AP42 Section: 9.10.2.1

Background Chapter 4

Reference: 2

Title: Almond Huller Baghouse Emissions, Minnehoma Land and Farming Company,

Truesdail Laboratories, Los Angeles, CA,

November 14, 1979.

RUESDAIL LABORATORIES, INC.

CHEMISTS - MICROBIOLOGISTS - ENGINEERS
RESEARCH - DEVELOPMENT - TESTING

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LOS ANGELES 90065
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CABLE: TRUELABS

CLIENT Minnehoma Land and Farming Company
Post Office Box 5686
Bakersfield, California 93308
Attn: Mr. W.H. Hoelscher

SAMPLE Almond huller baghouse emissions.

Contract dated October 17, 1979

DATE November 14, 1979

RECEIVED October 16, 1979

LABORATORY NO. 29126

INVESTIGATION Particulate matter emissions and particle size distribution from each of two baghouses.

NSR #5578-96
#2 Huller
1st Line
1979
Precleaner

RESULTS

On November 7 and 8, 1979, representatives of Truesdail Laboratories, Inc. conducted tests on each of two baghouses serving an almond huller and a precleaner owned by Minnehoma Land and Farming Company, located at their Bakersfield, California facility. The tests were conducted to determine the total particulate matter emissions and the particle size distribution of the two baghouses.

The particulate matter sampling was performed according to EPA method 5. The maximum number of traverse points (24) was chosen because of the minimum allowable number of diameters from the nearest obstruction both upstream and downstream from the sampling ports.

The tests were run while the systems were under normal operating and load conditions.

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

The exhaust fans had no provisions for testing the flue gas, so a special portable manifold was built. This manifold was attached to the southernmost exhaust outlet on the huller side and the center exhaust outlet on the precleaner side. This permitted testing of the flue gas by exhausting it through a rectangular duct. Three sampling ports were positioned one-half of an effective diameter upstream and two effective diameters downstream of the nearest bend or obstruction.

Tests were run to determine the particle size distribution of the outlet emissions. Andersen stack samplers were used for this determination. Due to the low particulate matter concentrations, a sufficient sample could not be obtained within a reasonable amount of time to give results with the accuracy normally afforded by this procedure. After weighing the plates, only one test showed measurable amounts of particulate matter. Before the weighings, the plates were analyzed microscopically to determine the amount of particulate matter on each plate. From this examination, the weight distribution was calculated. A summary of the results follows:

Line #1

Date:	Huller Baghouse November 7, 1979 Test #1	Huller Baghouse November 7, 1979 Test #2	Precleaner Baghouse November 8, 1979 Test #1	Precleaner Baghouse November 8, 1979 Test #2
Flue Gas:				
Temperature, °F	70	67	75	76
Velocity, ft/sec	38.7	38.2	38.1	38.2
*Flue dimensions, in.	30x39x2 9/30/80	30x39x2	30x39x3	30x39x3
*Flue area, sq. ft.	16.3 Test #1	16.3 Testing	24.4	24.4
Static pressure, in. H_2O	-.25	-.25 9/30/80	-.32	-.32
*Flow rate, cfm	37,800 15,600 x2	27,200 15,900 x2	55,800	55,800
scfm	36,300	36,000	53,700	53,700
dscfm	36,100	35,700	53,100	53,100
Water vapor, % by vol.	0.7 1.3%	0.8 1.3%	1.2	1.0
Particulate Matter:				
Sample time, min.	72	72	72	72
Sample volume, dscf	31.79	30.40	31.55	31.63
Total particulate matter, g.	.0161	.0055	.0028	.0027
Concentration, grains/dscf	.0078 .0023	.0028 .0028	.0014	.0013
*Emission rate, lbs/hr.	2.42	0.85	.62	.60
Percent isokinetic sampling	104	101	105	106

*The huller baghouse has two exhaust outlets and the precleaner baghouse has three. These values are corrected for the total number of outlets per baghouse.

9/30/80 Test Line #2 #2 Huller Test #1 Test #2

Emission rate, lb/hr .31x2 = .62 .39x2 = .78

Bruce windoFFel

Huller #2 Total Emmission p/hr

Results per Test Run on Line #1 & Precleaner Baghouse on Nov. 7 & 8, 1979 AND Huller Line #2 Baghouse on Sept. 30, 1980

Huller Line #1, 11/7/79	2.42 Lbs p/hr.
Huller Line #2, 9/30/80	.78 lbs p/hr.
Precleaner 11/8/79	.62 lbs p/hr.
Total Emmission	3.82 lb. p/hr

Particle Size Distribution Results

Huller Baghouse

temp. corr. = .995
rate = .54cfm

Stage	*ECD (microns)	relative %	cumulative %
0	> 12.2	0	100.0
1	7.7 - 12.2	15.4	100.0
2	5.1 - 7.7	30.7	84.6
3	3.6 - 5.1	23.1	53.9
4	2.3 - 3.6	15.4	30.8
5	1.17- 2.3	7.7	15.4
6	.71- 1.17	7.7	7.7
7	.48 - .71	0.0	0.0
8	< .48	0.0	0.0
		100	

Precleaner Baghouse

temp. corr. = 1.000
rate = .62 cfm

Stage	*ECD (microns)	relative %	cumulative %
0	> 13.1	0	100.0
1	8.4 - 13.1	16.7	100.0
2	5.4 - 8.4	33.2	83.3
3	3.9 - 5.4	16.7	50.1
4	2.4 - 3.9	16.7	33.4
5	1.24- 2.4	16.7	16.7
6	.76 - 1.24	0.0	0.0
7	.52 - .76	0.0	0.0
8	< .52	0.0	0.0
		100	

* Effective cut-off diameter.

The Kern County APCD Regulations limit the particulate emissions to a maximum of 200 lbs/day. The results of these tests show that the particulate matter emissions from these units are well below the maximum allowable limits.

Max. emission rate/day (2.42 lbs/H + 0.62 lbs/H) x 24 H/day = 73.0 lbs/day

Respectfully submitted

TRUESDAIL LABORATORIES, INC.

Ignas Bandziulis

Ignas Bandziulis
Supervisor
Air Pollution Testing