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Background Report Reference

AP-42 Section Number: 9.10.2

Background Chapter: 4

Reference Number: 5

Title: Baghouses on Almond Hulling
Process Emission Tests, Berrenda
Mesa Almond Hulling

Truesdail Laboratories

Truesdail Laboratories

April 1981

REPORT

TRUESDAIL LABORATORIES, INC.



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CABLE: TRU ELA 88

CHEMISTS - MICROBIOLOGISTS - ENGINEERS
RESEARCH - DEVELOPMENT - TESTING

CLIENT Berrenda Mesa Almond Hulling
Post Office Box 128
Lost Hills, California 93249
ATTENTION: Mr. Randy Raber

DATE April 6, 1981

RECEIVED February 25, 1981

SAMPLE Four baghouses on almond hulling process
P. O. No. 11710

LABORATORY NO. 36104

INVESTIGATION

Particulate matter emissions

RESULTS

On February 9, 10, 11 and 12, 1981, representatives of Truesdail Laboratories, Inc., conducted tests to determine the particulate matter concentration and emission rates of four baghouses serving the precleaner, huller #3, shelling line #2 and the gravity separator at Berrenda Mesa Farms in Lost Hills, California.

Sampling was performed according to EPA Method 5 procedures. Because the baghouse exhaust fans did not have any stacks, a portable manifold was attached to one fan of each baghouse. This permitted testing of the flue gas by exhausting it through a rectangular stack. Three sampling ports were positioned one-half of the effective diameter upstream and two effective diameters downstream of the nearest bend or obstruction. For each test 36 traverse points were sampled (12 per port) covering a total test time of 108 minutes. Duplicate tests were performed on each baghouse. The tests were run while the systems were under normal operating conditions.

Each of the baghouses has multiple fans. The Kern County APCD gave its approval to test only one exhaust outlet on each of the baghouses and multiply the flow rates and particulate matter emission rates by the number of outlets per baghouse.

For each particulate matter sample, the probe wash, filter and impinger solutions were dried at 105°C, desiccated and weighed.

The results are tabulated below:

Summary of Results

<u>Source</u>	<u>Emission Rate</u>	
	<u>lbs/hour</u>	<u>lbs/24 hours</u>
1. Precleaner	0.41 ✓	9.9
2. Huller #3	0.61 ✓	14.7
3. Shelling line #2	0.14 ✓	3.4
4. Gravity separator	---0.30---	---7.2---
Total	1.46	35.2

The Kern County APCD Regulations limit the particulate emissions to a maximum of 200 lbs/24 hours. The results of the tests show the emissions to be below this limit.

Test date of February 9, 1981

Precleaner (baghouse equipped with 2 exhausts)

Test Number	<u>1</u>	<u>2</u>
Testing time: Start	1403	1646
Finish	1606	1843
Flue gas: Temperature, °F	60	55
Velocity, ft/sec	40.0	42.0
Flue dimensions, ins.	39 x 29.75	
Flue area, sq. ft.	8.1	
Static pressure, H ₂ O	-0.60	-0.60
Flow Rate CFM	19,300	20,300
SCFM	19,000	20,500
DSCFM	18,800	20,300
Water Vapor, % (by vol)	1.4	1.2

Particulate Matter

Sample Collection, grams	0.0047	0.0035
Sample volume, DSCF	49.89	53.26
Percent isokinetic sampling	101.8	102.3
Concentration, grains/DSCF	0.0015	0.0010
*Emission rate, lbs/hour	0.475	0.352
*Average, lbs/hour	0.41	

*calculated for 2 exhausts

Test date of February 10, 1981

Huller #3 (baghouse equipped with 3 exhausts)

Test Number	<u>1</u>	<u>2</u>
Testing Time: Start	1100	1340
Finish	1302	1536
Flue Gas: Temperature, °F	67	66
Velocity, ft/sec	43.7	44.1
Flue dimensions, ins.	39 x 29.75	
Flue area, sq. ft.	8.1	
Static pressure, H ₂ O	-0.45	-0.45
Flow Rate CFM	22,300	21,300
SCFM	22,000	21,100
DSCFM	21,700	20,800
Water Vapor, % (by vol)	1.3	1.3

Particulate Matter

Sample Collection, grams	0.0045	0.0032
Sample volume, DSCF	52.54	53.98
Percent isokinetic sampling	99.3	100.8
Concentration, grains/DSCF	0.0013	0.0009
*Emission rate, lbs/hour	0.738	0.490
*Average, lbs/hour	0.61	

*calculated for 3 exhausts

Test date of February 11, 1981

Shelling Line #2 (baghouse equipped with 2 exhausts)

Test Number	<u>1</u>	<u>2</u>
Testing Time: Start	1319	1626
Finish	1533	1836
Flue Gas: Temperature, °F	80	73
Velocity, ft/sec	33.0	33.0
Flue Dimensions, ins.	39 x 29.75	
Flue area, sq. ft.	8.1	
Static pressure, H ₂ O	-0.25	-0.25
Flow Rate CFM	16,000	15,900
SCFM	15,400	15,500
DSCFM	15,200	15,300
Water Vapor, % (by vol)	1.4	1.62

Particulate Matter

Sample collection, grams	0.0023	0.0024
Sample volume, DSCF	67.27	70.51
Percent isokinetic sampling	100.0	100.7
Concentration, grains/DSCF	0.0005	0.0005
*Emission rate, lbs/hour	0.137	0.137
*Average, lbs/hour	0.14	

*calculated for 2 exhausts

Test date of February 12, 1981

Gravity Separator (baghouse equipped with 4 exhausts)

Test No.	<u>1</u>	<u>2</u>
Testing Time: Start	1109	1351
Finish	1324	1542
Flue Gas: Temperature, °F	80	80
Velocity, ft/sec	37.2	36.8
Flue dimensions, ins.	39 x 29.75	
Flue area, sq. ft.	8.1	
Static pressure, H ₂ O	-0.20	-0.20
Flow Rate CFM	18,000	17,800
SCFM	17,400	17,200
DSCFM	17,200	17,000
Water Vapor, % (by vol)	1.3	1.4

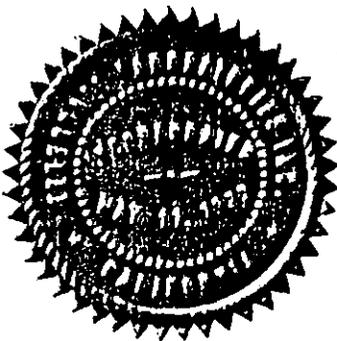
Particulate Matter

Sample Collection, grams	0.0006	0.0023
Sample volume, DSCF	43.72	43.45
Percent isokinetic sampling	98.9	99.7
Concentration, grains/DSCF	0.0002	0.0008
*Emission rate, lbs/hour	0.125	0.475
*Average, lbs/hour	0.30	

*calculated for 4 exhausts

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.



Ignas Bandziulis
 Supervisor
 Air Pollution Testing