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: 9.9.4

Reference Number: 3

Title: Source information supplied by Ken Smith of the American Dehydrators Association

Smith, Ken

American Dehydrators Association

December 1975

AP-42 Section 9.9.4
Reference 3
Report Sect.
Reference

American Dehydrators Association

5800 Foxridge Drive, Mission, Kansas 66202 913-831-0600

December 16, 1975

Mr. Thomas F. Lahre, Engineer
Technical Development Section (MD-14)
National Air Data Branch
United States Environmental Protection Agency
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

Dear Tom:

The results of the industry's 1974 and 1975 compliance tests that we discussed by phone are enclosed. For the 1974 tests, we have shown the test results on one side of the report and a simplified flow diagram of the plant on the other side. The 1975 test results are shown on three sheets of paper without any flow diagrams.

This material is for your information, and use in developing emission factors, and I would appreciate it if you do not publish any of the data pertaining to individual companies.

Please let me know if you have any questions about this material or my previous correspondence.

Sincerely,

Ken Smith

Kenneth D. Smith
Executive Vice President

KDS;mjb

Encls.

1975 SOURCE TEST DATA - FROM ADA

PLANT (LOCATION)	AVG FACTOR LB/TON	SOURCE OPERATION	CONTROL MEASURE
Iola, Iola, Kan	5.1	D	?
Wastinn, Neodesha, Kan	11.6	D+HM	?
Fredonia Rich. Fredonia, Kan	6.8	D+HM+PM	?
Nabl., Gergnet, Ohio	4.8	D+FIN	?
Pennsylvania, Pa, Ohio	9.2	?	?
Longton Rich, Longton, Kan	5.4	D+HM	?
Wastin, Neodesha, Kan	9.0	D+HM	?
Clay, Clay, Kan	4.5	D+HM	?
C+H Proc Manhattan, Kan	9.7	D+HM	?
Wastin, Eating cooler	4.1	D+HM	?
AVG =	7.1		

D = PRIMARY CYCLONE

HM = MEAL COLLECTOR CYCLONE

PM = PELLET COOLER CYCLONE

Supplied in Dec '75 by Ken Smith, ADA

AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

1975

Test No.	Date	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Moist. Dry	Back End Temp.	Source Operation	Dryer PWR lbs/hr.	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	Factor lb/ton	($E=P^{.67}$ X 4.1) Allowable Rate lbs/hr
IOLA ALFALFA DEHY CO., IOLA, KANSAS														
301	5/19	1.50		73.0	7.2	271 1/	D	10,400	373	7,360	15,600	12.8	8.5	12.37
302	5/20	0.98		75.8	14.5	255 1/	D	7,460	496	5,350	15,500	3.33	3.4	9.9
303	5/20	0.97	18.0	75.7	17.0	258 1/	D	7,320	500	5,180	15,500	3.25	3.3	9.8
												AVG =	5.1	
WESTERN ALFALFA CORP., NEODESHA, KANSAS														
304	5/22	2.95	17.5	78	16.7	214 1/	D+HM	24,800	316	18,300	56,800	31.9	10.8	30.61
305	5/22	2.77	18.4	75	14.9	230 1/	D+HM	20,700	379	14,600	57,600	39.6	14.3	27.73
306	5/22	2.80	18.2	72	16.1	228 1/	D+HM	18,800	956	12,500	39,200	29.0	10.4	26.6
307	5/27	2.80	17.4	72.8	10.1	221 1/	D+HM	18,900	536	13,200	43,700	34.0	12.1	26.6
308	5/27	2.42	17.2	72.9	13.1	238 1/	D+HM	16,600	706	11,400	44,800	26.5	11.0	24.34
309	5/30	2.10	17.9	78.6	12.3		D+HM	18,100		13,700		23.6	11.2	24.68
												AVG =	11.6	
FREDONIA DEHYDRATING & MILLING CO., FREDONIA, KANSAS														
310	6/2	1.95		68.0	8.0	238 1/	D+HM+PM	11,200	612	7,310	30,800	16.0	8.2	25.8
311	6/9	1.85		76.2	7.7	224 1/	D+HM+PM	14,300	386	10,600	26,600	13.9	7.5	27.7
312	6/12	1.87		74.5	8.8	216 1/	D+HM+PM	13,400	594	9,660	28,600	8.84	4.7	27.14
													6.8	
NATIONAL ALFALFA DEHYDRATING & MILLING CO., CYGNET, OHIO														
313	6/17	1.9*	18.4	78.7	24.1	171 1/	D+HM	8,650***	397	11,800**	18,300	9.78	5.2	17.24
314	6/18	1.60	18.7	79.1	22.0	179 1/	D+HM	9,120***	359	10,300	17,500	9.82	6.1	16.95
315	6/19	2.23	15.5	75.8	20.0	182 1/	D+HM	10,200***	458	11,850	17,500	12.8	5.7	19.23
316	6/24	1.75	19.3	81.3	14.4	169 1/	D+PM	10,400***	493	14,500	17,500	7.21	4.1	18.34
317	6/24	2.0*	18.4	78.5	17.3	164 1/	D+PM	10,700***	458	12,700	17,600	7.52	3.8	19.14
318	6/25	2.19	16.1	77.8	13.1	170 1/	D+PM	10,300***	623	13.800	17,700	8.09	3.7	19.23
													4.8	

Also tested in 74

1/ Stack Gas Temp.
* Approximate value
** Based on scale dumps (PWR for plant)
*** Based on truck dumps (PWR for drum)

AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT
1975

Test No.	Date	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Moist. Dry	Back End Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	(E=P^.67 X 4.1) Allowable Rate lbs/hr D	HM	PM	Factor lb/ton
PERRYSBURG ALFALFA MILLS, INC., PERRYSBURG, OHIO																
319	6/27	0.9	22.25	84.0	18.6	210 1/		14,050** 10,200*	485	8,190*	26,300	9.47	12.21	3.8	3.8	10.5
320	6/27	1.2	22.56	77.5	16.8	207 1/		13,400** 9,730*	485	7,100*	26,500	11.6	11.83	4.6	4.6	9.7
321	6/28	1.62	14.88	78.6	14.4	186 1/		15,300** 13,600*	414	9,900*	25,000	12.1	14.8	5.66	5.66	7.5
															AVG =	9.2

1/ Stack Gas Temp.
* Based on scale dumps (PWR for hammermill and pellet mill)
** Based on truck dumps (PWR for dryer)

LONGTON DEHY & MILLING CO., LONGTON, KANSAS														
322	7/1	1.85	8.0	77.9	9.3	278 1/	D+HM	15,650	432	11,840	31,200	11.4	22.46	6.2
323	7/2	1.03	10.0	76.3	20.6	277 1/	D+HM	7,900	810	5,540	31,100	2.70	14.47	2.6
324	7/2	1.14	11.0	77.5	17.8	278 1/	D+HM	9,130	738	6,630	31,500	8.35	15.82	7.3
														5.4
WESTERN ALFALFA CORP., NEODESHA, KANSAS														
325	7/7	2.6	14.4	71.9	13.2	217 1/	D+HM	17,100	599	11,600	47,100	21.4	25.04	8.2
326	7/8	2.6	15.8	76.4	13.3	217 1/	D+HM	20,400	543	14,800	46,400	20.2	27.21	10.5
327	7/8	2.9	14.2	75.2	12.7	219 1/	D+HM	21,700	461	15,500	47,000	23.9	28.62	8.2
														9.0
CLAY CENTER DEHYDRATING CO., CLAY CENTER, KANSAS														
328	7/10	2.06	13.51	68.3	10.5	216 1/	D+HM	12,000	1222	7,750	34,700	14.0	20.27	6.8
329	7/10	2.18	13.51	59.7	11.8	197 1/	D+HM	10,100	984	5,480	35,000	10.7	19.04	4.9
330	7/11	2.27	12.55	67.0	13.9	193 1/	D+HM	12,400	1439	7,630	34,400	4.36	21.02	1.9
														4.5

1/ Stack Gas Temp.

AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT
1975

Test No.	Date	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Moist. Dry	Back End Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	($E=P^{.67} \times 4.1$) Allowable Rate lbs/hr	Factor lb/ton
C K PROCESSING, MANHATTAN, KANSAS														
331	7/16	2.04	15.4	73	9.0	166 1/	D+HM	14,000	321	9,850	23,400	19.1	21.71	9.4
332	7/17	1.52	15.24	74	10.7	173 1/	D+HM	10,800	455	7,640	23,900	16.8	18.12	11.0
333	7/17	1.86	15.63	74.6	10.3	160 1/	D+HM	13,600	427	9,730	23,400	16.4	21.02	8.8
													AVG =	9.7
WESTERN ALFALFA CORP., EATON, COLORADO														
336	7/29	2.45	16.7	76.8	13.4	221 1/	D+HM	19,700	297	14,400	34,300	10.8	26.45	4.4
337	7/30	2.62	17.6	76.4	14.7	210 1/	D+HM	20,600	424	14,900	34,900	12.0	27.37	4.6
338	7/31	2.72	14.8	75.8	12.9	206 1/	D+HM	20,900	390	15,100	34,900	8.77	27.76	3.3
													AVG =	4.1

1/ Stack Gas Temperature

1974 SOURCE TEST DATA – SUPPLIED BY KEN SMITH OF AM. DEHYDRATERS ASSOC.

Plant/Loc	Avg. Factor, Lb/Ton	Source Operation	Control Measure
Walton Prod., Lincoln, Kan	7.9	D+HM	Meal collector exhaust return to hammermill + primary cyclone
Bert + Wetta Abilene, Kan.	9.3	D+HM+PM	?
Bert + Wetta Larned plant, Kan	2.9	D	Primary recycle to furnace
Bert + Wetta Minneapolis, Kan	5.7	D	Primary recycle to furnace
Bert + Wetta Royal, Plant	3.7	D	" " " "
Kan Russell, Kan	9.6	D+HM+PM	" " " "
Longford Mill Morganville, Kan	7.4	D	?
Coleman Poultry Haven, Kan	6.7	D	Primary recycle to furnace
Sioux Alfalfa Mobridge, SD	5.0	D	" " " "
Western Hartman, Colo.	7.7	D+HM	Meal collector exhaust return to hammermill + primary cyclone
Western Neodesha, Kan	13.2	D+HM	" " " " " " "
Western Lawrence, Kan	8.0	D+HM	Partial meal collector exhaust recycle to hammermill, Primary exhaust to wet scrubber
C-K Prod. Manhattan, Kan	3.3	D+HM	?
Gothenburg Hays, Kansas	19	D+HM	?
Gothenburg Brady, Kansas	27.2 17.4	D+HM D	? ?
Natl. Alfalfa Grainfield, Kan	4.6 8.5	D D+HM+PM	Partial recycle to of primary cyclone exhaust to dryer outlet;
R-W Milling Wamego, Kan	3.3	D	Partial recycle of primary exhaust to furnace
Oxford Poultry Oxford, Kan	5.5	D	Wet scrubber
Lippl Concordia, Kan	12.3	D+HM+PM	Partial recycle of primary cyclone exhaust to dryer outlet

AVG ≈ 10 FOR ALL SOURCES

SOURCE OR KEY

D = PRIMARY CYCLONE (DRYER)

HM = MEAL COLLECTOR CYCLONE (HAMMERMILL)

PM = PELLET COOLER CYCLONE (PELLET MILL)

Supplied in Dec '75 by Ken Smith, ADA

AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

COMPANY WALKER PRODUCTS CO., INC. **PLANT** LINCOLN, KANSAS

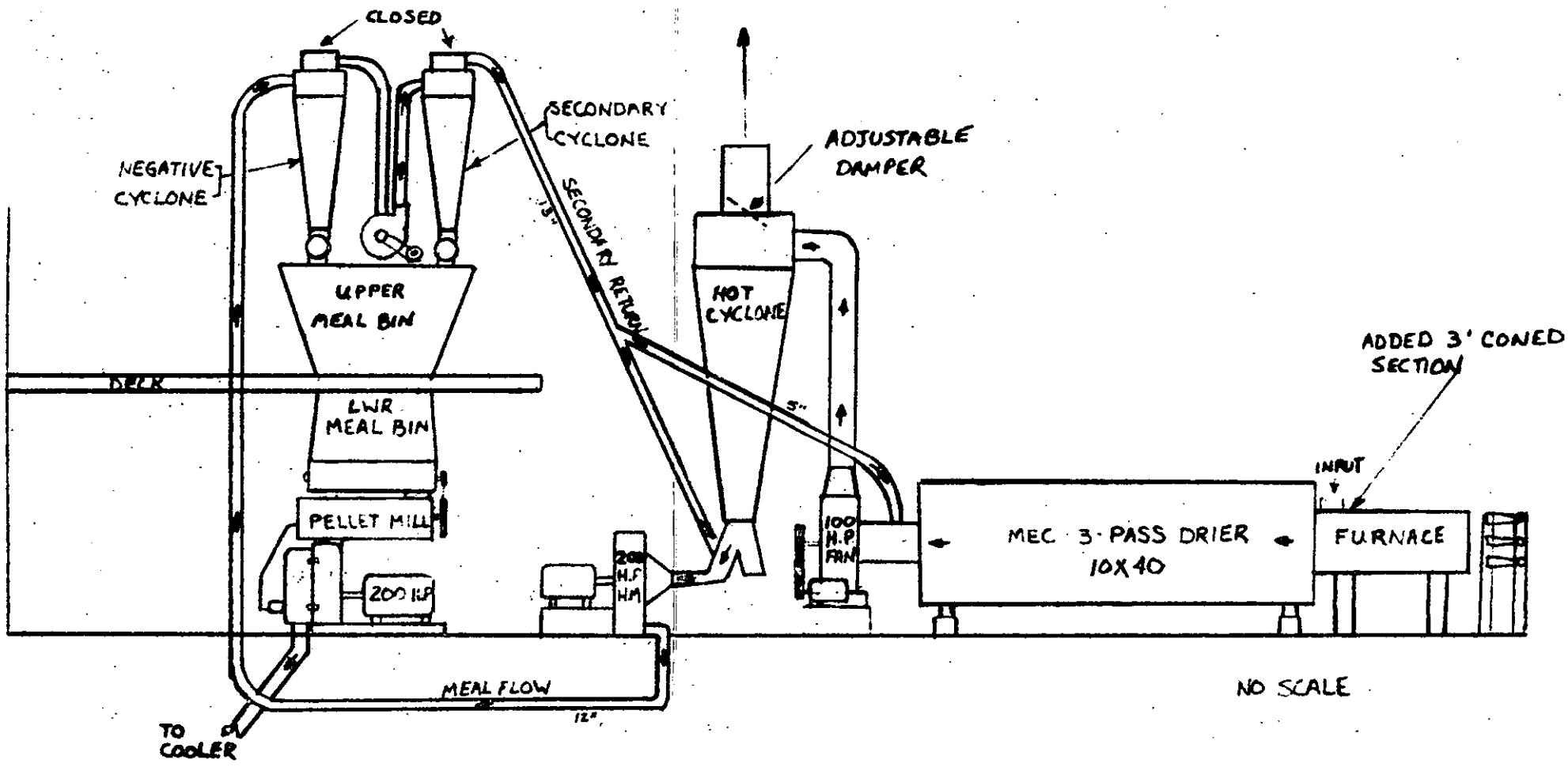
Test No.	Date 1974	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Moist. Dry	Back End* Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	($E=P^{.67}$ X 4.1) Allowable Rate lbs/hr	Emission Factor lb/ton
201	5/15	3.32	18.26	77.7	10.9	234*	D+HM	27,600	272	20,700	39,312	26.2	23.8 + 9.2 = 33.0	7.9
202	5/16	3.25	20.02	77.5	8.8	246*	D+HM	26,400	127	19,900	36,847	26.8	23.1 + 9.0 = 32.1	8.2
203	5/16	3.52	18.81	77.2	9.8	225*	D+HM	28,600	386	21,400	37,632	29.0	24.4 + 9.5 = 33.9	8.2
204	5/17	3.40	18.70	81.0	13.6	230*	D+HM	33,100	163	25,800	36,723	24.5	26.9 + 9.3 = 36.2	7.2

AVG ≈ 7.9

* Stack Gas Temperature

WALKER PRODUCTS CO.
1974 PLANT DESIGN

October 15, 1973

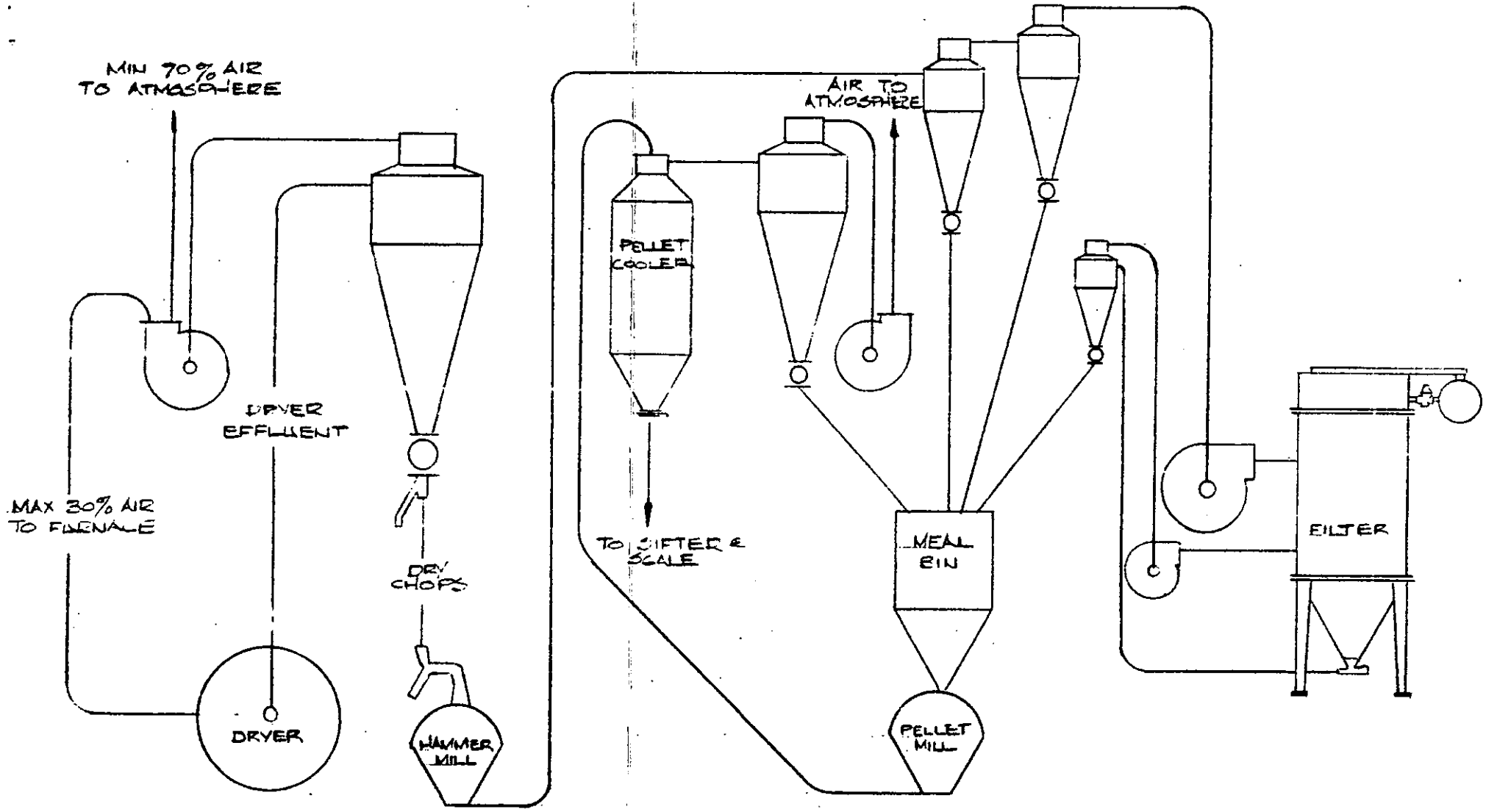


AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

COMPANY BERT & WETTA SALES, INC.

PLANT ABILENE, KANSAS

Test No.	Date	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Moist. Dry	Back End Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	($E=P^{.67} \times 4.1$) Allowable Rate lbs/hr	Emission factor lb/ton
	1974													
205	5/28	3.62	17.25	74.2	14.1	245	D+HM+PM	25,800	536	18,100	48,545	37.40	22.7 + 9.7 + 9.7 = 42.0	10.3
206	5/29	3.25	17.00	73.9	13.3	247	D+HM+PM	22,900	623	16,000	47,733	20.52	21 + 9.0 + 9.0 = 39.0	6.3
207	5/29	3.40	16.50	71.3	13.5	257	D+HM+PM	22,100	677	14,800	47,078	38.40	20.5 + 9.3 + 9.3 = 39.1	11.3
													AVG	9.3
							LARNED PLANT							
269	10/8	3.6	22.45	78.0	11.9	273	D	30,300	280	22,800	38,300	12.1	25.33	3.4
270	10/8	3.4	23.40	73.0	14.6	257	D	23,000	280	15,700	37,480	8.3	21.06	2.4
271	10/9	3.4	22.07	74.3	12.2	262	D	24,500	280	17,300	37,770	10.2	21.97	3.0
														2.9



DRUM DRYER SUCTION SYSTEM
SCHEMATIC FOR ESDA LEE

KICE METAL PRODUCTS CO. 2940 S. HEAD AVE. WICHITA, KANSAS

DRAWN BY BACT CHECKED BY DATE 9-26-74

REVISED

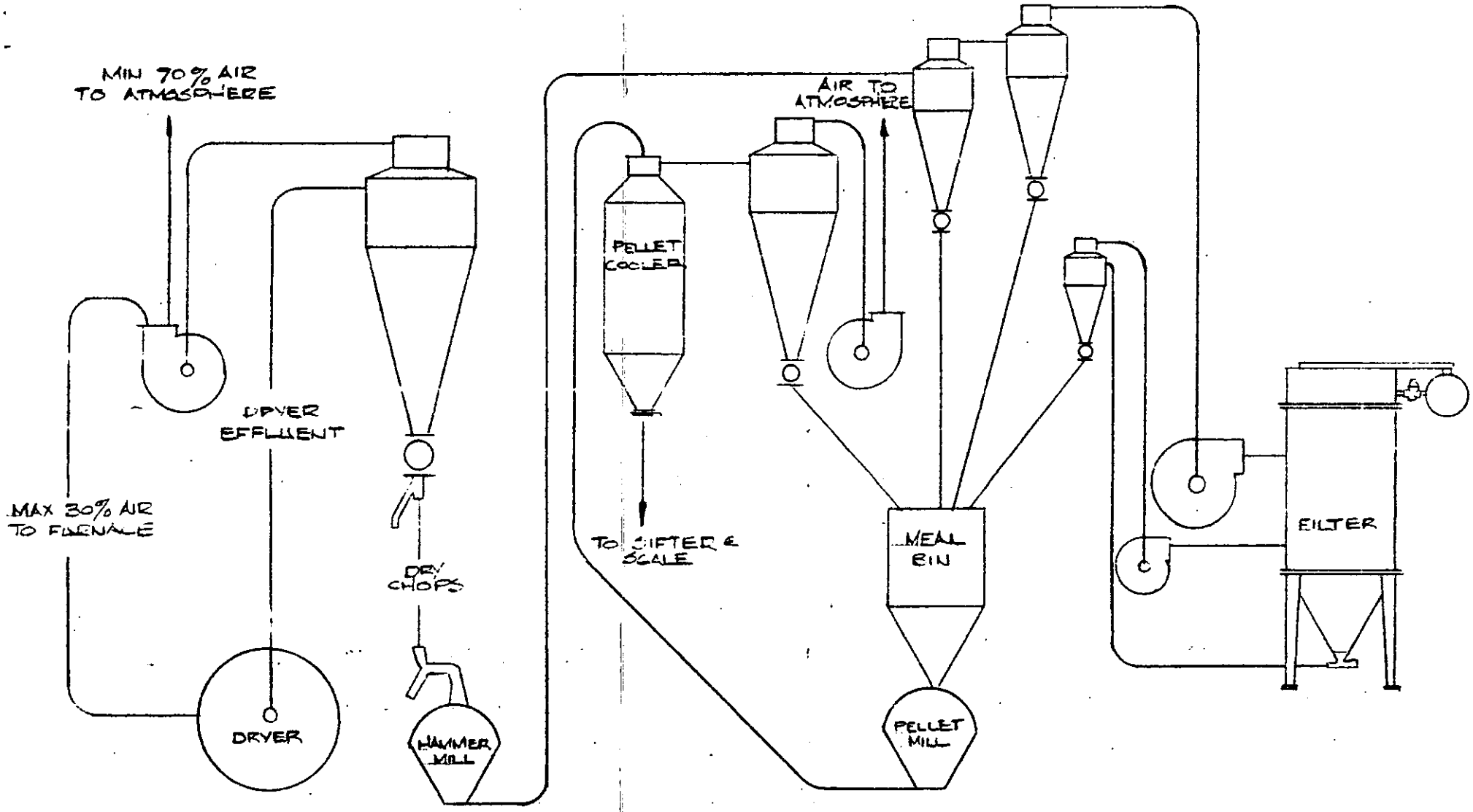
JOB NUMBER

DRAWING NUMBER 2-1137

AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

COMPANY BERT & WETTA SALES, INC. PLANT MAIZE, KANSAS

Test No.	Date 1974	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Moist. Dry	Back End Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	($E=P^{.67}$ X 4.1) Allowable Rate lbs/hr	Ef. factor Ulta
220	6/14	4.77	16.75	79.2	10.9	257	D	42,400	132	32,500	48,923	27.32	31.7	5.7
221	6/14	6.17	20.23	75.9	12.0	250	D	47,900	105	34,800	48,135	30.15	34.4	4.9
222	6/15	5.00	18.2	80.0	16.9	256	D	45,300	143	34,400	49,008	33.23	33.2	6.6
														5.7
						ROZEL PLANT								
272	10/10	2.85	22.25	77.6	11.6	281	D	23,700	209	17,700	34,600	12.5	21.48	4.4
273	10/10	3.40	22.80	75.5	12.2	271	D	25,700	240	18,500	34,340	10.6	22.69	3.1
274	10/10	3.45	22.05	73.5	13.7	271	D	24,000	267	16,700	34,720	12.4	21.67	3.6
														3.7



DRUM DRYER SUCTION SYSTEM
SCHEMATIC FOR ESDA LIEE

KICE METAL PRODUCTS CO. 2848 S. MEAD AVE. WICHITA, KANSAS

DRAWN BY BACT CHECKED BY DATE 9-26-74

REVISED

JOB NUMBER

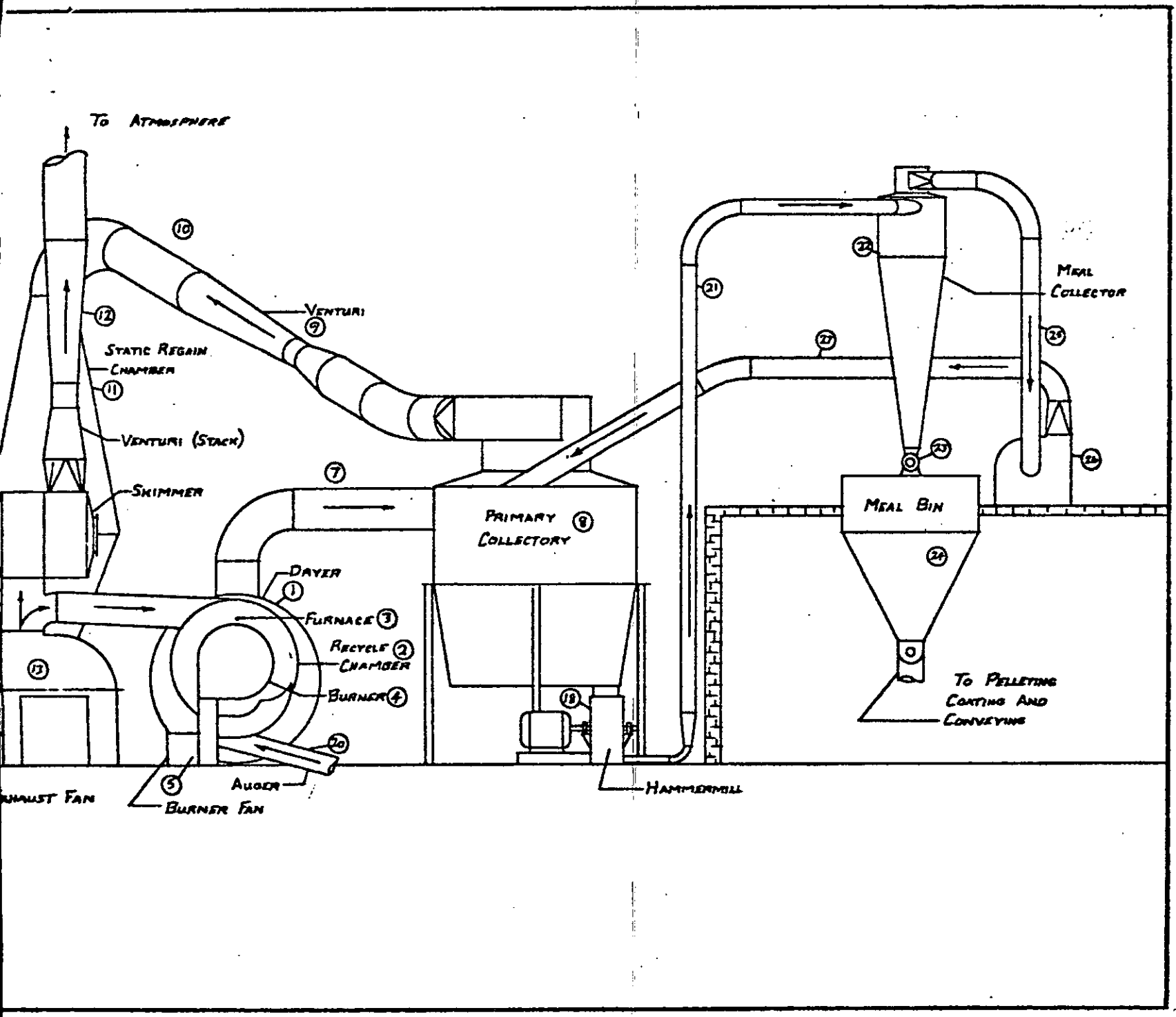
DRAWING NUMBER 2-1137

AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

COMPANY KAW DEHYDRATING CO., INC. **PLANT** ROSSVILLE, KANSAS

Test No.	Date 1974	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Moist. Green	% Chops Moist. Dry	Back End* Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	Facta lb/hr	($E=P^{.67}$ X 4.1) Allowable Rate lbs/hr
208	5/30	2.4		61.8	10.7	177*	D+HM+PM	11,100	738	6,360	26,026	40.6	17	12.9 + 7.4 + 7.4 = 27.7
209	5/31	2.43	14.3	70.4	15.0	175*	D+HM+PM	15,100	676	9,820	25,513	15.2	6.3	15.9 + 7.4 + 7.4 = 30.7
210	6/1	2.23	15.7	72.0	14.4	174*	D+HM+PM	14,400	676	9,700	25,384	12.0	5.4	15.4 + 7.0 + 7.0 = 29.4
													9.6	

* Stack Gas Temperature



1. Negative Air
2. Flat Bottom Primary
3. Recycle to Drum & Furnace
4. Skimmer Return to Primary
5. HM & PM Air Return to Primary
6. Recycle Driven by Air Operated Dampers to Modulate 20 to 60% Return
7. HM Pressure Drop Monitored
8. HM By-Pass
9. H_2O at Feeder
10. Drum Flighting

AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

COMPANY LONGFORD MILL PRODUCTS, INC.

PLANT MORGANVILLE, KANSAS

Test No.	Date 1974	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Moist. Dry	Back End* Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	($E=P^{.67}$ X 4.1) Allowable Rate lbs/hr	factor lb/ton
211	6/4	1.82	22.0	79.1	12.9	251*	D	16,100	355	12,200	22,997	12.35	16.6	6.7
212	6/4	1.85	22.0	76.2	13.9	250*	D	14,200	297	10,300	23,368	9.16	15.2	5.0
213	6/5	1.90	21.0	76.7	13.2	233*	D	14,800	228	10,800	22,892	12.22	15.7	6.4
214	6/5	1.42	21.0	75.4	18.0	298*	D	10,400	244	7,300	17,536	9.54	12.4	6.7
215	6/6	1.04	15.5	74.0	16.6	304*	D	7,100	397	4,880	18,226	10.23	9.6	9.8
216	6/6	1.08	15.5	76.3	17.7	296*	D	8,280	332	5,900	19,070	10.47	10.6	9.7

AVG = 7.4

AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

COMPANY COLEMAN DEHYDRATING CO. PLANT HAVEN, KANSAS

Test No.	Date 1974	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Moist. Dry	Back End Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	($E=P^{.67} \times 4.1$) Allowable Rate lbs/hr	Factor lb/ton
217	6/11	3.45	16.89	79.1	4.4	1/	D	30,700	191	24,000	46,889	28.24	25.6	8.2
218	6/12	3.00	18.70	78.7	6.3	2/	D	26,000	200	20,100	48,720	19.87	22.9	6.6
219	6/12	3.50	17.85	78.1	14.4	3/	D	29,600	191	22,000	48,371	18.72	24.9	5.3

AVG = 6.7

1/ Drum 1 - 339
Drum 2 - 365
Drum 3 - 330

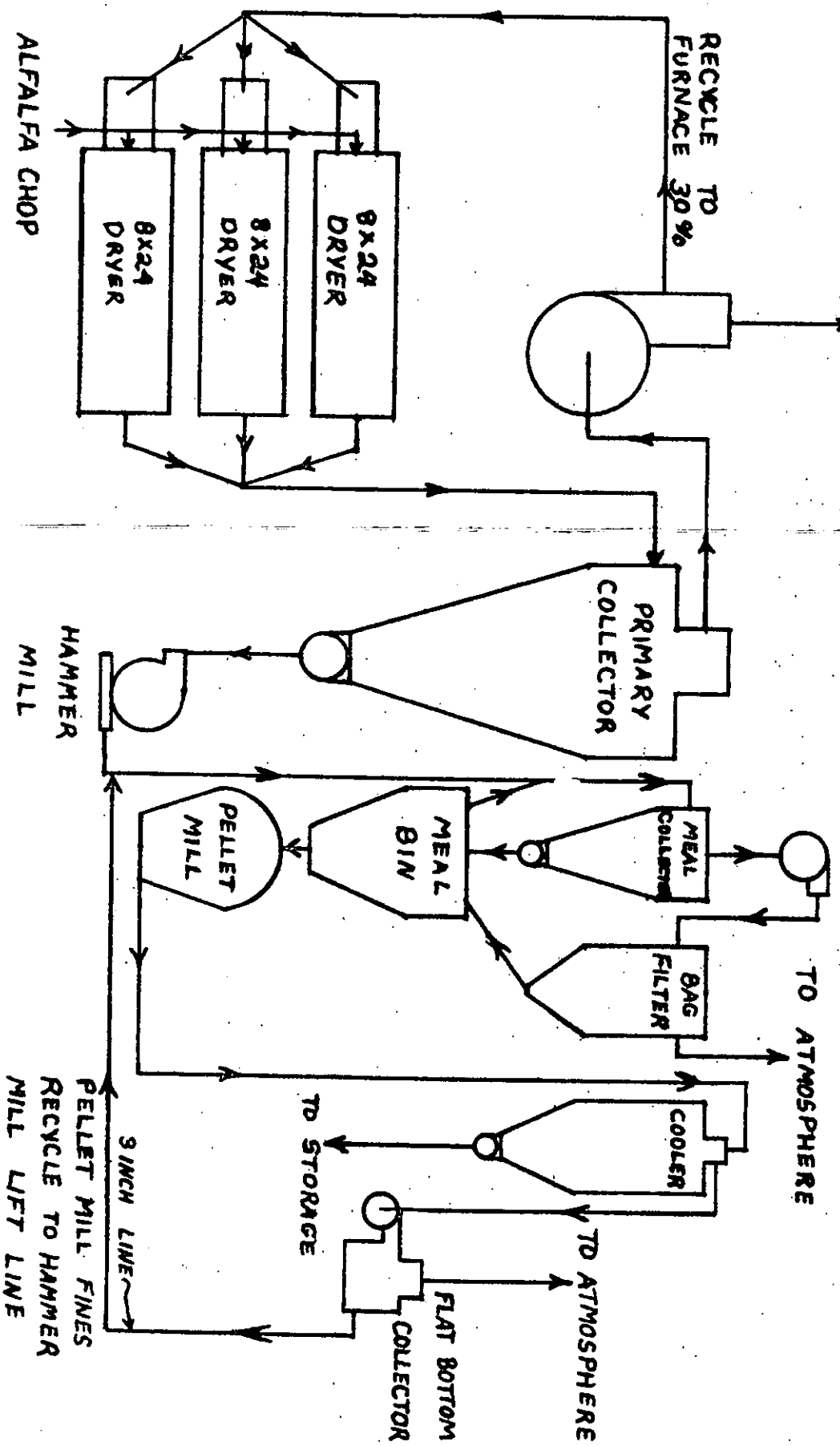
2/ Drum 1 - 331
Drum 2 - 363
Drum 3 - 317

3/ Drum 1 - 275
Drum 2 - 329
Drum 3 - 278

COLEMAN ALFALFA MILLING CO.

Processors Of Dehydrated Alfalfa Meal

HAVEN, KANSAS



AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

COMPANY SIOUX ALFALFA MEAL CO. **PLANT** MECKLING, SOUTH DAKOTA

Test No.	Date 1974	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Moist. Dry	Back End Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	($E=P^{.67}$ X 4.1) Allowable Rate lbs/hr	Footer lb/hr
227	7/9	3.62	17.9	76.2	10.0	270	D	28,200	192	20,700	25,439	14.78	24.1	4.1
228	7/10	2.29	16.9	78.1	16.9	260	D	19,100	255	14,000	23,765	4.72	18.6	8.1
229	7/10	3.09	16.9	76.5	14.5	260	D	24,200	255	17,500	24,451	8.50	21.8	2.8

AVG = 5.0

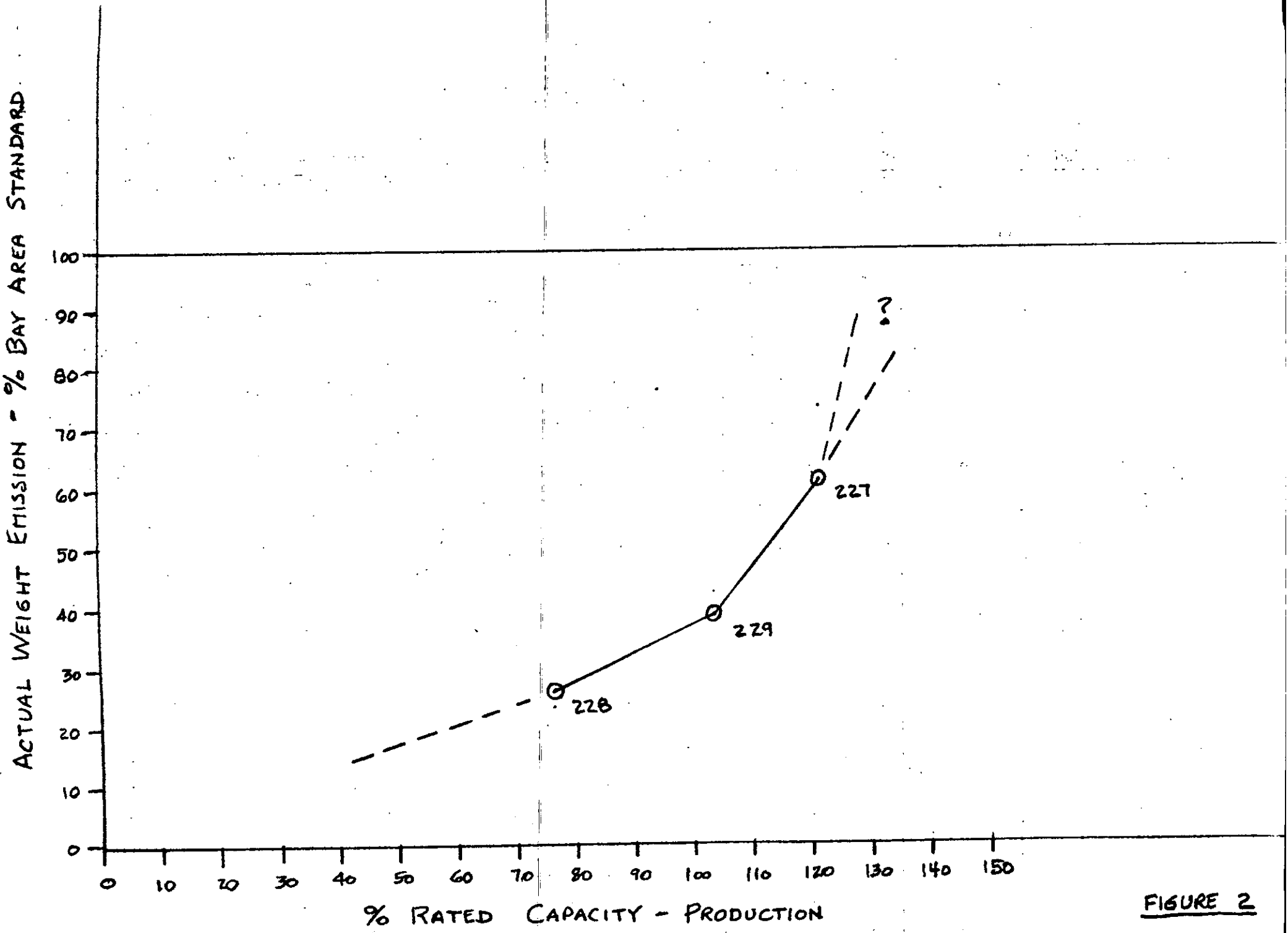
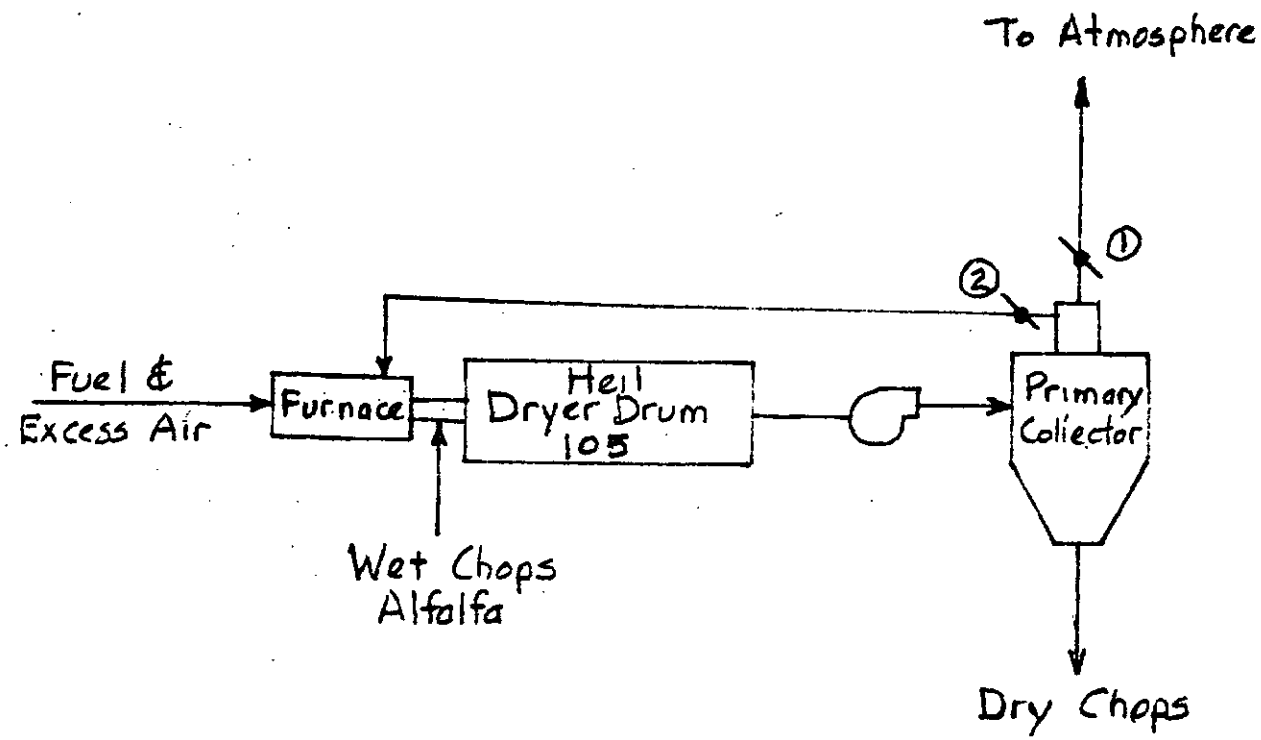

ACTUAL WEIGHT EMISSION - % BAY AREA STANDARD
100
90
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
% RATED CAPACITY - PRODUCTION
228
229
227
?

FIGURE 2

① Exhaust Control Damper

② Recycle Skimmer Damper



SIOUX ALFALFA MEAL COMPANY
MECKLING, SOUTH DAKOTA
DRIER RECYCLE SYSTEM
FLOW DIAGRAM

Figure 1

Sept. 20, 1974

Meckling Plant Flow Diagram

1. Exhaust Control Damper
2. Recycle Skimmer Damper

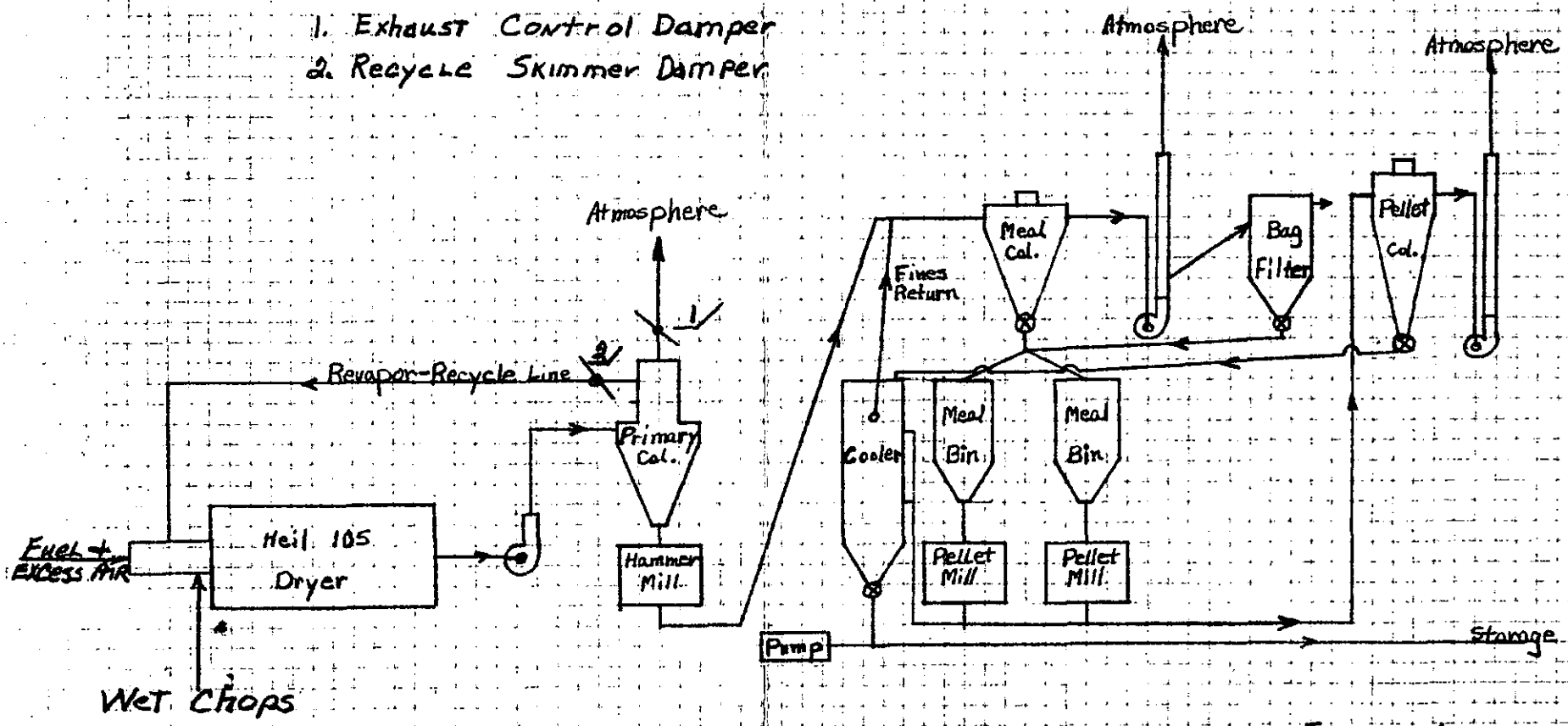
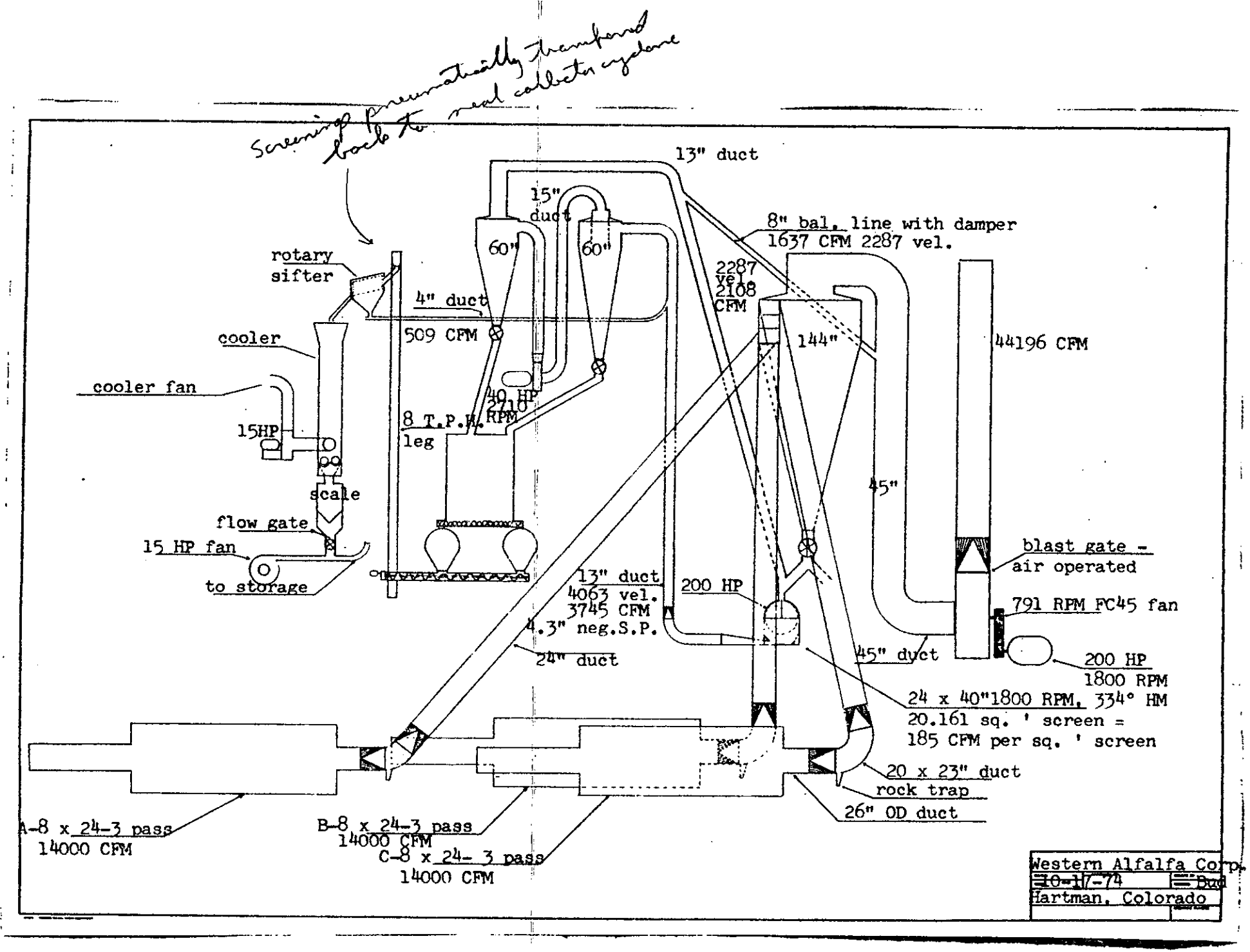


Figure 1

AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

COMPANY WESTERN ALFALFA CORP. **PLANT** HARTMAN, COLORADO

Test No.	Date 1974	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Moist. Dry	Back End Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	Factor Efficiency	($E=P^{.67}$ X 4.1) Allowable Rate lbs/hr
235	8/2	3.0	21.5	77.5	11.5	280	D+HM	25,400	244	18,900	51,059	26.5	8.8	22.5 + 8.6 = 31.1
236	8/2	3.37	20.8	75.7	11.7	287	D+HM	26,200	313	19,900	51,294	21.4	6.4	23.0 + 9.3 = 32.3
237	8/2	3.0	21.9	75.2	9.5	290	D+HM	23,300	397	16,900	51,441	23.6	7.9	21.2 + 8.6 = 29.8
													AVG = 7.7	($E=P^{.62}$ X 3.59)
235														17.4 + 7.1 = 24.5
236														17.7 + 7.6 = 25.3
237														16.5 + 7.1 = 23.6


Screening pneumatically transported back to seed collector cyclone
13" duct
15" duct
60"
60"
8" bal. line with damper
1637 CFM 2287 vel.
2287 vel.
2108 CFM
rotary sifter
4" duct
509 CFM
144"
44196 CFM
cooler
cooler fan
40 HP
3710 RPM
8 T.P.H. leg
15HP
scale
45"
flow gate
15 HP fan
to storage
blast gate - air operated
13" duct
4063 vel.
3745 CFM
4.3" neg.S.P.
200 HP
791 RPM FC45 fan
24" duct
45" duct
200 HP
1800 RPM
24 x 40"1800 RPM, 334° HM
20.161 sq. ' screen =
185 CFM per sq. ' screen
20 x 23" duct
rock trap
26" OD duct
A-8 x 24-3 pass
14000 CFM
B-8 x 24-3 pass
14000 CFM
C-8 x 24- 3 pass
14000 CFM
Western Alfalfa Corp.
10-17-74
Hartman, Colorado

AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

COMPANY WESTERN ALFALFA CORP. PLANT NEODESHA, KANSAS

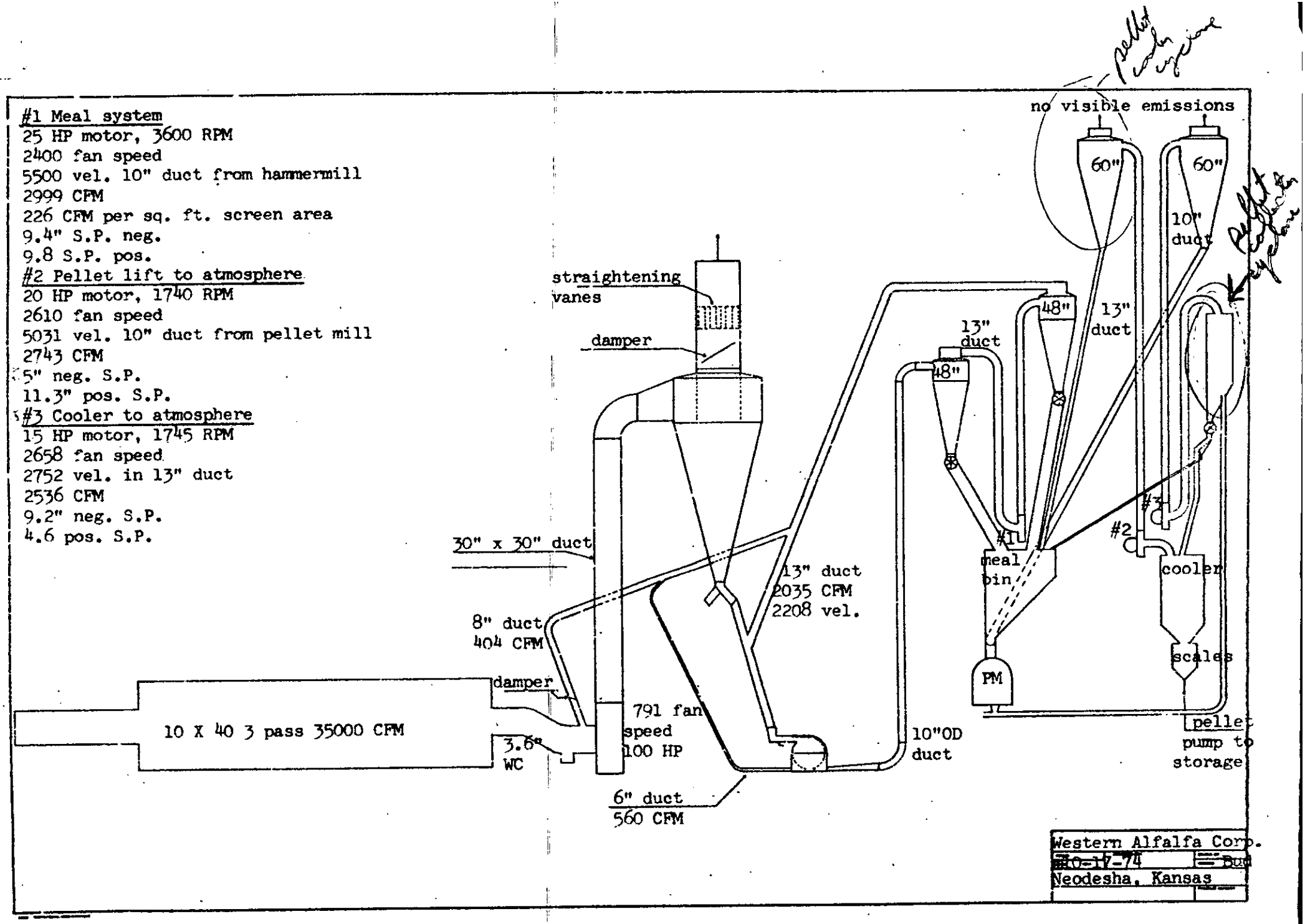
Test No.	Date 1974	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Chops Moist. Dry	Back End Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	Partic. Rate (lb/hr) Filter	($E=P^{.67}$ X 4.1) Allowable Rate lbs/hr
251	8/27	1.9	20.3	75.5	13.2	280	D+HM	14,400	493	10,300	40,204	26.6	14	15.39 + 6.3 = 21.69
252	8/27	2.1	19.1	73.9	8.7	300	D+HM	15,000	493	10,700	41,001	25.2	12	15.82 + 6.74 = 22.56
253	9/6	2.8	20.1	75.5	9.8	285	D+HM	21,500	242	15,600	40,013	37.7	13.5	20.13 + 8.17 = 28.30
254	9/6	2.6	19.5	76.9	10.9	285	D+HM	21,000	242	15,600	40,213	36.0	13.8	19.81 + 7.78 = 27.59
255	9/9	2.9	16.9	77.2	11.9	259	D+HM	23,900	231	17,700	36,006	36.8	12.7	21.61 + 8.37 = 29.98
256	9/9	2.9	17.8	75.2	10.4	252	D+HM	21,700	231	15,700	36,096	32.5	11.2	20.25 + 8.37 = 28.62
265	10/1	2.3	19.5	76.3	10.9	250	D+HM	18,300	493	13,500	36,666	35.8	15.6	18.07 + 7.16 = 25.23
266	10/1	2.5	19.1	75.0	9.1	236	D+HM	18,900	402	13,700	34,945	32.5	13	18.46 + 7.58 = 26.04

AVG = 13.2

#1 Meal system
25 HP motor, 3600 RPM
2400 fan speed
5500 vel. 10" duct from hammermill
2999 CFM
226 CFM per sq. ft. screen area
9.4" S.P. neg.
9.8 S.P. pos.

#2 Pellet lift to atmosphere
20 HP motor, 1740 RPM
2610 fan speed
5031 vel. 10" duct from pellet mill
2743 CFM
5" neg. S.P.
11.3" pos. S.P.

#3 Cooler to atmosphere
15 HP motor, 1745 RPM
2658 fan speed
2752 vel. in 13" duct
2536 CFM
9.2" neg. S.P.
4.6 pos. S.P.



AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

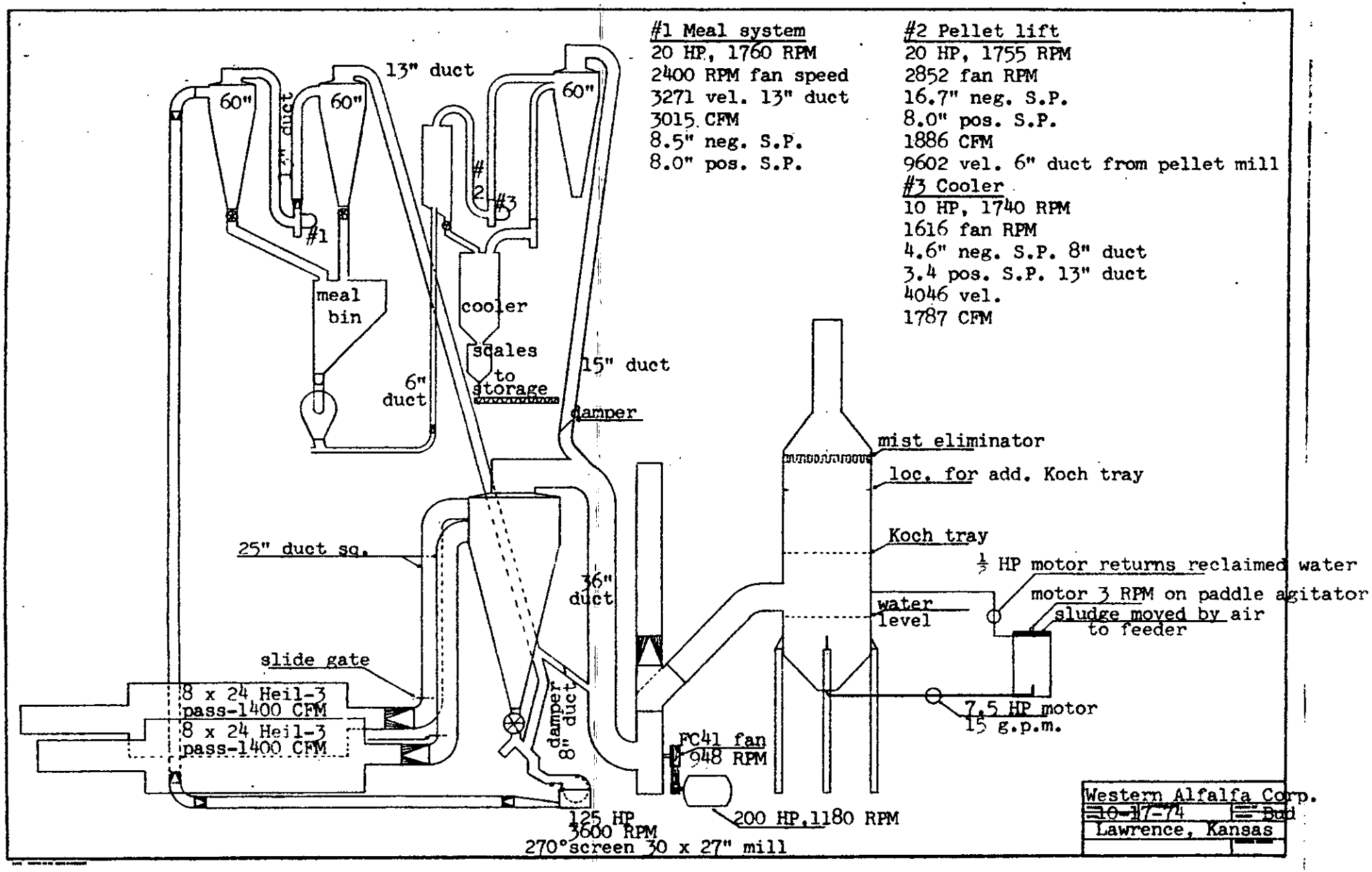
COMPANY WESTERN ALFALFA CORP. PLANT LAWRENCE, KANSAS

Test No.	Date 1973	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Moist. Dry	Back End Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	($E=P^{.67}$ X 4.1) Allowable Rate lbs/hr	Footer lb/ton
109	7/5	2.75[E]	17.0	78.6	14.6	238*	D+HM	23,400	447	17,500	38,969	22.	21.3 + 8.1 = 29.4	8
110	7/6	2.50[E]	17.0	80.1	17.4	238*	D+HM	23,400	447	17,800	39,972	21.66	21.3 + 7.6 = 28.9	8.7
111	7/6	2.50[E]	17.0	77.5	16.7	248*	D+HM	21,100	447	15,400	39,834	18.85	19.9 + 7.6 = 27.5	7.5

AVG = 8

* Stack Gas Temperature

[E] Estimated


#1 Meal system
20 HP, 1760 RPM
2400 RPM fan speed
3271 vel. 13" duct
3015 CFM
8.5" neg. S.P.
8.0" pos. S.P.
#2 Pellet lift
20 HP, 1755 RPM
2852 fan RPM
16.7" neg. S.P.
8.0" pos. S.P.
1886 CFM
9602 vel. 6" duct from pellet mill
#3 Cooler
10 HP, 1740 RPM
1616 fan RPM
4.6" neg. S.P. 8" duct
3.4 pos. S.P. 13" duct
4046 vel.
1787 CFM
13" duct
60"
60"
60"
13" duct
#1
#2
#3
meal bin
cooler
scales to storage
6" duct
15" duct
damper
mist eliminator
loc. for add. Koch tray
Koch tray
25" duct sq.
36" duct
½ HP motor returns reclaimed water
motor 3 RPM on paddle agitator
water level
sludge moved by air to feeder
slide gate
8 x 24 Heil-3 pass-1400 CFM
8 x 24 Heil-3 pass-1400 CFM
damper 8" duct
7.5 HP motor 15 g.p.m.
FC41 fan 948 RPM
125 HP 3600 RPM
270° screen 30 x 27" mill
200 HP, 1180 RPM
Western Alfalfa Corp.
10-17-74
Bud
Lawrence, Kansas

AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

COMPANY C-K PROCESSING **PLANT** MANHATTAN, KANSAS

Test No.	Date 1974	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Moist. Dry	Back End Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	($E=P^{.67}$ X 4.1) Allowable Rate lbs/hr
												Factor lb/ton	
238	8/6	1.45	19.15	83.0	16.2	350	D+HM	15,500	175	12,300	23,426	53.8 37	16.2 + 5.3 = 21.5
239	8/6	1.67	19.55	81.6	17.3	335	D+HM	16,200	182	12,600	23,540	47.5 28	16.7 + 5.8 = 22.5
240	8/7	1.52	19.38	83.2	18.6	335	D+HM	16,100	141	12,700	23,595	50.8 33	16.6 + 5.4 = 22.0

AVG = 33

AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

COMPANY GOTHENBURG FEED PRODUCTS **PLANT** GOTHENBURG, NEBRASKA

Test No.	Date 1974	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Moist. Green	% Chops Moist. Dry	Back End Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	Footer lb/ton	($E=P^{.67}$ X 4.1) Allowable Rate lbs/hr
241	8/13	4.60	19.1	79.0	6.9	309	D+HM	40,300	192	31,200	59,222	87.0	18.9	30.7 + 11.4 = 42.1
242	8/14	3.75	19.1	81.9	5.9	292	D+HM	38,300	138	30,900	53,466	92.9	24.8	29.6 + 9.9 = 39.5
243	8/14	4.70	19.1	80.5	7.7	280	D+HM	44,100	177	34,800	50,715	62.5	13.3	32.6 + 11.6 = 44.2
												AVG =	19	

BRADY PLANT

244	8/15	2.68	19.1	79.1	12.9	1/	D+HM	23,600	231	17,900	37,583	73.0	27.2	21.4 + 7.9 = 29.3
245	8/16	2.30	19.1	80.2	15.5	2/	D	21,000	329	16,100	37,301	40.0	17.4	19.8 + 7.2 = 27.0
												AVG =	22.3	

1/ Drum 1 - 317
Drum 2 - 326

2/ Drum 1 - 318
Drum 2 - 330

AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

COMPANY NATIONAL ALFALFA DEHYDRATING & MILLING CO. **PLANT** GRANTVILLE, KANSAS

Test No.	Date 1974	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Moist. Dry	Back End Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	Factor pellets	(E=P$^{.67}$ X 4.1) Allowable Rate lbs/hr
246	8/19	1.1	18.0	76.7	8.8	252	D	8,930	169	6,650	12,127	5.43	4.9	11.2
247	8/20	1.0	18.8	79.4	7.1	268	D	9,210	79	7,170	11,598	5.11	5.1	11.4
248	8/20	1.0	19.3	76.4	8.7	317	D	7,960	108	5,900	11,551	3.72	3.7	10.3
249	8/21	2.15	20.3	76.6	8.6	311	D+HM+PM	8,580	754	6,380	25,655	16.8	7.8	10.9 + 6.8 + 6.8 = 24.5
250	8/22	1.65	19.8	82.6	8.9	325	D+HM+PM	10,350	677	8,380	25,878	15.4	9.3	12.3 + 5.7 + 5.7 = 23.7

AVG = 6.2

Factor avg = 4.6

AVG = 8.5

Drawing returned to me by pneumatically

RONNING ENGINEERING
OVERLAND PARK, KANSAS

DWN BY	DATE	SCALE	APPROVED BY
JCR	10-25-74	—	

NATIONAL ALFALFA CO
GRANTVILLE, KANSAS

REVISED

DWG NO. A-1028

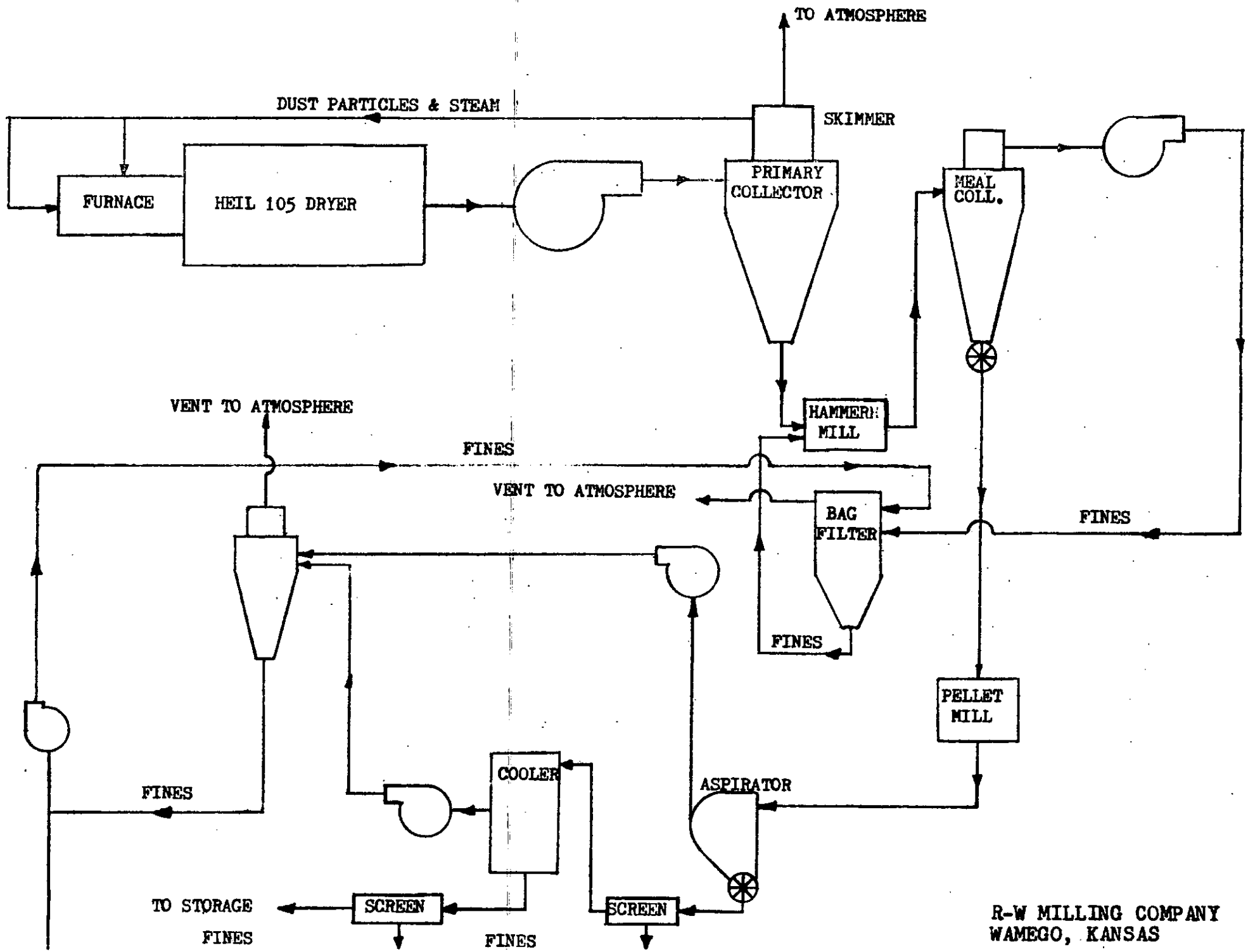
AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

COMPANY R-W MILLING COMPANY

PLANT WAMEGO, KANSAS

Test No.	Date 1974	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Moist. Dry	Back End Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	Partic. Rate (lb/hr) Factor Ulfelder	($E=P^{.67}$ X 4.1) Allowable Rate lbs/hr
257	9/16	2.70	16.2	77.3	11.6	288	D	21,700	89	16,100	22,065	7.08	2.6	20.25
258	9/17	2.17	15.5	81.6	11.9	298	D	21,300	79	16,900	21,836	7.40	3.4	20.00
259	9/17	2.77	18.4	77.1	9.1	283	D	22,600	63	16,900	21,233	7.86	2.8	20.81
260	9/18	1.10	18.1	77.8	17.3	250	D	9,140	154	6,690	9,914	4.06	3.7	11.35
261	9/19	0.93	19.2	82.0	16.2	266	D	9,440	104	7,400	9,947	3.52	3.8	11.60
262	9/19	1.0	20.6	77.5	16.9	-	D	7,930	82	5,780	9,986	3.34	3.3	10.32

AVG = 3.3



R-W MILLING COMPANY
WAMEGO, KANSAS

AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

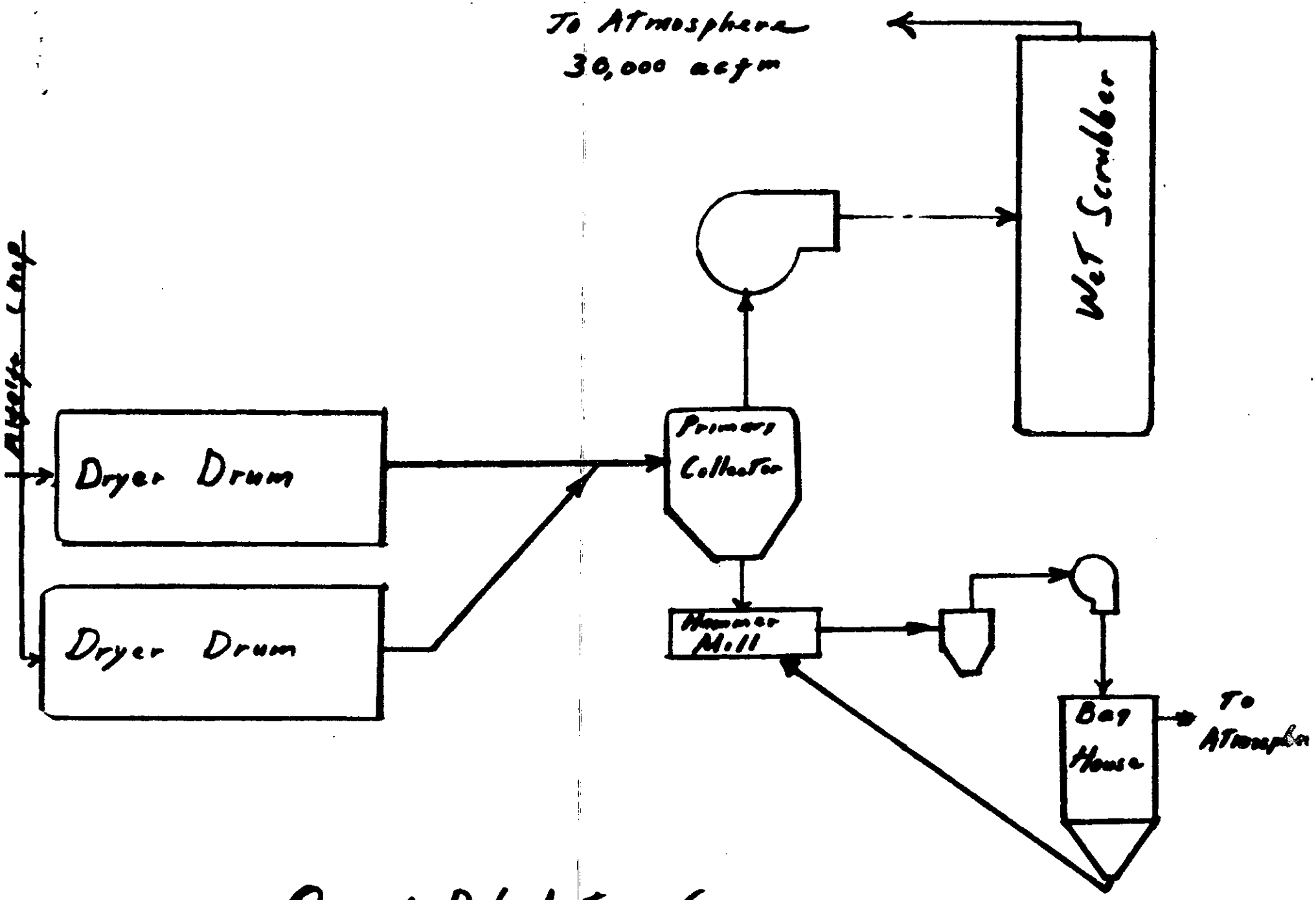
COMPANY OXFORD DEHY COMPANY

PLANT OXFORD, KANSAS

Test No.	Date 1974	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Moist. Dry	Back End Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	Factor lb/ton	$(E=P^{.67} \times 4.1)$ Allowable Rate lbs/hr
263	9/26	2.65	20.3	76.4	13.0	1/	D	20,300	433	14,800	48,760	14.9	5.6	19.37
264	9/27	3.60	19.3	78.8	10.6	2/	D	30,900	433	23,600	47,990	19.6	5.4	25.67

1/ Drum 1-203
Drum 2-242

2/ Drum 1-205
Drum 2-243



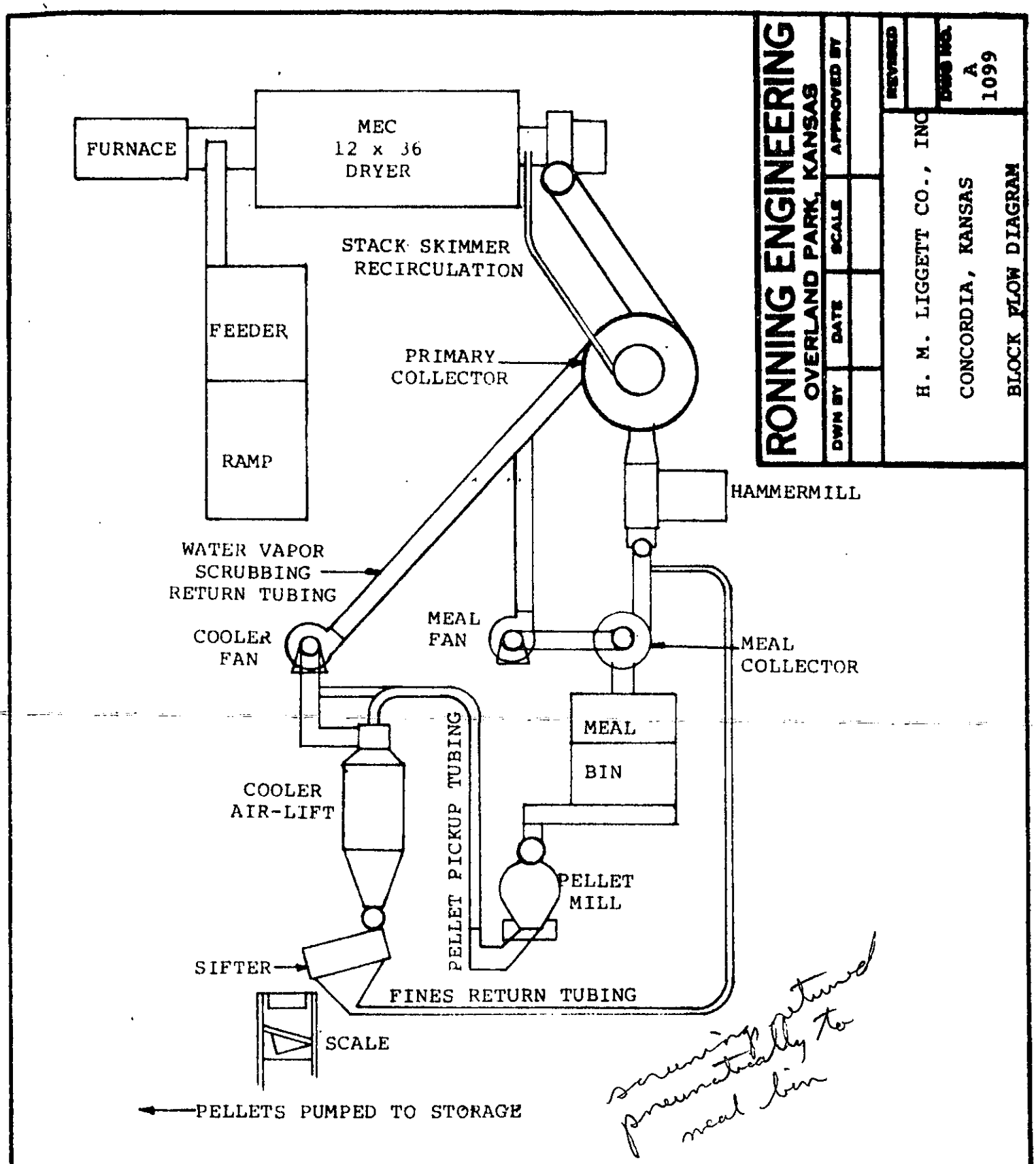
Oxford Dehydrating Co.

AMERICAN DEHYDRATORS ASSOCIATION
SOURCE TEST REPORT

COMPANY HARRY M. LIGGETT COMPANY **PLANT** CONCORDIA, KANSAS

Test No.	Date 1974	Pellets Prod. Rate (tons/hr)	Pellets Protein (%)	% Chops Green	% Moist. Dry	Back End Temp.	Source Operation	Dryer PWR lbs/hr	Excess Air %	Evap. Rate lbs/hr	Stack Flowrate ACFM	Partic. Rate (lb/hr)	($E=P^{.67} \times 4.1$) Allowable Rate lbs/hr
267	10/3	4.2	18.13	67.2	15.5	-	D+HM+PM	22,800	1240	14,000	40,166	37.3 8.9	20.94 + 10.72 + 10.72=42.38
268	10/4	2.6	18.13	73.5	12.5	245	D+HM+PM	18,200	676	12,700	40,104	40.6 15.6	18.0 + 7.78 + 7.78=33.56

AVG = 12.3


RONNING ENGINEERING
OVERLAND PARK, KANSAS
DWN BY
DATE
SCALE
APPROVED BY
REVISED
DWG NO.
A
1099
H. M. LIGGETT CO., INC
CONCORDIA, KANSAS
BLOCK FLOW DIAGRAM
FURNACE
MEC
12 x 36
DRYER
STACK SKIMMER
RECIRCULATION
FEEDER
RAMP
PRIMARY
COLLECTOR
HAMMERMILL
WATER VAPOR
SCRUBBING
RETURN TUBING
COOLER
FAN
MEAL
FAN
MEAL
COLLECTOR
MEAL
BIN
COOLER
AIR-LIFT
PELLET PICKUP TUBING
PELLET
MILL
SIFTER
FINES RETURN TUBING
SCALE
PELLETS PUMPED TO STORAGE
screening returned
pneumatically to
meal bin