

Note: This is a reference cited in AP 42, *Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources*. AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

AP-42 Section Number: 9.11.1

Reference Number: 12

Title: Vegetable Oil Production (Meal Processing) Emission Test Report, Cargill Incorporated (West Plant), Cedar Rapids, Iowa

PEDCo Environmental Inc.

PEDCo Environmental Inc.

June 1979

1176



Vegetable Oil Production (Meal Processing)

AP-42 Section 9.11.1
Reference
Report Sect.
Reference

Emission Test Report Cargill, Incorporated (West Plant) Cedar Rapids, Iowa

11766

EPA

Vegetable Oil Production (Meal Processing)

**Emission Test Report
Cargill, Incorporated
(West Plant)
Cedar Rapids, Iowa**

PEDCo ENVIRONMENTAL, INC.

11499 CHESTER ROAD
CINCINNATI, OHIO 45246
(513) 782-4700
TELEX (513) 782-4807

VEGETABLE OIL EXTRACTION PLANT
MEAL SAMPLING AND OPACITY TEST
Cargill West
Cedar Rapids, Iowa

June 20, 1979

By

PEDCo Environmental, Inc.
11499 Chester Road
Cincinnati, Ohio 45246

79-VEG-6G
Contract No. 68-02-2811
Task No. 19
PN 3333-S

Project Technical Manager

Nancy McLaughlin

U.S. ENVIRONMENTAL PROTECTION AGENCY
EMISSION MEASUREMENT BRANCH

BRANCH OFFICES

CHESTER TOWERS

DALLAS, TEXAS

KANSAS CITY, MISSOURI

COLUMBUS, OHIO

DURHAM, NORTH CAROLINA



TABLE OF CONTENTS

	<u>Page</u>
1 INTRODUCTION	1
2 SUMMARY OF RESULTS	2
2.1 Meal Sampling	2
2.2 Opacity Readings	4
3 SAMPLING AND ANALYTICAL PROCEDURES	5
3.1 Meal Samples	5
3.2 Opacity Readings	6
APPENDIX A	A-1

SECTION 1

INTRODUCTION

This site visit was conducted at the Cargill West plant in Cedar Rapids, Iowa, on June 20, 1979. The purpose of this visit was to collect meal samples (to be analyzed for hexane content), monitor process conditions, and check selected sites for visible emissions. Personnel from PEDCo Environmental, Inc. conducted the meal sampling and analysis and the opacity readings, while personnel from Research Triangle Institute monitored the processing parameters.

Meal samples were taken in triplicate at each of the sampling sites to provide a data base to evaluate the accuracy and reproducibility of the sampling and analytical technique. Meal samples were taken after each of the following process steps:

1. Desolventizer toaster (DT)
2. Meal cooler
3. Flour mill
4. Flash desolventizer toaster
5. Meal grinding
6. Flash tank after the Schneckens.

Opacity was read at eight different sites in the plant.

SECTION 2
SUMMARY OF RESULTS

2.1 MEAL SAMPLING

The laboratory data sheet listing all of the concentrations for each of the triplicate samples is in Section 3.0 of the appendix of this report. Sample log sheet is in Section 1.0 of the Appendix. The data indicates a considerable problem with sample stability. For example, triplicate samples taken at the flash DT at 11:04 show a wide variance in hexane concentration. The second sample which was analyzed on June 29, 1979, has a concentration of 5,300 $\mu\text{g/g}$ of wet meal. The samples analyzed on July 19 and July 23 show concentrations of 3100 $\mu\text{g/g}$ and 2900 $\mu\text{g/g}$ respectively. Similar discrepancies appear whenever triplicate samples were analyzed on different dates. Because of this problem, the highest measured concentration may be the most representative of the real value. Table 1 lists the highest measured concentration for each site on a wet and dry meal basis and the date of the analysis.

Meal sampling was done between 10:00 A.M. and 4:00 P.M. The sample log indicates no problems were encountered and no deviations were made in the sampling procedure.

Sample site	Hexane concentration		Date of analysis
	wet µg/g	dry µg/g	
DT	2,800	3,000	7/24/79
Cooler	880	960	6/29/79
Flour Mill	89	200	6/29/79
Flash DT	6,100	6,700	6/29/79
Meal Post Grinding	150	180	7/12/79
Flash - After Schneckens	780	880	7/12/79

2.2 OPACITY READINGS

Stack opacity was read according to the procedures of Method 9 of the Federal Register* at the following sites:

<u>Site</u>	<u>Emission Control Device</u>
5. Meal Dryer Vent	Cyclone
7. Flour Cooler Pulsair	Pulsair
6. Meal Cooler Vent	Aerodyne Dust Collector
5. Flour Cooler - RJ	Baghouse
3. Grinding - RJ	Baghouse
4. Hull Grinder	Cyclone
1. Exhaust Fan - Prep. Bldg.	None
Flaker Conditioner	Aerodyne Dust Collector
2. At the meal dryer vent, opacity ranged from 0 to 5 percent.	

At all other sites, there were no visible emissions. Opacity data sheets are in Section 2.0 of the Appendix in this report.

* Federal Register, Vol. 42, No. 16, August 18, 1977.

Sample site	Hexane concentration		Date of analysis
	wet µg/g	dry µg/g	
DT	2,800	3,000	7/24/79
Cooler	880	960	6/29/79
Flour Mill	89	200	6/29/79
Flash DT	6,100	6,700	6/29/79
Meal Post Grinding	150	180	7/12/79
Flash - After Schneckens	780	880	7/12/79

2.2 OPACITY READINGS

Stack opacity was read according to the procedures of Method 9 of the Federal Register* at the following sites:

<u>Site</u>	<u>Emission Control Device</u>
5. Meal Dryer Vent	Cyclone
7. Flour Cooler Pulsair	Pulsair
1. Meal Cooler Vent	Aerodyne Dust Collector
6. Flour Cooler - RJ	Baghouse
3. Grinding - RJ	Baghouse
4. Hull Grinder	Cyclone
1. Exhaust Fan - Prep. Bldg.	None
Flaker Conditioner	Aerodyne Dust Collector
2. At the meal dryer vent, opacity ranged from 0 to 5 percent.	

At all other sites, there were no visible emissions. Opacity data sheets are in Section 2.0 of the Appendix in this report.

* Federal Register, Vol. 42, No. 16, August 18, 1977.

SECTION 3

SAMPLING AND ANALYTICAL PROCEDURES

3.1 MEAL SAMPLES

The meal sampling and analytical technique was adopted from a volitilization head-space sampling procedure developed at Texas A&M University.¹ Sample bottles used were 100 ml glass serum bottles with septum caps, tare weighed in the lab with two layers of filter paper in the bottom of each. In the field just prior to sampling, 0.5 ml of water was added to wet the filter paper, using an automatic pipette. A long handled scoop was used to take a sample from the conveyor belt. A small portion of this scoop was then transferred to each of the triplicate samples using a small spoon and a funnel. Septum caps were replaced immediately on the samples. An aluminum cap was then crimped tightly over the septum for a final seal. Each bottle was then weighed to determine the amount of sample collected. Meal samples were stored in a cooler with ice for shipment back to the PEDCo laboratory and stored in a refrigerator until analysis. Ideally a 2.0 gram sample should be taken each time. However, sampling had to be done quickly to prevent evaporation losses, and the actual sample weight varied from 1.34 g to 3.11 g.

¹P. J. Wan, M. Chittwood, C. M. Cater, "Determination of Residual Hexane in Solvent Extracted Meal," Food Protein R&D Center, Texas A&M University.

Analysis was done by placing the sample bottle into a sand-bath for two hours at 125°C and then gradually cooling the sample to room temperature. A 1.0 ml head space sample is then injected into a gas chromatograph. Calibration standards are made by adding a known amount of 99 mole percent n-hexane to processed meal that has been completely dried. To determine the dry weight of the meal sampled after analysis, the samples were placed in a drying oven uncapped and reweighed after the moisture and hexane had been driven off.

3.2 OPACITY READINGS

Opacity was read by a qualified observer using the procedures of Federal Register* Method 9. Readings were taken every 15 seconds over a 12 minute period at each site.

*Federal Register, Vol. 42, No. 16, August 18, 1977.

3.0 Meal Sample Laboratory Analysis Report

DATA SHEET

Plant: Cargill West, Cedar Rapids

Date: June 20, 1979

<u>Date Analysis</u>	<u>Sample No.-Location</u>	<u>Sample Date</u>	<u>Time</u>	<u>Wet Wt. (g)</u>	<u>Wet (µg/g)</u>	<u>Dry (µg/g)</u>
7/23/79	64	D.T.	6/20/79	9:53 pm	1.51	2700
7/24/79	65	D.T.	6/20/79	9:53 pm	1.85	2800
7/23/79	66	D.T.	6/20/79	9:53 pm	1.41	2500
						3000
7/23/79	67	Cooler	6/20/79	10:03 pm	2.84	400
6/29/79	68	Cooler	6/20/79	10:03 pm	2.92	880
7/23/79 (A)	69	Cooler	6/20/79	10:03 pm	2.68	290
						340
6/29/79 (A)	70	Flour Mill	6/20/79	10:09 pm	2.24	70
7/23/79 (B)	71	Flour Mill	6/20/79	10:09 pm	2.16	47
7/23/79 (B)	72	Flour Mill	6/20/79	10:09 pm	2.00	47
7/23/79	73	Flash D.T.	6/20/79	11:04 pm	2.03	2900
6/29/79	74	Flash D.T.	6/20/79	11:04 pm	1.74	5300
7/19/79	75	Flash D.T.	6/20/79	11:04 pm	2.05	3100
						3500
6/29/79	76	Cooler	6/20/79	11:08 pm	2.29	500
7/23/79 (A)	77	Cooler	6/20/79	11:08 pm	2.10	170
7/19/79	78	Cooler	6/20/79	11:08 pm	2.46	420
						500
7/23/79 (A)	79	Flour Mill	6/20/79	11:13 pm	2.05	50
7/24/79	80	Flour Mill	6/20/79	11:13 pm	1.75	39
6/29/79	81	Flour Mill	6/20/79	11:13 pm	1.22	68
						72
7/23/79	82	Flash D.T.	6/20/79	12:02 pm	1.93	2900
7/24/79	83	Flash D.T.	6/20/79	12:02 pm	2.67	2600
6/29/79	84	Flash D.T.	6/20/79	12:02 pm	2.57	6100
						6700
7/23/79	85	Cooler	6/20/79	12:07 pm	5.43	380
6/29/79	86	Cooler	6/20/79	12:07 pm	3.84	670
7/24/79	87	Cooler	6/20/79	12:07 pm	4.03	420
						770
7/24/79 (A)	88	Flour Mill	6/20/79	12:10 pm	2.06	42
7/24/79 (B)	89	Flour Mill	6/20/79	12:10 pm	2.10	45
7/23/79 (B)	90	Flour Mill	6/20/79	12:10 pm	1.99	57
						66
7/20/79 (A)	91	D.T.	6/20/79	12:25 pm	3.64	100
7/20/79	92	D.T.	6/20/79	12:25 pm	3.82	100
7/12/79	93	D.T.	6/20/79	12:25 pm	3.47	78

(A) Duplicate injection of this sample produced a 5 to 10% difference.

(B) Duplicate injection of this sample produced a difference greater than 10%.

DATA SHEET

Plant: Cargill West, Cedar Rapids

Date: June 20, 1979

Date Analysis	Sample No.-Location	Sample Date	Time	Wet Wt. (g)	Wet (µg/g)	Dry (µg/g)
7/23/79	94	Meal Post	6/20/79	12:35 pm	3.55	87
7/12/79	95	Meal Post	6/20/79	12:35 pm	3.13	150
7/20/79	96	Meal Post	6/20/79	12:35 pm	2.73	82
7/24/79	97	Flash D.T.	6/20/79	1:04 pm	3.42	2400
7/24/79	98	Flash D.T.	6/20/79	1:04 pm	3.34	2400
7/24/79	99	Flash D.T.	6/20/79	1:04 pm	2.73	2600
7/20/79 (A)	100	Cooler	6/20/79	1:07 pm	3.17	430
7/23/79	101	Cooler	6/20/79	1:07 pm	2.72	250
7/23/79	102	Cooler	6/20/79	1:07 pm	2.49	390
7/23/79 (B)	103	Flour Mill	6/20/79	1:11 pm	1.91	43
7/20/79	104	Flour Mill	6/20/79	1:11 pm	1.59	43
6/29/79	105	Flour Mill	6/20/79	1:11 pm	1.83	89
7/19/79	106	Flash D.T.	6/20/79	2:00 pm	2.46	3400
6/29/79	107	Flash D.T.	6/20/79	2:00 pm	2.29	5500
7/23/79	108	Flash D.T.	6/20/79	2:00 pm	2.30	2800
7/19/79	109	Cooler	6/20/79	2:04 pm	2.61	440
7/23/79	110	Cooler	6/20/79	2:04 pm	2.87	400
7/23/79	111	Cooler	6/20/79	2:04 pm	2.70	440
7/20/79 (B)	112	Flour Mill	6/20/79	2:10 pm	2.10	40
7/23/79	113	Flour Mill	6/20/79	2:10 pm	2.39	42
7/23/79 (A)	114	Flour Mill	6/20/79	2:10 pm	2.04	44
7/20/79	115	Flash-after Schneckens	6/20/79	3:05 pm	2.89	610
7/23/79	116	Flash-after Schneckens	6/20/79	3:05 pm	2.63	590
7/23/79	117	Flash-after Schneckens	6/20/79	3:05 pm	2.79	540
7/20/79	118	Cooler	6/20/79	3:07 pm	2.78	490
7/20/79	119	Cooler	6/20/79	3:07 pm	3.00	580
7/23/79	120	Cooler	6/20/79	3:07 pm	2.44	370
7/20/79 (B)	121	Flour Mill	6/20/79	3:12 pm	2.08	48
7/20/79 (A)	122	Flour Mill	6/20/79	3:12 pm	2.06	50
7/24/79	123	Flour Mill	6/20/79	3:12 pm	1.97	48

(1) Dry weight was not recorded.

(A) Duplicate injection of this sample produced a 5 to 10% difference.

(B) Duplicate injection of this sample produced a difference greater than 10%.

DATA SHEET

Plant: Cargill West, Cedar Rapids Date: June 20, 1979

<u>Date Analysis</u>	<u>Sample No.-Location</u>	<u>Sample Date</u>	<u>Time</u>	<u>Wet Wt. (g)</u>	<u>Wet (µg/g)</u>	<u>Dry (µg/g)</u>
7/12/79	124 Flash-after Schneckens	6/20/79	4:00 pm	2.47	780	880
7/24/79	125 Flash-after Schneckens	6/20/79	4:00 pm	1.92	410	490
7/20/79	126 Flash-after Schneckens	6/20/79	4:00 pm	2.46	520	630
6/29/79	127 Cooler	6/20/79	4:05 pm	2.69	850	970
7/12/79	128 Cooler	6/20/79	4:05 pm	2.83	680	750
6/29/79	129 Cooler	6/20/79	4:05 pm	2.63	940	1000
6/29/79	130 Flour Mill	6/20/79	4:08 pm	1.94	84	86
6/29/79	131 Flour Mill	6/20/79	4:08 pm	2.31	82	83
7/19/79	132 Flour Mill	6/20/79	4:08 pm	2.49	53	59

(A) Duplicate injection of this sample produced a 5 to 10% difference.

(B) Duplicate injection of this sample produced a difference greater than 10%.

PEDCO ENVIRONMENTAL, INC.

11499 CHESTER ROAD
CINCINNATI, OHIO 45246
(513) 782-4700
TELEX (513) 782-4807

VEGETABLE OIL EXTRACTION PLANT
MEAL SAMPLING AND OPACITY TEST
Cargill West
Cedar Rapids, Iowa

June 20, 1979

By

PEDCo Environmental, Inc.
11499 Chester Road
Cincinnati, Ohio 45246

79-VEG-6G
Contract No. 68-02-2811
Task No. 19
PN 3333-S

Project Technical Manager

Nancy McLaughlin

U.S. ENVIRONMENTAL PROTECTION AGENCY
EMISSION MEASUREMENT BRANCH

BRANCH OFFICES

CHESTER TOWERS

DALLAS, TEXAS
KANSAS CITY, MISSOURI

COLUMBUS, OHIO
DURHAM, NORTH CAROLINA



TABLE OF CONTENTS

	<u>Page</u>
1 INTRODUCTION	1
2 SUMMARY OF RESULTS	2
2.1 Meal Sampling	2
2.2 Opacity Readings	4
3 SAMPLING AND ANALYTICAL PROCEDURES	5
3.1 Meal Samples	5
3.2 Opacity Readings	6
APPENDIX A	A-1

SECTION 1

INTRODUCTION

This site visit was conducted at the Cargill West plant in Cedar Rapids, Iowa, on June 20, 1979. The purpose of this visit was to collect meal samples (to be analyzed for hexane content), monitor process conditions, and check selected sites for visible emissions. Personnel from PEDCo Environmental, Inc. conducted the meal sampling and analysis and the opacity readings, while personnel from Research Triangle Institute monitored the processing parameters.

Meal samples were taken in triplicate at each of the sampling sites to provide a data base to evaluate the accuracy and reproducibility of the sampling and analytical technique. Meal samples were taken after each of the following process steps:

1. Desolventizer toaster (DT)
2. Meal cooler
3. Flour mill
4. Flash desolventizer toaster
5. Meal grinding
6. Flash tank after the Schneckens.

Opacity was read at eight different sites in the plant.

SECTION 2

SUMMARY OF RESULTS

2.1 MEAL SAMPLING

The laboratory data sheet listing all of the concentrations for each of the triplicate samples is in Section 3.0 of the appendix of this report. Sample log sheet is in Section 1.0 of the Appendix. The data indicates a considerable problem with sample stability. For example, triplicate samples taken at the flash DT at 11:04 show a wide variance in hexane concentration. The second sample which was analyzed on June 29, 1979, has a concentration of 5,300 $\mu\text{g/g}$ of wet meal. The samples analyzed on July 19 and July 23 show concentrations of 3100 $\mu\text{g/g}$ and 2900 $\mu\text{g/g}$ respectively. Similar discrepancies appear whenever triplicate samples were analyzed on different dates. Because of this problem, the highest measured concentration may be the most representative of the real value. Table 1 lists the highest measured concentration for each site on a wet and dry meal basis and the date of the analysis.

Meal sampling was done between 10:00 A.M. and 4:00 P.M. The sample log indicates no problems were encountered and no deviations were made in the sampling procedure.

TABLE 1. HEXANE CONCENTRATION IN MEAL SAMPLES
AT CARGILL WEST, CEDAR RAPIDS, IOWA
(Highest measured value only)

Sample site	Hexane concentration		Date of analysis
	wet µg/g	dry µg/g	
DT	2,800	3,000	7/24/79
Cooler	880	960	6/29/79
Flour Mill	89	200	6/29/79
Flash DT	6,100	6,700	6/29/79
Meal Post Grinding	150	180	7/12/79
Flash - After Schneckens	780	880	7/12/79

2.2 OPACITY READINGS

Stack opacity was read according to the procedures of Method 9 of the Federal Register* at the following sites:

<u>RTI^{1d}</u>	<u>Site</u>	<u>Emission Control Device</u>
5.	Meal Dryer Vent	Cyclone
7.	Flour Cooler Pulsair	Pulsair
6.	Meal Cooler Vent	Aerodyne Dust Collector
8.	Flour Cooler - RJ	Baghouse
3.	Grinding - RJ	Baghouse
4.	Hull Grinder	Cyclone
1.	Exhaust Fan - Prep. Bldg.	None
	Flaker Conditioner	Aerodyne Dust Collector
2.	At the meal dryer vent, opacity ranged from 0 to 5 percent.	

At all other sites, there were no visible emissions. Opacity data sheets are in Section 2.0 of the Appendix in this report.

* Federal Register, Vol. 42, No. 16, August 18, 1977.

SECTION 3

SAMPLING AND ANALYTICAL PROCEDURES

3.1 MEAL SAMPLES

The meal sampling and analytical technique was adopted from a volitilization head-space sampling procedure developed at Texas A&M University.¹ Sample bottles used were 100 ml glass serum bottles with septum caps, tare weighed in the lab with two layers of filter paper in the bottom of each. In the field just prior to sampling, 0.5 ml of water was added to wet the filter paper, using an automatic pipette. A long handled scoop was used to take a sample from the conveyor belt. A small portion of this scoop was then transferred to each of the triplicate samples using a small spoon and a funnel. Septum caps were replaced immediately on the samples. An aluminum cap was then crimped tightly over the septum for a final seal. Each bottle was then weighed to determine the amount of sample collected. Meal samples were stored in a cooler with ice for shipment back to the PEDCo laboratory and stored in a refrigerator until analysis. Ideally a 2.0 gram sample should be taken each time. However, sampling had to be done quickly to prevent evaporation losses, and the actual sample weight varied from 1.34 g to 3.11 g.

¹P. J. Wan, M. Chittwood, C. M. Cater, "Determination of Residual Hexane in Solvent Extracted Meal," Food Protein R&D Center, Texas A&M University.

Analysis was done by placing the sample bottle into a sand-bath for two hours at 125°C and then gradually cooling the sample to room temperature. A 1.0 ml head space sample is then injected into a gas chromatograph. Calibration standards are made by adding a known amount of 99 mole percent n-hexane to processed meal that has been completely dried. To determine the dry weight of the meal sampled after analysis, the samples were placed in a drying oven uncapped and reweighed after the moisture and hexane had been driven off.

3.2 OPACITY READINGS

Opacity was read by a qualified observer using the procedures of Federal Register* Method 9. Readings were taken every 15 seconds over a 12 minute period at each site.

*Federal Register, Vol. 42, No. 16, August 18, 1977.

APPENDIX A

1.0 Meal Sample Log

CARGILL 64 WEST		91.29	6-20-79	9:55	DT	4.7136	Flash
65		92.22	"	"	"		FLASH
66		92.13	"	"	"		FLASH
67		91.98	"	10:03	COOLER		
68		92.25	"	"	"		
69		92.08	"	"	"		
70		92.37	"	11:09	FLASH		
71		91.62	"	"	"		
72		91.68	"	"	"		
73		92.35	"	11:14	FLASH		
74		92.49	"	"	"		
75		91.95	"	"	"		
76		92.34	"	11:08	COOLER		

6-11-77

CASCADE® L1-C2462

PRINTED IN U.S.A.

HEXANE PROJECT - SOY BEAN MEAL

Sample	Weight (oz)	Time	Notes
1	92.41	"	11:08
2	92.31	"	"
3	92.9	"	11:13
4	91.94	"	"
5	91.92	"	"
6	91.97	"	11:02
7	92.07	"	"
8	92.23	"	"
9	92.24	"	12:07
10	92.11	"	"
11	92.09	"	"
12	91.92	"	12:10
13	91.51	"	"
14	91.76	"	"
15	92.00	"	17:27
16	91.86	"	"
17	92.24	"	"
18	92.03	"	17:35
19	91.91	"	"
20	92.03	"	"
21	92.37	"	1:04
22	91.91	"	"
23	92.16	"	"
24	91.84	"	1:07
25	91.75	"	"
26	91.83	"	"
27	91.80	"	18:11
28	92.31	"	"
29	92.28	"	"
30	92.31	"	2:00
31	92.25	"	"
32	91.72	"	"
33	92.16	"	2:04
34	92.21	"	"
35	92.24	"	"
36	92.16	"	2:10
37	92.15	"	"
38	91.78	"	"

HEXANE PROJECT - SOY BEAN MEAL

Bottle Number	Weight(gm)					
115	92.36	"	3.05	FLASH	FLASH - after	
116	91.70	"	"	"	SCHNECKEN	
117	92.46	"	"	"		
118	92.31	"	3.07	COOLER		
119	91.59	"	"	"		
120	92.55	"	"	"		
121	92.31	"	3.12	FLOUR		
122	91.70	"	"	"		
123	92.49	"	"	"		
124	91.83	"	4.00	CLASK - PETER		
125	92.39	"	"	"	SCHNECKEN	
126	91.91	"	"	"		
127	91.59	"	4.05	COOLER		
128	92.35	"	"	"		
129	91.62	"	"	"		
130	91.83	"	4.08	FLOUR		
131	92.26	"	"	"		
132	91.99	"	"	"		
TOTALS FACT						

93 in 7/7/71

2.0 Opacity Data Sheets

FIGURE 9-1
RECORD OF VISUAL DETERMINATION OF OPACITY

COMPANY CHIESELL WEST
LOCATION CENTRE REFINERY
TEST NUMBER 6-20-19
DATE 6-20-19
TYPE FACILITY SOYBEAN EXTRACTION
CONTROL DEVICE CYCLOONE
DRYER VENT

PAGE 1 of 2

HOURS OF OBSERVATION 1/13
OBSERVER Bob Schaefer
OBSERVER CERTIFICATION DATE 5-16-79
OBSERVER AFFILIATION Peddy Energie
POINT OF EMISSIONS _____
WEIGHT OF DISCHARGE POINT _____

Initial	Final
75'	
SE	
30'	
BLCE, SKY, FRONT SOUTH	
6-8	
80°F	
CLEAR	
WHITE, BARELY VISIBLE, Z	
Color	
0.125 MILE	

SUMMARY OF AVERAGE OPACITY					
Set Number	Time		Sum	Average	Opacity
	Start--End	Sum			
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					
61					
62					
63					
64					
65					
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
77					
78					
79					
80					
81					
82					
83					
84					
85					
86					
87					
88					
89					
90					
91					
92					
93					
94					
95					
96					
97					
98					
99					
100					

Readings ranged from ____ to ____ % opacity
The source was/was not in compliance with ____ at the time evaluation was made.

FIGURE 9-2 OBSERVATION RECORD
 COMPANY CAESAR WEST OBSERVER Page E He Schumacher
 LOCATION EDDAR BEEDOS TYPE FACILITY STEAM PLUME
 TEST NUMBER TEST 5 POINT OF EMISSIONS TEST 5
 DATE 6-20-79

PAGE 2 OF 2
 FIGURE 9-2 OBSERVATION RECORD (Continued)

TEST NUMBER TEST 5
 COMPANY CAESAR WEST OBSERVER Page E He Schumacher
 LOCATION EDDAR BEEDOS TYPE FACILITY STEAM PLUME
 POINT OF EMISSIONS TEST 5
 DATE 6-20-79

TEST NUMBER TEST 5
 COMPANY CAESAR WEST OBSERVER Page E He Schumacher
 LOCATION EDDAR BEEDOS TYPE FACILITY STEAM PLUME
 POINT OF EMISSIONS TEST 5
 DATE 6-20-79

Hr.	Min.	Seconds	STEAM PLUME (check if applicable)		COMMENTS
			Attached	Detached	
0	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
1	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
2	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
3	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
4	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
5	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
6	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
7	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
8	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
9	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
10	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
11	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
12	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
13	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
14	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
15	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
16	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
17	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
18	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
19	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
20	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
21	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
22	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
23	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
24	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
25	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
26	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
27	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
28	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
29	0	0	<input type="checkbox"/>	<input type="checkbox"/>	

Hr.	Min.	Seconds	STEAM PLUME (check if applicable)		COMMENTS
			0	15	
10	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
11	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
12	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
13	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
14	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
15	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
16	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
17	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
18	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
19	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
20	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
21	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
22	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
23	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
24	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
25	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
26	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
27	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
28	0	0	<input type="checkbox"/>	<input type="checkbox"/>	
29	0	0	<input type="checkbox"/>	<input type="checkbox"/>	

172 Doc. 16-36150 Filed 11-11-74 9:44 AM

FIGURE 9-1 RECORD OF VISUAL DETERMINATION OF OPACITY

PAGE / 0924

COMPANY	<u>CAEGIL WEST</u>
LOCATION	<u>CEDAR RAPIDS</u>
TEST NUMBER	<u>6-20-79</u>
DATE	<u>6-20-79</u>
TYPE	<u>Facility Cover Pulver</u>
CONTROL DEVICE	<u>Pulver</u>

HOURS OF OBSERVATION 12
OBSERVER Boyle H. Schinner
OBSERVER CERTIFICATION DATE 5-16-79
OBSERVER AFFILIATION DET
POINT OF EMISSIONS PUKSAK
WEIGHT OF DISCHARGE POINT

CLOCK TIME 11:40-11:52

OBSERVER LOCATION

Digitized by srujanika@gmail.com

Direction from discharge

Heldig et al. / Observation

BACKGROUND DESCRIPTION

WEATHER CONOIS
Wind Direct

Wind Selection

Wind Speed

Ambient Temperature

SKY CONDITIONS (clear, overcast, cloudy, etc.)

ט' ט' ט' ט' ט' ט' ט' ט' ט'

COLOR
PRINTING

Distance Visible

Officer Information

Initial	Final
75'	75'
THIS T	THIS T
Ground	Ground
LEVEL	LEVEL
WHITE CLOUDS	WHITE CLOUDS
BLUE SKY	BLUE SKY
FRONT	FRONT
WEST	WEST
8-10	8-10
800	800
CLOUDS	CLOUDS
SUPER CLOUDS	SUPER CLOUDS
NOVA	NOVA

SYNTHETIC AVERAGE OPACITY

Readings ranged from — to — % opacity

The source was/was not in compliance with _____ at the time evaluation was made.

FIGURE 9-2 OBSERVATION RECORD
 COMPANY CARGILL MEAT OBSERVER Robert H. Schumel
 LOCATION 2000 E. 2nd Street TYPE FACILITY Food Processor
 TEST NUMBER 2000 POINT OF EMISSIONS PUR. SAW
 DATE 6-20-79

PAGE 2 OF 2

FIGURE 9-2 OBSERVATION RECORD
 (Continued)

Nr.	Min.	Seconds	STEAM PLUME			Comments
			0	15	30	
0	0	0	0	0	0	
1	0	0	0	0	0	
2	0	0	0	0	0	
3	0	0	0	0	0	
4	0	0	0	0	0	
5	0	0	0	0	0	
6	0	0	0	0	0	
7	0	0	0	0	0	
8	0	0	0	0	0	
9	0	0	0	0	0	
10	0	0	0	0	0	
11	0	0	0	0	0	
12	0	0	0	0	0	
13	0	0	0	0	0	
14	0	0	0	0	0	
15	0	0	0	0	0	
16	0	0	0	0	0	
17	0	0	0	0	0	
18	0	0	0	0	0	
19	0	0	0	0	0	
20	0	0	0	0	0	
21	0	0	0	0	0	
22	0	0	0	0	0	
23	0	0	0	0	0	
24	0	0	0	0	0	
25	0	0	0	0	0	
26	0	0	0	0	0	
27	0	0	0	0	0	
28	0	0	0	0	0	
29	0	0	0	0	0	

FIGURE 9-2 OBSERVATION RECORD
 COMPANY CARGILL MEAT OBSERVER Robert H. Schumel
 LOCATION 2000 E. 2nd Street TYPE FACILITY Food Processor
 TEST NUMBER 2000 POINT OF EMISSIONS PUR. SAW
 DATE 6-20-79

FIGURE 9-2 OBSERVATION RECORD
 (Continued)

Nr.	Min.	Seconds	STEAM PLUME			Comments
			0	15	30	
30	0	0	0	0	0	
31	0	0	0	0	0	
32	0	0	0	0	0	
33	0	0	0	0	0	
34	0	0	0	0	0	
35	0	0	0	0	0	
36	0	0	0	0	0	
37	0	0	0	0	0	
38	0	0	0	0	0	
39	0	0	0	0	0	
40	0	0	0	0	0	
41	0	0	0	0	0	
42	0	0	0	0	0	
43	0	0	0	0	0	
44	0	0	0	0	0	
45	0	0	0	0	0	
46	0	0	0	0	0	
47	0	0	0	0	0	
48	0	0	0	0	0	
49	0	0	0	0	0	
50	0	0	0	0	0	
51	0	0	0	0	0	
52	0	0	0	0	0	
53	0	0	0	0	0	
54	0	0	0	0	0	
55	0	0	0	0	0	
56	0	0	0	0	0	
57	0	0	0	0	0	
58	0	0	0	0	0	
59	0	0	0	0	0	

[F93 Doc.76-34160 Filed 11-11-74 8:48 AM]

FIGURE 9-2 OBSERVATION RECORD
 COMPANY Capitol Test OBSERVER F.G. P. H. S. Game FA
 LOCATION CEMETERY TYPE FACILITY STEAM PLANT
 TEST NUMBER 6 POINT OF EMISSIONS TEST CIRCLE
 DATE 6-20-79

PAGE — OF —
 FIGURE 9-2 OBSERVATION RECORD PAGE — OF —
 COMPANY Capitol Test OBSERVER F.G. P. H. S. Game FA
 LOCATION CEMETERY TYPE FACILITY STEAM PLANT
 TEST NUMBER 6 POINT OF EMISSIONS TEST CIRCLE
 DATE 6-20-79

FIGURE 9-2 OBSERVATION RECORD
 (Continued)

OBSERVER _____
 TYPE FACILITY _____
 POINT OF EMISSIONS _____

STEAM PLUME (Check if applicable)			COMMENTS			
Hr.	Min.	Seconds	0	15	30	45
0	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

STEAM PLUME (Check if applicable)			COMMENTS			
Hr.	Min.	Seconds	0	15	30	45
30			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
52			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
53			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
56			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
58			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

[FPA Doc. 16-50160 Filled 11-11-74:04 AM]

FIGURE 9-1
RECORD OF VISUAL DETERMINATION OF OPACTY

COMPANY	<u>CASELLI WEST</u>
LOCATION	<u>CEDAR RAPIDS</u>
TEST NUMBER	<u>6-20-79</u>
DATE	<u>6-20-79</u>
TYPE FACILITY	<u>FLOUR COOLED P.R.</u>
CONTROL DEVICE	<u>BAGHOUSE</u>

PAGE of

HOURS OF OBSERVATION 60
OBSERVER Log Ep. ft. Schumacher
OBSERVER CERTIFICATION DATE 5-16-79
OBSERVER AFFILIATION PE-T
POINT OF EMISSIONS _____
HEIGHT OF DISCHARGE POINT 62

	Initial	Final
CLOCK TIME	12:30-12:42	
OBSERVER LOCATION	1501	
Distance to Discharge	EAST	
Direction from Discharge	GROUND LEVEL	
Height of Observation Point	BLUFF STY WALL GIRDERS	
BACKGROUND DESCRIPTION	FROM SOUTH	
WEATHER CONDITIONS	80°F SCATTERED CLOUDS NON VISIBLE	
Wind Direction	SW	
Wind Speed	6-8	
Ambient Temperature		
SKY CONDITIONS (clear, overcast, x clouds, etc.)		
PLUME DESCRIPTION		
Color		
Distance Visible		
Other Information		

Readings ranged from to % opacity
The source was/was not in compliance with at
the time evaluation was made.

FIGURE 9-2 OBSERVATION RECORD
 COMPANY CARBONELL WEST OBSERVER ROGER H. SCHUMER
 LOCATION TYPE FACILITY
 TEST NUMBER POINT OF EMISSIONS EE - Floor Order
 DATE 6-20-79

PAGE 2 OF 2
ROGER H. SCHUMER
EE - Floor Order
2

FIGURE 9-2 OBSERVATION RECORD (Continued)
 COMPANY EE - Floor Order
 LOCATION TYPE FACILITY
 TEST NUMBER POINT OF EMISSIONS
 DATE

STEAM PLUME (check if applicable)			COMMENTS		
Hr.	Min.	Seconds	Attached	Detached	
0	0	0			
1	0	0			
2	0	0			
3	0	0			
4	0	0			
5	0	0			
6	0	0			
7	0	0			
8	0	0			
9	0	0			
10	0	0			
11	0	0			
12	0	0			
13	0	0			
14	0	0			
15	0	0			
16	0	0			
17	0	0			
18	0	0			
19	0	0			
20	0	0			
21	0	0			
22	0	0			
23	0	0			
24	0	0			
25	0	0			
26	0	0			
27	0	0			
28	0	0			
29	0	0			

FIGURE 9-2 OBSERVATION RECORD

[FPL Doc. 74-36160 Filed 11-11-74 9:44 AM]

FIGURE 9-1
RECORD OF VISUAL DETERMINATION OF OPACITY

COMPANY ARCALL - WEST
LOCATION CEDAR RAPIDS
TEST NUMBER 6-20-79
DATE TYPE FACILITY GRINDING - RD
CONTROL DEVICE AG. HOUSE

HOURS OF OBSERVATION 6:00 a.m. - 7:00 p.m.
OBSERVER Logan K. Schumacher
OBSERVER CERTIFICATION DATE 5/16/79
OBSERVER AFFILIATION PEL
POINT OF EMISSIONS 30'
HEIGHT OF DISCHARGE POINT 30'

PAGE 1 of 2

	Initial	Final
OBSERVER LOCATION	40'	
Distance to Discharge		
Direction from Discharge	SE	
Height of Observation Point	30'	
BACKGROUND DESCRIPTION	BLUE-WHITE SKY	
WEATHER CONDITIONS	FRESH	
Wind Direction	SW	
Wind Speed	6-8	
Ambient Temperature	80°F	
SKY CONDITIONS (clear, overcast, x clouds, etc.)	SCATTERED CLOUDS	
PLUME DESCRIPTION	NONE VISIBLE	
Color		
Distance Visible		

Readings ranged from _____ to _____ % opacity. The source was/was not in compliance with _____ at the time evaluation was made.

FIGURE 9-2 OBSERVATION RECORD
 COMPANY CAPE WEST INVEST OBSERVER JOSEPH H. SCHUMER
 LOCATION CAEDALE PARKS TYPE FACILITY INDUSTRIAL
 TEST NUMBER 20-79 POINT OF EMISSIONS 1
 DATE 11-11-74

PAGE 2 OF 2

FIGURE 9-2 OBSERVATION RECORD (Continued)
 PAGE ____ OF ____

OBSERVER JOSEPH H. SCHUMER
 LOCATION CAEDALE PARKS TYPE FACILITY INDUSTRIAL
 TEST NUMBER 20-79 POINT OF EMISSIONS 1
 DATE 11-11-74

Hr.	Min.	STEAM PLUME			COMMENTS
		0 15 30 45	Attached	Detached	
0	0	0	0	0	
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	

Hr.	Min.	STEAM PLUME			COMMENTS
		0 15 30 45	Attached	Detached	
0	0	0	0	0	
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	

1PR Doc.74-26160 Filed 11-11-74 9:49 AM

FIGURE 9-1
RECORD OF VISUAL DETERMINATION OF OPACTY

PAGE of

COMPANY <u>CAPGILL - WEST</u>	LOCATION <u>CEDAR RAPIDS</u>	TEST NUMBER <u>6-20-79</u>	DATE <u>6-20-79</u>	TYPE FACILITY <u>HULL GRINDER</u>	CONTROL DEVICE <u>SKIMMER</u>	CYCLONE
HOURS OF OBSERVATION <u>12</u>	OBSERVER <u>Joe E. H. Schaefer</u>	OBSERVER CERTIFICATION DATE <u>5-16-79</u>	OBSERVER AFFILIATION <u>PET</u>	POINT OF EMISSIONS	HEIGHT OF DISCHARGE POINT <u>40'</u>	

	Initial	Final
OBSERVER LOCATION	100'	
Distance to Discharge	NE	
Direction from Discharge	40'	
Height of Observation Point	GREEN CLOUDS	
BACKGROUND DESCRIPTION	FOOT Slope	
WEATHER CONDITIONS	6-10	
Wind Direction	80°F	
Wind Speed	80% CLOUD COVER	
Ambient Temperature	NINE VISIBLE	
SKY CONDITIONS (clear, overcast, % clouds, etc.)		
PLUME DESCRIPTION		
Color		
Distance Visible		
OTHER INFORMATION		

Readings ranged from ____ to ____ % opacity
The source was/was not in compliance with ____ at the time evaluation was made.

FIGURE 9-2 OBSERVATION RECORD
 COMPANY CARGILL-WEST
 LOCATION CEDAR RAPIDS
 TEST NUMBER 6-20-79
 DATE 6-20-79
 OBSERVER Roger R. Schumacher
 TYPE FACILITY INDUSTRIAL
 POINT OF EMISSIONS Stacks
 COMPANY GEAUX & SONS
 LOCATION ST. LOUIS, MO
 TEST NUMBER 6-20-79
 DATE 6-20-79

PAGE — OF —
 FIGURE 9-2 OBSERVATION RECORD (Continued)

Nr.	Seconds	STEAM PLUME		Comments
		(check if applicable)	Attached	
0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4	4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6	6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7	7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8	8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9	9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10	10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
11	11	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
12	12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13	13	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
14	14	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
15	15	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
16	16	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
17	17	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
18	18	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
19	19	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
20	20	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
21	21	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
22	22	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
23	23	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
24	24	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
25	25	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
26	26	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
27	27	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
28	28	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
29	29	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Nr.	Min.	0	STEAM PLUME			Comments
			15	30	45	
30	30	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
31	31	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
32	32	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
33	33	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
34	34	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
35	35	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
36	36	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
37	37	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
38	38	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
39	39	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
40	40	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
41	41	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
42	42	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
43	43	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
44	44	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
45	45	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
46	46	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
47	47	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
48	48	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
49	49	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
50	50	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
51	51	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
52	52	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
53	53	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
54	54	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
55	55	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
56	56	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
57	57	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
58	58	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
59	59	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

1EN Doc.74-26160 Plued 11-1-74, 9:46 AM

FIGURE 9-1
RECORD OF VISUAL DETERMINATION OF OPACITY

COMPANY	<u>CARGILL - WEST</u>
LOCATION	<u>CEDAR FALLS</u>
TEST NUMBER	<u>6-20-79</u>
DATE	<u>6-20-79</u>
TYPE FACILITY	<u>EXHAUST FAN PREP</u>
CONTROL DEVICE	<u>BUDG - NO control DEVICE</u>

HOURS OF OBSERVATION 4:2 OBSERVER ROGER H. SCHNEIDER
OBSERVER CERTIFICATION DATE 5-16-79
OBSERVER AFFILIATION PEST
POINT OF EMISSIONS _____
HEIGHT OF DISCHARGE POINT 40'

PAGE 1 of 2

Initial	Final
30'	—
WEST	—
GROUND LEVEL	—
WHITE BUILDING	—
FROM WEST	—
6-8	—
80°F	—
SCATTERED CLOUDS	—
NINE VISIBLE	—
—	—
2,43-2,35	—
2,43-2,35	—
OBSERVER LOCATION	—
Distance to Discharge	—
Direction from Discharge	—
Height of Observation Point	—
BACKGROUND DESCRIPTION	—
WEATHER CONDITIONS	—
Wind Direction	—
Wind Speed	—
Ambient Temperature	—
SKY CONDITIONS (clear, overcast, % clouds, etc.)	—
PLUME DESCRIPTION	—
Color	—
Distance Visible	—
Atmos. Inversion	—

Readings ranged from ____ to ____ % opacity
The source was/was not in compliance with ____ at the time evaluation was made.

FIGURE 9-2 OBSERVATION RECORD
 COMPANY CAECHES - WEST
 LOCATION EDDA RAPIDS
 TEST NUMBER 6-20-79
 DATE

PAGE 2 OF 2
 OBSERVER ROSEPH H. SCHUMER
 TYPE FACILITY
 POINT OF EMISSIONS

FIGURE 9-2 OBSERVATION RECORD
 (Continued)

Hr. 11In.	Seconds 0 15 30 45	STEAM PLUME (Check if applicable)			Comments
		Attached	Detached	Comments	
0	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
1	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
2	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
3	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
4	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
5	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
6	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
7	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
8	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
9	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
10	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
11	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
12	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
13	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
14	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
15	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
16	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
17	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
18	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
19	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
20	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
21	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
22	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
23	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
24	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
25	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
26	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
27	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
28	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
29	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

Hr. 11In.	Seconds 0 15 30 45	STEAM PLUME (Check if applicable)			Comments
		Attached	Detached	Comments	
30	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
31	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
32	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
33	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
34	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
35	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
36	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
37	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
38	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
39	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
40	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
41	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
42	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
43	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
44	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
45	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
46	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
47	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
48	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
49	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
50	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
51	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
52	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
53	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
54	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
55	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
56	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
57	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
58	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
59	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

[FPR Doc 74-36160 Filed 11-11-74 10:46 AM]

FIGURE 9-1 RECORD OF VISUAL DETERMINATION OF OPACITY

PAGE 1 of 2

COMPANY	<u>CARGILL - WEST</u>
LOCATION	<u>CEDAR RAPIDS</u>
TEST NUMBER	<u>6-20-78</u>
DATE	<u>6-20-78</u>
TYPE FACILITY	<u>FLAKER-CONDITIONER</u>
CONTROL DEVICE	<u>REFRODYN</u>

HOURS OF OBSERVATION 100 OBSERVER PGGE & H. SCHUYLER
OBSERVER CERTIFICATION DATE 5/16/79 OBSERVER AFFILIATION PEI
POINT OF EMISSIONS _____ HEIGHT OF DISCHARGE POINT 50'

CLOCK TIME 2:30 - 4:42
OBSERVER LOCATION

Distance to Discharge

Direction from Discharge

Height of Observation

BACKGROUND DESCRIPTION

WEATHER CONDITIONS MILD DELETION

Wind Speed

Ambient Temperature

SKY CONDITIONS (clear, overcast, & clouds, etc.)

PLUME DESCRIPTION
Color

Distance Visible

SYNOPSIS OF AVERAGE OPACITY

Readings ranged from — to — % opacity
The source was/was not in compliance with — at the time evaluation was made.

Final

FIGURE 9-2 OBSERVATION RECORD
 COMPANY CAPGILL WEST
 LOCATION CEDAR
 TEST NUMBER 6-20-79
 DATE

PAGE 2 OF 2
 OBSERVER *Frederick Schumack*
 TYPE FACILITY
 POINT OF EMISSIONS

PAGE ____ OF ____
 (Continued)
 COMPANY *Progeel Schumack*
 LOCATION
 TEST NUMBER
 DATE

FIGURE 9-2 OBSERVATION RECORD

STEAM PLUME (Check if applicable)			COMMENTS	
Hr.	Min.	Seconds	Attached	Detached
0	0	0		
1	0	0		
2	0	0		
3	0	0		
4	0	0		
5	0	0		
6	0	0		
7	0	0		
8	0	0		
9	0	0		
10	0	0		
11	0	0		
12	0	0		
13	0	0		
14	0	0		
15	0	0		
16	0	0		
17	0	0		
18	0	0		
19	0	0		
20	0	0		
21	0	0		
22	0	0		
23	0	0		
24	0	0		
25	0	0		
26	0	0		
27	0	0		
28	0	0		
29	0	0		

STEAM PLUME (Check if applicable)			COMMENTS	
Hr.	Min.	Seconds	Attached	Detached
0	0	0		
1	0	0		
2	0	0		
3	0	0		
4	0	0		
5	0	0		
6	0	0		
7	0	0		
8	0	0		
9	0	0		
10	0	0		
11	0	0		
12	0	0		
13	0	0		
14	0	0		
15	0	0		
16	0	0		
17	0	0		
18	0	0		
19	0	0		
20	0	0		
21	0	0		
22	0	0		
23	0	0		
24	0	0		
25	0	0		
26	0	0		
27	0	0		
28	0	0		
29	0	0		

1PRA Doc.74-36160 Filed 11-11-76 9:46 AM

3.0 Meal Sample Laboratory Analysis Report

DATA SHEET

Plant: Cargill West, Cedar Rapids

Date: June 20, 1979

<u>Date Analysis</u>		<u>Sample No.-Location</u>	<u>Sample Date</u>	<u>Time</u>	<u>Wet Wt. (g)</u>	<u>Wet (µg/g)</u>	<u>Dry (µg/g)</u>
7/23/79		64 D.T.	6/20/79	9:53 pm	1.51	2700	3200
7/24/79		65 D.T.	6/20/79	9:53 pm	1.85	2800	3000
7/23/79		66 D.T.	6/20/79	9:53 pm	1.41	2500	3000
7/23/79		67 Cooler	6/20/79	10:03 pm	2.84	400	460
6/29/79		68 Cooler	6/20/79	10:03 pm	2.92	880	960
7/23/79	(A)	69 Cooler	6/20/79	10:03 pm	2.68	290	340
6/29/79	(A)	70 Flour Mill	6/20/79	10:09 pm	2.24	70	76
7/23/79	(B)	71 Flour Mill	6/20/79	10:09 pm	2.16	47	52
7/23/79	(B)	72 Flour Mill	6/20/79	10:09 pm	2.00	47	52
7/23/79		73 Flash D.T.	6/20/79	11:04 pm	2.03	2900	3500
6/29/79		74 Flash D.T.	6/20/79	11:04 pm	1.74	5300	6100
7/19/79		75 Flash D.T.	6/20/79	11:04 pm	2.05	3100	3500
6/29/79		76 Cooler	6/20/79	11:08 pm	2.29	500	560
7/23/79	(A)	77 Cooler	6/20/79	11:08 pm	2.10	170	200
7/19/79		78 Cooler	6/20/79	11:08 pm	2.46	420	500
7/23/79	(A)	79 Flour Mill	6/20/79	11:13 pm	2.05	50	53
7/24/79		80 Flour Mill	6/20/79	11:13 pm	1.75	39	44
6/29/79		81 Flour Mill	6/20/79	11:13 pm	1.22	68	72
7/23/79		82 Flash D.T.	6/20/79	12:02 pm	1.93	2900	3200
7/24/79		83 Flash D.T.	6/20/79	12:02 pm	2.67	2600	2800
6/29/79		84 Flash D.T.	6/20/79	12:02 pm	2.57	6100	6700
7/23/79		85 Cooler	6/20/79	12:07 pm	5.43	380	440
6/29/79		86 Cooler	6/20/79	12:07 pm	3.84	670	770
7/24/79		87 Cooler	6/20/79	12:07 pm	4.03	420	460
7/24/79	(A)	88 Flour Mill	6/20/79	12:10 pm	2.06	42	45
7/24/79	(B)	89 Flour Mill	6/20/79	12:10 pm	2.10	45	51
7/23/79	(B)	90 Flour Mill	6/20/79	12:10 pm	1.99	57	66
7/20/79	(A)	91 D.T.	6/20/79	12:25 pm	3.64	100	210
7/20/79		92 D.T.	6/20/79	12:25 pm	3.82	100	140
7/12/79		93 D.T.	6/20/79	12:25 pm	3.47	78	90

(A) Duplicate injection of this sample produced a 5 to 10% difference.

(B) Duplicate injection of this sample produced a difference greater than 10%.

DATA SHEET

Plant: Cargill West, Cedar Rapids

Date: June 20, 1979

Date analysis	Sample No.-Location	Sample Date	Time	Wet Wt. (g)	Wet (μ g/g)	Dry (μ g/g)
7/23/79	94	Meal Post	6/20/79	12:35 pm	3.55	87
7/12/79	95	Meal Post	6/20/79	12:35 pm	3.13	150
7/20/79	96	Meal Post	6/20/79	12:35 pm	2.73	82
7/24/79	97	Flash D.T.	6/20/79	1:04 pm	3.42	2400
7/24/79	98	Flash D.T.	6/20/79	1:04 pm	3.34	2400
7/24/79	99	Flash D.T.	6/20/79	1:04 pm	2.73	2600
7/20/79 (A)	100	Cooler	6/20/79	1:07 pm	3.17	430
7/23/79	101	Cooler	6/20/79	1:07 pm	2.72	250
7/23/79	102	Cooler	6/20/79	1:07 pm	2.49	390
7/23/79 (B)	103	Flour Mill	6/20/79	1:11 pm	1.91	43
7/20/79	104	Flour Mill	6/20/79	1:11 pm	1.59	43
6/29/79	105	Flour Mill	6/20/79	1:11 pm	1.83	89
7/19/79	106	Flash D.T.	6/20/79	2:00 pm	2.46	3400
6/29/79	107	Flash D.T.	6/20/79	2:00 pm	2.29	5500
7/23/79	108	Flash D.T.	6/20/79	2:00 pm	2.30	2800
7/19/79	109	Cooler	6/20/79	2:04 pm	2.61	440
7/23/79	110	Cooler	6/20/79	2:04 pm	2.87	400
7/23/79	111	Cooler	6/20/79	2:04 pm	2.70	440
7/20/79 (B)	112	Flour Mill	6/20/79	2:10 pm	2.10	40
7/23/79	113	Flour Mill	6/20/79	2:10 pm	2.39	42
7/23/79 (A)	114	Flour Mill	6/20/79	2:10 pm	2.04	44
7/20/79	115	Flash-after Schneckens	6/20/79	3:05 pm	2.89	610
7/23/79	116	Flash-after Schneckens	6/20/79	3:05 pm	2.63	590
7/23/79	117	Flash-after Schneckens	6/20/79	3:05 pm	2.79	540
7/20/79	118	Cooler	6/20/79	3:07 pm	2.78	490
7/20/79	119	Cooler	6/20/79	3:07 pm	3.00	580
7/23/79	120	Cooler	6/20/79	3:07 pm	2.44	370
7/20/79 (B)	121	Flour Mill	6/20/79	3:12 pm	2.08	48
7/20/79 (A)	122	Flour Mill	6/20/79	3:12 pm	2.06	50
7/24/79	123	Flour Mill	6/20/79	3:12 pm	1.97	48

(1) Dry weight was not recorded.

(A) Duplicate injection of this sample produced a 5 to 10% difference.

(B) Duplicate injection of this sample produced a difference greater than 10%.