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June 9, 1992

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Mr. Colin Campbell
Pacific Environmental
Services, Inc.
3708 Mayfair Street
Suite 202
Durham, NC 27707

Dear Mr. Campbell:

P.O. Box 953
Decatur, AL
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(205) 353-1713
FAX 340-9359

Enclosed is the information you requested on emissions tests performed at the LaRoche Industries, Inc. facility in Cherokee, Alabama on the Nitric Acid Plant and the Ammonium Nitrate Prilling Unit. Specific production data you requested for the emissions test performed at HISPAN Corporation was not recorded since emission limits are not production based, but permit applications indicate that the Polyacrylonitrile Unit operates at a constant production rate equivalent to a maximum capacity of 1700 Metric Tons/Year.

2204 Perimeter Road
Mobile, AL
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If you have any questions concerning this matter, please feel free to contact me at 205/271-7861 in Montgomery.

Sincerely,

Daniel Price
Industrial Unit
Engineering Branch
Air Division

DP:k1h

Enclosure

ADEM copy

Received June 12 1990

SANDERS ENGINEERING & ANALYTICAL SERVICES, INC.

Particulate Emissions Test Report

for

LaRoche Industries, Inc.

Cherokee, Alabama

Prill Tower and Wet Scrubber Outlet



March 11, 1992

1588 LEROY STEVENS ROAD

MOBILE, ALABAMA 36695 • 205/633-4120

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1. INTRODUCTION

Sanders Engineering and Analytical Services, Inc., (SEAS) performed particulate emissions tests on the Prill Tower and Wet Scrubber Outlet at LaRoche Industries, Inc. located in Cherokee, Alabama. The tests were conducted on March 11, 1992. The testing was performed in accordance with the applicable U. S. EPA procedures specified at 40 CFR, Part 60, Appendix A.

The purpose of these tests was to demonstrate compliance with the rules and regulations of the Alabama Department of Environmental Management, and to meet the necessary requirements contained in the permit to operate issued by the Alabama Department of Environmental Management.

The tests were conducted by Mr. Joseph C. Sanders, Mr. Tim Purvis, Mr. Mike Griggs, and Mr. John Wilson of Sanders Engineering and Analytical Services and were coordinated with Mr. Gary Webb of LaRoche Industries, Inc. Mr. Daniel Price of the Alabama Department of Environmental Management was present to observe the testing.

2. SUMMARY AND DISCUSSION OF RESULTS

The summary and results of the field data sheets for the particulate emissions test on the wet scrubber and prill tower are presented in Tables I and II, respectively. Table III contains the combined results of the testing program showing total particulate emissions from the prilling process. Appendix A contains the completed field data sheets, the equations used in the calculation of the results, along with the volumetric flow rate test results performed on the prill tower. The initial and final calibrations of the equipment used in the sampling program are included in Appendix B. The results of the laboratory analyses are contained in Appendix C.

At the completion of the first run it was determined that the sampling flow rate was insufficient to produce accurate results. A larger nozzle was selected for subsequent runs and an additional run was performed. There were no additional sampling problems encountered during the performance of the tests. At the completion of each run, the sampling train was removed to a relatively clean, draft-free area for clean-up. Sampling in the prill tower was performed at a level six to eight feet above the grating level. The volumetric flow rate in the prill tower was measured eight inches above the grating level. A determination of the volumetric flow rate of the stack gas was performed before and after each run. These two values were averaged and the resulting value was utilized. These results are summarized in Appendix A.

The isokinetic rates reported in Table I are figured using flow data at the elevated sampling level. The flow rates in Table I are those determined at the grating level.

The equation used for determining allowable emissions is:

$$E = (3.59 \times P^{.62}) - 3$$

Where P = Production Rate (Tons/Hr)

E = Allowable Emissions (LB/HR)

During the testing, the plant operated at a production rate of 12.5 tons/hr. The allowable emission rate for the production is 14.18 LB/HR. The average emission rate was determined to be 3.1 LB/HR.

TABLE I
particulate Test Results
LaRoche Industries
Prill tower Runs 2-4
03-11-92

Title of Run		Run 2	Run 3	Run 4
Process	TONS/HR	12.50	12.50	12.50
Static Pressure	IN. H2O	-0.18	-0.18	-0.18
Barometric Pressure	In. Hg.	29.91	29.91	29.91
Average ΔH	In. H2O	0.420	0.440	0.410
Meter Correction		0.988	0.988	0.988
Avg Meter Temp.	DEG F	69.0	76.0	68.0
% O2	%	20.5	20.5	20.5
% CO2	%	0.0	0.0	0.0
Volume Metered	ACF	31.162	33.832	32.705
Volume Water	ML	9.6	11.5	10.9
Sampling Time	MINUTES	80	80	80
Nozzle Diameter	INCHES	0.421	0.421	0.421
Avg. Stack Temp.	DEG F	55.0	58.0	57.0
Area Of Stack	SQ. FEET	107.000	107.000	107.000
Wt. Of Part.	MG	8.5	8.7	8.0
Number Of Points		10	10	10
Avg. Sqrt. ΔP	In. H2O	0.119	0.124	0.117

RESULTS OF COMPUTATIONS

		RUN 2	RUN 3	RUN 4	AVERAGE
Volume of Gas Sampled	SDCF	30.739	32.939	32.321	32.000
Molecular Wt. Of St. Gas	LB/LB-MOLE	28.66	28.65	28.65	28.65
H2O Vapor in Gas Stream	PERCENT	1.4	1.6	1.6	1.5
Avg Stack Gas Velocity	FT/SEC	6.6	6.9	6.5	6.7
Volumetric Flow Rate	SDCFM	48700	46900	48400	48000
Volumetric Flow Rate	ACFM	42400	44400	41800	42867
Particulate Conc.	GRS/SDCF	0.004	0.004	0.004	0.004
Particulate Conc.	GRS/ACF	0.004	0.004	0.004	0.004
Particulate Mass Rate	LB/HR	1.8	1.6	1.6	1.7
Emission Rate	LBS/Ton	0.142	0.131	0.126	0.133
Percent of Isokinetic		97.89	100.86	104.81	

SEAS, INC.

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TABLE II
particulate Test Results
LaRoche Industries
scrubber outlet runs 2-4
03-11-92

Title of Run		Run 4	Run 2	Run 3
Process	TONS/HR	12.50	12.50	12.50
Static Pressure	IN. H2O	-0.50	-0.50	-0.50
Barometric Pressure	In. Hg.	29.51	29.51	29.51
Average ΔH	In. H2O	2.570	2.340	2.360
Meter Correction		0.997	0.997	0.997
Avg Meter Temp.	DEG F	90.0	89.0	89.0
% O2	%	20.9	20.9	20.9
% CO2	%	0.0	0.0	0.0
Volume Metered	ACF	51.549	50.150	49.091
Volume Water	ML	32.9	33.2	32.5
Sampling Time	MINUTES	60	60	60
Nozzle Diameter	INCHES	0.184	0.184	0.184
Avg. Stack Temp.	DEG F	76.0	77.0	77.0
Area Of Stack	SQ. FEET	11.541	11.541	11.541
Wt. Of Part.	MG	8.0	9.1	11.3
Number Of Points		12	12	12
Avg. Sqrt. ΔP	In. H2O	1.454	1.383	1.385

RESULTS OF COMPUTATIONS

		RUN 4	RUN 2	RUN 3	AVERAGE
Volume of Gas Sampled	SDCF	48.955	47.686	46.681	47.774
Molecular Wt. Of St. Gas	LB/LB-MOLE	28.50	28.49	28.49	28.50
H2O Vapor in Gas Stream	PERCENT	3.1	3.2	3.2	3.1
Avg Stack Gas Velocity	FT/SEC	83.4	79.4	79.5	80.8
Volumetric Flow Rate	SDCFM	54300	51600	51600	52500
Volumetric Flow Rate	ACFM	57800	55000	55100	55967
Particulate Conc.	GRS/SDCF	0.003	0.003	0.004	0.003
Particulate Conc.	GRS/ACF	0.002	0.003	0.004	0.003
Particulate Mass Rate	LB/HR	1.2	1.3	1.6	1.4
Emission Rate	LBS/Ton	0.094	0.104	0.132	0.110
Percent of Isokinetic		91.01	93.31	91.23	

SEAS, INC.

LAROCHE INDUSTRIES, INC.

CHEROKEE, ALABAMA

TABLE III: COMBINED PARTICULATE EMISSIONS
LAROCHE INDUSTRIES, INC. - CHEROKEE, ALABAMA
MARCH 11, 1992

	<u>RUN 2</u>	<u>RUN 3</u>	<u>RUN 4</u>	<u>AVERAGE</u>
SCRUBBER <u>LB/HR</u>	1.3	1.6	1.2	1.4
PRILL TOWER <u>LB/HR</u>	1.8	1.6	1.6	1.7
<u>COMBINED</u>	3.1	3.2	2.8	3.1