CFR 60) as amended and were consistent with the State of Florida Department of Environmental Regulation's guidelines.

Scott Lawton, Environmental Engineer, was in charge of and responsible for all stack testing, conducting all Orsat analysis , and conducting all calculations as well as maintaining chain of custody of all samples. Brian Gibson operated the meter box and assisted in the field laboratory aspects of the program. James Jardin located the probe at the proper traverse point locations and assisted where required. Mr. Sherrill Culliver of the Florida Department of Environmental Regulations observed the stack testing and boiler operations. Mr. E. Perez was the overall boiler room superintendent, and was responsible for boiler operation and taking all pertinent data.

II STACK SCHEMATIC

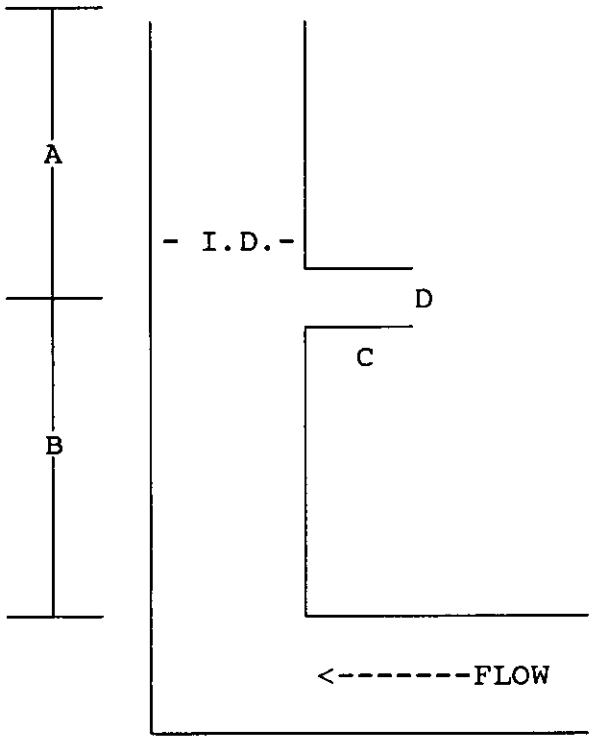
Atlantic Sugar Association
Unit #1
Belle Glade, Florida Facility

The following is a schematic of the stack which services boiler #1 at Atlantic Sugar Association's Belle Glade, Florida facility.

Defined are the sampling port locations, interior stack dimensions and distances from the ports to the nearest upstream and downstream interferences.

STACK SCHEMATIC

Atlantic Sugar Association
Unit #1
Belle Glade, Florida Facility

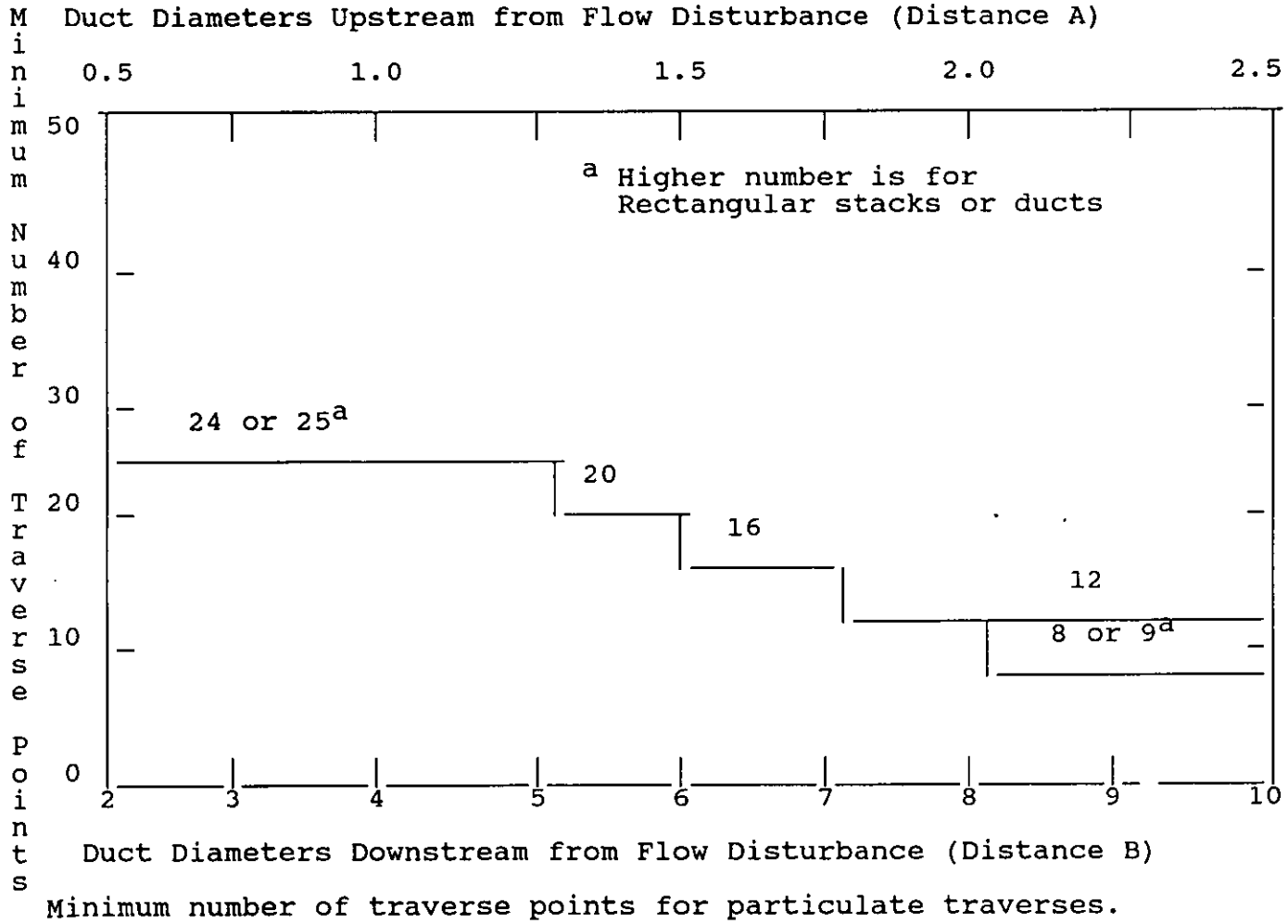


DISTANCE UPSTREAM FROM FLOW DISTURBANCE (A)	=	148"
DISTANCE DOWNSTREAM FROM FLOW DISTURBANCE (B)	=	690"
DIAMETER OF PORT SLEEVE (C)	=	3.5"
LENGTH OF PORT SLEEVE (D)	=	3"
NUMBER OF PORTS	=	2
INTERNAL DIAMETER OF STACK AT SAMPLING PORTS	=	74"

SCHEMATIC NOT TO SCALE

III NUMBER OF TRAVERSE POINTS AND SAMPLING TIME PER POINT

Atlantic Sugar Association
Unit #1
Belle Glade, Florida Facility



Minimum number of traverse points for particulate traverses.

Distance A = 148' or 2.0 diameters.

Distance B = 690' or 9.3 diameters

In accordance with Method 1, 12 traverse points are needed.

In order to sample for a minimum of one hour and draw at least 30 cubic feet, each traverse point was sampled for 5 minutes.

IV SAMPLING TRAIN AND TEST PROCEDURES

The following is a description of the sampling train and specifications of particulate collection media used in the tests.

1. EMISSION SAMPLING EQUIPMENT

The specific train used during this test is one manufactured by Research Appliance Company (RAC). The design specifications of this train meets all the requirements of Environmental Protection Agency's Method 5 as found in the Federal Regulations under Section 40 CFR 60 as amended. The following is a description of the individual pieces of equipment used:

Nozzle - The nozzle was of seamless stainless steel tubing construction of the button hook design. A range of sizes suitable for isokinetic sampling was available. All nozzles were calibrated before testing. A nozzle calibration sheet may be found in the calibration section of this report.

Probe - An 8 foot steel probe with a stainless steel liner was used.

Heating System - The filter temperature was maintained by enclosing the filter in a hot box capable of maintaining the temperature at 248 `F ±25`F. This temperature was monitored by use of a thermocouple in the hot box.

Pitot Tube - A type S pitot tube attached to the probe was used to monitor the stack gas velocity. Since the pitot tube meets all the dimensional criteria set forth in Method 2 of 40 CFR 60, a coefficient of 0.84 has been used.

Filter Holder - A borosilicate glass type filter holder with frit support was used.

Condenser - Four impingers connected in series, with ground glass leak-free fittings were used as the condenser. The first, third and fourth impingers were of the Greenburg-Smith design, modified by replacing the tip with a 1/2" glass tube extending to about 1/2" from the bottom of the flask. The second impinger was of the Greenburg-Smith design with the standard tip.

Metering System - A vacuum gauge, micromanometer, inclined manometer, leak-free pump, calibrated thermocouples and a calibrated dry gas meter were the basic components used to meter the dry gas through the system.

IV SAMPLING TRAIN AND TEST PROCEDURES (cont'd)

Gas Density Determination - An ORSAT type combustion analyzer, capable of measuring CO_2, O_2 and CO was used to determine the molecular weight of the flue gas. An integrated proportional sample was taken at each of the traverse points in order to assure that the total test span was covered. The ORSAT analysis was conducted immediately following each test run.

2. SAMPLING AND ANALYTICAL PROCEDURES

All sampling and analytical procedures were conducted in strict accordance with the methods prescribed in Methods 1 through 5 of the Code of Federal Regulations as found in 40 CFR 60 as amended. The following is the sequence of events that occur both prior to and during the actual stack test.

Traverse Points - The traverse points were calculated in accordance with Method 1 and the probe was marked accordingly.

Static Pressure - The static pressure was checked and recorded.

Preliminary Traverse - A preliminary traverse was conducted. Readings included the pressure drops and stack gas temperatures.

Nomograph - Once all of the above information had been obtained, the nomograph was set up for the actual test to correlate the isokinetic relation ships.

Barometric Pressure - Barometric pressure was obtained by use of an aneroid barometer at the test site.

Sampling Train Set-Up

(a) The pre-weighed filter was placed in the filter holder and visually checked.
(b) 100 ml of water was placed in the first two impingers.
(c) Approximately 200 grams of silica gel was placed in the fourth impinger. (Exact weights were logged on the field data sheets).
(d) Crushed ice was placed around the impingers.
(e) Once assembly of the entire train was completed, the probe and heater box were turned on.

Pre-test Leak Check - Once the heater box was at the desired temperature for testing, the system was leak checked at 15 inches of vacuum. A leakage rate of less than 0.02 CFM had to be achieved before testing commenced.

Final Check - Once everything was ready to go, the plant was checked to assure that it was running at desired capacity.

IV SAMPLING TRAIN AND TEST PROCEDURES (cont'd)

Sampling - Isokinetic sampling as described in Method 5 then took place.

Post-test Leak Check - Upon completion of each test run, the system was leak checked at the highest vacuum recorded during that run. All leak checks were less than 0.02 CFM and considered acceptable.

Sample Recovery - Because of the importance of proper sample recovery procedures, details of the sample recovery can be found in the Quality Control Procedures Section of this report.

Isokinetics - Once all sample recovery was completed and the amount of moisture collected had been determined, calculations were conducted to determine the percent isokinetics of the test run.

Operating Data Sheets - All pertinent operating data were logged throughout the testing period by plant personnel.

V ANALYTICAL AND QUALITY CONTROL PROCEDURES

The following is a description of the procedures used for maintaining the integrity of samples collected, including the chain of custody and quality control assurance of filters and acetone wash.

Pre-test preparation consisted of the filters being desiccated at 68°± 10°F at ambient pressure for at least twenty four (24) hours. At intervals of at least six (6) hours, the filters were re-weighed until a constant weight was achieved ± 0.5 mg change from the previous weighing. These pre-marked filters were then put into petri dishes and sealed. All filters used during testing were put into a carrying case for transport to the job site. A list of the filters and tare weights was available prior to testing.

After each test run, the filter and any particles which may have adhered to the filter holder gasket were carefully removed from the filter holder and placed into its identified petri dish container. This container was then labeled with the run number and date.

Taking care to see that particulate on the outside of the probe or other exterior surface did not get into the sample, particulate matter from the probe liner, nozzle, probe fittings, and front half of the filter holder were acetone washed into a sample container. This container was then sealed. The run number, date, and a mark indicating the level of the acetone wash in the bottle was recorded on the bottle.

Both the petri dish containing the filter and the bottle containing the acetone wash were transported to Eastmount Engineering's laboratory.

Once at the laboratory, each filter was weighed and then put back into its individual container. The container was then placed in a desiccator for at least twenty four (24) hours and then weighed. At intervals of at least six (6) hours,thefilters were re-weighed until a constant weight was achieved ± 0.5 mg change from the previous weighing.

The levels marked on the bottles containing the acetone wash were checked to confirm that no leakage occurred during transport. The contents were then transferred into a pre-tared beaker and evaporated to dryness. Once this had been accomplished, the beaker was placed in a desiccator for at least twenty four (24) hours and then weighed. At intervals of at least six (6) hours, the beaker was re-weighed until a constant weight of ± 0.5 mg change from the previous weighing was achieved.

All calculations were conducted in strict accordance with 40 CFR 60 (See Calculation Sheets in report).

VI FACILITY DESCRIPTION

Atlantic Sugar Association
Unit #1
Belle Glade, Florida Facility

Unit number 1 is an Erie City Iron Works two drum boiler, serial number 96745 installed in 1964.

It has a permitted capacity of 100,000 pounds of steam per hour.

Bagasse only or bagasse and oil are fired in this unit simultaneously. Three C.E. bagasse spreader strokers are used for the firing of bagasse and four E.C.I.W. SAOH-21 burners are used for the firing of oil.

APPENDIX I

COMPUTER INPUT SHEETS

INPUT DATA SHEET

PLANT: ATLANTIC
LOCATION: UNIT 1

RUN #: C - 1
DATE : 12-11-89

Ds (FT)	6.17
Dn (IN)	.250
FILTER#	3692
PIT COEFF	.84
IMP-1 (INT)	100
IMP-2 (INT)	100
IMP-3 (INT)	0
IMP-4 (INT)	500.0
IMP-1 (FIN)	300
IMP-2 (FIN)	186
IMP-3 (FIN)	13
IMP-4 (FIN)	518.2
% CO2	10.6
% O2	9.2
% CO	0
P BAR	29.96
P STK	-.2
NO. PTS	12
TEST LNGTH	60
END METER	650.101
INT METER	607.700
BEGIN TIME:	11:30
END TIME:	12:37

TRAV PT	VEL HEAD	SQ ROOT	DELTA H	DRYGAS IN	DRYGAS OUT	STACK TEMP
A1	.59	.77	1.42	71	72	158
2	.73	.85	1.75	78	71	173
3	.75	.87	1.80	84	72	176
4	.80	.89	1.92	89	73	182
5	.85	.92	2.04	92	74	181
6	.71	.84	1.70	94	75	179
B1	.73	.85	1.75	83	75	155
2	.90	.95	2.16	90	76	176
3	.86	.93	2.06	95	77	177
4	.82	.91	1.97	97	78	168
5	.85	.92	2.04	98	79	171
6	.69	.83	1.66	99	79	169
AVERAGE	.77	.88	1.86	89.2	75.1	172.1

INPUT DATA SHEET

PLANT: ATLANTIC
LOCATION: UNIT 1

RUN #: C - 2
DATE : 12-11-89

Ds (FT)	6.17
Dn (IN)	.250
FILTER#	3690
PIT COEFF	.84
IMP-1 (INT)	100
IMP-2 (INT)	100
IMP-3 (INT)	0
IMP-4 (INT)	500.0
IMP-1 (FIN)	362
IMP-2 (FIN)	147
IMP-3 (FIN)	4
IMP-4 (FIN)	517.7
% CO2	10.3
% O2	9.6
% CO	0
P BAR	29.96
P STK	-.2
NO. PTS	12
TEST LNGTH	60
END METER	697.242
INT METER	652.274
BEGIN TIME:	14:00
END TIME:	15:04

TRAV PT	VEL HEAD	SQ ROOT	DELTA H	DRYGAS IN	DRYGAS OUT	STACK TEMP
A1	.69	.83	1.66	78	78	161
2	.78	.88	1.87	86	78	176
3	.86	.93	2.06	92	78	175
4	.91	.95	2.18	95	79	168
5	.91	.95	2.18	97	79	168
6	.70	.84	1.68	99	80	165
B1	.75	.87	1.80	92	81	156
2	.90	.95	2.16	100	83	160
3	.91	.95	2.18	105	84	161
4	.94	.97	2.26	107	86	161
5	.94	.97	2.26	109	87	163
6	.80	.89	1.92	110	89	160
AVERAGE	.84	.92	2.02	97.5	81.8	164.5

INPUT DATA SHEET

PLANT: ATLANTIC
LOCATION: UNIT 1

RUN #: C - 3
DATE : 12-11-89

Ds (FT)	6.17
Dn (IN)	.250
FILTER#	3691
PIT COEFF	.84
IMP-1 (INT)	100
IMP-2 (INT)	100
IMP-3 (INT)	0
IMP-4 (INT)	500.0
IMP-1 (FIN)	298
IMP-2 (FIN)	214
IMP-3 (FIN)	34
IMP-4 (FIN)	523.0
% CO2	11.0
% O2	8.8
% CO	0
P BAR	29.96
P STK	-.2
NO. PTS	12
TEST LNGTH	60
END METER	742.271
INT METER	697.502
BEGIN TIME:	16:00
END TIME:	17:03

TRAV PT	VEL HEAD	SQ ROOT	DELTA H	DRYGAS IN	DRYGAS OUT	STACK TEMP
A1	.69	.83	1.79	78	80	147
2	.78	.88	2.03	84	80	152
3	.78	.88	2.03	92	79	165
4	.85	.92	2.21	95	79	164
5	.91	.95	2.37	98	80	168
6	.70	.84	1.82	101	81	164
B1	.78	.88	2.03	93	80	163
2	.87	.93	2.26	98	81	162
3	.76	.87	1.98	102	82	165
4	.80	.89	2.08	105	83	167
5	.81	.90	2.11	106	84	163
6	.65	.81	1.69	107	85	164
AVERAGE	.78	.88	2.03	96.6	81.2	162.0

APPENDIX II

ISOKINETIC CALCULATION SHEETS

ISOKINETIC CALCULATION SHEET

PLANT: ATLANTIC
LOCATION: UNIT 1

RUN #: C - 1
DATE : 12-11-89

TS (`F)=	172.1	% CO2=	10.6	VM (CF) =	42.401
TS (`R)=	632.1	% O2=	9.2	DELTA H (ABS)=	30.10
TM (`F)=	82.1	% CO=	0	PS (ABS) =	29.95
TM (`R)=	542.1	% N2=	80.2	SQRT DELTA P =	.878011
VI(TOT)=	317.2	CP=	.84	AREA NOZZLE =	.000341

Y = .9863

VM STD	=	$17.64 \frac{(VM)(Y)(DELTA\ H\ ABS)}{(TM)}$	= 40.95	DSCF
VW STD	=	.04707 (VI TOT)	= 14.93	CF
BWO	=	$\frac{VW\ STD}{VW\ STD + VM\ STD}$	= .267	
BWO	=	MOISTURE FROM STEAM TABLES	= .427	
VI TOT	=	ADJUSTED TO SATURATION VOLUME=	N/A	ML
1-BWO	=	1 - BWO	= .733	
Md (DRY)	=	.44 (% CO2) +.32 (% O2) +.28 (% CO) +.28 (% N2)	= 30.07	LBS/LB MOLE
Ms (WET)	=	MD (1-BWO) + 18 (BWO)	= 26.85	LBS/LB MOLE
G	=	SQRT (TS / PS / MS)	= .89	
VS	=	85.49(CP)(G)(SQRT DELTA P)	= 55.9	FPS
H	=	0.002669 (VI TOT)	= .85	
J	=	(DELTA H ABS)(VM)(Y) /(TM)	= 2.32	
K	=	(H) + (J)	= 3.17	
% ISO	=	$\frac{(TS)\ (K)\ (1.667)}{(TIME)\ (VS)\ (PS)\ (AN)}$	= 97.5	

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ISOKINETIC CALCULATION SHEET

PLANT: ATLANTIC
LOCATION: UNIT 1

RUN #: C - 2
DATE : 12-11-89

TS (`F)=	164.5	% CO2=	10.3	VM (CF) =	44.968
TS (`R)=	624.5	% O2=	9.6	DELTA H (ABS)=	30.11
TM (`F)=	89.7	% CO=	0	PS (ABS) =	29.95
TM (`R)=	549.7	% N2=	80.1	SQRT DELTA P =	.915657
VI(TOT)=	330.7	CP=	.84	AREA NOZZLE =	.000341

Y = .9863

VM STD	=	$17.64 \frac{(VM)(Y)(DELTA\ H\ ABS)}{(TM)}$	= 42.85	DSCF
VW STD	=	.04707 (VI TOT)	= 15.57	CF
BWO	=	$\frac{VW\ STD}{VW\ STD + VM\ STD}$	= .266	
BWO	=	MOISTURE FROM STEAM TABLES	= .359	
VI TOT	=	ADJUSTED TO SATURATION VOLUME=	N/A	ML
1-BWO	=	1 - BWO	= .734	
Md (DRY)	=	.44 (% CO2) +.32 (% O2) +.28 (% CO) +.28 (% N2)	= 30.03	LBS/LB MOLE
Ms (WET)	=	MD (1-BWO) + 18 (BWO)	= 26.82	LBS/LB MOLE
G	=	SQRT (TS / PS / MS)	= .88	
VS	=	85.49(CP)(G)(SQRT DELTA P)	= 58.0	FPS
H	=	0.002669 (VI TOT)	= .88	
J	=	(DELTA H ABS)(VM)(Y) /(TM)	= 2.43	
K	=	(H) + (J)	= 3.31	
% ISO	=	$\frac{(TS)\ (K)\ (1.667)}{(TIME)\ (VS)\ (PS)\ (AN)}$	= 97.1	

ISOKINETIC CALCULATION SHEET

PLANT: ATLANTIC
LOCATION: UNIT 1

RUN #: C - 3
DATE : 12-11-89

TS (`F)=	162.0	% CO2=	11.0	VM (CF) =	44.769
TS (`R)=	622.0	% O2=	8.8	DELTA H (ABS)=	30.11
TM (`F)=	88.9	% CO=	0	PS (ABS) =	29.95
TM (`R)=	548.9	% N2=	80.2	SQRT DELTA P =	.883160
VI(TOT)=	369.0	CP=	.84	AREA NOZZLE =	.000341

Avg = 166

Avg = 9.2

Y = .9863

VM STD	=	$\frac{(VM)(Y)(DELTA\ H\ ABS)}{(TM)}$	= 42.73	DSCF
VW STD	=	.04707 (VI TOT)	= 17.37	CF
BWO	=	$\frac{VW\ STD}{VW\ STD + VM\ STD}$	= .289	
BWO	=	MOISTURE FROM STEAM TABLES	= .338	
VI TOT	=	ADJUSTED TO SATURATION VOLUME=	N/A	ML
1-BWO	=	1 - BWO	= .711	
Md (DRY)	=	.44 (% CO2) +.32 (% O2) +.28 (% CO) +.28 (% N2)	= 30.11	LBS/LB MOLE
Ms (WET)	=	MD (1-BWO) + 18 (BWO)	= 26.61	LBS/LB MOLE
G	=	SQRT (TS / PS / MS)	= .88	
VS	=	85.49(CP)(G)(SQRT DELTA P)	= 56.0	FPS
H	=	0.002669 (VI TOT)	= .98	
J	=	(DELTA H ABS)(VM)(Y) /(TM)	= 2.42	
K	=	(H) + (J)	= 3.41	
% ISO	=	$\frac{(TS)\ (K)\ (1.667)}{(TIME)\ (VS)\ (PS)\ (AN)}$	= 102.9	

APPENDIX III

ENTHALPY CALCULATION SHEETS

ENTHALPY CALCULATION SHEET

PLANT : ATLANTIC
LOCATION: UNIT 1

RUN #: C - 1
DATE : 12-11-89

	STEAM PRESSURE	STEAM TEMPERATURE	FEED WATER TEMPERATURE
	300	485	252
	285	490	
	265	490	
	265	485	
	245	480	
AVERAGE	272.0 PSIG	486.0	252.0

P ABS = 286.7 PSIA

ENTHALPY @ 500 'F AND 290 PSIA = 1260.4

ENTHALPY @ 480 'F AND 290 PSIA = 1248.0

ENTHALPY @ 486.0 'F AND 290 PSIA = 1251.7

ENTHALPY OF FEED WATER = 218.5

AVERAGE ENTHALPY = 1033.2 BTU/LB OF STEAM

ENTHALPY CALCULATION SHEET

PLANT : ATLANTIC
LOCATION: UNIT 1

RUN #: C - 2
DATE : 12-11-89

	STEAM PRESSURE	STEAM TEMPERATURE	FEED WATER TEMPERATURE
	255	490	252
	260	480	
	260	490	
	275	490	
	275	490	
AVERAGE	265.0 PSIG	488.0	252.0

P ABS = 279.7 PSIA

ENTHALPY @	500	'F AND	280	PSIA =	1261.5
ENTHALPY @	480	'F AND	280	PSIA =	1249.4
ENTHALPY @	488.0	'F AND	280	PSIA =	1254.2

ENTHALPY OF FEED WATER = 218.5

AVERAGE ENTHALPY = 1035.8 BTU/LB OF STEAM

ENTHALPY CALCULATION SHEET

PLANT : ATLANTIC
LOCATION: UNIT 1

RUN #: C - 3
DATE : 12-11-89

	STEAM PRESSURE	STEAM TEMPERATURE	FEED WATER TEMPERATURE
	250	490	252
	280	510	
	280	520	
	275	510	
	265	510	
AVERAGE	270.0 PSIG	508.0	252.0
P ABS =	284.7 PSIA		

ENTHALPY @ 520 'F AND 285 PSIA = 1271.8

ENTHALPY @ 500 'F AND 285 PSIA = 1260.9

ENTHALPY @ 508.0 'F AND 285 PSIA = 1265.3

ENTHALPY OF FEED WATER = 218.5

AVERAGE ENTHALPY = 1046.8 BTU/LB OF STEAM

APPENDIX IV

HEAT INPUT CALCULATION SHEETS

HEAT INPUT CALCULATION SHEET

PLANT: ATLANTIC
LOCATION: UNIT 1

RUN #: C - 1
DATE : 12-11-89

	STEAM INTEGRATOR READINGS		TIME		INTEGRATOR FACTOR
END	3469		12: 30		100
BEGIN	2158		11: 30		LBS/HR STEAM
NET	1311	X 100 /	60	MINS =	131100

131100 LBS/HR STEAM / 55% EFF. = 238364 EQUIV.

238364 LBS/HR STEAM X 1033 BTU/LB = 246.3 BTU(e6)/HR

	OIL INTEGRATOR READINGS		TIME		GALS/HR
END	0		12: 30		
BEGIN	0		11: 30		
NET	0	GALLONS	60	MINS =	0 GPH

0 GPH X 150,000 BTU/GAL (EST) = 0 BTU(e6)/HR

ALLOWABLE EMISSIONS

BAGASSE	246.3	-	0	X	.3	=	73.9 LBS/HR
OIL			0	X	.1	=	.0 LBS/HR
TOTAL						=	73.9 LBS/HR

HEAT INPUT CALCULATION SHEET

PLANT: ATLANTIC
LOCATION: UNIT 1

RUN #: C - 2
DATE : 12-11-89

	STEAM INTEGRATOR READINGS		TIME		INTEGRATOR FACTOR
END	6503		15: 0		100
BEGIN	5212		14: 0		LBS/HR STEAM
NET	1291	X 100 /	60	MINS =	129100

129100 LBS/HR STEAM / 55% EFF. = 234727 EQUIV.

234727 LBS/HR STEAM X 1036 BTU/LB = 243.1 BTU(e6)/HR

	OIL INTEGRATOR READINGS		TIME		GALS/HR
END	0		15: 0		
BEGIN	0		14: 0		
NET	0	GALLONS	60	MINS =	0 GPH

0 GPH X 150,000 BTU/GAL (EST) = 0 BTU(e6)/HR

ALLOWABLE EMISSIONS

BAGASSE	243.1	-	0	X	.3	=	72.9 LBS/HR
OIL			0	X	.1	=	.0 LBS/HR
TOTAL						=	72.9 LBS/HR

HEAT INPUT CALCULATION SHEET

PLANT: ATLANTIC
LOCATION:UNIT 1

RUN #: C - 3
DATE : 12-11-89

	STEAM INTEGRATOR READINGS			TIME			INTEGRATOR FACTOR	
END	9007			17: 0			100	
BEGIN	7676			16: 0			LBS/HR STEAM	
NET	1331	X	100	/ 60	MINS	=	133100	

133100	LBS/HR STEAM	/ 55%	EFF. =	242000	EQUIV.
242000	LBS/HR STEAM	X 1047	BTU/LB =	253.3	BTU(e6)/HR

	OIL INTEGRATOR READINGS		TIME			GALS/HR	
END	0		17: 0				
BEGIN	0		16: 0				
NET	0	GALLONS	60	MINS	=	0	GPH

0 GPH X 150,000 BTU/GAL (EST) = 0 BTU(e6)/HR

ALLOWABLE EMISSIONS

BAGASSE	253.3	-	0	X	.3	=	76.0 LBS/HR
OIL			0	X	.1	=	.0 LBS/HR
TOTAL						=	76.0 LBS/HR

APPENDIX V

EMISSION CALCULATION SHEETS

EMISSION CALCULATION SHEET

PLANT: ATLANTIC
LOCATION: UNIT 1

RUN #: C - 1
DATE : 12-11-89

	FILTER	BEAKER	BLANKS FILTER	BLANKS ACETONE
NO. :	3692	213	3684	211
FINAL:	.8526	78.0576	.6069	79.1335
TARE :	.6365	78.0137	.6067	79.1319
NET :	.2161	.0439	.0002	.0016/200ML

VOLUME OF RINSE 354

WEIGHT = 260.00
RESIDUE = - 2.83

Mn = 257.17 Mg AS = 29.9 SQ FT

Qs =	3600(1-BWO)(VS)(AS)(17.64)(PS)/(TS)	=	3681594	DSCFH
CS =	(2.205 X 10-6) (Mn) / (VM STD)	=	1.385e-5	LBS/SCF
CS' =	0.0154 (Mn) / (VM STD)	=	.10	GRAINS /SCF
PMR =	(QS) (CS)	=	50.98	LBS/HR
LOAD=	MILLIONS OF BTU / HOUR INPUT	=	246.3	BTU e10 / HR
CS =	LBS / MILLION BTu	=	.207	LBS/ BTu e6

EMISSION CALCULATION SHEET

PLANT: ATLANTIC
LOCATION: UNIT 1

RUN #: C - 2
DATE : 12-11-89

	FILTER	BEAKER	BLANKS FILTER	BLANKS ACETONE
NO. :	3690	11	3684	211
FINAL:	.8349	71.7154	.6069	79.1335
TARE :	.6128	71.6828	.6067	79.1319
NET :	.2221	.0326	.0002	.0016/200ML

VOLUME OF RINSE 348

WEIGHT = 254.70
RESIDUE = - 2.78

Mn = 251.92 Mg AS = 29.9 SQ FT

Qs = 3600(1-BWO)(VS)(AS)(17.64)(PS)/(TS) = 3868086 DSCFH

CS = (2.205 X 10-6) (Mn) / (VM STD) = 1.296e-5 LBS/SCF

CS' = 0.0154 (Mn) / (VM STD) = .09 GRAINS /SCF

PMR = (QS) (CS) = 50.14 LBS/HR

LOAD= MILLIONS OF BTU / HOUR INPUT = 243.1 BTU e10 / HR

CS = LBS / MILLION BTu = .206 LBS/ BTu e6

EMISSION CALCULATION SHEET

PLANT: ATLANTIC
LOCATION: UNIT 1

RUN #: C - 3
DATE : 12-11-89

	FILTER	BEAKER	BLANKS FILTER	BLANKS ACETONE
NO. :	3691	8	3684	211
FINAL:	.8979	71.2674	.6069	79.1335
TARE :	.6080	71.2364	.6067	79.1319
NET :	.2899	.0310	.0002	.0016/200ML

VOLUME OF RINSE 276

WEIGHT = 320.90
RESIDUE = - 2.21

Mn = 318.69 Mg AS = 29.9 SQ FT

Qs = 3600(1-BWO)(VS)(AS)(17.64)(PS)/(TS) = 3637658 DSCFH

Avg = 3,637,658

CS = (2.205 X 10-6) (Mn) / (VM STD) = 1.645e-5 LBS/SCF

CS' = 0.0154 (Mn) / (VM STD) = .11 GRAINS /SCF

PMR = (QS) (CS) = 59.83 LBS/HR

LOAD= MILLIONS OF BTU / HOUR INPUT = 253.3 BTU e10 / HR

247.6

CS = LBS / MILLION BTu = .236 LBS/ BTu e6

APPENDIX VI

NOMENCLATURE SHEETS

NOMENCLATURE SHEET

PARTICULATE EMISSION TEST

Ar	Acetone residue - result of Blank evaporation.
AREA NOZZLE	Area of the nozzle in square feet.
AS	Area of the stack in square feet.
BDL	Below detectable limits
BWO	The amount of moisture in the flue gas.
% CO	Percent of carbon monoxide in the flue gas.
% CO2	Percent of carbon dioxide in the flue gas.
Cp	Pitot tube coefficient.
CS	The concentration in the stack in pounds per standard cubic foot.
Cs'	The concentration in the stack in grains per standard cubic foot.
DELTA H	The meter orifice differential.
DELTA H(ABS)	The meter orifice differential, absolute conditions in inches of mercury.
Dn (IN)	Diameter of the nozzle in inches.
DRY GAS IN	Temperature of the dry gas meter inlet degrees Farenheight.
DRY GAS OUT	Temperature of the dry gas meter outlet degrees Farenheight.
Ds (FT)	Diameter of the stack in feet.
E	The emission rate in pounds per million Btu derived by using F-Factor.
E (Heat Input)	The emission rate in pounds per million Btu derived by use of calculated heat input.
END METER	The dry gas meter reading at the end of the test.
F factor	The theoretical amount of air in dry standard cubic feet (DSCF) needed to combust a million Btu's worth of fuel.

NOMENCLATURE (cont'd)

Filter Catch	The amount of particulate captured on the filter during testing.
INT METER	The dry gas meter reading at the beginning of the test.
Md (DRY)	The dry molecular weight of the flue gas in pounds per pound mole.
MN	The amount of particulate collected by washing the nozzle, probe, and front half of the glassware, reported in milligrams.
MN'	The milligrams of particulate collected minus the blank.
Ms (WET)	Wet or actual molecular weight of the flue gas in pounds per pound mole.
% N2	The percent of nitrogen in the flue gas.
NO PTS	Number of traverse points.
% O2	Percent of oxygen in the flue gas.
P BAR	Barometric pressure at test location.
P STK	Static pressure of the stack in inches of water.
PMR	The emission rate in pounds per hour.
PS (ABS)	Absolute pressure conditions in the stack in inches of mercury.
Qs	The volumetric flow rate of the flue gas in dry standard cubic feet per hour.
SQ ROOT	The square root of each velocity head measurement.
SQRT DELTA P	The average of the square roots of the measured pressure drops.
Stack Temp or TS (`F)	The temperature of the stack in degrees Farenheight.
TS (`R)	The temperature of the stack in degrees Rankine.
T (Hot Box)	Temperature around the filter box, degrees Farenheight.
TM (`F)	Average temperature of the dry gas meter in degrees Farenheight.

NOMENCLATURE (cont'd)

TM (°R)	Average temperature of the dry gas meter in degrees Rankine.
VEL HEAD	The pressure drop measured across the pitot tubes.
VI (TOT)	The amount of water collected in the impingers in milliliters.
VM (CF)	The volume sampled through the dry gas meter in cubic feet.
VM STD	Volume sampled through the dry gas meter corrected to standard conditions.
VS	Velocity of the stack gas in feet per second.
VW STD	The amount of moisture collected, converted to standard cubic feet.
Y	Meter box calibration factor.
o	Sampling time in minutes.

APPENDIX VII

FIELD DATA SHEETS - UNIT OPERATING CONDITIONS

BOILER DATA SHEET

ATLANTIC SUGAR
UNIT # 1

RUN #: 1

DATE: 12/11/90

TIME	11 30 AM	11 45 AM	12 00 M	12 15 PM	12 30 PM
STEAM PRESSURE	300	285	265	265	245
STEAM TEMPERATURE	485	490	490	485	480
STEAM INTEGRATOR	2158	2552	2852	3229	3469
FUEL OIL PRESSURE	—	—	—	—	—
FUEL OIL TEMPERATURE	—	—	—	—	—
FUEL OIL INTEGRATOR	—	—	—	—	—
FEED WATER TEMPERATURE	252	252	252	252	252
% O2	—	—	—	—	—
SCRUBBER DIFFERENTIAL	4	4	4	4	4

READINGS TAKEN BY: _____

BOILER DATA SHEET

ATLANTIC SUGAR
UNIT # 1

RUN #: 2

DATE: 12/11/90

TIME	2 00 PM	2 15 PM	2 30 PM	2 45 PM	3 00 PM
STEAM PRESSURE	255	260	260	275	275
STEAM TEMPERATURE	490	480	490	490	490
STEAM INTEGRATOR	5212	5609	5900	6182	6503
FUEL OIL PRESSURE	—	—	—	—	—
FUEL OIL TEMPERATURE	—	—	—	—	—
FUEL OIL INTEGRATOR	—	—	—	—	—
FEED WATER TEMPERATURE	252	252	252	252	252
% O2	—	—	—	—	—
SCRUBBER DIFFERENTIAL °	4	4	4	4	4

READINGS TAKEN BY: _____

BOILER DATA SHEET

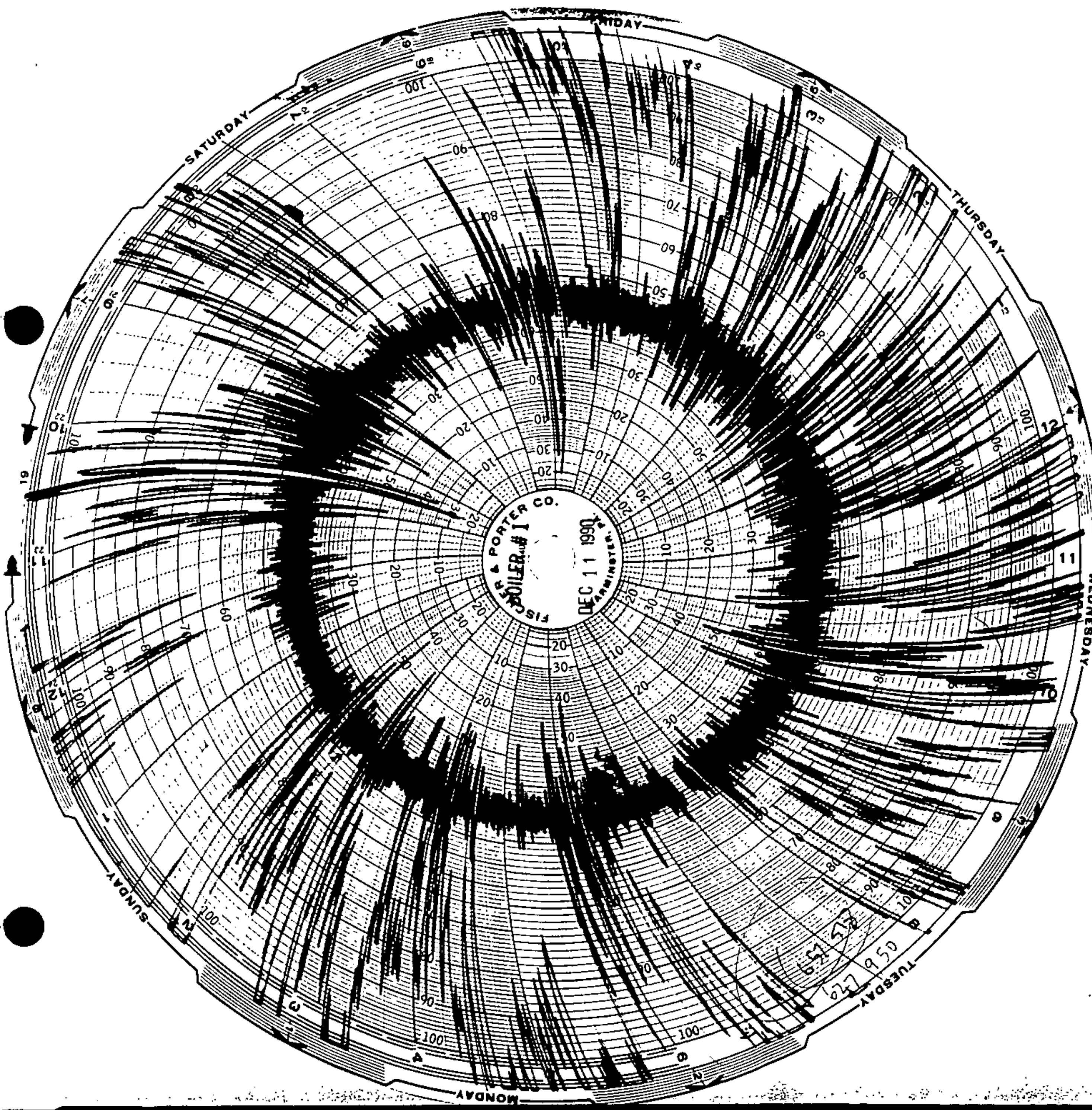
ATLANTIC SUGAR
UNIT #

RUN #: 3

DATE: 15/11/90

TIME	4 00 PM	4 20 PM	4 30 PM	4 45 PM	5 00 PM
STEAM PRESSURE	250	280	280	275	265
STEAM TEMPERATURE	490	510	520	510	510
STEAM INTEGRATOR	7674	8125	8352	8715	9007
FUEL OIL PRESSURE	—	—	—	—	—
FUEL OIL TEMPERATURE	—	—	—	—	—
FUEL OIL INTEGRATOR	—	—	—	—	—
FEED WATER TEMPERATURE	252	252	252	252	252
% O2	—	—	—	—	—
SCRUBBER DIFFERENTIAL	4	4	4	4	4

READINGS TAKEN BY: _____


FISCHER & PORTER CO.
BOILER #1
DEC 11 1990
FRIDAY
THURSDAY
WEDNESDAY
TUESDAY
MONDAY
SUNDAY
SATURDAY

APPENDIX VIII

FIELD DATA SHEETS - STACK TESTING

FIELD DATA SHEET

GENERAL INFORMATION

Plant:	Atlantic	Run #:	C1-1
Location:	Unit #1	Date:	11 Dec 90
Ds (ft):	6.17	No. Points:	12
Dn (in):	.250	Test Length:	60
Filter #:	3692	End Meter Reading:	650.101
Cp:	.84	Int Meter Reading:	607.700
P bar:	29.96	Begin Time:	11:30
P stack:	-.20	End Time:	12:37
IMP-1 (INT)	100 ml	IMP-1 (FINAL)	300 ml
IMP-2 (INT)	100 ml	IMP-2 (FINAL)	186 ml
IMP-3 (INT)	0 ml	IMP-3 (FINAL)	13 ml
IMP-4 (INT)	500.0 g	IMP-4 (FINAL)	518.2 g

	TEST 1	TEST 2	TEST 3
% CO2	10.6		
% O2	9.2		
% CO	-		

Project Director:	S. Lawton	Field Laboratory:	S. Lawton/B. Gibson
Meter Box Operator:	B. Gibson	Chain of Custody:	S. Lawton
Probe Operator:	J. Jairan	Plant Coordinator:	E Perez
Orsat Analyst:	S. Lawton	Agency Rep:	S. Culliver

Comments:

TRAVERSE DATA SHEET

Page 1 of 1 — Sampling time per point: 5 min

Plant: Atlantic Sugar Corp. — Run #: C1-1

Location: Unit #7 — Date: 11 Dec 90

	Trav. No.	Delta P	Delta H	Meter Reading	DGM In	DGM Out	Hot Box	Impg Temp	Stack Temp	Vac
				607.700						
10.0	A 1	.59	1.42	610.8	71	72	260	48	158	3
7.7	2	.73	1.75	614.2	78	71	270	43	173	4
9.4	3	.75	1.80	617.7	84	72	253	47	176	4
8.2	4	.80	1.92	621.2	89	73	269	49	182	5
9.4	5	.85	2.04	624.9	92	74	236	47	181	5
8.6	6	.71	1.70	628.366	94	75	270	48	179	5
9.6	B 1	.73	1.75	631.7	83	75	267	48	155	5
12.5	2	.90	2.16	635.5	90	76	264	51	176	6
11.5	3	.86	2.06	639.3	95	77	256	49	177	7
14.0	4	.82	1.97	643.0	97	78	251	51	168	7
13.0	5	.85	2.04	646.7	98	79	260	52	171	8
8.2	6	.69	1.66	650.101	99	79	258	54	169	~~8~~ 7

Relationship: 2.4

Box #: 3 Y: _____ Delta H@: _____

Start Time: 11:30 End Time: 1137

Pre Leak Ck: .006 CFM @ 15 "Hg

Mid Leak Ck: _____ CFM @ _____ "Hg (Vol: _____)

Post Leak CK: .0075 CFM @ 8 "Hg

Pitot Leak CK: _____ @ _____ "H2O

Box Oper: Gibson Probe Oper: Jim J.

FIELD DATA SHEET

GENERAL INFORMATION

Plant:	Atlantic	Run #:	C1-2
Location:	Unit #1	Date:	11 Dec 90
Ds (ft):	6.17	No. Points:	12
Dn (in):	.250	Test Length:	60
Filter #:	3690	End Meter Reading:	697.242
Cp:	.84	Int Meter Reading:	652.274
P bar:	29.96	Begin Time:	1400
P stack:	-.20	End Time:	1504
IMP-1 (INT)	100 ml	IMP-1 (FINAL)	362 ml
IMP-2 (INT)	100 ml	IMP-2 (FINAL)	147 ml
IMP-3 (INT)	0 ml	IMP-3 (FINAL)	4 ml
IMP-4 (INT)	500.0 g	IMP-4 (FINAL)	517.7 g

	TEST 1	TEST 2	TEST 3
% CO2	10.3		
% O2	9.6		
% CO	-		

Project Director:	S.Lawton	Field Laboratory:	S.Lawton/B.Gibson
Meter Box Operator:	B.Gibson	Chain of Custody:	S.Lawton
Probe Operator:	J. Jaran	Plant Coordinator:	E. Perez
Orsat Analyst:	S.Lawton	Agency Rep:	S. Culliver

Comments:

TRAVERSE DATA SHEET

Page 1 of 1 | Sampling time per point: 5 min

Plant: Atlantic | Run #: C1-2

Location: Unit #1 | Date: 11 Dec 90

	Trav. No.	Delta P	Delta H	Meter Reading	DGM In	DGM Out	Hot Box	Impg Temp	Stack Temp	Vac
				652.274						
7.0	A 1	.69	1.86	655.6	78	78	265	50	161	3
7.4	2	.78	1.87	659.1	86	78	262	41	176	4
8.6	3	.86	2.06	662.8	92	78	262	40	175	4
12.0	4	.91	2.18	666.7	95	79	269	41	168	4
10.0	5	.91	2.18	670.6	97	79	265	42	168	5
9.2	6	.70	1.68	674.124	99	80	269	44	165	4
10.5	B 1	.75	1.80	677.7	92	81	270	54	156	4
10.2	2	.90	2.16	681.7	106	83	269	52	160	5
9.4	3	.91	2.18	685.5	105	84	264	52	161	6
10.4	4	.94	2.26	689.5	107	86	266	56	161	6
11.0	5	.94	2.26	693.5	109	87	262	56	163	7
10.0	6	.80	1.92	697.242	110	89	262	58	160	6
9.6										

Relationship: 2.4

Box #: 3 Y: _____ Delta H@: _____

Start Time: 1400 End Time: 1504

Pre Leak Ck: .01 CFM @ 15 "Hg

Mid Leak Ck: _____ CFM @ _____ "Hg (Vol: _____)

Post Leak CK: _____ CFM @ _____ "Hg

Pitot Leak CK: _____ @ _____ "H2O

Box Oper: G.Bsca Probe Oper: Jim J.

FIELD DATA SHEET

GENERAL INFORMATION

Plant:	Atlantic	Run #:	C1-3
Location:	Unit #1	Date:	11 Dec 90
Ds (ft):	6.17	No. Points:	12
Dn (in):	.250	Test Length:	60
Filter #:	3691	End Meter Reading:	742.271
Cp:	.84	Int Meter Reading:	697.502
P bar:	29.96	Begin Time:	1600
P stack:	-.20	End Time:	1703
IMP-1 (INT)	100 ml	IMP-1 (FINAL)	298 SL ml
IMP-2 (INT)	100 ml	IMP-2 (FINAL)	214 ml
IMP-3 (INT)	0 ml	IMP-3 (FINAL)	34 ml
IMP-4 (INT)	500.0 g	IMP-4 (FINAL)	523 g

	TEST 1	TEST 2	TEST 3
% CO2	11.0		
% O2	8.8		
% CO	—		

Project Director:	S.Lawton	Field Laboratory:	S.Lawton/B.G.Olson
Meter Box Operator:	B.G.Olson	Chain of Custody:	S.Lawton
Probe Operator:	J.Jairan	Plant Coordinator:	E.Perez
Orsat Analyst:	S.Lawton	Agency Rep:	S.Culliver

Comments:

TRAVERSE DATA SHEET

Page 1 of 1 — Sampling time per point: 5min

Plant: Atlantic — Run #: C1-3

Location: Unit 1 — Date: 11 Dec 90

	Trav. No.	Delta P	Delta H	Meter Reading	DGM In	DGM Out	Hot Box	Impg Temp	Stack Temp	Vac
				697.502						
12.0	A 1	.69	1.79	701.2	~~78~~	80	250	45	147	4
9.8	2	.78	2.03	704.9	84	80	257	38	152	5
7.7	3	.78	2.03	708.5	92	79	253	43	165	6
8.2	4	.85	2.21	712.3	95	79	265	45	164	7
7.8	5	.91	2.37	716.3	98	80	270	47	168	8
6.8	6	.70	1.82	719.867	101	81	271	50	164	8
8.2	B 1	.78	2.03	723.5	93	80	263	44	163	8
7.1	2	.87	2.27	727.3	98	81	266	47	162	10
7.7	3	.76	1.98	731.1	102	82	268	50	165	11
8.3	4	.80	2.08	734.9	105	83	270	55	167	11
13.0	5	.81	2.11	738.6	106	84	265	57	163	11
8.6	6	.65	1.69	742.221	107	85	263	58	164	11
(8.76)										

Relationship: 2.6

Box #: 3 Y: _____ Delta H@: _____

Start Time: ~~1550~~ 1600 End Time: 1703

Pre Leak Ck: 0 CFM @ 15 "Hg

Mid Leak Ck: _____ CFM @ _____ "Hg (Vol: _____)

Post Leak CK: 0.001 CFM @ 13 "Hg

Pitot Leak CK: o.k. @ 6 "H2O

Box Oper: Gibson Probe Oper: J. & J.

APPENDIX IX

EQUIPMENT CALIBRATION SHEETS

METER BOX CALIBRATION SHEET

BOX NUMBER: #3
PRESS BAR : 30.20

DATE: 16 NOV 90
DUE: 16 MAY 91

RUN #	VOLUME WET	VOLUME DRY	DELTA H	DELTA H /13.6	PRES BAR (ABS)	TIME (MINS)
1	5	5.084	.50	.0368	30.24	11.99
2	5	5.137	1.00	.0735	30.27	8.97
3	10	10.410	1.50	.1103	30.31	15.46
4	10	10.506	2.00	.1471	30.35	13.57
5	10	10.671	3.00	.2206	30.42	11.08
6	10	10.777	4.00	.2941	30.49	9.69

RUN #	TEMP WET (`F)	TEMP DRY INLET	TEMP DRY OUT	TEMP DRY (AVG)	Y	DELTA H @
1	74.0	79.4	88.2	83.8	1.000	1.58
2	74.0	96.8	82.5	89.6	.9994	1.75
3	74.0	101.3	85.5	93.4	.9918	1.94
4	74.0	103.8	88.3	96.0	.9862	1.98
5	74.0	108.3	90.5	99.4	.9745	1.97
6	74.0	110.3	91.5	100.9	.9652	2.00
				AVERAGE	.9863	1.87

FORMULAS:

$$Y = \frac{(V_w)(P_b)(T_d)}{(V_d)(P_b\ ABS)(T_w)}$$

$$\text{DELTA H @} = \frac{0.0317\ (\text{DELTA H})}{(P_b)(T_d)} * \left[\frac{(T_w)(\text{TIME})}{(V_w)}\right]^2$$

MIKE RIDGE

THERMOCOUPLE CALIBRATION SHEET

SET #: METER BOX #3 DATE: 6-20-87

REFERENCE MERCURY/GLASS

STANDARD ('F)	THERMOCOUPLE ('F)	% DEVIATION OF ABSOLUTE
32	33	.20
67	70	.57
212	215	.45
	MAXIMUM % DEVIATION	.57
	ALLOWABLE % DEVIATION	1.50

SET #: METER BOX #3 DATE: 6-20-87

STANDARD ('F)	THERMOCOUPLE ('F)	% DEVIATION OF ABSOLUTE
32	29	.61
73	70	.56
212	211	.15
	MAXIMUM % DEVIATION	.61
	ALLOWABLE	1.50

CALIBRATION BY: G. ZWILLING

THERMOCOUPLE CALIBRATION SHEET

SET #: 8'-1 DATE: 10-25-85

REFERENCE MERCURY/GLASS

STANDARD ('F)	THERMOCOUPLE ('F)	ABSOLUTE OF % DEVIATION
74	72	.37
210	205	.75
400	409	1.05
	MAXIMUM DEVIATION	1.05
	ALLOWABLE	1.50

SET #: 8.5'-1 DATE: 11-15-85

STANDARD ('F)	THERMOCOUPLE ('F)	ABSOLUTE OF % DEVIATION
66	63	.57
170	170	0
211.5	215	.52
	MAXIMUM DEVIATION	.57
	ALLOWABLE	1.50

CALIBRATION BY: G. ZWILLING

31

DATE 03/21/91

FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
PARTICULATE STACK TEST VERIFICATION
DER METHOD 5

FACILITY NAME: AT SUG APIS #

COMPANY CONDUCTING TEST: EASTMOUNT TEST DATE 12 11 90

SOURCE DESCRIPTION: BOILER

STACK TEST DATA SUMMATION

		RUN1	RUN2	RUN3
1.H2O	(VOL.MEAS.),ML	317.2	330.7	369
2.H2O	(MASS MEAS.),GM	0	0	0
3.M'N	PARTICULATE WEIGHT, GM	.2571	.2519	.3186
4.V'M	VOLUME METERED,CF	42.401	44.968	44.769
5.Y	DRY GAS MTR. CALIB.FCTR.	.9863	.9863	.9863
6.RDP	AVG SQR D.P-SAMPLING	.88	.92	.88
7.DH	AVG DELTA H,IN.H2O	1.86	2.02	2.03
8.T'M	AVG MTR. TEMP,DEG.F	82.1	89.7	88.9
9.T'S	AVG STACK TEMP,DEG.F	172.1	164.5	162
10.P'S	STACK PRESS,''HG(ABS)	29.95	29.95	29.95
11.P'B	BAROMETRIC PRESS,''HG	29.96	29.96	29.96
13.D'N	ACTUAL NOZZLE DIAM,IN	.25	.25	.25
14.T	ACTUAL SAMPLE TIME,MIN	60	60	60
15.C'P	PITOT TUBE COEFFICIENT	.84	.84	.84
23.S/T	VALUE:SAMPLE PTS/TOT PTS	1	1	1

RUN	VOLUME SAMPLED DSCF	MOISTURE CONTENT PERCENT	STACK VEL FPS	FLOW RATE DSCF/H	PERCENT ISO-KINETIC	ACTUAL EMISS LB/HR	ACTUAL EMISS LB/MBTU	ALLOW EMISS LB/MBTU
1	40.96	26.72	56.09	3,697,829	97.16	51.17	0.207	0.300
2	42.85	26.65	58.27	3,892,461	96.58	50.44	0.204	0.300
3	42.73	28.90	55.91	3,634,336	103.13	59.74	0.241	0.300
MEAN	42.18	27.42	56.76	3,741,542	98.96	53.78	0.217	0.300

SUMMARY

GENERAL:
REVIEWED BY AS
ACTUAL A 'S = 29.9 SQ FT
LAMINAR FLOW ASSUMED (<10 DEG YAW) (OR <20 DER)
ACTUAL EMISS BASED ON HEAT INPUT = 247.5 MBTU/HR
ALL REQUIRED LEAK TESTS ACCEPTABLE
ASSUMED M 'D=30.0 (COMBUSTION GASES)

COMMENT.....

RUN 1 :
ACTUAL A 'N = .0003409 SQ FT

COMMENT.....

RUN 2 :
ACTUAL A 'N = .0003409 SQ FT

COMMENT.....

RUN 3 :
ACTUAL A 'N = .0003409 SQ FT

COMMENT.....

Area of stack 29.9 12-11-89 247.5

246.3 243.1 253.3

INPUT SHEET - REV:09/13/83 - PAGE 2 OF 2

ENTER THE FOLLOWING:

		RUN1	RUN2	RUN3
1. H2O	COLLECTED (ONLY VOL.MEASURED), ML:	317.2	330.7	369.
2. H2O	COLLECTED (WEIGHED PART ONLY), GM:			
3. M'N	PARTICULATE WEIGHT, GM:	.2571	.2519	.3186
4. V'M	VOLUME METERED, CF:	42.401	44.968	44.769
5. Y	DRY GAS METER CAL FACTOR:	.9863	.9863	.9863
6. RDP	AVG SQR DELTA P (WHEN SAMPLING):	.88	.92	.88
7. DH	AVG DELTA H, IN H2O:	1.86	2.02	2.03
8. T'M	AVG METER TEMP, DEG F:	82.1	89.7	88.9
9. T'S	AVG STACK TEMP, DEG F:	172.1	164.5	162.0
10. P'S*	STACK PRESS, *IN ....(.....):	29.95	29.95	29.95
11. P'B	BAROMETRIC PRESS, IN HG:	29.96	29.96	29.96
13. D'N	ACTUAL NOZZLE DIAMETER, IN.:	.250	.250	.250
14. T	ACTUAL SAMPLE TIME, MIN:	60	60	60
15. C'P	PITOT TUBE COEFFICIENT:	.84	.84	.84

OPTION ENTRIES:

17. ORSAT/FYRITE - %CO2:			
18. ORSAT/FYRITE - %O2:			
28. ORSAT/FYRITE (FOR C'S @ 50%E.A.)-%CO:			
19. SPECIFIC M'D ENTRIES:			
20. CYCLONIC (10-20 DEG) - AVG COS(YAW):			
26. CYC.(>20) - AVG(SQR D.P X COS(YAW)):			
21. PROCESS WT SOURCE - T/HR:			
22. LB/TON REGULATED - T/HR:			
27. LB/* REGULATED (* AS DEFINED) - */HR:			
23. LAM&C/CC(20)-VAL(SAMPLE PTS/TOT PTS):			

Atlantic Sugar Association, Inc.

P.O. BOX #1570

BELLE GLADE, FLORIDA 33430

Tel: (407) 996-6541 Fax: (407) 996-8021

January 30, 1991

Mr. David Knowles, P.E.
Dept. of Environmental Regulation
2269 Bay Street
Ft. Myers, Fla. 33901

RE: Boiler #1 - Permit #AO50-189612

Dear Mr. Knowles:

Enclosed you will find the "Particulate Emissions Compliance Test Report" for the above mentioned boiler, which was done on December 11, 1990.

As you can see by the results, the boiler is operating in compliance with the requirements.

If you should have any questions, please do not hesitate to call me.

Very truly yours,

Hector J. Cardentey
Environmental Director

HJC/ed

CC: S. Diego, General Manager
A. Pacheco, Plant Manager
A. Satyal, Palm Beach County Health Department