**AP-42 Section Number:** 1.8

**Reference Number:** 43

**Title:** Osceola Farms Company Compliance Particulate Emissions Test Report Boiler #2

February 1991

Ref-30


*Eastmount Engineering*

*Environmental Consultants — Air Quality Specialists*


OSWR OFC-1

**OSCEOLA FARMS COMPANY**

**COMPLIANCE PARTICULATE EMISSIONS TEST REPORT**

**BOILER #2**

**PREPARED FOR:**

Osceola Farms Company
316 Royal Poinciana Plaza
Palm Beach, Florida 33480

**CONCERNING:**

Particulate Emissions Testing
Osceola Farms Company
Boiler #2
Pahokee, Florida Facility
February 7, 1991

**PREPARED BY:**


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S. Joseph Mercadante
President

March 4, 1991
Date

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## APPENDIX

## 1.0 COMPENDIUM

Eastmount Engineering Inc., conducted a Compliance Particulate Emissions Test Program on Unit #2 at Osceola Farms Pahokee, Florida facility on February 7, 1991. The test program consisted of a series of three EPA Method 5 test runs.

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.

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

During testing the boiler was burning bagasse as fuel. Boiler No. 2 is rated at 140,000 pounds of steam per hour. Results of the test program indicate Boiler No. 2 to be in compliance with the Florida DER emission standard. The following table summarizes the emission results, emission standards and boiler operating conditions.

| RUN# | DATE | EMISSION RATE #/MMBtu | EMISSION RATE #/HR | ALLOWABLE #MMBtu | ALLOWABLE #/HR | LOAD #/HR | % OF 140 KPH |
|---|---|---|---|---|---|---|---|
| 1 | 02-07-91 | .200 | 55.35 | .200 | 55.20 | 139,520 | 99.7% |
| 2 | 02-07-91 | .188 | 51.32 | .200 | 54.70 | 138,240 | 98.7% |
| 3 | 02-07-91 | .198 | 55.14 | .200 | 55.70 | 140,800 | 100.6% |
| 3 RUN AVG. | | .195 | 53.94 | .200 | 55.22 | 139,520 | 99.7% |

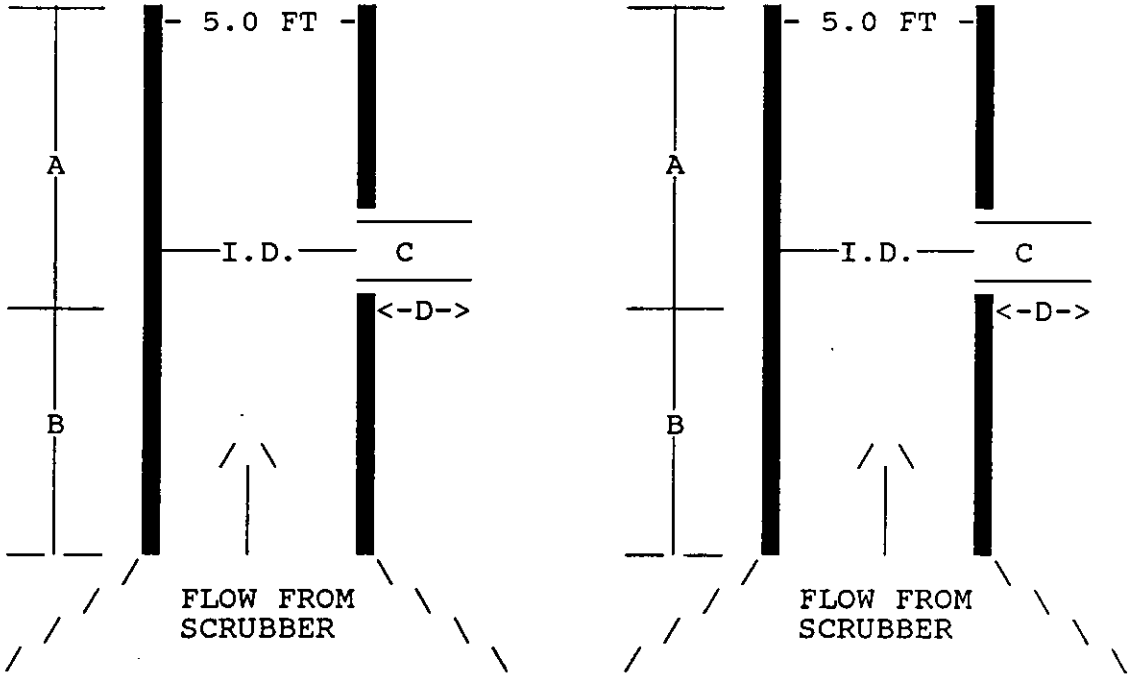
S. Joseph Mercadante, President, was in charge of and responsible for all stack testing, conducted all calculations and performed the Orsat analysis. Ray Valdez operated the meter box and maintained chain of custody of all samples. Brian Gibson performed the field laboratory aspects of the program and Jim Jardin located the probe at the proper traverse point locations and assisted where required. Mr. Kenneth Tucker of the Florida Department of Environmental Regulation observed the stack testing and boiler operations. Mr. P. Farinas was the boiler room superintendent responsible for boiler operation and acquisition of all pertinent process data.

## 2.0 STACK SCHEMATIC

OSCEOLA FARMS COMPANY
UNIT # 2
PAHOKEE, FLORIDA FACILITY

The following is a schematic of the stack which services Boiler #2 at Osceola Farms Pahokee, Florida facility.

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

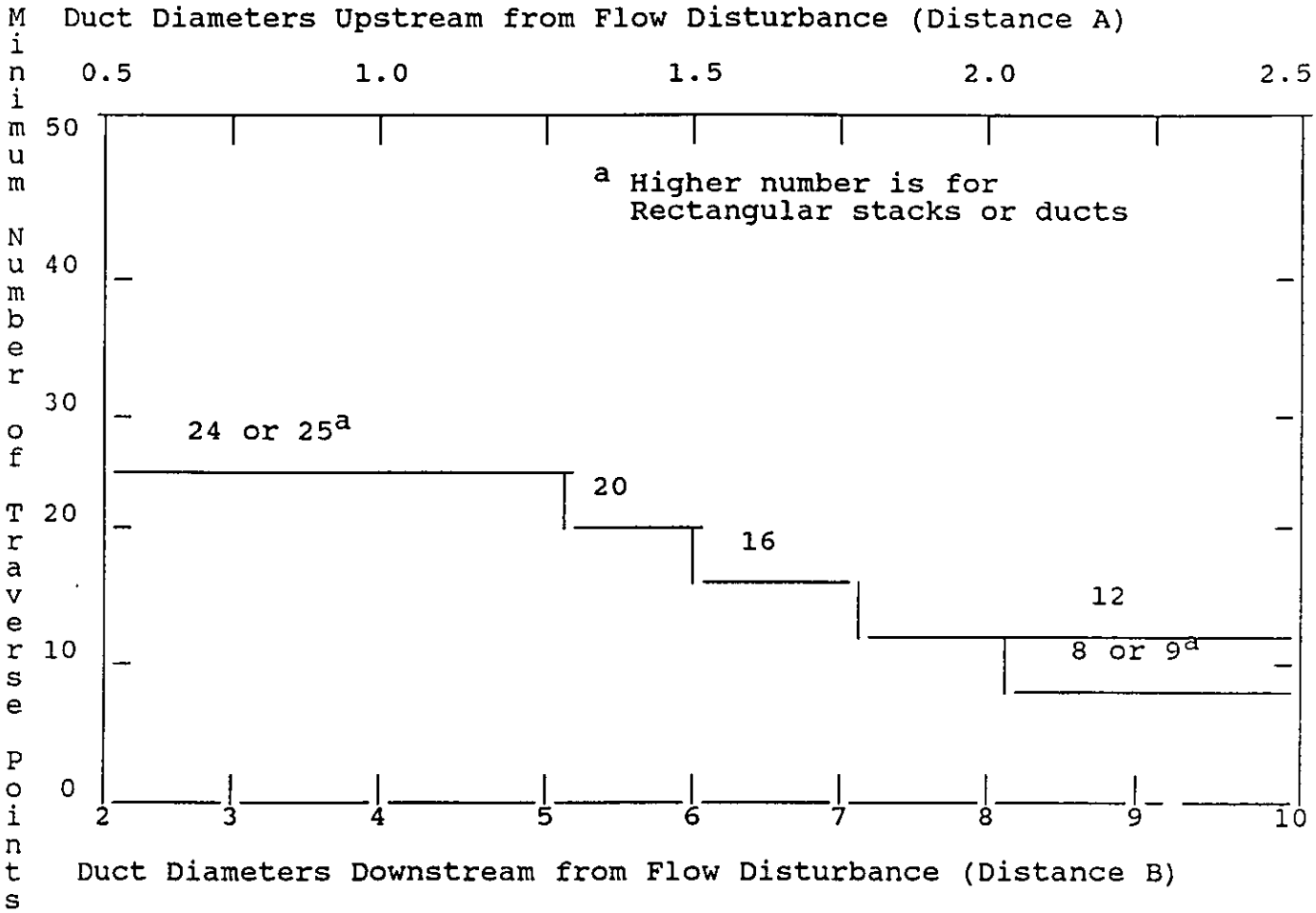



| | |
|---|---|
| NUMBER OF STACKS | 2 |
| DISTANCE UPSTREAM FROM FLOW DISTURBANCE (A) | 17' |
| DISTANCE DOWNSTREAM FROM FLOW DISTURBANCE (B) | 26' |
| DIAMETER OF PORT SLEEVE (C) | 3" |
| LENGTH OF PORT SLEEVE (D) | 3" |
| NUMBER OF PORTS | 2 |
| INTERNAL DIAMETER OF STACK AT SAMPLING PORTS | 60" |

Drawing not to scale

## 3.0 NUMBER OF TRAVERSE POINTS AND SAMPLING TIME PER POINT

OSCEOLA FARMS COMPANY
UNIT # 2
PAHOKEE, FLORIDA FACILITY




Minimum number of traverse points for particulate traverses.

Distance A = 17' or 3.4 diameters.

Distance B = 26' or 5.2 diameters.

In accordance with Method 1, 20 traverse points were needed for each stack for a total of 40 traverse points.

In order to sample for a minimum of one hour and draw at least 30 cubic feet, each traverse point was sampled for 1.5 minutes.

## 3.0 NUMBER OF TRAVERSE POINTS AND SAMPLING TIME PER POINT

OSCEOLA FARMS COMPANY
UNIT # 2
PAHOKEE, FLORIDA FACILITY

DIAMETER OF STACK: NORTH 5.0 FEET
DIAMETER OF STACK: SOUTH 5.0 FEET
PORT SLEEVE LENGTH: 3 INCHES

| TRAVERSE POINT | DISTANCE % OF DIAMETER | DISTANCE (INCHES) | PROBE MARK (INCHES) |
|---|---|---|---|
| 1 | 2.6 | 1.6 | 4.6 |
| 2 | 8.2 | 4.9 | 7.9 |
| 3 | 14.6 | 8.8 | 11.8 |
| 4 | 22.6 | 13.6 | 16.6 |
| 5 | 34.2 | 20.5 | 23.5 |
| 6 | 65.8 | 39.5 | 42.5 |
| 7 | 77.4 | 46.4 | 49.4 |
| 8 | 85.4 | 51.2 | 54.2 |
| 9 | 91.8 | 55.1 | 58.1 |
| 10 | 97.4 | 58.4 | 61.4 |

## 4.0 SAMPLING TRAIN AND ANALYTICAL 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 10 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.

## 4.0 SAMPLING TRAIN AND ANALYTICAL TEST PROCEDURES (cont.)

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.

**4.0 SAMPLING TRAIN AND ANALYTICAL TEST PROCEDURES** (cont.)

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.

## 5.0 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, the filters 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).

# APPENDIX I

COMPUTER INPUT SHEETS

# INPUT DATA SHEET

PLANT: OSCEOLA
LOCATION: UNIT 2

RUN #: 2-1
DATE : 02-07-91

| | |
|---|---|
| Ds N (FT) | 5.0 |
| Ds S (FT) | 5.0 |
| Dn (IN) | .250 |
| FILTER# | 3712 |
| PIT COEFF | .84 |
| IMP-1 (INT) | 100 |
| IMP-2 (INT) | 100 |
| IMP-3 (INT) | 0 |
| IMP-4 (INT) | 500.0 |
| IMP-1 (FIN) | 368 |
| IMP-2 (FIN) | 142 |
| IMP-3 (FIN) | 2 |
| IMP-4 (FIN) | 513.5 |
| % CO2 | 12.4 |
| % O2 | 7.3 |
| % CO | 0 |
| P BAR | 29.96 |
| P STK | .10 |
| NO. PTS | 40 |
| TEST LNGTH | 60 |
| END METER | 652.715 |
| INT METER | 612.927 |
| BEGIN TIME: | 12:45 |
| END TIME: | 14:00 |

| TRAV PT | VEL HEAD | SQ ROOT | DELTA H | DRYGAS IN | DRYGAS OUT | STACK TEMP |
|---|---|---|---|---|---|---|
| NA1 | .31 | .56 | .78 | 85 | 82 | 157 |
| 2 | .36 | .60 | .90 | 89 | 83 | 157 |
| 3 | .42 | .65 | 1.05 | 90 | 83 | 157 |
| 4 | .50 | .71 | 1.25 | 91 | 83 | 158 |
| 5 | .68 | .82 | 1.70 | 92 | 83 | 158 |
| 6 | 1.10 | 1.05 | 2.75 | 94 | 84 | 157 |
| 7 | .95 | .97 | 2.38 | 96 | 84 | 156 |
| 8 | .85 | .92 | 2.13 | 97 | 85 | 158 |
| 9 | .75 | .87 | 1.88 | 99 | 85 | 157 |
| 10 | .72 | .85 | 1.80 | 99 | 86 | 156 |
| NB1 | .45 | .67 | 1.13 | 94 | 85 | 155 |
| 2 | .45 | .67 | 1.13 | 95 | 86 | 154 |
| 3 | .47 | .69 | 1.18 | 95 | 86 | 155 |
| 4 | .55 | .74 | 1.38 | 96 | 86 | 157 |
| 5 | .85 | .92 | 2.13 | 97 | 87 | 157 |
| 6 | 1.30 | 1.14 | 3.25 | 98 | 87 | 156 |
| 7 | 1.00 | 1.00 | 2.50 | 100 | 87 | 157 |
| 8 | .95 | .97 | 2.34 | 100 | 88 | 157 |
| 9 | .82 | .91 | 2.05 | 100 | 88 | 157 |
| 10 | .80 | .89 | 1.25 | 100 | 88 | 156 |
| SA1 | .45 | .67 | 1.13 | 91 | 87 | 155 |
| 2 | .45 | .67 | 1.13 | 93 | 87 | 153 |
| 3 | .50 | .71 | 1.25 | 95 | 87 | 154 |
| 4 | .52 | .72 | 1.30 | 98 | 88 | 156 |
| 5 | .75 | .87 | 1.88 | 96 | 88 | 154 |
| 6 | 1.40 | 1.18 | 3.50 | 96 | 88 | 153 |
| 7 | 1.10 | 1.05 | 2.75 | 99 | 88 | 153 |
| 8 | .90 | .95 | 2.25 | 100 | 88 | 154 |
| 9 | .75 | .87 | 1.88 | 101 | 88 | 153 |
| 10 | .72 | .85 | 1.80 | 100 | 88 | 153 |
| SB1 | .34 | .58 | .85 | 91 | 87 | 153 |
| 2 | .38 | .62 | .95 | 93 | 87 | 152 |
| 3 | .44 | .66 | 1.10 | 94 | 88 | 153 |
| 4 | .48 | .69 | 1.20 | 95 | 88 | 155 |
| 5 | .63 | .79 | 1.58 | 95 | 88 | 154 |
| 6 | .95 | .97 | 2.38 | 96 | 88 | 154 |
| 7 | .85 | .92 | 2.13 | 98 | 88 | 154 |
| 8 | .77 | .88 | 1.93 | 99 | 89 | 153 |
| 9 | .75 | .87 | 1.86 | 99 | 89 | 154 |
| 10 | .75 | .87 | 1.86 | 100 | 89 | 153 |
| AVERAGE | .70 | .82 | 1.74 | 95.9 | 86.6 | 155.1 |

# INPUT DATA SHEET

PLANT: OSCEOLA
LOCATION: UNIT 2

RUN #: 2-2
DATE : 02-07-91

| | | TRAV PT | VEL HEAD | SQ ROOT | DELTA H | DRYGAS IN | DRYGAS OUT | STACK TEMP |
|---|---|---|---|---|---|---|---|---|
| Ds N (FT) | 5.0 | | | | | | | |
| Ds S (FT) | 5.0 | | | | | | | |
| Dn (IN) | .250 | NA1 | .30 | .55 | .75 | 81 | 82 | 149 |
| | | 2 | .36 | .60 | .90 | 84 | 82 | 150 |
| FILTER# | 3710 | 3 | .44 | .66 | 1.10 | 85 | 82 | 149 |
| | | 4 | .52 | .72 | 1.30 | 86 | 82 | 151 |
| PIT COEFF | .84 | 5 | .72 | .85 | 1.80 | 87 | 82 | 151 |
| | | 6 | .95 | .97 | 2.38 | 89 | 82 | 152 |
| IMP-1 (INT) | 100 | 7 | .85 | .92 | 2.13 | 91 | 83 | 152 |
| | | 8 | .78 | .88 | 1.95 | 92 | 83 | 154 |
| IMP-2 (INT) | 100 | 9 | .75 | .87 | 1.88 | 92 | 83 | 155 |
| | | 10 | .72 | .85 | 1.80 | 93 | 83 | 153 |
| IMP-3 (INT) | 0 | | | | | | | |
| | | NB1 | .45 | .67 | 1.13 | 85 | 82 | 147 |
| IMP-4 (INT) | 500.0 | 2 | .53 | .73 | 1.33 | 88 | 82 | 150 |
| | | 3 | .55 | .74 | 1.38 | 90 | 83 | 151 |
| IMP-1 (FIN) | 358 | 4 | .62 | .79 | 1.55 | 90 | 83 | 153 |
| | | 5 | .78 | .88 | 1.95 | 91 | 83 | 154 |
| IMP-2 (FIN) | 134 | 6 | 1.50 | 1.22 | 3.75 | 92 | 83 | 151 |
| | | 7 | 1.10 | 1.05 | 2.75 | 95 | 83 | 156 |
| IMP-3 (FIN) | 4 | 8 | .95 | .97 | 2.38 | 95 | 83 | 156 |
| | | 9 | .78 | .88 | 1.95 | 95 | 84 | 154 |
| IMP-4 (FIN) | 511.9 | 10 | .78 | .88 | 1.95 | 94 | 84 | 153 |
| % CO2 | 12.1 | SA1 | .30 | .55 | .75 | 88 | 83 | 154 |
| | | 2 | .37 | .61 | .93 | 89 | 83 | 155 |
| % O2 | 7.6 | 3 | .40 | .63 | 1.00 | 89 | 83 | 154 |
| | | 4 | .48 | .69 | 1.20 | 90 | 83 | 155 |
| % CO | 0 | 5 | .75 | .87 | 1.86 | 90 | 84 | 154 |
| | | 6 | 1.00 | 1.00 | 2.50 | 92 | 84 | 154 |
| P BAR | 29.98 | 7 | .94 | .97 | 2.35 | 93 | 84 | 156 |
| | | 8 | .82 | .91 | 2.05 | 93 | 84 | 157 |
| P STK | .10 | 9 | .71 | .84 | 1.78 | 93 | 84 | 157 |
| | | 10 | .65 | .81 | 1.63 | 92 | 84 | 157 |
| NO. PTS | 40 | | | | | | | |
| | | SB1 | .30 | .55 | .75 | 86 | 83 | 153 |
| TEST LNGTH | 60 | 2 | .35 | .59 | .88 | 88 | 83 | 153 |
| | | 3 | .41 | .64 | 1.03 | 89 | 83 | 154 |
| END METER | 691.780 | 4 | .45 | .67 | 1.13 | 90 | 83 | 154 |
| | | 5 | .60 | .77 | 1.50 | 90 | 84 | 154 |
| INT METER | 653.000 | 6 | .75 | .87 | 1.86 | 91 | 84 | 151 |
| | | 7 | .82 | .91 | 2.05 | 91 | 84 | 154 |
| BEGIN TIME: | 15:00 | 8 | .75 | .87 | 1.86 | 92 | 84 | 156 |
| | | 9 | .68 | .82 | 1.70 | 92 | 84 | 156 |
| END TIME: | 16:15 | 10 | .68 | .82 | 1.63 | 93 | 84 | 156 |
| AVERAGE | | | .67 | .80 | 1.66 | 90.2 | 83.2 | 153.4 |

# INPUT DATA SHEET

PLANT: OSCEOLA
LOCATION: UNIT 2

RUN #: 2-3
DATE : 02-07-91

| | |
|---|---|
| Ds N (FT) | 5.0 |
| Ds S (FT) | 5.0 |
| Dn (IN) | .250 |
| FILTER# | 3709 |
| PIT COEFF | .84 |
| IMP-1 (INT) | 100 |
| IMP-2 (INT) | 100 |
| IMP-3 (INT) | 0 |
| IMP-4 (INT) | 500.0 |
| IMP-1 (FIN) | 324 |
| IMP-2 (FIN) | 138 |
| IMP-3 (FIN) | 2 |
| IMP-4 (FIN) | 512.0 |
| % CO2 | 12.1 |
| % O2 | 7.6 |
| % CO | 0 |
| P BAR | 29.98 |
| P STK | .10 |
| NO. PTS | 40 |
| TEST LNGTH | 53 |
| END METER | 725.451 |
| INT METER | 692.083 |
| BEGIN TIME: | 16:50 |
| END TIME: | 17:50 |

| TRAV PT | VEL HEAD | SQ ROOT | DELTA H | DRYGAS IN | DRYGAS OUT | STACK TEMP |
|---|---|---|---|---|---|---|
| NA1 | .32 | .57 | .80 | 80 | 79 | 154 |
| 2 | .35 | .59 | .88 | 82 | 79 | 156 |
| 3 | .45 | .67 | 1.13 | 83 | 80 | 155 |
| 4 | .55 | .74 | 1.38 | 84 | 80 | 155 |
| 5 | .72 | .85 | 1.80 | 86 | 80 | 154 |
| 6 | .95 | .97 | 2.38 | 88 | 80 | 153 |
| 7 | .95 | .97 | 2.38 | 89 | 80 | 153 |
| 8 | .85 | .92 | 2.13 | 90 | 80 | 153 |
| 9 | .78 | .88 | 1.95 | 90 | 80 | 153 |
| 10 | .75 | .87 | 1.88 | 91 | 80 | 153 |
| NB1 | .43 | .66 | 1.08 | 86 | 80 | 154 |
| 2 | .47 | .69 | 1.18 | 88 | 81 | 155 |
| 3 | .54 | .73 | 1.35 | 88 | 81 | 154 |
| 4 | .60 | .77 | 1.50 | 89 | 81 | 154 |
| 5 | .75 | .87 | 1.88 | 91 | 82 | 156 |
| 6 | 1.70 | 1.30 | 4.25 | 93 | 82 | 153 |
| 7 | 1.10 | 1.05 | 2.75 | 94 | 82 | 155 |
| 8 | .94 | .97 | 2.35 | 94 | 82 | 155 |
| 9 | .78 | .88 | 1.95 | 94 | 82 | 156 |
| 10 | .75 | .87 | 1.88 | 94 | 82 | 156 |
| SA1 | .35 | .59 | .88 | 87 | 82 | 156 |
| 2 | .40 | .63 | 1.00 | 89 | 82 | 154 |
| 3 | .45 | .67 | 1.13 | 90 | 82 | 154 |
| 4 | .50 | .71 | 1.25 | 90 | 83 | 155 |
| 5 | .70 | .84 | 1.75 | 90 | 83 | 154 |
| 6 | .92 | .96 | 2.30 | 91 | 83 | 154 |
| 7 | .90 | .95 | 2.25 | 92 | 83 | 155 |
| 8 | .82 | .91 | 2.05 | 93 | 83 | 154 |
| 9 | .70 | .84 | 1.75 | 93 | 84 | 157 |
| 10 | .67 | .82 | 1.68 | 93 | 84 | 155 |
| SB1 | .30 | .55 | .75 | 86 | 82 | 155 |
| 2 | .35 | .59 | .88 | 88 | 82 | 156 |
| 3 | .41 | .64 | 1.03 | 88 | 82 | 155 |
| 4 | .44 | .66 | 1.10 | 88 | 82 | 153 |
| 5 | .50 | .71 | 1.25 | 89 | 83 | 154 |
| AVERAGE | .66 | .80 | 1.66 | 89.2 | 81.5 | 154.5 |

# APPENDIX II

## ISOKINETIC CALCULATION SHEETS

# ISOKINETIC CALCULATION SHEET

PLANT: OSCEOLA
LOCATION: UNIT 2

RUN #: 2-1
DATE : 02-07-91

| | | | | | |
|---|---|---|---|---|---|
| TS (`F) = | 155.1 | % CO2= | 12.4 | VM (CF) = | 39.788 |
| TS (`R) = | 615.1 | % O2= | 7.3 | DELTA H (ABS) = | 30.13 |
| TM (`F) = | 91.3 | % CO= | 0 | PS (ABS) = | 30.01 |
| TM (`R) = | 551.3 | % N2= | 80.3 | SQRT DELTA P = | .824723 |
| VI(TOT) = | 325.5 | CP= | .84 | AREA NOZZLE = | .000341 |

Y = .9863

| | | | | |
|---|---|---|---|---|
| VM STD | = | $17.64 \frac{(VM)(Y)(DELTA\ H\ ABS)}{(TM)}$ | = 37.83 | DSCF |
| VW STD | = | .04707 (VI TOT) | = 15.32 | CF |
| BWO | = | $\frac{VW\ STD}{VW\ STD + VM\ STD}$ | = .288 | |
| BWO | = | MOISTURE FROM STEAM TABLES | = .286 | |
| VI TOT | = | ADJUSTED TO SATURATION VOLUME | = 321.7 | ML |
| 1-BWO | = | 1 - BWO | = .714 | |
| Md (DRY) | = | .44 (% CO2)<br>+.32 (% O2)<br>+.28 (% CO)<br>+.28 (% N2) | = 30.27 | LBS/LB MOLE |
| Ms (WET) | = | MD (1-BWO)<br>+ 18 (BWO) | = 26.76 | LBS/LB MOLE |
| G | = | SQRT (TS / PS / MS) | = .88 | |
| VS | = | 85.49(CP)(G)(SQRT DELTA P) | = 51.8 | FPS |
| H | = | 0.002669 (VI TOT) | = .86 | |
| J | = | (DELTA H ABS)(VM)(Y) /(TM) | = 2.14 | |
| K | = | (H) + (J) | = 3.00 | |
| % ISO | = | $\frac{(TS)\ (K)\ (1.667)}{(TIME)\ (VS)\ (PS)\ (AN)}$ | = 96.8 | |

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# ISOKINETIC CALCULATION SHEET

PLANT: OSCEOLA
LOCATION: UNIT 2

RUN #: 2-2
DATE : 02-07-91

| | | | | | |
|---|---|---|---|---|---|
| TS (`F)= | 153.4 | % CO2= | 12.1 | VM (CF) = | 38.780 |
| TS (`R)= | 613.4 | % O2= | 7.6 | DELTA H (ABS)= | 30.10 |
| TM (`F)= | 86.7 | % CO= | 0 | PS (ABS) = | 29.99 |
| TM (`R)= | 546.7 | % N2= | 80.3 | SQRT DELTA P = | .802094 |
| VI(TOT)= | 307.9 | CP= | .84 | AREA NOZZLE = | .000341 |

Y = .9863

| | | | | | |
|---|---|---|---|---|---|
| VM STD | = | $17.64 \frac{(VM)(Y)(DELTA\ H\ ABS)}{(TM)}$ | = | 37.15 | DSCF |
| VW STD | = | .04707 (VI TOT) | = | 14.49 | CF |
| BWO | = | $\frac{VW\ STD}{VW\ STD + VM\ STD}$ | = | .281 | |
| BWO | = | MOISTURE FROM STEAM TABLES | = | .274 | |
| VI TOT | = | ADJUSTED TO SATURATION VOLUME | = | 298.5 | ML |
| 1-BWO | = | 1 - BWO | = | .726 | |
| Md (DRY) | = | .44 (% CO2)<br>+.32 (% O2)<br>+.28 (% CO)<br>+.28 (% N2) | = | 30.24 | LBS/LB MOLE |
| Ms (WET) | = | MD (1-BWO)<br>+ 18 (BWO) | = | 26.88 | LBS/LB MOLE |
| G | = | SQRT (TS / PS / MS) | = | .87 | |
| VS | = | 85.49(CP)(G)(SQRT DELTA P) | = | 50.2 | FPS |
| H | = | 0.002669 (VI TOT) | = | .80 | |
| J | = | (DELTA H ABS)(VM)(Y) /(TM) | = | 2.11 | |
| K | = | (H) + (J) | = | 2.90 | |
| % ISO | = | $\frac{(TS)\ (K)\ (1.667)}{(TIME)\ (VS)\ (PS)\ (AN)}$ | = | 96.3 | |

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# ISOKINETIC CALCULATION SHEET

PLANT: OSCEOLA
LOCATION: UNIT 2

RUN #: 2-3
DATE : 02-07-91

| | | | | | |
|---|---|---|---|---|---|
| TS (`F)= | 154.5 (Avg=154) | % CO2= | 12.1 (Avg=7.5) | VM (CF) = | 33.368 |
| TS (`R)= | 614.5 | % O2= | 7.6 | DELTA H (ABS)= | 30.10 |
| TM (`F)= | 85.3 | % CO= | 0 | PS (ABS) = | 29.99 |
| TM (`R)= | 545.3 | % N2= | 80.3 | SQRT DELTA P = | .796693 |
| VI(TOT)= | 276.0 | CP= | .84 | AREA NOZZLE = | .000341 |

Y = .9863

| | | | | |
|---|---|---|---|---|
| VM STD | = | $\frac{(VM)(Y)(DELTA\ H\ ABS)}{(TM)}$ = 17.64 | 32.04 | DSCF |
| VW STD | = | .04707 (VI TOT) | 12.99 | CF |
| BWO | = | $\frac{VW\ STD}{VW\ STD + VM\ STD}$ | .288 | |
| BWO | = | MOISTURE FROM STEAM TABLES | .282 | |
| VI TOT | = | ADJUSTED TO SATURATION VOLUME | 267.2 | ML |
| 1-BWO | = | 1 - BWO | .718 | |
| Md (DRY) | = | .44 (% CO2) + .32 (% O2) + .28 (% CO) + .28 (% N2) | 30.24 | LBS/LB MOLE |
| Ms (WET) | = | MD (1-BWO) + 18 (BWO) | 26.79 | LBS/LB MOLE |
| G | = | SQRT (TS / PS / MS) | .87 | |
| VS | = | 85.49(CP)(G)(SQRT DELTA P) | 50.0 | FPS |
| H | = | 0.002669 (VI TOT) | .71 | |
| J | = | (DELTA H ABS)(VM)(Y) /(TM) | 1.82 | |
| K | = | (H) + (J) | 2.53 | |
| % ISO | = | $\frac{(TS)\ (K)\ (1.667)}{(TIME)\ (VS)\ (PS)\ (AN)}$ | 95.6 | |

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# APPENDIX III

## ENTHALPY CALCULATION SHEETS

# ENTHALPY CALCULATION SHEET

PLANT : OSCEOLA
LOCATION: UNIT 2

RUN #: 2-1
DATE : 02-07-91

| | STEAM PRESSURE | STEAM TEMPERATURE | FEED WATER TEMPERATURE |
|---|---|---|---|
| | 210 | 520 | 220 |
| | 225 | | |
| | 240 | | |
| | 215 | | |
| | 200 | | |
| | 225 | | |
| AVERAGE | 219.2 PSIG | 520.0 | 220.0 |
| P ABS = | 233.9 PSIA | | |

ENTHALPY @ 550 'F AND 235 PSIA = 1292.9

ENTHALPY @ 500 'F AND 235 PSIA = 1266.2

ENTHALPY @ 520.0 'F AND 235 PSIA = 1276.9

ENTHALPY OF FEED WATER = 188.1

AVERAGE ENTHALPY = 1088.7 BTU/LB OF STEAM

# ENTHALPY CALCULATION SHEET

PLANT : OSCEOLA
LOCATION: UNIT 2

RUN #: 2-2
DATE : 02-07-91

| | STEAM PRESSURE | STEAM TEMPERATURE | FEED WATER TEMPERATURE |
|---|---|---|---|
| | 225 | 520 | 220 |
| | 240 | | |
| | 220 | | |
| | 215 | | |
| | 210 | | |
| | 230 | | |
| AVERAGE | 223.3 PSIG | 520.0 | 220.0 |
| P ABS = | 238.0 PSIA | | |

| | | | | | |
|---|---|---|---|---|---|
| ENTHALPY @ | 550 | 'F AND | 240 | PSIA = | 1292.5 |
| ENTHALPY @ | 500 | 'F AND | 240 | PSIA = | 1265.7 |
| ENTHALPY @ | 520.0 | 'F AND | 240 | PSIA = | 1276.4 |

ENTHALPY OF FEED WATER = 188.1

AVERAGE ENTHALPY = 1088.3 BTU/LB OF STEAM

# ENTHALPY CALCULATION SHEET

PLANT : OSCEOLA
LOCATION: UNIT 2

RUN #: 2-3
DATE : 02-07-91

| | STEAM PRESSURE | STEAM TEMPERATURE | FEED WATER TEMPERATURE |
|---|---|---|---|
| | 220 | 520 | 220 |
| | 220 | | |
| | 225 | | |
| | 220 | | |
| | 220 | | |
| | 220 | | |
| AVERAGE | 220.8 PSIG | 520.0 | 220.0 |

P ABS = 235.5 PSIA

| | | | | | |
|---|---|---|---|---|---|
| ENTHALPY @ | 550 | 'F AND | 235 | PSIA = | 1292.9 |
| ENTHALPY @ | 500 | 'F AND | 235 | PSIA = | 1266.2 |
| ENTHALPY @ | 520.0 | 'F AND | 235 | PSIA = | 1276.9 |

ENTHALPY OF FEED WATER = 188.1

AVERAGE ENTHALPY = 1088.7 BTU/LB OF STEAM

# APPENDIX IV

## HEAT INPUT CALCULATION SHEETS

# HEAT INPUT CALCULATION SHEET

PLANT: OSCEOLA
LOCATION: UNIT 2

RUN #: 2-1
DATE : 02-07-91

| | STEAM INTEGRATOR READINGS | | TIME | | INTEGRATOR FACTOR |
|---|---|---|---|---|---|
| END | 386064 | | 14: 00 | | 1600 |
| BEGIN | 385955 | | 12: 45 | | LBS/HR STEAM |
| NET | 109 | X | 1600 / 75 | MINS = | 139520 |

139520 LBS/HR STEAM / 55% EFF. = 253673 EQUIV.

253673 LBS/HR STEAM X 1089 BTU/LB = 276.2 BTU(e6)/HR

| | OIL INTEGRATOR READINGS | | TIME | | GALS/HR |
|---|---|---|---|---|---|
| END | 0 | | 14: 00 | | |
| BEGIN | 0 | | 12: 45 | | |
| NET | 0 | GALLONS | 75 | MINS = | 0 GPH |

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

## ALLOWABLE EMISSIONS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| BAGASSE | 276.2 | - | 0 | X | .2 | = | 55.2 LBS/HR |
| OIL | | | 0 | X | .1 | = | .0 LBS/HR |
| TOTAL | | | | | | = | 55.2 LBS/HR |

# HEAT INPUT CALCULATION SHEET

PLANT: OSCEOLA
LOCATION: UNIT 2

RUN #: 2-2
DATE : 02-07-91

| | STEAM INTEGRATOR READINGS | | TIME | | INTEGRATOR FACTOR |
|---|---|---|---|---|---|
| END | 386254 | | 16: 15 | | 1600 |
| BEGIN | 386146 | | 15: 00 | | LBS/HR STEAM |
| NET | 108 | X 1600 / 75 | MINS = | | 138240 |

138240 LBS/HR STEAM / 55% EFF. = 251345 EQUIV.

251345 LBS/HR STEAM X 1088 BTU/LB = 273.5 BTU(e6)/HR

| | OIL INTEGRATOR READINGS | | TIME | | GALS/HR |
|---|---|---|---|---|---|
| END | 0 | | 16: 15 | | |
| BEGIN | 0 | | 15: 00 | | |
| NET | 0 | GALLONS | 75 | MINS = | 0 GPH |

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

## ALLOWABLE EMISSIONS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| BAGASSE | 273.5 | - | 0 | X | .2 | = | 54.7 LBS/HR |
| OIL | | | 0 | X | .1 | = | .0 LBS/HR |
| TOTAL | | | | | | = | 54.7 LBS/HR |

# HEAT INPUT CALCULATION SHEET

PLANT: OSCEOLA
LOCATION: UNIT 2

RUN #: 2-3
DATE : 02-07-91

| | STEAM INTEGRATOR READINGS | | TIME | | INTEGRATOR FACTOR |
|---|---|---|---|---|---|
| END | 386391 | | 17: 50 | | 1600 |
| BEGIN | 386303 | | 16: 50 | | LBS/HR STEAM |
| NET | 88 | X 1600 / 60 | MINS = | | 140800 |

140800 LBS/HR STEAM / 55% EFF. = 256000 EQUIV.

256000 LBS/HR STEAM X 1089 BTU/LB = 278.7 BTU(e6)/HR

| | OIL INTEGRATOR READINGS | | TIME | | GALS/HR |
|---|---|---|---|---|---|
| END | 0 | | 17: 50 | | |
| BEGIN | 0 | | 16: 50 | | |
| NET | 0 | GALLONS | 60 | MINS = | 0 GPH |

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

## ALLOWABLE EMISSIONS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| BAGASSE | 278.7 | - | 0 | X | .2 | = | 55.7 LBS/HR |
| OIL | | | 0 | X | .1 | = | .0 LBS/HR |
| TOTAL | | | | | | = | 55.7 LBS/HR |

# APPENDIX V

## EMISSION CALCULATION SHEETS

# EMISSION CALCULATION SHEET

PLANT: OSCEOLA
LOCATION: UNIT 2

RUN #: 2-1
DATE : 02-07-91

| | FILTER | BEAKER | BLANKS FILTER | BLANKS ACETONE |
|---|---|---|---|---|
| NO. : | 3712 | 211 | 3611 | 209 |
| FINAL: | .8397 | 79.1368 | .6264 | 76.3019 |
| TARE : | .6316 | 79.1323 | .6264 | 76.3009 |
| NET : | .2081 | .0045 | .0000 | .0010/200ML |

VOLUME OF RINSE 340

WEIGHT = 212.60
RESIDUE = - 1.70

Mn = 210.90 Mg AS = 39.3 SQ FT

Qs = 3600(1-BWO)(VS)(AS)(17.64)(PS)/(TS) = 4503229 DSCFH

CS = (2.205 X 10-6) (Mn) / (VM STD) = 1.229e-5 LBS/SCF

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

PMR = (QS) (CS) = 55.35 LBS/HR

LOAD= MILLIONS OF BTU / HOUR INPUT = 276.2 BTU e10 / HR

CS = LBS / MILLION BTu = .200 LBS/ BTu e6

# EMISSION CALCULATION SHEET

PLANT: OSCEOLA
LOCATION: UNIT 2

RUN #: 2-2
DATE : 02-07-91

| | FILTER | BEAKER | BLANKS FILTER | BLANKS ACETONE |
|---|---|---|---|---|
| NO. : | 3710 | 212 | 3611 | 209 |
| FINAL: | .8274 | 77.1807 | .6264 | 76.3019 |
| TARE : | .6349 | 77.1766 | .6264 | 76.3009 |
| NET : | .1925 | .0041 | .0000 | .0010/200ML |

VOLUME OF RINSE 415

WEIGHT = 196.60
RESIDUE = - 2.08

Mn = 194.53 Mg AS = 39.3 SQ FT

Qs = 3600(1-BWO)(VS)(AS)(17.64)(PS)/(TS) = 4445045 DSCFH

CS = (2.205 X 10-6) (Mn) / (VM STD) = 1.154e-5 LBS/SCF

CS' = 0.0154 (Mn) / (VM STD) = .08 GRAINS /SCF

PMR = (QS) (CS) = 51.32 LBS/HR

LOAD= MILLIONS OF BTU / HOUR INPUT = 273.5 BTU e10 / HR

CS = LBS / MILLION BTu = .188 LBS/ BTu e6

# EMISSION CALCULATION SHEET

PLANT: OSCEOLA
LOCATION: UNIT 2

RUN #: 2-3
DATE : 02-07-91

| | SAMPLES | | BLANKS | |
|---|---|---|---|---|
| | FILTER | BEAKER | FILTER | ACETONE |
| NO. : | 3709 | 213 | 3611 | 209 |
| FINAL: | .8086 | 78.0204 | .6264 | 76.3019 |
| TARE : | .6315 | 78.0124 | .6264 | 76.3009 |
| NET : | .1771 | .0080 | .0000 | .0010/200ML |

VOLUME OF RINSE 370

WEIGHT = 185.10
RESIDUE = - 1.85

Mn = 183.25 Mg AS = 39.3 SQ FT

Qs = 3600(1-BWO)(VS)(AS)(17.64)(PS)/(TS) = 4373008 DSCFH

Avg = 4,440,42.7

CS = (2.205 X 10-6) (Mn) / (VM STD) = 1.261e-5 LBS/SCF

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

PMR = (QS) (CS) = 55.14 LBS/HR

LOAD= MILLIONS OF BTU / HOUR INPUT = 278.7 BTU e10 / HR

CS = LBS / MILLION BTu = .198 LBS/ BTu e6

Avg = 276.1

# 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

COMPANY OSCEOLA FARMS CO. BOILER NUMBER 2

DATE FEB. 7 1991 REPORT NO. 1

INTEGRATOR FACTOR 1600 OIL METER FACTOR

| | | | STEAM | | | FEED WATER | |
|---|---|---|---|---|---|---|---|
| TIME | INTEGRATOR | OIL METER | FLOW | TEMP. | PRESSURE | TEMP. | PRESSURE |
| 1245 | 355055 | 0 | [illegible] | 5[illegible]0 | [illegible]10 | [illegible]21 | 3[illegible] |
| 1:00 | 3[illegible]5077 | | [illegible]000 | | 225 | | |
| 1:15 | 355999 | | [illegible]000 | | 240 | | |
| 1:30 | 356021 | | 145,600 | | 215 | | |
| 1:45 | 356143 | | 140,800 | | 200 | | |
| 2:00 | 356064 | | 125,000 | | 225 | | |

SIGNED _____

# BOILER DATA SHEET

COMPANY OSCEOLA FARMS CO. BOILER NUMBER 2

DATE FEB. 7 1991 REPORT NO. 2

INTEGRATOR FACTOR 1600 OIL METER FACTOR

| | | | STEAM | | | FEED WATER | |
|---|---|---|---|---|---|---|---|
| TIME | INTEGRATOR | OIL METER | FLOW | TEMP. | PRESSURE | TEMP. | PRESSURE |
| 3:00 | 386146 | | 135000 | 510 | 205 | 220 | 345 |
| 3:15 | 386160 | | 135000 | | 210 | | |
| 3:30 | 386197 | | 145000 | | 220 | | |
| 3:40 | 386216 | | 140000 | | 215 | | |
| 4:00 | 386231 | | 146000 | | 210 | | |
| 4:15 | 386251 | | 135000 | | 230 | | |

SIGNED _____

# BOILER DATA SHEET

COMPANY OSCEOLA FARMS CO. BOILER NUMBER 2

DATE FEB 7 1991 REPORT NO. 3

INTEGRATOR FACTOR 1600 OIL METER FACTOR

| | | | STEAM | | | FEED WATER | |
|---|---|---|---|---|---|---|---|
| TIME | INTEGRATOR | OIL METER | FLOW | TEMP. | PRESSURE | TEMP. | PRESSURE |
| 4:55 | 395307 | | 145000 | 570 | 230 | 220 | 350 |
| 5:05 | 396726 | | 130000 | | 220 | | |
| 5:20 | 398317 | | 135000 | | 225 | | |
| 5:35 | 399869 | | 140000 | | 220 | | |
| 5:50 | 401741 | | 140000 | | 220 | | |
| 5:55 | 402345 | | 140000 | | 220 | | |

SIGNED _____

# APPENDIX VIII

## FIELD DATA SHEETS - STACK TESTING

# FIELD DATA SHEET

## GENERAL INFORMATION

| | | | |
|---|---|---|---|
| Plant: | Osceola | Run #: | C2-1 |
| Location: | UNIT 2 | Date: | 7 FEB 91 |
| Ds (ft): | N 5.0<br>S 5.0 | No. Points: | 40 |
| Dn (in): | .250 | Test Length: | 60 |
| Filter #: | 3712 | End Meter Reading: | 652.75 |
| Cp: | .84 | Int Meter Reading: | 612.927 |
| P bar: | 29.96 | Begin Time: | 12:45 |
| P stack: | .10 | End Time: | 14:08 |
| IMP-1 (INT) | ~~368~~ 100 | IMP-1 (FINAL) | 368 |
| IMP-2 (INT) | ~~142~~ 100 | IMP-2 (FINAL) | 142 |
| IMP-3 (INT) | ~~2~~ 0 | IMP-3 (FINAL) | 2 |
| IMP-4 (INT) | ~~513.5~~ 500.0g | IMP-4 (FINAL) | 513.5 |

| | TEST 1 | TEST 2 | TEST 3 |
|---|---|---|---|
| % CO2 | 12.4 | | |
| % O2 | 7.3 | | |
| % CO | 0 | | |

| | | | |
|---|---|---|---|
| Project Director: | S.J. MERCADANTE | Field Laboratory: | B. GIBSON |
| Meter Box Operator: | R. VALDEZ | Chain of Custody: | S.J. MERCADANTE |
| Probe Operator: | J. JARDIN | Plant Coordinator: | P. FARINAS |
| Orsat Analyst: | S.J. MERCADANTE | Agency Rep: | K. TUCKER |

Comments:

# TRAVERSE DATA SHEET

Page 1 of 3 | Sampling time per point: 1.5

Plant: OSCEOLA | Run #: RUN 2-1

Location: #2 | Date: 2-7-91

612.927

| | Trav. No. | Delta P | Delta H | Meter Reading | DGM In | DGM Out | Hot Box | Impg Temp | Stack Temp | Vac |
|---|---|---|---|---|---|---|---|---|---|---|
| NORTH | A 1 | .31 | .78 | 613.65 | ~~85~~ | 82 | 256 | ~~256~~ 68 | 157 | 2.5 |
| | 2 | .36 | .90 | 614.43 | 89 | 83 | 257 | ~~25~~ 69 | 157 | 3.0 |
| | 3 | .42 | 1.05 | 615.25 | 90 | 83 | 259 | 68 | 157 | 3.0 |
| O2 | 4 | .50 | 1.25 | 616.10 | 91 | 83 | ~~255~~ | 68 | 158 | 3.3 |
| | 5 | .68 | 1.70 | 617.04 | 92 | 83 | 261 | 69 | 158 | 4.0 |
| 7.8% | 6 | 1.10 | 2.75 | 618.23 | 94 | 84 | 265 | 69 | 157 | 6.0 |
| | 7 | .95 | 2.38 | 619.45 | 96 | 84 | 268 | 69 | 156 | 6.0 |
| 7.2% | 8 | .85 | 2.13 | 620.61 | 97 | 85 | 269 | 66 | 158 | 5.5 |
| | 9 | .75 | 1.88 | 621.73 | 99 | 85 | 270 | 64 | 157 | 5.0 |
| | 10 | .72 | 1.80 | 622.79 | 99 | 86 | 267 | 63 | 156 | 5.0 |
| | | | | | | | | | | |
| NORTH | B 1 | .45 | 1.13 | ~~X~~ | 94 | 85 | 255 | 66 | 155 | 3.5 |
| | 2 | .45 | 1.13 | 624.42 | 95 | 86 | 252 | 64 | 154 | 3.5 |
| 18 | 3 | .47 | 1.18 | 625.25 | 95 | 86 | 252 | 64 | 155 | 4.0 |
| | 4 | .55 | 1.38 | 626.25 | 96 | 86 | 250 | 65 | 157 | 4.5 |
| 21 | 5 | .85 | 2.13 | 627.21 | 97 | 87 | 249 | 68 | 157 | 6.0 |
| | 6 | 1.30 | 3.25 | 628.45 | 98 | 87 | 250 | 68 | 156 | 8.0 |
| 24 | | | | | | | | | | |

Relationship: 2.5

Box #: 3 Y: .9863 Delta H@: 1.90

Start Time: 12:45 End Time: _____

Pre Leak Ck: DEAD CFM @ 15 "Hg

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

Post Leak CK: DEAD CFM @ 11 "Hg

Pitot Leak CK: DEAD @ 6 "H2O

Box Oper: RV Probe Oper: JH

# TRAVERSE DATA SHEET

Page 2 of 3

Sampling time per point: 1.5 MIN

Plant: OSCEOLA

Run #: RUN 2-1

Location: #2

Date: 2-7-91

| | Trav. No. | Delta P | Delta H | Meter Reading | DGM In | DGM Out | Hot Box | Impg Temp | Stack Temp | Vac |
|---|---|---|---|---|---|---|---|---|---|---|
| NORTH (CONT) B | 7 | 1.00 | 2.50 | 629.74 | 100 | 87 | 251 | 66 | 157 | 7.5 |
| | 8 | .95 | 2.34 | 630.92 | 100 | 88 | 252 | 65 | 157 | 7.3 |
| | 9 | .82 | 2.05 | ~~633.00~~ | 100 | 88 | 254 | 64 | 157 | 7.0 |
| | 10 | .80 | 1.25 | 633.00 | 100 | 88 | 252 | 66 | 156 | 5.0 |
| | | | | | | | | | | |
| SOUTH A | 1 | .45 | 1.13 | 633.82 | 91 | 87 | 255 | 64 | 155 | 4.5 |
| 6.6% | 2 | .45 | 1.13 | 634.63 | 93 | 87 | 256 | 65 | 153 | 4.5 |
| | 3 | .50 | 1.25 | MISS | 95 | 87 | 256 | 65 | 154 | 5.0 |
| | 4 | .52 | 1.30 | 636.28 | 98 | 88 | 257 | 65 | 156 | 5.0 |
| | 5 | .75 | 1.88 | MISS | 96 | 88 | 258 | 67 | 154 | 6.0 |
| | 6 | 1.40 | 3.50 | 638.60 | 96 | 88 | 258 | 66 | 153 | 11.0 |
| | 7 | 1.10 | 2.75 | 639.92 | 99 | 88 | 258 | 62 | 153 | 10.0 |
| | 8 | .90 | 2.25 | 641.25 | 100 | 88 | 253 | 62 | 154 | 9.0 |
| | 9 | .75 | 1.88 | 642.24 | 101 | 88 | 253 | 63 | 153 | 7.5 |
| | 10 | .72 | 1.80 | 643.31 | 100 | 88 | 254 | 65 | 153 | 7.3 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Relationship: 2.5

Box #: 3 Y: .9863 Delta H@: 1.90

Start Time: _____ End Time: _____

Pre Leak Ck: _____ CFM @ _____ "Hg

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

Post Leak CK: _____ CFM @ _____ "Hg

Pitot Leak CK: _____ @ _____ "H2O

Box Oper: RV Probe Oper: JJ

# TRAVERSE DATA SHEET

Page 3 of 3 — Sampling time per point: 1

Plant: OSCEOLA — Run #: RUN 2-1

Location: #2 — Date: 2-7-91

| | Trav. No. | Delta P | Delta H | Meter Reading | DGM In | DGM Out | Hot Box | Impg Temp | Stack Temp | Vac |
|---|---|---|---|---|---|---|---|---|---|---|
| South B | 1 | .34 | .85 | 644.0 | 91 | 87 | 251 | 68 | 153 | 4.5 |
| 3 | 2 | .38 | .95 | 644.75 | 93 | 87 | 253 | 67 | 152 | 5.0 |
| | 3 | .44 | 1.10 | 645.57 | 94 | 88 | 252 | 64 | 153 | 5.5 |
| 7.2% | 4 | .48 | 1.20 | 646.42 | 95 | 88 | 254 | 61 | 155 | 5.5 |
| | 5 | .63 | 1.58 | 647.32 | 95 | 88 | 256 | 65 | 154 | 6.5 |
| 9 | 6 | .95 | 2.38 | 648.47 | 96 | 88 | 256 | 64 | 154 | 9.0 |
| 8.0% | 7 | .85 | 2.13 | MISS | 98 | 88 | 250 | 64 | 154 | 9.0 |
| 12 | 8 | .77 | 1.93 | 650.61 | 99 | 89 | 251 | 63 | 153 | 8.5 |
| | 9 | .75 | 1.86 | 651.67 | 99 | 89 | 252 | 66 | 154 | 8.3 |
| 7.5% 15 | 10 | .75 | 1.86 | 652.715 | 100 | 89 | 255 | 69 | 153 | 8.3 |

Relationship: 2.5

Box #: ____ Y: .9863 Delta H@: 1.90

Start Time: ____ End Time: ____

Pre Leak Ck: ____ CFM @ ____ "Hg

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

Post Leak CK: ____ CFM @ ____ "Hg

Pitot Leak CK: ____ @ ____ "H2O

Box Oper: RJ Probe Oper: JJ

# FIELD DATA SHEET

## GENERAL INFORMATION

| | | | |
|---|---|---|---|
| Plant: | OSCEOLA | Run #: | C2-2 |
| Location: | UNIT 2 | Date: | 7 FEB 91 |
| Ds (ft): | N 5.0 S 5.0 | No. Points: | 40 |
| Dn (in): | .250 | Test Length: | 60 min |
| Filter #: | 3710 | End Meter Reading: | 691.750 |
| Cp: | .84 | Int Meter Reading: | 653.000 |
| P bar: | 29.98 | Begin Time: | 15:00 |
| P stack: | .10 | End Time: | 16:15 |
| IMP-1 (INT) | 100 mL | IMP-1 (FINAL) | 358 |
| IMP-2 (INT) | 100 mL | IMP-2 (FINAL) | 134 |
| IMP-3 (INT) | 0 mL | IMP-3 (FINAL) | 4 |
| IMP-4 (INT) | 500.0g | IMP-4 (FINAL) | 511.9 |

| | TEST 1 | TEST 2 | TEST 3 |
|---|---|---|---|
| % CO2 | 12.1 | | |
| % O2 | 7.6 | | |
| % CO | 0 | | |

| | | | |
|---|---|---|---|
| Project Director: | S.J. MERCADANTE | Field Laboratory: | B. GIBSON |
| Meter Box Operator: | R. VALDEZ | Chain of Custody: | R. VALDEZ |
| Probe Operator: | J. JARDIN | Plant Coordinator: | P. FARINAS |
| Orsat Analyst: | S.J. MERCADANTE | Agency Rep: | K. TUCKER |

Comments:

TRAVERSE DATA SHEET

Page 1 of 3

Sampling time per point: 1.5 min

Plant: OSCEOLA

Run #: RUN 2-2

Location: #2

Date: 2-7-91

653.000

| Trav. No. | Delta P | Delta H | Meter Reading | DGM In | DGM Out | Hot Box | Impg Temp | Stack Temp | Vac |
|---|---|---|---|---|---|---|---|---|---|
| NORTH A1 | .30 | .75 | 653.68 | 81 | 82 | 237 | 69 | 149 | 3.0 |
| (3) 2 | .36 | .90 | 654.44 | 84 | 82 | 238 | 66 | 150 | 3.5 |
| 3 | .44 | 1.10 | 655.24 | 85 | 82 | 240 | 64 | 149 | 3.8 |
| 8.3% (6) 4 | .52 | 1.30 | 656.08 | 86 | 82 | 243 | 63 | 151 | 4.0 |
| 5 | .72 | 1.80 | 657.07 | 87 | 82 | 248 | 63 | 151 | 5.0 |
| 8.5% (9) 6 | .95 | 2.38 | 658.18 | 89 | 82 | 252 | 61 | 152 | 6.0 |
| 7 | .85 | 2.13 | 659.28 | 91 | 83 | 257 | 62 | 152 | 6.0 |
| 8.4% (12) 8 | .78 | 1.95 | 660.38 | 92 | 83 | 259 | 62 | 154 | 5.5 |
| 9 | .75 | 1.88 | 661.45 | 92 | 83 | 263 | 63 | 155 | 5.5 |
| (15) 10 | .72 | 1.80 | 662.51 | 93 | 83 | 265 | 63 | 153 | 5.5 |
| 8.8% | | | | | | | | | |
| NORTH B1 | .45 | 1.13 | 663.33 | 85 | 82 | 263 | 67 | 147 | 4.0 |
| 8.4% (3) 2 | .53 | 1.33 | 664.20 | 88 | 82 | 265 | 66 | 150 | 4.5 |
| 3 | .55 | 1.38 | 665.10 | 90 | 83 | 265 | 68 | 151 | 5.0 |
| (6) 4 | .62 | 1.55 | 666.04 | 90 | 83 | 265 | 67 | 153 | 5.0 |
| 5 | .78 | 1.95 | 667.05 | 91 | 83 | 265 | 66 | 154 | 6.0 |

Relationship: 2.5

Box #: 3 Y: .9863 Delta H@: 1.90

Start Time: 15:00 End Time: _____

Pre Leak Ck: DEAD CFM @ 15 "Hg

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

Post Leak CK: _____ CFM @ _____ "Hg

Pitot Leak CK: _____ @ _____ "H2O

Box Oper: RV Probe Oper: JJ

FILTER # 3710

# TRAVERSE DATA SHEET

Page 2 of 3 — Sampling time per point: 1.5 min

Plant: OSCEOLA — Run #: RUN 2-2

Location: #2 — Date: 2-7-91

| Trav. No. | Delta P | Delta H | Meter Reading | DGM In | DGM Out | Hot Box | Impg Temp | Stack Temp | Vac |
|---|---|---|---|---|---|---|---|---|---|
| NORTH B 6 | 1.50 | 3.75 | 668.35 | 92 | 83 | 265 | 64 | 151 | 12.0 |
| (CONT) 7 | 1.1 | 2.75 | 669.70 | 95 | 83 | 264 | 63 | 156 | 8.0 |
| 8.0% (12) 8 | .95 | 2.38 | 670.97 | 95 | 83 | 264 | 64 | 156 | 5.0 |
| 8.0% 9 | .78 | 1.95 | 672.10 | 95 | 84 | 264 | 64 | 154 | 4.5 |
| (15) 10 | .78 | 1.95 | 673.19 | 94 | 84 | 263 | 67 | 153 | 4.5 |
| | | | | | | | | | |
| SOUTH A 1 | .30 | .75 | 673.93 | 88 | 83 | 259 | 68 | 154 | 3.0 |
| 6.0% (3) 2 | .37 | .93 | 674.66 | 89 | 83 | 260 | 66 | 155 | 3.5 |
| 3 | .40 | 1.00 | 675.47 | 89 | 83 | 260 | 64 | 154 | 3.5 |
| (6) 4 | .48 | 1.20 | 676.30 | 90 | 83 | 261 | 61 | 155 | 4.0 |
| 5 | .75 | 1.86 | 677.20 | 90 | 84 | 261 | 59 | 154 | 5.0 |
| (9) 6 | 1.00 | 2.50 | 678.35 | 92 | 84 | 261 | 59 | 154 | 6.0 |
| 7 | .94 | 2.35 | 679.52 | 93 | 84 | 261 | 59 | 156 | ~~5.5~~ |
| (12) 8 | .82 | 2.05 | 680.65 | 93 | 84 | 263 | 61 | 157 | 5.5 |
| 9 | .71 | 1.78 | 681.70 | 93 | 84 | 264 | 61 | 157 | 5.0 |
| (15) 10 | .65 | 1.63 | 682.69 | 92 | 84 | 265 | 60 | 157 | 5.0 |
| | | | | | | | | | |

Relationship: 2.5

Box #: 3 Y: .9863 Delta H@: 1.90

Start Time: _____ End Time: _____

Pre Leak Ck: _____ CFM @ _____ "Hg

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

Post Leak CK: _____ CFM @ _____ "Hg

Pitot Leak CK: _____ @ _____ "H2O

Box Oper: RV Probe Oper: JJ

# TRAVERSE DATA SHEET

Page 3 of 3 — Sampling time per point: 1.5 min

Plant: OSCEOLA — Run #: RUN 2-2

Location: STACK — Date: 2-7-91

| | Trav. No. | Delta P | Delta H | Meter Reading | DGM In | DGM Out | Hot Box | Impg Temp | Stack Temp | Vac |
|---|---|---|---|---|---|---|---|---|---|---|
| SOUTH | B 1 | .30 | .75 | 683.38 | 86 | 83 | 260 | 66 | 153 | 3.5 |
| | (3) 2 | .35 | .88 | 584.12 | 88 | 83 | 260 | 66 | 153 | 4.0 |
| 6.6% | 3 | .41 | 1.03 | 684.90 | 89 | 83 | 260 | 66 | 154 | 4.5 |
| | (6) 4 | .45 | 1.13 | 685.73 | 90 | 83 | 260 | 67 | 154 | 4.5 |
| | 5 | .60 | 1.50 | 686.60 | 90 | 84 | 256 | 68 | 154 | 5.0 |
| 6.5% | (9) 6 | .75 | 1.86 | 687.55 | 91 | 84 | 257 | 68 | 151 | 5.5 |
| | 7 | .82 | 2.05 | 688.61 | 91 | 84 | 257 | 68 | 154 | 6.0 |
| 6.8 | (12) 8 | .75 | 1.86 | 689.66 | 92 | 84 | 256 | 66 | 156 | 6.0 |
| | 9 | .68 | 1.70 | 690.68 | 92 | 84 | 254 | 66 | 156 | 5.5 |
| | (15) 10 | .65 | 1.63 | 691.780 | 93 | 84 | 253 | 67 | 156 | 5.5 |

Relationship: 2.5
Box #: 3 Y: .9863 Delta H@: 1.90
Start Time: _____ End Time: _____
Pre Leak Ck: _____ CFM @ _____ "Hg
Mid Leak Ck: _____ CFM @ _____ "Hg (Vol: _____)
Post Leak CK: DEAD CFM @ 12 "Hg
Pitot Leak CK: _____ @ _____ "H2O
Box Oper: RV Probe Oper: JT

# FIELD DATA SHEET

## GENERAL INFORMATION

| | | | |
|---|---|---|---|
| Plant: | Osceola Farms | Run #: | C2-3 |
| Location: | UNIT 2 | Date: | 7 FEB 91 |
| Ds (ft): | N5.0 S6.0 | No. Points: | 90 |
| Dn (in): | .250 | Test Length: | 53 min + |
| Filter #: | 3709 | End Meter Reading: | 725.451 |
| Cp: | .84 | Int Meter Reading: | 692.083 |
| P bar: | 29.98 | Begin Time: | 16:50 |
| P stack: | -.10 | End Time: | 17:50 |
| IMP-1 (INT) | 100 mL | IMP-1 (FINAL) | 324 |
| IMP-2 (INT) | 100 mL | IMP-2 (FINAL) | 138 |
| IMP-3 (INT) | 0 mL | IMP-3 (FINAL) | 2 |
| IMP-4 (INT) | 500.0 g | IMP-4 (FINAL) | 512.0 |

| | TEST 1 | TEST 2 | TEST 3 |
|---|---|---|---|
| % CO2 | 12.1 | | |
| % O2 | 7.6 | | |
| % CO | 0 | | |

| | | | |
|---|---|---|---|
| Project Director: | S.J MERCADANTE | Field Laboratory: | B. GIBSON |
| Meter Box Operator: | R. VALDEZ | Chain of Custody: | R. VALDEZ |
| Probe Operator: | J. JARDIN | Plant Coordinator: | P. FARINAS |
| Orsat Analyst: | S.J. MERCADANTE | Agency Rep: | K. TUCKER |

Comments:

* Test cut short at 53 MIN Because the Mill went down

# TRAVERSE DATA SHEET

Page 1 of 3

Sampling time per point: 1.5 min

Plant: OSCEOLA

Run #: RUN 2-3

Location: #2

Date: 2-7-91

692.083

| | Trav. No. | Delta P | Delta H | Meter Reading | DGM In | DGM Out | Hot Box | Impg Temp | Stack Temp | Vac |
|---|---|---|---|---|---|---|---|---|---|---|
| North A | 1 | .32 | .80 | 692.82 | 80 | 79 | 240 | 68 | 154 | 2.5 |
| ③ | 2 | .35 | .88 | 693.55 | 82 | 79 | 235 | 68 | 156 | 2.8 |
| | 3 | .45 | 1.13 | 694.77 | 83 | 80 | 243 | 68 | 155 | 3.0 |
| 8% ⑥ | 4 | .55 | 1.38 | 695.24 | 84 | 80 | 256 | 69 | 155 | 3.5 |
| | 5 | .72 | 1.80 | 696.23 | 86 | 80 | 264 | 67 | 154 | 4.0 |
| 8% ⑨ | 6 | .95 | 2.38 | 697.36 | 88 | 80 | 252 | 65 | 153 | 5.0 |
| | 7 | .95 | 2.38 | 698.50 | 89 | 80 | 249 | 65 | 153 | 5.0 |
| 7.8% ⑫ | 8 | .85 | 2.13 | 699.62 | 90 | 80 | 244 | 66 | 153 | 5.0 |
| | 9 | .78 | 1.95 | 700.71 | 90 | 80 | 243 | 66 | 153 | 5.0 |
| ⑮ | 10 | .75 | 1.88 | 701.76 | 91 | 80 | 242 | 66 | 153 | 5.0 |
| 8.6% | | | | | | | | | | |
| North B | 1 | .43 | 1.08 | 702.59 | 86 | 80 | 235 | 67 | 154 | 3.5 |
| ③ | 2 | .47 | 1.18 | -Missed- | 88 | 81 | 238 | 67 | 155 | 3.5 |
| | 3 | .54 | 1.35 | 704.28 | 88 | 81 | 240 | 66 | 154 | 4.0 |
| ⑥ | 4 | .60 | 1.50 | 705.17 | 89 | 81 | 242 | 66 | 154 | 4.5 |
| | 5 | .75 | 1.88 | 706.07 | 91 | 82 | 250 | 66 | 156 | 4.5 |
| | | | | | | | | | | |

Relationship: 2.5

Box #: 3 Y: .9863 Delta H@: 1.9

Start Time: 16:50 End Time: _____

Pre Leak Ck: DEAD CFM @ 15 "Hg

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

Post Leak CK: _____ CFM @ _____ "Hg

Pitot Leak CK: DEAD @ 6" "H2O

Box Oper: RV Probe Oper: JH

FILTER #

# TRAVERSE DATA SHEET

Page 2 of 3 | Sampling time per point: 1.5 min

Plant: OSCEOLA | Run #: RUN 2-3

Location: #2 | Date: 2-7-91

| | Trav. No. | Delta P | Delta H | Meter Reading | DGM In | DGM Out | Hot Box | Impg Temp | Stack Temp | Vac |
|---|---|---|---|---|---|---|---|---|---|---|
| 7.2% | (9) 6 | 1.70 | 4.25 | missed | 93 | 82 | 257 | 66 | 153 | 11.0 |
| | 7 | 1.10 | 2.75 | 708.72 | 94 | 82 | 264 | 67 | 155 | 8.5 |
| 7.2% | (12) 8 | .94 | 2.35 | 709.94 | 94 | 82 | 265 | 67 | 155 | 7.3 |
| | 9 | .78 | 1.95 | 711.04 | 94 | 82 | 266 | 68 | 156 | 7.0 |
| | (15) 10 | .75 | 1.88 | 712.11 | 94 | 82 | 265 | 68 | 156 | 6.5 |
| 7.0% | | | | | | | | | | |
| | SockA 1 | .35 | .88 | 712.84 | 87 | 82 | 244 | 68 | 156 | 4.0 |
| | (3) 2 | .40 | 1.00 | 713.62 | 89 | 82 | 243 | 66 | 154 | 4.5 |
| 6.4% | 3 | .45 | 1.13 | 714.47 | 90 | 82 | 243 | 65 | 154 | 4.8 |
| | (6) 4 | .50 | 1.25 | 715.30 | 90 | 83 | 243 | 64 | 155 | 5.0 |
| | 5 | .70 | 1.75 | 716.23 | 90 | 83 | 243 | 63 | 154 | 6.0 |
| 7.5% | (9) 6 | .92 | 2.30 | missed | 91 | 83 | 241 | 61 | 154 | 7.5 |
| | 7 | .90 | 2.25 | 718.45 | 92 | 83 | 239 | 59 | 155 | 7.5 |
| | (12) 8 | .82 | 2.05 | 719.54 | 93 | 83 | 240 | 59 | 154 | 7.5 |
| | 9 | .70 | 1.75 | 720.60 | 93 | 84 | 242 | 59 | 157 | 7.0 |
| | (15) 10 | .67 | 1.68 | 721.617 | 93 | 84 | 243 | 60 | 155 | 7.0 |
| | | | | | | | | | | |

Relationship: 2.5
Box #: 3 Y: .9863 Delta H@: 1.9
Start Time: _____ End Time: _____
Pre Leak Ck: DEAD CFM @ 15 "Hg
Mid Leak Ck: _____ CFM @ _____ "Hg (Vol: _____)
Post Leak CK: Dead CFM @ 11 "Hg
Pitot Leak CK: DEAD @ 6 "H2O
Box Oper: RV Probe Oper: JH

# TRAVERSE DATA SHEET

Page 3 of 3 — Sampling time per point: 1.5 min

Plant: OSCEOLA — Run #: RUN 2-3

Location: #2 — Date: 2-7-91

| Trav. No. | Delta P | Delta H | Meter Reading | DGM In | DGM Out | Hot Box | Impg Temp | Stack Temp | Vac |
|---|---|---|---|---|---|---|---|---|---|
| SouthB 1 | .30 | .75 | 722.31 | 86 | 82 | 242 | 60 | 155 | 4.5 |
| 7.8% ③ 2 | .35 | .88 | 723.03 | 88 | 82 | 247 | 61 | 156 | 4.8 |
| 3 | .41 | 1.03 | 723.78 | 88 | 82 | 248 | 62 | 155 | 5.0 |
| ⑥ 4 | .44 | 1.10 | 724.59 | 88 | 82 | 249 | 60 | 153 | 5.3 |
| 5 | .50 | 1.25 | 725.45 | 89 | 83 | 248 | 60 | 154 | 5.5 |
| ⑨ 6 | .71 | 1.78 | | 89 | 83 | 248 | 59 | 147 | 7.0 |
| 7 | | | | | | | | | |
| ⑫ 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| ⑮ 10 | | | | | | | | | |

Relationship: 2.5
Box #: 3 Y: .9863 Delta H@: 1.90
Start Time: _____ End Time: _____
Pre Leak Ck: DEAD CFM @ 15 "Hg
Mid Leak Ck: _____ CFM @ _____ "Hg (Vol: _____)
Post Leak CK: _____ CFM @ _____ "Hg
Pitot Leak CK: DEAD @ 6 "H2O
Box Oper: RS Probe Oper: JT

# APPENDIX IX

## EQUIPMENT CALIBRATION SHEETS

POST
METER BOX CALIBRATION SHEET

BOX #: 3 DATE: 2-11-91
PRES BAR: 30.04 VACUUM: 15IN HG

| RUN # | VOLUME WET | VOLUME DRY | DELTA H | DELTA H /13.6 | PRES BAR (ABS) | TIME (MINS) |
|---|---|---|---|---|---|---|
| 1 | 10.00 | 10.198 | 1.40 | .103 | 30.14 | 16.22 |
| 2 | 10.00 | 10.336 | 1.40 | .103 | 30.14 | 16.24 |
| 3 | 10.00 | 10.406 | 1.40 | .103 | 30.14 | 16.26 |

| RUN # | TEMP WET (`F) | TEMP DRY INLET | TEMP DRY OUT | TEMP DRY (AVG) | Y | DELTA H @ |
|---|---|---|---|---|---|---|
| 1 | 66.0 | 85.3 | 74.0 | 79.7 | 1.003 | 1.99 |
| 2 | 66.0 | 90.7 | 79.3 | 85.0 | .9990 | 1.98 |
| 3 | 66.0 | 93.3 | 83.0 | 88.2 | .9981 | 1.97 |
| | | | | AVERAGE | 1.000 | 1.98 |

PRE CAL Y = .9863 % DIFFERENCE = 1.36 %

ALLOWABLE = 5.00 %

FORMULAS:

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

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

CALIBRATION BY: JIM JARDIN