9.5.3 Meat Rendering Plants

Total VOC emissions of the wet cooker, blood furnace, hydrolizer, and melt tank

TRC Environmental Corporation for IBP, Inc.

August 1996

1996 (post section publication) source test data.

May 4, 1998

Mr. Ed Surla
Compliance Data Section Chief
Indiana Department of Environmental Management
P.O. Box 6015
Indianapolis, IN 46206-6015

RE: IBP, inc. - Logansport, Indiana
VOC Test Reports

Dear Mr. Surla:

This letter replaces my original letter dated February 13, 1998, for the VOC Test Report for the above referenced facility. Please find enclosed a copy of that report. The testing was conducted on August 20-22, 1996, by TRC Environmental Corporation. Testing was conducted at other IBP facilities as well to verify the validity and accuracy of the data collected at the Logansport facility in 1996. VOC emission rates found on similar rendering systems indicate that data collected at Logansport is representative of VOC from pork rendering systems. Volatile organic carbon testing was completed per the Indiana Compliance Sampling Methods and was approved through protocol submittals and was witnessed by Mr. Pat Powlen of IDEM (Indiana Department of Environmental Management). As shown in the detailed testing report on page 3-5, the average VOC (Total Hydrocarbons as Methane) emission rate from are as follows:

Inedible Steam Cooker	1.50 lbs/hr as methane
Blood Natural Gas fired Dryer	0.138 lbs/hr as methane
Hair Steam Hydrolizer	0.107 lbs/hr as methane
Melt Tank	154.35 ppmv as methane

The melt tank vents to room air and will not be covered in the VOC emission rate calculations.

If you have any questions concerning the testing results or procedures used please contact me at 402-241-3647 or you may contact Mr. Scott Miller, TRC Project Manager, at 630-810-1122.

Sincerely,

Rechelle Kruse
Air Pollution Control Engineer

Enclosure

c: Darrell Schmidt (without test report)
Janet Schroeder (without test report)
Dallas Safriet (with test report)

RK98-491/LO-Stack Test

TRC Environmental Corporation

98207-E04-05

FINAL REPORT
TOTAL VOC EMISSIONS OF THE WET COOKER, BLOOD FURNACE, HYDROLIZER, AND MELT TANK

Prepared for

IBP, Inc.
Logansport, Indiana

Prepared by

TRC ENVIRONMENTAL CORPORATION
1307 Butterfield Road, Suite 420
Downers Grove, IL 60515
(630) 810-1122

August 1996

TRC Project No. 20974-0000-00000

DISCLAIMER

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TABLE OF CONTENTS

Section	Page
LIST OF FIGURES	iii
LIST OF ACRONYMS AND ABBREVIATIONS	iv
PROGRAM SUMMARY	v
INTRODUCTION	1
1.1 Project Scope	1
1.2 Sampling Locations	1
SUMMARY OF RESULTS	3
FIELD SAMPLING PROCEDURES	6
3.1 Field Sampling Summary	6
3.1.1 Pre-Sampling Preparation	6
3.2 Sampling Methods	7
3.2.1 Flow Rate Measurements	7
3.2.2 CO_2 and O_2 Measurement	7
3.2.3 Moisture Measurement	7
3.2.4 Total Hydrocarbons	7
3.2.4.1 USEPA Method 25 Train for TGNMO	8
3.2.4.2 USEPA RM25A Train for Total Hydrocarbons	8
3.2.5 Methane	9
DATA REPORTING	13
4.1 Data Reporting	13

LIST OF FIGURES

Figure 3-1 Method 25 Sampling Train 10
Figure 3-2 Method 25A Sampling Train 11
Figure 3-3 Method 2 and 4 Sampling Train 12
Figure 4-1. Measurement Data Flow Scheme 18
Figure 4-2. Analytical Data Report Scheme 19

LIST OF TABLES

Table 2-1 VOC Emission Rates for the Wet Cooker 4
Table 2-2 VOC Emission Rates for the Blood Furnace 4
Table 2-3 VOC Emission Rates for the Hydrolizer 5
Table 2-4 VOC Concentrations for the Melt Tank 5
Table 4-1. Test Results - Wet Cooker Exhaust 14
Table 4-2. Test Results - Blood Furnace Exhaust 15
Table 4-3. Test Results - Hydrolizer Exhaust 16
Table 4-4. Test Results - Melt Tank Exhaust 17

LIST OF APPENDICES

A Raw Field Data Sheets and Datalogger Printouts
B Process Data
C Laboratory Data
D Equipment Calibration
E Calculations Formulas

LIST OF ACRONYMS AND ABBREVIATIONS

acfm	actual cubic feet per minute
afmp	actual feet per minute
CEM	continuous emission monitor
CEMS	continuous emission monitoring system
cf	cubic feet
CO_2	carbon dioxide
dscf	dry standard cubic feet
EPA	Environmental Protection Agency
°F	degrees Fahrenheit
ft	feet
in H_2O	inches of water
in Hg	inches of mercury
lb/hr	pounds per hour
O_2	oxygen
ppm (v)	parts per million volume
QA/QC	Quality Assurance/Quality Control
scfm	standard cubic feet per minute
TGNMO	total gaseous non-methane organics
THC	total hydrocarbons
TRC	TRC Environmental Corporation
VOC	volatile organic compound

PROGRAM SUMMARY

The IBP, Inc. facility located in Logansport, Indiana has a Wet Cooker, Blood Furnace, Hydrolizer, and Melt Tank in their rendering operations. TRC Environmental Corporation (TRC) was contracted by IBP, Inc. to conduct emission testing on the Wet Cooker, Blood Furnace, Hydrolizer, and Melt Tank. The major objectives of the test program were to collect representative flue gas samples and determine the emission rates of volatile organic compounds (VOC's) at the Wet Cooker, Blood Furnace, Hydrolizer, and Melt Tank exhausts.

TRC accomplished this objective through the use of acceptable test methods performed by trained and experienced staff. IBP, Inc. personnel were responsible for maintaining the proper operations during the emission test series. The emission test program was conducted on August 20-23, 1996. The emission tests included sampling for total gaseous non-methane organics (TGNMO), total hydrocarbons (THC), volumetric flow rates, and moisture content of the Wet Cooker, Blood Furnace, Hydrolizer, and Melt Tank flue gas following USEPA Methods 1 (Sampling Location Selection), 2 (Flow Rate), 3 (CO_2 and O_2 for Molecular Weight), 4 (Moisture), 18 (Methane), and 25 (TGNMO), and 25A (THC).

SECTION I

INTRODUCTION

1.1 Project Scope

The IBP, Inc. facility operates a Wet Cooker, Blood Furnace, Hydrolizer, and Melt Tank at its Logansport, Indiana facility. The Wet Cooker is for cooking the main waste pieces, Blood Furnace dries the blood, Hydrolizer cooks the hair, and the Melt Tank melts the fat and oils. The gas stream from each system enters the Spray Tower, gets scrubbed with water, and then exits to the atmosphere. The Melt Tank directly vents to the atmosphere and is not currently in line with the Spray Tower.

TRC was contracted by IBP, Inc. to conduct (THC) emission testing for determination of volatile organic compound (VOC) emission rates of the Wet Cooker, Blood Furnace, Hydrolizer, and Melt Tank exhausts. The major objective of the test program was to collect representative flue gas samples and determine emission rates of (VOC's) at the Wet Cooker, Blood Furnace, Hydrolizer, and Melt Tank exhausts. Three 1-hour tests were conducted at the Wet Cooker and Blood Furnace exhausts, simultaneously with flow rates, CO_2 and O_2 for molecular weight, and moisture. One 1-hour and 40-minute run was conducted on the Hydrolizer, and two flow runs. One 1-hour run was performed on the Melt Tank, flow was not measured from the open vent.

1.2 Sampling Locations

Sampling for TGNMO was conducted on the Wet Cooker exhaust. The inside stack dimension was measured to be 10 inches in diameter; therefore, the stack area equals 78.5 square inches. (THC) was conducted on the Blood Furnace, Hydrolizer, and Melt Tank exhausts. The inside stack dimension of the Blood Furnace was measured to be 18"; therefore, the stack area equals 254.5 square inches. The inside stack dimension of the

Hydrolizer was measured to be 8"; therefore, the stack area equals 50.3 square inches. The Melt Tank has an open vent and flow was not measured. Stack gas velocity, moisture, and volumetric flow rates were measured simultaneously with the TGNMO and (THC) sampling. The required number of sample points and the sample point locations for the velocity traverses of each source were calculated according to 40 CFR Part 60, Appendix A, Method 1.

SECTION 2

SUMMARY OF RESULTS

On August 20-23, 1996, testing was conducted to determine emission rates of the Wet Cooker, Blood Furnace, Hydrolizer, and Melt Tank exhausts at the IBP, Inc. plant in Logansport, Indiana. All testing was completed in accordance with approved test methodologies.

Table 2-1 summarizes the data for the Wet Cooker from August 22, 1996, table 2-2 summarizes the data for the Blood Furnace from August 20, 1996, table 2-3 summarizes the data for the Hydrolizer from August 21, 1996, and table 2-4 summarizes the data for the Melt Tank from August 22, 1996, at the IBP, Inc. plant located in Logansport, Indiana.

Raw field data sheets are located in Appendix A, this includes CEM's data sheets, CEM's one minute averages, flow rate data sheets, and moisture data sheets.

Process data recorded by IBP, Inc. is located in Appendix B.

Laboratory results and data sheets are located in Appendix C.

Equipment calibration data sheets are located in Appendix D.

Calculation formulas can be found in Appendix E.

All test procedures were conducted as stated in Section 3. No anomalous data is reported.

Table 2-1 VOC Emission Rates for the Wet Cooker

WET COOKER EXHAUST EMISSION RATE RESULTS			
	TEST #1	TEST #2	TEST #3
Total Hydrocarbons Lbs/Hr TGNMO as Carbon	1.300	0.900	2.200

AVG = 1.500 lbs/hr TGNMO as carbon

Table 2-2 VOC Emission Rates for the Blood Furnace

BLOOD FURNACE EXHAUST EMISSION RATE RESULTS			
	TEST #1	TEST #2	TEST #3
Total Hydrocarbons Lbs/Hr as Methane (CH4)	.223	.120	.072

AVG = .138 lbs/hr as Methane (CH4)

Table 2-3 VOC Emission Rates for the Hydrolizer

HYDROLIZER EXHAUST EMISSION RATE RESULTS	
	TEST #1
Total Hydrocarbons Lbs/Hr as Methane (CH4)	.107

Table 2-4 VOC Concentrations for the Melt Tank

MELT TANK CONCENTRATION (PPM)	
	TEST #1
Total Hydrocarbon Concentration Cppmv as Methane (CH4)	154.35

SECTION 3

FIELD SAMPLING PROCEDURES

3.1 Field Sampling Summary

After consideration of the program requirements, TRC provided a team of two experienced professionals to conduct the field effort. The personnel and their responsibilities during this test program were as follows:

Scott R. Miller - Team Leader and Continuous Emission Monitoring (CEM) Operator

Dave Wells - TGNMO Train Operator and Volumetric Flow Rate Measurements

3.1.1 Pre-Sampling Preparation

Equipment was inspected for proper operation and durability prior to calibration. All calibrations were performed prior to and at the conclusion of the emissions test program as shown below:

- Pitot tubes (QA Handbook Section 3.12, pp. 1-13 and USEPA Reference Method 2) - measured for appropriate spacing and dimensions or calibrated in a wind tunnel. Rejection criteria given on the calibration sheet. Post-test check to inspect for damage.

- Thermocouples (QA Handbook Section 3.4,2,pp. 15-18) - verified against a mercury-in-glass thermometer at three points including the anticipated measurement range. Acceptance limits - impinger $\pm 2°F$; DGM $\pm 5.4°F$; stack ± 1.5 percent of stack temperature.

- Field barometer (QA Handbook Section 3.4.2, pp. 18-19) - compared against a mercury-in-glass barometer or use the airport station's barometric pressure and correct for elevation. Acceptance criteria - $\pm$ 0.02 in. Hg; post-test check - same.

3.2 Sampling Methods

3.2.1 Flow Rate Measurements

Velocity measurements at the sampling locations were made following EPA Reference Methods 1 and 2 simultaneously with the TGNMO and (THC) sampling. A Type-S pitot tube with an attached water manometer was used to measure the exhaust velocities at the sampling ports. An attached Type-K thermocouple with remote digimite was used to determine gas temperature.

3.2.2 CO_2 and O_2 Measurement

Tedlar Bag$_@$ flue gas samples were taken concurrently with the TGNMO and (THC) sampling. A Fyrite was used to determine percent by volume of CO_2 and O_2.

3.2.3 Moisture Measurement

Moisture was measured simultaneously using the wet bulb / dry bulb technique stated in USEPA Method 4 for each test run. The difference between the wet bulb temperature and the dry bulb temperature was used to get the percent moisture. The calculation formulas are shown in Appendix E.

3.2.4 Total Hydrocarbons

TRC conducted (TGNMO) testing at the Wet Cooker exhaust following (USEPA RM25), and (THC) monitoring at the Blood Furnace, Hydrolizer, and Melt Tank exhausts following (USEPA RM25A). TRC followed procedures outlined in the EPA publication 340/1-83-016 regarding setup and operation of its (THC) analyzer.

3.2.4.1 USEPA Method 25 Train for Total Gaseous Non-Methane Organics

TGNMO sampling as conducted following the criteria of USEPA Reference Test Method 25. Flue gas was sampled from the Wet Cooker exhaust at a constant rate through a heated probe and filter and a chilled condensate trap by means of an evacuated sample tank. The heated probe and oven were kept at a temperature of ≥265°F and 250±5°F respectively during the sampling. After completion of each test run, the trap and tank were sealed, labeled and documented on the chain-of-custody record. All traps were kept under dry ice until the moment of analysis. Three one-hour tests were conducted. A schematic representation of the sampling train is included as Figure 3-1.

Leak checks on the Method 25 train were performed before each sampling run. All leak checks and leakage rates are documented on the relevant field test data sheet. Copies of the field data sheets and summary calculations are included in Appendix A.

3.2.4.2 USEPA RM25A Train for Total Hydrocarbons

The (THC) analyzer system consists of three subsystems: sample acquisition, sample analysis, and a data acquisition system. The sample acquisition sample line is designed to deliver a representative sample of the stack gas stream to the sample analysis subsystem. A heat traced sample line was used to eliminate in-line condensation prior to the (THC) analyzer as shown in figure 3-2.

Sample analysis was achieved using a JUM VE-7 total hydrocarbon analyzer. Accurate interpretation of each analyzers response requires the systematic calibration of the instrument against gases of known concentrations. A calibration equation is determined from a linear regression of known gas concentrations versus instrument response. The equation used to convert instrument signal to concentration units follows:

$$\text{Concentration} = m\,(\text{response}) + b$$

where: m = slope of calibration curve
response = instrument signal (volts)
b = y-intercept of calibration curve

The data acquisition subsystem consists of an ESC 8800 Datalogger and an Esterline Angus strip chart recorder. The average total hydrocarbon concentration for each test run was calculated from average measurements recorded at one-minute intervals over the entire duration of each test run. Once the (THC) system was set up it was connected to a power source and brought on line. Sample line and signal wires were run between the sampling and (THC) system location, and the sample probe was selected and placed in the stack facing away from the gas stream.

The initial phase of the instrumental analysis method required the calibration of the (THC) analyzer system. Prior to the start of the first test run, system calibration using zero and three (3) upscale propane in nitrogen gas was performed. Following these initial system checks, further calibrations were performed at the end of each test run using a zero and an upscale propane in nitrogen gas.

3.2.5 Methane

Tedlar bag$_{@}$ samples were taken simultaneously with the (THC) sampling for determination of Methane. The methane fraction will be subtracted from the hydrocarbon total. The total hydrocarbon data is being reported as Propane (C_3 H_8), which has three Carbons. The Methane (CH_4) fraction has only one Carbon; therefore, only 1/3 of the Methane concentration will be subtracted from the Propane concentration. For example:

THC (as C_3 H_8) = 100 ppm. There are three Carbons in propane.
Methane (CH_4) = 60 ppm. There is only one Carbon in methane.
Methane equivalent to Propane would be 1 / 3 = .333 ppm as propane.

100 ppm propane - 60 ppm methane (which is equivalent to 20 ppm propane) = 80 ppm propane.

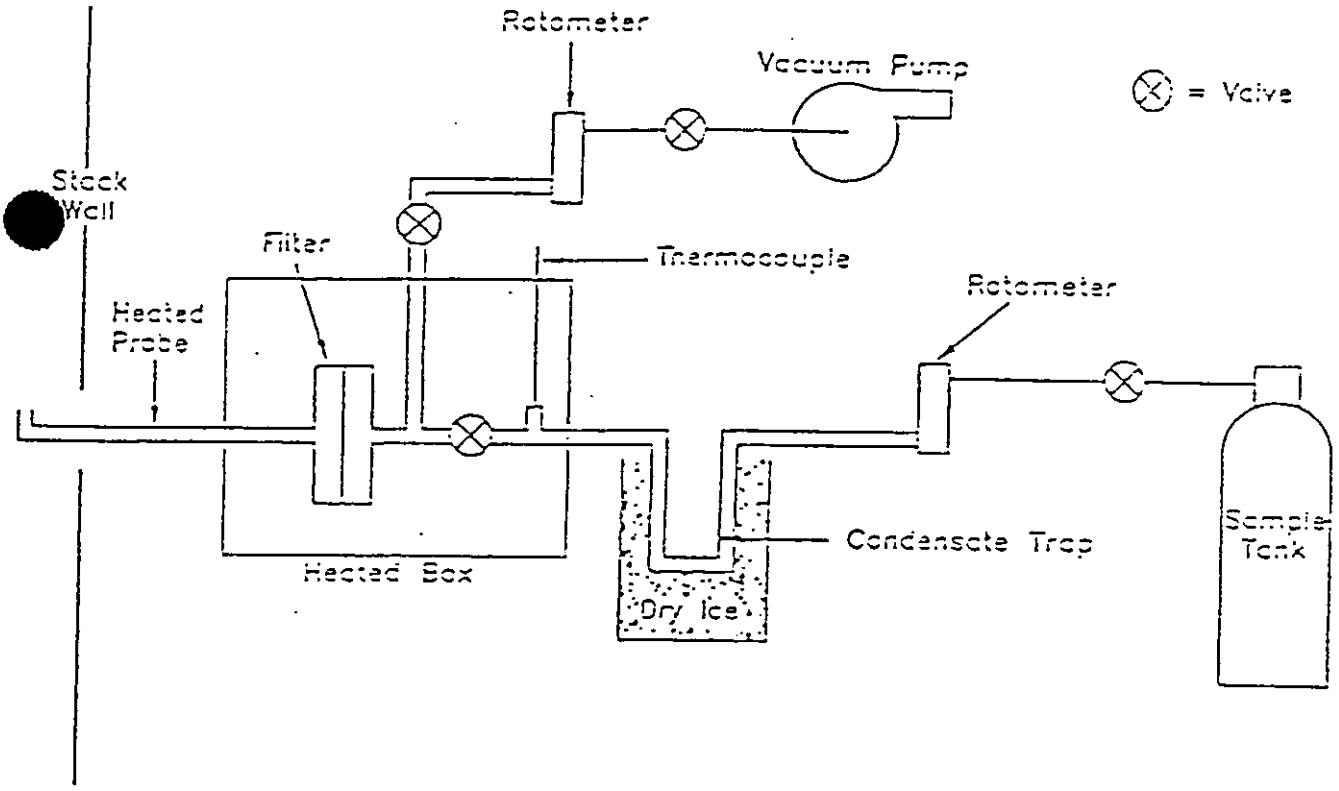


Figure 3-1 Method 25 Sampling Train

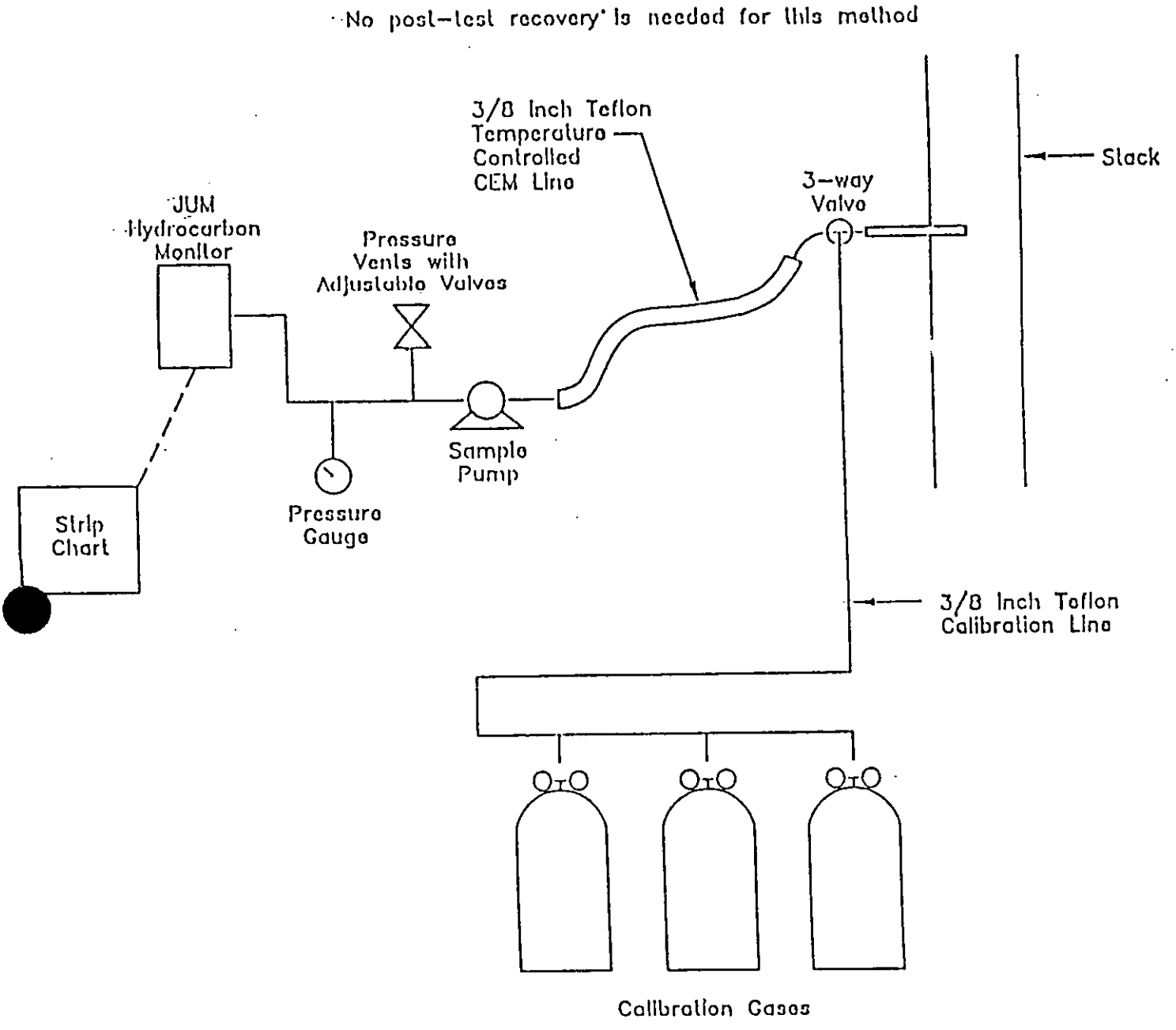


Figure 3-2 Method 25A Sampling Train

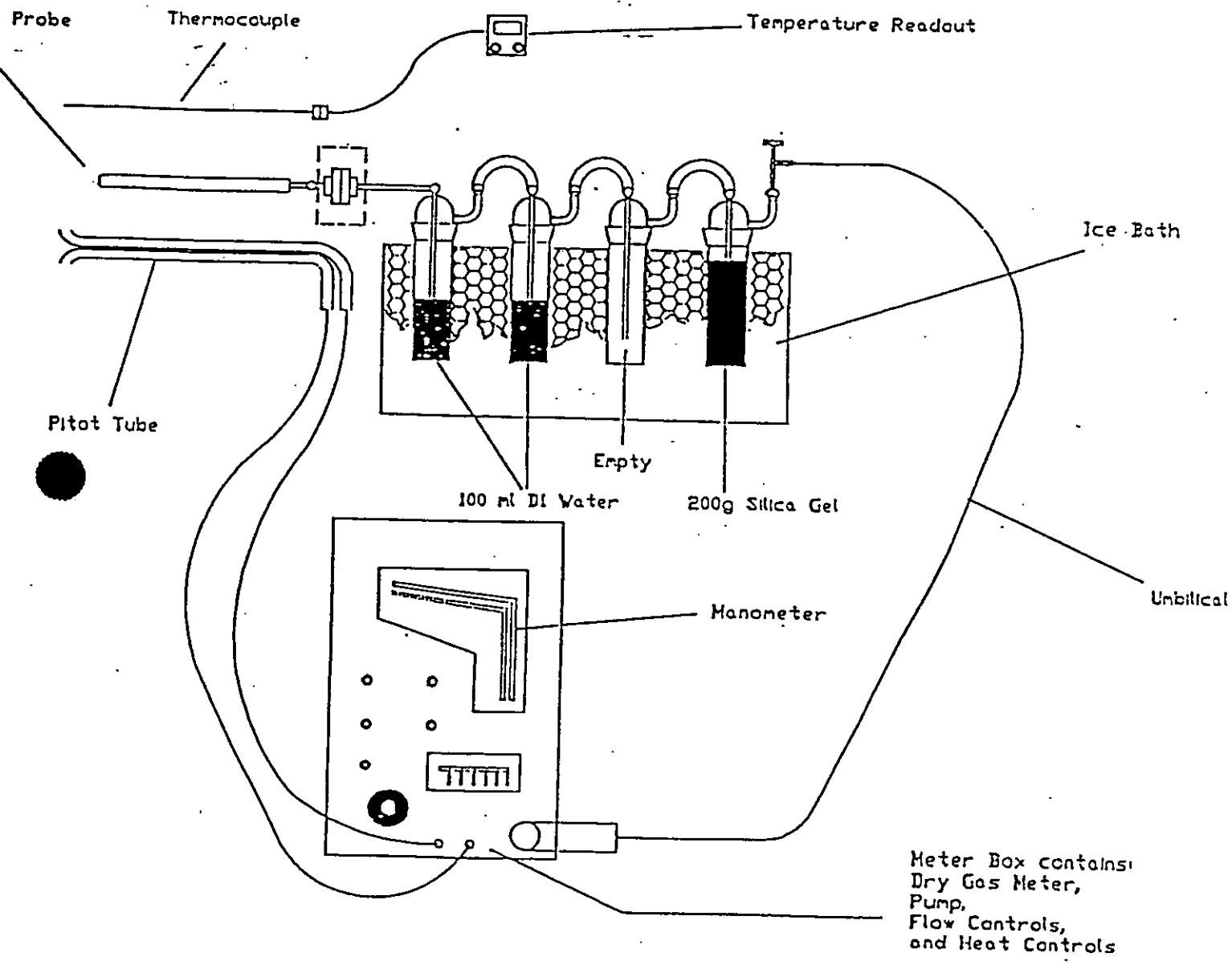


Figure 3-3 Method 2 and 4 Sampling Train

SECTION 4
DATA REPORTING

4.1 Data Reporting

A flow chart depicting the measurement data reporting scheme is shown in Figure 4-1. Figure 4-2 presents the analytical data validation and reporting scheme routinely used at TRC.

All data was reported in standard units depending on the measurement and the ultimate use of the data. The bulk of the data was computer processed and reported as follows:

- Gas Properties:
  a. Moisture %
  b. Flow rate, dscfm and acfm
  c. Pressure, in. Hg
  d. Temperature, °F

- Total Gaseous non-methane Organics as PPMC
- Total Hydrocarbons: lbs/hr as Propane.

Results of the testing conducted at the IBP plant on the Wet Cooker exhaust are contained in Table 4-1.

Results of the testing conducted at the IBP plant on the Blood Furnace exhaust are contained in Table 4-2.

Results of the testing conducted at the IBP plant on the Hydrolizer exhaust are contained in Table 4-3.

Results of the testing conducted at the IBP plant on the Melt Tank exhaust are contained in Table 4-4.

Table 4-1. Test Results - Wet Cooker Exhaust

Summary of Emission Rates
Wet Cooker Exhaust

Run No.	**2**	**3**	**4**	
Date	**22-Aug-96**	**22-Aug-96**	**22-Aug-96**	
Start Time	**09:44**	**10:54**	**12:27**	
Stop Time	**10:44**	**11:54**	**13:27**	**AVERAGES**
Barometric Pressure, in. Hg	29.50	29.50	29.50	29.50
Moisture, % (Wet /Dry Bulb Method)	3.8	3.7	3.8	3.8
Dry Mole Fraction, 100-%M	0.9620	0.9630	0.9620	0.9623
CO2, %	0.0	0.0	0.0	0.0
O2, %	20.9	20.9	20.9	20.9
N2, %	79.1	79.1	79.1	79.1
Dry Molecular Weight, lb/lb mole	28.84	28.84	28.84	28.84
Wet Molecular Weight, lb/lb mole	28.42	28.44	28.42	28.43
Stack Area, sq. in. (10" Dia.)	78.5	78.5	78.5	78.5
Static Pressure, in. of H2O	1.05	1.05	1.05	1.05
Stack Pressure, in. of Hg	29.58	29.58	29.58	29.58
Avg. Stack Temp., F	92.0	94.0	95.0	93.7
Avg. Sqroot of Delta P	1.0575	1.0498	1.0516	1.0530
SDE Average	24.846	24.709	24.774	24.776
Pitot Coefficient	0.84	0.84	0.84	0.84
Stack Gas Velocity, afpm	3692.5	3671.6	3681.9	3682.0
Stack Flowrate, wet acfm	2,013	2,002	2,007	2,007
Stack Flowrate, dry scfm	1,831	1,816	1,816	1,821
Stack Flowrate, dry scf/hr	109,862	108,957	108,953	
Total Hydrocarbon Data, Method 25				
Concentration, ppm as Carbon				
Condensible	169	94	460	241
Non-Condensible	206	173	193	191
TOTAL (ppm) less Blank	375	267	653	432
Concentration, lb/dscf x 10-6 as Carbon	11.668	8.307	20.317	13.431
Emission Rate, lbs/hr as Carbon	1.3	0.9	2.2	1.5

Table 4-2. Test Results - Blood Furnace Exhaust

IBP Logansport, IA (Blood Furnace)

Run No.	1	2	3	
Date	20-Aug-96	20-Aug-96	20-Aug-96	
Start Time	13:42	14:50	16:02	
Stop Time	14:42	15:50	17:02	AVERAGES
Barometric Pressure, in. Hg	29.30	29.30	29.30	29.30
Moisture, % (Wet/Dry Bulb)	17.7	17.8	17.9	17.8
Dry Mole Fraction, 100-%M	0.8230	0.8220	0.8210	0.8220
CO2 at Stack, % dry	1.5	1.5	1.0	1.3
O2 at Stack, % dry	18.5	18.5	19.5	18.8
CO + N2, % dry	80.0	80.0	79.5	79.8
Dry Molecular Weight, lb/lb mole	28.98	28.98	28.94	28.97
Wet Molecular Weight, lb/lb mole	27.04	27.03	26.98	27.01
Stack Diameter, in	18	18	18	
Stack Area, sq. in. (@ pitot meas. location)	254.5	254.5	254.5	254.5
Static Pressure, in. of H2O	1.55	1.55	1.55	1.55
Stack Pressure, in. of Hg	29.41	29.41	29.41	29.41
Avg. Stack Temp., F	195.0	193.0	199.0	195.7
Avg. Sqroot of Delta P	0.6321	0.6307	0.6361	0.6330
SDE Average	16.177	16.117	16.329	16.208
Pitot Coefficient	0.84	0.84	0.84	0.84
Stack Gas Velocity, afpm	2472.0	2463.3	2497.8	2477.7
Stack Flowrate, wet acfm	4,368	4,353	4,414	4,378
Stack Flowrate, dry scfm	2,849	2,844	2,854	2,849
Stack Flowrate, dry scf/hr	170,946	170,655	171,262	
Stack Flowrate, wet scf/hr	2.0771E+05	2.0761E+05	2.0860E+05	
Total Hydrocarbons ppmv as CH4	31.52	16.91	10.08	19.50
Total Hydrocarbons Lb/Hr as CH4	0.223	0.120	0.072	0.138

Calculations

Analyte	CH4	CH4	CH4
FWhc lbs/lb-mole	16	16	16
Stack Flowrate, dry scf/hr	170,946	170,655	171,262
Moisture, %	17.7	17.8	17.9
Cppmv	37.83	22.20	21.48
Cppmv minus CH4	31.52	16.91	10.08
Hydrocarbons Emissions (lbs/hr)	**0.223**	**0.120**	**0.072**

Lbs/Hr = Cppmv minus CH4 * FWhc * (Stack Flowrate(dscf/hr) / 60) * (1.554 * 10^-7)

Table 4-3. Test Results - Hydrolizer Exhaust

IBP Logansport, IA (Hydrolizer)

Run No.	**1**	**2 Flow only**	
Date	**21-Aug-96**	**21-Aug-96**	
Start Time	**09:18**	**10:36**	
Stop Time	**11:16**	**11:16**	**Averages**
Barometric Pressure, in. Hg	29.50	29.50	29.50
Moisture, % (Wet/Dry Bulb)	31.0	31.0	31.00
Dry Mole Fraction, 100-%M	0.6900	0.6900	0.69
CO2 at Stack, % dry	15.0	15.0	15.00
O2 at Stack, % dry	2.0	2.0	2.00
CO + N2, % dry	83.0	83.0	83.00
Dry Molecular Weight, lb/lb mole	30.48	30.48	30.48
Wet Molecular Weight, lb/lb mole	26.61	26.61	26.61
Stack Diameter, in	8	8	8.00
Stack Area, sq. in. (@ pitot meas. location)	50.3	50.3	50.27
Static Pressure, in. of H2O	0.89	0.90	0.90
Stack Pressure, in. of Hg	29.57	29.57	29.57
Avg. Stack Temp., F	212.0	212.0	212.00
Avg. Sqroot of Delta P	1.0992	1.1221	1.11
SDE Average	28.495	29.088	28.79
Pitot Coefficient	0.84	0.84	0.84
Stack Gas Velocity, afpm	4377.6	4468.7	4423.15
Stack Flowrate, wet acfm	1,528	1,560	1543.97
Stack Flowrate, dry scfm	819	836	827.14
Stack Flowrate, dry scf/hr	49,117	50,141	49,629
Stack Flowrate, wet scf/hr	71,184	72,667	71,925
Total Hydrocarbons ppmv as C3H8	52.14		
Total Hydrocarbons Lb/Hr as C3H8	0.107		

Calculations

Analyte	CH4
FWhc lbs/lb-mole	16
Stack Flowrate, dry scf/hr	49,629
Moisture, %	31.0
Cppmv	67.71
Cppmv minus CH4	52.14
Hydrocarbons Emissions (lbs/hr)	**0.107**

Lbs/Hr = Cppmv minus CH4 * FWhc * (Stack Flowrate(dscf/hr) / 60) * (1.554 * 10^-7)

Table 4-4. Test Results - Melt Tank Exhaust

IBP Logansport, IA (Melt Tank)

Run No.	**1**
Date	**22-Aug-96**
Start Time	**12:45**
Stop Time	**13:15**
Barometric Pressure, in. Hg	29.50
Total Hydrocarbons ppmv as C3H8	154.35

Calculations

Analyte	CH4
FWhc lbs/lb-mole	16
Stack Flowrate, dry scf/hr	n/a
Moisture, %	n/a
Cppmv	229.95
Cppmv minus CH4	154.35

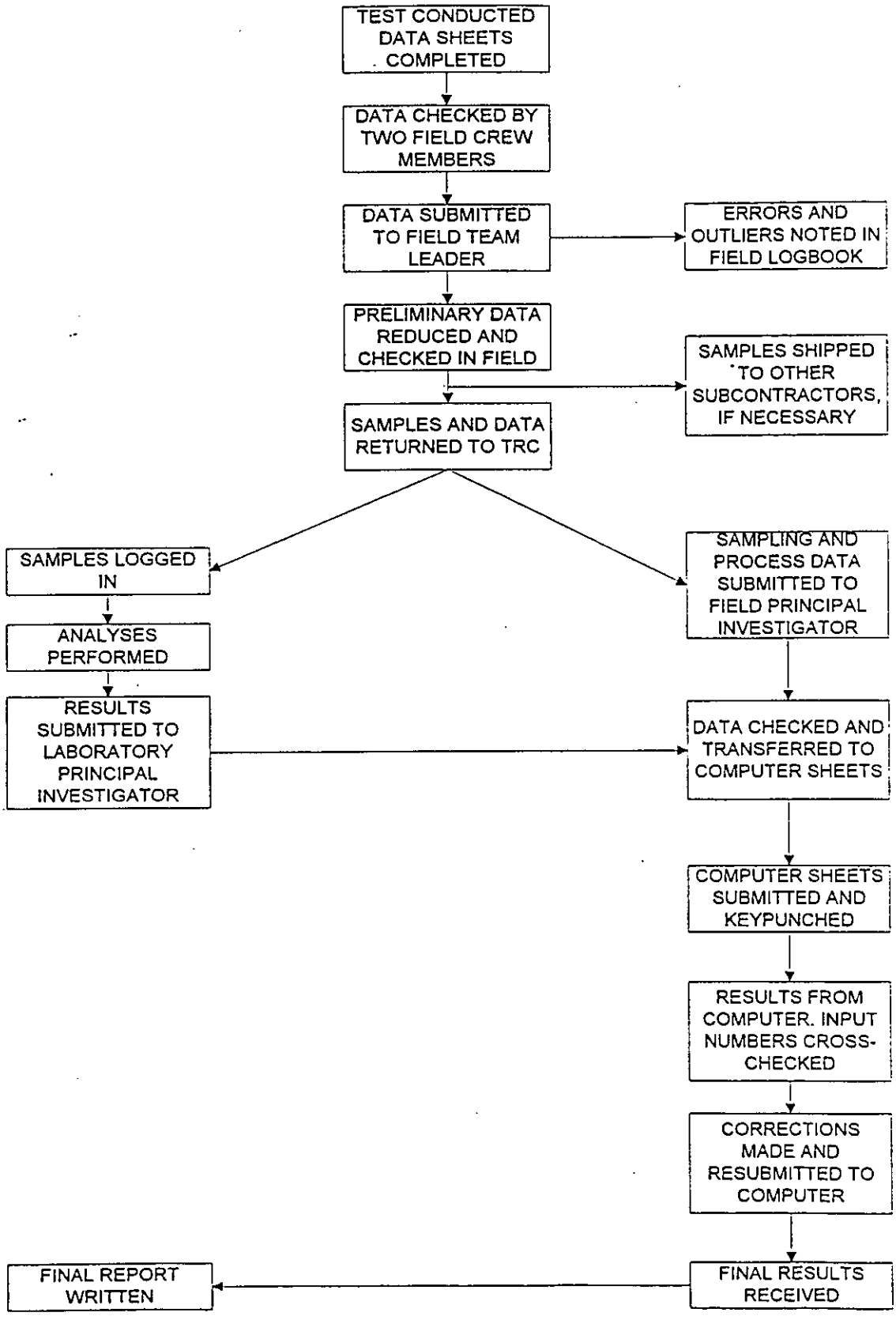


Figure 4-1. Measurement Data Flow Scheme

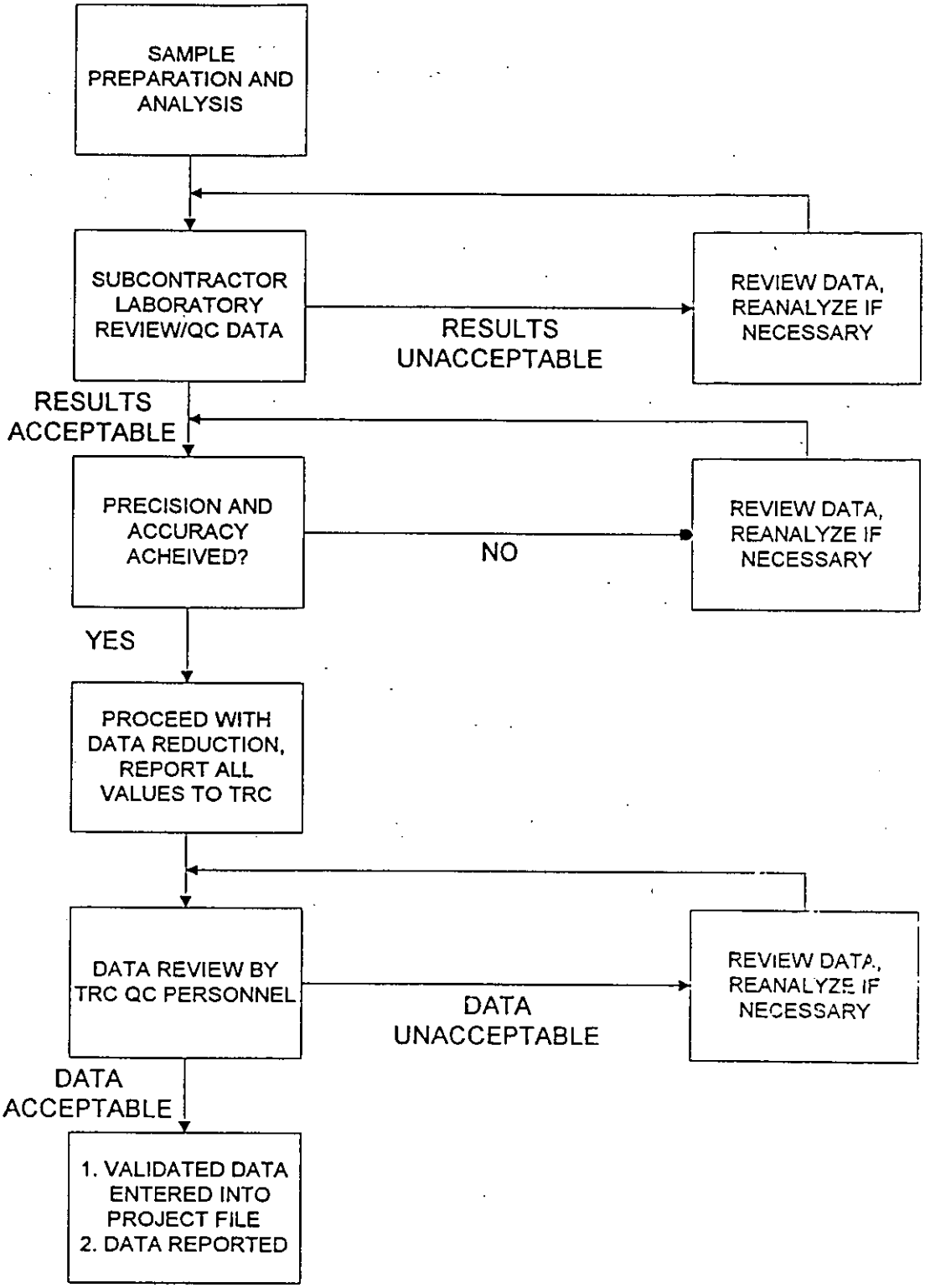


Figure 4-2. Analytical Data Report Scheme

APPENDIX A

RAW FIELD DATA SHEETS AND DATA LOGGER PRINTOUTS

WET BULB / DRY BULB MOISTURE DETERMINATION

Client	IBP Logansport
Date	8/22/1996
Project Number	20974-0000-00000
Plant	Logansport, IN
Sampling Location	exhaust stack
Source	Wet Cooker
Run Number	2

Barometric Pressure	29.5
Static Pressure	1.05
Temperature (Dry)	92
Temperature (Wet)	84
S. V. P. (at Twet) (Water Saturation Vapor Pressure (PSI))	0.59
PST	0.0772
PS	29.5772
Vapor Pressure	1.1115
%Moisture	3.7581
Md	0.9624

WET BULB / DRY BULB MOISTURE DETERMINATION

Client	IBP Logansport
Date	8/22/1996
Project Number	20974-0000-00000
Plant	Logansport, IN
Sampling Location	exhaust stack
Source	Wet Cooker
Run Number	3

Barometric Pressure	29.5
Static Pressure	1.05
Temperature (Dry)	94
Temperature (Wet)	84
S. V. P. (Water Saturation Vapor Pressure (PSI))	0.59
PST	0.0772
PS	29.5772
Vapor Pressure	1.0891
%Moisture	3.6822
Md	0.9632

WET BULB / DRY BULB MOISTURE DETERMINATION

Client	IBP Logansport
Date	8/22/1996
Project Number	20974-0000-00000
Plant	Logansport, IN
Sampling Location	exhaust stack
Source	Wet Cooker
Run Number	4

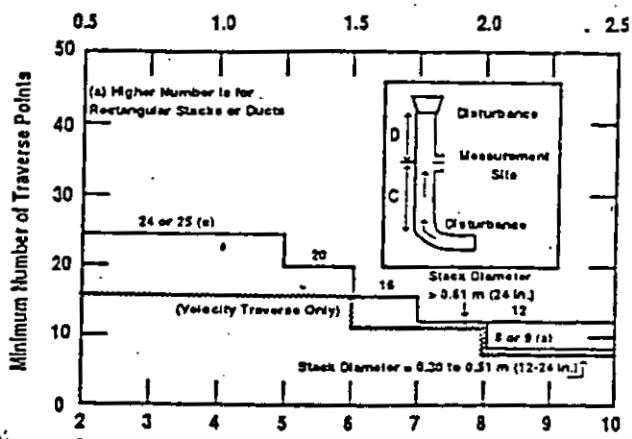
Barometric Pressure	29.5
Static Pressure	1.05
Temperature (Dry)	95
Temperature (Wet)	85
S. V. P. (Water Saturation Vapor Pressure (PSI))	0.6
PST	0.0772
PS	29.5772
Vapor Pressure	1.1094
%Moisture	3.7508
Md	0.9625

Traverse Point Location for Circular and Rectangular Ducts

Project No.: 20974
Client: IBP Logan Port IND
Date: 8-20-96
Sampling Location: Wet Cooker
Internal Stack Diameter: 10"
Nipple Length: 0
Total Stack Diameter: 10"
Nearest Upstream Disturbance (C): 24' ~~2.4 Dia~~ 2.8 Dia
Nearest Downstream Disturbance (D): 32" 3.2 Dia
Calculator: SM
Ground level
Ts= 120°F 7.5% Moisture

Traverse Point Number	1 Fraction of Stack ID ($\frac{1}{100}$)	2 Stack ID	3 Traverse Point (1 x 2=Point)	4 Nipple Length	5 Traverse Point Inside of Far Wall to Outside of Port Nipple (3 + 4 = Point)
1	.032	10"	.32	N/A	.5
2	.105		1.05		1.05
3	.194		1.94		1.9
4	.323		3.23		3.2
5	.677		6.77		6.8
6	.806		8.06		8.1
7	.895		8.95		9.0
8	.968		9.68		9.5
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

Duct Diameter Upstream from Flow Disturbance (Distance D)



Duct Diameter Downstream from Flow Disturbance (Distance C) from Point of any Type Disturbance (Bend, Contraction, etc.)

Rectangular Duct Equivalent Diameter Determination = $\frac{2xLxW}{L+W}$

Location of Traverse Points in Circular Stacks

	4	6	8	10	12	14	16	18	20	22	24
1	5.7	4.4	3.2	2.6	2.1	1.3	1.5	1.4	1.3	1.1	1.1
2	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.6	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.5	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Traverse Points in Rectangular Stacks

	2	3	4	5	6	7	8	9	10	11	12
1	25.0	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75.0	50.0	37.5	30.0	25.0	21.4	18.8	15.7	15.0	13.5	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50.0	43.8	38.9	35.0	31.8	29.2
5				90.0	75.0	64.3	56.3	50.0	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50.0	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	85.4	79.2
11										95.5	87.5
12											95.8

M-225

TRC

VELOCITY TRAVERSE

Plant: IBP	Date: 8/22/96
Unit Number: WET COOKER	Stack Diameter (in.): 10"
Load Condition: NORM/PEAK	Stack Gauge Pressure ("H_2O): +1.05
Run No.: 2	Operators: SM/DW
Project No.: 20974-0	
Barometric Pressure at Ground Level ("Hg): 29.50	
Pitot Tube ID:	
Pitot Tube Coefficient: .84	Port Change Pitot Leak Check — Pass / Fail
Estimated Stack CO_2%:__ O_2%:__ H_2O%:__	Port #1 ___ ___
Platform Elevation (feet): ground	Port #2 ___ ___
Schematic of Stack Cross Section:	Port #3 ___ ___
	Port #4 ___ ___
	$\sqrt{\Delta P}_{avg}$ = 1.0575
WET BulB = 84°F DryBulB = 92°F	T_{savg}

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1	1.00	107
2	1.05	107
3	1.10	107
4	1.10	107
5	1.10	108
6	1.15	107
7	1.10	107
8	1.15	107
Average:		

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1	1.15	104
2	1.15	104
3	1.10	104
4	1.10	105
5	1.15	104
6	1.20	103
7	1.15	103
8	1.15	103
Average:		

Reference: 40 CFR 60, Appendix A, Method 2

TRC

FORM 75-5

VELOCITY TRAVERSE

Plant: IBP	Date: 8/22/96
Unit Number: WET COOKER	Stack Diameter (in.): 10"
Load Condition: PEAK / NORM	Stack Gauge Pressure ("H_2O): +1.05
Run No.: 3	Operators: DW / SM
Project No.: 20974-0	
Barometric Pressure at Ground Level ("Hg): 29.50	
Pitot Tube ID:	
Pitot Tube Coefficient: .84	Port Change Pitot Leak Check — Pass / Fail
Estimated Stack CO_2%:___ O_2%:___ H_2O%:___	Port #1 — —
Platform Elevation (feet): 6'	Port #2 — —
Schematic of Stack Cross Section: SEE R1	Port #3 — —
WET Bulb =	Port #4 — —
DRY Bulb =	$\sqrt{\Delta P_{avg}}$ = 1.0498

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1	1.15	106
2	1.15	106
3	1.20	106
4	1.15	106
5	1.10	106
6	1.15	105
7	1.10	105
8	1.10	105
Average:		

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1	1.10	103
2	1.00	104
3	1.05	104
4	1.15	104
5	1.20	104
6	1.05	103
7	1.00	103
8	1.00	103
Average:		

Reference: 40 CFR 60, Appendix A, Method 2

TRC

FORM 7S-3

VELOCITY TRAVERSE

Plant: IBP	Date: 4/22/96
Unit Number: WET COOKER	Stack Diameter (in.): 10"
Load Condition: PEAK / NORM	Stack Gauge Pressure ("H_2O): +1.05
Run No.: 4	Operators: DWilson
Project No.: 20974-0	
Barometric Pressure at Ground Level ("Hg): 29.50	
Pitot Tube ID:	
Pitot Tube Coefficient: .84	Port Change Pitot Leak Check — Pass / Fail
Estimated Stack CO_2%: ___ O_2%: ___ H_2O%: ___	Port #1 ___ ___
Platform Elevation (feet):	Port #2 ___ ___
Schematic of Stack Cross Section:	Port #3 ___ ___
WET BULB DRY BULB	Port #4 ___ ___ $\sqrt{\Delta P_{avg}}$ 1.0516 Ts

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1	1.0	106
2	1.05	106
3	1.1	106
4	1.1	105
5	1.1	105
6	1.15	105
7	1.15	103
8	1.1	103
Average:		

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1	1.1	103
2	1.1	104
3	1.05	104
4	1.15	105
5	1.15	105
6	1.20	104
7	1.1	104
8	1.1	104
Average:		

Reference: 40 CFR 60, Appendix A, Method 2

TRC

Method 25 Field Data

Project Number: 20974-0 Client: IBP

Facility: IBP LOGANS Sample Location: WET COOKER

Location: LOGANSPORT Operator: DW

Date: 8/21/98 Run Number: R2

Tank Number: 274 Trap Number: ATA Sample I.D. R2

	Tank Vacuum		Barometric Pressure		Ambient Temperature
	Manometer mm/cm Hg	Gauge mm/cm Hg/in Hg	mm/cm Hg/in. Hg		C/F
Pretest	738	30	29.50	749	90F
Post Term	~~3~~94	4	29.50	749	90F

Pretest Leak Rate (mm/cm Hg/5 min): 5 Hg/5min

WET Bulb 84
DRY 93

Clock Time	Sample Time	Gauge Vacuum mm/cm Hg	Flowmeter Setting mL	Temperature Probe C/F	Temperature Box C/F	Comments
944	0	30	130	120	120	
		27.5				
954	10	25				
		22.5				
1004	20	20				
		18				
1014	30	16				
		14				
1024	40	12				
		10				
1034	50	8				
		6				
1044	60	4				

TR

Method 25 Field Data

Project Number: 20974-0 Client: IBP

Facility: IBP Sample Location: WET COOKER

Location: LOGANSPORT Operator: DW

Date: 8/22/96 Run Number: R3

Tank Number: 105 Trap Number: CE Sample I.D. R3

	Tank Vacuum		Barometric	Ambient
	Manometer (mm/cm Hg)	Gauge mm/cm Hg/(in Hg)	Pressure mm/cm Hg/in. Hg	Temperature C/(F)
Pretest	738	29	29.58 749	90F
Post Term	58	3	749	90F

Pretest Leak Rate (mm/cm Hg/5 min): 6

Clock Time	Sample Time	Gauge Vacuum mm/cm Hg	Flowmeter Setting mL	Temperature Probe C/F	Temperature Box C/F	Comments
1054	0	29	130	120	120	
		27		↓	↓	
1104	10	25				
		22.5				
1114	20	20				
		17.5				
1124	30	15				
		13				
1134	40	11				
		9				
1144	50	7				
		5				
1154	60	3				

TR

Method 25 Field Data

Project Number: 20974-0 Client: IBP

Facility: IBP Sample Location: WET COOKER

Location: LOGANSPORT Operator: DW

Date: 8/22/96 Run Number: R4

Tank Number: 154 Trap Number: ATC Sample I.D. R4

	Tank Vacuum		Barometric Pressure	Ambient Temperature
	Manometer (mm/cm Hg)	Gauge (mm/cm Hg/in Hg)	mm/cm Hg/in. Hg	C/F
Pretest	740	30	29.50 749	90F
Post Term		3	749	90F

Pretest Leak Rate (mm/cm Hg/5 min): 8

Clock Time	Sample Time	Gauge Vacuum mm/cm Hg	Flowmeter Setting mL	Temperature Probe (C)/F	Temperature Box (C)/F	Comments
12:27	0	30	130	120	120	
	~~05~~	27.5	↓	↓	↓	
37	10	25				
	20	22.5	↓	↓	↓	
47		20	↓	↓	↓	
	~~30~~	17.5				
57	30	15				
	~~40~~	12.5				
1307	40	11.0				
	~~45~~	9				
1317	50	7				
	~~60~~ 55	5				
1327	60	3				

TR

Method 25 Field Data

Project Number: 20974-0 Client: IBP

Facility: IBP Sample Location: WET COOKER

Location: LOS ANGELES Operator: DW

Date: 8/22/96 Run Number: BLANK

Tank Number: 221 Trap Number: CL Sample I.D. BLANK

	Tank Vacuum		Barometric	Ambient
	Manometer mm/cm Hg	Gauge mm/cm Hg/in Hg	Pressure mm/cm Hg/in. Hg	Temperature C/F
Pretest	0	0	749	90F
Post Term	0	0	749	90F

Pretest Leak Rate (mm/cm Hg/5 min): N/A

Clock Time	Sample Time	Gauge Vacuum mm/cm Hg	Flowmeter Setting mL	Temperature Probe C/F	Temperature Box C/F	Comments

TR

Orsat Analysis

Project No. 20974-0 Date 8/22/96

Client IBP Run 1-3 or 2-4

Facility LOGANSPORT, IN Operator DW, SM

Source WET COOKER Comments:

Sample Location EXHAUST STACK

QC Checkoff - Pretest

Orsat Leak Checked (yes) no Expiration Date of Reagents

Purge System with Sample Gas YES

Ambient Air Check CO_2 0.0 O_2 20.9

Audit Gas Check (measured/actual): CO_2 / O_2 / CO /

Sample Point	Time	CO_2 Reading 1	(O_2) Reading 2		(CO) Reading 3		F_o
			Actual	Net	Actual	Net	
~~R1~~							
R2	10.30	0.0		20.9			
R3	11.30	0.0		20.9			
R4	13.00	0.0		20.9			

Net O_2 reading = Reading 2 - Reading 1 (Actual)

Net CO reading = Reading 3 - Reading 2 (Actual)

QC Validation

Calculate F_o

$$F_o = \frac{20.9 - \%O_2}{\%CO_2}$$

Fuel

Reported F_o

Expected F_o Ranges

Anthracite/Lignite	1.013 - 1.130
Bituminous	1.083 - 1.230
Distillate Oil	1.260 - 1.413
Residual Oil	1.210 - 1.370
Natural Gas	1.500 - 1.836
Wood Bark	1.000 - 1.120
Municipal Garbage	1.040 - 1.177

Other

TRC

Run 1

DATE:	20-Aug-96	CLIENT REP:	Rechelle Kruse
PLANT:	IBP	WITNESSED?:	yes
?C TYPE		BURNER TYPE:	N/A
OPERATOR:	SM, DW	GENERATOR TYPE:	N/A
TEST LOCATION:	Blood Furnace	O2 GENERATOR TYPE:	N/A

CALIBRATION GASES

O2	CO2	CO	S02	NOx	THC outlet
0	0	0	0	0	0
N/A	N/A	N/A	N/A		29.68
N/A	N/A	N/A	N/A		49.42
					83.47

END TIME	SAMPLE POINT	O2 wet	CO2 ppm	SO2 ppm	THC Outlet ppm	CO ppm	NOx ppm	COMMENTS a
14:42	1				12.97			
	AVERAGES	ERR	ERR	ERR	12.97	ERR	ERR	

Barometric Pres: 29.3

EFFLUENT GAS CONCENTRATION, WET BASIS, PPM

	O2	CO2	SO2	THC Outlet	CO	NOx
PRE ZERO	0		0	0	0	0
POST ZER	0		0	1		0
ACT SPAN	N/A	N/A	N/A	29.68	N/A	N/A
PRE SPAN	0		0	31.7		0
POST SPA	0		0	28		0
GAS CONC	ERR	ERR	ERR	12.61	ERR	ERR

EFFLUENT GAS CONC CALCULATION

GAS CONC. = (Avg Stk Conc - Avg Zero Cal) * (Span Conc/(Avg Span Cal - Avg Zero Cal))

Run 2

DATE: 20-Aug-96 **CLIENT REP:** Rechelle Kruse

PLANT: IBP **WITNESSED?:** yes

)C TYPE **BURNER TYPE:** N/A

OPERATOR: SM, DW **GENERATOR TYPE:** N/A

TEST LOCATION: Blood Furnace **O2 GENERATOR TYPE:** N/A

CALIBRATION GASES

O2	CO2	CO	S02	NOx	THC outlet
0	0	0	0	0	0
N/A	N/A	N/A	N/A		29.68
N/A	N/A	N/A	N/A		49.42
					83.47

END TIME	SAMPLE POINT	O2 wet	CO2 ppm	SO2 ppm	THC Outlet ppm	CO ppm	NOx ppm	COMMENTS a
15:50	1				8.67			
	AVERAGES	ERR	ERR	ERR	8.67	ERR	ERR	

Barometric Pres: 29.3

EFFLUENT GAS CONCENTRATION, WET BASIS, PPM

	O2	CO2	SO2	THC Outlet	CO	NOx
PRE ZERO	0		0	1	0	0
POST ZER(	0		0	1		0
ACT SPAN	N/A	N/A	N/A	29.68	N/A	N/A
PRE SPAN	0		0	28		0
POST SPAI	0		0	35.5		0
GAS CONC	ERR	ERR	ERR	7.40	ERR	ERR

EFFLUENT GAS CONC CALCULATION

GAS CONC. = (Avg Stk Conc - Avg Zero Cal) * (Span Conc/(Avg Span Cal - Avg Zero Cal))

Run 3

DATE:	20-Aug-96	**CLIENT REP:**	Rechelle Kruse
PLANT:	IBP	**WITNESSED?:**	yes
QC TYPE		**BURNER TYPE:**	N/A
OPERATOR:	SM, DW	**GENERATOR TYPE:**	N/A
TEST LOCATION:	Blood Furnace	**O2 GENERATOR TYPE:**	N/A

CALIBRATION GASES

O2	CO2	CO	S02	NOx	THC outlet
0	0	0	0	0	0
N/A	N/A	N/A	N/A		29.68
N/A	N/A	N/A	N/A		49.42
					83.47

END TIME	SAMPLE POINT	O2 wet	CO2 ppm	SO2 ppm	THC Outlet ppm	CO ppm	NOx ppm	COMMENTS a
17:02	1				8.25			
	AVERAGES	ERR	ERR	ERR	8.25	ERR	ERR	

Barometric Pres: 29.3

EFFLUENT GAS CONCENTRATION, WET BASIS, PPM

	O2	CO2	THC Inlet	THC Outlet	CO	NOx
PRE ZERO	0		0	1	0	0
POST ZERO	0		0	0.5		0
ACT SPAN	N/A	N/A	N/A	49.42	N/A	N/A
PRE SPAN	0		0	50		0
POST SPAN	0		0	55		0
GAS CONC	ERR	ERR	ERR	7.16	ERR	ERR

EFFLUENT GAS CONC CALCULATION

GAS CONC. = (Avg Stk Conc - Avg Zero Cal) * (Span Conc/(Avg Span Cal - Avg Zero Cal))

Calculations

Analyte		C3H8	C3H8	C3H8
FWhc lbs/lb-mole		44	44	44
Stack Flowrate, dry scf/hr		35,298	35,298	35,298
Moisture, %		17.7	17.8	17.9
Cppmv		12.61	7.40	7.16
Cppmv minus CH4		10.51	5.64	3.36
Hydrocarbons Emissions	(lbs/hr)	**0.423**	**0.227**	**0.135**

Lbs/Hr = Cppmv minus CH4 • FWhc • (Stack Flowrate(dscf/hr) / 60) • (1.554 • 10^4)

WET BULB / DRY BULB MOISTURE DETERMINATION

Client	IBP Logansport
Date	8/20/1996
Project Number	20974-0000-00000
Plant	Logansport, IN
Sampling Location	roof vent
Source	Blood Furnace
Run Number	1

Barometric Pressure	29.3
Static Pressure	1.55
Temperature (Dry)	199
Temperature (Wet)	139
S. V. P. (at Twet) (Water Saturation Vapor Pressure (PSI))	2.9
PST	0.1140
PS	29.4140
Vapor Pressure	5.2126
%Moisture	17.7215
Md	0.8228

WET BULB / DRY BULB MOISTURE DETERMINATION

Client	IBP Logansport
Date	8/20/1996
Project Number	20974-0000-00000
Plant	Logansport, IN
Sampling Location	roof vent
Source	Blood Furnace
Run Number	2

Barometric Pressure	29.3
Static Pressure	1.55
Temperature (Dry)	193
Temperature (Wet)	136
S. V. P. (at Twet) (Water Saturation Vapor Pressure (PSI))	2.9
PST	0.1140
PS	29.4140
Vapor Pressure	5.2484
%Moisture	17.8431
Md	0.8216

WET BULB / DRY BULB MOISTURE DETERMINATION

Client	IBP Logansport
Date	8/20/1996
Project Number	20974-0000-00000
Plant	Logansport, IN
Sampling Location	roof vent
Source	Blood Furnace
Run Number	3

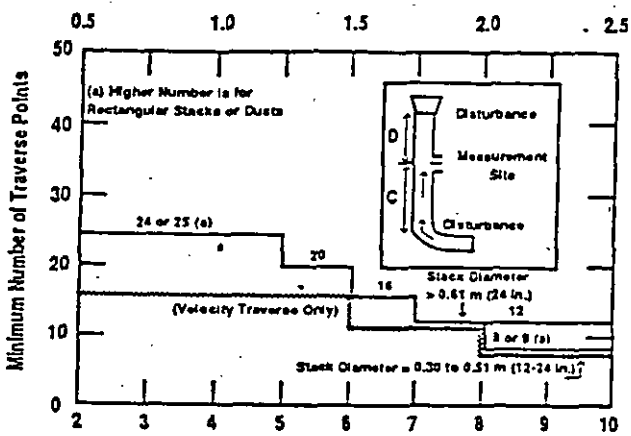
Barometric Pressure	29.3
Static Pressure	1.55
Temperature (Dry)	195
Temperature (Wet)	140
S. V. P. (at Twet) (Water Saturation Vapor Pressure (PSI))	2.9
PST	0.1140
PS	29.4140
Vapor Pressure	5.2699
%Moisture	17.9162
Md	0.8208

Traverse Point Location for Circular and Rectangular Ducts

Project No.: 20974-0000-60000
Client: IBP LOGANSPORT IND.
Date: 8-20-96
Sampling Location: BLOOD FURNACE
Internal Stack Diameter: 18"
Nipple Length: 0
Total Stack Diameter: 18"
Nearest Upstream Disturbance (C): 14' 9.3 DIA
Nearest Downstream Disturbance (D): 20' 13.3 DIA
Calculator: SM
ROOF level
T_S = 194°F

Traverse Point Number	1 Fraction of Stack ID ($\frac{1}{100}$)	2 Stack ID	3 Traverse Point (1 x 2=Point)	4 Nipple Length	5 Traverse Point Inside of Far Wall to Outside of Port Nipple (3 + 4 = Point)
1	.044	18"	.792	N/A	.8
2	.146		2.63		2.6
3	.296		5.33		5.3
4	.704		12.67		12.7
5	.854		15.37		15.4
6	.956		17.21		17.2
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

Duct Diameter Upstream from Flow Disturbance (Distance D)



Duct Diameter Downstream from Flow Disturbance (Distance C) from Point of any Type Disturbance (Bend, Contraction, etc.)

Rectangular Duct Equivalent Diameter Determination = $\frac{2xLxW}{L+W}$

Location of Traverse Points in Circular Stacks

	4	6	8	10	12	14	16	18	20	22	24
1	5.7	4.4	3.2	2.6	2.1	1.3	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.5	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.5	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.5	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.5	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.3	94.5
23											96.8
24											98.9

Location of Traverse Points in Rectangular Stacks

	2	3	4	5	6	7	8	9	10	11	12
1	25.0	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75.0	50.0	37.5	30.0	25.0	21.4	18.8	15.7	15.0	13.5	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50.0	43.8	38.9	35.0	31.8	29.2
5				90.0	75.0	64.3	56.3	50.0	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50.0	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

AF-235

TRC

FORM 75-5

VELOCITY TRAVERSE

Plant: IBP Logans Pert	Date: 8-20-96
Unit Number: Blood Furnace	Stack Diameter (in.): 18.0
Load Condition: Normal/Peak	Stack Gauge Pressure ("H_2O): +1.55
Run No.: 1	Operators: SM/DW
Project No.: 20974	
Barometric Pressure at Ground Level ("Hg): 29.30	
Pitot Tube ID:	
Pitot Tube Coefficient: .84	Port Change Pitot Leak Check — Pass / Fail
Estimated Stack CO_2%: 1.0 O_2%: 19.0 H_2O%: —	Port #1: ✓ / —
Platform Elevation (feet): 25'	Port #2: ✓ / —
Schematic of Stack Cross Section:	Port #3: — / —
O_2 18.5%	Port #4: — / —
CO_2 1.5%	$\sqrt{\Delta P}$: .6321
195 Dry Bulb	T_S: 195°F
140 wet Bulb 17% M	

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1A	.37	195
2	.40	195
3	.42	195
4	.39	195
5	.40	195
6	.39	195
Average:	.3950	195

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1B	.37	195
2	.40	195
3	.41	195
4	.43	195
5	.46	195
6	.36	195
Average:	.4050	195

Reference: 40 CFR 60, Appendix A, Method 2

TRC

FORM 75-5

VELOCITY TRAVERSE

Plant: IBP Logansport	Date: 8/20/96
Unit Number: Blood furnace	Stack Diameter (in.): 18"
Load Condition: Norm/Part	Stack Gauge Pressure ("H_2O): +1.55
Run No.: 2	Operators: SM/DW
Project No.: 20974-0	
Barometric Pressure at Ground Level ("Hg): 29.30	
Pitot Tube ID:	
Pitot Tube Coefficient: .84	Port Change Pitot Leak Check — Pass / Fail
Estimated Stack CO_2%: 1 O_2%: 19 H_2O%: —	Port #1 — —
Platform Elevation (feet): 25'	Port #2 — —
Schematic of Stack Cross Section:	Port #3 — —
O_2 = 18.5 CO_2 = 1.5 Dry Bulb - 193 Wet Bulb - 136 17% M	Port #4 — —
	$\sqrt{\Delta p}_{avg}$ = .6307 $T_{s\,avg}$ = 193

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1	.34	
2	.40	
3	.41	
4	.42	
5	.41	
6	.37	
Average:		

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1	.41	
2	.44	
3	.43	
4	.36	
5	.41	
6	.38	
Average:		

Reference: 40 CFR 60, Appendix A, Method 2

TRC

VELOCITY TRAVERSE

Plant: IBP Logansport	Date: 8/20/96
Unit Number: Blood Furnace	Stack Diameter (in.): 18"
Load Condition: Norm/Peak	Stack Gauge Pressure ("H_2O): +1.55
Run No.: 3	Operators: Sm/DW
Project No.: 20974-0	
Barometric Pressure at Ground Level ("Hg): 29.30	
Pitot Tube ID:	
Pitot Tube Coefficient: .84	Port Change Pitot Leak Check — Pass / Fail
Estimated Stack CO_2%: 1.0 O_2%: 19.5 H_2O%: —	Port #1 — —
Platform Elevation (feet):	Port #2 — —
Schematic of Stack Cross Section:	Port #3 — —
O_2 = 19.5 CO_2 = 1.0 WET BULB = 139 DRY BULB = 199 17%H_2O	Port #4 — —
	$\sqrt{\Delta P}_{avg}$ = .6361
	$T_{s\,avg}$ = 199.0°F

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1A	.35	199
2	.38	199
3	.41	199
4	.43	199
5	.44	199
6	.44	199
Average:	.4083	199

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1B	.38	199
2	.41	199
3	.41	199
4	.40	199
5	.40	199
6	.41	199
Average:	.4017	199

Reference: 40 CFR 60, Appendix A, Method 2

TRC

Orsat Analysis

Project No. 20974-0 Date 8/20/96

Client IBP Run 1-3

Facility LOGANSPORT, IN Operator DW, SM

Source BLOOD FURNACE Comments:

Sample Location Roof EXHAUST

QC Checkoff - Pretest

Orsat Leak Checked (yes/no) Expiration Date of Reagents

Purge System with Sample Gas YES

Ambient Air Check CO_2 0.0 O_2 20.9

Audit Gas Check (measured/actual): CO_2 / O_2 / CO /

Sample Point	Time	CO_2 Reading 1	(O_2) Reading 2		(CO) Reading 3		F_o
			Actual	Net	Actual	Net	
R1	14:00	1.5	20	18.5			
R2	15:10	1.5	20	18.5			
R3	16:30	1.0	20.5	19.5			

Net O_2 reading = Reading 2 - Reading 1 (Actual)

Net CO reading = Reading 3 - Reading 2 (Actual)

QC Validation

Calculate F_o

$$F_o = \frac{20.9 - \%O_2}{\%CO_2}$$

Fuel

Reported F_o

Expected F_o Ranges

Anthracite/Lignite	1.013 - 1.130
Bituminous	1.083 - 1.230
Distillate Oil	1.260 - 1.413
Residual Oil	1.210 - 1.370
Natural Gas	1.600 - 1.836
Wood Bark	1.000 - 1.120
Municipal Garbage	1.043 - 1.177

Other

TRC

R1> INIT 02
NEL NAME: VOC ?
NEL TYPE: 9?
E HOURLY AVERAGES: Y?

R1>
.8124D -.8462D
7.349 5.189
5.612 5.625
.0038D -.0014D
.0034D -.0011D
.0038D -.0028D
.0034D -.0028D

- 08/20/96 DAY= 233 12:42:02 — START Run #1 Blood Furnace

.8801D -.8124D
8.615 9.349
15.94 5.612
.0021 .0038D
.0014D -.0034D
.0031D -.0038D
.0017D -.0034D

- 08/20/96 DAY= 233 12:43:02

.8715D -.8801D
7.672 8.615
42.87 15.94
.0020D -.0021D
.0004D -.0014D
.0007D -.0031D
.0007D -.0017D

- 08/20/96 DAY= 233 12:44:02

01 -.8600D -.8715D
02 7.229 7.672
03 9.109 42.87
04 -.0038D -.0020D
05 -.0041D -.0004D
06 -.0011D -.0007D
07 -.0031D -.0007D

Tue 08/20/96 DAY= 233 12:45:02

01 -.6351D -.8600D
02 7.192 7.229
03 8.793 9.109
04 -.0052D -.0038D
05 -.0078D -.0041D
06 -.0034D -.0011D

Purge Average 8.01 ppm

07 -.00000 -.0031D

Tue - 08/20/96 DAY= 233 12:46:02

01 -.8123D -.6351D
02 6.795✓ 7.192
03 8.814 8.793
04 [redacted]80D -.0050D
05 [redacted]65D -.0072D
06 -.2017D -.0004D
07 -.0031D -.0002D

Tue - 08/20/96 DAY= 233 12:47:02

01 -.7786D -.8123D
02 6.375✓ 6.795
03 8.812 8.814
04 -.0081D -.0052D
05 -.0098D -.0085D
06 -.0024D -.0017D
07 -.0011D -.0031D

Tue - 08/20/96 DAY= 233 12:48:02

01 -.8123D -.7786D
02 6.343✓ 6.375
03 8.822 8.812
04 -.0061D -.0081D
05 -.0088D -.0098D
06 -.0017D -.0024D
07 -.0014D -.0011D

T[redacted]08/20/96 DAY= 233 12:49:02

01 -.8800D -.8123D
02 6.427✓ 6.343
03 8.832 8.822
04 -.0088D -.0061D
05 -.0095D -.0088D
06 -.0024D -.0017D
07 -.0017D -.0014D

Tue - 08/20/96 DAY= 233 12:50:02

01 -.9023D -.8800D
02 6.247✓ 6.427
03 8.860 8.832
04 -.0087D -.0088D
05 -.0117D -.0095D
06 -.0024D -.0024D
07 -.0034D -.0017D

Tue - 08/20/96 DAY= 233 12:51:02

01 -.9461D -.9023D
02 6.206✓ 6.247
03 8.811 8.860
04 -.[redacted]021D -.0087D
05 [redacted]65D -.0117D
06 -.0214D -.0024D
07 -.0214D -.0034D

Tue - 08/20/96 DAY= 233 12:52:02

Page 2 Average 6.27

01 -.7786D -.9461D
02 6.540✓ 6.206

Tue - 09/20/96 DAY= 233 12:59:02

01 -.7446D -.8461D
02 5.991 ✓ 5.962
03 8.760 8.802
04 -.0007D -.0000D
05 [redacted]007D -.0007D
06 [redacted]21D -.0017D
07 -.0024D -.0021D

Tue - 09/20/96 DAY= 233 13:00:02

01 -.8123D -.7446D
02 5.987 ✓ 5.991
03 8.787 8.760
04 -.0000D -.0007D
05 -.0004D -.0007D
06 -.0024D -.0021D
07 -.0024D -.0024D

Tue - 09/20/96 DAY= 233 13:01:02

01 -.9020D -.8123D
02 5.341 ✓ 5.987
03 8.831 8.787
04 .0004D -.0000D
05 .0000D -.0004D
06 -.0011D -.0024D
07 -.0024D -.0024D

Tue - 09/20/96 DAY= 233 13:02:02

01 [redacted]4D -.9020D
02 17.19 ✓ 5.341
03 8.829 8.831
04 .0000D .0004D
05 .0000D .0000D
06 -.0007D -.0011D
07 -.0014D -.0024D

Tue - 09/20/96 DAY= 233 13:03:02

01 -.6515D -.7784D
02 26.48 ✓ 17.19
03 8.874 8.829
04 -.0004D .0020D
05 -.0004D .0000D
06 -.0028D -.0007D
07 -.0004D -.0014D

Tue - 09/20/96 DAY= 233 13:04:02

01 -.3462D -.6515D
02 28.76 ✓ 26.48
03 8.884 8.874
04 -.0004D -.0004D
05 -.0004D -.0004D
06 [redacted]3D -.0028D
07 [redacted]21D -.0004D

Tue - 09/20/96 DAY= 233 13:05:02

01 -.3914D -.3462D
02 29.81 ✓ 28.76
03 8.888 8.884

Pg 4 Avg = 16.928

03 8.356   8.311
04 -.00719 -.00219
05 -.00919 -.00659
06 -.00119 -.00149
07 -.00049 -.00149

Tue - 08/20/96 DAY= 233 12:53:02

01 -.91239 -.77659
02 6.166✓ 5.549
03 8.343   8.356
04 -.02549 -.00719
05 -.00619 -.00919
06 -.00319 -.00119
07 -.00119 -.00049

Tue - 08/20/96 DAY= 233 12:54:02

01 -.80209 -.91239
02 6.061✓ 6.166
03 8.776   8.343
04 -.00079 -.02549
05 -.00139 -.00619
06 -.00249 -.00319
07 -.00249 -.00119

Tue - 08/20/96 DAY= 233 12:55:02

01 -.81239 -.80209
02 5.592✓ 6.061
03 8.769   8.776
04 -.00089 -.00079
05 -.00079 -.00139
06 -.00249 -.00249
07 -.00289 -.00249

Tue - 08/20/96 DAY= 233 12:56:02

01 -.74469 -.91239
02 6.023✓ 5.592
03 8.841   8.769
04 -.00639 -.00089
05 -.00819 -.00079
06 -.00149 -.00249
07 -.00279 -.00289

Tue - 08/20/96 DAY= 233 12:57:02

01 -.96889 -.74469
02 6.293✓ 6.023
03 8.832   8.841
04 -.00289 -.00639
05 -.00389 -.00819
06 -.00219 -.00149
07 -.00119 -.00279

Tue - 08/20/96 DAY= 233 12:58:02

01 [redacted]61D -.96889
02 5.962✓ 6.293
03 8.832   8.832
04 -.00089 -.00289
05 -.00079 -.00389
06 -.00179 -.00219
07 -.00219 -.00119

Pg3 Avg = 6.016

05 -.00070 -.00041
06 -.00350 -.00230
07 -.00240 -.00210

Tue - 08/20/96 DAY= 233 13:06:02

01 [redacted]61D -.89140
02 [redacted]61 ✓ 29.01
03 8.775 8.900
04 -.00040 -.00070
05 -.00040 -.00070
06 -.00170 -.00350
07 -.00240 -.00240

Tue - 08/20/96 DAY= 233 13:07:03

01 -.68570 -.84610
02 28.29 ✓ 27.61
03 8.860 8.775
04 .00000 -.00040
05 .00000 -.00040
06 -.00110 -.00170
07 -.00130 -.00240

Tue - 08/20/96 DAY= 233 13:08:02

01 -.81230 -.68570
02 28.71 ✓ 28.29
03 8.794 8.860
04 -.00070 .00000
05 -.00070 .00000
06 [redacted]0070 -.00110
07 [redacted]000 -.00180

Tue - 08/20/96 DAY= 233 13:09:03

01 -.82280 -.81230
02 28.57 ✓ 28.71
03 8.804 8.794
04 .00000 -.00070
05 .00000 -.00070
06 -.00350 -.00070
07 -.00310 -.00000

Tue - 08/20/96 DAY= 233 13:10:02

01 -.77330 -.92280
02 28.28 ✓ 28.57
03 8.766 8.804
04 .00000 .00000
05 .00000 .00000
06 -.00070 -.00350
07 -.00140 -.00310

Tue - 08/20/96 DAY= 233 13:11:02

01 -.84610 -.77330
02 [redacted]61 ✓ 28.28
03 [redacted]51 8.766
04 -.00040 .00000
05 -.00040 .00000
06 -.00140 -.00070
07 -.00280 -.00140

Pg 5 Avg = 23.40

Tue - 08/20/96 DAY= 233 13:12:02

01 -.8354D -.8451D
02 5.718 7.051
03 8.776 8.851
04 -.0010D -.0004D
05 -.0007D -.0004D
06 -.0024D -.0014D
07 [redacted]4D -.0023D

Tue - 08/20/96 DAY= 233 13:13:03

01 -.7886D -.8354D
02 24.82 5.718
03 8.803 8.776
04 -.0011D -.0010D
05 -.0011D -.0007D
06 -.0011D -.0024D
07 -.0011D -.0014D

Tue - 08/20/96 DAY= 233 13:14:02

01 -.7785D -.7886D
02 28.84 24.82
03 8.772 8.803
04 -.0011D -.0011D
05 -.0027D -.0011D
06 -.0021D -.0011D
07 -.0014D -.0011D

Tue - 08/20/96 DAY= 233 13:15:02

01 -.8229D -.7785D
02 [redacted]1 28.84
03 [redacted]0 8.772
04 -.0019D -.0011D
05 -.0021D -.0027D
06 -.0021D -.0021D
07 -.0014D -.0014D

Tue - 08/20/96 DAY= 233 13:16:02

01 -.8800D -.8229D
02 29.94 29.41
03 8.835 8.800
04 -.0004D -.0019D
05 -.0004D -.0021D
06 -.0028D -.0021D
07 -.0024D -.0014D

Tue - 08/20/96 DAY= 233 13:17:02

01 -.7886D -.8800D
02 29.64 29.94
03 8.791 8.835
04 .0000D -.0024D
05 .0000D -.0004D
06 -.0028D -.0028D
07 [redacted]24D -.0024D

Tue - 08/20/96 DAY= 233 13:18:02

01 -.7446D -.7886D
02 30.64 29.64
03 8.892 8.791
04 -.0007D .0000D
[illegible]

Pg 6 Avg = 25.572

06 -.00290 -.00290
07 -.00240 -.00240

Tue - 08/20/96 DAY= 233 13:19:02

01 -.99430 -.74460
02 [redacted]03 30.64
03 [redacted]2 8.892
04 .00000 -.00070
05 .00000 -.00070
06 -.00350 -.00290
07 -.00450 -.00240

Tue - 08/20/96 DAY= 233 13:20:02

01 -.74470 -.99430
02 10.40 32.03
03 8.961 8.870
04 .00000 .00000
05 .00000 .00000
06 -.00310 -.00350
07 -.00170 -.00450

Tue - 08/20/96 DAY= 233 13:21:02

01 -.00210 -.74470
02 5.246 10.40
03 8.837 8.961
04 -.00240 .00000
05 -.00040 .00000
06 -.00240 -.00310
07 -.00070 -.00170

Tue - 08/20/96 DAY= 233 13:22:03

01 -.81230 -.00210
02 5.904 5.246
03 8.843 8.837
04 -.00070 -.00240
05 -.00070 -.00240
06 -.00210 -.00240
07 -.00040 -.00070

Tue - 08/20/96 DAY= 233 13:23:02

01 -.84620 -.81230
02 5.545 5.904
03 8.819 8.843
04 -.00040 -.00070
05 -.00040 -.00070
06 -.00170 -.00210
07 -.00210 -.00040

Tue - 08/20/96 DAY= 233 13:24:02

01 -.73520 -.84620
02 5.244 5.545
03 [redacted]1 8.819
04 [redacted]30 -.00040
05 .00020 -.00040
06 -.00140 -.00170
07 -.00270 -.00210

Pg 6 Avg = 10.72

Tue - 08/20/96 DAY= 233 13:25:02

02 5.019 ✓ 5.244
03 8.832 8.791
04 -.00870 .00000
05 -.00870 .00000
06 -.00170 -.00140
07 -.00310 -.00270

Tue - 08/20/96 DAY= 233 13:26:02

01 -.77850 -.77850
02 4.531 ✓ 5.019
03 8.752 8.832
04 .00000 -.00870
05 .00000 -.00870
06 -.00360 -.00170
07 -.00240 -.00310

Tue - 08/20/96 DAY= 233 13:27:02

01 -.76870 -.77850
02 4.538 ✓ 4.531
03 8.769 8.752
04 .00000 .00000
05 .00000 .00000
06 -.00370 -.00360
07 -.00240 -.00240

Tue - 08/20/96 DAY= 233 13:28:02

01 -.84620 -.76870
02 4.482 ✓ 4.538
03 8.794 8.769
04 -.00040 .00000
05 -.00040 .00000
06 -.00380 -.00370
07 -.00170 -.00240

Tue - 08/20/96 DAY= 233 13:29:02

01 -.91230 -.84620
02 4.143 ✓ 4.482
03 8.832 8.794
04 .00000 -.00040
05 .00000 -.00040
06 -.00240 -.00380
07 -.00140 -.00170

Tue - 08/20/96 DAY= 233 13:30:02

01 -.73520 -.91230
02 4.282 ✓ 4.143
03 8.792 8.832
04 .00000 .00000
05 .00000 .00000
06 -.00310 -.00240
07 -.00210 -.00140

Tue - 08/20/96 DAY= 233 13:31:02

01 -.91230 -.73520
02 3.666 ✓ 4.282
03 8.794 8.792
04 .00000 .00000
05 .00000 .00000
06 -.00380 -.00310

Pg 7 Avg = 4.380

07 -.00210 -.00210

Tue - 08/20/96 DAY= 233 13:32:02

01 -.77850 -.81230
02 3.496 3.666
03 8.864 9.794
04 [redacted]00 .00000
05 [redacted]00 .00000
06 -.00140 -.00280
07 -.00140 -.00210

Tue - 08/20/96 DAY= 233 13:33:02

01 -.83550 -.77850
02 3.351 3.486
03 8.845 8.864
04 .00300 .00000
05 .00000 .00000
06 -.00410 -.00140
07 -.00270 -.00140

Tue - 08/20/96 DAY= 233 13:34:02

01 -.84610 -.83550
02 3.168 3.351
03 8.733 8.845
04 .00000 .00000
05 .00000 .00000
06 -.00140 -.00410
07 -.00140 -.00270

Tue - 08/20/96 DAY= 233 13:35:02

01 -.81230 -.84610
02 3.531 3.168
03 8.719 8.783
04 .00000 .00000
05 .00000 .00000
06 -.00340 -.00140
07 -.00110 -.00140

Tue - 08/20/96 DAY= 233 13:36:02

01 -.83550 -.81230
02 3.271 3.531
03 8.738 8.719
04 -.00040 .00000
05 -.00040 .00000
06 -.00540 -.00340
07 -.00310 -.00110

Tue - 08/20/96 DAY= 233 13:37:02

01 -.81230 -.83550
02 3.382 3.271
03 8.743 8.738
04 -.00040 -.00040
05 [redacted]00 -.00040
06 -.00340 -.00540
07 -.00170 -.00310

Tue - 08/20/96 DAY= 233 13:38:02

3.857

Page avg =

01 -.89200 -.81230
02 3.387 3.382

03 8.709 8.743
04 -.00240 -.00040
05 -.00380 -.00000
06 -.00340 -.00340
07 -.00340 -.00170

Tue - 08/20/96 DAY= 233 13:39:02

01 [redacted]462D -.38000
02 ✓22.87 6.807
03 8.713 8.709
04 -.00000 -.00240
05 -.00040 -.00380
06 -.00070 -.00340
07 -.00240 -.00340

Tue - 08/20/96 DAY= 233 13:40:02

01 -.99000 -.84620
02 ✓24.53 22.87
03 9.790 8.713
04 -.00040 -.00000
05 -.00410 -.00040
06 -.00230 -.00070
07 -.00170 -.00240

Tue - 08/20/96 DAY= 233 13:41:02

01 -.82300 -.98000
02 ✓27.32 24.53
03 8.672 8.790
04 -.00380 -.00040
05 [redacted]380 -.00410
06 [redacted]290 -.00230
07 -.00140 -.00170

Page not 24.54

Tue - 08/20/96 DAY= 233 13:42:02 — STOP R1

01 -.98010 -.82300
02 15.59 27.32
03 8.636 8.672
04 -.00240 -.00380
05 -.00240 -.00360
06 -.00170 -.00180
07 -.00380 -.00140

Tue - 08/20/96 DAY= 233 13:43:02

01 -.90240 -.99010
02 4.091 15.59
03 8.673 8.636
04 -.00000 -.00240
05 -.00040 -.00240
06 -.00240 -.00170
07 -.00370 -.00380

Tue - 08/20/96 DAY= 233 13:44:02

01 [redacted]40 -.90240
02 5.063 4.091
03 10.57+ 8.673
04 -.00040 -.00000
05 -.00110 -.00040
06 -.00410 -.00240
07 -.00210 -.00370

Tue - 08/20/96 DAY= 233 13:45:02

01 -.7765D -.8124D
02 6.191 5.063
03 8.778 10.57+
04 -.0014D -.0004D
05 -.0021D -.0011D
06 [redacted]11D -.0041D
07 -.0031D -.0021D

Tue - 08/20/96 DAY= 233 13:46:02

01 -.7786D -.7765D
02 1.530 6.191
03 8.715 8.778
04 -.0031D -.0014D
05 -.0044D -.0021D
06 -.0024D -.0011D
07 -.0024D -.0031D

Tue - 08/20/96 DAY= 233 13:47:02

01 -.7786D -.7786D
02 6.069 1.530
03 11.17+ 8.715
04 -.0011D -.0031D
05 -.0017D -.0044D
06 -.0024D -.0024D
07 -.0021D -.0024D

Tue - 08/20/96 DAY= 233 13:48:02

01 [redacted]30 -.7786D
02 26.51 6.069
03 8.715 11.17+
04 -.0024D -.0011D
05 -.0024D -.0017D
06 -.0031D -.0024D
07 -.0028D -.0021D

Tue - 08/20/96 DAY= 233 13:49:02

01 -.8229D -.8463D
02 29.33 26.51
03 8.644 8.715
04 -.0028D -.0024D
05 -.0055D -.0024D
06 -.0004D -.0031D
07 -.0014D -.0028D

Tue - 08/20/96 DAY= 233 13:50:02

START R2
BLOOD FURNACE
CH # 2 0-100

01 -.7886D -.8229D
02 33.42 29.33
03 10.86+ 8.644
04 -.0018D -.0028D
05 -.0052D -.0055D
06 [redacted]21D -.0004D
07 [redacted]14D -.0014D

Tue - 08/20/96 DAY= 233 13:51:02

01 -.8124D -.7886D
02 31.78 33.42
03 9.194 10.86+

32.56

05 -.0036D -.0052D
06 -.0014D -.0021D
07 -.0017D -.0014D

Tue - 08/20/96 DAY= 233 13:52:02

01 [redacted]72D -.8124D
02 [redacted]61 31.70
03 8.713 9.194
04 -.0036D -.0017D
05 -.0093D -.0038D
06 -.0018D -.0014D
07 -.0021D -.0017D

Tue - 08/20/96 DAY= 233 13:53:02

01 -.7786D -.8572D
02✓30.59 30.61
03 8.740 8.719
04 -.0071D -.0038D
05 -.0088D -.0093D
06 -.0021D -.0018D
07 -.0014D -.0021D

Tue - 08/20/96 DAY= 233 13:54:02

01 -.8124D -.7786D
02✓11.09 30.59
03 8.801 8.740
04 -.0056D -.0071D
05 -.0095D -.0088D
06 [redacted]11D -.0021D
07 [redacted]4D -.0014D

Tue - 08/20/96 DAY= 233 13:55:02

01 -.8801D -.8124D
02✓4.307 11.09
03 8.732 8.801
04 -.0054D -.0056D
05 -.0085D -.0095D
06 -.0011D -.0011D
07 -.0021D -.0014D

Tue - 08/20/96 DAY= 233 13:56:02

01 -.8462D -.8801D
02✓4.259 4.307
03 8.773 8.732
04 -.0088D -.0054D
05 -.0105D -.0085D
06 -.0028D -.0011D
07 -.0017D -.0021D

Tue - 08/20/96 DAY= 233 13:57:02

01 -.8356D -.8462D
02 [redacted]4 4.258
03 [redacted]77 8.773
04 -.0077D -.0088D
05 -.0107D -.0105D
06 -.0011D -.0028D
07 -.0014D -.0017D

14.00

Tue - 08/20/96 DAY= 233 13:58:02

01 -.78870 -.83560
02 ✓19.63 3.174
03 9.664 8.677
04 -.00760 -.00770
05 -.01060 -.01070
06 -.00110 -.00110
07 [redacted]40 -.00140

Tue - 08/20/96 DAY= 233 13:59:02

01 -.84630 -.78870
02✓26.32 19.63
03 8.650 9.664
04 -.00210 -.00760
05 -.00440 -.01060
06 -.00110 -.00110
07 -.00110 -.00040

Tue - 08/20/96 DAY= 233 14:00:02

01 -.85730 -.84630
02✓27.19 26.32
03 9.626 8.650
04 -.00240 -.00210
05 -.00520 -.00440
06 -.00110 -.00110
07 -.00000 -.00110

Tue - 08/20/96 DAY= 233 14:01:02

01 -.88010 -.85730
02 [redacted]4 27.19
03 [redacted]0 9.626
04 -.00310 -.00240
05 -.00530 -.00520
06 -.00110 -.00110
07 -.00070 -.00000

Tue - 08/20/96 DAY= 233 14:02:02

01 -.85730 -.88010
02✓26.27 27.34
03 9.594 9.660
04 -.00150 -.00310
05 -.00310 -.00530
06 -.00110 -.00110
07 -.00140 -.00070

Tue - 08/20/96 DAY= 233 14:03:02

01 -.83560 -.85730
02✓4.038 26.27
03 9.597 9.594
04 -.00170 -.00130
05 -.00100 -.00310
06 -.00070 -.00110
07 -.00070 -.00140

Tue - 08/20/96 DAY= 233 14:04:03

01 -.81240 -.83560
02✓3.139 4.038
03 9.671 9.597
04 -.00140 -.00170
05 -.00140 -.00130

19.13

06 -.0024D -.0007D
07 .0007D -.0007D

Tue - 08/20/96 DAY= 233 14:05:02

01 -.8463D -.8124D
02 [illegible]12 3.139
03 [illegible]4 8.671
04 -.0007D -.0014D
05 -.0007D -.0014D
06 -.0004D -.0024D
07 -.0007D .0007D

Tue - 08/20/96 DAY= 233 14:06:02

01 -.8356D -.8463D
02 3.307 3.312
03 8.592 8.614
04 -.0014D -.0007D
05 -.0010D -.0007D
06 -.0017D -.0004D
07 -.0031D -.0007D

Tue - 08/20/96 DAY= 233 14:07:02

01 -.8802D -.8356D
02 3.224 3.307
03 8.631 8.592
04 -.0007D -.0014D
05 -.0004D -.0010D
06 -.0014D -.0017D
07 -.0017D -.0031D

Tue - 08/20/96 DAY= 233 14:08:02

01 -.8802D -.8802D
02 3.258 3.224
03 8.622 8.631
04 .0000D -.0007D
05 .0000D -.0004D
06 -.0004D -.0014D
07 -.0004D -.0017D

Tue - 08/20/96 DAY= 233 14:09:02

01 -.8356D -.8802D
02 3.379 3.258
03 8.633 8.622
04 .0000D .0000D
05 .0000D .0000D
06 -.0017D -.0004D
07 -.0204D -.0004D

Tue - 08/20/96 DAY= 233 14:10:02

01 -.8125D -.8356D
02 3.326 3.379
03 [illegible]9 8.633
04 [illegible]0D .0000D
05 .0000D .0000D
06 -.0021D -.0017D
07 -.0000D -.0004D

Tue - 08/20/96 DAY= 233 14:11:02

02 3.459 3.326
03 8.535 8.619
04 .0000D .0000D
05 .0000D .0000D
06 .0011D -.0021D
07 .0007D -.0000D

Tue - 08/20/96 DAY= 233 14:12:02

01 -.8698D -.7109D
02 3.474 3.459
03 8.583 8.535
04 .0000D .0000D
05 .0000D .0000D
06 -.0011D .0011D
07 -.0017D .0007D

Tue - 08/20/96 DAY= 233 14:13:02

01 -.6771D -.8698D
02 3.511 3.474
03 8.669 8.583
04 .0000D .0000D
05 .0000D .0000D
06 .0004D -.0011D
07 -.0004D -.0017D

Tue - 08/20/96 DAY= 233 14:14:02

01 -.7109D -.6771D
02 3.716 3.511
03 [redacted]598 8.669
04 [redacted]0D .0000D
05 .0000D .0000D
06 -.0011D .0004D
07 -.0007D -.0004D

Tue - 08/20/96 DAY= 233 14:15:02

01 -.8698D -.7109D
02 3.764 3.716
03 8.678 8.598
04 .0000D .0000D
05 .0000D .0000D
06 -.0007D -.0011D
07 -.0004D -.0007D

Tue - 08/20/96 DAY= 233 14:16:02

01 -.8463D -.8698D
02 3.714 3.764
03 8.619 8.678
04 .0000D .0000D
05 .0000D .0000D
06 -.0014D -.0007D
07 -.0004D -.0004D

Tue [redacted]8/20/96 DAY= 233 14:17:02

01 -.8022D -.8463D
02 3.672 3.714
03 8.614 8.619
04 .0000D .0000D
05 .0000D .0000D
06 -.0024D -.0014D

3.62

07 -.00240 -.00040

Tue - 08/20/96 DAY= 233 14:18:03

01 -.88020 -.80220
02 ✓3.793 3.672
03 8.541 8.514
04 [redacted] .00000
05 [redacted] .00000
06 -.00040 -.00240
07 -.00070 .00040

Tue - 08/20/96 DAY= 233 14:19:02

01 -.88020 -.88020
02 ✓6.457 3.783
03 8.527 8.541
04 .00000 .00000
05 .00000 .00000
06 -.00070 -.00040
07 -.00040 -.00070

Tue - 08/20/96 DAY= 233 14:20:02

01 -.98020 -.88020
02 ✓3.790 6.457
03 8.516 8.527
04 .00000 .00000
05 .00000 .00000
06 -.00070 -.00070
07 -.00040 -.00040

Tue [redacted]8/20/96 DAY= 233 14:21:02

01 -.86900 -.88820
02 ✓3.720 3.790
03 8.530 8.516
04 .00000 .00000
05 .00000 .00000
06 -.00240 -.00070
07 -.00070 -.00040

Tue - 08/20/96 DAY= 233 14:22:02

01 -.88820 -.86900
02 ✓3.561 3.720
03 8.533 8.530
04 .00000 .00000
05 .00000 .00000
06 -.00070 -.00040
07 .00000 -.00070

Tue - 08/20/96 DAY= 233 14:23:02

01 -.88020 -.88020
02 ✓3.416 3.561
03 8.534 8.533
04 [redacted] .00000
05 [redacted] .00000
06 -.00140 -.00070
07 -.00040 .00000

Tue - 08/20/96 DAY= 233 14:24:02

01 -.83500 -.88020
02 ✓3.727 3.416

$\frac{+22.613}{23} = 9.736$

4.06

03 8.573 8.534
04 .00000 .00000
05 .00000 .00000
06 -.00270 -.00140
07 -.00040 -.00040

Tue - 08/20/96 DAY= 233 14:25:02

01 -.84630 -.83560
02 3.832 3.723
03 8.633 8.573
04 .00020 .00000
05 .00000 .00000
06 -.00000 -.00070
07 -.00070 -.00040

Tue - 08/20/96 DAY= 233 14:26:02

01 -.84630 -.84630
02 4.011 3.832
03 8.596 8.633
04 .00000 .00000
05 .00000 .00000
06 -.00170 -.00000
07 -.00110 -.00070

Tue - 08/20/96 DAY= 233 14:27:02

01 -.86900 -.84630
02 4.378 4.011
03 8.626 8.596
04 .00000 .00000
05 [redacted]0D .00000
06 [redacted]11D -.00170
07 -.00040 -.00110

Tue - 08/20/96 DAY= 233 14:28:02

01 -.88020 -.86900
02 3.942 4.378
03 9.633 8.626
04 .00000 .00000
05 .00000 .00000
06 .00000 -.00110
07 -.00070 -.00040

Tue - 08/20/96 DAY= 233 14:29:02

01 -.83560 -.88020
02 4.017 3.942
03 8.651 8.633
04 .00000 .00000
05 .00000 .00020
06 .00040 .00000
07 .00070 -.00070

Tue - 08/20/96 DAY= 233 14:30:03

01 [redacted]2D -.83560
02 4.004 4.017
03 8.593 8.651
04 .00000 .00000
05 .00000 .00020
06 -.00040 .00040
07 -.00070 .00070

$27.90 / 7 = 3.986$

Tue - 08/20/96 DAY= 233 14:31:02

01 -.88820 -.88820
02 3.976 4.004
03 8.560 8.583
04 .00000 .00020
05 .00000 .00000
06 [redacted]0D -.00040
07 -.00040 -.00070

Tue - 08/20/96 DAY= 233 14:32:02

01 -.86700 -.88020
02 3.617 3.876
03 8.643 8.560
04 .00000 .00000
05 .00000 .00000
06 .00000 .00000
07 .00000 -.00040

Tue - 08/20/96 DAY= 233 14:33:03

01 -.84630 -.86900
02 3.551 3.617
03 8.624 8.643
04 .00000 .00000
05 .00000 .00000
06 .00040 .00000
07 .00040 .00000

Tue - 08/20/96 DAY= 233 14:34:02

01 [redacted]20 -.84630
02 [redacted]01 3.551
03 8.565 8.624
04 .00000 .00020
05 .00200 .00000
06 -.00040 .00040
07 .00200 .00340

Tue - 08/20/96 DAY= 233 14:35:02

01 -.81250 -.88020
02 3.829 3.881
03 8.488 8.565
04 .00000 .00000
05 .00000 .00020
06 -.00000 -.00040
07 -.00040 .00000

Tue - 08/20/96 DAY= 233 14:36:02

01 -.86900 -.81250
02 3.686 3.829
03 8.481 8.488
04 .00000 .00000
05 .00200 .00000
06 [redacted]40 -.00000
07 [redacted]00 -.00040

Tue - 08/20/96 DAY= 233 14:37:03

01 -.88020 -.86900
02 3.622 3.686
03 8.456 8.481

$25.592/7 = 3.656$

05 .00000 .00000
06 -.00040 -.00040
07 -.00070 .00000

Tue - 08/20/96 DAY= 233 14:36:02

01 [redacted]02D -.88020
02 [redacted]03 3.622
03 8.449 8.456
04 .00000 .00000
05 .00000 .00000
06 -.00110 -.00040
07 -.00040 -.00070

Tue - 08/20/96 DAY= 233 14:39:02

01 -.88020 -.88020
02 3.734 4.105
03 9.503 8.449
04 .00000 .00000
05 .00000 .00000
06 -.00170 -.00110
07 -.00040 -.00040

Tue - 08/20/96 DAY= 233 14:40:02

01 -.86900 -.88020
02 2.780 3.734
03 8.487 9.503
04 .00000 .00000
05 .00000 .00000
06 [redacted]040 -.00170
07 [redacted]000 -.00040

Tue - 08/20/96 DAY= 233 14:41:02

01 -.88020 -.86900
02 -.9089 2.780
03 8.474 8.487
04 .00000 .00000
05 .00000 .00000
06 -.00070 -.00040
07 -.00110 .00000

Tue - 08/20/96 DAY= 233 14:42:02

01 -.86900 -.88020
02 -3.661 -.9089-
03 8.532 8.474
04 .00000 .00000
05 .00000 .00000
06 -.00040 -.00070
07 -.00070 -.00110

Tue - 08/20/96 DAY= 233 14:43:02

01 -.88020 -.86900
02 [redacted]4 -3.661-
03 [redacted]47 8.532
04 .00000 .00000
05 .00000 .00000
06 -.00070 -.00040
07 -.00110 -.00070

Pg Adj. 2.30

Tue - 08/20/96 DAY= 233 14:44:02

01 -.8802D -.8802D
02 -3.614- -3.634-
03 8.599 8.547
04 .0000D .0000D
05 .0000D .0000D
06 -.0014D -.0007D
07 [redacted]7D -.0011D

Tue - 08/20/96 DAY= 233 14:45:02

01 -.9024D -.8802D
02 -3.607- -3.614-
03 8.679 8.599
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0014D
07 -.0004D -.0007D

Tue - 08/20/96 DAY= 233 14:46:02

01 -.8802D -.9024D
02 -3.621- -3.607-
03 8.789 8.679
04 .0000D .0000D
05 .0000D .0000D
06 .0000D -.0004D
07 -.0007D -.0004D

Tue - 08/20/96 DAY= 233 14:47:02

01 -.8802D -.8802D
02 [redacted]0- -3.621-
03 [redacted]6 8.789
04 .0000D .0000D
05 .0000D .0000D
06 -.0014D .0000D
07 -.0004D -.0007D

Tue - 08/20/96 DAY= 233 14:48:02

01 -.9024D -.8802D
02 -3.606- -3.620-
03 9.171 8.956
04 .0000D .0000D
05 .0000D .0000D
06 -.0007D -.0014D
07 -.0004D -.0004D

Tue - 08/20/96 DAY= 233 14:49:02

01 -.8802D -.9024D
02 -3.609- -3.606-
03 9.330 9.171
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0007D
07 [redacted]00D -.0004D

Tue - 08/20/96 DAY= 233 14:50:02 — STOP R2

Pg Avg = 0

page

DCN#R1>
01 -.8354D -.8916D
02 .4339 22.89
03 8.561 8.534
04 -.0027D -.0076D
05 -.0037D -.0089D
06 -.0014D -.0035D
07 -.0027D -.0014D

Tue - 08/20/96 DAY= 233 15:02:02

01 -.9139D -.8354D
02 19.93 .4339
03 8.557 8.561
04 -.0071D -.0027D
05 -.0095D -.0037D
06 -.0021D -.0014D
07 -.0034D -.0027D

Tue - 08/20/96 DAY= 233 15:03:03 — Start Run #3 1503 Real time 1403 Blood Furnace.

01 -.8571D -.9139D
02 [illegible]3 19.93
03 [illegible]524 8.557
04 -.0014D -.0071D
05 -.0052D -.0095D
06 -.0021D -.0021D
07 -.0024D -.0034D

Tue - 08/20/96 DAY= 233 15:04:02

01 -.8461D -.8571D
02 12.70 27.63
03 8.598 8.524
04 -.0071D -.0014D
05 -.0091D -.0052D
06 -.0017D -.0021D
07 -.0014D -.0024D

Tue - 08/20/96 DAY= 233 15:05:02

01 -.8600D -.8461D
02 6.856 12.70
03 8.643 8.598
04 -.0041D -.0071D
05 -.0054D -.0091D
06 -.0011D -.0017D
07 [illegible]17D -.0014D

Tue - 08/20/96 DAY= 233 15:06:02

01 -.9022D -.8600D
02 12.79 6.856
03 8.770 8.643
04 -.0057D -.0041D

Pg Avg = 15.98

06 -.00240 -.00110
07 -.00070 -.00170

Tue - 08/20/96 DAY= 233 15:07:03

01 -.81230 -.98220
02 [redacted]963 ✓12.78
03 [redacted]44 8.770
04 -.00140 -.00670
05 -.00240 -.00840
06 -.00170 -.00240
07 -.00070 -.00070

Tue - 08/20/96 DAY= 233 15:08:02

01 -.84610 -.81230
02 3.153 ✓2.963
03 8.822 8.344
04 -.00440 -.00140
05 -.00340 -.00240
06 -.00170 -.00170
07 -.00170 -.00070

Tue - 08/20/96 DAY= 233 15:09:02

01 -.87990 -.84610
02 3.169 ✓3.153
03 8.803 8.822
04 -.00070 -.00440
05 -.00110 -.00340
06 -.00280 -.00170
07 -.00170 -.00170

Tue - 08/20/96 DAY= 233 15:10:02

01 -.80280 -.87990
02 3.025 ✓3.169
03 8.812 8.803
04 -.00030 -.00070
05 -.00040 -.00110
06 -.00110 -.00280
07 -.00210 -.00170

Tue - 08/20/96 DAY= 233 15:11:02

01 -.88200 -.80280
02 2.959 ✓3.025
03 9.919 8.812
04 -.00140 -.00030
05 -.00170 -.00040
06 -.00380 -.00110
07 -.00340 -.00210

Tue - 08/20/96 DAY= 233 15:12:02

01 -.81230 -.88200
02 2.859 ✓2.959
03 [redacted]08 9.819
04 [redacted]40 -.00140
05 -.00340 -.00170
06 -.00210 -.00380
07 -.00040 -.00340

Pg Avg = 3.00

Tue - 08/20/96 DAY= 233 15:13:02

01 -.8688D -.8124D
02 3.118 ✓ 2.859
03 8.893 8.988
04 -.0007D -.0034D
05 -.0020D -.0034D
06 -.0021D -.0021D
07 -.0007D -.0004D

Tue - 08/20/96 DAY= 233 15:14:02

01 -.8461D -.8688D
02 3.153 ✓ 3.118
03 8.951 8.893
04 .0000D -.0007D
05 .0000D -.0020D
06 -.0021D -.0021D
07 -.0024D -.0007D

Tue - 08/20/96 DAY= 233 15:15:02

01 -.7784D -.8461D
02 2.837 ✓ 3.153
03 8.919 8.951
04 .0000D .0000D
05 .0000D .0000D
06 -.0024D -.0021D
07 -.0024D -.0004D

Tue - 08/20/96 DAY= 233 15:16:02

01 -.8354D -.7784D
02 2.639 ✓ 2.837
03 8.977 8.919
04 .0000D .0000D
05 .0000D .0000D
06 -.0024D -.0024D
07 -.0007D -.0024D

Tue - 08/20/96 DAY= 233 15:17:02

01 -.8461D -.8354D
02 2.781 ✓ 2.639
03 8.961 8.977
04 -.0011D .0000D
05 -.0011D .0000D
06 -.0021D -.0024D
07 -.0024D -.0007D

Tue - 08/20/96 DAY= 233 15:18:02

01 -.7784D -.8461D
02 2.844 ✓ 2.781
03 8.970 8.961
04 .0000D -.0011D
05 .0000D -.0011D
06 -.0011D -.0021D
07 -.0034D -.0024D

Tue - 08/20/96 DAY= 233 15:19:02

11 -.9022D -.7784D
12 2.751 ✓ 2.844
13 8.971 8.970
14 .0000D .0000D
15 .0000D .0000D
-.0054D -.0011D

pg Hg 2.578

07 -.00470 -.00340

Tue - 08/20/96 DAY= 233 15:20:02

01 -.77840 -.90220
02 2.722✓ 2.751
03 8.897 8.371
04 [redacted]00D .0000D
05 .00000 .0000D
06 -.00380 -.00540
07 -.00280 -.00470

Tue - 08/20/96 DAY= 233 15:21:02

01 -.81230 -.77840
02 2.616✓ 2.722
03 8.913 8.897
04 .00000 .0000D
05 .00000 .0000D
06 -.00280 -.00380
07 -.00210 -.00280

Tue - 08/20/96 DAY= 233 15:22:02

01 -.90220 -.81230
02 2.756✓ 2.616
03 8.825 8.913
04 .00000 .00000
05 .00000 .0000D
06 -.00210 -.00280
07 -.00140 -.00210

T[redacted]08/20/96 DAY= 233 15:23:02

01 -.81230 -.90220
02 2.607✓ 2.756
03 -.0363 8.825
04 .00000 .00000
05 .00000 .00000
06 -.00340 -.00210
07 -.00070 -.00140

Tue - 08/20/96 DAY= 233 15:24:02

01 -.86880 -.81230
02 2.591✓ 2.607
03 -.0044 -.0363
04 .00000 .00000
05 .00000 .00000
06 -.00470 -.00340
07 -.00170 -.00070

Tue - 08/20/96 DAY= 233 15:25:02

01 -.83540 -.86880
02 2.934✓ 2.591
03 -.0031 -.0044
04 [redacted]000D .0000D
05 [redacted]00D .00000
06 -.00410 -.00470
07 -.00170 -.00170

Tue - 08/20/96 DAY= 233 15:26:03

Pg Avg 2.747

01 -.84610 -.83540
02 2.934✓ 2.671

03 -.0031 -.0031
04 .00000 .00000
05 .00000 .00000
06 -.00170 -.00410
07 -.00280 -.00170

Tue - 08/20/96 DAY= 233 15:27:02

01 -.00220 -.84610
02 2.997 3.004
03 -.0031 -.0031
04 .22000 .00000
05 .00000 .00000
06 -.00310 -.00170
07 -.00110 -.00280

Tue - 08/20/96 DAY= 233 15:28:02

01 -.77840 -.80280
02 3.314 2.997
03 -.0031 -.0031
04 .00000 .00000
05 .00000 .00000
06 -.00210 -.00310
07 -.00240 -.00110

Tue - 08/20/96 DAY= 233 15:29:02

01 -.73520 -.77840
02 3.442 3.314
03 -.0031 -.0031
04 .32000 .00000
05 [redacted]00 .00000
06 [redacted]310 -.00210
07 -.00170 -.00240

Tue - 08/20/96 DAY= 233 15:30:02

01 -.87990 -.73520
02 3.141 3.442
03 -.0041 -.0031
04 .00000 .00000
05 .00000 .00000
06 -.00350 -.00310
07 -.00380 -.00170

Tue - 08/20/96 DAY= 233 15:31:02

01 -.86880 -.87990
02 3.065 3.141
03 -.0031 -.0041
04 .00000 .00000
05 .22000 .00000
06 -.00370 -.00550
07 -.00240 -.00380

Tue - 08/20/96 DAY= 233 15:32:02

01 [redacted]40 -.86880
02 2.952 3.065
03 -.0037 -.0031
04 .00000 .00000
05 .00000 .00000
06 -.00440 -.00370
07 -.00210 -.00240

Pg avg = 3.152

Tue - 08/20/96 DAY= 233 15:33:02

01 -.7446D -.8354D
02 3.836 ✓ 2.952
03 -.0024 -.0037
04 .0000D .0000D
05 [redacted]0D .0000D
06 [redacted]1D -.0044D
07 -.0024D -.0021D

Tue - 08/20/96 DAY= 233 15:34:02

01 -.7446D -.7446D
02 7.519 ✓ 3.836
03 -.0017 -.0024
04 .0000D .0000D
05 .0000D .0000D
06 -.0014D -.0011D
07 -.0017D -.0024D

Tue - 08/20/96 DAY= 233 15:35:02

01 -.7486D -.7446D
02 6.237 ✓ 7.519
03 -.0017 -.0017
04 .0000D .0000D
05 .0000D .0000D
06 -.0017D -.0014D
07 -.0011D -.0017D

Tue - 08/20/96 DAY= 233 15:36:02

01 [redacted]9D -.7486D
02 5.286 ✓ 6.237
03 -.0029 -.0017
04 .0000D .0000D
05 .0000D .0000D
06 -.0039D -.0017D
07 -.0021D -.0011D

Tue - 08/20/96 DAY= 233 15:37:02

01 -.8688D -.8799D
02 6.855 ✓ 5.286
03 -.0024 -.0029
04 .0000D .0000D
05 .0000D .0000D
06 -.0027D -.0039D
07 -.0024D -.0021D

Tue - 08/20/96 DAY= 233 15:38:02

01 -.7784D -.8688D
02 9.229 ✓ 6.855
03 -.0029 -.0024
04 .0000D .0000D
05 .0000D .0000D
06 [redacted]4D -.0027D
07 [redacted]1D -.0024D

Tue - 08/20/96 DAY= 233 15:39:02

Pg Avg = 7.022

01 -.8354D -.7784D
02 10.99 ✓ 9.229
03 -.0021 -.0029

04 .00000 .00000
05 .00000 .00000
06 -.00210 -.00240
07 -.00240 -.00110

Tue - 08/20/96 DAY= 233 15:40:02

[redacted]

01 -.81230 -.83540
02 11.47 10.99
03 -.0014 -.0021
04 .00000 .00000
05 .00000 .00000
06 -.00210 -.00210
07 -.00210 -.00240

Tue - 08/20/96 DAY= 233 15:41:02

01 -.87990 -.81230
02 10.79 11.47
03 -.0014 -.0014
04 .00000 .00000
05 .00000 .00000
06 -.00140 -.00210
07 -.00340 -.00210

Tue - 08/20/96 DAY= 233 15:42:02

01 -.88200 -.87990
02 10.80 10.79
03 [redacted]007 -.0014
04 [redacted]200 .00320
05 .00000 .00000
06 -.00140 -.00140
07 -.00210 -.00340

Tue - 08/20/96 DAY= 233 15:43:02

01 -.87990 -.88200
02 10.98 10.80
03 -.0021 -.0007
04 .00000 .00000
05 .00000 .00000
06 -.00310 -.00140
07 -.00240 -.00210

Tue - 08/20/96 DAY= 233 15:44:02

01 -.81230 -.87990
02 17.83 10.98
03 .0007 -.0021
04 .00000 .00000
05 .00000 .00000
06 -.00240 -.00310
07 -.00380 -.00240

T[redacted]8/20/96 DAY= 233 15:45:02

01 -.91380 -.81230
02 22.86 17.83
03 .0000 .0007
04 .00000 .00000
05 .00000 .00000
06 -.00410 -.00240

Pg Avg = 14.108

07 -.00110 -.00080

Tue - 08/20/96 DAY= 233 15:46:02

01 -.7784D -.9138D
02 27.51 22.36
03 .0004 .0000
04 .0000D .0000D
05 .0020D .0002D
06 -.0007D -.0041D
07 -.0007D -.0011D

Tue - 08/20/96 DAY= 233 15:47:02

01 -.7446D -.7784D
02 20.52 27.51
03 -.0000 .0004
04 .0000D .0000D
05 .0020D .0000D
06 -.0017D -.0007D
07 -.0011D -.0007D

Tue - 08/20/96 DAY= 233 15:48:02

01 -.7784D -.7446D
02 25.64 20.52
03 .0004 -.0000
04 .0000D .0000D
05 .0000D .0000D
06 -.0031D -.0017D
07 -.0014D -.0011D

Tue - 08/20/96 DAY= 233 15:49:02

01 -.9571D -.7784D
02 27.34 25.64
03 -.0007 .0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0024D -.0031D
07 -.0031D -.0014D

Tue - 08/20/96 DAY= 233 15:50:02

01 -.8123D -.9571D
02 28.07 27.34
03 .0000 -.0007
04 .0000D .0000D
05 .0000D .0000D
06 -.0011D -.0024D
07 -.0017D -.0031D

Tue - 08/20/96 DAY= 233 15:51:02

01 -.8123D -.8123D
02 28.45 28.07
03 .0004 .0000
04 .0000D .0000D
05 .0000D .0000D
06 -.0007D -.0011D
07 -.0024D -.0017D

Tue - 08/20/96 DAY= 233 15:52:02

Pg Avg = 25.67

01 -.9138D -.8123D
02 22.36 28.45

03 -.0017 .0024
04 .00000 .0000D
05 .00000 .0000D
06 -.00340 -.0007D
07 -.00210 -.0024D

Tue - 08/20/96 DAY= 233 15:53:02

01 -.81230 -.91380
02 3.551 ✓ 22.15
03 -.0038 -.0017
04 .00000 .0000D
05 .00000 .0000D
06 -.00240 -.0034D
07 -.00310 -.0021D

Tue - 08/20/96 DAY= 233 15:54:02

01 -.83540 -.81230
02 3.947 ✓ 3.551
03 -.0037 -.0038
04 .00000 .0000D
05 .00000 .0000D
06 -.00170 -.0024D
07 -.00410 -.0031D

Tue - 08/20/96 DAY= 233 15:55:02

01 -.87990 -.83540
02 4.047 ✓ 3.947
03 -.0041 -.0037
04 .00000 .0000D
05 .00000 .0000D
06 -.00340 -.0017D
07 -.00210 -.0041D

Tue - 08/20/96 DAY= 233 15:56:02

01 -.96880 -.87990
02 4.081 ✓ 4.047
03 -.0051 -.0041
04 .00000 .0000D
05 .00000 .0000D
06 -.00170 -.0034D
07 -.00170 -.0021D

Tue - 08/20/96 DAY= 233 15:57:02

01 -.86880 -.86880
02 3.964 ✓ 4.081
03 -.0034 -.0051
04 .00000 .0000D
05 .00000 .0000D
06 -.00310 -.0017D
07 -.00440 -.0017D

Tue - 08/20/96 DAY= 233 15:58:03

01 -.96890 -.86880
02 4.035 ✓ 3.964
03 -.0038 -.0034
04 .00000 .0000D
05 .00000 .0000D
06 -.00210 -.0031D
07 -.00330 -.0044D

Pg Avg = 3.908

Tue - 03/20/96 D4Y= 233 15:59:02

01 -.9688D -.9799D
02 4.099✓ 4.035
03 -.0041 -.0038
04 .0000D .0000D
05 .0000D .0000D
06 [redacted]40 -.0021D
07 -.0017D -.0038D

Tue - 03/20/96 DAY= 233 16:00:03

01 -.8461D -.8588D
02 4.151✓ 4.099
03 -.0038 -.0041
04 .0000D .0000D
05 .0000D .0000D
06 -.0031D -.0024D
07 -.0028D -.0017D

Tue - 03/20/96 DAY= 233 16:01:02

01 -.7446D -.9461D
02 3.990✓ 4.151
03 -.0029 -.0038
04 .0000D .0000D
05 .0000D .0000D
06 -.0000D -.0031D
07 -.0027D -.0028D

Tue - 03/20/96 DAY= 233 16:02:02

PB Avg = 4.047

Run 1

DATE:	21-Aug-96	CLIENT REP:	Rechelle Kruse
PLANT:	IBP	WITNESSED?:	yes
[redacted]C TYPE		BURNER TYPE:	N/A
OPERATOR:	SM, DW	GENERATOR TYPE:	N/A
TEST LOCATION:	Hydrolizer	O2 GENERATOR TYPE:	N/A

CALIBRATION GASES

O2	CO2	CO	S02	NOx	THC outlet
0	0	0	0	0	0
N/A	N/A	N/A	N/A		29.68
N/A	N/A	N/A	N/A		49.42
					83.47

END TIME	SAMPLE POINT	O2 wet	CO2 ppm	SO2 ppm	THC Outlet ppm	CO ppm	NOx ppm	COMMENTS a
11:16	1				23.99			
	AVERAGES	ERR	ERR	ERR	23.99	ERR	ERR	

Barometric Pres: 29.5

EFFLUENT GAS CONCENTRATION, WET BASIS, PPM

	O2	CO2	SO2	THC Outlet	CO	NOx
PRE ZERO	0		0	0	0	0
POST ZER	0		0	4		0
ACT SPAN	N/A	N/A	N/A	49.42	N/A	N/A
PRE SPAN	0		0	49.3		0
POST SPA	0		0	51		0
GAS CONC	ERR	ERR	ERR	22.57	ERR	ERR

EFFLUENT GAS CONC CALCULATION

GAS CONC. = (Avg Stk Conc - Avg Zero Cal) * (Span Conc/(Avg Span Cal - Avg Zero Cal))

Calculations

Analyte		C3H8
FWhc lbs/lb-mole		44
Stack Flowrate, dry scf/hr		49,629
Moisture, %		31.0
Cppmv		22.57
Cppmv minus CH4		17.38
Hydrocarbons Emissions	(lbs/hr)	**0.983**

Lbs/Hr = Cppmv minus CH4 * FWhc * (Stack Flowrate(dscf/hr) / 60) * (1.554 * 10^4)

WET BULB / DRY BULB MOISTURE DETERMINATION

Client	IBP Logansport
Date	8/21/96
Project Number	20974-0000-00000
Plant	Logansport, IN
Sampling Location	vent stack
Source	Hydrolizer
Run Number	1

Barometric Pressure	29.5
Static Pressure	0.89
Temperature (Dry)	212
Temperature (Wet)	160
S. V. P. (at Twet) (Water Saturation Vapor Pressure (PSI))	4.8
PST	0.0654
PS	29.5654
Vapor Pressure	9.1626
%Moisture	30.9909
Md	0.6901

WET BULB / DRY BULB MOISTURE DETERMINATION

Client	IBP Logansport
Date	8/21/96
Project Number	20974-0000-00000
Plant	Logansport, IN
Sampling Location	vent stack
Source	Hydrolizer
Run Number	2

Barometric Pressure	29.5
Static Pressure	0.9
Temperature (Dry)	212
Temperature (Wet)	160
S. V. P. (at Twet) (Water Saturation Vapor Pressure (PSI))	4.8
PST	0.0662
PS	29.5662
Vapor Pressure	9.1626
%Moisture	30.9901
Md	0.6901

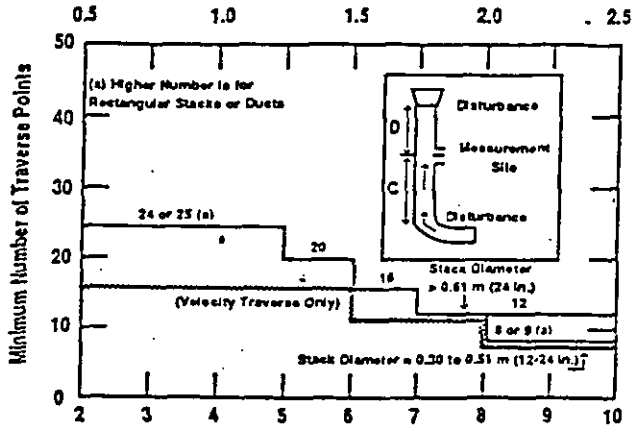
Traverse Point Location for Circular and Rectangular Ducts

Project No.: 20974-0000-00000
Client: IBP LOGANSPORT IND
Date: 8-20-96
Sampling Location: HYDROLIZER
Internal Stack Diameter: 8"
Nipple Length: 0
Total Stack Diameter: 8"
Nearest Upstream Disturbance (C): 71" 8.875 DD
Nearest Downstream Disturbance (D): 100" 12.5 DD
Calculator: SM

GROUND level INSIDE
TS= 212° STEAM 100% SATURATION
* PT 1 = .5
PT 6 = 7.5

Traverse Point Number	1 Fraction of Stack ID ($\frac{1}{100}$)	2 Stack ID	3 Traverse Point (1 x 2=Point)	4 Nipple Length	5 Traverse Point Inside of Far Wall to Outside of Port Nipple (3 + 4 = Point)
1	.044	8"	.352	0	N/A
2	.146		1.17		
3	.296		2.37		
4	.704		5.63		
5	.854		6.83		
6	.956		7.65		
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

Duct Diameter Upstream from Flow Disturbance (Distance D)



Duct Diameter Downstream from Flow Disturbance (Distance C) from Point of any Type Disturbance (Bend, Contraction, etc.)

Rectangular Duct Equivalent Diameter Determination = $\frac{2xLxW}{L+W}$

Location of Traverse Points in Circular Stacks

	4	6	8	10	12	14	16	18	20	22	24
1	5.7	4.4	3.2	2.6	2.1	1.3	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.5	10.5
6		95.6	80.6	65.8	35.5	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.5	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Traverse Points in Rectangular Stacks

	2	3	4	5	6	7	8	9	10	11	12
1	25.0	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75.0	50.0	37.5	30.0	25.0	21.4	18.8	15.7	15.0	13.5	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50.0	43.8	38.9	35.0	31.8	29.2
5				90.0	75.0	64.3	56.3	50.0	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50.0	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	85.4	79.2
11										95.5	87.5
12											95.8

TRC

FORM 75-3

VELOCITY TRAVERSE

Plant: IBP LOGANSPORT	Date: 8-21-96
Unit Number: HYDROLYZER	Stack Diameter (in.): 8"
Load Condition: Normal / Peak	Stack Gauge Pressure ("H_2O): ~~8~~ +.89
Run No.: 1	Operators: SM/DW
Project No.: 20974	
Barometric Pressure at Ground Level ("Hg): 29.50	
Pitot Tube ID:	
Pitot Tube Coefficient: .84	Port Change Pitot Leak Check — Pass / Fail
Estimated Stack CO_2%:__ O_2%:__ H_2O%:__	Port #1 — —
Platform Elevation (feet): 15'	Port #2 — —
Schematic of Stack Cross Section: 1" Holes, No Nipples; wet BULB - 120°F; DRY BULB - 212	Port #3 — —
	Port #4 — —
	$\sqrt{\Delta P}$ avg = 1.0992
	CO_2 -
	O_2 -

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1A	.89	
2	1.1	
3	1.2	
4	1.2	
5	1.3	
6	1.1	
Average:		

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1B	1.3	
2	1.3	
3	1.25	
4	1.3	
5	1.3	
6	1.3	
Average:		

Reference: 40 CFR 60, Appendix A, Method 2

TRC

FORM 1-3

VELOCITY TRAVERSE

Plant: IBP LOGANSPORT	Date: 8-21-96
Unit Number: HYDROLYZER	Stack Diameter (in.): 8"
Load Condition: Normal/Peak	Stack Gauge Pressure ("H_2O): + .90
Run No.: 2	Operators:
Project No.: 20974	
Barometric Pressure at Ground Level ("Hg): 29.50	
Pitot Tube ID:	
Pitot Tube Coefficient: .84	Port Change Pitot Leak Check — Pass / Fail
Estimated Stack CO_2%:__ O_2%:__ H_2O%:__	Port #1 — —
Platform Elevation (feet): 15'	Port #2 — —
Schematic of Stack Cross Section:	Port #3 — —
See Run #1	Port #4 — —
WET BULB = 160° F	$\sqrt{\Delta P_{avg}} = 1.122$
DRY BULB = 212	CO_2 -
	O_2 -

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1A	1.05	
2	1.1	
3	1.15	
4	1.3	
5	1.3	
6	1.1	
~~3~~		
Average:		

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1B	1.35	
2	1.4	
3	1.35	
4	1.4	
5	1.45	
6	1.2	
Average:		

Reference: 40 CFR 60, Appendix A, Method 2

TRC

Orsat Analysis

Project No. 20974-0 Date 8/21/96

Client EBP Run 1

Facility LOGANSPORT, IN Operator DW, SM

Source HYDROLIZER Comments:

Sample Location EXHAUST STACK

CC Checkoff - Pretest

Orsat Leak Checked (yes)no Expiration Date of Reagents

Purge System with Sample Gas YES

Ambient Air Check CO_2 0.0 O_2 20.9

Audit Gas Check (measured/actual): CO_2 / O_2 / CO /

Sample Point	Time	CO_2 Reading 1	(O_2) Reading 2		(CO) Reading 3		F_c
			Actual	Net	Actual	Net	
R1	10:00						

Net O_2 reading = Reading 2 - Reading 1 (Actual)

Net CO reading = Reading 3 - Reading 2 (Actual)

CC Validation

Calculate F_c

$$F_c = \frac{20.9 - \%O_2}{\%CO_2}$$

Fuel

Reported F_c

Expected F_c Ranges

Anthracite/Lignite	1.013 - 1.130
Bituminous	1.083 - 1.230
Distillate Oil	1.260 - 1.413
Residual Oil	1.210 - 1.370
Natural Gas	1.500 - 1.836
Wood Bark	1.000 - 1.120
Municipal Garbage	1.040 - 1.177

Other

TRC

01 [redacted]29 -.6986D
02 -[redacted]32- -.3981-
03 99.68+ .0000-
04 .00000 .2000D
05 .0000D .00
01 -.8228D -.8026D
02 16.30✓ 1.410
03 -.0024 -.0044
04 .00000 .00000
05 .0000D .00000
06 -.0021D -.0021D
07 -.0014D -.0031D

Wed - 08/21/96 DAY= 234 08:18:02 — START Run # 1 Hydrolyzer 8-21-96

01 -.8354D -.9226D
02 17.14✓ 16.30
03 .0024 -.0024
04 .0000D .0020D
05 .0000D .0000D
06 -.0024D -.0021D
07 -.0017D -.0014D

Wed - 08/21/96 DAY= 234 08:19:02

01 [redacted]69 -.8354D
02 [redacted]30✓ 17.14
03 -.0014 .0034
04 .0000D .0020D
05 .0000D .0000D
06 -.0017D -.0024D
07 -.0011D -.0017D

Wed - 08/21/96 DAY= 234 08:20:02

01 -.7446D -.9136D
02 15.12✓ 16.50
03 .0004 -.0014
04 .0000D .0000D
05 .0000D .0000D
06 .0004D -.0017D
07 -.0024D -.0011D

Wed - 08/21/96 DAY= 234 08:21:02

01 -.8799D -.7446D
02 14.88✓ 15.12
03 -.0014 .0004
04 .0000D .0000D
05 .0000D .0000D
06 -[redacted]11D .0004D
07 [redacted]0 -.0024D

Wed - 08/21/96 DAY= 234 08:22:02

01 -.7446D -.8799D
02 13.93✓ 14.88
03 -.0000 -.0014

Pg avg = 15.48

05 .00000 .00000
06 -.00070 -.00110
07 -.00140 -.00340

Wed - 08/21/96 DAY= 234 08:23:02

01 [redacted]1230 -.74460
02 [redacted]17 13.93
03 -.0004 -.0000
04 .00000 .00000
05 .00000 .00000
06 -.00070 -.00070
07 -.00210 -.00140

Wed - 08/21/96 DAY= 234 08:24:02

01 -.37990 -.81230
02 18.49 15.17
03 -.0008 -.0004
04 .00000 .00000
05 .00000 .00000
06 -.00210 -.00070
07 -.00140 -.00240
01 -.77840 -.00340
[redacted] DAY= 234 08:25:02
[redacted] DAY= 234 08:26:02
03 -.0000 .0000
04 .00000 .00000
05 .00000 .00000
06 -.00240 -.00070
07 -.00140 -.00040

Wed - 08/21/96 DAY= 234 08:27:06

01 [redacted]00 -.77540
02 [redacted] 19.64
03 -.0017 -.0000
04 .00000 .00000
05 .00000 .00000
06 -.00210 -.00240
07 -.00340 -.00140

Wed - 08/21/96 DAY= 234 08:28:02

01 -.81230 -.55000
02 34.01 17.99
03 -.0004 -.0017
04 .00200 .00000
05 .00000 .00000
06 -.00040 -.00210
07 -.00110 -.00340

Wed - 08/21/96 DAY= 234 08:29:02

01 -.77840 -.81230
02 23.77 34.01
03 .0004 -.0004
04 .00000 .00000
05 .00000 .00000
06 [redacted]070 -.00040
07 [redacted]140 -.00110

Wed - 08/21/96 DAY= 234 08:30:02

01 -.55000 -.77840
02 19.52 23.77
03 -.0007 .0004

Pg Avg = 21.23

05 .00000 .00000
06 -.00210 -.00070
07 -.00240 -.00140

Wed - 08/21/96 DAY= 234 08:31:02

01 -.87940 -.88000
02 [redacted]6 19.52
03 -.0014 -.2007
04 .00000 .00000
05 .20000 .00000
06 -.00240 -.00210
07 -.00210 -.00240

Wed - 08/21/96 DAY= 234 08:32:02

01 -.88000 -.77940
02 16.60 17.36
03 -.0011 -.0014
04 .00000 .00000
05 .20000 .00000
06 -.00170 -.00240
07 -.00170 -.00210

Wed - 08/21/96 DAY= 234 08:33:02

01 -.87990 -.88000
02 15.29 16.60
03 -.0014 -.0011
04 .00000 .00000
05 .00000 .00000
06 -.00140 -.00170
07 [redacted]80 -.00170

Wed - 08/21/96 DAY= 234 08:34:02

01 -.84610 -.87990
02 13.71 15.29
03 -.0028 -.0014
04 .00000 .00000
05 .00000 .00000
06 -.00110 -.00140
07 -.00170 -.00280

Wed - 08/21/96 DAY= 234 08:35:02

01 -.80200 -.84610
02 13.61 13.71
03 -.0017 -.0028
04 .00200 .00000
05 .00000 .00000
06 -.00240 -.00110
07 -.00270 -.00170

Wed - 08/21/96 DAY= 234 08:36:03

01 -.84610 -.80200
02 [redacted]1 13.61
03 [redacted]1 -.0017
04 .00000 .00000
05 .00000 .00000
06 -.00140 -.00240
07 -.00110 -.00270

PgAvg = 15.33

Wed - 08/21/96 DAY= 234 08:37:02

01 -.84610 -.84610
02 15.02 ✓ 15.41
03 -.0017 -.0021
04 .00000 .00000
05 .00000 .00000
06 -.00110 -.00140
07 [redacted]21D -.00110

Wed - 08/21/96 DAY= 234 08:38:02

01 -.77340 -.84610
02 16.07 ✓ 16.02
03 -.0017 -.0017
04 .00000 .00000
05 .00000 .00000
06 -.00070 -.00110
07 .00040 -.00210

Wed - 08/21/96 DAY= 234 08:39:02

01 -.84610 -.77340
02 16.03 ✓ 16.07
03 -.0007 -.0017
04 .00000 .00200
05 .00300 .00000
06 -.00240 -.00070
07 -.00170 .00040

Wed - 08/21/96 DAY= 234 08:40:02

01 -.81230 -.84610
02 [redacted]06 ✓ 16.03
03 [redacted]7 -.0007
04 .00000 .00000
05 .00000 .00020
06 -.00070 -.00240
07 -.00240 -.00170

Wed - 08/21/96 DAY= 234 08:41:02

01 -.74460 -.81230
02 16.07 ✓ 16.06
03 -.0004 -.0007
04 .00000 .00000
05 .00000 .00000
06 -.00040 -.00070
07 -.00210 -.00240

Wed - 08/21/96 DAY= 234 08:42:02

01 -.83540 -.74460
02 16.16 ✓ 16.07
03 -.0014 -.0004
04 .00000 .00020
05 .00000 .00000
06 -.00220 -.00040
07 -.00240 -.00210

Wed - 08/21/96 DAY= 234 08:43:03

01 -.81230 -.83540
02 16.32 ✓ 16.16
03 -.0011 -.0014
04 .00000 .00000
05 .00000 .00000

Pg Avg = 16.10

06 -.00240 -.00000
07 -.00280 .00240

Wed - 08/21/96 DAY= 234 08:44:03

01 -.77840 -.81230
02 16.75 16.32
03 [redacted]4 -.0011
04 [redacted]280 .00000
05 .00380 .00200
06 -.00140 -.00040
07 -.00140 -.00280

Wed - 08/21/96 DAY= 234 08:45:02

01 -.84610 -.77840
02 16.28 16.75
03 -.0024 -.0004
04 .00000 .00000
05 .00000 .00000
06 -.00210 -.00140
07 -.00240 -.00140

Wed - 08/21/96 DAY= 234 08:46:02

01 -.87990 -.84610
02 14.86 16.28
03 -.0014 -.0024
04 .00000 .00000
05 .00000 .00000
06 -.00210 -.00210
07 -.00280 -.00240

We[redacted]8/21/96 DAY= 234 08:47:02

01 -.87990 -.87990
02 13.67 14.86
03 -.0031 -.0014
04 .00000 .00000
05 .00000 .00000
06 -.00140 -.00210
07 -.00210 -.00280

Wed - 08/21/96 DAY= 234 08:48:02

01 -.75860 -.87990
02 13.20 13.67
03 -.0007 -.0031
04 .00380 .00020
05 .00000 .00000
06 -.00210 -.00140
07 -.00030 -.00210

Wed - 08/21/96 DAY= 234 08:49:03

01 -.71080 -.75860
02 13.42 13.20
03 -.0011 -.0007
04 [redacted]80 .00000
05 .00000 .00000
06 .00140 -.00210
07 -.00140 -.00020

Pg Avg = 14.70

Wed - 08/21/96 DAY= 234 08:50:02

01 -.81250 -.71080

02 19.34 ✓ 19.42
03 -.0021 -.0011
04 .00000 .00000
05 .00000 .00000
06 -.00280 -.00140
07 -.00140 -.00140

[redacted]08/21/96 DAY= 234 08:51:02

01 -.78680 -.81280
02 49.56+ ✓ 14.34
03 -.0008 -.0021
04 .00000 .00280
05 .00000 .00000
06 -.00140 -.00280
07 -.00240 -.00140

Wed - 08/21/96 DAY= 234 08:52:02

01 -.82280 -.78980
02 41.67 ✓ 49.56+
03 .0004 -.0008
04 .00000 .00000
05 .00000 .00000
06 -.00140 -.00160
07 -.00210 -.00240

Wed - 08/21/96 DAY= 234 08:53:02

01 -.94610 -.82280
02 22.35 ✓ 41.67
03 -.0004 .0004
04 [redacted]000 .00000
05 [redacted]000 .00000
06 -.00140 -.00140
07 -.00040 -.00210

Wed - 08/21/96 DAY= 234 08:54:03

01 -.84610 -.84610
02 19.73 ✓ 22.35
03 -.0011 -.0004
04 .00200 .00000
05 .00000 .00000
06 -.00110 -.00140
07 -.00410 -.00040

Wed - 08/21/96 DAY= 234 08:55:03

01 -.84610 -.84610
02 19.76 ✓ 19.73
03 -.0014 -.0011
04 .00000 .00000
05 .00000 .00200
06 -.00210 -.00110
07 -.00340 -.00410

Wed - 08/21/96 DAY= 234 08:56:02

[redacted]

01 [redacted]4610 -.84610
02 19.42 ✓ 19.76
03 -.0024 -.0014
04 .00000 .00000
05 .00000 .00200
06 -.00140 -.00210
07 -.00170 -.00340

Pg Avg = 26.69.

Wed - 08/21/96 DAY= 234 08:57:02

01 -.8123D -.8461D
02 18.03✓ 19.42
03 -.0004 -.0024
04 .0000D .0000D
05 [redacted]00D .0000D
06 [redacted]24D -.0014D
07 -.0011D -.0017D

Wed - 08/21/96 DAY= 234 08:58:02

01 -.8000D -.8123D
02 16.59✓ 18.03
03 -.0014 -.0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0017D -.0004D
07 -.0021D -.0011D

Wed - 08/21/96 DAY= 234 08:59:02

01 -.8461D -.8000D
02 16.59✓ 16.59
03 -.0017 -.0014
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0017D
07 -.0024D -.0021D

Wed - 08/21/96 DAY= 234 09:00:02

01 [redacted]00D -.8461D
02 16.16✓ 16.59
03 -.0017 -.0017
04 .0000D .0000D
05 .0000D .0000D
06 -.0028D -.0004D
07 -.0028D -.0024D

Wed - 08/21/96 DAY= 234 09:01:02

01 -.8461D -.8000D
02 16.81✓ 16.16
03 -.0038 -.0017
04 .0028D .0000D
05 .0000D .0000D
06 -.0017D -.0029D
07 -.0031D -.0028D

Wed - 08/21/96 DAY= 234 09:02:02

01 -.7446D -.8461D
02 17.02✓ 16.81
03 -.0008 -.0038
04 .0000D .0000D
05 .0000D .0000D
06 [redacted]4D -.0017D
07 -.0011D -.0031D

Wed - 08/21/96 DAY= 234 09:03:02

Pg avg = 16.66

01 -.8000D -.7446D
02 16.39✓ 17.02

01 -.84510 -.81230
02 15.39 15.58
03 -.0014 -.0024
04 .00000 .00000
05 .00000 .00000
06 -.00070 -.00070
07 -.00070 -.00070

Wed - 08/21/96 DAY= 234 09:11:02

01 -.84610 -.84610
02 15.39 15.39
03 -.0017 -.0014
04 .00000 .00000
05 .00000 .00000
06 -.00110 -.00070
07 -.00310 -.00170

Wed - 08/21/96 DAY= 234 09:12:02

01 -.74460 -.84610
02 15.59 15.39
03 -.0011 -.0017
04 .00030 .00000
05 .00000 .00000
06 -.00070 -.00110
07 -.00240 -.00310

Wed - 08/21/96 DAY= 234 09:13:02

01 -.77850 -.74460
02 [illegible] 15.59
03 [illegible] -.0011
04 .00000 .00000
05 .00000 .00000
06 -.00310 -.00070
07 -.00310 -.00240

Wed - 08/21/96 DAY= 234 09:14:02

01 -.78960 -.77950
02 4.813 15.93
03 -.0031 .0004
04 .00000 .00000
05 .00000 .00000
06 -.00110 -.00310
07 -.00110 -.00310

Wed - 08/21/96 DAY= 234 09:15:02

01 -.77940 -.78960
02 2.314 4.813
03 -.0061 -.0031
04 .00000 .00000
05 .00000 .00000
06 -.00170 -.00110
07 [illegible]310 -.00110

Wed - 08/21/96 DAY= 234 09:16:02

01 -.86880 -.77940
02 2.786 2.314
03 -.0041 -.0061
04 .00000 .00000

Pg Avg = 10.30

04 .00200 .00000
05 .00000 .00000
06 -.00240 -.00140
07 -.00210 -.00110

Wed - 08/21/96 DAY= 234 09:04:02

01 [redacted]80 -.58000
02 15.99✓ 15.39
03 -.2021 -.0031
04 .00000 .00000
05 .00000 .00000
06 -.00070 -.00240
07 -.00140 -.00210

Wed - 08/21/96 DAY= 234 09:05:02

01 -.67690 -.91380
02 15.89✓ 15.99
03 -.0000 -.0021
04 .00000 .00000
05 .00000 .00000
06 -.00140 -.00070
07 -.00070 -.00140

Wed - 08/21/96 DAY= 234 09:06:02

01 -.84610 -.67690
02 15.80✓ 15.99
03 -.0031 -.0000
04 .00200 .00000
05 .00000 .00000
06 [redacted]40 -.00140
07 [redacted]10 -.00070

Wed - 08/21/96 DAY= 234 09:07:02

01 -.34610 -.84610
02 15.67✓ 15.80
03 -.0024 -.0031
04 .00000 .00000
05 .00000 .00000
06 -.00070 -.00340
07 -.00280 -.00210

Wed - 08/21/96 DAY= 234 09:08:02

01 -.56890 -.34610
02 15.55✓ 15.67
03 -.0027 -.0024
04 .00000 .00200
05 .00000 .00000
06 -.00270 -.00070
07 -.00210 -.00230

Wed - 08/21/96 DAY= 234 09:09:02

01 [redacted]230 -.56890
02 [redacted]0✓ 15.55
03 -.0024 -.0027
04 .00000 .00000
05 .00000 .00000
06 -.00070 -.00270
07 -.00970 -.00210

Pg Avg = 15.73

06 -.00370 -.00170
07 -.00270 -.00210

Wed - 08/21/96 DAY= 234 09:17:02

01 -.88000 -.94980
02 [redacted]63 2.706
03 [redacted]44 -.0041
04 .00000 .00000
05 .00000 .00000
06 -.00110 -.00370
07 -.00210 -.00270

Wed - 08/21/96 DAY= 234 09:18:02

01 -.76860 -.88000
02 2.907 2.763
03 -.0044 -.0044
04 .00000 .00000
05 .00200 .00200
06 -.00110 -.00110
07 -.00140 -.00210

Wed - 08/21/96 DAY= 234 09:19:02 — End Run #1 HYDROLYZER

01 -.88000 -.76360
02 13.44 2.907
03 -.0034 -.0044
04 .00000 .00000
05 .00200 .00200
06 -.00234 -.00110
07 -.00310 -.00140

Wed - 08/21/96 DAY= 234 09:20:02

Pg Avg = 2.835

01 -.71380 -.88200
02 12.42 13.44
03 -.0024 -.0034
04 .00000 .00000
05 .00000 .00000
06 -.00200 -.00340
07 -.00310 -.00510

Wed - 08/21/96 DAY= 234 09:21:02

01 -.73520 -.71380
02 3.097 12.42
03 -.0031 -.0024
04 .00000 .00000
05 .00200 .00000
06 -.00270 -.00000
07 -.00170 -.00310

Wed - 08/21/96 DAY= 234 09:22:02

01 -.93560 -.73520
02 2.806 3.097
03 -.0061 -.0031
04 .00000 .00000
05 .20000 .20
01 -.90230 -.94610
02 1.566 1.314
03 -.0044 -.0058
04 .00000 .00000
05 .00000 .00000
06 -.00240 -.00170
07 -.00240 -.00240

Wed - 08/21/96 DAY= 234 09:36:02 — Start Run #2 Hydrolyzer

01 -.81230 -.90230
02 2.264 1.566
03 -.0041 -.0044
04 .00000 .00000
05 .00000 .00000
06 -.00040 -.00240
07 -.00110 -.00240

* only a 40 min Run - unit having problems causing PSI problems on analyzer. (DMD)

Wed - 08/21/96 DAY= 234 09:37:02

01 -.86890 -.81230
02 2.426 2.264
03 -.0014 -.0041
04 .00000 .00000
05 .00000 .00000
06 -.00140 -.00240
07 -.00140 -.00110

Wed - 08/21/96 DAY= 234 09:38:02

01 -.86340 -.86890
02 14.83+ 2.426
03 -.0025 -.0014
04 .00000 .00000
05 .00200 .00000
06 -.00140 -.00140
07 -.00070 -.00140

Wed - 08/21/96 DAY= 234 09:39:02

01 -.81530 -.86940
02 55.60+ 14.83+
03 -.0008 -.0025
04 .00200 .00000
05 .00000 .00000
06 -.00040 -.00140
07 -.00240 -.00070

Wed - 08/21/96 DAY= 234 09:40:02

Pf avg 15.34

01 -.78430 -.81530

03 .0004 -.0000
04 .0000D .0000D
05 .0000D .0000D
06 -.0007D -.0004D
07 .0004D -.0004D

Wed - 08/21/96 DAY= 234 09:41:02

01 -.8896D -.7843D
02 59.68+ 37.73
03 .0004 .0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0011D -.0007D
07 -.0011D .0004D

Wed - 08/21/96 DAY= 234 09:42:02

01 -.8800D -.8896D
02 40.72 59.68+
03 .2000 .0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0017D -.0011D
07 -.2207D -.0011D

Wed - 08/21/96 DAY= 234 09:43:02

01 -.8229D -.8800D
02 39.81 40.72
03 .2004 .2000
04 .0000D .0000D
05 [redacted]0D .0000D
06 [redacted]04D -.0017D
07 -.0200D -.0007D

Wed - 08/21/96 DAY= 234 09:44:02

01 -.8919D -.8229D
02 87.18+ 39.81
03 .0004 .0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0004D
07 -.0000D -.0000D

Wed - 08/21/96 DAY= 234 09:45:02

01 -.8571D -.8919D
02 28.18 87.18+
03 -.0007 .0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0027D -.0004D
07 -.0038D -.0000D

Wed - 08/21/96 DAY= 234 09:46:02

01 [redacted]2D -.8571D
02 29.67 28.18+
03 -.0021 -.0007
04 .0000D .0000D
05 .0000D .0000D
06 -.0029D -.0027D
07 -.0041D -.0038D

Pg Avg = 48.85

Wed - 08/21/96 DAY= 234 09:47:02

01 -.7886D -.8462D
02 54.75✓ 29.67
03 .0011 -.0021
04 .00000 .00000
05 .00000 .00000
06 [redacted]07D -.0028D
07 .0004D -.0041D

Wed - 08/21/96 DAY= 234 09:48:02

01 -.9684D -.7886D
02 72.47✓ 54.75
03 .0024 .0011
04 .00000 .00000
05 .00000 .00000
06 .0008D .0007D
07 .0004D .0004D

Wed - 08/21/96 DAY= 234 09:49:02

01 -.8914D -.8684D
02 49.93✓ 72.47
03 -.0011 .0004
04 .00000 .00000
05 .00000 .00000
06 -.0011D .0000D
07 -.0014D .0004D

Wed - 08/21/96 DAY= 234 09:50:02

01 [redacted]89D -.8914D
02 [redacted]93✓ 49.93
03 -.0021 -.0011
04 .00000 .00000
05 .00000 .00000
06 -.0027D -.0011D
07 -.0021D -.0014D

Wed - 08/21/96 DAY= 234 09:51:03

01 -.8461D -.8689D
02 13.82✓ 12.93
03 -.0011 -.0021
04 .00000 .00000
05 .00000 .00000
06 -.0017D -.0027D
07 -.0014D -.0021D

Wed - 08/21/96 DAY= 234 09:52:02

01 -.8461D -.8461D
02 8.624✓ 13.82
03 -.0004 -.0011
04 .00000 .00000
05 .00000 .00000
06 [redacted]07D -.0017D
07 [redacted]17D -.0014D

Wed - 08/21/96 DAY= 234 09:53:02

01 -.8600D -.8461D
02 48.11✓ 8.624
03 -.0008 -.0004

Pg Avg = 37.22

05 .00001 .00000
06 -.00089 -.00070
07 -.00150 -.00170

Wed - 08/21/96 DAY= 234 09:54:02

01 [redacted]71D -.85030
02 [redacted]89 48.11+
03 .0003 -.0008
04 .00000 .00000
05 .00000 .00000
06 -.00140 -.00080
07 -.00070 -.00150

Wed - 08/21/96 DAY= 234 09:55:02

01 -.94030 -.8571D
02 36.46+ 39.89
03 -.0008 .0000
04 .00000 .00000
05 .00000 .00000
06 -.00110 -.00140
07 -.00110 -.00070

Wed - 08/21/96 DAY= 234 09:56:02

01 -.8571D -.94030
02 46.44+ 36.46+
03 .0000 -.0000
04 .00000 .00000
05 .00000 .00000
06 -.00110 -.00110
07 [redacted]10 -.00110

Wed - 08/21/96 DAY= 234 09:57:02

01 -.95520 -.8571D
02 85.76+ 46.44+
03 .0004 .0000
04 .00000 .00000
05 .00000 .00000
06 .00240 -.00110
07 -.00080 -.00110

Wed - 08/21/96 DAY= 234 09:58:02

01 -.88080 -.95520
02 31.98 85.76+
03 -.0004 .0004
04 .00000 .00000
05 .00000 .00000
06 -.00240 .00040
07 -.00170 -.00080

Wed - 08/21/96 DAY= 234 09:59:02

01 -.90510 -.88080
02 [redacted]24 31.98
03 [redacted]00 -.0004
04 .00000 .00000
05 .00000 .00000
06 .00000 -.00040
07 .00000 -.00170

Pg Avg = 44.98

Wed - 08/21/96 DAY= 234 10:00:02

01 -.77440 -.93510
02 46.32+ 29.42+
03 .0004 .0000
04 .00000 .00000
05 .00000 .00000
06 .00250 .00030
07 [redacted]40 .00000

Wed - 08/21/96 DAY= 234 10:01:02

01 -.91510 -.77440
02 35.73+ 46.32+
03 -.0008 .0004
04 .00000 .00000
05 .00000 .00000
06 -.00110 .00000
07 -.00040 -.00040

Wed - 08/21/96 DAY= 234 10:02:02

01 -.92050 -.91510
02 60.81+ 35.73+
03 .0004 -.0008
04 .00000 .00000
05 .00000 .00000
06 -.00040 -.00110
07 .00000 -.00040

Wed - 08/21/96 DAY= 234 10:03:02

01 -.91230 -.92050
02 [redacted]2 60.81+
03 [redacted]1 .0004
04 .00000 .00000
05 .00000 .00000
06 .22240 -.00040
07 -.00110 .00000

Wed - 08/21/96 DAY= 234 10:04:02

01 -.89240 -.91230
02 55.08+ 22.72
03 .0004 -.0011
04 .00000 .00000
05 .00000 .00000
06 -.00080 .00040
07 -.00040 -.00110

Wed - 08/21/96 DAY= 234 10:05:02

01 -.84610 -.89240
02 27.97 55.08+
03 -.0011 .0004
04 .00000 .00000
05 .00000 .00000
06 -.00110 -.00080
07 [redacted]10 -.00000

Wed - 08/21/96 DAY= 234 10:06:02

01 -.88300 -.84610
02 56.63+ 27.97
03 -.0004 -.0011
04 .00000 .00000
05 [redacted]

Pg Aug 43.49

06 -.00240 -.00110
07 -.00110 -.00210

Wed - 08/21/96 DAY= 234 10:07:03

01 -.84460 -.38000
02 50.03+ 56.63+
03 [redacted] -.0004
04 [redacted] .00030
05 .00000 .00000
06 .00240 -.00040
07 -.00030 -.00110

Wed - 08/21/96 DAY= 234 10:03:02

01 -.80960 -.34480
02 55.72+ 80.03+
03 -.0204 -.0000
04 .00000 .00000
05 .00005 .00000
06 -.00040 .00040
07 -.00110 -.00000

Wed - 08/21/96 DAY= 234 10:09:03

01 -.77850 -.30950
02 40.07 55.72+
03 .0004 -.0004
04 .23001 .00020
05 .33021 .00000
06 -.00000 -.00240
07 -.00070 -.00110

[redacted] 08/21/96 DAY= 234 10:10:02

01 -.44010 -.77850
02 12.39 40.07
03 -.0029 .0004
04 -.00000 .00000
05 .23400 .00000
06 -.23240 -.00000
07 -.00070 -.00070

Wed - 08/21/96 DAY= 234 10:11:02

01 -.81130 -.34610
02 11.47 12.39
03 -.0031 -.0029
04 .00000 .00000
05 .00020 .00000
06 -.00110 -.00240
07 -.00110 -.00070

Wed - 08/21/96 DAY= 234 10:12:02

01 -.86840 -.31230
02 51.33+ 11.47
03 [redacted] -.0031
04 [redacted] .00020
05 .00000 .00000
06 .00020 -.00110
07 .00000 -.00110

Wed - 08/21/96 DAY= 234 10:13:03

Pg Avg = 41.84

```
02  42.85 ✓ 31.35-
03  .0000   .0000
04  .00000  .00000
05  .00000  .00000
06 -.00110  .00000
07 -.00140  .00000

 Wed - 08/21/96  DAY= 234 10:14:02

01 -.00420 -.00140
02  1.955 ✓ 42.15
03 -.0054   .0150
04  .00000  .00000
05  .00000  .00000
06 -.00110 -.00110
07 -.00140 -.00140

 Wed - 08/21/96  DAY= 234 10:15:02 - Stop R-2 195    Avg = 21.00

01 -.00390 -.00420
02 -.4332-  1.955
03 -.0027  -.0054
04  .00000  .00000
05  .00000  .00000
06 -.00110 -.00110
07 -.00210 -.00140

 Wed - 08/21/96  DAY= 234 10:16:02

01 -.00690 -.00690
02 -.3549- -.4332-
03 -.0024  -.0027
04  .00000  .00000
05  .00000  .00000
06 -.00210 -.00110
07 -.00210 -.00210

 Wed - 08/21/96  DAY= 234 10:17:02

01 -.00140 -.00690
02  41.92  -.3549-
03 -.0024  -.0024
04  .00000  .00000
05  .00000  .00000
06 -.00070 -.00210
07 -.00140 -.00210

 Wed - 08/21/96  DAY= 234 10:18:02
```

Run 1

DATE:	22-Aug-96	CLIENT REP:	Rechelle Kruse
PLANT:	IBP	WITNESSED?:	yes
[redacted]OC TYPE		BURNER TYPE:	N/A
OPERATOR:	SM, DW	GENERATOR TYPE:	N/A
TEST LOCATION:	Melt Tank	O2 GENERATOR TYPE:	N/A

CALIBRATION GASES

O2	CO2	CO	S02	NOx	THC outlet
0	0	0	0	0	0
N/A	N/A	N/A	N/A		29.68
N/A	N/A	N/A	N/A		49.42
					83.47

END TIME	SAMPLE POINT	O2 wet	CO2 ppm	SO2 ppm	THC Outlet ppm	CO ppm	NOx ppm	COMMENTS a
10:03	1				76.49			
	AVERAGES	ERR	ERR	ERR	76.49	ERR	ERR	

Barometric Pres: 29.5

EFFLUENT GAS CONCENTRATION, WET BASIS, PPM

	O2	CO2	SO2	THC Outlet	CO	NOx
PRE ZERO	0		0	0	0	0
POST ZER[redacted]	0		0	1		0
ACT SPAN	N/A	N/A	N/A	83.47	N/A	N/A
PRE SPAN	0		0	83.5		0
POST SPA[redacted]	0		0	83		0
GAS CONC	ERR	ERR	ERR	76.65	ERR	ERR

Calculations

Analyte	C3H8	C3H8
FWhc lbs/lb-mole	44	44
Stack Flowrate, dry scf/hr	n/a	n/a
Moisture, %	n/a	n/a
Cppmv	76.65	0
Cppmv minus CH4	51.45	

01 -.1760P -.7784D
02 3.893P 1.848
03 [redacted]22P -.0065
04 [redacted]089P -.0004D
05 .2003P -.00
01 .0693D -.0344D
02 66.11 64.43
03 .0101 .0100
04 .0004D .0007D
05 .0004D -.0004D
06 -.0025D -.0007D
07 -.0042D -.0059D

Thr - 08/22/96 DAY= 235 08:03:02 - Start Run* 1 Melt Tank 0903

01 -.2059D -.0693D
02 67.34 66.11
03 .0083 .0101
04 .2007D .0004D
05 .0000D .0004D
06 -.0035D -.0025D
07 -.0028D -.0042D

Thr - 08/22/96 DAY= 235 08:04:02

01 -.1391D -.2059D
02 86.74 67.34
03 [redacted]080 .0083
04 [redacted]00 .0007D
05 -.0000D .0000D
06 .0021D -.0035D
07 -.0011D -.0028D

Thr - 08/22/96 DAY= 235 08:05:02

01 -.1733D -.1391D
02 85.09 96.74
03 .0080 .0080
04 .0104D .0080D
05 .0014D -.0000D
06 .0025D .0021D
07 .0011D -.0011D

Thr - 08/22/96 DAY= 235 08:06:02

01 -.5352D -.1738D
02 76.61+ 85.09
03 .0036 .0060
04 .0103D .0104D
05 .0015D .0014D
06 -.0025D .0025D
07 -.0033D .0011D

T[redacted]08/22/96 DAY= 235 08:07:02

01 -.7295D -.5352D
02 90.21 76.61+
03 .0025 .0036
04 .0111D .0103D
05 .0007D .0015D
06 -.0032D -.0025D

Page Avg = 78.683

07 -.00320 -.00330

Thr - 08/22/96 DAY= 235 08:08:02

01 -.5632D -.7295D
02 89.14 90.21
03 .0022 .0025
04 .0120D .0111D
05 .0049 .0007D
06 -.0011D -.0032D
07 -.0011D -.0032D

Thr - 08/22/96 DAY= 235 08:09:02

01 -.6253D -.5632D
02 85.71 89.14+
03 .0025 .0022
04 .0121D .0120D
05 .0007D .0004D
06 -.0000D -.0011D
07 -.0018D -.0011D

Thr - 08/22/96 DAY= 235 08:10:02

01 -.7642D -.6253D
02 75.69 85.71
03 .0018 .0025
04 .0049D .0121D
05 -.0006D .0007D
06 -.0007D -.0000D
07 -.0025D -.0018D

Thr - 08/22/96 DAY= 235 08:11:02

01 -.6253D -.7642D
02 66.82 75.69
03 .0035 .0018
04 .0052D .0049D
05 -.0006D -.0006D
06 .0011D -.0007D
07 -.0004D -.0025D

Thr - 08/22/96 DAY= 235 08:12:02

01 -.4457D -.6253D
02 82.70 66.82
03 .0045 .0035
04 .0052D .0052D
05 -.0008D -.0008D
06 .0028D .0011D
07 .0021D -.0004D

Thr - 08/22/96 DAY= 235 08:13:03

01 -.6600D -.4457D
02 69.51 82.70
03 .0021 .0045
04 .0059D .0052D
05 -.0007D -.0008D
06 .0011D .0028D
07 -.0013D .0021D

Thr - 08/22/96 DAY= 235 08:14:02

page Avg = 76.766

01 -.7543D -.6600D
02 67.79 69.51

03 .0014 .0021
04 .0024D .0059D
05 .0011D .0027D
06 .0007D .0011D
07 -.0018D -.0018D

Thr - 08/22/96 DAY= 235 08:15:02

01 [redacted]42D -.7543D
02 75.28 57.79
03 .0014 .0014
04 .0021D .0024D
05 .0007D .0011D
06 -.0020D .0007D
07 -.0004D -.0016D

Thr - 08/22/96 DAY= 235 08:16:02

01 -.7685D -.7642D
02 64.25 75.28
03 .0004 .0014
04 .0014D .0021D
05 -.0031D .0007D
06 -.0007D -.0000D
07 -.0035D -.0004D

Thr - 08/22/96 DAY= 235 08:17:02

01 -.6947D -.7685D
02 60.71 64.25
03 .0021 .0004
04 .0052D .0014D
05 [redacted]42D -.0031D
06 [redacted]04D -.0007D
07 .0004D -.0035D

Thr - 08/22/96 DAY= 235 08:18:02

01 -.6857D -.6947D
02 59.66 60.71
03 .0011 .0021
04 .0011D .0052D
05 -.0025D .0042D
06 -.0021D -.0004D
07 -.0011D .0004D

Thr - 08/22/96 DAY= 235 08:19:02

01 -.5929D -.6857D
02 61.73 59.66
03 .0031 .0011
04 .0045D .0011D
05 -.0008D -.0025D
06 -.0018D -.0021D
07 -.0025D -.[illegible]1D

Thr - 08/22/96 DAY= 235 08:20:03

01 [redacted]D -.5329D
02 [illegible]97 61.73
03 .0018 .0031
04 .0038D .0045D
05 -.0011D -.0008D
06 -.0021D -.00[illegible]8D
07 -.0028D -.0025D

Page Avg = 63.267

Thr - 08/22/96 DAY= 235 08:21:02

01 -.5829D -.5947D
02 53.38 57.97
03 .0031 .0019
04 .0028D .0038D
05 -.0004D -.0011D
06 [redacted]D -.0021D
07 -.0035D -.0026D

Thr - 08/22/96 DAY= 235 08:22:02

01 -.5143D -.5[redacted]
.30 53.38
05 .0000D .0000D
06 -.0004D -.0011D
07 -.0004D -.0014D

Thr - 08/22/96 DAY= 235 08:40:44

01 -.8571D -.8571D
02 72.35 63.29
03 .0004 .0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0011D
07 -.0004D -.0014D

Thr - 08/22/96 DAY= 235 08:40:46

01 -.8571D -.8571D
02 72.35 63.29
03 [redacted]04 .0004
04 [redacted]00D .0000D
05 .0000D .0000D
06 -.0004D -.0011D
07 -.0004D -.0014D

Thr - 08/22/96 DAY= 235 08:40:48

01 -.8571D -.8571D
02 72.35 63.29
03 .0004 .0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0011D
07 -.0004D -.0014D

Thr - 08/22/96 DAY= 235 08:40:50

01 -.8571D -.8571D
02 72.35 63.29
03 .0004 .0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0011D
07 -.0004D -.0014D

Thr [redacted]8/22/96 DAY= 235 08:40:52

01 -.8571D -.8571D
02 72.35 63.29
03 .0004 .0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0011D
07 -.0004D -.0014D

Page Avg = 68.346

03 .0014 .0004
04 .00000 .00000
05 .00000 .00000
06 .0014D -.0004D
07 .0014D -.0004D

Thr - 08/22/96 DAY= 235 08:41:07

01 [redacted]6948D -.8571D
02 73.85 ✓ 72.35
03 .0014 .0004
04 .00000 .00000
05 .00000 .00000
06 .0014D -.0004D
07 .0014D -.0004D

Thr - 08/22/96 DAY= 235 08:41:09

01 -.6948D -.8571D
02 73.85 ✓ 72.35
03 .0014 .0004
04 .00000 .00000
05 .00000 .00000
06 .0014D -.0004D
07 .0014D -.0004D

Thr - 08/22/96 DAY= 235 08:41:11

01 -.6948D -.8571D
02 73.85 ✓ 72.35
03 .0014 .0004
04 .00000 .00000
05 [redacted]000 .00000
06 [redacted]14D -.0004D
07 .0014D -.0004D

Thr - 08/22/96 DAY= 235 08:41:13

01 -.6948D -.8571D
02 73.85 ✓ 72.35
03 .0014 .0004
04 .00000 .00000
05 .00000 .00000
06 .0014D -.0004D
07 .0014D -.0004D

Thr - 08/22/96 DAY= 235 08:41:15

01 -.6948D -.8571D
02 73.85 ✓ 72.35
03 .0014 .0004
04 .00000 .00000
05 .00000 .00000
06 .0014D -.0004D
07 .0014D -.0004D

Thr - 08/22/96 DAY= 235 08:41:16

01 [redacted]71D -.6948D
02 [redacted]51 ✓ 73.95
03 .0007 .0014
04 .00000 .00000
05 .00000 .00000
06 .0004D .0014D
07 -.0003D .0014D

Page Avg: 71.793

07 -.0004D -.0014D

Thr - 08/22/96 DAY= 235 08:40:54

01 -.8571D -.8571D
02 72.35 ✓ 63.29
03 .0004 .0004
04 [redacted] .0000D
05 [redacted] .0000D
06 -.0004D -.0011D
07 -.0004D -.0014D

Thr - 08/22/96 DAY= 235 08:40:56

01 -.8571D -.8571D
02 72.35 ✓ 63.29
03 .0004 .0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0011D
07 -.0004D -.0014D

Thr - 08/22/96 DAY= 235 08:40:57

01 -.8571D -.8571D
02 72.35 ✓ 63.29
03 .0004 .0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0011D
07 -.0004D -.0014D

Thr [redacted] 08/22/96 DAY= 235 08:40:59

01 -.8571D -.8571D
02 73.85 ✓ 72.35
03 .0014 .0004
04 .0000D .0000D
05 .0000D .0000D
06 .0014D -.0004D
07 .0014D -.0004D

Thr - 08/22/96 DAY= 235 08:41:01

01 -.6948D -.8571D
02 73.85 ✓ 72.35
03 .0014 .0004
04 .0000D .0000D
05 .0000D .0000D
06 .0014D -.0004D
07 .0014D -.0004D

Thr - 08/22/96 DAY= 235 08:41:03

01 -.6948D -.8571D
02 73.85 ✓ 72.35
03 .0014 .0004
04 .0000D .0000D
05 [redacted] .0000D
06 .0014D -.0004D
07 .0014D -.0004D

Thr - 08/22/96 DAY= 235 08:41:05

Page Avg = 73.207

01 -.6948D -.8571D
02 73.85 ✓ 72.35

Thr - 08/22/96 DAY= 235 08:42:02

01 -.8914D -.8337D
02 61.16 ✓ 61.51
03 .0000 .0007
04 .0000D .0000D
05 .0000D .0000D
06 [redacted]7D .0004D
07 [redacted]14D -.0000D

Thr - 08/22/96 DAY= 235 08:43:02

01 -.8914D -.8914D
02 65.68 ✓ 61.16
03 .0000 .0000
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0007D
07 .0000D -.0014D

Thr - 08/22/96 DAY= 235 08:44:02

01 -.8337D -.8914D
02 72.34 ✓ 65.68
03 .0000 .0000
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0004D
07 .0000D .0000D

Thr - 08/22/96 DAY= 235 08:45:02

01 [redacted]4D -.8337D
02 [redacted]37 ✓ 72.34
03 .0000 .0000
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0004D
07 .0000D .0000D

Thr - 08/22/96 DAY= 235 08:46:02

01 -.8914D -.8834D
02 73.52 ✓ 72.37
03 .0000 .0000
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0004D
07 -.0007D .0000D

Thr - 08/22/96 DAY= 235 08:47:02

01 -.7989D -.8914D
02 73.39 ✓ 73.52
03 .0007 .0000
04 .0000D .0000D
05 .0000D .0000D
06 [redacted]04D -.0004D
07 [redacted]0D -.0007D

Thr - 08/22/96 DAY= 235 08:48:02

Page Avg = 70.294

01 -.7998D -.7989D
02 73.60 ✓ 73.39
03 .0007 .0007
04 [redacted]

05 .0000D .0000D
06 -.0000D .0004D
07 .0004D .0000D

Thr - 08/22/96 DAY= 235 08:49:02

01 -.8814D -.7998D
02 [redacted]3 73.60
03 .0000 .0007
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0003D
07 -.0004D .0004D

Thr - 08/22/96 DAY= 235 08:50:02

01 -.8684D -.8914D
02 81.95 74.73
03 .0004 .0000
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0004D
07 .0004D -.0004D

Thr - 08/22/96 DAY= 235 08:51:02

01 -.7989D -.8684D
02 88.32 81.95
03 .0004 .0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0004D
07 [redacted]7D .0004D

Thr - 08/22/96 DAY= 235 08:52:02

01 -.7031D -.7989D
02 65.28 88.32
03 .0002 .0004
04 .0000D .0000D
05 .0000D .0000D
06 .0000D .0004D
07 .0000D -.0007D

Thr - 08/22/96 DAY= 235 08:53:02

01 -.8684D -.7031D
02 82.25 65.28
03 .0004 .0000
04 .0000D .0000D
05 .0000D .0000D
06 .0004D .0000D
07 -.0000D .0000D

Thr - 08/22/96 DAY= 235 08:54:02

01 -.7989D -.8684D
02 [redacted]88 82.25
03 [redacted]4 .0004
04 .0000D .0000D
05 .0000D .0000D
06 .0004D .0004D
07 -.0004D -.0000D

page Avg = 82.418

Thr - 08/22/96 DAY= 235 08:55:02

01 -.8684D -.7989D
02 97.76 ✓81.98
03 .0004 .0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0000D .0004D
07 -.0034D -.0004D

Thr - 08/22/96 DAY= 235 08:56:02

01 -.8820D -.8684D
02 88.73+ ✓87.76
03 .0000 .0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0008D -.0000D
07 -.0011D .0004D

Thr - 08/22/96 DAY= 235 08:57:02

01 -.8919D -.8800D
02 98.57+ ✓88.73+
03 .0000 .0000
04 .0002D .0000D
05 .0000D .0000D
06 -.0008D -.0008D
07 -.0011D -.0011D

Thr - 08/22/96 DAY= 235 08:58:02

01 -.8634D -.8919D
02 93.56 ✓98.57+
03 [redacted]00 .0000
04 .0000D .0000D
05 .0000D .0000D
06 .0000D -.0008D
07 .0002D -.0011D

Thr - 08/22/96 DAY= 235 08:59:02

01 -.8684D -.8634D
02 87.70 ✓93.56
03 .0002 .0000
04 .0003D .0000D
05 .0003D .0000D
06 .0002D .0000D
07 -.0007D .0000D

Thr - 08/22/96 DAY= 235 09:00:03

01 -.8802D -.8684D
02 84.43 ✓87.70
03 .0000 .0000
04 .0000D .0000D
05 .0000D .0000D
06 .0002D .0000D
07 .0000D -.0007D

T[redacted]08/22/96 DAY= 235 09:01:02

01 -.8337D -.8800D
02 91.63 ✓84.43
03 .0000 .0000
04 .0000D .0000D
05 .0000D .0000D

Page Avg = 90.326

07 .00000 .00000

Thr - 08/22/96 DAY= 235 09:02:02

01 -.9031D -.8337D
02 92.08+ 91.53
03 .0000 .0000
04 .0000D .0000D
05 .0000D .0000D
06 .0000D .0000D
07 .0000D .0000D

Thr - 08/22/96 DAY= 235 09:03:02

01 -.9032D -.9031D
02 87.47 92.08+
03 .0000 .0000
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D .0000D
07 .0000D .0000D

Thr - 08/22/96 DAY= 235 09:04:02 — End Run #1 page Avg = 89.775

01 -.8448D -.9032D
02 88.55 87.47
03 .0000 .0000
04 .0000D .0000D
05 .0000D .0000D
06 .0000D -.0004D
07 -.0004D .0000D

Thr - 08/22/96 DAY= 235 09:05:02

01 -.9031D -.8448D
02 89.73 88.55
03 .0000 .0000
04 .0000D .0000D
05 .0000D .0000D
06 .0000D .0000D
07 -.0011D -.0004D

Thr - 08/22/96 DAY= 235 09:06:02

01 -.8684D -.9831D
02 97.31 ✓ 99.73
03 .0000 .0000
04 .0000D .0000D
05 .0000D .0000D
06 .0004D .0000D
07 -.0004D -.0004D

Thr - 08/22/96 DAY= 235 09:09:19 - ~~START Run#2 MELT TANK #19~~

01 -.8229D -.8800D
02 67.70 ✓ 94.84+
03 .0007 .0000
04 .0000
01 -.7701D -.7544D
02 55.52+ 13.13+
03 -.0008 -.0000
04 .0000D .0000D
05 .0000D .0000D
06 -.0000D -.0021D
07 -.0004D -.0004D

Thr - 08/22/96 DAY= 235 09:44:02 - Start Run #2 MELT TANK

01 [redacted]42D -.7701D
02 24.09+ ✓ 55.52+
03 -.0022 -.0008
04 .0000D .0000D
05 .0000D .0000D
06 -.0008D -.0000D
07 -.0022D -.0004D

Thr - 08/22/96 DAY= 235 09:45:02

01 -.9024D -.9042D
02 7.501 ✓ 24.09+ x10
03 -.0037 -.0022
04 .0000D .0000D
05 .0000D .0000D
06 -.0007D -.0008D
07 -.0007D -.0022D

OFFSCALE 0-1000 ppm

Thr - 08/22/96 DAY= 235 09:46:03

01 -.8801D -.9024D
02 4.923 ✓ 7.501 x10
03 -.0034 -.0037
04 .0000D .0000D
05 .0000D .0000D
06 [redacted]41D -.0007D
07 [redacted]024D -.0007D

VOID

Thr - 08/22/96 DAY= 235 09:47:02

Page Avg= ~~57.515~~ 45.47

01 -.8639D -.8801D
02 3.255 ✓ 4.923 x10
03 -.0014 -.0034

04 .00000 .00000
05 .00000 .00000
06 -.00140 -.00110
07 -.00070 -.00040

Thr - 08/22/96 DAY= 235 09:48:02

01 [redacted]00 -.88890
02 [redacted]11 3.255 x10
03 -.0024 -.0014
04 .00000 .00000
05 .00030 .00000
06 -.00110 -.00140
07 .00000 -.00070

Thr - 08/22/96 DAY= 235 09:49:02

01 -.90240 -.88000
02 3.057 3.011 x10
03 -.0021 -.0024
04 .00000 .00000
05 .00000 .00000
06 .00000 -.00110
07 -.00170 .00000

Thr - 08/22/96 DAY= 235 09:50:02

01 -.86900 -.90240
02 3.250 3.057 x10
03 -.0021 -.0021
04 .00000 .00000
05 .00000 .00000
06 [redacted]11D .00000
07 [redacted]4D -.00170

Thr - 08/22/96 DAY= 235 09:51:02

01 -.84630 -.86900
02 3.078 3.250 x 10
03 -.0028 -.0021
04 .00000 .00000
05 .00000 .00000
06 -.00170 -.00110
07 -.00070 -.00340

Thr - 08/22/96 DAY= 235 09:52:02

01 -.86900 -.84630
02 2.883 3.078 x10
03 -.0021 -.0023
04 .00000 .00000
05 .00000 .00000
06 -.00170 -.00170
07 -.00170 -.00070

Thr - 08/22/96 DAY= 235 09:53:02

01 -.89010 -.86900
02 [redacted]1 2.883
03 [redacted]21 -.0021
04 .00000 .00000
05 .00000 .00000
06 -.00070 -.00170
07 -.00110 -.00170

VOID
page Avg = 23.117

Thr - 08/22/96 DAY= 235 09:54:02

01 -.8801D -.8801D
02 23.17 15.91
03 -.0014 -.0011
04 .0000D .0000D
05 .0000D .0000D
06 -.0014D -.0007D
07 [redacted]14D -.0011D

Thr - 08/22/96 DAY= 235 09:55:02 — RESTART Run # 2 MELT TANK 1055

01 -.8800D -.8801D
02 21.36 23.17
03 -.0011 -.0014
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0014D
07 -.0004D -.0014D

Thr - 08/22/96 DAY= 235 09:56:02

01 -.8801D -.8800D
02 21.06 21.36
03 -.0004 -.0011
04 .0000D .0000D
05 .0000D .0000D
06 -.0014D -.0004D
07 -.0004D -.0004D

Thr - 08/22/96 DAY= 235 09:57:02

01 -.7786D -.8801D
02 [redacted]8 21.06
03 [redacted]04 -.0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0014D
07 -.0000D -.0004D

Thr - 08/22/96 DAY= 235 09:58:02

01 -.8801D -.7786D
02 19.12 19.38
03 -.0007 -.0004
04 .0000D .0000D
05 .0000D .0000D
06 -.0017D -.0004D
07 -.0014D -.0000D

Thr - 08/22/96 DAY= 235 09:59:02

01 -.8801D -.8801D
02 19.25 19.12
03 .0000 -.0007
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0017D
07 [redacted]14D -.0014D

Thr - 08/22/96 DAY= 235 10:00:03

01 -.8463D -.8801D
02 18.00 19.25
03 -.0004 .0000
04 .0000D .0000D
05 [redacted]

page avg = ~~20.191~~ 19.695

06 -.00070 -.00040
07 -.00220 -.02140

Thr - 08/22/96 DAY= 235 10:01:02

01 -.81240 -.84630
02 [redacted]96 13.00
03 [redacted]7 -.0004
04 .00200 .00000
05 .00000 .00000
06 -.00040 -.00070
07 .00040 -.00000

Thr - 08/22/96 DAY= 235 10:02:02

01 -.84620 -.81240
02 17.37 13.96
03 .0004 -.0007
04 .00000 .00000
05 .00000 .00000
06 -.00040 -.00040
07 -.00000 .00040

Thr - 08/22/96 DAY= 235 10:03:02

01 -.88010 -.84620
02 16.38 17.37
03 -.0017 .0004
04 .00000 .00000
05 .00000 .00000
06 -.00140 -.00040
07 -.00070 -.00000

Thr [redacted]08/22/96 DAY= 235 10:04:02

01 -.84630 -.88010
02 18.14 16.38
03 -.0011 -.0017
04 .00000 .00000
05 .00000 .00000
06 -.00110 -.00140
07 -.00070 -.00070

Thr - 08/22/96 DAY= 235 10:05:02

01 -.88010 -.84630
02 20.79 18.14
03 -.0014 -.0011
04 .00300 .00030
05 .00000 .00000
06 -.00070 -.00110
07 -.00070 -.00070

Thr - 08/22/96 DAY= 235 10:06:02

01 -.84630 -.88010
02 18.39 20.79
03 [redacted]07 -.0014
04 [redacted]00 .00000
05 .00000 .00000
06 -.00110 -.00070
07 -.00110 -.00370

page Avg = 17.455

Thr - 08/22/96 DAY= 235 10:07:02

02 16.74 18.85
03 -.2214 -.0007
04 .00000 .00000
05 .00000 .00000
06 -.00070 -.00110
07 -.00170 -.00110

Thr - 08/22/96 DAY= 235 10:08:02

01 -.89010 -.90240
02 18.85 16.74
03 .0000 -.0014
04 .00000 .00000
05 .00000 .00000
06 .00000 -.00070
07 -.00240 -.00170

Thr - 08/22/96 DAY= 235 10:09:02

01 -.84630 -.89010
02 12.14 18.85
03 -.0007 .0000
04 .00000 .00000
05 .00000 .00000
06 -.00040 .00000
07 -.00170 -.00040

Thr - 08/22/96 DAY= 235 10:10:02

01 -.89010 -.84630
02 13.95 12.14
03 -.0017 -.0007
04 .00000 .00000
05 .00000 .00000
06 -.00140 -.00040
07 -.00240 -.00170

Thr - 08/22/96 DAY= 235 10:11:02

01 -.99010 -.89010
02 15.74 13.95
03 -.0017 -.0017
04 .00000 .00000
05 .00000 .00000
06 -.00170 -.00140
07 -.00110 -.00040

Thr - 08/22/96 DAY= 235 10:12:02

01 -.93550 -.89010
02 14.58 15.74
03 -.0014 -.0017
04 .00000 .00000
05 .00000 .00000
06 -.00070 -.00170
07 .00240 -.00110

Thr - 08/22/96 DAY= 235 10:13:03

01 -.81240 -.93550
02 13.23 14.58
03 -.0014 -.0014
04 .00000 .00000
05 .00000 .00000
06 -.00370 -.00070

Page Avg = 15.0329

07 -.0007D .0004D

Thr - 08/22/96 DAY= 235 10:14:02

01 -.8801D -.8124D
02 15.92 13.23
03 -.0024 -.0014
04 [redacted]000D .0000D
05 [redacted]000D .0000D
06 -.0011D -.0007D
07 -.0014D -.0007D

Thr - 08/22/96 DAY= 235 10:15:02

01 -.8801D -.8801D
02 17.68 15.92
03 -.0011 -.0024
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0011D
07 -.0014D -.0014D

Thr - 08/22/96 DAY= 235 10:16:02

01 -.8801D -.8801D
02 18.94 17.68
03 -.0011 -.0011
04 .0000D .0000D
05 .0000D .0000D
06 -.0017D -.0004D
07 -.0004D -.0014D

Th[redacted]08/22/96 DAY= 235 10:17:02

01 -.8801D -.8801D
02 13.60 18.94
03 -.0021 -.0011
04 .0000D .0000D
05 .0000D .0000D
06 -.0011D -.0017D
07 -.0021D -.0004D

Thr - 08/22/96 DAY= 235 10:18:02

01 -.8801D -.8801D
02 15.11 13.60
03 -.0024 -.0021
04 .0000D .0000D
05 .0000D .0000D
06 -.0004D -.0011D
07 -.0014D -.0021D

Thr - 08/22/96 DAY= 235 10:19:02

01 -.8463D -.8801D
02 13.51 15.11
03 -.0007 -.0024
04 [redacted]003D .0000D
05 [redacted]000D .0000D
06 -.0004D -.0004D
07 -.0014D -.0014D

Thr - 08/22/96 DAY= 235 10:20:02

page avg = 15.959

01 -.7688D -.8463D
02 16.95 13.51

03 -.0011 -.0007
04 .00000 .00000
05 .00000 .00000
06 -.00040 -.00040
07 .00040 -.00140

Thr - 08/22/96 DAY= 235 10:21:03

01 [redacted]63D -.76880
02 18.97 / 16.95
03 .0004 -.0011
04 .00000 .00000
05 .00000 .00000
06 -.00140 -.00040
07 -.00070 .00040

Thr - 08/22/96 DAY= 235 10:22:02

01 -.88010 -.84630
02 17.85 / 18.97
03 -.0004 .0004
04 .00000 .00000
05 .00000 .00000
06 -.00340 -.00140
07 -.00110 -.00070

Thr - 08/22/96 DAY= 235 10:23:02

01 -.84630 -.88010
02 15.53 / 17.85
03 -.0014 -.0004
04 -.00040 .00000
05 [redacted]040 .00000
06 [redacted]040 -.00340
07 -.00110 -.00110

Thr - 08/22/96 DAY= 235 10:24:02

01 -.84630 -.84630
02 14.70 / 15.53
03 -.0017 -.0014
04 .00000 -.00040
05 .00000 -.00040
06 -.00110 -.00040
07 -.00040 -.00110

Thr - 08/22/96 DAY= 235 10:25:02

01 -.88010 -.84630
02 15.55 / 14.70
03 -.0014 -.0017
04 -.00110 .00000
05 -.00110 .00000
06 -.00110 -.00110
07 -.00270 -.00040

Thr - 08/22/96 DAY= 235 10:26:02

01 [redacted]10 -.86010
02 [redacted]17 / 15.55
03 -.0014 -.0014
04 .00000 -.00110
05 .00000 -.00110
06 -.00170 -.00110
07 -.00040 -.00070

Page Avg: 16.462

Thr - 08/22/96 DAY= 235 10:27:02

01 -.8801D -.8801D
02 16.30 16.17
03 -.0011 -.0014
04 -.0017D .0000D
05 -.0017D .0000D
06 [redacted]1D -.0017D
07 -.0011D -.0004D

Thr - 08/22/96 DAY= 235 10:28:02

01 -.9358D -.8801D
02 17.99 16.30
03 -.0014 -.0011
04 -.0004D -.0017D
05 -.0004D -.0017D
06 -.0011D -.0011D
07 -.0007D -.0011D

Thr - 08/22/96 DAY= 235 10:29:02

01 -.8463D -.9358D
02 15.48 17.99
03 -.0021 -.0014
04 -.0011D -.0004D
05 -.0011D -.0004D
06 -.0021D -.0011D
07 -.0029D -.0007D

Thr - 08/22/96 DAY= 235 10:30:02

01 [redacted]5D -.8463D
02 [redacted]43 15.48
03 -.0021 -.0021
04 -.0011D -.0011D
05 -.0011D -.0011D
06 -.0021D -.0021D
07 -.0004D -.0029D

Thr - 08/22/96 DAY= 235 10:31:02

01 -.8801D -.8125D
02 14.06 15.43
03 -.0014 -.0021
04 -.0007D -.0011D
05 -.0011D -.0011D
06 -.0017D -.0021D
07 -.0011D -.0004D

Thr - 08/22/96 DAY= 235 10:32:02

01 -.8125D -.8801D
02 14.66 14.06
03 -.0004 -.0014
04 -.0014D -.0007D
05 -.0017D -.0011D
06 [redacted]14D -.0017D
07 [redacted]1D -.0011D

Thr - 08/22/96 DAY= 235 10:33:02

page Avg: 15,990

01 -.8356D -.8125D
02 18.09 14.66
03 -.0000 -.0004

05 -.00100 -.0017D
06 -.00140 -.0014D
07 -.00070 -.0011D

Thr - 08/22/96 DAY= 235 10:34:02

01 [redacted]163D -.8356D
02 [redacted]55 18.09
03 -.0000 -.0000
04 -.0075D -.0014D
05 -.0078D -.0010D
06 -.0011D -.0014D
07 -.0004D -.0007D

Thr - 08/22/96 DAY= 235 10:35:02

01 -.8801D -.8463D
02 17.15 18.55
03 -.0007 -.0000
04 -.0027D -.0075D
05 -.0027D -.0078D
06 -.0007D -.0011D
07 -.0007D -.0004D

Thr - 08/22/96 DAY= 235 10:36:02

01 -.8463D -.8801D
02 17.49 17.15
03 .0000 -.0007
04 -.0041D -.0027D
05 -.0058D -.0027D
06 [redacted]011D -.0007D
07 [redacted]11D -.0007D

Thr - 08/22/96 DAY= 235 10:37:02

01 -.8690D -.8463D
02 12.89 17.49
03 -.0004 .0000
04 -.0120D -.0041D
05 -.0134D -.0058D
06 -.0007D -.0011D
07 -.0007D -.0011D

Thr - 08/22/96 DAY= 235 10:38:03

01 -.9124D -.8690D
02 12.35 12.89
03 -.0007 -.0004
04 -.0065D -.0120D
05 -.0071D -.0134D
06 -.0011D -.0007D
07 -.0011D -.0007D

Thr - 08/22/96 DAY= 235 10:39:02

01 -.8801D -.9124D
02 [redacted]2 12.35
03 [redacted]17 -.0007
04 -.0051D -.0065D
05 -.0054D -.0071D
06 -.0014D -.0011D
07 -.0011D -.0011D

Page Avg = 15.108

Thr - 08/22/96 DAY= 235 10:40:02

01 -.8124D -.8801D
02 16.80 15.22
03 -.0004 -.0017
04 -.0024D -.0051D
05 -.0024D -.0054D
06 -.0004D -.0014D
07 -.0007D -.0011D

Thr - 08/22/96 DAY= 235 10:41:02

01 -.8463D -.8124D
02 14.69 16.80
03 -.0014 -.0004
04 -.0017D -.0024D
05 -.0011D -.0024D
06 -.0007D -.0004D
07 -.0007D -.0007D

Thr - 08/22/96 DAY= 235 10:42:02

01 -.8125D -.8463D
02 15.95 14.69
03 -.0004 -.0014
04 -.0044D -.0017D
05 -.0051D -.0011D
06 -.0007D -.0007D
07 -.0020D -.0007D

Thr - 08/22/96 DAY= 235 10:43:02

01 -.8463D -.8125D
02 14.85 15.95
03 [redacted]4 -.0004
04 -.0048D -.0044D
05 -.0054D -.0051D
06 -.0007D -.0007D
07 .0004D -.0020D

Thr - 08/22/96 DAY= 235 10:44:02

01 -.8022D -.8463D
02 17.43 16.85
03 .0004 -.0004
04 -.0047D -.0048D
05 -.0050D -.0054D
06 -.0000D -.0007D
07 -.0017D .0004D

Thr - 08/22/96 DAY= 235 10:45:03

01 -.8801D -.8022D
02 15.92 17.43
03 -.0007 .0004
04 -.0091D -.0047D
05 -.0095D -.0050D
06 -.0014D -.0000D
07 -.0014D -.0017D

Thr [redacted]8/22/96 DAY= 235 10:46:02

01 -.8801D -.8801D
02 14.55 15.92
03 -.0007 -.0007
04 -.0038D -.0091D
05 -.0048D -.0095D

Page avg = 16.027

06 -.0014D -.0014D
07 -.0004D -.0014D

Thr - 08/22/96 DAY= 235 10:47:02

01 -.8463D -.8801D
02 16.61 14.55
03 [redacted] -.0007
04 [redacted]65D -.0038D
05 -.0081D -.0048D
06 -.0014D -.0014D
07 -.0000D -.0004D

Thr - 08/22/96 DAY= 235 10:48:02

01 -.8801D -.8463D
02 14.59 16.61
03 -.0011 -.0004
04 -.0098D -.0065D
05 -.0112D -.0081D
06 -.0017D -.0014D
07 -.0004D -.0000D

Thr - 08/22/96 DAY= 235 10:49:02

01 -.8801D -.8801D
02 14.55 14.59
03 -.0007 -.0011
04 -.0078D -.0098D
05 -.0085D -.0112D
06 -.0011D -.0017D
07 -.0007D -.0004D

Thr [redacted]8/22/96 DAY= 235 10:50:02

01 -.8801D -.8801D
02 14.01 14.55
03 -.0017 -.0007
04 -.0078D -.0078D
05 -.0102D -.0085D
06 -.0007D -.0011D
07 -.0007D -.0007D

Thr - 08/22/96 DAY= 235 10:51:02

01 -.8021D -.8801D
02 14.56 14.01
03 .0007 -.0017
04 -.0104D -.0078D
05 -.0097D -.0102D
06 .0007D -.0007D
07 -.0004D -.0007D

Thr - 08/22/96 DAY= 235 10:52:02

01 -.8801D -.8021D
02 15.84 14.56
03 -.0017 .0007
04 [redacted]1D -.0104D
05 -.0088D -.0097D
06 -.0004D .0007D
07 .0000D -.0004D

Page avg = 14.977

Thr - 08/22/96 DAY= 235 10:53:02

01 -.8801D -.8801D

03 -.0007 -.0017
04 -.0039D -.0071D
05 -.0041D -.0039D
06 -.0017D -.0004D
07 -.0004D .0000D

Thr - 08/22/96 DAY= 235 10:54:02

01 -.8125D -.8801D
02 14.24   14.54
03 -.0011 -.0007
04 -.0071D -.0038D
05 -.0071D -.0041D
06 -.0007D -.0017D
07 -.0007D -.0004D

Thr - 08/22/96 DAY= 235 10:55:02 – End Run #2 avg = 14.390

01 -.8463D -.8125D
02 15.84   14.24
03 -.0004 -.0011
04 -.0031D -.0071D
05 -.0031D -.0071D
06 -.0011D -.0007D
07 -.0011D -.0007D

Thr - 08/22/96 DAY= 235 10:56:02

01 -.8690D -.8463D
02 15.85   15.84
03 -.0004 -.0004
04 -.0074D -.0031D
05 -.0074D -.0031D
06 -.0004D -.0011D
07 -.0007D -.0011D

Thr - 08/22/96 DAY= 235 10:57:03

07 -.021-0 .00000

Thr - 08/22/96 DAY= 235 11:39:02

01 -.84630 -.88810
02 15.32 13.91
03 -.0007 -.0214
04 [redacted]2D -.00580
05 [redacted]2D -.01080
06 -.00070 -.00110
07 .00040 -.00140

Thr - 08/22/96 DAY= 235 11:40:02

01 -.90240 -.84630
02 12.23 15.32
03 -.0017 -.0007
04 -.00840 -.01020
05 -.01040 -.01320
06 -.00340 -.00070
07 -.00110 .00040

Thr - 08/22/96 DAY= 235 11:41:02

01 -.88810 -.90240
02 8.417 12.23
03 -.0029 -.0017
04 -.00880 -.00840
05 -.00930 -.01040
06 .00000 -.00040
07 -.00140 -.00110

Thr [redacted]8/22/96 DAY= 235 11:42:02

01 -.88000 -.88810
02 8.957 8.417
03 -.0017 -.0029
04 -.01280 -.00930
05 -.01320 -.00480
06 .00030 .00000
07 -.00110 -.00140

Thr - 08/22/96 DAY= 235 11:43:02

01 -.90230 -.88000
02 9.032 8.957
03 -.0011 -.0017
04 -.00870 -.01080
05 -.00770 -.01320
06 -.00340 .00000
07 -.00140 -.00110

Thr - 08/22/96 DAY= 235 11:44:03

01 [redacted]5D -.91403D
02 [redacted]32 24.56
03 -.0004 -.0007
04 -.00765D -.0105D
05 -.00899D -.00883D
06 -.00073D -.00073D
07 -.00143D -.00113D

Thr - 08/22/96 DAY= 235 11:14:02

01 -.88801D -.89153D
02 26.28 42.32
03 -.0004 -.0004
04 -.00653D -.00763D
05 -.00953D -.00893D
06 -.00143D -.00073D
07 -.00073D -.00143D

Thr - 08/22/96 DAY= 235 11:15:02

01 -.88801D -.88801D
02 21.50 26.28
03 -.2204 -.0004
04 -.00783D -.00653D
05 -.00913D -.00953D
06 [redacted]7D -.00143D
07 [redacted]7D -.00073D

Thr - 08/22/96 DAY= 235 11:16:02

01 -.84633D -.88801D
02 19.78 21.50
03 .0004 -.0004
04 -.00753D -.00783D
05 -.01823D -.00913D
06 -.00003D -.00073D
07 -.00073D -.00073D

Thr - 08/22/96 DAY= 235 11:17:02

01 -.77863D -.84633D
02 19.50 19.78
03 .0004 .0004
04 -.00733D -.00753D
05 -.01893D -.01823D
06 -.00113D -.00003D
07 -.00113D -.00073D

Thr - 08/22/96 DAY= 235 11:18:02

01 [redacted]463D -.77863D
02 [redacted]3 19.30
03 -.0004 .0004
04 -.00653D -.00783D
05 -.00783D -.01083D
06 -.00173D -.00113D
07 -.00113D -.00113D

Thr - [redacted] DAY= 235 11:19:02

01 -.8463D -.8463D
02 9.157   12.73
03 -.0024 -.0004
04 -.0075D -.0065D
05 -.0054D -.0078D
06 -.0014D -.0017D
07 [redacted]0D -.0011D

Thr - 08/22/96 DAY= 235 11:20:02

01 -.9024D -.8463D
02 10.04   9.157
03 -.0007 -.0024
04 -.0027D -.0075D
05 -.0060D -.0054D
06 -.0021D -.0014D
07 -.0017D -.0000D

Thr - 08/22/96 DAY= 235 11:21:02

01 -.8801D -.9024D
02 10.05   10.04
03 -.0014 -.0007
04 -.0034D -.0027D
05 -.0021D -.0060D
06 -.0014D -.0021D
07 -.0014D -.0017D

Thr - 08/22/96 DAY= 235 11:22:02

01 -.8690D -.8801D
02 [redacted]4   10.05
03 [redacted]7 -.0014
04 -.0017D -.0034D
05 -.0044D -.0021D
06 -.0007D -.0014D
07 -.0004D -.0014D

Thr - 08/22/96 DAY= 235 11:23:03

01 -.8463D -.8690D
02 10.17   10.34
03 -.0004 -.0027
04 -.0054D -.0017D
05 -.0044D -.0044D
06 -.0024D -.0007D
07 .0000D -.0004D

Thr - 08/22/96 DAY= 235 11:24:02

01 -.8690D -.8463D
02 4.896   10.17
03 -.0027 -.0004
04 -.0037D -.0054D
05 -.0034D -.0044D
06 .0000D -.0024D
07 [redacted]14D .0000D

Thr - 08/22/96 DAY= 235 11:25:03

01 -.8463D -.8690D
02 .9612   4.896
03 -.0024 -.0027
04 -.0017D -.0037D

01 -.88010 -.88010
02 13.43 10.34
03 -.0007 -.0007
04 -.00310 -.00210
05 -.00270 -.00140
06 -.00040 -.00040
07 -.00210 .00000

Thr - 08/22/96 DAY= 235 11:33:02

01 -.83560 -.88010
02 10.45 13.43
03 .0004 -.0007
04 -.00240 -.00310
05 -.00340 -.00270
06 .00040 -.00040
07 -.00110 -.00210

Thr - 08/22/96 DAY= 235 11:34:03

01 -.98010 -.83560
02 8.479 10.45
03 -.0011 .0004
04 -.00340 -.00240
05 -.00270 -.00340
06 .00040 .00040
07 .00400 -.00110

Thr - 08/22/96 DAY= 235 11:35:02

01 -.84630 -.98010
02 9.611 8.479
03 [redacted]007 -.0011
04 [redacted]30 -.00340
05 -.00270 -.00270
06 .00200 .00000
07 -.00110 .00200

Thr - 08/22/96 DAY= 235 11:36:02

01 -.86900 -.84630
02 10.29 8.611
03 .2200 -.0027
04 -.00570 -.00480
05 -.00400 -.00270
06 -.00040 .00000
07 -.00040 -.00110

Thr - 08/22/96 DAY= 235 11:37:02

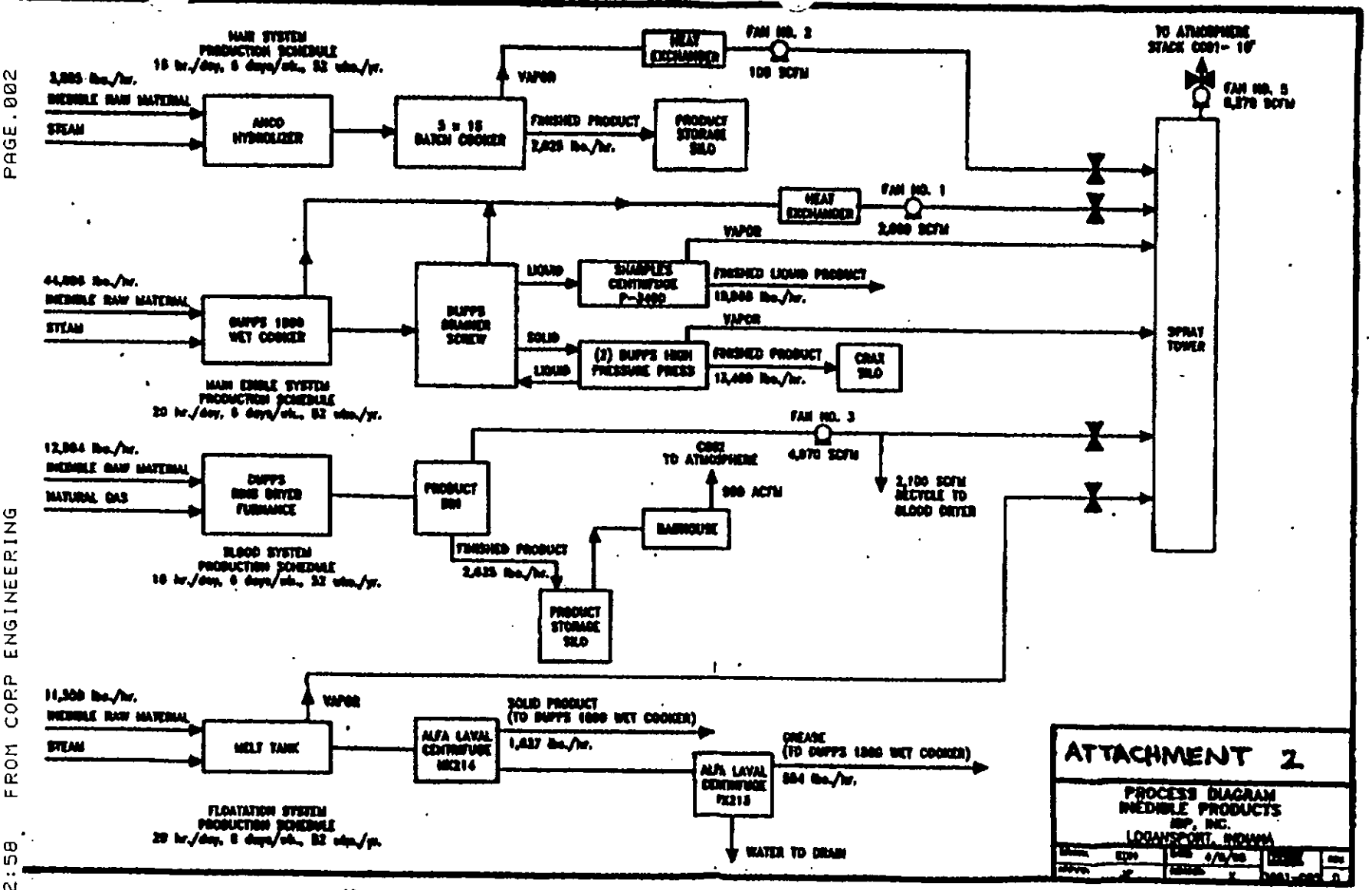
01 -.88010 -.86900
02 12.56 10.29
03 -.0011 .0000
04 -.00430 -.00570
05 -.00540 -.00400
06 -.00040 -.00040
07 .00200 -.00040

Thr [redacted]/22/96 DAY= 235 11:38:02

01 -.88010 -.98010
02 13.91 12.56
03 -.0014 -.0011
04 -.00880 -.00430
05 -.01080 -.00540
06 -.0011 -.00040

APPENDIX B

PROCESS DATA



⧗ = Sampling Location

[redacted]

DAILY KILL FLOOR REPORT

DATE: 8-19-96 PLANT: Logan SHIFT: A

CARD COUNT: 805 SET UP STD: 3.5

ABSENTEEISM: 18 SET UP ACT: 3.5 plus clean up

NS: 14 TRAINEES/HOURS 99 [illegible]

DAILY STATISTICS

KILL GANG HOURS	[illegible] Rln-Kin
KILL NET HOURS	Rln-Lnis
STD. CREW/HOURS	1429
GROSS CHAIN SPEED	875
NET CHAIN SPEED	791
PERFECT HEAD KILL	7000
ACTUAL HEAD KILL	6008
	992
	68
	86%
	63
HEAD PER MANHOUR	4.34
HEAD INSPECTION	6
VISCERA INSPECTION	10
FINAL INSPECTION	87

DESCRIPTION	RATE	CONTAM.	TOTAL
HEADS	141	443	584
VISCERA SETS	163	390	553
CASING SETS	81	-	81
STOMACHS	74	-	74
HEARTS	93	-	93
LIVERS	112	-	112
LUNGS	56	-	56
KIDNEYS	105	-	105
BROKEN BACKS	6	29	35

CONDEMNED HOGS		CONDEMNED HOGS	
0893	H		
0903	A		
0901	J		
0966	F		
2711	F		

VARIANCE EXPLANATION HOURS 10

CATEGORY	711/911	712/912	713/913	714/914	715/915	716/916
LIGHT DUTY	6	4	3	0	0	6
TRAINING						
REWORK						
SCHEDULING						
MECHANICAL						
OVER/UNDER						

EXTRA MANNING

N/A

SPECIAL LEAN AND PANCREAS PRODUCTION

TOTAL SPECIAL LEAN PRODUCED 7707

TOTAL SPECIAL LEAN HOLDOVER

TOTAL PANCREAS PRODUCTION

PERCENT OF CHITTS SAVED

REASON

A-SHIFT SPECIAL SENT TO CUT

B-SHIFT SPECIAL SENT TO CUT N/A

TOTAL SPEC. LEAN SENT TO CUT

PERCENT OF CASINGS SAVED

REASON

TRIM LOSS INFORMATION

SCALE 1 AVERAGE

SCALE 2 AVERAGE N/A

TRIM LOSS

SCALE 3 AVERAGE

SCALE 4 AVERAGE N/A

TRIM LOSS

HEADLOSS COUNTERS

A+B+C=PATH. LOSS/D=PATH.=COND. LOSS

(A) HEAD INSPECTOR 51

(B) VISCERA TRIMMER 59

(C) DR. RAIL 31

HEADBENCH 584

VISCERA SET COUNTERS

A+B=PATH. LOSS/C=PATH.=CONT. LOSS

(A) VISCERA TRIMMER 1

(B) DR. RAIL N/A 1

(C) SEPARATOR

DOWNTIME

MECH.	MID	PROD	COMMENTS/ GENERAL/ HOG QUALITY
		6	Kind [illegible]
		10	Viscera line
		24	Final Rail - Hair, [illegible] out.
		4	Hot [illegible] 180° on viscera line
		A	Q.C. stops at hot wt. scale
16			Hot wt. scale down
		13	Bung gun plugged up
			Stomach splitter down

SIGNATURE: [signature]

DAILY KILL FLOOR REPORT

DATE: 8-21-96 PLANT: Logan SHIFT: 3
[illegible] COUNT: 200 SET UP STD: 3.5
[illegible]TRISM: 85 SET UP ACT: 3.5 plus
CALL INS: 7 TRAINEES/HOURS 61 1518

DAILY STATISTICS

KILL GANG HOURS	[illegible] 8hrs 36min
KILL NET HOURS	8hrs 10min
STD. CREW/HOURS	1428
GROSS CHAIN SPEED	880
NET CHAIN SPEED	749
PERFECT HEAD KILL:	7183
[illegible] KILL	6119
[illegible]	1064
[illegible]	72
[illegible]	85%
MECHANICAL OUT	67
HEAD PER MANHOUR	4.45
HEAD INSPECTION	18
VISCERA INSPECTION	13
FINAL INSPECTION	13

DESCRIPTION	PATH	CONTAM.	TOTAL
HEADS	192	446	638
VISCERA SETS	128	325	453
CASING SETS	83	–	83
STOMACHS	78	–	78
HEARTS	96	–	96
LIVERS	98	–	98
LUNGS	65	–	65
KIDNEYS	113	–	113
BROKEN BACKS	6	31	37
CONDEMN HOGS		CONDEMN HOGS	

VARIANCE EXPLANATION HOURS 705

CATEGORY	711/ 911	712/ 912	713/ 913	714/ 914	715/ 915	716/ 916
LIGHT DUTY	6	4	4	1	0	6
TRAINING						
REWORK						
SCHEDULING						
MECHANICAL						
OVER/UNDER						

EXTRA MANNING

N/A

SPECIAL LEAN AND PANCREAS PRODUCTION

TOTAL SPECIAL LEAN PRODUCED 11,398
TOTAL SPECIAL LEAN HOLDOVER
TOTAL PANCREAS PRODUCTION
PERCENT OF CHITTS SAVED
REASON
A-SHIFT SPECIAL SENT TO CUT
B-SHIFT SPECIAL SENT TO CUT N/A
TOTAL SPEC. LEAN SENT TO CUT
PERCENT OF CASINGS SAVED
REASON

TRIM LOSS INFORMATION

SCALE 1 AVERAGE
SCALE 2 AVERAGE N/A
TRIM LOSS
SCALE 3 AVERAGE
SCALE 4 AVERAGE N/A
TRIM LOSS

HEADLOSS COUNTERS

A+B+C=PATH. LOSS/D–PATH.–CONT.LOSS
(A) HEAD INSPECTOR 65
(B) VISCERA TRIMMER 86
(C) DR. RAIL 41
HEADS/DICH 638

VISCERA SET COUNTERS

A+B=PATH.LOSS/C–PATH.–CONT. LOSS
(A) VISCERA TRIMMER 1
(B) DR. RAIL N/A 1
(C) SEPARATOR

DOWNTIME

[illegible]	PROD	COMMENTS/ GENERAL/ HOG QUALITY
	3	Tato-0884-0138 abscess and injection sites.
	8	jam-up on hide in hide area
	3	jam-up in wings
	81	Hotpots not 180° on viscera and back saws
5		#6 [illegible] Kick out 4 times
	18	Head inspect - Hair
	13	Viscera line - Cont
	13	Final Rail - Hair
		Stomach production [illegible] [illegible] of [illegible]
		Heart production [illegible], [illegible] [illegible] 2 hrs - 15 min

SIGNATURE: [illegible]

IBP Form No. 1665 (rev. 8/95)

DAILY KILL FLOOR REPORT

DATE: 8-22-96 PLANT: Logan SHIFT: A
CARD COUNT: 198 SET UP STD: 35
ABSENTEEISM: 14 SET UP ACT: 35
CALL INS: 17 TRAINEES/HOURS 71 / 1585

DAILY STATISTICS

KILL GANG HOURS (Plus Break)	8hr-12min
KILL NET HOURS	7hr-57min
STD. CREW/HOURS	1460
GROSS CHAIN SPEED	880
NET CHAIN SPEED	795
PERFECT HEAD KILL	6992
ACTUAL HEAD KILL	6324
HEAD LOST	668
DOWNTIME	45
PERCENT OF PERFECT	90.4%
MECHANICAL OUT	48
HEAD PER MANHOUR	449
HEAD INSPECTION	14
VISCERA INSPECTION	12
FINAL INSPECTION	7

DESCRIPTION	PATH	CONTAM.	TOTAL
HEADS	166	464	630
VISCERA SETS	177	385	562
CASING SETS	74	–	74
STOMACHS	83	–	83
HEARTS	72	–	72
LIVERS	95	–	95
LUNGS	68	–	68
KIDNEYS	115	–	115
BROKEN BACKS	4	29	33

CONDEMN HOGS		CONDEMN HOGS	
0172	F		
0306	I		
0216	I		
XX70	I		
0327	F		
0211	I		

VARIANCE EXPLANATION HOURS

305

CATEGORY	711/911	712/912	713/913	714/914	715/915	716/916
LIGHT DUTY	6	4	4	2	0	6
TRAINING						
REWORK						
SCHEDULING						
MECHANICAL						
OVER/UNDER						

EXTRA MANNING

N/A

SPECIAL LEAN AND PANCREAS PRODUCTION

TOTAL SPECIAL LEAN PRODUCED 818.3 #
TOTAL SPECIAL LEAN HOLDOVER
TOTAL PANCREAS PRODUCTION
PERCENT OF CHITTS SAVED
REASON

A—SHIFT SPECIAL SENT TO CUT
B—SHIFT SPECIAL SENT TO CUT N/A
TOTAL SPEC. LEAN SENT TO CUT
PERCENT OF CASINGS SAVED
REASON

TRIM LOSS INFORMATION

SCALE 1 AVERAGE
SCALE 2 AVERAGE N/A
TRIM LOSS

SCALE 3 AVERAGE
SCALE 4 AVERAGE N/A
TRIM LOSS

HEADLOSS COUNTERS

A+B+C=PATH. LOSS/D—PATH.=CONT. LOSS
(A) HEAD INSPECTOR 63
(B) VISCERA TRIMMER 61
(C) DR. RAIL 72
HEADBENCH 630

VISCERA SET COUNTERS

A+B=PATH.LOSS/C—PATH.=CONT. LOSS
(A) VISCERA TRIMMER 1
(B) DR. RAIL N/A
(C) SEPARATOR

DOWNTIME

MECH	MID	PROD	COMMENTS/ GENERAL/ HOG QUALITY
		14	Head inspect - Hair
		12	Viscera line - Cont.
		7	Final Rail - Hair
		6	Abscess clean-up at head inspect. Tats-08X4 0203-0278-0872-0261-026
		3	Brisket saw caught up in joints,
13			45 min down on stomach splitter, drains plugged-up. Dead Breakers down

SIGNATURE: [signature]

IBP Form No 1665 (rev 8/95)

Operator Wilbur Kaptain

Date and Shift 8/20/96 (A)

LOGANSPORT EQUACOOKER OPERATING LOGSHEET

DESCRIPTION	TARGT	8:00	9:00	10:00	11:00	12:00	1:00	2:00	:00	:00	:00	:00	:00
		T			I		M		E				
Raw Material Bin Level		A		A	1/3	1/4	1/4	1/4					
Raw Feed #8 VFD Speed		3150	3192	3151	3151	3151	3151	3050					
Hogger Grinder Motor Load		NA	NA	NA	NA	NA	NA	NA					
Cooker Steam P.S.I.(after Control Valve)	267.4												
Equacooker Product Temperature	270.0	267.4	270 2700	265.0	268 270.0	266.3	267.0	273.2					
Cooker Heat Exch Tailwater Temp		2700			2700	270	270	272.0					
Cooker Condensate Temp(after trap)													
Cooker Condensate PSI(after trap)													
Vapor Removal Rate/Bucket Test in sec.													
Equacooker Level		1/3	1/3	1/3	1/2	1/2	1/2	1/2					
Control Wheel VFD Speed		1690	1790	1901	1946	2034	2043	2043					
Drainor/Overpressor Screw VFD Speed													
South Pressor Screw VFD Speed		70	75	75	76	60	60	50					
South Pressor Mainshaft Motor Load		3409	33.84	3785	4977	4979	4979	4979					
South Pressor Crax Quality		Good	Good	Good	Good	Good	Good	Good					
North Pressor Screw VFD Speed													
North Pressor Mainshaft Motor Load													
North Pressor Crax Quality													
	OK	OK	OK	OK	OK	OK	OK	OK					
Crax Surge Bin Level		OK	OK	OK	OK	OK	OK	OK					
Crax Grinder Motor Load		NA	NA	NA	NA	NA	NA	NA					
Sharples Centrifuge Motor Load		NA	NA	NA	NA	NA	NA	NA					
East Grease Storage Tank Level		OK	OK	OK	OK	OK	OK	OK					
West Grease Storage Tank Level	OK	OK	OK	OK	OK	OK	OK	OK					

1250 AM Down to 263.7 W.S

1257 AM up to 265.0 W.S

10 min. out of Range

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Time Electromagnet Checked	
South Pressor Choke Pressure	63
North Pressor Choke Pressure	—
South Pressor Fines Pump Status	630
North Pressor Fines Pump Status	—

Time Equacooker Jacket Steam was turned on	6:30
Time Equacooker Jacket Steam was turned off	

Page 1 of 1 Wednesday, May 08, 1996

To: Stan Simonin

LOGANSPORT EQUACOOKER OPERATING LOGSHEET

Operator: Tom M R E [illegible] Date and Shift 08-20-16 B Shift

DESCRIPTION	TARGT	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	:00	:00	:00
Raw Material Bin Level		1/4	1/4	1/4	1/4	1/4	1/8	1/16	Empty				
Raw Feed #8 VFD Speed	31.0	31.0	33.0	33.0	33.0	29.6	34.0	34.0	34.0				
Hogger Grinder Motor Load		OK	OK	OK	OK	OK	OK	OK	OK				
Cooker Steam P.S.I.(after Control Valve)													
Equacooker Product Temperature		270/272	272/270	270/270	272/272	272/272	279/272	278/276					
Cooker Heat Exch Tailwater Temp													
Cooker Condensate Temp(after trap)		116	116	112	112	111	110	111					
Cooker Condensate PSI(after trap)		16	16	26	14	15	8	7					
Vapor Removal Rate/Bucket Test in sec.		20.28	19.91	25.68	27.63	18.63	19.21	20.05					
Equacooker Level		1/2	1/2	1/2	1/3	1/3	1/3	1/3					
Control Wheel VFD Speed	20.6	22.0	24.5	24.5	27.1	27.1	27.1	27.1					
Drainor/Overpressor Screw VFD Speed													
South Pressor Screw VFD Speed	50.0	38.0	39.0	38.0	41.0	41.0	41.0	41.0					
South Pressor Mainshaft Motor Load		45/55	45/55	45/55	45/55	43/40	45/55	45/55					
South Pressor Crax Quality		fair	fair	OK	OK	OK	OK	OK					
North Pressor Screw VFD Speed													
North Pressor Mainshaft Motor Load													
North Pressor Crax Quality													
Crax Surge Bin Level		OK	OK	OK	OK	OK	OK	OK					
Crax Grinder Motor Load		OK	OK	OK	OK	OK	OK	OK					
Sharples Centrifuge Motor Load		13	13	14	14	14	14	14					
East Grease Storage Tank Level													
West Grease Storage Tank Level													

Shut Down 9:30pm

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Time Electromagnet Checked: 2:20pm

South Pressor Choke Pressure: OK

North Pressor Choke Pressure: —

South Pressor Fines Pump Status: OK

North Pressor Fines Pump Status: —

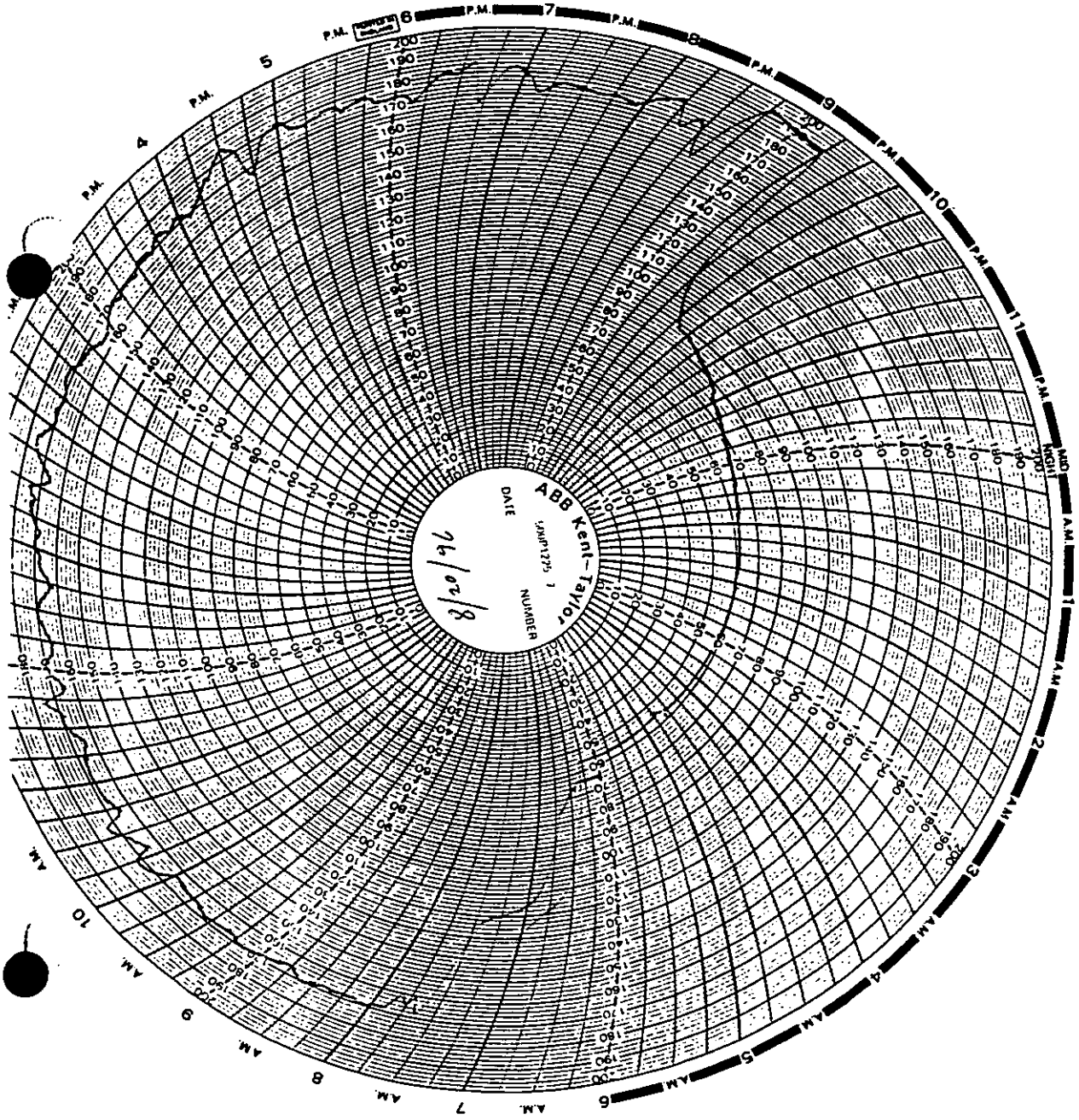
Time Equacooker Jacket Steam was turned on: —

Time Equacooker Jacket Steam was turned off: 9:30

Page 1 of 1 Wednesday, May 06, 1998

10: Stan Simonic

Temperature Recorder
for Wet Cooker.



Operator Wilbur L Spencer Jr

LOGANSPORT EQUACOOKER OPERATING LOGSHEET

Date and Shift 8/21/96 (A)

DESCRIPTION	TARGT	8:00	9:00	10:00	11:00	12:00	1:00	2:00	:00	:00	:00	:00	:00
Raw Material Bin Level		A	A	A	A	A	1/4	1/4+					
Raw Feed #8 VFD Speed		3120	3120	3120	3118	3118	3125	3125					
Hogger Grinder Motor Load		NA	NA	NA	NA	NA	NA	NA					
Cooker Steam P.S.I.(after Control Valve)		276	270.8	268.2	290.7	258.3	268.9	267.9					
Equacooker Product Temperature		270	272.5	275.5	273.5	300.0	275.0	300.0					
Cooker Heat Exch Tailwater Temp	270												
Cooker Condensate Temp(after trap)													
Cooker Condensate PSI(after trap)													
Vapor Removal Rate/Bucket Test in sec.													
Equacooker Level		1/4	1/4	1/2	Y3	1/2	1/2	1/2					
Control Wheel VFD Speed		1691	1735	1891	1851	1932	1939	2094					
Drainor/Overpressor Screw VFD Speed													
South Pressor Screw VFD Speed		3536	38.28	3817	3818	38.18	39.07	3830					
South Pressor Mainshaft Motor Load		65	60	65	65	60	60	60					
South Pressor Crax Quality		Good	Good	Good	Good	Good	Good	Good					
North Pressor Screw VFD Speed		—	—	—	—	—	—	—					
North Pressor Mainshaft Motor Load		—	—	—	—	—	—	—					
North Pressor Crax Quality		—	—	—	—	—	—	—					
Crax Surge Bin Level		OK	OK	OK	OK	OK	OK	OK					
Crax Grinder Motor Load		NA	NA	NA	NA	NA	NA	NA					
Sharples Centrifuge Motor Load		NA	NA	NA	NA	NA	NA	NA					
East Grease Storage Tank Level		OK	OK	OK	OK	OK	OK	OK					
West Grease Storage Tank Level		OK	OK	OK	OK	OK	OK	OK					

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Time Electromagnet Checked	
South Pressor Choke Pressure	630
North Pressor Choke Pressure	—
South Pressor Fines Pump Status	630
North Pressor Fines Pump Status	—

Time Equacooker Jacket Steam was turned on	600
Time Equacooker Jacket Steam was turned off	

all start 630
start 730
272.8

11.20
Down 263.4

11 30
up 265.3

11 40
266.4

1150 266.3

1200 260.4

1205 258.3

1220
272.3

1.50
264.3

Page 1 of 1 Wednesday, May 06, 1998 8:34:38 AM

To: Stan Simonin

LOGANSPORT EQUACOOKER OPERATING LOGSHEET

Operator: m Motz / [illegible]
Date and Shift: 08-21-96 13:54 [illegible]

DESCRIPTION	TARGT	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	:00	:00	:00	
Raw Material Bin Level		1/3	1/2-	1/4+	1/4	1/4	1/4	1/8	Empty	Empty				
Raw Feed #8 VFD Speed		33.0	33.0	33.0	33.0	30.4	30.4	30.4	30.4	30.4				33.5
Hogger Grinder Motor Load		OK	OK	OK	OK	OK	OK	OK	OK	OK				
Cooker Steam P.S.I.(after Control Valve)														
Equacooker Product Temperature		271/270	266/270	269/270	270/265	271/158	273	272	240/190	272				
Cooker Heat Exch Tailwater Temp														
Cooker Condensate Temp(after trap)		110	108	110	111	109	112	115	118	110				
Cooker Condensate PSI(after trap)		[illegible]	16	42	15	39	22	11	21	8				
Vapor Removal Rate/Bucket Test in sec.		21.12	16.53	51.68	31.21	29.02	24.21	26.44	21.02	35.56				
Equacooker Level		1/4	1/3	1/3	1/3	1/3	1/4	1/4	1/4	1/4-				
Control Wheel VFD Speed		22.0	22.0	22.0	22.0	21.5	24.5	22.5	22.5	21.5				22.5
Drainor/Overpressor Screw VFD Speed														
South Pressor Screw VFD Speed		40.0	40.0	40.0	40.0	38.0	38.0	38.0	38.0	38.0				
South Pressor Mainshaft Motor Load		50/75	50/65	45/50	45/50	70/75	50/70	50/70	70/70	45/50				
South Pressor Crax Quality		OK	OK	OK	OK	OK	OK	OK	OK	OK				
North Pressor Screw VFD Speed														
North Pressor Mainshaft Motor Load														
North Pressor Crax Quality														
Crax Surge Bin Level		OK	OK	OK	OK	OK	OK	OK	OK	OK				
Crax Grinder Motor Load		OK	OK	OK	OK	OK	OK	OK	OK	OK				
Sharples Centrifuge Motor Load		13	13	13	13	13	14	13	13	13				
East Grease Storage Tank Level														
West Grease Storage Tank Level														

Shut down 22:45 mah

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Time Electromagnet Checked	2:30 pm
South Pressor Choke Pressure	OK
North Pressor Choke Pressure	—
South Pressor Fines Pump Status	OK
North Pressor Fines Pump Status	—

Time Equacooker Jacket Steam was turned on	[illegible]
Time Equacooker Jacket Steam was turned off	22:20

Operator - Albert R Spencer Jr

Date and Shift 8/22/96 (A)

LOGANSPORT EQUACOOKER OPERATING LOGSHEET

DESCRIPTION	TARGT	8:00	9:00	10:00	11:00	12:00	1:00	2:00	:00	:00	:00	:00	:00
Raw Material Bin Level		A	A	A	1/3	1/3	1/3						
Raw Feed #8 VFD Speed		3148	3148	3148	3148	3154	3148						
Hogger Grinder Motor Load		NA	NA	NA	NA	NA	NA						
Cooker Steam P.S.I.(after Control Valve)		273.7	271.4	271.4	268.1	2869	269.1						
Equacooker Product Temperature		272	272.5	272.5	272.6	300.0	273.5						
Cooker Heat Exch Tailwater Temp													
Cooker Condensate Temp(after trap)													
Cooker Condensate PSI(after trap)													
Vapor Removal Rate/Bucket Test in sec.													
Equacooker Level		1/4	1/4	1/4	1/2	1/2	1/3						
Control Wheel VFD Speed		1631	1631	1950	20.70	2199	22.60						
Drainor/Overpressor Screw VFD Speed													
South Pressor Screw VFD Speed		2886	2886	4210	4210	4193	4194						
South Pressor Mainshaft Motor Load		70	70	60	60	60	65						
South Pressor Crax Quality		Good	Good	Good	Good	Good	Good						
North Pressor Screw VFD Speed													
North Pressor Mainshaft Motor Load													
North Pressor Crax Quality													
Crax Surge Bin Level		OK	OK	OK	OK	OK	OK						
Crax Grinder Motor Load		NA	NA	NA	NA	NA	NA						
Sharples Centriluge Motor Load		NA	NA	NA	NA	NA	NA						
East Grease Storage Tank Level		OK	OK	OK	OK	OK	OK						
West Grease Storage Tank Level		OK	OK	OK	OK	OK	OK						

start 630

start 745

1040 AM

264.3

1050

263.9

1100

266.9

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Time Electromagnet Checked	
South Pressor Choke Pressure	630
North Pressor Choke Pressure	~~630~~
South Pressor Fines Pump Status	630
North Pressor Fines Pump Status	—

Time Equacooker Jacket Steam was turned on	630
Time Equacooker Jacket Steam was turned off	

Operator Name [redacted], Rough

Date and Shift 8-20-96 A Shift

LOGANSPORT BLOOD DRYING [redacted]ATING LOGSHEET

LGBLLOG.WK4

rev3/1/96 IBP0296gm

DESCRIPTION	TARGT	06:00	07:00	08:00	09:00	10:00	11:00	12:00	01:00	02:00	03:00	04:00	05:00
Furnace Exhaust Temperature	<700 F					200	200	190	191	190			
Ring Dryer Disch Temp Set-point	200 F					191	191	191	191	191			
Ring Dryer Disch Product Temperature	actual					190	190	190	192	189			
Centrifuge Feed Pump Speed	18.5 Hz					24.5	24.5	24.5	24.5	24.5			
Coagulator Temperature Setpoint	—					NA	NA	NA	NA	NA			
Coagulator Product Temperature	—					NA	NA	NA	NA	NA			
Centrifuge Motor Load Amperes	<15 A					10	10	10	10	10			
South Raw Blood Surge Tank Level	MIN					0	0	0	0	0			
North Raw Blood Surge Tank Level	MIN					0	0	0	0	0			
Raw Blood Feed Tank Level	3/4					1/3	1/3	1/3	1/2	1/2			
Feed Tank Agitator	ON					ON	ON	ON	ON	ON			
Main Steam Incoming Pressure	125psi					115	115	115	115	115			
After Regulator Steam Pressure	40psi					45	45	45	45	45			
Coagulator Main Steam Valve Pressure	30psi					25	25	25	25	25			
Pre-Coagulation Injection Water Rate	2gpm					NA	NA	NA	NA	NA			
Minutes Main Blood Valve Open	actual					55	55	55	55	55			
Centrifuge Feed Pump Disch Pressure	<20psi												
Coagulator North Injector Valve Setting	1-1/4					1-1/4	1-1/4	1-1/4	1 1/4	1-1/4			
Coagulator South Injector Valve Setting	3/4					3/4	3/4	3/4	3/4	3/4			
Centrifuge Injection Water Rate	8gpm					NA	NA	NA	NA	NA			
Centrifuge Feed Temperature						NA	NA	NA	NA	NA			
Centrifuge Stickwater Sample						OK	OK	OK	OK	OK			
Centrifuged Blood Sample						OK	OK	OK	OK	OK			
Ring Dryer percent recycle	MIN					NA	NA	NA	NA	NA			
Air Lock and Cyclone status	CLEAR					OK	OK	OK	OK	OK			
Cyclone Outlet Pressure	15"					17.5	17.5	17.5	17.5	17.5			
Dried Blood Moisture	10%						11.3						
Dried Blood Blower Discharge Pressure						NA	NA	NA	NA	NA			

Record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

Report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Operator Name _____

LOGANSPORT BLOOD DRYING & ATING LOGSHEET

LGBLLOG.WK4

rev3/1/00 IBP0206gm

Date and Shift 8-20-96 B-Shift 3:00 4:00 5:00 6:00 7:00 8:00

DESCRIPTION	TARGT	06:00	07:00	08:00	09:00	10:00	11:00	12:00	01:00	02:00	03:00	04:00	05:00
Furnace Exhaust Temperature	<700 F	190	190	195	193	193							
Ring Dryer Disch Temp Set-point	200 F	191	191	191	191	191							
Ring Dryer Disch Product Temperature	actual	193	190	191	192	190							
Centrifuge Feed Pump Speed	18.5 Hz	24.5	24.5	24.5	24.5	24.5							
Coagulator Temperature Setpoint		—	—	—	—	—							
Coagulator Product Temperature		—	—	—	—	—							
Centrifuge Motor Load Amperes	<15 A	10	10	10	10	10							
South Raw Blood Surge Tank Level	MIN	—	—	—	—	—							
North Raw Blood Surge Tank Level	MIN	—	—	—	—	—							
Raw Blood Feed Tank Level	3/4	1/2	1/2	1/2	1/2	—							
Feed Tank Agitator	ON	on	on	on	on	on							
Main Steam Incoming Pressure	125psi	120	120	125	120	125							
Filter Regulator Steam Pressure	40psi	45	45	45	45	45							
Coagulator Main Steam Valve Pressure	30psi	22	25	23	25	25							
Pre-Coagulation Injection Water Rate	2gpm	—	—	—	—	—							
Minutes Main Blood Valve Open	actual	5.5	5.5	5.5	5.5	5.5							
Centrifuge Feed Pump Disch Pressure	<20psi	10	10	12	8	10							
Coagulator North Injector Valve Setting	1-1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4							
Coagulator South Injector Valve Setting	3/4	3/4	3/4	3/4	3/4	3/4							
Centrifuge Injection Water Rate	8gpm	—	—	—	—	—							
Centrifuge Feed Temperature		—	—	—	—	—							
Centrifuge Stickwater Sample		OK	OK	OK	OK	OK							
Centrifuged Blood Sample		OK	OK	OK	OK	OK							
Ring Dryer percent recycle	MIN	—	—	—	—	—							
Air Lock and Cyclone status	CLEAR	CL	CL	CL	CL	CL							
Cyclone Outlet Pressure	15"	17.5	17.5	18	17.5	17.5							
Dried Blood Moisture	10%	6.8	7.3	6.9	8	6.9							
Dried Blood Blower Discharge Pressure													

Record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

Report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Operator Name [redacted] Rust

Date and Shift 8-21-96 A-Shift

LOGANSPORT BLOOD DRYING [redacted] ATING LOGSHEET

LGBLLOG.WK4

rev3/1/96 IBP0206gm

DESCRIPTION	TARGT	06:00	07:00	08:00	09:00	10:00	11:00	12:00	01:00	02:00	03:00	04:00	05:00
Furnace Exhaust Temperature	<700 F					195	195	190	195	194			
Ring Dryer Disch Temp Set-point	200 F					191	191	191	191	191			
Ring Dryer Disch Product Temperature	actual					198	198	199	190	190			
Centrifuge Feed Pump Speed	18.5 Hz					24.5	24.5	24.5	24.5	24.3			
Coagulator Temperature Setpoint						NA	NA	NA	NA	NA			
Coagulator Product Temperature						NA	NA	NA	NA	NA			
Centrifuge Motor Load Amperes	<15 A					10	10	10	10	10			
South Raw Blood Surge Tank Level	MIN					0	0	0	0	0			
North Raw Blood Surge Tank Level	MIN					0	0	0	0	0			
Raw Blood Feed Tank Level	3/4					3/4	3/4	3/4	3/4	3/4			
Feed Tank Agitator	ON					ON	ON	ON	ON	ON			
Main Steam Incoming Pressure	125psi					115	115	115	115	115			
After Regulator Steam Pressure	40psi					45	45	45	45	45			
Coagulator Main Steam Valve Pressure	30psi					25	25	25	25	25			
Pre-Coagulation Injection Water Rate	2gpm					NA	NA	NA	NA	NA			
Minutes Main Blood Valve Open	actual					Start	55	55	55	55			
Centrifuge Feed Pump Disch Pressure	<20psi					10	10	10	10	10			
Coagulator North Injector Valve Setting	1-1/4					1-1/4	1-1/4	1-1/4	1-1/4	1-1/4			
Coagulator South Injector Valve Setting	3/4					3/4	3/4	3/4	3/4	3/4			
Centrifuge Injection Water Rate	8gpm					NA	NA	NA	NA	NA			
Centrifuge Feed Temperature						NA	NA	NA	NA	NA			
Centrifuge Stickwater Sample						OK	OK	OK	OK	OK			
Centrifuged Blood Sample						OK	OK	OK	OK	OK			
Ring Dryer percent recycle	MIN					NA	NA	NA	NA	NA			
Air Lock and Cyclone status	CLEAR					OK	OK	OK	OK	OK			
Cyclone Outlet Pressure	15"					17.5	17.5	17.5	17.5	17.5			
Dried Blood Moisture	10%												
Dried Blood Blower Discharge Pressure						NA	NA	NA	NA	NA			

Record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

Report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Operator Name [illegible] & Prewitt

LOGANSPORT BLOOD DRYING [illegible] ATING LOGSHEET

LGBLLOG.WK4

rev3/1/96 IBP0206gm

Date and Shift 2-21-96 3:00 4:00 5:00 6:00 7:00 8:20 9:40 [illegible]

DESCRIPTION	TARGT	06:00	07:00	08:00	09:00	10:00	11:00	12:00	01:00	02:00	03:00	04:00	05:00
Furnace Exhaust Temperature	<700 F	198	196	190	190	190	190	196					
Plng Dryer Disch Temp Set-point	200 F	191	191	191	191	191	191	191					
Plng Dryer Disch Product Temperature	actual	191	193	191	189	190	200	189					
Centrifuge Feed Pump Speed	18.5 Hz	24.5	24.5	24.3	25.0	25.0	25.0	25.0					
Coagulator Temperature Setpoint		—	—	—	—	—	—	—					
Coagulator Product Temperature		—	—	—	—	—	—	—					
Centrifuge Motor Load Amperes	<15 A	10	10	10	10	10	10.5	10					
South Raw Blood Surge Tank Level	MIN	—	½	½	½	—	—	—					
North Raw Blood Surge Tank Level	MIN	—	—	—	—	—	—	—					
Raw Blood Feed Tank Level	3/4	3/4	Full	¾	Full	¾	¾	¾					
Feed Tank Agitator	ON	on	on	on	on	on	on	on					
Main Steam Incoming Pressure	125psi	120	120	120	120	120	120	120					
After Regulator Steam Pressure	40psi	45	45	45	45	45	45	45					
Coagulator Main Steam Valve Pressure	30psi	27	27	25	27	25	25	35					
Pre-Coagulation Injection Water Rate	2gpm	—	—	—	—	—	—	—					
Minutes Main Blood Valve Open	actual	5.5	5.5	5.5	5.5	5.5	5.5	5.5					
Centrifuge Feed Pump Disch Pressure	<20psi	12	12	12	12	12	13	20					
Coagulator North Injector Valve Setting	1-1/4	1¼	1¼	1¼	1¼	1¼	1¼	1¼					
Coagulator South Injector Valve Setting	3/4	¾	¾	¾	¾	¾	¾	¾					
Centrifuge Injection Water Rate	8gpm	—	—	—	—	—	—	—					
Centrifuge Feed Temperature		—	—	—	—	—	—	—					
Centrifuge Stickwater Sample		OK	OK	OK	OK	OK	OK	OK					
Centrifuged Blood Sample		OK	OK	OK	OK	OK	OK	OK					
Ring Dryer percent recycle	MIN	—	—	—	—	—	—	—					
Air Lock and Cyclone status	CLEAR	CL	CL	CL	CL	CL	CL	CL					
Cyclone Outlet Pressure	15"	17.5	17.5	17.5	17.5	17.5	17.5	17.5					
Dried Blood Moisture	10%	10.4	—	—	—	—	—	—					
Dried Blood Blower Discharge Pressure													

record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

*report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Operator Name [redacted] Kovash

Date and Shift 8-12-96 A-Shift

LOGANSPORT BLOOD DRYING O[redacted]RATING LOGSHEET

LGBLLOG.WK4

rev3/1/96 IBP0206gm

DESCRIPTION	TARGT	06:00	07:00	08:00	09:00	10:00	11:00	12:00	01:00	02:00	03:00	04:00	05:00
Furnace Exhaust Temperature	<700 F					190	190	190					
Ring Dryer Disch Temp Set-point	200 F					191	191	191					
Ring Dryer Disch Product Temperature	actual					190	185	187					
Centrifuge Feed Pump Speed	18.5 Hz					25.5	25.5	25.5					
Coagulator Temperature Setpoint						NA	NA	NA					
Coagulator Product Temperature						NA	NA	NA					
Centrifuge Motor Load Amperes	<15 A					16	13	13					
South Raw Blood Surge Tank Level	MIN					NA	0	0					
North Raw Blood Surge Tank Level	MIN					0	0	0					
Raw Blood Feed Tank Level	3/4					3/4	3/4	3/4					
Feed Tank Agitator	ON					ON	ON	ON					
Main Steam Incoming Pressure	125psi					115	115	115					
After Regulator Steam Pressure	40psi					45	45	45					
Coagulator Main Steam Valve Pressure	30psi					25	25	25					
Pre-Coagulation Injection Water Rate	2gpm					NA	NA	NA					
Minutes Main Blood Valve Open	actual					Start	55	55					
Centrifuge Feed Pump Disch Pressure	<20psi												
Coagulator North Injector Valve Setting	1-1/4					1-1/4	1-1/4	1-1/4					
Coagulator South Injector Valve Setting	3/4					3/4	3/4	3/4					
Centrifuge Injection Water Rate	8gpm					NA	NA	NA					
Centrifuge Feed Temperature						NA	NA	NA					
Centrifuge Stickwater Sample						~~OK~~	~~OK~~	—					
Centrifuged Blood Sample						OK	OK	OK					
Ring Dryer percent recycle	MIN					NA	NA	NA					
Air Lock and Cyclone status	CLEAR					OK	OK	OK					
Cyclone Outlet Pressure	15"					17.5	17.5	17.5					
Dried Blood Moisture	10%						6.6						
Dried Blood Blower Discharge Pressure						NA	NA	NA					

Record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

Report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Operator: ... ... LOGANSPORT HAIR HYDROLIZER AND FLOTATION CELL LOGSHEET LGHRLOG.WK4

Date and Sh -10-96 A

T I M E

IBP0696gm

DESCRIPTION	TARGT	8:00	9:00	10:00	11:00	12:00	1:00	2:00	:00	:00	:00	:00	:00
Bsmt Hair Collection Bin Status		ok	ok	ok	ok	ok	ok	ok					
Hair Vacuum Blower Motor Load		18	18	18	20	20	20	20					
# of Minutes Feed Screw was Reversed		0	0	0	0	0	0	0					
Hydrolizer Reg. Internal Steam Pressure		50	50	50	50	50	50	50					
Hydrolizer Reg. Jacket Steam Pressure		90	90	90	90	90	90	90					
Hydrolizer Feeder Screw Motor Load		10	8	8	8	8	8	8					
Hydrolizer Feed Temperature		108	111	154	110	113	150	114					
Hydrolizer Main Shaft Motor Load		NA	NA	NA	NA	NA	NA	NA					
Hydrolizer Discharge Pressure		50	47	50	49	48	50	49					
Hydrolizer Condensate Temperature		225	225	225	225	225	225	225					
Hydrolized Hair Sample Quality		Good	Good	Good	Good	Good	Good	Good					
Hair Cooker Jacket Reg. Steam Pressure		89	85	85	85	84	89	90					
Hair Cooker Condensate Temperature		190	198	198	198	198	198	198					
Hair Cooker Motor Load		NA	NA	NA	NA	NA	NA	NA					
Hair Cooker Discharge Time		✓	✓	✓	✓	10.	✓	✓					
East Flotation Cell Condition													
# of Minutes East Skimmer Arm Running													
East Recycle Pump Discharge Pressure													
East Air Injection Air Flow													
East Air Mix Tank Inlet Pressure													
East Air Mix Tank Outlet Pressure													
West Flotation Cell Condition													
# of Minutes West Skimmer Arm Running													
West Recycle Pump Discharge Pressure													
West Air Injection Air Flow													
West Air Mix Tank Inlet Pressure													
West Air Mix Tank Outlet Pressure													
Flotation Heat Tank Level													
Flotation Heat Tank Temperature													
Tank Discharge Pump Rate													

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Time Hair Vacuum System Started	6:30	Time Hair Received from Kill Floor	7:15
# of Paddles Removed from Hydrolizer		Time Hair Finished from Kill Floor	0
# of Times Hydrolizer Plugged & Blown Down		Time Hydrolizer Feeder Shut Off	0
		Final Time Hair Cooker Discharged	0
Hair Silo Beginning Level	ok	Hair Silo Ending Level	OK

Operator Dave Richardson

Date and Shift 8-20-96 B-Shift

LOGANSPORT HAIR HYDROLIZER and FLOTATION CELL LOGSHEET LGHRLOG WK4

IBP0696gm

DESCRIPTION	TARGT	3 :00	4 :00	5 :00	6 :00	:00	:00	:00	:00	:00	:00	:00	:00
Bsmt Hair Collection Bin Status		OK	OK	OK									
Hair Vacuum Blower Motor Load		18	18	18									
# of Minutes Feed Screw was Reversed		0	0	0									
Hydrolizer Reg. Internal Steam Pressure		48 PSI	48 PSI	48 PSI									
Hydrolizer Reg. Jacket Steam Pressure		89 PSI	89 PSI	89 PSI									
Hydrolizer Feeder Screw Motor Load		9	9	9									
Hydrolizer Feed Temperature		110	125°	190									
Hydrolizer Main Shaft Motor Load		N/A	N/A	N/A									
Hydrolizer Discharge Pressure		48 PSI	48 PSI	40 PSI									
Hydrolizer Condensate Temperature		230 PSI	230 PSI	230 PSI									
Hydrolized Hair Sample Quality		GOOD	GOOD	GOOD									
Hair Cooker Jacket Reg. Steam Pressure		15 PSI	15 PSI	19 PSI									
Hair Cooker Condensate Temperature		197 PSI	196 PSI	197									
Hair Cooker Motor Load		N/A	N/A	N/A									
Hair Cooker Discharge Time		—	—	5:15									
East Flotation Cell Condition													
# of Minutes East Skimmer Arm Running													
East Recycle Pump Discharge Pressure													
East Air Injection Air Flow													
East Air Mix Tank Inlet Pressure													
East Air Mix Tank Outlet Pressure													
West Flotation Cell Condition													
# of Minutes West Skimmer Arm Running													
West Recycle Pump Discharge Pressure													
West Air Injection Air Flow													
West Air Mix Tank Inlet Pressure													
West Air Mix Tank Outlet Pressure													
Flotation Heat Tank Level													
Flotation Heat Tank Temperature													
Tank Discharge Pump Rate													

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good) Fair Poor); Shift End-(Good) Fair Poor)

Time Hair Vacuum System Started	0615
# of Paddles Removed from Hydrolizer	0
# of Times Hydrolizer Plugged & Blown Down	0
	0
Hair Silo Beginning Level	OK

Time Hair Received from Kill Floor	0615
Time Hair Finished from Kill Floor	5:00
Time Hydrolizer Feeder Shut Off	5:05
Final Time Hair Cooker Discharged	5:15
Hair Silo Ending Level	OK

Operator: Townsend

Date and Shift: 4-21-95 1

LOGANSPORT HAIR HYDROLIZ[illegible] FLOTATION CELL LOGSHEET LGHRLOG.WK4

TIME

IBP0896gm

DESCRIPTION	TARGT	8 :00	9 :00	10 :00	11 :00	12 :00	1 :00	2 :00	:00	:00	:00	:00	:00
Bsmt Hair Collection Bin Status		OK	OK	OK	OK	OK	OK						
Hair Vacuum Blower Motor Load		20	20	20	20	20	20						
# of Minutes Feed Screw was Reversed		0	0	0	0	0	0						
Hydrolizer Reg. Internal Steam Pressure		50	50	50	50	50	50						
Hydrolizer Reg. Jacket Steam Pressure		90	90	90	90	90	90						
Hydrolizer Feeder Screw Motor Load		10	8	10	8	10	10						
Hydrolizer Feed Temperature		106	106	119	108	108	115						
Hydrolizer Main Shaft Motor Load		NA	NA	NA	NA	NA	NA						
Hydrolizer Discharge Pressure		50	50	50	50	50	50						
Hydrolizer Condensate Temperature		225	225	225	225	225	225						
Hydrolized Hair Sample Quality		Good	Good	Good	Good	Good	Good						
Hair Cooker Jacket Reg. Steam Pressure		90	BB	BB	BB	BB	BB						
Hair Cooker Condensate Temperature		195	195	195	195	195	195						
Hair Cooker Motor Load		NA	NA	NA	NA	NA	NA						
Hair Cooker Discharge Time		[illegible]	-	-	-	[illegible]	-						
East Flotation Cell Condition		[illegible]	Full	Full	Full	Full	Full						
# of Minutes East Skimmer Arm Running		3:46.0	3:45	3:45	3:46	3:45	3:45						
East Recycle Pump Discharge Pressure		50	50	50	50	50	50						
East Air Injection Air Flow		45	45	45	45	45	45						
East Air Mix Tank Inlet Pressure		90	90	90	90	90	90						
East Air Mix Tank Outlet Pressure		50	50	50	50	50	50						
West Flotation Cell Condition		[illegible]	Full	Full	Full	Full	Full						
# of Minutes West Skimmer Arm Running		[illegible]	down	[illegible]	[illegible]	down	down						
West Recycle Pump Discharge Pressure		50	50	50	50	50	50						
West Air Injection Air Flow		45	45	45	45	45	45						
West Air Mix Tank Inlet Pressure		90	90	90	90	90	90						
West Air Mix Tank Outlet Pressure		50	50	50	50	50	50						
Flotation Heat Tank Level		NA	NA	NA	NA	NA	NA						
Flotation Heat Tank Temperature		NA	NA	NA	NA	NA	NA						
Tank Discharge Pump Rate		NA	NA	NA	NA	NA	NA						

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Time Hair Vacuum System Started	6:30	Time Hair Received from Kill Floor	7:20
# of Paddles Removed from Hydrolizer		Time Hair Finished from Kill Floor	
# of Times Hydrolizer Plugged & Blown Down		Time Hydrolizer Feeder Shut Off	
		Final Time Hair Cooker Discharged	
Hair Silo Beginning Level	OK	Hair Silo Ending Level	

Operator [redacted] Nichols

LOGANSPORT HAIR HYDROLIZE[redacted] FLOTATION CELL LOGSHEET LGHRLOG.WK4

Date and Shift 1-21-96 B-Shift

T I M E

IBP0696gm

DESCRIPTION	TARGT	3 :00	4 :00	5 :00	6 :00	:00	:00	:00	:00	:00	:00	:00	:00
Bsmt Hair Collection Bin Status	OK	OK	OK										
Hair Vacuum Blower Motor Load		22	21										
# of Minutes Feed Screw was Reversed	0	0	0										
Hydrolizer Reg. Internal Steam Pressure	45#	45#	50#										
Hydrolizer Reg. Jacket Steam Pressure	80#1	80#	80#										
Hydrolizer Feeder Screw Motor Load		9	9										
Hydrolizer Feed Temperature	180°	104°	111°										
Hydrolizer Main Shaft Motor Load	N/A	N/A	N/A										
Hydrolizer Discharge Pressure	45#	45#	50#										
Hydrolizer Condensate Temperature	230°	230°	230°										
Hydrolized Hair Sample Quality	Good	Good	Good										
Hair Cooker Jacket Reg. Steam Pressure	80#1	80#1	80#1										
Hair Cooker Condensate Temperature	195°	193°	193°										
Hair Cooker Motor Load	N/A	N/A	N/A										
Hair Cooker Discharge Time		—	4:45										
East Flotation Cell Condition													
# of Minutes East Skimmer Arm Running													
East Recycle Pump Discharge Pressure													
East Air Injection Air Flow													
East Air Mix Tank Inlet Pressure													
East Air Mix Tank Outlet Pressure													
West Flotation Cell Condition													
# of Minutes West Skimmer Arm Running													
West Recycle Pump Discharge Pressure													
West Air Injection Air Flow													
West Air Mix Tank Inlet Pressure													
West Air Mix Tank Outlet Pressure													
Flotation Heat Tank Level													
Flotation Heat Tank Temperature													
Tank Discharge Pump Rate													

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good) Fair Poor); Shift End-(Good Fair Poor)

Time Hair Vacuum System Started	OK	Time Hair Received from Kill Floor	9[illegible]
# of Paddles Removed from Hydrolizer	0	Time Hair Finished from Kill Floor	4:30
# of Times Hydrolizer Plugged & Blown Down	0	Time Hydrolizer Feeder Shut Off	4:25
	0	Final Time Hair Cooker Discharged	4:45
Hair Silo Beginning Level	OK	Hair Silo Ending Level	OK

Operator N. Townsend

Date and Shift 12-22-96 A

LOGANSPORT HAIR HYDROLIZER and FLOTATION CELL LOGSHEET LGHRLOG.WK4

TIME

IBP0896gm

DESCRIPTION	TARGT	8:00	9:00	10:00	11:00	12:00	1:00	2:00	:00	:00	:00	:00	:00
Bsmt Hair Collection Bin Status		OK	OK	OK	OK	OK	OK						
Hair Vacuum Blower Motor Load		18	18	18	18	18	19						
# of Minutes Feed Screw was Reversed		0	0	0	0	0	0						
Hydrolizer Reg. Internal Steam Pressure		50	50	50	50	50	50						
Hydrolizer Reg. Jacket Steam Pressure		90	90	90	90	90	90						
Hydrolizer Feeder Screw Motor Load		8	8	12	8	8	9						
Hydrolizer Feed Temperature		104	106	116	112	114	115						
Hydrolizer Main Shaft Motor Load		NA	NA	NA	NA	NA	NA						
Hydrolizer Discharge Pressure		50	50	50	50	50	50						
Hydrolizer Condensate Temperature		225	225	225	225	225	225						
Hydrolized Hair Sample Quality		Good	Good	Good	Good	Good	Good						
Hair Cooker Jacket Reg. Steam Pressure		88	90	87	89	89	88						
Hair Cooker Condensate Temperature		195	195	195	195	195	195						
Hair Cooker Motor Load		NA	NA	NA	NA	NA	NA						
Hair Cooker Discharge Time		✓	✓	✓	✓	✓	✓						
East Flotation Cell Condition	Bottom	Good	Good	Good	Full	Full	Full						
# of Minutes East Skimmer Arm Running													
East Recycle Pump Discharge Pressure	50 PSI	50	50	50	50	50	50						
East Air Injection Air Flow	50 PSI	50	50	50	50	50	50						
East Air Mix Tank Inlet Pressure	90 PSI	90	90	90	90	90	90						
East Air Mix Tank Outlet Pressure	50 PSI	50	50	50	50	50	50						
West Flotation Cell Condition	45	45	45	45	45	45	45						
# of Minutes West Skimmer Arm Running													
West Recycle Pump Discharge Pressure	50 PSI	50	50	50	50	50	50						
West Air Injection Air Flow	45 PSI	Full	Full	Full	Full	Full	Full						
West Air Mix Tank Inlet Pressure	90 PSI	90	90	90	90	90	90						
West Air Mix Tank Outlet Pressure	50 PSI	50	50	50	50	50	50						
Flotation Heat Tank Level	NA	NA	NA	NA	NA	NA	NA						
Flotation Heat Tank Temperature	NA	NA	NA	NA	NA	NA	NA						
Tank Discharge Pump Rate	NA	NA	NA	NA	NA	NA	NA						

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Time Hair Vacuum System Started	6:30am	Time Hair Received from Kill Floor	7:15
# of Paddles Removed from Hydrolizer		Time Hair Finished from Kill Floor	
# of Times Hydrolizer Plugged & Blown Down		Time Hydrolizer Feeder Shut Off	
		First Time Hair Cooker Discharged	
Hair Silo Beginning Level		Hair Silo Ending	

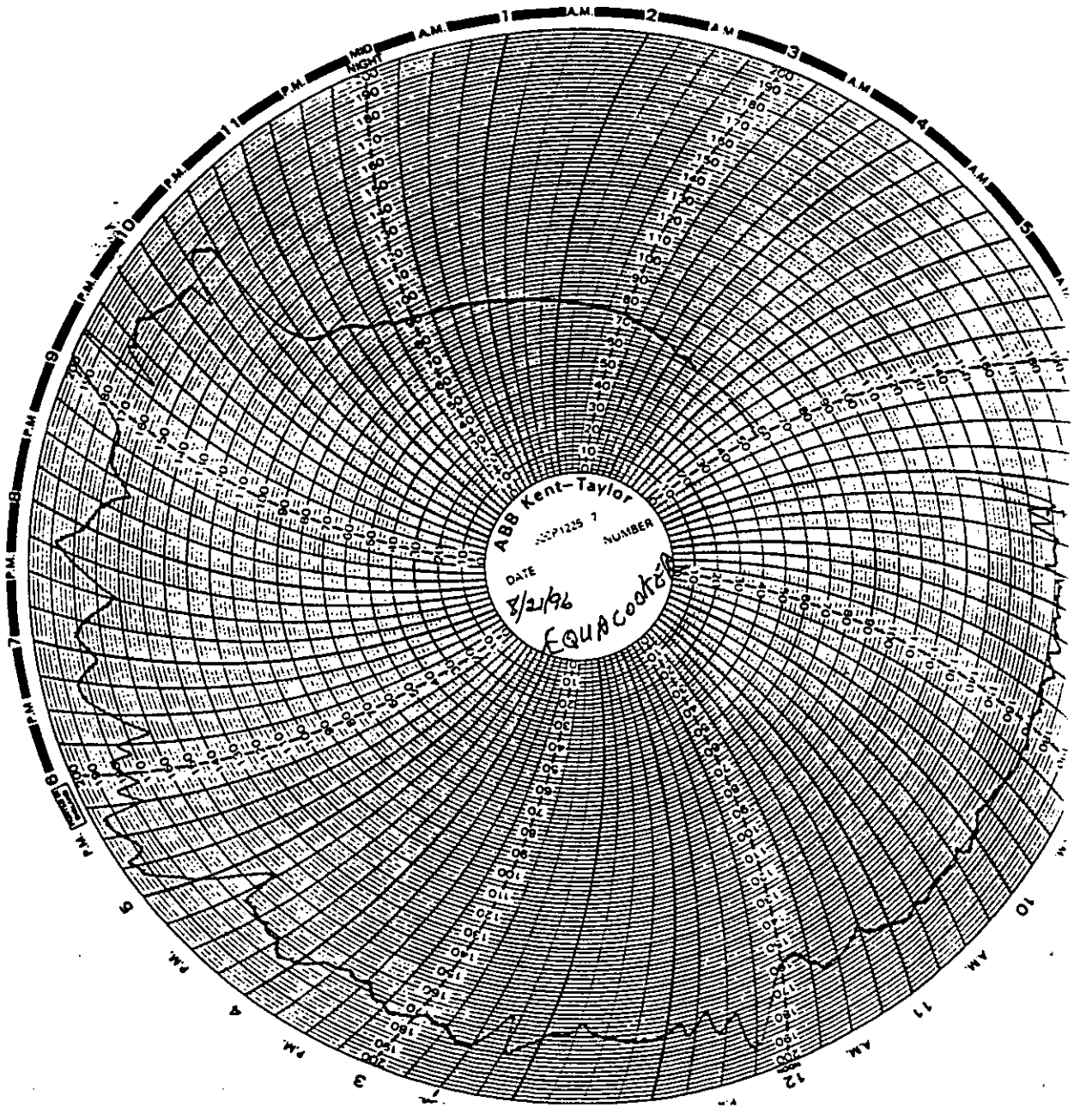


ABB Kent-Taylor
NUMBER
DATE
8/21/96
EQUAcoat

Pork Inedible - Steam
Logansport Inedible VOC Test

Tested August 22, 1996 at Logansport, IN on Dupps 1800 Cooker

Test #1	1.300	
Test #2	0.900	
Test #3	2.200	
	1.467	
Head Kill	6324	
Inedible Opeation Hours	14	
Inedible Crax Yield lbs/hd	14.94	
	lbs/hr	tons/hr
Inedible Processed lbs/hr	6748.61	3.37
Emission Rate (lb/ton)	0.435	

Pork Hair Hydrolizer - Steam
Logansport Hair Hydrolizer VOC Test

Tested on September 21, 1996 at Logansport, IN on Anco Hydrolizer

Test #1	0.107	
Test #2		
Test #3		
	0.107	
Head Kill	6121	
Hydrolizer Opeation Hours	8	
Hair Yield lbs/hd	0.7	
	lbs/hr	tons/hr
Hair Processed lbs/hr	535.59	0.27
Emission Rate (lb/ton)	0.400	

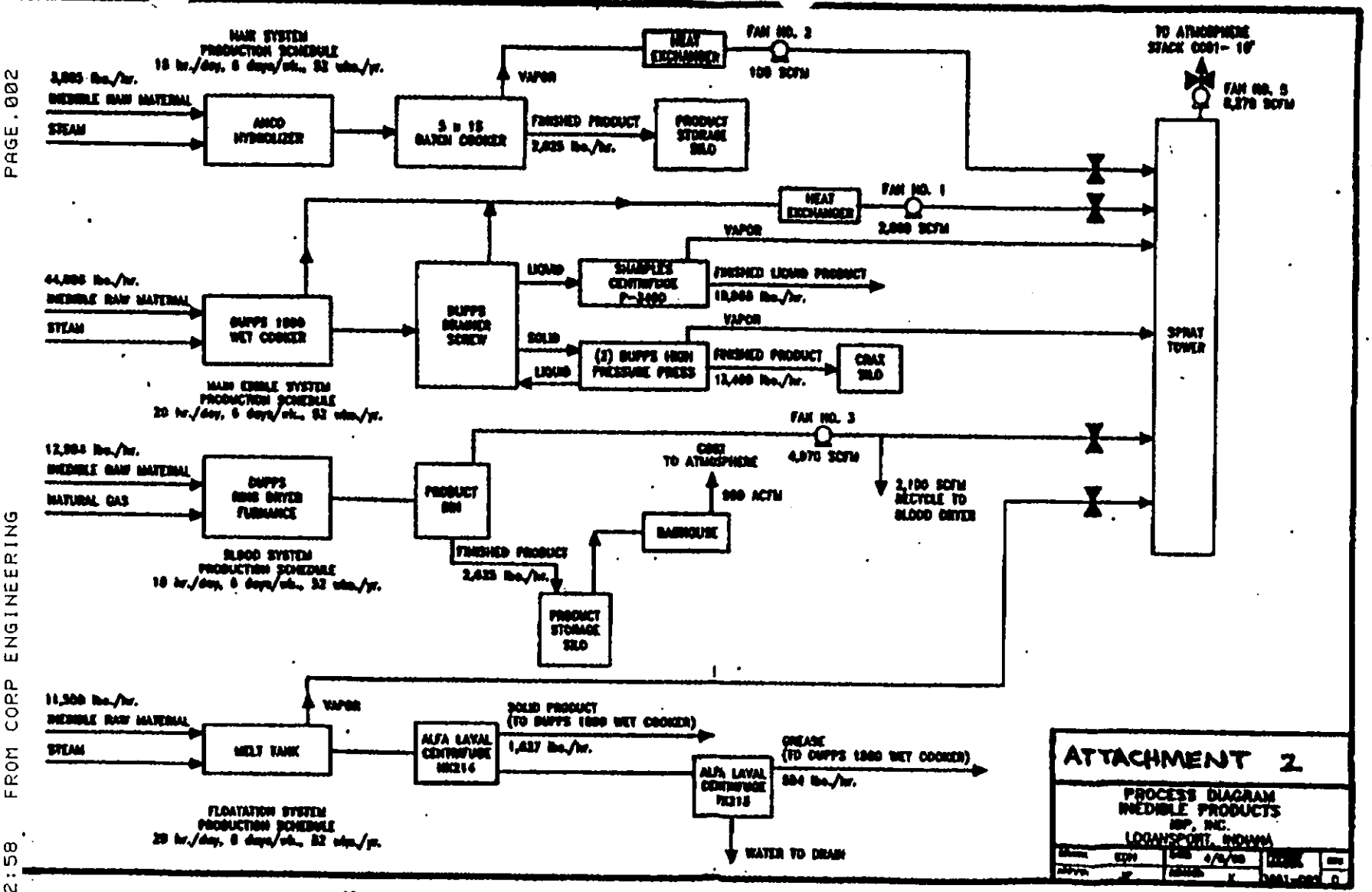
Pork Blood - Natural Gas
Logansport Blood VOC Test

Tested August 20, 1996 at Logansport, IN on Dupps Ring Dryer

Test #1	0.223	
Test #2	0.120	
Test #3	0.072	
	0.138	
Head Kill	5968	
Blood Opeation Hours	10	
Blood Yield lbs/hd	1.33	
	lbs/hr	tons/hr
Blood Processed lbs/hr	793.74	0.40
Emission Rate (lb/ton)	0.328	
Heat Capacity MMBtu/hr	3	
Emission Factor VOC- NG	2.78E-06	
VOC emission from Comb	0.00834	
VOC emission from blood	0.129993	

APPENDIX B

PROCESS DATA



⧗ = Sampling Location

DAILY KILL FLOOR REPORT

DATE: 8-19-96 PLANT: Logan SHIFT: A
CARD COUNT: 905 SET UP STD: 3.5
TEEISM: 18 SET UP ACT: 3.6
NS: 11 TRAINEES/HOURS 99

DAILY STATISTICS

			DESCRIPTION	PATH	CONTAM.	TOTAL
KILL GANG HOURS						
KILL NET HOURS			HEADS	141	443	584
STD. CREWHOURS		1429	VISCERA SETS	153	390	543
GROSS CHAINSPEED		875	CASING SETS	81	-	81
NET CHAIN SPEED		751	STOMACHS	74	-	74
PERFECT HEAD KILL		7000	HEARTS	93	-	93
ACTUAL HEAD KILL		6008	LIVERS	112	-	112
		992	LUNGS	56	-	56
		68	KIDNEYS	105	-	105
		86%	BROKEN BACKS	6	29	35
		63	CONDEMNED HOGS		CONDEMNED HOGS	
HEAD PER MANHOUR		4.34	0893	H		
HEAD INSPECTION		6	0903	A		
VISCERA INSPECTION		10	0901	J		
FINAL INSPECTION		87	0966	F		
			2714	E		

VARIANCE EXPLANATION HOURS

CATEGORY	711/911	712/912	713/913	714/914	715/915	716/916
LIGHT DUTY	6	4	3	0	0	6
TRAINING						
REWORK						
SCHEDULING						
MECHANICAL						
OVERMANNING						

EXTRA MANNING

N/A

SPECIAL LEAN AND PANCREAS PRODUCTION

TOTAL SPECIAL LEAN PRODUCED 7707
TOTAL SPECIAL LEAN HOLDOVER
TOTAL PANCREAS PRODUCTION
PERCENT OF CHITTS SAVED
REASON
A-SHIFT SPECIAL SENT TO CUT
B-SHIFT SPECIAL SENT TO CUT N/A
TOTAL SPEC. LEAN SENT TO CUT
PERCENT OF CASINGS SAVED
REASON

TRIM LOSS INFORMATION

SCALE 1 AVERAGE
SCALE 2 AVERAGE N/A
TRIM LOSS
SCALE 3 AVERAGE
SCALE 4 AVERAGE N/A
TRIM LOSS

HEADLOSS COUNTERS

A+B+C=PATH. LOSS/D=PATH.=CONT. LOSS
(A) HEAD INSPECTOR 51
(B) VISCERA TRIMMER 59
(C) DR. RAIL 71
HEADBENCH 584

VISCERA SET COUNTERS

A+B=PATH. LOSS/C=PATH.=CONT. LOSS
(A) VISCERA TRIMMER 1
(B) DR. RAIL N/A 1
(C) SEPARATOR

DOWNTIME

MECH	MID	PROD	COMMENTS/ GENERAL/ HOG QUALITY
		6	Head inspect -
		10	Viscera line -
		87	Final Rail - Hair, scraper going out.
		4	Hot water not 180° on viscera line
		8	Q.C. stops at hot wt. scale
16			Hot wt. scale down
		13	Bung gun plugged up
			Stomach splitter down

SIGNATURE: C. [illegible]

DAILY KILL FLOOR REPORT

DATE: 8-21-96 PLANT: Logan SHIFT: 3

[illegible]: 200 SET UP STD: 3.5

[illegible]TEEISM: 35 SET UP ACT: 3.5 plus

CALL INS: 7 TRAINEES/HOURS 61 1519

DAILY STATISTICS

KILL GANG HOURS	[illegible]	8hr 35min
KILL NET HOURS		8hr 10min
STD. CREW/HOURS		1428
GROSS CHAIN SPEED		880
NET CHAIN SPEED		749
PERFECT HEAD KILL		7183
[illegible]		6119
[illegible]		1064
		72
		85%
MECHANICAL OUT		67
HEAD PER MANHOUR		4.45
HEAD INSPECTION		12
VISCERA INSPECTION		13
FINAL INSPECTION		13

DESCRIPTION	PATH	CONTAM.	TOTAL
HEADS	192	446	638
VISCERA SETS	128	325	453
CASING SETS	83	–	83
STOMACHS	78	–	78
HEARTS	96	–	96
LIVERS	98	–	98
LUNGS	65	–	65
KIDNEYS	113	–	113
BROKEN BACKS	6	31	37

CONDEMN HOGS		CONDEMN HOGS	

VARIANCE EXPLANATION HOURS

705

CATEGORY	711/911	712/912	713/913	714/914	715/915	716/916
LIGHT DUTY	6	4	4	1	0	6
TRAINING						
REWORK						
SCHEDULING						
MECHANICAL						
OVER/UNDER						

EXTRA MANNING

N/A

SPECIAL LEAN AND PANCREAS PRODUCTION

TOTAL SPECIAL LEAN PRODUCED [illegible]

TOTAL SPECIAL LEAN HOLDOVER

TOTAL PANCREAS PRODUCTION

PERCENT OF CHITTS SAVED

REASON

A—SHIFT SPECIAL SENT TO CUT

B—SHIFT SPECIAL SENT TO CUT N/A

TOTAL SPEC. LEAN SENT TO CUT

PERCENT OF CASINGS SAVED

REASON

TRIM LOSS INFORMATION

SCALE 1 AVERAGE

SCALE 2 AVERAGE N/A

TRIM LOSS

SCALE 3 AVERAGE

SCALE 4 AVERAGE N/A

TRIM LOSS

HEADLOSS COUNTERS

A+B+C=PATH. LOSS/D—PATH.=CONT.LOSS

(A) HEAD INSPECTOR 65

(B) VISCERA TRIMMER 86

(C) DR. RAIL 41

HEADEDUCH 638

VISCERA SET COUNTERS

A+B=PATH.LOSS/C—PATH.=CONT. LOSS

(A) VISCERA TRIMMER 1

(B) DR. RAIL N/A 1

(C) SEPARATOR

DOWNTIME

	PROD	COMMENTS/ GENERAL/ HOG QUALITY
	3	Tato-0184-0138 abscess
		and injection sites.
	2	jam-up on hide in hide area
	3	jam-up in [illegible]
	81	Hotpots not 130° on viscera and back saws
5		#6 [illegible] Kick out 4 times
	12	Head inspect - Hair
	13	Viscera line - Cont
	13	Final Rail - Hair
		Stomach production [illegible] short of [illegible]
		Heart production [illegible], [illegible] 15 min

IBP Form No. 1665 (rev. 8/95)

SIGNATURE: [illegible]

DAILY KILL FLOOR REPORT

DATE: 8-22-96 PLANT: Logan SHIFT: A

CARD COUNT: 198 SET UP STD: 35

ABSENTEEISM: 14 SET UP ACT: 35

CALL INS: 17 TRAINEES/HOURS 71 / 1585

VARIANCE EXPLANATION HOURS 2055

CATEGORY	711/911	712/912	713/913	714/914	715/915	716/916
LIGHT DUTY	6	4	4	2	0	6
TRAINING						
REWORK						
SCHEDULING						
MECHANICAL						
OVER/UNDER						

DAILY STATISTICS

	Plus Break	
KILL GANG HOURS		8hr-12min
KILL NET HOURS		7hr-57min
STD. CREW/HOURS		1460
GROSS CHAIN SPEED		880
NET CHAIN SPEED		795
PERFECT HEAD KILL		6992
ACTUAL HEAD KILL		6324
HEAD LOST		668
DOWNTIME		45
PERCENT OF PERFECT		90.4%
MECHANICAL OUT		48
HEAD PER MANHOUR		449
HEAD INSPECTION		14
VISCERA INSPECTION		12
FINAL INSPECTION		7

DESCRIPTION	PATH	CONTAM.	TOTAL
HEADS	166	464	630
VISCERA SETS	177	385	562
CASING SETS	74	-	74
STOMACHS	83	-	83
HEARTS	72	-	72
LIVERS	95	-	95
LUNGS	68	-	68
KIDNEYS	115	-	115
BROKEN BACKS	4	29	33

CONDEMN HOGS		CONDEMN HOGS	
0172	F		
0306	I		
0216	I		
XX70	I		
0327	F		
0217	I		

EXTRA MANNING

N/A

SPECIAL LEAN AND PANCREAS PRODUCTION

TOTAL SPECIAL LEAN PRODUCED 918.3 #
TOTAL SPECIAL LEAN HOLDOVER
TOTAL PANCREAS PRODUCTION
PERCENT OF CHITTS SAVED
REASON

A—SHIFT SPECIAL SENT TO CUT
B—SHIFT SPECIAL SENT TO CUT N/A
TOTAL SPEC. LEAN SENT TO CUT
PERCENT OF CASINGS SAVED
REASON

TRIM LOSS INFORMATION

SCALE 1 AVERAGE
SCALE 2 AVERAGE N/A
TRIM LOSS

SCALE 3 AVERAGE
SCALE 4 AVERAGE N/A
TRIM LOSS

HEADLOSS COUNTERS

A+B+C=PATH. LOSS/D—PATH.=CONT. LOSS

(A) HEAD INSPECTOR 63
(B) VISCERA TRIMMER 61
(C) DR. RAIL 42
HEADBENCH 630

VISCERA SET COUNTERS

A+B=PATH. LOSS/C—PATH.=CONT. LOSS

(A) VISCERA TRIMMER 1
(B) DR. RAIL N/A
(C) SEPARATOR

DOWNTIME

MECH	MID	PROD	COMMENTS/ GENERAL/ HOG QUALITY
		14	Head inspect - Hair
		12	Viscera line - Cont.
		7	Final Rail - Hair
		6	Abscess clean-up at head inspect. Tats-0XX4-0203-0278-0872-0369-0226
		3	Brisket saw caught-up in jowls.
13			45 min down on stomach splitter, drain plugged-up. Dead Breakers down

SIGNATURE: C. Kl[illegible]

IBP Form No. 1665 (rev. 8/95)

Operator Willow K Spaun

LOGANSPORT EQUACOOKER OPERATING LOGSHEET

Date and Shift 8/20/96 (A)

DESCRIPTION	TARGT	8 :00	9 :00	10 :00	11 :00	12 :00	1 :00	2 :00	:00	:00	:00	:00	:00
Raw Material Bin Level		A	A	A	1/3	1/4	1/4	1/4					
Raw Feed #8 VFD Speed		3150	3192	3151	3151	3151	3151	3050					
Hogger Grinder Motor Load		NA	NA	NA	NA	NA	NA	NA					
Cooker Steam P.S.I.(after Control Valve)													
Equacooker Product Temperature	270.0	267.4	262.0	265.0	266.9	266.3	267.0	273.2					
Cooker Heat Exch Tailwater Temp		270.0	270.0	270.0	270.0	270.0	270.0	272.0					
Cooker Condensate Temp(after trap)													
Cooker Condensate PSI(after trap)													
Vapor Removal Rate/Bucket Test in sec.													
Equacooker Level		1/3	1/3	1/3	1/2	1/2	1/2	1/2					
Control Wheel VFD Speed		1690	1790	1901	1946	2034	2043	2043					
Drainor/Overpressor Screw VFD Speed													
South Pressor Screw VFD Speed		70	75	75	76	60	60	50					
South Pressor Mainshaft Motor Load		3409	33.94	3785	4977	4979	4979	4979					
South Pressor Crax Quality		Good	Good	Good	Good	Good	Good	Good					
North Pressor Screw VFD Speed													
North Pressor Mainshaft Motor Load													
North Pressor Crax Quality													
	OK	OK	OK	OK	OK	OK	OK	OK					
Crax Surge Bin Level		OK	OK	OK	OK	OK	OK	OK					
Crax Grinder Motor Load		NA	NA	NA	NA	NA	NA	NA					
Sharples Centrifuge Motor Load		NA	NA	NA	NA	NA	NA	NA					
East Grease Storage Tank Level		OK	OK	OK	OK	OK	OK	OK					
West Grease Storage Tank Level	OK	OK	OK	OK	OK	OK	OK	OK					

1250 AM Down to 263.7 W.S

1257 AM up to 265.0 W.S

10 MIN. out of RANGE

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Time Electromagnet Checked	
South Pressor Choke Pressure	63°
North Pressor Choke Pressure	—
South Pressor Fines Pump Status	630
North Pressor Fines Pump Status	—

Time Equacooker Jacket Steam was turned on	1130
Time Equacooker Jacket Steam was turned off	

Page 1 of 1 Wednesday, May 08, 1996

To: Stan Simonin

LOGANSPORT EQUACOOKER OPERATING LOGSHEET

Operator: Tom Metz

Date and Shift: 08-20-96 B-Shift

DESCRIPTION	TARGT	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	:00	:00	:00
Raw Material Bin Level		1/4	1/4	1/4	1/4	1/4	1/0	1/16	Empty				
Raw Feed #8 VFD Speed	34.0	31.0	33.0	33.0	33.9	34.6	34.0	34.10	34.0				
Hogger Grinder Motor Load		OK	OK	OK	OK	OK	OK	OK	OK				
Cooker Steam P.S.I.(after Control Valve)													
Equacooker Product Temperature		270/272	270/270	270/270	270/272	270/272	279/279	279/276					
Cooker Heat Exch Tailwater Temp													
Cooker Condensate Temp(after trap)		116	116	112	112	111	110	111					
Cooker Condensate PSI(after trap)		16	16	26	14	15	8	17					
Vapor Removal Rate/Bucket Test in sec.		20.28	19.91	25.68	27.63	19.63	19.21	20.85					
Equacooker Level		1/2	1/2	1/2	1/3	1/3	1/3	1/3					
Control Wheel VFD Speed	20.6	22.0	24.5	24.5	27.1	27.1	27.1	27.1					
Drainor/Overpressor Screw VFD Speed													
South Pressor Screw VFD Speed	50.0	38.0	39.0	38.0	41.0	41.0	46.0	41.0					
South Pressor Mainshaft Motor Load		45/55	45/55	45/55	45/55	43/40	45/55	45/55					
South Pressor Crax Quality		fair	fair	OK	OK	OK	OK	OK					
North Pressor Screw VFD Speed													
North Pressor Mainshaft Motor Load													
North Pressor Crax Quality													
Crax Surge Bin Level		OK	OK	OK	OK	OK	OK	OK					
Crax Grinder Motor Load		OK	OK	OK	OK	OK	OK	OK					
Sharples Centrifuge Motor Load		13	13	14	14	14	14	14					
East Grease Storage Tank Level													
West Grease Storage Tank Level													

Shut Down 9:30pm

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Time Electromagnet Checked: 2:20pm

South Pressor Choke Pressure: OK

North Pressor Choke Pressure: —

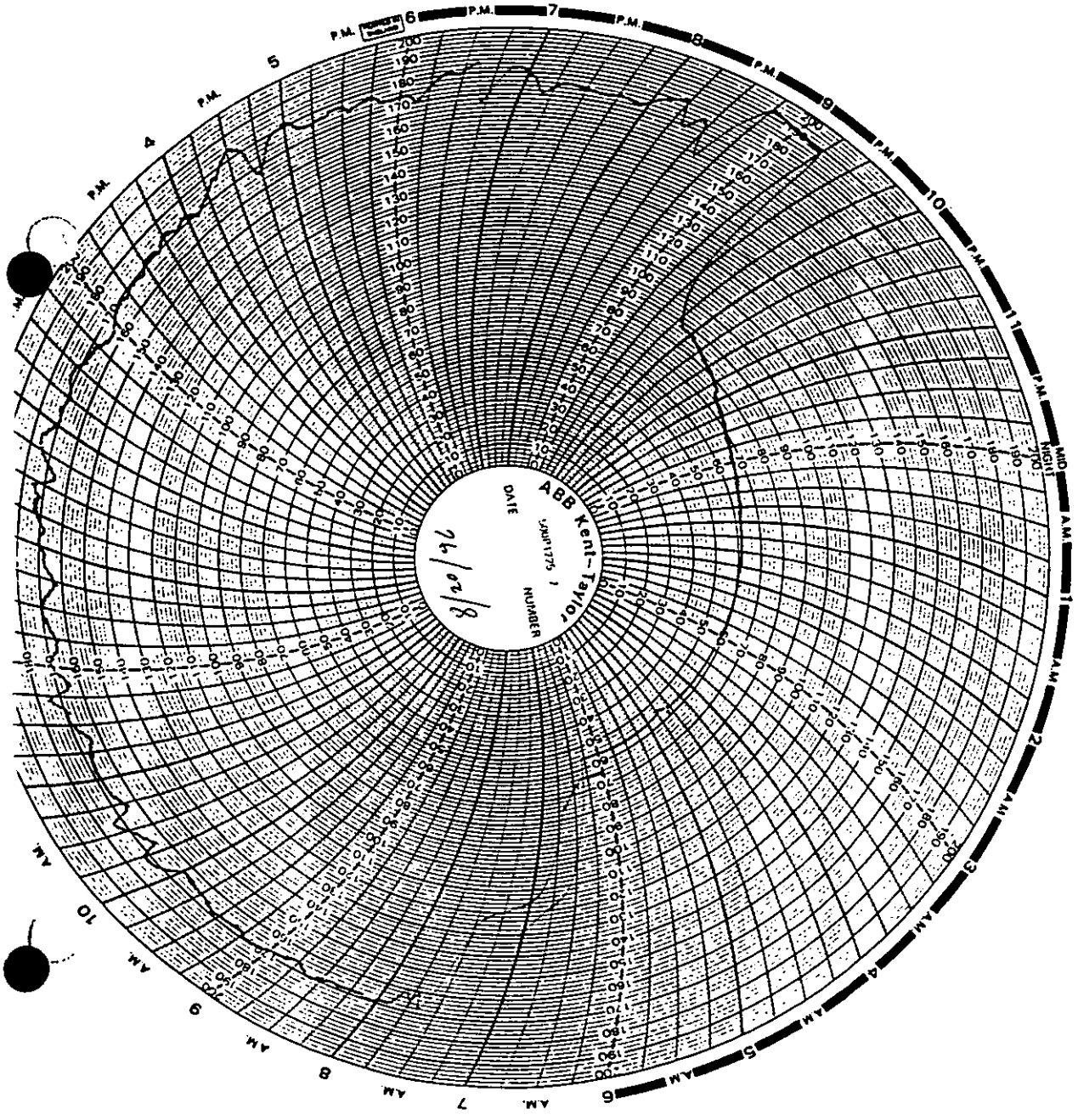
South Pressor Fines Pump Status: OK

North Pressor Fines Pump Status: —

Time Equacooker Jacket Steam was turned on: —

Time Equacooker Jacket Steam was turned off: 9:30

Temperature Recorder
for Wet Cooker.



Page 1 of 1 Wednesday, May 08, 1996 8:40:38 am

To: Stan Simonin

Operator Wilbur R Spencer Jr

Date and Shift 8/21/96 (A)

LOGANSPORT EQUACOOKER OPERATING LOGSHEET

T I M E

DESCRIPTION	TARGT	8:00	9:00	10:00	11:00	12:00	1:00	2:00	:00	:00	:00	:00	:00
Raw Material Bin Level		A	A	A	A	A	1/4	1/4+					
Raw Feed #8 VFD Speed		3120	3120	2120	3118	3118	3225	3125					
Hogger Grinder Motor Load		NA	NA	NA	NA	NA	NA	NA					
Cooker Steam P.S.I.(after Control Valve)		271.6	270.8	268.2	290.7	258.3	268.9	267.9					
Equacooker Product Temperature		270	272.5	276.5	272.5	300.0	275.0	300.0					
Cooker Heat Exch Tailwater Temp		270											
Cooker Condensate Temp(after trap)													
Cooker Condensate PSI(after trap)													
Vapor Removal Rate/Bucket Test in sec.													
Equacooker Level		1/4	1/4	1/2	1/2	1/2	1/2	1/2					
Control Wheel VFD Speed		1691	1735	1891	1891	1936	1939	2094					
Drainor/Overpressor Screw VFD Speed													
South Pressor Screw VFD Speed		3536	3828	3817	3818	3818	3907	3820					
South Pressor Mainshaft Motor Load		65	60	65	65	60	60	60					
South Pressor Crax Quality		Good	Good	Good	Good	Good	Good	Good					
North Pressor Screw VFD Speed		—	—	—	—	—	—	—					
North Pressor Mainshaft Motor Load		—	—	—	—	—	—	—					
North Pressor Crax Quality		—	—	—	—	—	—	—					
Crax Surge Bin Level		OK	OK	OK	OK	OK	OK	OK					
Crax Grinder Motor Load		NA	NA	NA	NA	NA	NA	NA					
Sharples Centrifuge Motor Load		NA	NA	NA	NA	NA	NA	NA					
East Grease Storage Tank Level		OK	OK	OK	OK	OK	OK	OK					
West Grease Storage Tank Level		OK	OK	OK	OK	OK	OK	OK					

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Time Electromagnet Checked	
South Pressor Choke Pressure	630
North Pressor Choke Pressure	—
South Pressor Fines Pump Status	630
North Pressor Fines Pump Status	—

Time Equacooker Jacket Steam was turned on	600
Time Equacooker Jacket Steam was turned off	

all start
630
start
730
272.
11.20
Drum 263.4
11 30
up 265.3
11:40
266.4
1150 266.3
1200 260.4
1205 258.3
1220
272.3
1.50
264.3

Page 1 of 1 Wednesday, May 08, 1996

To: Stan Simonin

Operator Jim Mod 2 / Jeff

LOGANSPORT EQUACOOKER OPERATING LOGSHEET

Date and Shift 08-21-96 1395 4 3rd

DESCRIPTION	TARGT	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	:00	:00	:00	
Raw Material Bin Level		1/3	1/2-	1/4+	1/4	1/4+	1/4	1/8	Empty	Empty				
Raw Feed #8 VFD Speed		33.0	33.0	33.0	33.0	30.4	30.4	30.4	30.4	30.4				33.5
Hogger Grinder Motor Load		OK	OK	OK	OK	OK	OK	OK	OK	OK				
Cooker Steam P.S.I.(after Control Valve)														
Equacooker Product Temperature		271/270	266/270	269/270	269/265	273/268	273	272	270/270	272				
Cooker Heat Exch Tailwater Temp														
Cooker Condensate Temp(after trap)		110	108	110	111	109	112	115	118	110				
Cooker Condensate PSI(after trap)		08*	16	42	15	39	22	11	21	8				
Vapor Removal Rate/Bucket Test in sec.		21.12	16.53	51.68	31.31	29.02	24.21	26.44	21.02	35.56				
Equacooker Level		1/4	1/3	1/3	1/3	1/3	1/4	1/4	1/4	1/4-				
Control Wheel VFD Speed		22.0	22.0	22.0	22.0	21.5	24.5	22.5	22.5	21.5				22.5
Drainor/Overpressor Screw VFD Speed														
South Pressor Screw VFD Speed		40.0	40.0	40.0	40.0	39.0	38.0	38.0	39.0	38.0				
South Pressor Mainshaft Motor Load		50/75	50/65	45/50	45/50	50/75	50/70	50/70	50/70	45/50				
South Pressor Crax Quality		OK	OK	OK	OK	OK	OK	OK	OK	OK				
North Pressor Screw VFD Speed														
North Pressor Mainshaft Motor Load														
North Pressor Crax Quality														
Crax Surge Bin Level		OK	OK	OK	OK	OK	OK	OK	OK	OK				
Crax Grinder Motor Load		OK	OK	OK	OK	OK	OK	OK	OK	OK				
Sharples Centrifuge Motor Load		13	13	13	13	13	14	13	13	13				
East Grease Storage Tank Level														
West Grease Storage Tank Level														

Shut down 22:45 - mgb

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Time Electromagnet Checked 2:30p m

South Pressor Choke Pressure OK

North Pressor Choke Pressure —

South Pressor Fines Pump Status OK

North Pressor Fines Pump Status —

Time Equacooker Jacket Steam was turned on —

Time Equacooker Jacket Steam was turned off 22:22

Operator — Ulric R Gerard Jr

Date and Shift 8/22/96 (A)

LOGANSPORT EQUACOOKER OPERATING LOGSHEET

DESCRIPTION	TARGT	8:00	9:00	10:00	11:00	12:00	1:00	2:00	:00	:00	:00	:00	:00
Raw Material Bin Level		A	A	A	1/3	1/3	1/3						
Raw Feed #8 VFD Speed		3148	3148	3148	3148	3154	3148						
Hogger Grinder Motor Load		NA	NA	NA	NA	NA	NA						
Cooker Steam P.S.I.(after Control Valve)		273.7	271.4	271.4	268.1	286.9	269.1						
Equacooker Product Temperature		272	272.5	272.5	272.5	300.0	272.5						
Cooker Heat Exch Tailwater Temp													
Cooker Condensate Temp(after trap)													
Cooker Condensate PSI(after trap)													
Vapor Removal Rate/Bucket Test in sec.													
Equacooker Level		1/4	1/4	1/4	1/2	1/2	1/3						
Control Wheel VFD Speed		1631	1631	1950	20.70	2199	22.10						
Drainor/Overpressor Screw VFD Speed													
South Pressor Screw VFD Speed		2886	2886	4210	4210	4193	4194						
South Pressor Mainshaft Motor Load		70	70	60	60	60	65						
South Pressor Crax Quality		Good	Good	Good	Good	Good	Good						
North Pressor Screw VFD Speed													
North Pressor Mainshaft Motor Load													
North Pressor Crax Quality													
Crax Surge Bin Level		OK	OK	OK	OK	OK	OK						
Crax Grinder Motor Load		NA	NA	NA	NA	NA	NA						
Sharples Centrifuge Motor Load		NA	NA	NA	NA	NA	NA						
East Grease Storage Tank Level		OK	OK	OK	OK	OK	OK						
West Grease Storage Tank Level		OK	OK	OK	OK	OK	OK						

start 630

start 745

1040 AM
264.3

1050
263.7

1100
266.9

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Time Electromagnet Checked	
South Pressor Choke Pressure	630
North Pressor Choke Pressure	~~630~~
South Pressor Fines Pump Status	630
North Pressor Fines Pump Status	—

Time Equacooker Jacket Steam was turned on	630
Time Equacooker Jacket Steam was turned off	

Operator Name Jo Rough

Date and Shift 8-20-96 A Shift

LOGANSPORT BLOOD DRYING & COOLING LOGSHEET

LGBLLOG.WK4

rev3/1/96 IBP0296gm

DESCRIPTION	TARGT	06:00	07:00	08:00	09:00	10:00	11:00	12:00	01:00	02:00	03:00	04:00	05:00
Furnace Exhaust Temperature	<700 F					200	200	190	191	190			
Ring Dryer Disch Temp Set-point	200 F					191	191	191	191	191			
Ring Dryer Disch Product Temperature	actual					190	190	190	192	189			
Centrifuge Feed Pump Speed	18.5 Hz					24.5	24.5	24.5	24.5	24.5			
Coagulator Temperature Setpoint	—					NA	NA	NA	NA	NA			
Coagulator Product Temperature	—					NA	NA	NA	NA	NA			
Centrifuge Motor Load Amperes	<15 A					10	10	10	10	10			
South Raw Blood Surge Tank Level	MIN					0	0	0	0	0			
North Raw Blood Surge Tank Level	MIN					0	0	0	0	0			
Raw Blood Feed Tank Level	3/4					1/3	1/3	1/3	1/2	1/2			
Feed Tank Agitator	ON					ON	ON	ON	ON	ON			
Main Steam Incoming Pressure	125psi					115	115	115	115	115			
After Regulator Steam Pressure	40psi					45	45	45	45	45			
Coagulator Main Steam Valve Pressure	30psi					25	25	25	25	25			
Pre-Coagulation Injection Water Rate	2gpm					NA	NA	NA	NA	NA			
Minutes Main Blood Valve Open	actual					55	55	55	55	55			
Centrifuge Feed Pump Disch Pressure	<20psi												
Coagulator North Injector Valve Setting	1-1/4					1-1/4	1-1/4	1-1/4	1 1/4	1 1/4			
Coagulator South Injector Valve Setting	3/4					3/4	3/4	3/4	3/4	3/4			
Centrifuge Injection Water Rate	8gpm					NA	NA	NA	NA	NA			
Centrifuge Feed Temperature						NA	NA	NA	NA	NA			
Centrifuge Stickwater Sample						OK	OK	OK	OK	OK			
Centrifuged Blood Sample						OK	OK	OK	OK	OK			
Ring Dryer percent recycle	MIN					NA	NA	NA	NA	NA			
Air Lock and Cyclone status	CLEAR					OK	OK	OK	OK	OK			
Cyclone Outlet Pressure	15"					17.5	17.5	17.5	17.5	17.5			
Dried Blood Moisture	10%						11.3						
Dried Blood Blower Discharge Pressure						NA	NA	NA	NA	NA			

Record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

Report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Operator Name _____

LOGANSPORT BLOOD DRYING O[illegible]ATING LOGSHEET

LGBLLOG.WK4

rev3/1/96 IBP0206gm

Date and Shift 8-20-96 B-Shift 3:00 4:00 5:00 6:00 7:00 8:00

DESCRIPTION	TARGT	06:00	07:00	08:00	09:00	10:00	11:00	12:00	01:00	02:00	03:00	04:00	05:00
Furnace Exhaust Temperature	<700 F	180	190	195	193	193							
Ring Dryer Disch Temp Set-point	200 F	191	191	191	191	191							
Ring Dryer Disch Product Temperature	actual	193	190	191	192	190							
Centrifuge Feed Pump Speed	18.5 Hz	24.5	24.5	24.5	24.5	24.5							
Coagulator Temperature Setpoint		—	—	—	—	—							
Coagulator Product Temperature		—	—	—	—	—							
Centrifuge Motor Load Amperes	<15 A	10	10	10	10	10							
South Raw Blood Surge Tank Level	MIN	—	—	—	—	—							
North Raw Blood Surge Tank Level	MIN	—	—	—	—	—							
Raw Blood Feed Tank Level	3/4	1/2	1/2	1/2	1/2	—							
Feed Tank Agitator	ON	ON	ON	ON	ON	ON							
Main Steam Incoming Pressure	125psi	120	120	125	120	125							
Filter Regulator Steam Pressure	40psi	45	45	45	45	45							
Coagulator Main Steam Valve Pressure	30psi	22	25	23	25	25							
Pre-Coagulation Injection Water Rate	2gpm	—	—	—	—	—							
Minutes Main Blood Valve Open	actual	5.5	5.5	5.5	5.5	5.5							
Centrifuge Feed Pump Disch Pressure	<20psi	10	10	12	8	10							
Coagulator North Injector Valve Setting	1-1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4							
Coagulator South Injector Valve Setting	3/4	3/4	3/4	3/4	3/4	3/4							
Centrifuge Injection Water Rate	8gpm	—	—	—	—	—							
Centrifuge Feed Temperature		~~OK~~	—	—	—	—							
Centrifuge Stickwater Sample		OK	OK	OK	OK	OK							
Centrifuged Blood Sample		OK	OK	OK	OK	OK							
Ring Dryer percent recycle	MIN	—	—	—	—	—							
Air Lock and Cyclone status	CLEAR	Cl	Cl	Cl	Cl	Cl							
Cyclone Outlet Pressure	15"	17.5	17.5	18	17.5	17.5							
Dried Blood Moisture	10%	6.8	7.3	6.9	8	6.9							
Dried Blood Blower Discharge Pressure													

Record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

Report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Operator Name [redacted] Pouch

Date and Shift 8-21-96 A-Shift

LOGANSPORT BLOOD DRYING [redacted]ATING LOGSHEET

LGBLLOG.WK4

rev3/1/96 IBP0296gm

DESCRIPTION	TARGT	06:00	07:00	08:00	09:00	10:00	11:00	12:00	01:00	02:00	03:00	04:00	05:00
Furnace Exhaust Temperature	<700 F					195	195	190	195	195			
Ring Dryer Disch Temp Set-point	200 F					191	191	191	191	191			
Ring Dryer Disch Product Temperature	actual					198	198	199	190	190			
Centrifuge Feed Pump Speed	18.5 Hz					24.5	24.5	24.5	24.5	24.3			
Coagulator Temperature Setpoint						NA	NA	NA	NA	NA			
Coagulator Product Temperature						NA	NA	NA	NA	NA			
Centrifuge Motor Load Amperes	<15 A					10	10	10	10	10			
South Raw Blood Surge Tank Level	MIN					0	0	0	0	0			
North Raw Blood Surge Tank Level	MIN					0	0	0	0	0			
Raw Blood Feed Tank Level	3/4					3/4	3/4	3/4	3/4	3/4			
Feed Tank Agitator	ON					ON	ON	ON	ON	ON			
Main Steam Incoming Pressure	125psi					115	115	115	115	115			
After Regulator Steam Pressure	40psi					45	45	45	45	45			
Coagulator Main Steam Valve Pressure	30psi					25	25	25	25	25			
Pre-Coagulation Injection Water Rate	2gpm					NA	NA	NA	NA	NA			
Minutes Main Blood Valve Open	actual					Start	55	55	55	55			
Centrifuge Feed Pump Disch Pressure	<20psi					10	10	10	10	10			
Coagulator North Injector Valve Setting	1-1/4					1-1/4	1-1/4	1-1/4	1-1/4	1-1/4			
Coagulator South Injector Valve Setting	3/4					3/4	3/4	3/4	3/4	3/4			
Centrifuge Injection Water Rate	8gpm					NA	NA	NA	NA	NA			
Centrifuge Feed Temperature						NA	NA	NA	NA	NA			
Centrifuge Stickwater Sample						OK	OK	OK	OK	OK			
Centrifuged Blood Sample						OK	OK	OK	OK	OK			
Ring Dryer percent recycle	MIN					NA	NA	NA	NA	NA			
Air Lock and Cyclone status	CLEAR					OK	OK	OK	OK	OK			
Cyclone Outlet Pressure	15"					17.5	17.5	17.5	17.5	17.5			
Dried Blood Moisture	10%												
Dried Blood Blower Discharge Pressure						NA	NA	NA	NA	NA			

Record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

Report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Operator Name [illegible] & Frank

LOGANSPORT BLOOD DRYING O[illegible]ATING LOGSHEET

LGBLLOG.WK4

Date and Shift 2-21-96 3:00 4:00 5:00 6:00 7:00 8:20 9:00

rev3/1/96 IBP0206gm

DESCRIPTION	TARGT	06:00	07:00	08:00	09:00	10:00	11:00	12:00	01:00	02:00	03:00	04:00	05:00
Furnace Exhaust Temperature	<700 F	190	190	190	190	190	190	190					
Ring Dryer Disch Temp Set-point	200 F	191	191	191	191	191	191	191					
Ring Dryer Disch Product Temperature	actual	191	193	191	189	190	200	189					
Centrifuge Feed Pump Speed	18.5 Hz	24.5	24.5	24.3	25.0	25.0	25.0	25.0					
Coagulator Temperature Setpoint		—	—	—	—	—	—	—					
Coagulator Product Temperature		—	—	—	—	—	—	—					
Centrifuge Motor Load Amperes	<15 A	10	10	10	10	10	10.5	10					
South Raw Blood Surge Tank Level	MIN	—	1/2	1/2	1/2	—	—	—					
North Raw Blood Surge Tank Level	MIN	—	—	—	—	—	—	—					
Raw Blood Feed Tank Level	3/4	3/4	Full	3/4	Full	3/4	3/4	3/4					
Feed Tank Agitator	ON	ON	ON	ON	ON	ON	ON	ON					
Main Steam Incoming Pressure	125psi	120	120	120	120	120	120	120					
After Regulator Steam Pressure	40psi	45	45	45	45	45	45	45					
Coagulator Main Steam Valve Pressure	30psi	27	27	27	27	27	27	35					
Pre-Coagulation Injection Water Rate	2gpm	—	—	—	—	—	—	—					
Minutes Main Blood Valve Open	actual	5.5	5.5	5.5	5.5	0.5	5.5	0.5+					
Centrifuge Feed Pump Disch Pressure	<20psi	12	12	12	12	12	13	20					
Coagulator North Injector Valve Setting	1-1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4					
Coagulator South Injector Valve Setting	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4					
Centrifuge Injection Water Rate	8gpm	—	—	—	—	—	—	—					
Centrifuge Feed Temperature		—	—	—	—	—	—	—					
Centrifuge Stickwater Sample		OK	OK	OK	OK	OK	OK	OK					
Centrifuged Blood Sample		OK	OK	OK	OK	OK	OK	OK					
Ring Dryer percent recycle	MIN	—	—	—	—	—	—	—					
Air Lock and Cyclone status	CLEAR	CL	CL	CL	CL	CL	CL	CL					
Cyclone Outlet Pressure	15"	17.5	17.5	17.5	17.5	17.5	17.5	17.5					
Dried Blood Moisture	10%	10.4	—	—	—	—	—	—					
Dried Blood Blower Discharge Pressure		—	—	—	—	—	—	—					

Record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

Report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Operator Name JK Kovak

Date and Shift 8-12-96 A-Shift

LOGANSPORT BLOOD DRYING O[illegible]ATING LOGSHEET

LGBLLOG.WK4

rev3/1/96 IBP0296gm

DESCRIPTION	TARGT	06:00	07:00	08:00	09:00	10:00	11:00	12:00	01:00	02:00	03:00	04:00	05:00
Furnace Exhaust Temperature	<700 F					190	190	190					
Ring Dryer Disch Temp Set-point	200 F					191	191	191					
Ring Dryer Disch Product Temperature	actual					190	185	187					
Centrifuge Feed Pump Speed	18.5 Hz					25.5	25.5	25.5					
Coagulator Temperature Setpoint						NA	NA	NA					
Coagulator Product Temperature						NA	NA	NA					
Centrifuge Motor Load Amperes	<15 A					16	15	15					
South Raw Blood Surge Tank Level	MIN					NA	0	0					
North Raw Blood Surge Tank Level	MIN					8	0	0					
Raw Blood Feed Tank Level	3/4					3/4	3/4	3/4					
Feed Tank Agitator	ON					ON	ON	ON					
Main Steam Incoming Pressure	125psi					115	115	115					
After Regulator Steam Pressure	40psi					45	45	45					
Coagulator Main Steam Valve Pressure	30psi					25	25	25					
Pre-Coagulation Injection Water Rate	2gpm					NA	NA	NA					
Minutes Main Blood Valve Open	actual					Start	55	55					
Centrifuge Feed Pump Disch Pressure	<20psi												
Coagulator North Injector Valve Setting	1-1/4					1-1/4	1-1/4	1-1/4					
Coagulator South Injector Valve Setting	3/4					3/4	3/4	3/4					
Centrifuge Injection Water Rate	8gpm					NA	NA	NA					
Centrifuge Feed Temperature						NA	NA	NA					
Centrifuge Stickwater Sample						~~OK~~	~~OK~~	—					
Centrifuged Blood Sample						OK	OK	OK					
Ring Dryer percent recycle	MIN					NA	NA	NA					
Air Lock and Cyclone status	CLEAR					OK	OK	OK					
Cyclone Outlet Pressure	15"					17.5	17.5	17.5					
Dried Blood Moisture	10%						6.6						
Dried Blood Blower Discharge Pressure						NA	NA	NA					

Record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

Report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Operator: [illegible] LOGSHEET LGHRLOG.WK4

Date and Shift: 10-96 A T I M E IBP0896gm

DESCRIPTION	TARGT	8:00	9:00	10:00	11:00	12:00	1:00	2:00	:00	:00	:00	:00	:00
Bsmt Hair Collection Bin Status		OK	OK	OK	OK	OK	OK	OK					
Hair Vacuum Blower Motor Load		18	18	18	20	20	20	20					
# of Minutes Feed Screw was Reversed		0	0	0	0	0	0	0					
Hydrolizer Reg. Internal Steam Pressure		50	50	50	50	50	50	50					
Hydrolizer Reg. Jacket Steam Pressure		90	90	90	90	90	90	90					
Hydrolizer Feeder Screw Motor Load		12	8	8	8	8	8	8					
Hydrolizer Feed Temperature		108	111	154	110	113	150	114					
Hydrolizer Main Shaft Motor Load		NA	NA	NA	NA	NA	NA	NA					
Hydrolizer Discharge Pressure		50	47	50	49	48	50	49					
Hydrolizer Condensate Temperature		225	225	225	225	225	225	225					
Hydrolized Hair Sample Quality		Good	Good	Good	Good	Good	Good	Good					
Hair Cooker Jacket Reg. Steam Pressure		89	85	85	85	84	89	90					
Hair Cooker Condensate Temperature		190	198	198	198	198	198	198					
Hair Cooker Motor Load		NA	NA	NA	NA	NA	NA	NA					
Hair Cooker Discharge Time		✓	✓	✓	✓	10.	✓	✓					
East Flotation Cell Condition													
# of Minutes East Skimmer Arm Running													
East Recycle Pump Discharge Pressure													
East Air Injection Air Flow													
East Air Mix Tank Inlet Pressure													
East Air Mix Tank Outlet Pressure													
West Flotation Cell Condition													
# of Minutes West Skimmer Arm Running													
West Recycle Pump Discharge Pressure													
West Air Injection Air Flow													
West Air Mix Tank Inlet Pressure													
West Air Mix Tank Outlet Pressure													
Flotation Heat Tank Level													
Flotation Heat Tank Temperature													
Tank Discharge Pump Rate													

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Time Hair Vacuum System Started	6:30	Time Hair Received from Kill Floor	8:15
# of Paddles Removed from Hydrolizer		Time Hair Finished from Kill Floor	0
# of Times Hydrolizer Plugged & Blown Down		Time Hydrolizer Feeder Shut Off	0
		Final Time Hair Cooker Discharged	0
Hair Silo Beginning Level	OK	Hair Silo Ending Level	OK

Operator David Richardson

Date and Shift 8-20-96 B-Shift

LOGANSPORT HAIR HYDROLIZER and FLOTATION CELL LOGSHEET LGHRLOG.WK4

T I M E

IBP0696gm

DESCRIPTION	TARGT	3 :00	4 :00	5 :00	6 :00	:00	:00	:00	:00	:00	:00	:00	:00
Bsmt Hair Collection Bin Status		OK	OK	OK									
Hair Vacuum Blower Motor Load		18	18	18									
# of Minutes Feed Screw was Reversed		0	0	0									
Hydrolizer Reg. Internal Steam Pressure		48 lbs	48 lbs	48 lbs									
Hydrolizer Reg. Jacket Steam Pressure		89 lbs	89 lbs	89 lbs									
Hydrolizer Feeder Screw Motor Load		9	9	9									
Hydrolizer Feed Temperature		1110	125°	1190									
Hydrolizer Main Shaft Motor Load		N/A	N/A	N/A									
Hydrolizer Discharge Pressure		48 lbs	48 lbs	48 lbs									
Hydrolizer Condensate Temperature		230°	230°	230°									
Hydrolized Hair Sample Quality		GOOD	GOOD	GOOD									
Hair Cooker Jacket Reg. Steam Pressure		15 lbs	15 lbs	15 lbs									
Hair Cooker Condensate Temperature		197°	196°	197									
Hair Cooker Motor Load		N/A	N/A	N/A									
Hair Cooker Discharge Time		—	—	5:15									
East Flotation Cell Condition													
# of Minutes East Skimmer Arm Running													
East Recycle Pump Discharge Pressure													
East Air Injection Air Flow													
East Air Mix Tank Inlet Pressure													
East Air Mix Tank Outlet Pressure													
West Flotation Cell Condition													
# of Minutes West Skimmer Arm Running													
West Recycle Pump Discharge Pressure													
West Air Injection Air Flow													
West Air Mix Tank Inlet Pressure													
West Air Mix Tank Outlet Pressure													
Flotation Heat Tank Level													
Flotation Heat Tank Temperature													
Tank Discharge Pump Rate													

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good) Fair Poor); Shift End-(Good) Fair Poor)

Time Hair Vacuum System Started	OK	Time Hair Received from Kill Floor	615
# of Paddles Removed from Hydrolizer	0	Time Hair Finished from Kill Floor	5:00
# of Times Hydrolizer Plugged & Blown Down	0	Time Hydrolizer Feeder Shut Off	5:05
	0	Final Time Hair Cooker Discharged	5:15
Hair Silo Beginning Level	OK	Hair Silo Ending Level	OK

Operator: Townsend

Date and Shift: 4-21-95 1

LOGANSPORT HAIR HYDROLIZ[illegible]d FLOTATION CELL LOGSHEET LGHRLOG.WK4

T I M E

IBP0896gm

DESCRIPTION	TARGT	8 :00	9 :00	10 :00	11 :00	12 :00	1 :00	2 :00	:00	:00	:00	:00	:00
Bsmt Hair Collection Bin Status		OK	OK	OK	OK	OK	OK						
Hair Vacuum Blower Motor Load		20	22	20	20	20	20						
# of Minutes Feed Screw was Reversed		0	0	0	0	0	0						
Hydrolizer Reg. Internal Steam Pressure		50	50	50	50	50	50						
Hydrolizer Reg. Jacket Steam Pressure		90	90	90	90	90	90						
Hydrolizer Feeder Screw Motor Load		10	8	10	8	10	10						
Hydrolizer Feed Temperature		106	106	119	108	108	115						
Hydrolizer Main Shaft Motor Load		NA	NA	NA	NA	NA	NA						
Hydrolizer Discharge Pressure		50	50	50	50	50	50						
Hydrolizer Condensate Temperature		225	225	225	225	225	225						
Hydrolized Hair Sample Quality		Good	Good	Good	Good	Good	Good						
Hair Cooker Jacket Reg. Steam Pressure		90	BB	BB	BB	BB	BB						
Hair Cooker Condensate Temperature		195	195	195	195	195	195						
Hair Cooker Motor Load		NA	NA	NA	NA	NA	NA						
Hair Cooker Discharge Time		-	-	-	-	-	-						
East Flotation Cell Condition		Full	Full	Full	Full	Full	Full						
# of Minutes East Skimmer Arm Running		3:46	3:45	3:45	3:46	3:45	3:45						
East Recycle Pump Discharge Pressure		50	50	50	50	50	50						
East Air Injection Air Flow		45	45	45	45	45	45						
East Air Mix Tank Inlet Pressure		90	90	90	90	90	90						
East Air Mix Tank Outlet Pressure		50	50	50	50	50	50						
West Flotation Cell Condition		Full	Full	Full	Full	Full	Full						
# of Minutes West Skimmer Arm Running		Down	Down	Down	Down	Down	Down						
West Recycle Pump Discharge Pressure		50	50	50	50	50	50						
West Air Injection Air Flow		45	45	45	45	45	45						
West Air Mix Tank Inlet Pressure		90	90	90	90	90	90						
West Air Mix Tank Outlet Pressure		50	50	50	50	50	50						
Flotation Heat Tank Level		NA	NA	NA	NA	NA	NA						
Flotation Heat Tank Temperature		NA	NA	NA	NA	NA	NA						
Tank Discharge Pump Rate		NA	NA	NA	NA	NA	NA						

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Time Hair Vacuum System Started	6:30	Time Hair Received from Kill Floor	7:20
# of Paddles Removed from Hydrolizer		Time Hair Finished from Kill Floor	
# of Times Hydrolizer Plugged & Blown Down		Time Hydrolizer Feeder Shut Off	
		Final Time Hair Cooker Discharged	
Hair Silo Beginning Level	OK	Hair Silo Ending Level	

Operator [redacted] Nichols

LOGANSPORT HAIR HYDROLIZE[redacted] FLOTATION CELL LOGSHEET LGHRLOG.WK4

Date and Shift 10-21-96 B-Shift

DESCRIPTION	TARGT	3 :00	4 :00	5 :00	6 :00	:00	:00	:00	:00	:00	:00	:00	:00
Bsmt Hair Collection Bin Status	OK	OK	OK										
Hair Vacuum Blower Motor Load		22	21										
# of Minutes Feed Screw was Reversed	0	0	0										
Hydrolizer Reg. Internal Steam Pressure	44#	49#	50#										
Hydrolizer Reg. Jacket Steam Pressure	89#1	89#	89#										
Hydrolizer Feeder Screw Motor Load		9	9										
Hydrolizer Feed Temperature	190	104#	111°										
Hydrolizer Main Shaft Motor Load	N/A	N/A	N/A										
Hydrolizer Discharge Pressure	45#	45#	50#										
Hydrolizer Condensate Temperature	235	230#	230#										
Hydrolized Hair Sample Quality	Good	Good	Good										
Hair Cooker Jacket Reg. Steam Pressure	89#	89#1	89#1										
Hair Cooker Condensate Temperature	195#	193#	193#										
Hair Cooker Motor Load	N/A	N/A	N/A										
Hair Cooker Discharge Time		-	4:45										
East Flotation Cell Condition													
# of Minutes East Skimmer Arm Running													
East Recycle Pump Discharge Pressure													
East Air Injection Air Flow													
East Air Mix Tank Inlet Pressure													
East Air Mix Tank Outlet Pressure													
West Flotation Cell Condition													
# of Minutes West Skimmer Arm Running													
West Recycle Pump Discharge Pressure													
West Air Injection Air Flow													
West Air Mix Tank Inlet Pressure													
West Air Mix Tank Outlet Pressure													
Flotation Heat Tank Level													
Flotation Heat Tank Temperature													
Tank Discharge Pump Rate													

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good) Fair Poor); Shift End-(Good Fair Poor)

Time Hair Vacuum System Started	OK	Time Hair Received from Kill Floor	9:15
# of Paddles Removed from Hydrolizer	0	Time Hair Finished from Kill Floor	4:30
# of Times Hydrolizer Plugged & Blown Down	0	Time Hydrolizer Feeder Shut Off	4:25
	0	Final Time Hair Cooker Discharged	4:45
Hair Silo Beginning Level	OK	Hair Silo Ending Level	OK

Operator N. Townsend

Date and Shift 5-22-96 A

LOGANSPORT HAIR HYDROLIZER and FLOTATION CELL LOGSHEET LGHRLOG.WK4

T I M E IBP0896gm

DESCRIPTION	TARGT	8 :00	9 :00	10 :00	11 :00	12 :00	1 :00	2:00	:00	:00	:00	:00	:00
Bsmt Hair Collection Bin Status		OK	OK	OK	OK	OK	OK						
Hair Vacuum Blower Motor Load		18	18	18	18	18	19						
# of Minutes Feed Screw was Reversed		0	0	0	0	0	0						
Hydrolizer Reg. Internal Steam Pressure		50	50	50	50	50	50						
Hydrolizer Reg. Jacket Steam Pressure		90	90	90	90	90	90						
Hydrolizer Feeder Screw Motor Load		8	8	12	8	8	9						
Hydrolizer Feed Temperature		104	106	116	112	114	115						
Hydrolizer Main Shaft Motor Load		NA	NA	NA	NA	NA	NA						
Hydrolizer Discharge Pressure		50	50	50	50	50	50						
Hydrolizer Condensate Temperature		225	225	225	225	225	225						
Hydrolized Hair Sample Quality		Good	Good	Good	Good	Good	Good						
Hair Cooker Jacket Reg. Steam Pressure		88	90	87	89	89	88						
Hair Cooker Condensate Temperature		195	195	195	195	195	195						
Hair Cooker Motor Load		NA	NA	NA	NA	NA	NA						
Hair Cooker Discharge Time		✓	✓	✓	✓	✓	✓						
East Flotation Cell Condition	Good	Good	Good	Good	Full	Full	Full						
# of Minutes East Skimmer Arm Running													
East Recycle Pump Discharge Pressure	50 PSI	50	50	50	50	50	50						
East Air Injection Air Flow	50 PSI	50	50	50	50	50	50						
East Air Mix Tank Inlet Pressure	90 PSI	90	90	90	90	90	90						
East Air Mix Tank Outlet Pressure	50 PSI	50	50	50	50	50	50						
West Flotation Cell Condition	45	45	45	45	45	45	45						
# of Minutes West Skimmer Arm Running													
West Recycle Pump Discharge Pressure	50 PSI	50	50	50	50	50	50						
West Air Injection Air Flow	45 PSI	Full	Full	Full	Full	Full	Full						
West Air Mix Tank Inlet Pressure	90 PSI	90	90	90	90	90	90						
West Air Mix Tank Outlet Pressure	50 PSI	50	50	50	50	50	50						
Flotation Heat Tank Level	NA	NA	NA	NA	NA	NA	NA						
Flotation Heat Tank Temperature	NA	NA	NA	NA	NA	NA	NA						
Tank Discharge Pump Rate	NA	NA	NA	NA	NA	NA	NA						

*record all mechanical downtime on the back of this form. Include equipment name, time down, time back operational, reason for downtime and end of shift status.

**report any and all mechanical problems to your supervisor immediately. Record all problems on the back of this form.

Department Condition: Shift Start-(Good Fair Poor); Shift End-(Good Fair Poor)

Time Hair Vacuum System Started	6:30	Time Hair Received from Kill Floor	7:15
# of Paddles Removed from Hydrolizer		Time Hair Finished from Kill Floor	
# of Times Hydrolizer Plugged & Blown Down		Time Hydrolizer Feeder Shut Off	
Hair Silo Beginning Level		Final Time Hair Cooker Discharged	
		Time to Finish	

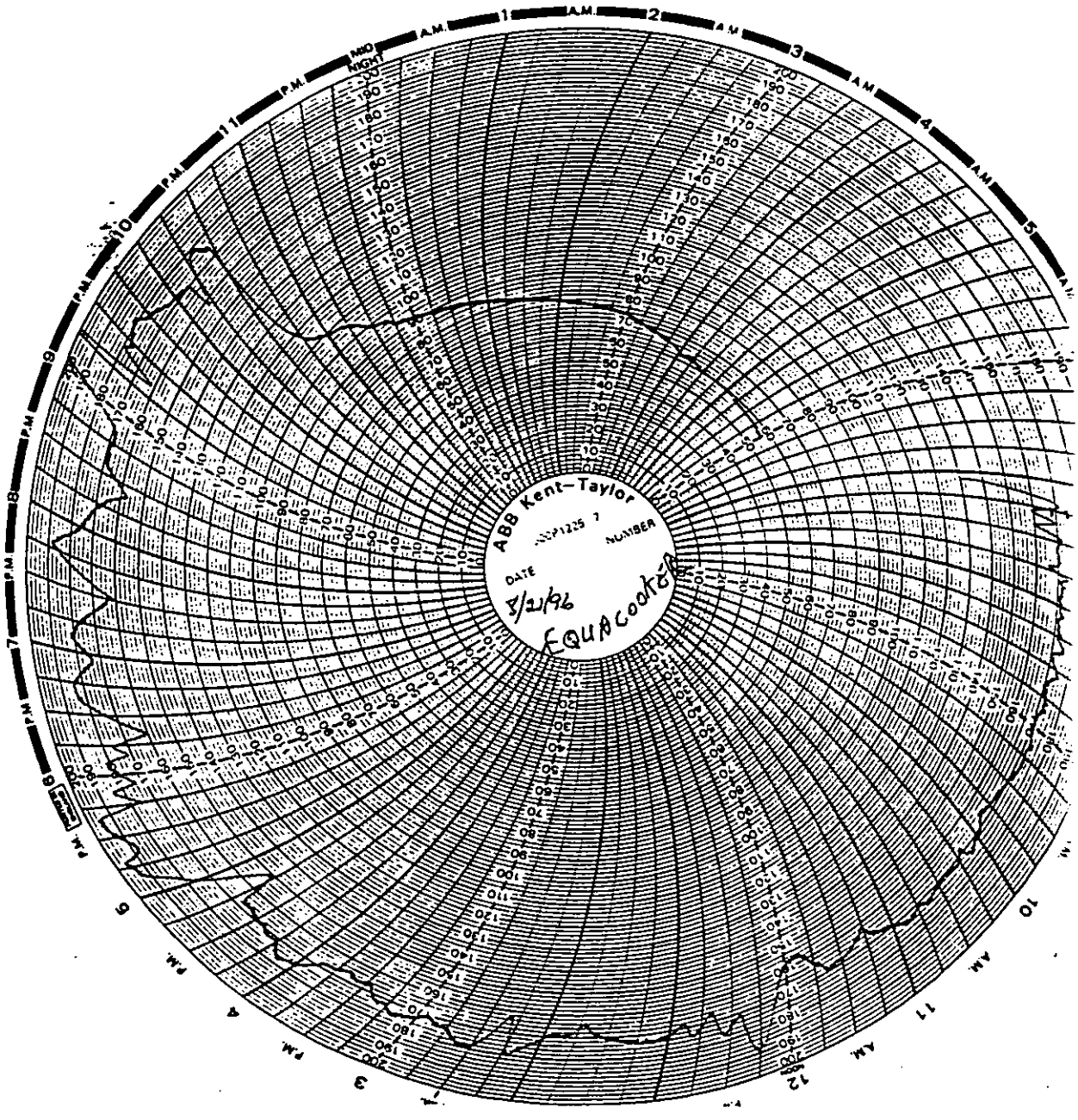


ABB Kent-Taylor
NUMBER
DATE
8/2/96
EQUAcoat

Pork Inedible - Steam
Logansport Inedible VOC Test

Tested August 22, 1996 at Logansport, IN on Dupps 1800 Cooker

Test #1	1.300
Test #2	0.900
Test #3	2.200
	1.467

Head Kill	6324
Inedible Opeation Hours	14
Inedible Crax Yield lbs/hd	14.94

	lbs/hr	tons/hr
Inedible Processed lbs/hr	6748.61	3.37

Emission Rate (lb/ton)	0.435

Pork Hair Hydrolizer - Steam
Logansport Hair Hydrolizer VOC Test

Tested on September 21, 1996 at Logansport, IN on Anco Hydrolizer

Test #1	0.107	
Test #2		
Test #3		
	0.107	
Head Kill	6121	
Hydrolizer Opeation Hours	8	
Hair Yield lbs/hd	0.7	
	lbs/hr	tons/hr
Hair Processed lbs/hr	535.59	0.27
Emission Rate (lb/ton)	0.400	

Pork Blood - Natural Gas
Logansport Blood VOC Test

Tested August 20, 1996 at Logansport, IN on Dupps Ring Dryer

Test #1	0.223	
Test #2	0.120	
Test #3	0.072	
	0.138	
Head Kill	5968	
Blood Opeation Hours	10	
Blood Yield lbs/hd	1.33	
	lbs/hr	tons/hr
Blood Processed lbs/hr	793.74	0.40
Emission Rate (lb/ton)	0.328	
Heat Capacity MMBtu/hr	3	
Emission Factor VOC- NG	2.78E-06	
VOC emission from Comb	0.00834	
VOC emission from blood	0.129993	

APPENDIX C

LABORATORY DATA

TRC ENVIRONMENTAL CORPORATION, INC.
5 WATERSIDE CROSSING, WINDSOR, CT 06095
860-298-6326
Connecticut Certification No. PH-0426
AIHA Laboratory Accreditation No. 259

LABORATORY REPORT

IBP LOGANSPORT (NON-COMPLIANCE DATA)

Sample Number	Analyte	Result (ppm)
Run #1 Blood Furnace	Methane	6.31
Run #2 Blood Furnace	Methane	5.29
Run #3 Blood Furnace	Methane	11.40
Run 1&2 Hydrolyzer Stack	Methane	15.57
Run #1&3 Melt Tank	Methane	75.60

Analyst: Lance R. Cotton

Reviewed by: Margaret F. Flanagan or _____

Margaret F. Flanagan
Quality Control Manager

Lance R. Cotton
Laboratory Supervisor

Method 25
Analytical Results

prepared for

TRC ENVIRONMENTAL CORPORATION

1307 Butterfield Road, Suite 420
Downers Grove, IL 60515

by

Triangle Environmental Services, Inc.

Reviewed by:

Larry W. Taylor
Laboratory Analyst

Approved by:

John Venezia
Laboratory Supervisor

Approved by:

John Y. Morimoto, Ph.D.
QA Officer

Report

97317

December 24, 1997

P.O. Box 13294 Research Triangle Park, NC 27709 (800) 367-4862

Triangle Environmental Services, Inc.

METHOD 25 TABLE OF RESULTS

Client: TRC Environmental Corporation ID#97317 Analyzed: 12/18-22/97

Project ID: IBP (Madison, Nebraska)

	Sample Description	Concentrations (ppmC)						Mass Conc. (mgC/cu.m)
		CO	CH4	CO2	Noncondensibles	Condensibles	TGNMO	
1	IBP Run #1	171	38	2487	64	14299	14362	7171
2	IBP Run #2	136	32	2193	22	1621	1644	821
3	IBP Run #3	91	23	2210	7	795	802	400
4	Blank	< 3	< 3	2679	< 6	75	75	37

< # = Concentration Below Practical Quantitation Limit

* Please refer to the "Comments on the Analyses" page of the report for additional information.

Triangle Environmental Services, Inc.
METHOD 25 PROCEDURES

CALIBRATION

Initial calibrations and operational checks of the recovery and analytical systems are conducted at a frequency of no greater than one year between sets. The calibrations satisfy the requirements for Methods 25, 25-C, and 10-B.

Triplicate injections of a calibration gas mixture consisting of 199.7 ppm carbon monoxide, 49.85 ppm methane, 10000 ppm carbon dioxide, and 24.88 ppm propane are made immediately before and after each batch of samples. Daily response factors are calculated from the pre-batch integrated responses (average area count / concentration in ppmC) and must agree within 10% of the response factors of the initial calibrations. Further, the post-batch response factors must agree within 2% of the pre-batch response factors. Both criteria must be met before the analyses are considered valid.

CONDENSATE RECOVERY

To flush the trap of CO_2, hydrocarbon-free air is flushed through the trap maintained at -78 °C into the sample tank until less than 10 ppm CO_2 is detected in the flow stream (the concentration of CO_2 is monitored with an NDIR CO_2 detector and measured using a CO_2 analyzer). The sample tank is pressurized to about 1200 mm Hg for analysis and is replaced with an intermediate collection vessel (ICV).

To oxidize the organic material in the trap, hydrocarbon-free air is then passed through the trap heated to 250 °C and the recovery oxidation catalyst into the ICV until less than 10 ppm CO_2 is detected in the flow stream. The ICV is pressurized to about 1200 mm Hg for analysis.

ANALYSIS

All samples, which include the daily calibration gas mixture, sample tanks, and ICVs, are analyzed in triplicate using a computer-interfaced gas chromatograph equipped with an automated gas sampling system and a flame ionization detector (FID). CO, CH_4, and CO_2 are eluted from the Unibead 1S-Carbosieve G column and pass through the analytical oxidation and reduction catalysts to the FID. The column is then backflushed to elute the nonmethane organic (NMO) fraction, which passes through the analytical oxidation and reduction catalysts to the FID.

CALCULATIONS

Calculations are done in accord with USEPA Method 25 procedures. A sample calculation for one of the samples is provided in the report. CO and CO_2 blanks are used to compensate for a background concentration of (1) "CO" due to the interference of O_2 resulting from the coelution of O_2 and CO and (2) CO_2 due to CO_2 and organic compounds in the recovery carrier gas. A concentration of noncondensibles or condensibles of less than the PQL is considered to be zero in computing the TGNMO.

EQUIPMENT

Tanks and ICVs are twice evacuated and filled with ambient air filtered through charcoal and are then evacuated to below 10 mm Hg and monitored for at least an hour to check that the tanks do not leak more than 1 mm Hg/hour. They are then pressurized to greater than ambient pressure with helium, analyzed to ensure < 2 ppmC NMO, and stored for later use.

Traps are flushed at 300 °C for at least 30 minutes with compressed air. Each trap is then flushed at 300 °C for thirty minutes with hydrocarbon-free air. The effluent is then routed through an oxidation catalyst and a reduction catalyst for analysis by FID-GC to confirm less than 10 ppmC total C.

Sampling units are reconditioned by replacing filters and checking that all sections operate properly. The unit is heated (with a Teflon® line used in place of a trap) and is flushed with zero air for at least thirty minutes before an aliquot of this flow is injected into the analyzer. If the total carbon concentration is below 10 ppm, the unit is made ready for use and stored for shipment.

Triangle Environmental Services, Inc.

METHOD 25 SAMPLE CALCULATION

Client: TRC Environmental Corporation ID#97317 Analyzed: 12/18-22/97

Project ID: IBP (Madison, Nebraska)

Sample # 3 IBP Run #3

D A T A

Note: All pressure values have been converted when necessary to mm Hg and all temperature values to Kelvin.

Pressure, Temperature, Volume Data:

	Pressure (mm Hg)	Temp. (K)
Presampling	2.8	294.26
Postsampling	610.8	294.26
Lab Receipt	636.0	296.15
Tank Final	1476.0	296.15
CV Final	1676.0	298.15

Tank N294T:
Tank Volume = 0.004531 cu.m

Trap GGC →
Collection Vessel 28:
CV Volume = 0.008383 cu.m

Response Factors (RF), Practical Quantitation Limits (PQL), and Area Counts:

	RF (area/ppmC)	PQL (ppmC)	Area 1	Area 2	Area 3
CO	212.9	2	8,073	8,085	8,050
CH4	221.6	2	2,183	2,165	2,128
CO2	221.5	2	203,257	203,946	203,551
Noncondensibles	222.8	5	657	682	599
Condensibles	221.5	5	35,593	35,668	35,677

CO Blank = 0 area counts CO2 Blank = 3 ppm

C A L C U L A T I O N S

Measured Concentrations, corrected for blank (ppmC):

Cm(CO) = [Area(CO) - CO Blank] / RF(CO)
= [8073 - 0] / 212.9 = 37.9
= [8085 - 0] / 212.9 = 38.0
= [8050 - 0] / 212.9 = 37.8

Cm(CH4) = Area(CH4)/RF(CH4)
= 2183 / 221.6 = 9.9
= 2165 / 221.6 = 9.8
= 2128 / 221.6 = 9.6

Cm(CO2) = Area(CO2)/RF(CO2) - CO2 Blank
= 203257 / 221.5 - 3 = 914.6
= 203946 / 221.5 - 3 = 917.7
= 203551 / 221.5 - 3 = 916.0

Cm(Noncondensibles) = Area(Noncondensibles)/RF(Noncondensibles)
= 657 / 222.8 = 2.9
= 682 / 222.8 = 3.1
= 599 / 222.8 = 2.7

Cm(Condensibles) = Area(Condensibles)/RF(Condensibles) - CO2 Blank
= 35593 / 221.5 - 3 = 157.7
= 35668 / 221.5 - 3 = 158.0
= 35677 / 221.5 - 3 = 158.1

Pressure-Temperature Ratio,Q(i) = P(i)/T(i) (mm Hg/K):

Tank Presampling: Q(2) = 2.8 / 294.26 = 0.010
Tank Postsampling: Q(1) = 610.8 / 294.26 = 2.076
Tank Lab Receipt: Q(5) = 636.0 / 296.15 = 2.148
Tank Final: Q(3) = 1476.0 / 296.15 = 4.984
CV Final: Q(4) = 1676.0 / 298.15 = 5.621

Volume Sampled (dscm) = 0.3857 x Tank Volume x [Q(1)-Q(2)]
= 0.3857 x 0.004531 x [2.076 - 0.010]
= 0.003611

Averages and % Relative Standard Deviations (%RSD) of Cm's are calculated.
(%RSD of C=%RSD of Cm)

Calculated Concentrations (ppmC):

C(CO) = Q(3)/[Q(1)-Q(2)] x Cm(CO)
= 4.984/(2.076 - 0.010) x 37.9 = 91.4

C(CH4) = Q(3)/[Q(1)-Q(2)] x Cm(CH4)
= 4.984/(2.076 - 0.010) x 9.7 = 23.5

C(CO2) = Q(3)/[Q(1)-Q(2)] x Cm(CO2)
= 4.984/(2.076 - 0.010) x 916.1 = 2209.8

C(Noncondensibles) = Q(3)/[Q(1)-Q(2)] x Cm(Noncondensibles)
= 4.984/(2.076 - 0.010) x 2.9 = 7.0

C(Condensibles)
= Volume(CV)/Volume(Tank) x Q(4)/[Q(1)-Q(2)] x Cm(Condensibles)
= 0.008383/0.004531 x 5.621/(2.076 - 0.010) x 157.9 = 794.9

Total Gaseous Non-Methane Organics(TGNMO)=C(Noncondensibles)+C(Condensibles)
= 7.0 +794.9
= 801.9

Mass Concentration (mgC/cu.m)
= 0.4993 x TGNMO
= 0.4993 x 801.9 = 400.4

Triangle Environmental Services, Inc.
METHOD 25 SAMPLE QA/QC DATA

DAILY RECOVERY SYSTEM CHECKS

4.3.1.1* **Condensate Recovery System Leak Check**

Evacuate system to ≤10 mm Hg absolute pressure, isolate system, and monitor for ten minutes.
Requirement: Pressure Change ≤3 mm Hg

4.3.1.2* **Condensate Recovery System Background Test**

Analyze recovery system effluent for CO_2 concentrations.
Requirement: CO_2 ≤10 ppm

4.3.1.3* **Condensate Oxidation Catalyst Efficiency Check**

Analyze 1% methane standard through oxidation catalyst.
Requirement: CO_2 = CH_4 concentration ± 2%

DAILY ANALYZER CHECKS

5.3* **Daily Calibration**

Response Factor Checks
Requirement: Daily RF = Initial RF ± 5%

	Initial RF for Analyzer A 2/25/97	Initial RF for Analyzer B 3/13/97
CO	249.70	224.96
CH_4	242.40	216.84
CO_2	244.04	215.46
NMO	243.64	216.92

Triplicate injections of a mixture of CO, CH_4, CO_2, and C_3H_8 are made before and after each batch of samples.

* USEPA Method 25 Protocol Reference Number

INITIAL CONDENSATE RECOVERY SYSTEM TESTS

5.1.1* **Carrier and Auxiliary Gas Blank**

Requirement: $CO + CH_4 + CO_2 + NMO \leq 5$ ppm

5.1.3* **System Performance Check**

Volume Injected	Compound	Average % Recovery				% RSD			
50 μL	Hexane	101	102	98.8	104.6	0.058	0.101	1.68	0.229
50 μL	Decane	97	100	93.7	103.3	0.120	0.047	1.7	0.359
10 μL	Hexane	104	107	92	90.0	0.118	0.145	1.206	0.135
10 μL	Decane	98	97	99.6	93.3	0.119	0.232	1.36	0.254
	Requirement:	100 ± 10%				≤5			

INITIAL NMO ANALYZER PERFORMANCE CHECKS

5.2.1* **Oxidation Catalyst Efficiency Check** Analyzer A, 2/25/97; Analyzer B, 3/13/97

FID response with reduction catalyst in bypass mode = 0, 0
Requirement: ≤1%

5.2.2* **Reduction Catalyst Efficiency Check** Analyzer A, 2/25/97; Analyzer B, 3/13/97

Response of CH_4 with oxidation and reduction catalysts in series mode compared to response with both catalysts in bypass mode.
97.7%, 100.6% Requirement: >95%

5.2.3* **Analyzer Linearity Check+NMO Calibration** Analyzer A, 2/25/97; Analyzer B, 3/13/97

			Requirement:
RF Value CO:	± 1.18%,	± 1.18%	± 2.5%
RF Value CH_4:	± 1.56%,	± 0.81%	± 2.5%
RF Value CO_2:	± 1.47%,	± 1.70%	± 2.5%
RF Value NMO:	± 1.18%,	± 1.90%	± 2.5%
% RSD Values:	0.46%,	0.45%	≤2%
$\frac{RF\ (NMO)}{RF\ (CO_2)}$ =	1.00,	0.99	1.0 ± 0.1

* USEPA Method 25 Protocol Reference Number

5.2.4* **System Performance Check** Analyzer A, 2/25/97; Analyzer B, 3/13/97

	Measured Value	Expected Value	Requirement
Propane in Mix	24.9, 25.3	25.0, 24.88	± 5%
Hexane	50.2, 51.0	51.4, 51.4	± 5%
Toluene	20.4, 19.5	19.97, 19.97	± 5%
Methanol	102.6, 102.9	100.0, 100.0	± 5%

EQUIPMENT CHECKS

4.1.1* **Clean Sampling Equipment Check**

Sample Unit	<10	ppmC total C	@ 100%
Trap	<10	ppmC total C	@ 100%
Tank	< 2	ppmC NMO	@ 100%

4.1.2* **Sample Tank Evacuation and Leak Check**

Tank evacuated to ≤10 mm Hg absolute pressure, monitored for ≥1 hour, and passed for use if no pressure change (< 1 mm Hg/hr) is noted.

5.4* **Sample Tank and ICV Volumes**

Tank weighed empty, filled with deionized distilled water (temperature recorded), and weighed to the nearest 2 g. Volume calculated based on density of water at that temperature and results recorded in permanent file.

* USEPA Method 25 Protocol Reference Number

Triangle Environmental Services, Inc.

METHOD 25 DATA REPORT

Client: TRC Environmental Corporation ID#97317 Analyzed: 12/18-22/97

Project ID: IBP (Madison, Nebraska)

Sample # 1 IBP Run #1

Pressure, Temperature, Volume Data:

	Pressure (mm Hg)	Temp. (K)	P/T
Presampling	3.0	294.26	0.010
Postsampling	591.8	294.26	2.011
Lab Receipt	600.0	296.15	2.026
Tank Final	1276.0	296.15	4.309
CV Final	1620.0	298.15	5.434

Tank 6207T:
Tank Volume = 0.004125 cu.m
Volume Sampled = 0.003184 dscm

$\frac{\text{Lab Receipt P/T}}{\text{Postsampling P/T}} = 1.007$

Trap GGJ →
Collection Vessel 23:
CV Volume = 0.008343 cu.m

Response Factors (RF), Practical Quantitation Limits (PQL), and Area Counts:

	RF (area/ppmC)	PQL (ppmC)	Area 1	Area 2	Area 3
CO	212.9	2	16,943	16,999	16,918
CH4	221.6	2	3,885	3,849	3,890
CO2	221.5	2	257,117	257,461	254,815
Noncondensibles	222.8	5	6,649	6,613	6,528
Condensibles	221.5	5	579,754	576,354	575,891

Recovery Oxidation Catalyst Efficiency Check: CO2/CH4 = 99.9%
CO Blank = 0 area counts CO2 Blank = 3 ppm

Concentrations:

*=corrected for Blank	ppmC Amount	±	SD	%RSD
CO*	171	±	0	0.2
CH4	38	±	0	0.6
CO2*	2487	±	14	0.6
Noncondensibles	64	±	1	0.9
Condensibles*	14299	±	52	0.4
TGNMO	14362			

Mass Concentration 7171 mgC/cu.m

Triangle Environmental Services, Inc.

METHOD 25 DATA REPORT

Client: TRC Environmental Corporation ID#97317 Analyzed: 12/18-22/97

Project ID: IBP (Madison, Nebraska)

Sample # 2 IBP Run #2

Pressure, Temperature, Volume Data:

	Pressure (mm Hg)	Temp. (K)	P/T
Presampling	3.8	294.26	0.013
Postsampling	596.8	294.26	2.028
Lab Receipt	608.0	296.15	2.053
Tank Final	1168.0	296.15	3.944
CV Final	1616.0	298.15	5.420

Tank 6210T:
Tank Volume = 0.006075 cu.m
Volume Sampled = 0.004722 dscm

$\frac{\text{Lab Receipt P/T}}{\text{Postsampling P/T}} = 1.012$

Trap GGB →
Collection Vessel 26:
CV Volume = 0.008346 cu.m

Response Factors (RF), Practical Quantitation Limits (PQL), and Area Counts:

	RF (area/ppmC)	PQL (ppmC)	Area 1	Area 2	Area 3
CO	212.9	2	14,841	14,826	14,837
CH4	221.6	2	3,609	3,643	3,704
CO2	221.5	2	249,702	248,444	248,360
Noncondensibles	222.8	4	2,538	2,483	2,659
Condensibles	221.5	3	97,724	97,555	98,217

Recovery Oxidation Catalyst Efficiency Check: CO2/CH4 = 99.5%
CO Blank = 0 area counts CO2 Blank = 3 ppm

Concentrations:

*=corrected for Blank	ppmC Amount	±	SD	%RSD
CO*	136	±	0	0.1
CH4	32	±	0	1.3
CO2*	2193	±	7	0.3
Noncondensibles	22	±	1	3.5
Condensibles*	1621	±	6	0.4
TGNMO	1644			

Mass Concentration 821 mgC/cu.m

Triangle Environmental Services, Inc.

METHOD 25 DATA REPORT

Client: TRC Environmental Corporation ID#97317 Analyzed: 12/18-22/97

Project ID: IBP (Madison, Nebraska)

Sample # 3 IBP Run #3

Pressure, Temperature, Volume Data:

	Pressure (mm Hg)	Temp. (K)	P/T
Presampling	2.8	294.26	0.010
Postsampling	610.8	294.26	2.076
Lab Receipt	636.0	296.15	2.148
Tank Final	1476.0	296.15	4.984
CV Final	1676.0	298.15	5.621

Tank N294T:
Tank Volume = 0.004531 cu.m
Volume Sampled = 0.003611 dscm

$\frac{\text{Lab Receipt P/T}}{\text{Postsampling P/T}} = 1.035$

Trap GGC →
Collection Vessel 28:
CV Volume = 0.008383 cu.m

Response Factors (RF), Practical Quantitation Limits (PQL), and Area Counts:

	RF (area/ppmC)	PQL (ppmC)	Area 1	Area 2	Area 3
CO	212.9	2	8,073	8,085	8,050
CH4	221.6	2	2,183	2,165	2,128
CO2	221.5	2	203,257	203,946	203,551
Noncondensibles	222.8	5	657	682	599
Condensibles	221.5	5	35,593	35,668	35,677

Recovery Oxidation Catalyst Efficiency Check: CO2/CH4 = 98.9%
CO Blank = 0 area counts CO2 Blank = 3 ppm

Concentrations:

*=corrected for Blank	ppmC Amount	±	SD	%RSD
CO*	91	±	0	0.2
CH4	23	±	0	1.3
CO2*	2210	±	4	0.2
Noncondensibles	7	±	0	6.6
Condensibles*	795	±	1	0.1
TGNMO	802			

Mass Concentration 400 mgC/cu.m

Triangle Environmental Services, Inc.

METHOD 25 DATA REPORT

Client: TRC Environmental Corporation ID#97317 Analyzed: 12/18-22/97

Project ID: IBP (Madison, Nebraska)

Sample # 4 Blank

Pressure, Temperature, Volume Data:

	Pressure (mm Hg)	Temp. (K)	P/T
Presampling	3.2	294.26	0.011
Postsampling	599.8	294.26	2.038
Lab Receipt	603.6	296.15	2.038
Tank Final	1656.0	296.15	5.592
CV Final	1163.0	298.15	3.901

Tank N295T:
Tank Volume = 0.004503 cu.m
Volume Sampled = 0.003521 dscm

$\frac{\text{Lab Receipt P/T}}{\text{Postsampling P/T}} = 1.000$

Trap DDV →
Collection Vessel 33:
CV Volume = 0.008361 cu.m

Response Factors (RF), Practical Quantitation Limits (PQL), and Area Counts:

	RF (area/ppmC)	PQL (ppmC)	Area 1	Area 2	Area 3
CO	212.9	3	46	0	0
CH4	221.6	3	0	0	0
CO2	221.5	3	215,140	217,076	215,127
Noncondensibles	222.8	6	0	0	0
Condensibles	221.5	3	5,184	5,373	5,299

Recovery Oxidation Catalyst Efficiency Check: CO2/CH4 = 99.4%
CO Blank = 0 area counts CO2 Blank = 3 ppm

Concentrations:

*=corrected for Blank	ppmC Amount	±	SD	%RSD
CO*	< 3			
CH4	< 3			
CO2*	2679	±	14	0.5
Noncondensibles	< 6			
Condensibles*	75	±	2	2.1

Note: A concentration of noncondensibles or condensibles of less than the PQL is considered to be zero in computing the TGNMO value.

TGNMO 75

Mass Concentration 37 mgC/cu.m

< # = Concentration Below Practical Quantitation Limit

APPENDIX D

EQUIPMENT CALIBRATION

Thermocouple Calibration Form

Meter Box #2

Thermocouple Number	Temperature Reading #1	Reference Temp #1	Temperature Reading #2	Reference Temp #2	Temperature Reading #3	Reference Temp #3
1	74	73	185	183	286	283
2	74	73	185	183	285	283
3	73	73	185	183	285	283
4	74	73	185	183	284	283
5	73	73	185	183	284	283
6	40	39	73	73	108	108
7	39	39	74	73	108	108

Calibrated By: SRM
Date: 4-8-96

Criteria:Absolute temp reading cant excede 1.5% of Absolute reference temp

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
TRC ENVIRONMENTAL
1307 BUTTERFIELD ROAD STE420
ATTN CARIN O'BRIEN
DOWNERS GROVE, IL 60515

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : L 27130
Scott Project # : 583405

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM038887 **Certificate Date :** 7/18/95 **Expiration Date :** 7/18/98
Cylinder Pressure + : 1800 psig **Previous Certificate Date :** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	27.88 ppm	±1% NIST Directly Traceable

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2643A	3/28/98	SX-20290	99.12 ppm Propane in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Propane : Beckman/400/1002059	7/12/95	Flame Ionization Detector

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

Components
Propane

First Triad Analysis

Date: 7/18/95 Response Units: mv

Z1=0.00	R1=99.10	T1=27.90
R2=99.10	Z2=0.00	T2=27.90
Z3=0.00	T3=27.90	R3=99.10

Avg. Conc. of Cust. Cyl. 27.88 ppm

Second Triad Analysis

Calibration Curve

$Concentration = A + Bx + Cx^2 + Dx^3 + Ex^4$

r=1.00000	SRM 2643A
Constants:	A=-0.034421000
B=1.000500000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Cylinder

Analyst

MISP/P-1

ROTOMETER CALIBRATION SHEET

Date: 8/14/96
Initials: DW
Model #:
Serial #:
Part #: RIG #3

Roto scale: 0-130 cc/min
Roto used for: Sampling
Equip. attached to roto: RM25 Rig 3

Setting on Rotometer (cc/min)	Volume (mL)	Time (sec)	Actual Sampling Rate (ml/min)	Comments:
30	50	95	31	
"	50	100	30	Avg 31 ml/min
"	50	97	31	
"	50	94	32	
"	50	98	30	
40	50	72	41	
"	50	70	43	
"	50	73	41	Avg 42
"	50	70	43	
"	50	70	43	
50	50	59	51	
"	50	60	50	
"	50	60	50	Avg 50.5
"	50	59	51	
"	100	1180	50	
60	50	51	59	
"	50	50	58	Avg 59
"	50	53	60	
"	100	106	60	
"	100	102	59	
80	50	35	85	
"	50	36	82	
"	50	36	82	Avg 82.5
"	100	73	82	
"	150	110	82	
90	50	33	90	
"	50	34	88	
"	50	34	88	Avg 88
"	100	70	86	
"	150	102	88	
100	50	29	104	
"	50	29	104	
"	50	30	100	Avg 101.5
"	100	60	100	
"	150	90	100	

TRC

ROTOMETER CALIBRATION SHEET

Date: 7/30/96
Initials: DW
Part #: RIG #2

Rotometer Scale: 0-120 CCM
Rotometer Use: RM2S Rig Sample
Calibrated Against: BUBBLE METER

Setting on Rotometer (cc/min)	Volume (mL)	Time (sec)	Actual Sampling Rate (cc/min)	
30	50	91	33	32.7
	50	91	32	
	50	94	33	
40	50	71	42	41.2
	50	74	40.5	
	50	73	41	
50	50	57	52	
	100	115	52	52
	100	116	52	
60	100	96	62	
	100	95	63	62
	50	49	61	
70	100	84	71	
	100	82	73	72.3
	50	41	73	
80	150	109	82	
	100	74	81	81.3
	50	37	81	
90	100	64	93	
	100	64	93	93
	50	34	93	
100	100	56	107	
	100	61	99	102.7
	100	59	102	

ROTOMETER CALIBRATION SHEET

Date: 8/14/96
Initials: DW
Model #:
Serial #:
Part #: RIG #1

Roto scale: 0-130 cc/min
Roto used for: SAMPLING
Equip. attached to roto: RM25 Rig #1

Setting on Rotometer (cc / min)	Volume (mL)	Time (sec)	Actual Sampling Rate (ml / min)	Comments:
30	50	98	31	
	50	85	35	
	50	84	35	
	50	85	35	AVG 34
	100	176	34	
40	50	63	48	
	50	66	45	
	50	64	47	AVG 46.5
	100	130	46	
	100	130	46	
50	50	53	56	
	50	58	52	
	100	107	56	AVG 55.5
	100	106	56	
	100	105	57	
60	50	45	66	
	50	43	69	
	50	46	66	AVG 66
	100	97	62	
	150	133	66	
80	50	~~58~~ 34	88	
	50	36	90	
	50	34	88	AVG 88
	50	34	88	
	100	66	86	
90	50	31	98	
	50	31	98	
	50	30	94	AVG 98
	100	62	100	
	100	62	100	
100	50	28	106	
	50	29	104	
	50	29	104	AVG 104.5
	50	29	104	
	200	115	105	

TRC

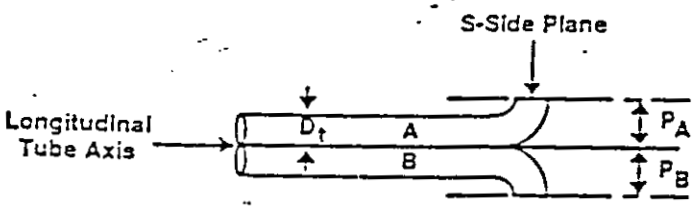
Type S Pitot Inspection Form

Pitot Tube No. 321

Tubing Diameter, D_t 3/8 in. $\left(\frac{3}{16} < D_t < \frac{3}{8}\right)$

Pitot Tube Assembly Level? (Yes) No

Pitot Tube Opening Damaged? Yes (No)

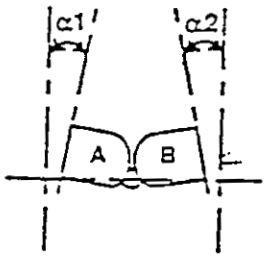


Note: $1.05\ D_t < P < 1.50\ D_t$

$P_A = P_B$

P_A = 7/16 in.

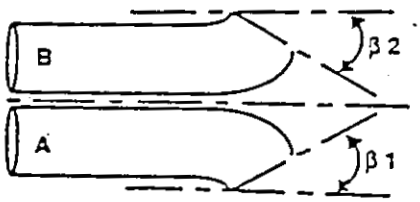
P_B = 7/16 in.



α 1 = 1 °

α 2 = 0 °

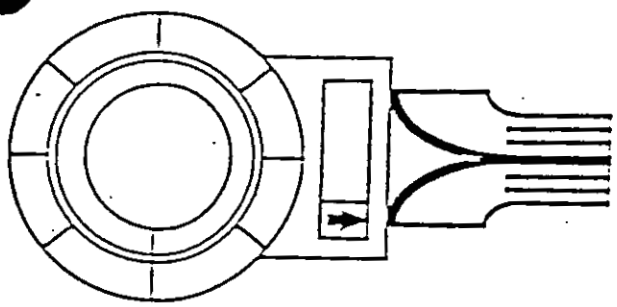
(< 10°)

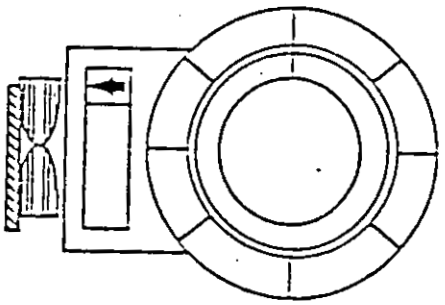


β 1 = 0 °

β 2 = 0 °

(< 5°)





Level Position to find γ = 0

Z = A' sin γ 0 in. (< 1/8 in.)

Level Position to find θ = 0

W = A' sin θ 0 in. (< 1/32 in.)

Comments: _____

Checked by: DW

Date: 5/17/95

Calibration Required? NO

D_t = External Tube Diameter

A' = Distance Between Tips (P_A - P_B) inches

BAROMETER CALIBRATION FORM

Barometer # 1
Cal'd Against Hg BAROMETER

DATE	REFERENCE BAROMETER (in. Hg.)	DIAL BAROMETER (in. Hg.)	DIFFERENCE
10/21/93	29.55	29.~~X~~50	.05
10/22/93	29.71	29.66	.05
2/28/94	29.67	29.65	.02
6/17/94	29.46	29.46	.00
7/29/94	29.57	29.55	.02
11/9/94	29.30	29.31	.01
2/7/95	29.22	29.24	.02
5/8/95	29.32	29.37	.05
5/11/95	29.12	29.12	0.00
3-20-96	29.38	29.34	.04
4-4-96	29.18	29.16	.02
5/5/96	29.56	29.56	0.0
6/17/96	29.35	29.34	.01
7/25/96	29.48	29.49	.01
8/26/96	29.30	29.32	.02

APPENDIX E

CALCULATION FORMULAS

Facility _____ Job No. _____

Source _____ Date _____

Run _____ Calc/Review _____

SAMPLE CALCULATIONS

Particulate Isokinetic Sampling

I. Calculations for stack volume and isokinetic Ratio

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

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

4A. VML = Use only if any final or intermediate leak check rate is over 0.02 cfm
LI = Leak rate after any given sampling period, cfm
TLI = Total time of sampling period in which leak occurred, min.

$$VML = VM - [(L1 - 0.02)\,TLI + (L2 - 0.02)\,TL2 + (L3 - 0.02)\,TL3 + (L4 - 0.02)\,TL4]$$

= _____ ft^3

5. TM = Average Dry Gas Temperature at Meter, °F

$$TM = \frac{\text{Avg. TMI} + \text{Avg. TMO}}{2}$$

= _____ °F

6. PM = Average Orifice Pressure Drop, inches H_2O

PM = Avg. Δ H = _____ ÷ 13.6 = _____ in. Hg

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

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

Y = dry gas meter calibration factor
Y = _____ = _____ ft^3

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

9. Volume of water vapor at standard conditions, scf[b]

VW gas = 0.04715 x VW = _____ ft^3

TRC

Run No. _____ Job No. _____

Date _____

10. Percent moisture in stack gas

$$\%\ M = \frac{100 \times VW\ gas}{VMSTD + VW\ gas} =$$ = _____ %

11. Mole fraction of dry gas (dimensionless)

$$MD = \frac{100-\%M}{100} =$$ = _____

12. Molecular weight of dry stack gas

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

12A. %EA = %Excess Air =

$$\frac{[(\%O_2)-0.5(\%CO)]\times 100}{[(0.264)(\%N_2)]-(\%O_2)+0.5\%(CO)}$$ = _____ %

13. Molecular weight of wet stack gas

$MW = MWD \times MD + 18\ (1-MD)$ = _____ lb/lb mole wet

14. AS = Stack Area, square inches

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

Rectangular, = Length x width = _____ sq. in.

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

$$PST\ in.\ Hg = \frac{PST\ in.\ H_2O}{13.6}$$ = _____ in. Hg

PS = PS ± Avg. PST = _____ in. Hg

16. TS_{AV} = Average Stack Temperature = _____ °F

TRC

Run No. _____ Job No. _____

Date _____

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

18. Stack gas velocity at stack conditions, afpm

$$VS = 5130^{c} \times Cp \times SDE_{AV} \times \left[\frac{1}{PS \times MW}\right]^{1/2} = \text{afpm}$$

Cp = pitot tube coefficient

Cp = _____ = _____ afpm

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

$$Q_a = \frac{VS \times AS}{144}$$ = _____ acfm

20. Stack gas volumetric flow rate at standard conditions, dscfm[e]

$$Q_s = \frac{Q_a \times 528 \times MD \times PS}{(29.92)(TS_{AV} + 460)}$$ = _____ dscfm

21. Percent isokinetics

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

---

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

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

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

[d]Actual cubic feet per minute

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

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

TRC

TRC

MOISTURE DETERMINATION
WET BULB-DRY BULB TEMPERATURE TECHNIQUE

Client _____ Date _____

Project No. _____ Source _____

Plant _____ Calculated by: _____

Sampling Location _____ Checked by: _____

Barometric Pressure PB = [ ] in Hg t_{dry} = [ ] °F

PST $\frac{\quad}{13.6}$ in H_2O = [ ] in Hg t_{wet} = [ ] °F

PS = PB ± PST = [ ] in Hg

S.V.P. = water saturation vapor press = [ ] in Hg
at t_{wet}

$$V.P. = S.V.P. - \left[0.000367\ (PS)(t_d - t_w)\left(1 + \frac{tw-32}{1571}\right)\right]$$

$$V.P. = (\quad) - \left[0.000367\ (\quad)\ (\quad - \quad)\ 1 + \left(\frac{(\quad) - 32}{1571}\right)\right]$$

$$= (\quad) - \left[0.000367\ (\quad)(\quad)(\quad)\right]$$

V.P. = [ ]

$$\%M = \frac{V.P.}{PS} \times 100 = \frac{\quad}{\quad} \times 100 = [\quad]$$

$$Md = 1 - \frac{\%M}{100} = 1 - \frac{\quad}{100} = [0.]$$

CALCULATION FORMULAS

FLOW dscf/hr = (ACFM * 528 * Dry Mole Fraction * Stack Pressure) / (29.92 * (Stack Temp +460))*60

Lbs/Hr = Cppmv minus CH4 * FWhc * (Stack Flowrate(dscf/hr) / 60) * (1.554 * 10^4)

October 16, 1998

Mr. Dave Meierhenry
Air Quality Compliance Section
Nebraska Department of Environmental Quality
P. O. Box 98922
Lincoln, NE 68509-8922

RE: IBP, inc., Dakota City, Nebraska
Updated Summary Tables

Dear Mr. Meierhenry:

Please find enclosed a copy of the summary table for the SOx, NOx, and CO test data from testing conducted July 22, 1998, as well as the field data sheets. Also enclosed is a copy of the summary table showing flow data from testing conducted September 10, 1997, for which the flow data was used in the calculations to generate the final lbs/hr for the July 22, 1998 testing.

If you have any questions concerning the testing results or procedures used please contact me a 402-241-3647 or you may contact Mr. Scott Miller, TRC Project Manager, at 630-810-1122.

Sincerely,

Rechelle Kruse by ml

Rechelle Kruse
Air Pollution Control Engineer

c: Tom Trosper (w/o test report)
Angela Gogel (w/test report)
Dallas Seifert (w/test report)

RK98-603/Stack Tests

IBP/DC Condenser Outlet prior to packed bed Flow data from previous testing used to calculate Lb/Hr

Run No.	SC-4	SC-5	SC-6	
Date	July 22,1998	July 22/23,1998	July23,1998	
Start Time	2202	2335	102	
Stop Time	2302	35	202	AVERAGES
Barometric Pressure, in. Hg	29.05	29.05	29.05	29.05
Net Sampling Time, minutes	30.0	30.0	30.0	30.0
Volume Metered, cf	15.415	15.415	15.415	15.415
Avg. DGM Temp, F	84.8	84.8	84.8	84.8
AVG Delta H, in of H2O	2.00	2.00	2.00	2.00
AVG Delta H, in of Hg	0.1471	0.1471	0.1471	0.1471
DGM Calibration Factor	0.982	0.982	0.982	0.982
Volume of Gas Collected, dscf	14.318	14.318	14.318	14.318
Total Water Collected, mL	8.7	8.7	8.7	8.7
Volume of Water Vapor, scf	0.410	0.410	0.410	0.410
Moisture, %	2.79	2.79	2.79	2.79
Dry Mole Fraction, 100-%M	0.9721	0.9721	0.9721	0.9721
CO2 at Stack, % dry	5.1	4.9	2.6	4.2
O2 at Stack, % dry	19.0	19.2	19.8	19.3
CO + N2, % dry	75.9	75.9	77.6	76.5
Dry Molecular Weight, lb/lb mole	29.57	29.55	29.21	29.45
Wet Molecular Weight, lb/lb mole	29.25	29.23	28.90	29.13
Stack Diameter, in	6	6	6	6.00
Stack Area, sq. in. (@ pitot meas. location)	28.3	28.3	28.3	28.3
Static Pressure, in. of H2O	-10.40	-10.40	-10.40	-10.40
Stack Pressure, in. of Hg	28.29	28.29	28.29	28.29
Avg. Stack Temp., F	73.8	73.8	73.8	73.8
Avg. Sqroot of Delta P	0.7346	0.7346	0.7346	0.7346
SDE Average	16.972	16.972	16.972	16.972
Pitot Coefficient	0.84	0.84	0.84	0.84
Stack Gas Velocity, afpm	2542.7	2543.6	2558.1	2548.1
Stack Flowrate, wet acfm	499	499	502	500
Stack Flowrate, dry scfm	454	454	457	455
Stack Flowrate, dry scf/hr	27,231	27,240	27,396	27288.91
Stack Flowrate, wet scf/hr	2.8011E+04	2.8021E+04	2.8181E+04	28070.74
NOx Lb/Hr	0.0143	0.0055	0.0092	0.0097
SO2 Lb/Hr	0.0562	0.0346	0.1098	0.0669
CO LbHr	0.0365	0.0358	0.0236	0.0320

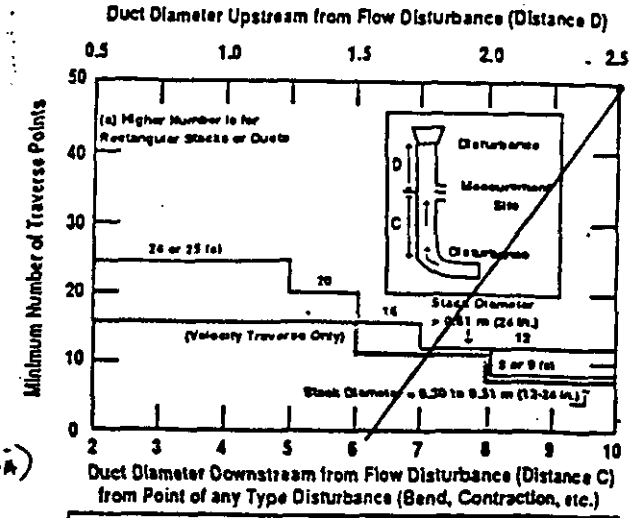
TRC

IBP Dakota City Neb.	**Inedible**	Testing after the Heat Exchanger			
Run No.		**1**	**2**	**3**	
Date		**Sept 10, 1997**	**Sept 10, 1997**	**Sept 10, 1997**	
Start Time		**12:45**	**14:50**	**17:07**	
Stop Time		**13:45**	**15:50**	**17:57**	**AVERAGES**
Barometric Pressure, in. Hg		29.26	29.26	29.26	29.26
Net Sampling Time, minutes		30.0	18.0	15.0	21.0
Volume Metered, cf		23.558	13.25	9.44	15.415
Avg. DGM Temp, F		79.0	86.70	88.80	84.8
AVG Delta H, in of H2O		2.00	1.70	1.40	1.70
AVG Delta H, in of Hg		0.1471	0.1250	0.1029	0.1250
DGM Calibration Factor		1.002	1.002	1.002	1.002
Volume of Gas Collected, dscf		22.720	12.592	8.924	14.745
Total Water Collected, mL		188.0	664.0	528.0	460.0
Volume of Water Vapor, scf		8.864	31.308	24.895	21.689
Moisture,%(%M is from Saturation Table)		**2.8**	**2.8**	**2.8**	2.8
Dry Mole Fraction, 100-%M		0.9717	0.9717	0.9717	0.9717
CO2 at Stack, % dry		0.0	0.0	0.0	0.0
O2 at Stack, % dry		20.9	20.9	20.9	20.9
CO + N2, % dry		79.1	79.1	79.1	79.1
Dry Molecular Weight, lb/lb mole		28.84	28.84	28.84	28.84
Wet Molecular Weight, lb/lb mole		28.53	28.53	28.53	28.53
Stack Diameter, in		6	6	6	
Stack Area, sq. in. (@ pitot meas. location)		28.3	28.3	28.3	28.3
Static Pressure, in. of H2O		-10.50	-10.50	-10.20	-10.40
Stack Pressure, in. of Hg		28.49	28.49	28.51	28.50
Avg. Stack Temp., F		73.6	73.8	74.0	73.8
Avg. Sqroot of Delta P		0.7740	0.7034	0.7263	0.7346
SDE Average		17.879	16.251	16.784	16.971
Pitot Coefficient		0.84	0.84	0.84	0.84
Stack Gas Velocity, afpm		2702.5	2456.5	2535.9	2565.0
Stack Flowrate, wet acfm		531	482	498	504
Stack Flowrate, dry scfm		486	441	456	461
Stack Flowrate, dry scf/hr		29,147	26,484	27,351	27,661
Stack Flowrate, wet scf/hr		2.9996E+04	2.7255E+04	2.8148E+04	28,466

TRC

Traverse Point Location for Circular and Rectangular Ducts

Project No.: 22214-0
Client: IBP
Date: 9/10/97
Sampling Location: INEDIBLE
Internal Stack Diameter: 6"
Nipple Length: —
Total Stack Diameter:
Nearest Upstream Disturbance (C): 37.5" (6.25 DIA)
Nearest Downstream Disturbance (D): 15" (2.5)
Calculator: DW



Rectangular Duct Equivalent Diameter Determination = $\frac{2 L \times W}{L + W}$

Traverse Point Number	1 Fraction of Stack ID ($\frac{1}{100}$)	2 Stack ID	3 Traverse Point (1 x 2=Point)	4 Nipple Length	5 Traverse Point Inside of Far Wall to Outside of Port Nipple (3 + 4 = Point)
1	.044	6"	.264		.5
2	.146		.876		.9
3	.296		1.776		1.8
4	.704		4.224		4.2
5	.854		5.124		5.1
6	.956		5.736		5.5
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

Location of Traverse Points in Circular Stacks

	4	6	8	10	12	14	16	18	20	22	24
1	5.7	4.4	3.2	2.6	2.1	1.3	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	38.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.5	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.3	94.5
23											96.8
24											98.9

Location of Traverse Points in Rectangular Stacks

	2	3	4	5	6	7	8	9	10	11	12
1	25.0	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75.0	50.0	37.5	30.0	25.0	21.4	18.8	15.7	15.0	13.5	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50.0	43.8	38.9	35.0	31.8	29.2
5				90.0	75.0	64.3	56.3	50.0	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50.0	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

TRC

MOISTURE DETERMINATION

Plant Name: IBP DAKOTA City Unit: INEDIBLE	Ambient Temperature: 75°F
Date: 9/10/97	Barometric Pressure: (BP): 29.26 Elevation: Ground
Sampling Location: AFTER HEATER Elevation: @ground	Probe Length & Type: 3' SS
Run Number: 1	Meter Box Number: 1 Gamma: (Y): 1.0017
Operator: DW, TL Reviewer:	Leak Check: Pre-test: 0.001 Post-test: 0.001

Traverse Point Number	Elapsed Time	Clock Time	Gas Meter Reading (Ft³) 333.565	DELTA H (in H₂O)	Impinger Temperature (F°)	Gas Meter Temperature INLET °F	Gas Meter Temperature OUTLET °F	Pump Vacuum (Hg")
1	0	12:45	333.565	2.0	67	75	79	11
			337.6	↓	66	79	75	11
	10		341.4		61	81	76	11
			345.3		60	83	77	11
	20		349.2		59	85	78	11
			353.2		62	87	78	11
	30	13:15	357.123					
			Vm = 23.558	ΔH = 20		Avg.:	Avg.:	

T_m = 79.0

Analytical Data

	Impinger #1 Weight g	Impinger #2 Weight g	Impinger #3 Weight g	Silica Gel Weight g	
Final	276	107	—	205	
Initial	100	100	—	200	
Net Gain	176 +	7 +	— +	5 =	V_t (grams) Total 188

Moisture Calculation:

Net volume of gas through dry gas meter at meter conditions = V_m = 23.558 cu. ft. 735.9

Average absolute meter temperature (T_m + 460) = 539.0 °R

$$\text{Percent moisture} = M = \frac{4.707\,(\text{ml})}{.04707\,(\text{ml}) + \frac{17.64\,(Y)\,(Vm)\,(BP)}{(Tm + 460)}}$$

REF: CFR 60, App. A, Method

TRC

VELOCITY TRAVERSE

Plant: IBP DAKOTA CITY, NE	Date: 9/10/97
Unit Number: EAST COOKER #2	Stack Diameter (in.): 6"
Load Condition: Norm	Stack Gauge Pressure ("H_2O): -10.5
Run No.:	Operators: DW, TL
Project No.: 22214-	
Barometric Pressure at Ground Level ("Hg): 29.26	
Pitot Tube ID: 321	
Pitot Tube Coefficient: .84	Port Change Pitot Leak Check — Pass / Fail
Estimated Stack CO_2%:__ O_2%:__ H_2O%:__	Port #1 ___ ___
Platform Elevation (feet): 8'	Port #2 ___ ___
Schematic of Stack Cross Section: → N	Port #3 ___ ___
	Port #4 ___ ___
HORIZONTAL	$\sqrt{\Delta P}_{avg}$ = .7740 T_{savg} = 73.6

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1	.50	72
2	.56	72
3	.75	73
4	.89	74
5	.75	74
6	.70	74
Average:		

Traverse Point Number	Velocity Head (In H_2O)	Stack Temp. (F)
1	.25	73
2	.24	74
3	.61	74
4	1.57	74
5	1.81 DW	74
6	1.80	75
Average:		

Reference: 40 CFR 60, Appendix A, Method 2

TRC

MOISTURE DETERMINATION

Plant Name: IDP Unit: INEOS HEAT EXCHANGER SKID	Ambient Temperature: 75°
Date: 9-10-97	Barometric Pressure: (BP): 29.86 Elevation: Ground
Sampling Location: INEDIBLE OUT Elevation:	Probe Length & Type: 2' S
Run Number: 2/2	Meter Box Number:) Gamma: (Y): 1.0017
Operator: D. WELLS Reviewer:	Leak Check: Pre-test: 0.002 Post-test: 0.001

Traverse Point Number	Elapsed Time	Clock Time	Gas Meter Reading (Ft³)	DELTA H (in H_2O)	Impinger Temperature (F°)	Gas Meter Temperature INLET °F	Gas Meter Temperature OUTLET °F	Pump Vacuum (Hg")
1	0	14:50	357.322	2.0	66	92	84	14
	5		361.3		61	86	84	14
	10		365.3		58	87	84	14
	15		368.3		58	88	84	14
SDP OVERFLOW	20	15:08	370.575	↓	~~60~~			~~14~~
SATURATED	25				~~62~~			14
IMPS	30	15:20						
			Vm = 13.253	ΔH = 2.0		Avg.:	Avg.:	

T_m = 86.7

Analytical Data

	Impinger #1 Weight g	Impinger #2 Weight g	Impinger #3 Weight g	Silica Gel Weight g	+150
Final	190	205	222	452	
Initial	105	100	/	205	
Net Gain	90 +	105 +	222 +	247 =	V_t (grams) Total 664

Moisture Calculation:

Net volume of gas through dry gas meter at meter conditions = V_m = 13.253 cu. ft.

Average absolute meter temperature (T_m + 460) = 546.7 °R

$$\text{Percent moisture} = M = \frac{4.707\,(\text{ml})}{.04707\,(\text{ml}) + \frac{17.64\,(Y)\,(Vm)\,(BP)}{(Tm + 460)}}$$

TRC

REF: CFR 60, App. A, Method

VELOCITY TRAVERSE

Plant: IBP Dakota City, NE	Date: 9/10/97
Unit Number: West Rooster #2	Stack Diameter (in.): 6"
Load Condition: Normal	Stack Gauge Pressure ("H$_2$0): -10.5
Run No.: 2	Operators: DW, TL
Project No.: 22214	
Barometric Pressure at Ground Level ("Hg): 29.62	
Pitot Tube ID: 321	
Pitot Tube Coefficient: .84	Port Change Pitot Leak Check — Pass / Fail
Estimated Stack CO_2%: 0 O_2%: 20? H_2O%: —	Port #1 — —
Platform Elevation (feet): 81	Port #2 — —
Schematic of Stack Cross Section:	Port #3 — —
R C	Port #4 — —
	$\sqrt{\Delta p}_{avg}$ = .7034
	$T_{s\,avg}$ = 73.8

Traverse Point Number	Velocity Head (In H$_2$0)	Stack Temp. (F)
1	.26	73
2	.28	73
3	.30	74
4	.38	75
5	.42	76
6	.44	75
Average:		

Traverse Point Number	Velocity Head (In H$_2$0)	Stack Temp. (F)
1	.45	74
2	.51	74
3	.70	73
4	.78	73
5	.86	73
6	.80	72
Average:		

Reference: 40 CFR 60, Appendix A, Method 2

TRC

MOISTURE DETERMINATION

Plant Name: IBP DAKOTA CITY Unit: #2 Incinerable Cookoff	Ambient Temperature: 80°F
Date: 9/10/97	Barometric Pressure: (BP): 29.26 Elevation: ground
Sampling Location: AFTER HEAT EX Elevation: 81'	Probe Length & Type: 5' SS
Run Number: 3	Meter Box Number: 1 Gamma: (Y): 1.0017
Operator: DW, TL Reviewer:	Leak Check: Pre-test: 0.001 Post-test: 0.001

Traverse Point Number	Elapsed Time	Clock Time	Gas Meter Reading (Ft³)	DELTA H (in H₂O)	Impinger Temperature (F°)	Gas Meter Temperature INLET °F	Gas Meter Temperature OUTLET °F	Pump Vacuum (Hg")
1	0	1607	395.707	2.0	68	88	87	15
			~~399.2~~	↓	61	92	87	15
	10		402.4		60	91	87	20
		1622	405.142		58	91	87	20
	20				59			
					62			
	30							
			Vm = 9.435	ΔH =		Avg.:	Avg.:	

T_m = 88.8

Analytical Data

	Impinger #1 Weight g	Impinger #2 Weight g	Impinger #3 Weight g	Silica Gel Weight g
Final	276	325	124	203
Initial	100	100	—	200
Net Gain	176 +	225 +	124 +	3 =

528

V_t (grams) Total 528

Moisture Calculation:

Net volume of gas through dry gas meter at meter conditions = V_m = 9.435 cu. ft.

Average absolute meter temperature (T_m + 460) = 548.8 °R

$$\text{Percent moisture} = M = \frac{4.707\,(\text{ml})}{.04707\,(\text{ml}) + \frac{17.64\,(Y)\,(Vm)\,(BP)}{(Tm + 460)}}$$

REF: CFR 60, App. A, Method

TRC

VELOCITY TRAVERSE

Plant: IBP DAKOTA CITY, NE	Date: 9/10/97
Unit Number: #2 COOKER INEDIBLE	Stack Diameter (in.): 6"
Load Condition: Norm	Stack Gauge Pressure ("H$_2$0): -10.2
Run No.: 3	Operators: DW, TL
Project No.: 22214	
Barometric Pressure at Ground Level ("Hg): 29.26	
Pitot Tube ID: 321	
Pitot Tube Coefficient: .84	Port Change Pitot Leak Check — Pass / Fail
Estimated Stack CO_2%: 0 O_2%: 20.9 H_2O%: AMBIENT	Port #1 — —
Platform Elevation (feet): 8'	Port #2 — —
Schematic of Stack Cross Section:	Port #3 — —
	Port #4 — —
P1	$\sqrt{\Delta P}_{avg}$ = .7263
	T_{savg} = 74.0

Traverse Point Number	Velocity Head (In H$_2$0)	Stack Temp. (F)
1	.22	74
2	.35	74
3	.40	75
4	.51	75
5	.49	75
6	.53	72
Average:		

Traverse Point Number	Velocity Head (In H$_2$0)	Stack Temp. (F)
1	~~.23~~ .51	74
2	DW ~~.30~~ .55	74
3	.57	74
4	.63	74
5	.85	73
6	.91	74
Average:		

Reference: 40 CFR 60, Appendix A, Method 2

TRC