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INDUSTRIAL COMBUSTION

DIVISION OF AQUA-CHEM, INC.

351 - 21st Street - Monroe, Wisconsin 53609-2798

IC-1301

Form

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SUBJECT: NOX/CO DATA

AP42 Section 1.4
4/93

Reference 23

RALPH,
HERE IS LIST

CONTACT IN CALIFORNIA:

SOUTHERN CALIFORNIA BOILER, INC
15182 BOLSA CHICA ROAD
HUNTINGTON BEACH, CA 92649
714-891-0701
JOHN CLARKSON, VP

I WILL FOLLOW WITH A LETTER NEXT WEEK

cc: SOCIAL JOHN-C

NOX128
Independent 3rd Party Source Tests

SO#	Job Name / Location	Burner Model	Boiler Desc	Testing Co	% Firing Rate	CO (Corr to 3% O2)	FUEL	LN Oil	Mat Gas	LP Gas	LN Oil	Mat Gas	LP Gas	LN Oil
29788	East Century, San Jose, CA	LMDEG-145-S	Firebox	Sierra Environmental	50	33.7	28.7	51.8	39.5	24.9	26.5	27.4	28.0	35
30609	Baxter Hyland Los Angeles, CA	LMDEG-175-P	400 HP C-B Scotch	Sierra Environmental	50	50	51	185	214	25	28	35		
29987	Anaheim Mills Anaheim, CA	LMDEG-105-P	250 HP Superior Mohawk Scotch	Sierra Environmental	100	7	6			23	27			
30455	Reinhold Industries Santa Fe Springs, CA	LMDEG-145-P	350 HP Superior Mohawk Scotch	R-C Environmental	30	280.1	102.4	75.9		26.7	27.9	21.9		
29397	Knott's Berry Farm Buena Park, CA	LMDEG-145-S	338 HP Kewanee Scotch	KVB	50	0				33.5	27.3			
30279	Kirkhill Rubber Brea, CA	LMDEG-175-S	400 HP Superior Mohawk Scotch	R-C Environmental	85	22.3	8.9			23.7	22.4			
29660	Aratex Los Angeles, CA	LMDEG-210-P	600 HP Superior Mohawk Scotch	R-C Environmental	20	36.7	< 0.5			15.9	21.9	21.0		
29418	Hill Pet Foods Los Angeles, CA	LMDEG-42-S	100 HP Superior Mohawk Scotch	KVB	50	13.2	13.2			26.3	26.5			
30267	L.A. Paper Box (2) Los Angeles, CA	LMDEG-145-S	Liberty Ship Waterlube	R-C Environmental	20	77.1	< 1.0	23.1		28.7	32.1	30.1		
30115	Vita-Pak Citrus Prod Covina, CA	LMDEG-105-S	250 HP Dixon Scotch	Sierra Environmental	30	158	28	29		28	28	29		
30116	Vita-Pak Citrus Prod Covina, CA	LMDEG-83-P	150 HP Burnham Scotch	Sierra Environmental	30	63	44	31		38	30	32		
30507	Universal Milton (2) Universal City, CA	LMDEG-105-P-A	250 HP Kewanee Scotch	Sierra Environmental	30	116	39	37		27	37	37		
30521	School for the Deaf Riverside, CA	LMDEG-105-S	250 HP C-B Scotch	Sierra Environmental	30	131	111	105		25	26	25		
30210	Santee Dairies Los Angeles, CA	LMDEG-145-S	416 HP Dixon Scotch	Sierra Environmental	50	37	44			30	25			

SO#	Job Name / Location	Burner Model	Boiler Desc	Testing Co	% Firing Rate	CO (Corr to 3% O2)	FUEL	LN Oil	Mat Gas	LP Gas	Mat Gas	LP Gas	LN Oil
30989	Baxter-Hyland Los Angeles, CA	LMDEG-105-P	250 HP C-B	Sierra Environmental	50	50	51		25	21			
30387	Verdugo Hills Hosp (2) Glendale, CA	LMDEG-105-S	250 HP Kewanee Scotch	R-C Environmental	25 50 100	0 0 2.2		43.2 25.8 12.8	28.4 27.5 32.9				31.0 34.3 34.3
31060	St. John's Regional Med Oxnard, CA (3)	LMDEG-105-P-A	250 HP C-B Scotch	Sierra Environmental	50 100	62 42			28 37				
30368	Community Linen Services Los Angeles, CA	LMDEG-145-S	350 HP Dixon Scotch	Sierra Environmental	25 50 100	72 28 33			20 25 29				
30366	GAF Building Materials Fontana, CA	LMDEG-210-P-A	400 HP U.I.P. Watertube	Pacific Environmental	25 50 100	82.5 108.4 123.8		85.2 118.0 185.6	28.2 26.9 22.6				22.6 28.3 27.9
30365	Rockwell Inter. (2) Newport Beach, CA	LMDEG-145-P-A	350 HP Kewanee Scotch	R-C Environmental	20 50 100	2.0 2.4 7.7			19.1 20.7 24.9				
29691	Friendly Hills Med Cen La Habra, CA	LMDEG-252-S	600 HP Kewanee Scotch	R-C Environmental	20 50 100	25 138 194		26 104 59.7	31.8 31.4 35.0				23.7 17.2 28.2
30367	Community Linen Services Los Angeles, CA	LMDEG-84-S	200 HP Dixon Scotch	Sierra Environmental	25 50 100	174 0 0			24 24 23				
31289	St. Jude Medical Center Fullerton, CA	LMDEG-145-S-A	250 HP Keeler Watertube	Pacific Environmental	20 50 100	38.0 29.7 33.4		98.2 72.7 51.3	28.5 28.8 24.3				33.4 33.0 36.7
30368	GAF Fontana, CA	LMDEG-210-P-A	400 HP UOP Hot Oil	Pacific Environmental	25 50 100	82.5 108.4 123.8		85.2 28.8 27.9	28.2 26.9 22.6				22.6 28.8 27.9
31032	Hughes Aircraft Newport Beach, CA	LMDEG-105-P-A	200 HP C-B Scotch	R-C Environmental	20 35 100	0 0 33.8		58.8 81.8 106.8	25.8 22.8 29.9				29.4 25.8 34.3
30508	Kaiser Hospital (2) Los Angeles, CA	LMDEG-145-S-A	350 HP Kewanee Scotch	Sierra Environmental	25 50 100	40 29 46		41 45 68	35 26 30			34 29 37	34 32 36
30270	Liberty Vegetable Oil Santa Fe Springs, CA	LMDEG-105-P-A	225 HP Dixon Scotch	Pacific Environmental	20 50 100	72.6 23.9 26.3		32.7 40.2 49.2	26.5 24.4 26.9				30.9 29.0 36.8

CD (Corr to 3K 02)

NOX (CORR TO 3X 02)

Job Name / Location	Boiler	Testing	X Firing	FUEL	Net Gas	LP Gas	LN Oil
32006 L.A. Dye & Print Works Bardona, CA	LNDEG-175-P-A 350 HP Scotch	Sierra Environmental	25 50 100	25.5 23.5 29.0	25.0 23.0 19.0		35.5 23.5 29.0
30505 Matchmakers Los Angeles, CA	LNDEG-252-P 500 HP Superior Mohawk Scotch	Pacific Environmental	20 50 100	26.5 28.0 32.2	23.0 21.7 20.5		
30271 Pacific Dye Signal Hill, CA	LNDEG-210-P-A 400 HP Superior Mohawk Scotch	Pacific Environmental	20 50 100	26.9 35.4 37.2	22.3 19.9 21.1		
31377 Cal Compact Santa Ana, CA	LNDEG-84-P-A 250 HP W & D Scotch	Sierra Environmental	20 50 100	85 16 21	18.6 23.7 29.0		
31329 Four Seasons Hotel Newport Beach, CA	LNDEG-105-P-A 250 HP Kenmore Scotch	Pacific Environmental	20 50 100	96.4 21.7 40.8	27.3 33.2 15.5		
31502 Frito Lay Los Angeles, CA	LNDEG-145-B-A 300 HP Superior Scotch	Pacific Environmental	20 50 100	42 32.5 33.3	16.9 15.4 23.8		
31501 Frito Lay Los Angeles, CA	LNDEG-145-P-A 300 HP Superior Scotch	Pacific Environmental	20 50 100	54.5 29.2 31.7	25.7 17.0 27.4		
31554 Allied Signal Los Angeles, CA	LNDEG-145-P-A 300 HP C-8 Scotch	Sierra Environmental	20 50 100	19 59 30	20 24 29		14 25 30
31553 Allied Signal (2) Los Angeles, CA	LNDEG-84-P-A 150 HP C-8 Scotch	Sierra Environmental	20 50 100	22 26 32	20.7 22.6 24.7		22.9 20.8 32.6
31328 Nureway Linen Long Beach, CA	LNDEG-252-P-A 450 HP Dixon Scotch	Sierra Environmental	20 50 100	119.6 12 21	17.7 23.9 27.5		

NOX128
3rd Party Source Tests

March 17, 1991

SO#	Job Name / Location	Burner Model	Boiler Desc	Testing Co	% Firing Rate	NOX _v (ppm) (Corr to 3%)	FUEL LP Gas	LN Oil
29733	20th Century Fox (2) Los Angeles, CA	LNDG-84-S	100 HP Superior Firebox	Western Environmental	50 100 50 100	24.9 26.5 27.4 26.0		
30509	Baxter Hyland Los Angeles, CA	LNDG-175-P	400 HP C-B Scotch	Sierra Environmental	50 100	25 28	35 35	
29987	Anaheim Mills Anaheim, CA	LNDG-105-P	250 HP Superior Mohawk Scotch	Sierra Environmental	50 100	23 27		
30455	Reinhold Industries Santa Fe Springs, CA	LNDG-145-P	350 HP Superior Mohawk (200#) SC	R-C Environmental	30 50 100	26.7 27.9 27.9		
29397	Knott's Berry Farm Buena Park, CA	LNDEG-145-S	338 HP Kewanee Scotch	KVB	50 100	33.5 27.3		
30279	Kirkhill Rubber Brea, CA	LNDG-175-S	400 HP Superior Mohawk SC	R-C Environmental	65 95	23.7 22.4		
29660	Aratex Los Angeles, CA	LNDG-210-P	500 HP Superior Mohawk SC	R-C Environmental	20 60 100	15.9 21.9 21.0		
29418	Hill Pet Foods Los Angeles, CA	LNDEG-42-S	100 HP Superior Mohawk SC	KVB	50 100	25.3 26.5		
30267	L.A. Paper Box (2) Los Angeles, CA	LNLDG-145-S	Liberty Ship sm UT	R-C Environmental	20 50 100	28.7 32.1 26.8	-- 36.2 36.5	
30115	Vita-Pakt Citrus Prod Covina, CA	LNDG-105-S	250 HP Dixon Scotch	Sierra Environmental	30 50 100	28 28 29		
30116	Vita-Pakt Citrus Prod Covina, CA	LNDG-63-P	150 HP Burnham Scotch	Sierra Environmental	30 50 100	36 30 32		
30507	Universal Hilton (2) Universal City, CA	LNLDG-105-P-A	250 HP Kewanee Scotch	Sierra Environmental	30 50 100	27 37 37	37 36 37	
30521	School for the Deaf Riverside, CA	LNDLG-105-S	250 HP C-B SC	Sierra Environmental	30 50 100	25 26 25	40 40 41	
30210	Santee Dairies Los Angeles, CA	LNDEG-145-S	416 HP Dixon Scotch	Sierra Environmental	50 100	30 25		

March 17, 1991

SO#	Job Name / Location	Burner Model	Boiler Desc	Testing Co	NOX (Corr to 3%)			
					% Firing Rate	Nat Gas	FUEL LP Gas	LN Oil
30989	Baxter-Hyland Los Angeles, CA	LNDEG-105-P	250 HP C-B SC	Sierra Environmental	50 100	25 29	31 34	
30387	Verdugo Hills Hosp (2) Glendale, CA	LNDEG-105-S	250 HP Kewanee Scotch	R-C Environmental	25 50 100	26.4 27.5 32.9		31.0 34.3 34.3
31050	St. John's Regional Med Oxnard, CA	LNDEG-105-P-A	250 HP C-B SC	Sierra Environmental	50 100	28 34		
30368	Community Linen Services Los Angeles, CA	LNDEG-145-S	250 HP Scotch	Sierra Environmental	25 50 100	20 25 29		

MONROE EVENING

WEDNESDAY, APRIL 18, 1990

MONROE, GREEN COUNTY, WISCONSIN

TIMES

50¢ NEWSSTAND 29¢ HOME DELIVERED

Gift from firm to save district over \$57,000

Monroe school district will save more than \$57,000 thanks to a local manufacturer. That means instead of needing \$150,000 for a new boiler and burner project at Monroe High School, the district may only have to consider borrowing less than \$100,000.

School board members learned Tuesday that Aqua-Chem Inc., Industrial Combustion of Monroe and Cleaver-Brooks, headquartered in Milwaukee, will donate a new boiler that uses a firing system designed to reduce acid rain.

Business Administrator Terry Quinn said the donation amounts to \$57,200 and called it "a very generous donation. Frankly, it's the largest one that I've been involved with."

The boiler will be shipped from Pennsylvania and put together with the burner at Industrial Combustion in Monroe. Industrial Combustion will do the test firing and deliver the unit to Monroe High School parking lot. The school district will pay to have the unit brought into and mounted in the boiler room.

Quinn announced the donation along with Paul Siedschlag and Paul Mueller of R. Mueller Co., Monroe, which will supervise the installation

In a news release, Hanna said the new firing system "represents the first in the nation to pass Underwriter's Laboratory stringent safety codes and meet the low emission requirements of the South Coast Air Quality Management District of California."

"When classes begin next fall at Monroe High School, we hope the students will feel that they're helping to prevent air pollution and that we are all working to make certain that Wisconsin remains a great place to live."

The unit is expected to be ready for installation by the end of June.

— By Keith Radzanowski

January 10, 1991

NOX 124

Monroe High School - Monroe, Wisconsin
I.C. Low NOx Burner Model No. LNDG-145-P-A
C-B 3 Pass Wetback Scotch Marine - Model NCW-700-300

Without Flue Gas Recirculation

Fuel	Firing Rate	% O2	% CO2	CO PPM	NOx PPM	Stack Temp Gross F	Steam Press PSI	% Combustion Efficiency
Nat Gas	3,100	8.0	7.2	9	48	270	4	84.0
Nat Gas	7,200	6.0	8.4	5	50	295	5	84.2
Nat Gas	12,575	5.4	8.7	0	50	320	7	83.7

With Flue Gas Recirculation

Fuel	Firing Rate	% O2	% CO2	CO PPM	NOx PPM	Stack Temp Gross F	Steam Press PSI	% Combustion Efficiency	% NOx Reduction
Nat Gas	3,100	7.6	7.5	11	15	270	5	84.1	68.8
Nat Gas	7,200	5.1	8.9	9	18	300	5	84.2	64.0
Nat Gas	12,575	4.9	9.0	9	15	325	7	83.8	70.0

Without Flue Gas Recirculation

Fuel	Firing Rate	% O2	% CO2	CO PPM	NOx PPM	Stack Temp Gross F	Steam Press PSI	% Combustion Efficiency
Propane	3,250	7.6	8.7	40	62	275	4	87.1
Propane	7,100	6.3	9.5	20	75	305	5	85.2
Propane	12,500	5.0	10.4	25	76	325	6	85.0

With Flue Gas Recirculation

Fuel	Firing Rate	% O2	% CO2	CO PPM	NOx PPM	Stack Temp Gross F	Steam Press PSI	% Combustion Efficiency	% NOx Reduction
Propane	3,250	6.6	9.4	20	30	280	3	87.8	51.6
Propane	7,100	4.3	10.8	11	25	310	5	86.5	66.7
Propane	12,500	2.6	12.1	9	25	325	7	85.6	67.1