AP42 Section:	9.10.1.2
Background Chapter	4
Reference:	14
Title:	Emission Performance Testing of Four Boilers, Three Dryers, and One Cooler--Holly Sugar Corporation, Santa Maria, California, Western Environmental Services, Redondo Beach, CA, June 1991.

APPENDIX N

REPORT EXCERPTS FROM REFERENCE 14

(Holly Sugar Corporation, June 1991)

EMISSION PERFORMANCE TESTING OF FOUR BOILERS, THREE DRYRERS AND ONE COOLER

Book 1 of 2

SITE: HOLLY SUGAR CORPORATION
Santa Maria, California

DATE: JUNE 1991

Prepared For:

HOLLY SUGAR CORPORATION
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WESTERN ENVIRONMENTAL SERVICES
1010 South Pacific Coast Highway
Redondo Beach, California 90277

TABLE 2.14 CONTINUOUS MONITORING DATA

SITE: HOLLY SUGAR
UNIT: DRYER #1
DATE: JUNE 13, 1991

TIME	FUNCTION	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm	NOx (1) ppm	CO (1) ppm
825	System Check	Vacuum Check						
828	Zero	0	0.04	1	0.36	0		
	Mid	94.7	5.20	233	4.36	19		
	High	222	15	495	10	51.1		
1021	Test #1							
1119	Average 58 min	88	14.00	360	4.90	0	227.36	930
1124	Zero	1	0.03	1	0.39	0.6		
	Mid	93.4	5.21	226.8	4.59	19.3		
	High	220	14.62	496	10.32	50.9		
1348	Test #2							
1428	Average 40 min	70	15.77	126	4.50	0	241.66	436
1433	Zero	-1	0.06	-1	0.41	0.5		
	Mid	93	5.12	228	4.66	20.1		
	High	219.2	14	496.3	10	51.2		
1521	Test #3							
1627	Average 66 min	75	15.30	160	4.80	0	238.07	509
1642	Zero	-2	0.04	-2	0.40	0.1		
	Mid	93.6	5.09	231.4	5.14	18.9		
	High	219	14.32	501	10.10	50.2		
1718	System	Vacuum Check						

Span Gases	
NOx, ppm	220.7,94.3
CO, ppm	230.7,500
O(2), %	14.51,5.11
CO(2), %	10.34,4.40
SO(2), ppm	19.54,51.7

* NOx (1) and CO (1) – values corrected to 3% oxygen.

TABLE 2.14a HYDROCARBON TEST DATA

DRYER #1
June 13, 1991 ?

SITE: Dryer #3
DATE: June 11, 1991

DATE ANALYZED: June 13, 1991

Standards	RT	Area	ppm
C1	0.8	31963	21.5
C2	1.277	51659	21.4
C3	2.32	79668	21.4
C4	5.08	106031	21.6
C5	11.93	122802	20.9
C6	15.8	6789	21.0

Test #1	Area	Concentration	Test #2	Area	Concentration
C1	26978	18.15	C1	11877	7.99
C2	28395	11.76	C2	29504	12.22
C3	9399	2.52	C3	3613	0.97
C4	0	0.00	C4	0	0.00
C5	0	0.00	C5	0	0.00
C6	0	0.00	C6	0	0.00

Test #3	Area	Concentration	Average	Concentration
C1	7949	5.35	C1	10.49
C2	25294	10.48	C2	11.49
C3	12838	3.45	C3	2.31
C4	0	0.00	C4	0.00
C5	0	0.00	C5	0.00
C6	0	0.00	C6	0.00

TABLE 2.15 PARTICULATE SAMPLING

SITE: Holly Sugar Dryer #1
DATE: June 13, 1991

STACK PARAMETERS	TEST 1	TEST 2	TEST 3	AVERAGE
Barometric Pressure "Hg	29.95	29.95	29.95	29.95
Static Pressure "H20	-0.70	-0.70	-0.70	-0.70
CO2 %	4.90	4.50	4.80	4.73
O2 %	14.00	15.77	15.30	15.02
N2 %	81.1	79.73	79.9	80.24
CO ppm	360	126	160	215.33
Stack Diameter "	39.5	39.5	39.5	39.50
Stack Temperature F	242	219	218	226.33
Stack Pressure "Hg	29.90	29.90	29.90	29.90
TEST CONDITIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Sample Volume Ft3	40.899	40.595	38.904	40.13
Meter F	72	81	74	75.67
Nozzle Dia "	0.245	0.245	0.245	0.25
Time Min	60	60	60	60.00
Points	24	24	24	24.00
Pitot Tube Factor cp	0.84	0.84	0.84	0.84
Orfice Press "H2O	1.74	1.69	1.57	1.67
Condensate mls	483	388	368	413.00
Velocity Pressure "H2O	1.015	0.938	0.88	0.94
Meter Calibration	1.02	1.02	1.02	1.02
TEST CALCULATIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Water Vapor SDCF	22.411	18.003	17.075	19.16
Gas Sampled SDCF	40.992	40.006	38.830	39.94
Moisture %	35.35	31.04	30.54	32.31
Molecular Weight Dry	29.34	29.35	29.38	29.36
Molecular Weight Wet	25.33	25.83	25.90	25.69
Gas Velocity Ft/Sec	69.65	65.22	63.03	65.97
Flow Rate ACFM	35562	33299	32182	33681
Flow Rate DSCFM	17019	17574	17131	17242
Isokinetics %	102.8	97.2	96.8	98.92

TABLE 2.15a PARTICULATE ANALYSIS

SITE: Holly Sugar Dryer #1
DATE: June 13, 1991

ANALYTICAL DATA	TEST 1	TEST 2	TEST 3	AVERAGE
FRONT HALF				
Probe mg	343.3	541.8	258.0	381.03
Filter mg	72.4	47.2	54.7	58.10
Blanks mg	0.5	0.5	0.5	0.50
Subtotal mg	415.2	588.5	312.2	438.63
BACK HALF				
Impingers Inorg mg	137.9	56.8	32.1	75.60
Impingers Org mg	94.1	1.3	0.0	31.80
Blank mg	0.5	0.5	0.5	0.50
Subtotal mg	231.5	57.6	31.6	106.90
Total Weight Gain mg	646.7	646.1	343.8	545.53

EMISSION DATA	TEST 1	TEST 2	TEST 3	AVERAGE
FRONT HALF				
Grs/SDCF	0.1563	0.2270	0.1241	0.1691
Lbs/Hr	22.782	34.167	18.203	25.051
BACK HALF				
Grs/SDCF	0.0871	0.0222	0.0126	0.0406
Lbs/Hr	12.702	3.344	1.842	5.963

TOTAL EMISSIONS	TEST 1	TEST 2	TEST 3	AVERAGE
Grs/SDCF	0.2434	0.2492	0.1366	0.2097
Lbs/Hrs	35.484	37.511	20.046	31.014

TABLE 2.16 O2 TRAVERSE

SITE: Holly Sugar
UNIT: Dryer #1
DATE: June 13, 1991

LOCATION POINT	TIME	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm
SE PORT						
1	1522	70.0	15.25	160	4.50	0
2	1527	70.0	15.00	180	5.10	0
3	1532	70.0	15.75	150	4.65	0
4	1538	72.5	15.25	150	4.80	0
5	1545	73.0	15.75	120	4.50	0
6	1553	72.5	15.50	140	4.70	0
SW PORT						
1	1556	72.5	14.75	150	5.30	0
2	1601	75.0	15.25	150	4.50	0
3	1606	70.0	14.80	200	5.10	0
4	1611	72.5	15.00	180	5.00	0
5	1617	71.0	15.25	160	4.95	0
6	1625	69.5	15.50	150	4.65	0
AVERAGE		71.5	15.3	157.5	4.8	0.0

Span Gases	
NOx, ppm	197.6,896
CO, ppm	230.7,946
O(2), %	14.51,7.44
CO(2), %	10.34,8.40
SO(2), ppm	51.7,99

TABLE 2.17 CONTINUOUS MONITORING DATA

SITE: HOLLY SUGAR
UNIT: DRYER #2
DATE: JUNE 12, 1991

TIME	FUNCTION	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm	NOx (1) ppm	CO (1) ppm
820	System Check	Vacuum Check						
825	Zero	0	0.06	1	0.40	-0.1		
	Mid	94.4	5.14	229	5.21	19.2		
	High	198	14	948	10	50.9		
1019	Test #1							
1120	Average 61 min	50	16.03	200	4.20	0	182.53	730
1122	Zero	1	0.05	-1	0.38	0.1		
	Mid	93.8	5.06	223.7	4.68	20.3		
	High	194	14.16	947	10.32	51.4		
1214	Test #2							
1312	Average 58 min	46	16.81	205	2.31	0	197.42	889
1315	Zero	1	0.06	-2	0.39	0.1		
	Mid	96	5.07	225	4.54	19.5		
	High	219.9	14	510.3	11	52.7		
1604	Test #3							
1650	Average 46 min	51	15.79	200	4.63	0	175.77	696
1655	Zero	2	0.06	-1	0.40	0.1		
	Mid	94.4	5.14	223.7	4.41	19.2		
	High	219	14.36	500	9.65	51.2		
1716	System	Vacuum Check						

Span Gases	
NOx, ppm	220.7,94.3,197.6
CO, ppm	230.7,500,946
O(2), %	14.51,5.11
CO(2), %	10.34,4.40
SO(2), ppm	51.7,19.54

* NOx (1) and CO (1) – values corrected to 3% oxygen.

TABLE 2.17a HYDROCARBON TEST DATA

SITE: Dryer #2
DATE: June 12, 1991 DATE ANALYZED: June 13, 1991

Standards	RT	Area	ppm
C1	0.695	8573	21.5
C2	1.11	33018	21.4
C3	2.04	57788	21.4
C4	4.45	68045	21.6
C5	10.47	80451	20.9
C6	14.97	6578	21.0

Test #1	Area	Concentration	Test #2	Area	Concentration
C1	12107	30.36	C1	3878	9.73
C2	6096	3.95	C2	12913	8.37
C3	16566	6.13	C3	21096	7.81
C4	8802	2.79	C4	15591	4.95
C5	0	0.00	C5	0	0.00
C6	0	0.00	C6	0	0.00

Test #3	Area	Concentration	Average	Concentration
C1	2581	6.47	C1	15.52
C2	9476	6.14	C2	6.15
C3	27316	10.12	C3	8.02
C4	14288	4.54	C4	4.09
C5	0	0.00	C5	0.00
C6	0	0.00	C6	0.00

TABLE 2.18 PARTICULATE SAMPLING

SITE: Holly Sugar Dryer #2
DATE: June 12, 1991

STACK PARAMETERS	TEST 1	TEST 2	TEST 3	AVERAGE
Barometric Pressure "Hg	29.95	29.95	29.95	29.95
Static Pressure "H20	-0.65	-0.65	-0.65	-0.65
CO2 %	4.20	2.31	4.63	3.71
O2 %	16.03	16.81	15.79	16.21
N2 %	79.77	80.88	79.58	80.08
CO ppm	200	205	200	201.67
Stack Diameter "	39.5	39.5	39.5	39.50
Stack Temperature F	245	246	245	245.33
Stack Pressure "Hg	29.90	29.90	29.90	29.90
TEST CONDITIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Sample Volume Ft3	36.765	36.051	36.476	36.43
Meter F	71	73	74	72.67
Nozzle Dia "	0.245	0.245	0.245	0.25
Time Min	60	60	60	60.00
Points	24	24	24	24.00
Pitot Tube Factor cp	0.84	0.84	0.84	0.84
Orfice Press "H2O	1.42	1.36	1.44	1.41
Condensate mls	312	288	289	296.33
Velocity Pressure "H2O	0.773	0.806	0.825	0.80
Meter Calibration	1.02	1.02	1.02	1.02
TEST CALCULATIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Water Vapor SDCF	14.864	13.720	13.768	14.12
Gas Sampled SDCF	36.889	36.032	36.395	36.44
Moisture %	28.72	27.58	27.45	27.91
Molecular Weight Dry	29.31	29.04	29.37	29.24
Molecular Weight Wet	26.06	26.00	26.25	26.10
Gas Velocity Ft/Sec	60.05	61.44	61.81	61.10
Flow Rate ACFM	30661	31371	31562	31198
Flow Rate DSCFM	16110	16724	16880	16571
Isokinetics %	97.8	92.0	92.0	93.93

TABLE 2.18a PARTICULATE ANALYSIS

SITE: Holly Sugar Dryer #2
DATE: June 12, 1991

ANALYTICAL DATA	TEST 1	TEST 2	TEST 3	AVERAGE
FRONT HALF				
Probe mg	162.6	193.1	153.8	169.83
Filter mg	55.3	43.4	9.9	36.20
Blanks mg	0.5	0.5	0.5	0.50
Subtotal mg	217.4	236.0	163.2	205.53
BACK HALF				
Impingers Inorg mg	91.2	65.1	27.4	61.23
Impingers Org mg	2.0	1.0	1.6	1.53
Blank mg	0.5	0.5	0.5	0.50
Subtotal mg	92.7	65.6	28.5	62.27
Total Weight Gain mg	310.1	301.6	191.7	267.80
EMISSION DATA	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
FRONT HALF				
Grs/SDCF	0.0909	0.1011	0.0692	0.0871
Lbs/Hr	12.548	14.476	10.003	12.342
BACK HALF				
Grs/SDCF	0.0388	0.0281	0.0121	0.0263
Lbs/Hr	5.350	4.024	1.747	3.707
TOTAL EMISSIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Grs/SDCF	0.1297	0.1292	0.0813	0.1134
Lbs/Hrs	17.898	18.500	11.750	16.050

TABLE 2.19 O2 TRAVERSE

SITE: Holly Sugar
UNIT: Dryer #2
DATE: June 12, 1991

LOCATION POINT	TIME	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm
SW PORT						
1	1020	60.0	15.00	190	4.35	0
2	1023	50.5	14.00	290	4.50	0
3	1025	50.7	14.20	270	4.80	0
4	1027	50.7	14.20	270	4.65	0
5	1030	60.0	14.10	280	4.95	0
6	1033	50.5	14.50	260	4.80	0
SE PORT						
1	1036	45.0	15.00	250	4.00	0
2	1045	50.0	15.00	140	4.00	0
3	1054	34.0	15.25	200	3.80	0
4	1103	50.0	15.10	120	3.80	0
5	1110	47.0	15.50	200	3.00	0
6	1119	35.0	15.75	250	3.20	0
AVERAGE		48.6	14.8	226.7	4.2	0.0

Span Gases	
NOx, ppm	197.6,896
CO, ppm	230.7,946
O(2), %	14.51,7.44
CO(2), %	10.34,8.40
SO(2), ppm	51.7,99

TABLE 2.20 CONTINUOUS MONITORING DATA

SITE: HOLLY SUGAR
UNIT: DRYER #3
DATE: JUNE 11, 1991

TIME	FUNCTION	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm	NOx (1) ppm	CO (1) ppm
750	System Check	Vacuum Check						
755	Zero	0.00	0.06	0	0.52	0.4		
	Mid	96.20	5.11	227	4.68	20.6		
	High	197	14.37	940	11	51.4		
1052	Test #1							
1158	Average 66 min	61	13.90	230	4.10	0	155.62	586
1202	Zero	-3	0.09	-2	0.42	0		
	Mid	95.8	5.07	224.6	4.88	52.4		
	High	197	14.21	947	10.80	98.5		
1308	Test #2							
1404	Average 56 min	61	13.90	230	4.10	0	155.62	586
1406	Zero	-3	0.04	0	0.42	-0.4		
	Mid	96	5.11	229	4.92	51.2		
	High	199.9	14	947.1	11	93.7		
1544	Test #3							
1655	Average 71 min	69	13.97	250	6.10	0	177.50	643
1657	Zero	-2	0.09	-1	0.45	-0.2		
	Mid	92.3	5.05	227.6	5.5	51.4		
	High	197	14.17	947	10.15	96		
1725	System	Vacuum Check						

Span Gases	
NOx, ppm	94.3,197.6
CO, ppm	230.7,946
O(2), %	14.51,5.11
CO(2), %	10.34,4.40
SO(2), ppm	51.7,99

* NOx (1) and CO (1) – values corrected to 3% oxygen.

TABLE 2.20a HYDROCARBON TEST DATA

SITE: Dryer #3
DATE: June 11, 1991 DATE ANALYZED: June 13, 1991

Standards	RT	Area	ppm
C1	0.695	8573	21.5
C2	1.11	33018	21.4
C3	2.04	57788	21.4
C4	4.45	68045	21.6
C5	10.47	80451	20.9
C6	14.97	6578	21.0

Test #1	Area	Concentration	Test #2	Area	Concentration
C1	4618	11.58	C1	7599	19.06
C2	21866	14.17	C2	22772	14.76
C3	13135	4.86	C3	11236	4.16
C4	28332	8.99	C4	13400	4.25
C5	0	0.00	C5	0	0.00
C6	0	0.00	C6	0	0.00

Test #3	Area	Concentration	Average	Concentration
C1	6474	16.24	C1	15.62
C2	22739	14.74	C2	14.56
C3	16886	6.25	C3	5.09
C4	15257	4.84	C4	6.03
C5	0	0.00	C5	0.00
C6	0	0.00	C6	0.00

TABLE 2.21 PARTICULATE SAMPLING

SITE: Holly Sugar Dryer #3
DATE: June 11, 1991

STACK PARAMETERS	TEST 1	TEST 2	TEST 3	AVERAGE
Barometric Pressure "Hg	28.90	28.90	28.90	28.90
Static Pressure "H20	-0.07	-0.07	-0.07	-0.07
CO2 %	4.10	4.10	6.10	4.77
O2 %	13.90	13.90	13.97	13.92
N2 %	82	82	79.93	81.31
CO ppm	230	230	250	236.67
Stack Diameter "	39.5	39.5	39.5	39.50
Stack Temperature F	225	216	212	217.67
Stack Pressure "Hg	28.89	28.89	28.89	28.89
TEST CONDITIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Sample Volume Ft3	26.700	32.951	33.485	31.05
Meter F	85	91	83	86.33
Nozzle Dia "	0.2	0.245	0.245	0.23
Time Min	60	60	60	60.00
Points	24	24	24	24.00
Pitot Tube Factor cp	0.84	0.84	0.84	0.84
Orfice Press "H2O	0.66	1.08	1.17	0.97
Condensate mls	193	223	316	244.00
Velocity Pressure "H2O	0.595	0.507	0.544	0.55
Meter Calibration	1.02	1.02	1.02	1.02
TEST CALCULATIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Water Vapor SDCF	8.955	10.347	14.662	11.32
Gas Sampled SDCF	25.142	30.722	31.688	29.18
Moisture %	26.26	25.19	31.63	27.70
Molecular Weight Dry	29.21	29.21	29.53	29.32
Molecular Weight Wet	26.27	26.39	25.89	26.18
Gas Velocity Ft/Sec	52.62	48.15	50.20	50.32
Flow Rate ACFM	26869	24583	25634	25695
Flow Rate DSCFM	14525	13661	13096	13761
Isokinetics %	110.9	96.0	103.3	103.40

TABLE 2.21a PARTICULATE ANALYSIS

SITE: Holly Sugar Dryer #3
DATE: June 11, 1991

ANALYTICAL DATA	TEST 1	TEST 2	TEST 3	AVERAGE
FRONT HALF				
Probe mg	292.9	286.0	258.9	279.27
Filter mg	22.5	41.4	68.0	43.97
Blanks mg	0.5	0.5	0.5	0.50
Subtotal mg	314.9	326.9	326.4	322.73
BACK HALF				
Impingers Inorg mg	12.0	11.8	17.7	13.83
Impingers Org mg	2.0	1.9	1.3	1.73
Blank mg	0.5	0.5	0.5	0.50
Subtotal mg	13.5	13.2	18.5	15.07
Total Weight Gain mg	328.4	340.1	344.9	337.80
EMISSION DATA	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
FRONT HALF				
Grs/SDCF	0.1933	0.1642	0.1589	0.1721
Lbs/Hr	24.043	19.211	17.828	20.360
BACK HALF				
Grs/SDCF	0.0083	0.0066	0.0090	0.0080
Lbs/Hr	1.031	0.776	1.010	0.939
TOTAL EMISSIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Grs/SDCF	0.2015	0.1708	0.1679	0.1801
Lbs/Hrs	25.073	19.986	18.838	21.299

TABLE 2.22 O2 TRAVERSE

SITE: Holly Sugar
UNIT: Dryer #3
DATE: June 11, 1991

LOCATION POINT	TIME	NOx ppm	O(2) %	CO ppm	CO(2) %	SO(2) ppm
SW PORT						
1	1053	94.0	14.30	190	4.65	0
2	1059	89.0	14.30	180	4.45	0
3	1105	84.0	14.30	185	4.35	0
4	1111	70.0	14.30	170	3.70	0
5	1117	64.0	14.90	120	3.30	0
6	1123	64.0	14.95	120	3.20	0
NE PORT						
1	1127	62.5	15.20	120	3.00	0
2	1132	62.5	15.25	98	3.00	0
3	1137	62.5	15.50	95	2.90	0
4	1142	63.0	15.75	90	2.80	0
5	1149	63.0	15.90	70	2.80	0
6	1157	63.0	16.00	60	2.70	0
AVERAGE		70.1	15.1	124.8	3.4	0.0

Span Gases	
NOx, ppm	197.6,896
CO, ppm	230.7,946
O(2), %	14.51 7.44
CO(2), %	10.34,8.40
SO(2), ppm	51.7,99

TABLE 2.23 PARTICULATE SAMPLING

SITE: Holly Suger Cooler Stack
DATE: June 10, 1991

STACK PARAMETERS	TEST 1	TEST 2	TEST 3	AVERAGE
Barometric Pressure "Hg	29.80	29.80	29.80	29.80
Static Pressure "H20	-0.50	-0.50	-0.50	-0.50
CO2 %	0.00	0.00	0.00	0.00
O2 %	20.90	20.90	20.90	20.90
N2 %	79.1	79.1	79.1	79.10
CO ppm	0	0	0	0.00
Stack Diameter "	61.5	61.5	61.5	61.50
Stack Temperature F	70	70	70	70.00
Stack Pressure "Hg	29.76	29.76	29.76	29.76
TEST CONDITIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Sample Volume Ft3	36.88	35.279	35.149	35.77
Meter F	78	81	74	77.67
Nozzle Dia "	0.5	0.5	0.5	0.50
Time Min	60	60	60	60.00
Points	24	24	24	24.00
Pitot Tube Factor cp	0.84	0.84	0.84	0.84
Orfice Press "H2O	1.34	1.21	1.22	1.26
Condensate mls	20	19	18	19.00
Velocity Pressure "H2O	0.533	0.478	0.49	0.50
Meter Calibration	1.02	1.02	1.02	1.02
TEST CALCULATIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Water Vapor SDCF	0.928	0.882	0.835	0.88
Gas Sampled SDCF	36.313	34.533	34.857	35.23
Moisture %	2.49	2.49	2.34	2.44
Molecular Weight Dry	28.84	28.84	28.84	28.84
Molecular Weight Wet	28.57	28.57	28.58	28.57
Gas Velocity Ft/Sec	41.39	39.20	39.68	40.09
Flow Rate ACFM	51234	48519	49110	49621
Flow Rate DSCFM	48758	46175	46809	47248
Isokinetics %	18.5	18.6	18.5	18.53

TABLE 2.23a PARTICULATE ANALYSIS

SITE: Holly Suger Cooler Stack
DATE: June 10, 1991

ANALYTICAL DATA	TEST 1	TEST 2	TEST 3	AVERAGE
FRONT HALF				
Probe mg	261.3	72.6	65.9	133.27
Filter mg	3.1	8.2	7.7	6.33
Blanks mg	0.5	0.5	0.5	0.50
Subtotal mg	263.9	80.3	73.1	139.10
BACK HALF				
Impingers Inorg mg	2.6	1.5	1.2	1.77
Impingers Org mg	0.0	0.0	0.5	0.17
Blank mg	0.5	0.5	0.5	0.50
Subtotal mg	2.1	1.0	1.2	1.43
Total Weight Gain mg	266.0	81.3	74.3	140.53
EMISSION DATA	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
FRONT HALF				
Grs/SDCF	0.1121	0.0359	0.0324	0.0601
Lbs/Hr	46.830	14.190	12.973	24.665
BACK HALF				
Grs/SDCF	0.0009	0.0004	0.0005	0.0006
Lbs/Hr	0.373	0.177	0.213	0.254
TOTAL EMISSIONS	**TEST 1**	**TEST 2**	**TEST 3**	**AVERAGE**
Grs/SDCF	0.1130	0.0363	0.0329	0.0607
Lbs/Hrs	47.203	14.367	13.186	24.919

BETTERAVIA BYPRODUCTS
24 HOUR SHIFT REPORT

DAY #49 - Mon. DATE JUN 10 1991

20.0

	BULK TOTAL	SMALL WHSE	LARGE WHSE	PELLET WHSE	PRESSED PULP DUMPED	BY-PASS DRY SCALE	PRESS WATER OVERFLOW	PULSAIRE
STOP 8 AM	63005070	38528	374209	091122	01095.7	19272.3	00776.0	05121.3
MIDNIGHT	62987415	23625	374109	091122	01095.7	19272.3	00776.0	05113.4
4 PM	62971494	07868	374208	091122	01095.7	19272.4	00776.0	05105.2
8 AM	62958540	04387	374208	091122	01094.8	19271.7	00776.0	05098.0
TOTAL	469.325	TONS PRODUCED						

34141

MOLASSES ON PULP	MOLASSES INVENTORY PLANT TANK READINGS		
141.4985	15 FT 9½ IN	77.0	TONS
082.3405	15 FT 1½ IN	80.0	TONS
031.3917	15 FT 2 IN	80.0	TONS
979.7599	13 FT 2 IN	69.0	TONS
161.7386	TOTAL USED		

465.3 + 4.025

	#1 DRIER	#2 DRIER	#3 DRIER
STOP 8 AM	185699.8	162609.5	078966.7
MIDNIGHT	185630.2	162609.5	078903.0
4 PM	185560.8	162609.6	078849.4
8AM	185522.9	162555.6	078827.7

NATURAL GAS METERS	
LARGE	SMALL
093953	898570
093953	898567
093953	898565
093953	898560

PG&E MAIN	SUGAR PLANT MAIN	SUGAR PLANT WELLS	BLOCK 5	BLOCK 6
1835	8402	3689	1689	0000
1796	8401	3689	1684	0000
1796	8401	3689	1689	0000
1776	8400	3688	1689	0000

MOLASSES INVENTORY STORAGE TANK READINGS		
6 FT ½ IN	385	TONS
6 FT 7 IN	415	TONS
6 FT 7/4 IN	382	TONS
6 FT 6 3/16 IN	411	TONS

OIL TEMPERATURE	148.66°	
PRESSED PULP MOISTURE	75.3375	%
DRY BULK MOISTURE	10.758	%

ALUMINUM SULFATE
@ $0.077/LB 8,812.5 LBS

SALES		
BULK	274.14	TONS
LIME	113.70	TONS

RR CAR OR TRUCK #	TONS
940-13	25.10
920-059	28.51
920-055	28.19

TOTAL USED = 4.5615 TONS		
12-8	3,211	LBS
4-12	3182	LBS
8-4	2730	LBS

TIME	COMMENTS
	7 buckets for daily scales
	950 loader 4.025 TONS
12:10	1 Load of Alumin 2' 4"
1:25	Alum Tank out 7' 7"
3:20A	Chlorine back on Auto

2000

BETTERAVIA BYPRODUCTS
24 HOUR SHIFT REPORT

DAY #51-Wed. DATE: JUN 1 2 1991

	BULK TOTAL	SMALL WHSE	LARGE WHSE	PELLET WHSE	PRESSED PULP DUMPED	BY-PASS DRY SCALE	PRESS WATER OVERFLOW	PULSAIRE
STOP 8 AM	63103188	08220	374231	091122	01095.7	19272.7	00776.0	05167.8
MIDNIGHT	63088020	93433	374212	091122	01095.7	19272.5	00776.0	05160.6
4 PM	63071397	78868	374222	091122	01095.7	19272.5	00776.0	05152.6
8 AM	63054850	75695	374219	091122	01095.7	19272.5	00776.0	05144.8
TOTAL	489.13	TONS PRODUCED						

20.0

4 x 38
+ 5.75

	MOLASSES ON PULP	MOLASSES INVENTORY PLANT TANK READINGS		
	491.8910	14 FT 10 1/4 IN	63.0	TONS
	433.7485	13 FT 1 IN	58.0	TONS
	374.4157	14 FT IN	62.5	TONS
	316.0898	14 FT 11 1/2 IN	65.0	TONS
	175.8012	TOTAL USED		

	#1 DRIER	#2 DRIER	#3 DRIER
STOP 8 AM	186084.0	162729.3	079064.3
MIDNIGHT	186019.1	162729.3	079064.3
4 PM	185954.7	162716.0	079064.3
8AM	185896.2	162664.7	079064.3

NATURAL GAS METERS		PG&E MAIN	SUGAR PLANT MAIN	SUGAR PLANT WELLS	BLOCK 5	BLOCK 6
LARGE	SMALL					
094507	898591	1928	8405	3691	1689	0000
094180	898589	1930	8405	3690	1689	0000
093953	898583	1918	8404	3690	1689	0000
093953	898580	1917	8403	3690	1689	0000

MOLASSES INVENTORY STORAGE TANK READINGS			
5 FT 2 IN	322	TONS	
5 FT 5 3/4 IN	340	TONS	
5 FT 0 IN	310	TONS	
5 FT 2 1/2 IN	325	TONS	

24 HOUR AVERAGES

OIL TEMPERATURE	148.66°	
PRESSED PULP MOISTURE	73.7	%
DRY BULK MOISTURE	10.721	%

ALUMINUM SULFATE
@ $0.077/LB 10,312.5 LBS

BULK	335.16	TONS
LIME	47.30	TONS

MOLASSES SHIPPED

RR CAR OR TRUCK #	TONS
920-058	28.22
920-059	28.16

LIME APPLIED TO PULP

TOTAL USED = 4,747 TONS

12-8	3,230	LBS
4-12	3118	LBS
8-4	3,146	LBS

TIME	COMMENTS
9:30	Chlorine System OFF,
	Need New Parts
9:30	SC162 - System ON
10:10	Increase exchanger 4°
3:15	DECREASED EXCHANGER TO 140°
	MIDNIGHT ON OIL #2 ON GAS
2:35	10 950 buckets thru Tail
	Screw 5.75 TONS

000330

BETTERAVIA BYPRODUCTS
24 HOUR SHIFT REPORT

DAY # 52-THURS. DATE: JUN 13 1991

DAY OPERATOR Robert. SWING OPERATOR Steve GRAVEYARD OPERATOR

	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7
#1 MOISTURE	10.6	10.8	11.0	9.4	9.0	9.2	9.4	9.6	10.4	10.5														
#1 RECYCLE	6	6	6	6	6	6	6	6	6	6	6													
#1 MAIN FAN	4¼	4¼	4¼	4¼	4¼	3¾	3¾	3¾	3¾	4¾	4¾													
#1 TAIL TEMP.	245	246	249	247	229	225	223	225	225	225														
#1 THROAT TEMP.	1243	1276	1232	1236	1090	1018	1039	1044	1092	1023														
#1 SCALE GATE SETTING	26.7	26.7	26.7	26.7	25.3	25.3	25.3	25.0	25.0	25.0	25.2													
#2 MOISTURE	11.8	11.6	11.2	9.6	9.4	9.4	9.6	9.0	10.4	10.2														
#2 RECYCLE	5	5	5	5	5	5	5¼	5¼	5	5	5													
#2 MAIN FAN	5	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼													
#2 TAIL TEMP.	234	240	246	233	232	238	230	227	246	247														
#2 THROAT TEMP.	1198	1111	1200	991	1019	1175	1061	793	1311	1374														
#2 SCALE GATE SETTING	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN													
#3 MOISTURE																								
#3 RECYCLE																								
#3 MAIN FAN																								
#3 TAIL TEMP.																								
#3 THROAT TEMP.																								
#3 SCALE GATE SETTING																								
FACTORY SLICE RATE	255 TPH								Hole TPH 255															
MOLASSES RATE TPH	7.68	7.80	7.70	7.60	7.50	7.72	7.70	6.94	7.32	7.62														
CANE OUT MOISTURE	75.0	73.7	72.3	72.5	72.3	72.2	71.8	72.0	72.0	74.2														
DRY JUICE MOISTURE	11.0	11.4	11.0	9.4	9.0	9.4	9.3	9.6	10.5	10.4														
STORAGE SETTINGS	4-5	3-5	4-3	3-5	3-1	4-4	4-3	4-3	4-5	4-5														
TRANSFER WATER TEMP	67°	68°	67°	67°	68°	66°	68°	66°	67°	67°														
12 HR AVERAGES		10.0125 DRY MILL			72.725 PRESS MILL			2 SPEK	DRY MILL		PRESS MILL		SPEK		DRY MILL		PRESS MILL		SPEK					

D00031

Fourth Page

JUNE 11, 1991

BETTERAVIA BYPRODUCTS
24 HOUR SHIFT REPORT

SCALE FACTOR: 20.0	BULK TOTAL	BULK PRODUCTION: SMALL WHSE	LARGE WHSE	PELLET WHSE	PRESSED PULP DUMPED	BY-PASS DRY SCALE	PRESS WATER OVERFLOW
STOP 8 AM	63054850	75695	374219	091122	01095.7	19272.5	00776.0
MIDNIGHT	63037517	59464	374213	091122	01095.7	19272.5	00776.0
4 PM	63020617	42745	374212	091122	01095.7	19272.5	00776.0
8 AM	63005070	38528	374209	091122	01095.7	19272.5	00776.0
TOTAL →	507.575	TONS PRODUCED					

TONS
497.8
- 9.775

Wed

OIL CONSUMPTION	#1 DRIER	#2 DRIER	#3 DRIER
STOP 8 AM	185896.2	162664.7	079064.3
MIDNIGHT	185830.2	162609.5	079058.6
Tues 4 PM	185763.0	162609.5	079010.8
Tues → 8AM	185699.8	162609.5	078965.7

NATURAL GAS METERS	LARGE	SMALL
	093953	898580
	093953	898575
	093953	898572
	093953	898570

PG&E MAIN	SUGAR PL MAIN	W
1847	8403	3
1875	8403	3
1856	8402	3
1835	8402	3

Barrels
42.0 gal/1 Barrel

INFORMATION REQUIRED BY SUGAR FACTORY

24 HOUR AVERAGES

OIL TEMPERATURE	150°	
PRESSED PULP MOISTURE	73.733	%
DRY BULK MOISTURE	10.8103	%

ALUMINUM SULFATE
@ $0.077/LB: 10,895 LBS

SALES		
BULK	150.31	TONS
LIME	114.89	TONS

MOLASSES SHIPPED

RR CAR OR TRUCK #	T
940-14	2
920-056	2
940-15	2
#920-57	2

LIME APPLIED TO PULP

TOTAL USED = 4.820 5 TONS

12–8	3130	LBS
4–12	3322	LBS
8–4	3,189	LBS

Filename: BEET14.WQ1
Date: 16-Dec-94
Facility: Holly Sugar Corporation
Location: Santa Maria, California
Source: Fuel oil-fired pulp dryer with two cyclones in series and an air recycling (recirculation) system
Test date: June 1991

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 1	Run 2	Run 3	Run 4
1	Stack temperature	Deg F	242	219	218	
Dryer #1	Pressure	in. HG	29.9	29.9	29.9	
	Moisture	%	35.35	31.04	30.54	
	Oxygen	%	14	15.77	15.3	
	Volumetric flow, actual	acfm	35562	33299	32182	
	Volumetric flow, standard*	dscfm	17281	17844	17396	0
	Isokinetic variation	%	102.8	97.2	96.8	
Wet Pulp Feed Rate To Dryer		TPH	32.6	32.2	32.1	
	Pollutant concentrations:					
	Filterable PM	G/dscf	0.1563	0.227	0.1241	
	Condensible inorganic PM	G/dscf	0.0518	0.0217	0.0126	
	Condensible organic PM	G/dscf	0.0353	0.0004967	0	
	CO2	% dv	4.9	4.5	4.8	
	SO2	ppmdv	0	0	0	
	CO	ppmdv	360	126	160	
	NOx	ppmdv	88	70	75	
	THC	ppmdv	49.23	35.34	36.66	
	Methane	ppmdv	18.15	7.99	5.35	
	Pollutant mass flux rates:					
	NUMBER OF EMISSION POINTS		2	2	2	
	Filterable PM	lb/hr	46.3	69.44	37.0	
	Condensible inorganic PM	lb/hr	15.34	6.64	3.76	
	Condensible organic PM	lb/hr	10.47	0.15	0.00	
	CO2	lb/hr	11606	11006	11445	
	SO2	lb/hr	0.00	0.00	0.00	
	CO	lb/hr	54.27	19.61	24.28	
	NOx	lb/hr	21.79	17.90	18.69	
	THC as methane	lb/hr	4.25	3.15	3.19	
	Methane	lb/hr	1.57	0.71	0.47	
	Emission factors (ENGLISH UNITS):					AVERAGE
	Filterable PM	lb/ton	1.42	2.2	1.15	1.58
	Condensible inorganic PM	lb/ton	0.47	0.21	0.117	0.26
	Condensible organic PM	lb/ton	0.32	0.0047	0	0.109
	CO2	lb/ton	356	342	357	351
	SO2	lb/ton	ND	ND	ND	ND
	CO	lb/ton	1.66	0.61	0.76	1.01
	NOx	lb/ton	0.67	0.56	0.58	0.60
	THC as methane	lb/ton	0.13	0.098	0.099	0.11
	Methane	lb/ton	0.048	0.022	0.014	0.028
	Emission factors (METRIC UNITS):					AVERAGE
	Filterable PM	kg/Mg	0.71	1.08	0.58	0.79
	Condensible inorganic PM	kg/Mg	0.24	0.103	0.059	0.132
	Condensible organic PM	kg/Mg	0.16	0.0024	0	0.054
	CO2	kg/Mg	178	171	178	176
	SO2	kg/Mg	ND	ND	ND	ND
	CO	kg/Mg	0.83	0.30	0.38	0.51
	NOx	kg/Mg	0.33	0.28	0.29	0.30
	THC as methane	kg/Mg	0.065	0.049	0.050	0.055
	Methane	kg/Mg	0.024	0.011	0.007	0.014

*DSCFM BASED ON A STANDARD TEMPERATURE OF 68 DEGREES FAHRENHEIT
**FLOW RATES DISAGREE WITH RATES SHOWN IN REPORT.
***THC CONCENTRATIONS DISAGREE WITH CONC. SHOWN IN REPORT

Filename: BEET14A.WQ1
Date: 26-Jan-95
Facility: Holly Sugar Corporation
Location: Santa Maria, California
Source: Fuel oil-fired pulp dryer with two cyclones in series and an air recycling (recirculation) system
Test date: June 1991

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 1	Run 2	Run 3	Run 4
1	Stack temperature	Deg F	245	246	245	
Dryer #2	Pressure	in. HG	29.9	29.9	29.9	
	Moisture	%	28.72	27.58	27.45	
	Oxygen	%	16.03	16.81	15.79	
	Volumetric flow, actual	acfm	30661	31371	31562	
	Volumetric flow, standard*	dscfm	16357	16980	17138	0
	Isokinetic variation	%	97.8	92	92	
Wet Pulp Feed Rate To Dryer		TPH	32.3	32.3	32.3	
	Pollutant concentrations:					
	Filterable PM	G/dscf	0.0909	0.1011	0.0692	
	Condensible inorganic PM	G/dscf	0.0380	0.0277	0.0114	
	Condensible organic PM	G/dscf	0.000833	0.0004251	0.0006676	
	CO2	% dv	4.2	2.31	4.63	
	SO2	ppmdv	0	0	0	
	CO	ppmdv	200	205	200	
	NOx	ppmdv	50	46	51	
	THC	ppmdv	67.81	69.7	67.27	
	Methane	ppmdv	30.36	9.73	6.47	
	Pollutant mass flux rates:					
	NUMBER OF EMISSION POINTS		2	2	2	
	Filterable PM	lb/hr	25.5	29.43	20.3	
	Condensible inorganic PM	lb/hr	10.65	8.06	3.36	
	Condensible organic PM	lb/hr	0.23	0.12	0.20	
	CO2	lb/hr	9416	5376	10876	
	SO2	lb/hr	0.00	0.00	0.00	
	CO	lb/hr	28.54	30.37	29.90	
	NOx	lb/hr	11.72	11.19	12.52	
	THC as methane	lb/hr	5.54	5.91	5.76	
	Methane	lb/hr	2.48	0.83	0.55	
	Emission factors (ENGLISH UNITS):					AVERAGE
	Filterable PM	lb/ton	0.79	0.91	0.63	0.78
	Condensible inorganic PM	lb/ton	0.33	0.25	0.10	0.23
	Condensible organic PM	lb/ton	0.0072	0.0038	0.0061	0.0057
	CO2	lb/ton	292	166	337	265
	SO2	lb/ton	ND	ND	ND	ND
	CO	lb/ton	0.88	0.94	0.93	0.92
	NOx	lb/ton	0.36	0.35	0.39	0.37
	THC as methane	lb/ton	0.17	0.18	0.18	0.18
	Methane	lb/ton	0.077	0.026	0.017	0.040
	Emission factors (METRIC UNITS):					AVERAGE
	Filterable PM	kg/Mg	0.39	0.46	0.31	0.39
	Condensible inorganic PM	kg/Mg	0.16	0.12	0.052	0.11
	Condensible organic PM	kg/Mg	0.0036	0.0019	0.0030	0.0029
	CO2	kg/Mg	146	83	168	132
	SO2	kg/Mg	ND	ND	ND	ND
	CO	kg/Mg	0.44	0.47	0.46	0.46
	NOx	kg/Mg	0.18	0.17	0.19	0.18
	THC as methane	kg/Mg	0.086	0.092	0.089	0.089
	Methane	kg/Mg	0.038	0.013	0.009	0.020

*DSCFM BASED ON A STANDARD TEMPERATURE OF 68 DEGREES FAHRENHEIT
**FLOW RATES DISAGREE WITH RATES SHOWN IN REPORT.
***THC CONCENTRATIONS DISAGREE WITH CONC. SHOWN IN REPORT

Filename: BEET14B.WQ1
Date: 26-Jan-95
Facility: Holly Sugar Corporation
Location: Santa Maria, California
Source: Fuel oil-fired pulp dryer with two cyclones in series and an air recycling (recirculation) system
Test date: June 11, 1991

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 1	Run 2	Run 3	Run 4
1	Stack temperature	Deg F	225	216	212	
Dryer #3	Pressure	in. HG	28.89	28.89	28.89	
	Moisture	%	26.26	25.19	31.63	
	Oxygen	%	13.9	13.9	13.97	
	Volumetric flow, actual	acfm	26869	24583	25634	
	Volumetric flow, standard*	dscfm	14746	13870	13296	0
	Isokinetic variation	%	110.9	96	103.3	
Wet Pulp Feed Rate To Dryer		TPH	32.3	32.3	32.3	
	Pollutant concentrations:					
	Filterable PM	G/dscf	0.1933	0.1642	0.1589	
	Condensible inorganic PM	G/dscf	0.00711	0.00568	0.00838	
	Condensible organic PM	G/dscf	0.00119	0.0009153	0.0006158	
	CO2	% dv	4.1	4.1	6.1	
	SO2	ppmdv	0	0	0	
	CO	ppmdv	230	230	250	
	NOx	ppmdv	61	61	69	
	THC	ppmdv	90.46	78.06	83.83	
	Methane	ppmdv	11.58	19.06	16.24	
	Pollutant mass flux rates:					
	NUMBER OF EMISSION POINTS		2	2	2	
	Filterable PM	lb/hr	48.9	39.04	36.2	
	Condensible inorganic PM	lb/hr	1.80	1.35	1.91	
	Condensible organic PM	lb/hr	0.300	0.218	0.140	
	CO2	lb/hr	8287	7794	11117	
	SO2	lb/hr	0.00	0.00	0.00	
	CO	lb/hr	29.6	27.8	29.0	
	NOx	lb/hr	12.9	12.1	13.1	
	THC as methane	lb/hr	6.66	5.41	5.57	
	Methane	lb/hr	0.853	1.32	1.08	
	Emission factors (ENGLISH UNITS):					AVERAGE
	Filterable PM	lb/ton	1.5	1.2	1.1	1.3
	Condensible inorganic PM	lb/ton	0.056	0.042	0.059	0.052
	Condensible organic PM	lb/ton	0.0093	0.0067	0.0043	0.0068
	CO2	lb/ton	257	241	344	281
	SO2	lb/ton	ND	ND	ND	ND
	CO	lb/ton	0.92	0.86	0.90	0.89
	NOx	lb/ton	0.40	0.38	0.41	0.39
	THC as methane	lb/ton	0.21	0.17	0.17	0.18
	Methane	lb/ton	0.026	0.041	0.033	0.034
	Emission factors (METRIC UNITS):					AVERAGE
	Filterable PM	kg/Mg	0.76	0.60	0.56	0.64
	Condensible inorganic PM	kg/Mg	0.028	0.021	0.030	0.026
	Condensible organic PM	kg/Mg	0.0046	0.0034	0.0022	0.0034
	CO2	kg/Mg	128	121	172	140
	SO2	kg/Mg	ND	ND	ND	ND
	CO	kg/Mg	0.46	0.43	0.45	0.45
	NOx	kg/Mg	0.20	0.19	0.20	0.20
	THC as methane	kg/Mg	0.10	0.084	0.086	0.091
	Methane	kg/Mg	0.013	0.020	0.017	0.017

*DSCFM BASED ON A STANDARD TEMPERATURE OF 68 DEGREES FAHRENHEIT
**FLOW RATES DISAGREE WITH RATES SHOWN IN REPORT.
***THC CONCENTRATIONS DISAGREE WITH CONC. SHOWN IN REPORT

Filename: BEET14c.WQ1
Date: 26-Jan-95
Facility: Holly Sugar Corporation
Location: Santa Maria, California
Source: Cooler--test void due to isokinetics
Test date: June 10, 1991

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 1	Run 2	Run 3	Run 4
1	Stack temperature	Deg F	70	70	70	
Cooler	Pressure	in. HG	29.76	29.76	29.76	
	Moisture	%	2.49	2.49	2.34	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm	51234	48519	49110	
	Volumetric flow, standard*	dscfm	49504	46880	47524	0
	Isokinetic variation	%	18.5	18.6	18.5	
Dried pulp produced (to cooler)		TPH	10.0	10.0	10.0	
	Pollutant concentrations:					
	Filterable PM	G/dscf	0.1121	0.0359	0.0324	
	Condensible inorganic PM	G/dscf	0.00090	0.00040	0.00035	
	Condensible organic PM	G/dscf	0	0	0.0001471	
	CO2	% dv	0	0	0	
	Pollutant mass flux rates:					
	Filterable PM	lb/hr	47.6	14.4	13.2	
	Condensible inorganic PM	lb/hr	0.382	0.161	0.144	
	Condensible organic PM	lb/hr	ND	ND	0.0599	
	Emission factors (ENGLISH UNITS):					AVERAGE
	Filterable PM	lb/ton	4.8	1.4	1.3	2.5
	Condensible inorganic PM	lb/ton	0.038	0.016	0.014	0.023
	Condensible organic PM	lb/ton	ND	ND	0.0060	ND
	Emission factors (METRIC UNITS):					AVERAGE
	Filterable PM	kg/Mg	2.4	0.72	0.66	1.3
	Condensible inorganic PM	kg/Mg	0.019	0.0080	0.0072	0.011
	Condensible organic PM	kg/Mg	ND	ND	0.0030	ND

*DSCFM BASED ON A STANDARD TEMPERATURE OF 68 DEGREES FAHRENHEIT
**FLOW RATES DISAGREE WITH RATES SHOWN IN REPORT.

MIDWEST RESEARCH INSTITUTE

Project/Acct. No. 4602-03-03 Date/Time 12/14/94

Project Title Sugar Beet Processing AP-42

Signature Brian Bowman Verified by _____ (signature/date)

Phone Contact ☐ Meeting Notes ☐ Work Sheet ☒

Page ___ of ___

HOLLY SUGAR, SANTA MARIA, CA

TEST DATES: JUNE 11-13, 1991

DRYER #1	TIME	DATE	SLICE RATE (TPH)	PRESSED PULP MOISTURE (%)	DRIED PULP MOISTURE (%)
RUN 1	10:21-11:19	6/13	255	72.4	10.2
RUN 2	13:48-14:28	6/13	255	71.8	9.3
RUN 3	15:21-16:27	6/13	255	72.0	10.0

$$\%\ \text{SOLIDS} = \frac{\text{DRY PULP PRODUCED} - \text{DRY PULP MOISTURE} \times \text{DRY PULP PRODUCED}}{\text{BEET SLICE RATE}}$$

DRY PULP PRODUCTION RATE = 10.0125 TPH

RUN 1: % SOLIDS = $\frac{10.0125 - 0.102 \times 10.0125}{255} = 3.53\ \%$

RUN 2: % SOLIDS = $\frac{10.0125 - 0.093 \times 10.0125}{255} = 3.56\ \%$

RUN 3: % SOLIDS = $\frac{10.0125 - 0.10 \times 10.0125}{255} = 3.53\ \%$

$$\text{WET PULP FEED TO DRYER (TPH)} = \frac{\text{BEET SLICE RATE} \times \%\ \text{SOLIDS}}{1 - \left(\frac{\text{WET PULP MOISTURE}}{100}\right)}$$

RUN 1: PROCESS RATE = $\frac{255 \times 0.0353}{1 - \left(\frac{72.4}{100}\right)} = 32.6$ TPH

RUN 2: PROCESS RATE = $\frac{255 \times 0.0356}{1 - (71.8/100)} = 32.2$ TPH

RUN 3: PROCESS RATE = $\frac{255 \times 0.0353}{1 - (72/100)} = 32.1$ TPH

FOR DRYERS 2 AND 3, WET PULP FEED (TPH) = AVG. OF DRYER 1 = 32.3 TPH ⟹ ASSUMED

1.0 INTRODUCTION

At the request of Holly Sugar Corporation, Santa Maria, California, Western Environmental Services (WES) conducted testing at the Santa Maria Facility. The testing consisted of collecting samples on the stack outlet of 8 units. The units are Boiler #1, Boiler #2, Boiler #3, Boiler #4, Cooler, Dryer #1, Dryer #2, and Dryer #3. The testing was performed from June 4 through June 14, 1991 to provide compliance test data for the Santa Barbara Air Pollution Control District. The permit to operate numbers are 7205 and 6856.

The sampling program consisted of collecting oxides of nitrogen, oxygen, hydrocarbons, particulates, carbon monoxide, carbon dioxide, and sulfur dioxide from each of the units except the Cooler Stack. The cooler stack was sampled for particulates only. Each dryer has two stacks. One stack was monitored for the pollutants while the other stack was checked for velocity only.

The facility processes sugar beets into various sugar products. The boilers, dryers, and cooler are used to process the sugar beets. The facility operates at a maximum capacity during harvest season April - October. The boilers are under Permit to Operate No. 7205 while the dryers and cooler are under Permit to Operate No. 6856. The permits are located in Apendix E. During the testing program, the units were fired with fuel oil.

3.5 Dryer #1 Stack Outlet

Samples were collected from a 39.5" diameter vertical stack. Two ports were located at ninety degrees of each other on the same horizontal plane. Dryer #1 has two stacks. One stack was used for the testing. Velocity measurements were collected on the second stack during the particulate sampling. Figure 3.9 shows the sampling site while Figure 3.10 depicts the traverse point location.

3.6 Dryer #2 Stack Outlet

Samples were collected from a 39.5" diameter vertical stack. Two ports were located at ninety degrees of each other on the same horizontal plane. Dryer #2 has two stacks. One stack was used for the testing. Velocity measurements were collected on the second stack during the particulate sampling. Figure 3.11 shows the sampling site while Figure 3.12 depicts the traverse point location.

3.7 Dryer #3 Stack Outlet

Samples were collected from a 39.5" diameter vertical stack. Two ports were located at ninety degrees of each other on the same horizontal plane. Dryer #3 has two stacks. One stack was used for the testing. Velocity measurements were collected on the second stack during the particulate sampling. Figure 3.13 shows the sampling site while Figure 3.14 depicts the traverse point location.

3.8 Cooler Stack Outlet

Samples were collected from a 61.5" diameter vertical stack above the ground. The samples were collected from two three inch diameter ports on the same horizontal plane. Figure 3.15 shows the sampling site while Figure 3.16 depicts the traverse point location..

BETTERAVIA BYPRODUCTS
24 HOUR SHIFT REPORT

DAY #49-Mon. DATE JUN 1 0 1991

[illegible]	20.0	[illegible]			PRESSED PULP DUMPED	BY-PASS DRY SCALE	PRESS WATER OVERFLOW	PULSAIRE
	BULK TOTAL	SMALL WHSE	LARGE WHSE	PELLET WHSE				
STOP 8 AM	63005070	38528	374209	091122	01095.7	19272.3	00776.0	05121.3
MIDNIGHT	62987415	23675	374209	091122	01095.7	19272.3	00776.0	05113.4
4 PM	62971494	07868	374208	091122	01095.7	19272.4	00776.0	05105.2
8 AM	62958540	04387	374208	091122	01094.8	19271.7	00776.0	05098.0
TOTAL	469.325	TONS PRODUCED						

MOLASSES ON PULP	MOLASSES INVENTORY PLANT TANK READINGS		
141.4985	15 FT 9 1/2 IN	77.0	TONS
082.3905	15 FT 1 1/2 IN	80.0	TONS
031.3917	15 FT 2 IN	80.0	TONS
979.7599	13 FT 2 IN	69.0	TONS
161.7386	TOTAL USED		

465.3
+ 4.025

[illegible]				NATURAL GAS METERS		PG&E	SUGAR PLANT		BLOCK	BLOCK
	#1 DRIER	#2 DRIER	#3 DRIER	LARGE	SMALL	MAIN	MAIN	WELLS	5	6
STOP 8 AM	185699.8	162609.5	0789657	093953	898570	1835	8402	3689	1689	0000
MIDNIGHT	185630.2	162609.5	0789030	093953	898567	1796	8401	3689	1684	0000
4 PM	185560.8	162609.6	0788494	093953	898565	1796	8401	3689	1689	0000
8AM	185522.9	162555.6	078823.7	093953	898560	1776	8400	3688	1689	0000

MOLASSES INVENTORY STORAGE TANK READINGS		
6 FT 1/2 IN	385	TONS
6 FT 7 IN	415	TONS
6 FT 3/4 IN	382	TONS
6 FT 6 3/16 IN	411	TONS

[illegible]

[illegible]

OIL TEMPERATURE	148.66°	
PRESSED PULP MOISTURE	75.3375	%
DRY BULK MOISTURE	10.758	%

ALUMINUM SULFATE @ $0.077/LB 8,812.5 LBS

SALES		
BULK	274.14	TONS
LIME	113.70	TONS

MOLASSES SHIPPED	
RR CAR OR TRUCK #	TONS
940-13	25.10
920-059	28.51
920-055	28.19

LIME APPLIED TO PULP		
TOTAL USED - 4.5615 TONS		
12-8	3,211	LBS
4-12	3182	LBS
8-4	2,730	LBS

TIME	COMMENTS
	7 buckets for [illegible] scale
	950 loader 4.025 TONS
12:10	1 Load of Alum in 2' 4"
1:25	Alum Tank out 7' 7"
3:20	Chlorine tank on [illegible]

Duplicate

D00028

BETTERAVIA BYPRODUCTS
24 HOUR SHIFT REPORT

DAY #51-Wed. DATE: JUN 1 2 1991

[illegible]	20.0	[illegible]			PRESSED PULP DUMPED	BY-PASS DRY SCALE	PRESS WATER OVERFLOW	PULSAIRE
	BULK TOTAL	SMALL WHSE	LARGE WHSE	PELLET WHSE				
STOP 8 AM	63103188	08220	374231	091122	01095.7	19272.7	00776.0	05167.8
MIDNIGHT	63088020	93833	374212	091122	01095.7	19272.5	00776.0	05160.6
4 PM	63071397	78868	374222	091122	01095.7	19272.5	00776.0	05152.6
8 AM	63054250	75695	374217	091122	01095.7	19272.5	00776.0	05144.8
TOTAL	489.13	TONS PRODUCED						

453.38
+ 5.75

MOLASSES ON PULP	MOLASSES INVENTORY PLANT TANK READINGS	
491.2910	14 FT 10 1/4 IN	63.0 TONS
433.7485	13 FT 1 IN	58.0 TONS
374.4197	14 FT 1 IN	62.5 TONS
316.0897	14 FT 11 1/2 IN	65.0 TONS
175.8012	TOTAL USED	

	[illegible]			NATURAL GAS METERS		PG&E	SUGAR PLANT		BLOCK	BLOCK
	#1 DRIER	#2 DRIER	#3 DRIER	LARGE	SMALL	MAIN	MAIN	WELLS	5	6
STOP 8 AM	1860840	162729.3	079064.3	094507	898571	1958	8405	3691	1689	0000
MIDNIGHT	186019.1	162729.3	079064.3	094180	898589	1930	8405	3690	1689	0000
4 PM	185954.7	162716.0	079064.3	093953	898583	1918	8404	3690	1689	0000
8AM	185896.2	162669.7	079064.3	093953	898580	1897	8403	3690	1689	0000

MOLASSES INVENTORY STORAGE TANK READINGS	
5 FT 2 IN	322 TONS
5 FT 5 3/4 IN	340 TONS
5 FT 0 IN	310 TONS
5 FT 2 1/2 IN	325 TONS

[illegible]

[illegible]

OIL TEMPERATURE	148 66°	
PRESSED PULP MOISTURE	73.7	%
DRY BULK MOISTURE	10.721	%

ALUMINUM SULFATE @ $0.077/LB 10,312.5 LBS

SALES		
BULK	335.16	TONS
LIME	47.30	TONS

[illegible]	
RR CAR OR TRUCK #	TONS
920-058	28.22
920-059	28.16

LIME APPLIED TO PULP		
TOTAL USED -	4,747	TONS
12-8	3,230	LBS
4-12	3118	LBS
8-4	3,146	LBS

TIME	COMMENTS
9:30	Chlorine System OFF,
	Need New Parts
9:30	SC1-62 - System ON
10:10	Increase exchanger 4°
3:15	DECREASED EXCHANGER TO 140°
	#1 Drier on oil #2 on gas
2:35	10 950 bucket [illegible]
	Screw [illegible] 5.75 Tons

D00030

County of Santa Barbara
AIR POLLUTION CONTROL DISTRICT

26 CASTILIAN DRIVE B-23, GOLETA, CALIFORNIA 93117
PHONE: (805) 961-8800 FAX (805) 961-8801

JAMES M. RYERSON
Air Pollution Control Officer

WILLIAM A. MASTER
Assistant Director

PERMIT TO OPERATE No. 6856

EQUIPMENT OWNER - OPERATOR:

Holly Sugar Corporation

EQUIPMENT LOCATION:

2105 Sinton Road, Betteravia Area of Santa Barbara County

STATIONARY SOURCE DESIGNATION:

Holly Sugar

EQUIPMENT DESCRIPTION:

Cattle feed production equipment comprised of:

1. Rotary dryers (2), identification numbers (ID) 1 and 2, Stearns-Roger, each using a furnace having 100.00 MMBtu per hour maximum input. The maximum design feed rate for each dryer is 30 tons per hour. Approximate physical dimensions: 10.5 feet diameter, 48 feet length. These units are inside the Dehydration Building and they are equipped with the following:

   a. Twin, wall-mounted Peabody Type ABT burners

   b. Air pollution control cyclones and recycling system using two cyclones in series, skimmers, restrictors, modulating dampers, ducting for recycling gases to the furnace and ducting to recycle recovered product to the dryer.

   These dryers are fired on natural gas or fuel oil.

2. Rotary dryer, ID 3, Stearns-Roger, using a furnace having 125.0 MMBtu per hour maximum input. The dryer's maximum design feed rate is 30 tons per hour. Approximate physical dimensions: 10.5 feet diameter,

48 feet length. The dryer is outside the Dehydration Building and it is equipped with the following:

a. Twin, wall-mounted Coen Model 2354-20 burners

b. Air pollution control cyclones and recycling system using two cyclones in series, skimmers, restrictors, modulating dampers, ducting for recycling gases to the furnace and ducting to recycle recovered product to the dryer.

This dryer is fired on natural gas or fuel oil.

3. Dried feed cooler, Stearns-Roger. The cooler's maximum design feed rate is 30 tons per hour. Approximate physical dimensions: 10.5 feet diameter, 48 feet length. The cooler is inside the Dehydration Building and it is equipped with the following:

a. 20 hp drum drive motor

b. Feed conveyor belt driven by a 3 hp electric motor

c. Screw conveyor driven by a 7.5 hp electric motor

d. Air blower driven by a 100 hp electric motor.

4. Air pollution control system serving the cooler. The system is comprised of a cyclone and a high energy scrubber, Western Precipitation Unit. The scrubber has a 1 hp pump.

5. Dry pulp weighing, conveying and storage system for transporting dried pulp from the cooler to the warehouse through a weighing scale (production scale house). The system is equipped with the following:

a. Belt conveyor, ID 1, driven by a 5 hp electric motor

b. Belt conveyor, ID 2, driven by a 7.5 hp electric motor

c. Cross screw conveyor driven by a 10 hp electric motor

d. Scale belt conveyor driven by a 1.5 electric motor

e. Feed screw conveyor driven by a 10 hp electric motor

f. Production scale house.

g. Bulk storage warehouse, ID 35, 4.57 MM gallon maximum storage capacity, equipped with four vent stacks.

h. Pneumatic conveying system for moving cattle feed from the production scale house to Warehouse 35. The system is comprised of the following:

(1) Pulp feed chute

(2) Blower driven by a 75 hp electric motor

(3) Air lock, Clark, driven by a 5 hp electric motor

(4) 6 inch diameter conveying line

(5) Warehouse 35 manifold using diverter valves to control the distribution.

6. Dried product chunk breaker, 23 tons per hour maximum feed rate, driven by a 10 hp electric motor, and loading rack using a 25.0 ton capacity hopper and a belt conveyor driven by a 5 hp electric motor.

7. Nonpelletized cattle feed storage piles (2) located adjacent to the storage buildings, each covering approximately 0.5 acre.

8. Precipitated calcium carbonate storage pile, covering approximately 0.1 acre.

PROCESS DESCRIPTION:

The cattle feed production plant has a maximum design feed rate of 2,160 tons of beet pulp per day and a maximum design production rate of 720 tons of dried cattle feed per day. Pulp slurry and molasses are piped separately from the nearby sugar beet processing plant. Water is removed from the slurry by screening and pressing. Molasses is added and mixed with the pulp. The mixture is conveyed to rotary dryers where it is heated to remove moisture. The material is conveyed to a cooler. The cooled product may be pelletized. Nonpelletized product is mechanically conveyed to the weigh scale and then pneumatically conveyed to warehouse 35. From there the material is either:

1. Transferred to a chunk breaker and into delivery trucks by conveyor, or

2. Transferred to delivery trucks by front end loaders, or

3. Transferred to outside bulk storage areas by front end loaders.

Product in outside storage areas is placed in delivery trucks by front end loaders.

CONDITIONS:

1. **Throughput, Production and Usage Rate Limitations.** The following feed rate, production rate or usage rate limitations shall not be exceeded:

Wet pulp feed rate[a][d]	2,160 tons/day
Cattle feed production[a][d]	720 tons/day
Natural gas consumption[a][b]	7.429 MMSCF/day
Residual fuel oil No. 6[a][c]	52,000 gal/day

(a) Calculated as monthly production or usage divided by the number of producing or using days.

(b) Based on design rating of burners and fuel heat content of 1,050 Btu/SCF.

(c) Based on design rating of burners and fuel heat content of 150,000 Btu/gal.

(d) Based on maximum design feed or production rate of equipment.

2. **Gaseous Fuel and Liquid Fuel Characteristics.** The Permittee shall comply with Rule 311 (Sulfur Content of Fuels).

3. **Emissions.** The limits set forth in Table 1, Permitted Emissions, have been determined with reference to applicable AP-42 emission factors for each equipment item listed based upon its design limitations. Where AP-42 emission factors were not available, national emission data system factors, PM_{10}/TSP ratios from the California Air Resources Board, stoichiometric calculations, or prohibitory rule limits were used.

Table 1 Note:

(a) The Permittee shall be deemed to be in compliance with these limits provided the Permittee does not exceed the feed rate, production rate and usage rate limitations set forth in Condition 1 of this permit.