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AP-42 Section	11.6
Reference	46
Report Sect.	4
Reference	5

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/](http://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.

**RECEIVED**  
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MANUFACTURING

SOURCE EMISSIONS SURVEY  
OF  
TEXAS CEMENT COMPANY  
BUDA, TEXAS

JUNE AND JULY 1986

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FILE NUMBER 86-48

SOURCE EMISSIONS SURVEY  
TEXAS CEMENT COMPANY  
BUDA, TEXAS  
FILE NUMBER 86-48

INTRODUCTION

Mullins Environmental Testing Co., Inc., Dallas, Texas, conducted a source emissions survey for Texas Cement Company at its plant in Buda, Texas, on June 29 and 30, and July 1 and 2, 1986. The purpose of these tests was to determine the concentrations of particulate matter, sulfur dioxide, and oxides of nitrogen being emitted to the atmosphere via the kiln baghouse exhaust stacks 317A and 317B, and the Alkali Bypass Stack, and to determine the concentration of particulate matter being emitted to the atmosphere via the clinker cooler exhaust stack. Also, upwind and downwind property line samples were taken for particulate matter and sulfur dioxide to determine the concentrations in the ambient air.

The sampling followed the procedures set forth in the Appendix to the Code of Federal Regulations, Title 40, Chapter I, Part 60, and in the "Sampling Procedures Manual, Texas Air Control Board, January 1983."

## SUMMARY OF RESULTS

The principal conclusions are as follows:

317A and 317B Baghouse Stacks and Alkali Bypass Stack

1. The emissions of particulate matter from the three stacks were equal to 0.101 pounds per ton of kiln feed, based on summing the tests on each stack and then averaging the three valid tests using only the "front-half" collections from the EPA-type sampling train. The allowable emission rate, as stated in the Code of Federal Regulations, Title 40, Chapter I, Part 60, Subpart F, is equal to 0.30 pounds per ton of kiln feed. The actual emissions were 33.6 percent of the permitted emission rate.
2. The emissions of sulfur dioxide from the three stacks were equal to 0.420 pounds per million Btu, based on summing the tests on each stack and then averaging the three valid tests. The allowable emission rate, as stated in the EPA PSD-TX-194M2 Permit, is equal to 1.2 pounds per million Btu. The actual emissions were equal to 35.0 percent of the permitted emission rate.
3. The emissions of oxides of nitrogen from the three stacks were equal to 3.80 pounds per ton of cement, based on summing the tests on each

stack and then averaging the three valid tests. The allowable emission rate, as stated in the EPA PSD-TX-194M2 Permit, is equal to 3.7 pounds per ton of cement. The actual emissions were equal to 102.7 percent of the permitted emission rate.

317A Baghouse Stack

1. The emissions of particulate matter from the stack were equal to 18.9 pounds per hour, based on averaging the three valid tests using both the "front-half" and "back-half" collections from the EPA-type sampling train. The allowable emission rate, as stated in the Texas Air Control Board Permit C-3611B, is equal to 26.6 pounds per hour. The actual emissions were 71.1 percent of the permitted emission rate.
2. The emissions of particulate matter from the stack were equal to 8.7 pounds per hour, based on averaging the three valid tests using only the "front-half" collections from the EPA-type sampling train. The allowable emission rate, as stated in EPA PSD-TX-194M2 Permit, is equal to 26.6 pounds per hour. The actual emissions were 32.7 percent of the permitted emissions.
3. The emissions of sulfur dioxide from the stack were equal to 94.3 pounds per hour (87.5 parts per million), based on averaging

the three valid tests. The allowable emission rate, as stated in both the Texas Air Control Board Permit C-3611B and the EPA PSD-TX-194M2 Permit, is equal to 187 pounds per hour. The actual emissions were 50.4 percent of the permitted emission rate.

4. The emissions of oxides of nitrogen from the stack were equal to 215.1 pounds per hour (1.69 pounds per ton of cement), based on averaging the three valid tests. The allowable emission rate, as stated in both the Texas Air Control Board Permit C-3611B and the EPA PSD-TX-194M2 Permit, is equal to 270 pounds per hour. The actual emissions were 79.7 percent of the permitted emission rate.

#### 317B Baghouse Stack

1. The emissions of particulate matter from the stack were equal to 17.2 pounds per hour, based on averaging the three valid tests using both the "front-half" and "back-half" collections from the EPA-type sampling train. The allowable emission rate, as stated in the Texas Air Control Board Permit C-3611B, is equal to 26.6 pounds per hour. The actual emissions were 64.7 percent of the permitted emission rate.

2. The emissions of particulate matter from the stack were equal to 13.4 pounds per hour, based on averaging the three valid tests using only the "front-half" collections from the EPA-type sampling train. The allowable emission rate, as stated in EPA PSD-TX-194M2 Permit, is equal to 26.6 pounds per hour. The actual emissions were 50.5 percent of the permitted emissions.
  
3. The emissions of sulfur dioxide from the stack were equal to 108.1 pounds per hour (78.3 parts per million), based on averaging the three valid tests. The allowable emission rate, as stated in both the Texas Air Control Board Permit C-3611B and the EPA PSD-TX-194M2 Permit, is equal to 187 pounds per hour. The actual emissions were 57.8 percent of the permitted emission rate.
  
4. The emissions of oxides of nitrogen from the stack were equal to 266.0 pounds per hour (2.09 pounds per ton of cement), based on averaging the three valid tests. The allowable emission rate, as stated in both the Texas Air Control Board Permit C-3611B and the EPA PSD-TX-194M2 Permit, is equal to 270 pounds per hour. The actual emissions were 98.5 percent of the permitted emission rate.

Alkali Bypass Stack

1. The emissions of particulate matter from the stack were equal to 2.39 pounds per hour, based on averaging the three valid tests using both the "front-half" and "back-half" collections from the EPA-type sampling train. The allowable emission rate, as stated in the Texas Air Control Board Permit C-3611B, is equal to 4.25 pounds per hour. The actual emissions were 56.3 percent of the permitted emission rate.
  
2. The emissions of particulate matter from the stack were equal to 2.31 pounds per hour, based on averaging the three valid tests using only the "front-half" collections from the EPA-type sampling train. The allowable emission rate, as stated in EPA PSD-TX-194M2 Permit, is equal to 4.25 pounds per hour. The actual emissions were 54.3 percent of the permitted emissions.
  
3. The emissions of sulfur dioxide from the stack were equal to 0.0 pounds per hour (0.2 parts per million), based on averaging the three valid tests. The allowable emission rate, as stated in both the Texas Air Control Board Permit C-3611B and the EPA PSD-TX-194M2 Permit, is equal to 42 pounds per hour. The actual emissions were 0.0 percent of the permitted emission rate.

4. The emissions of oxides of nitrogen from the stack were equal to 3.6 pounds per hour (0.03 pounds per ton of cement), based on averaging the three valid tests. The allowable emission rate, as stated in both the Texas Air Control Board Permit C-3611B and the EPA PSD-TX-194M2 Permit, is equal to 60 pounds per hour. The actual emissions were 6.0 percent of the permitted emission rate.

#### Clinker Cooler Stack

1. The emissions of particulate matter from the stack were equal to 0.035 pounds per ton of kiln feed (8.63 pounds per hour), based on averaging the three tests using only the "front-half" collections from the EPA-type sampling train. The allowable emission rate, as stated in the Code of Federal Regulations, Title 40, Chapter I, Part 60, Subpart F, is equal to 0.10 pounds per ton of kiln feed. The actual emissions were 34.7 percent of the permitted emission rate. The allowable emission rate, as stated in the EPA PSD-TX-194M2 Permit, is equal to 6.58 pounds per hour. The actual emissions were 131.2 percent of the permitted emission rate.
2. The emissions of particulate matter from the stack were equal to 9.33 pounds per hour, based on averaging the three tests using both the "front-half" and "back-half" collections from the EPA-type sampling train. The allowable emission rate, as stated in the

## SUMMARY OF RESULTS

### Particulate Matter Emissions

#### Particulate Matter Emissions (lbs/ton of Kiln Feed)

Run Number	Kiln Feed Rate (tons/hr)	317A Stack	317B Stack	Alkali Bypass Stack	Total
2	243.6	0.029	0.064	0.011	0.104
3	241.6	0.040	0.051	0.009	0.100
6	239.0	0.039	0.051	0.008	0.098
				Average	0.101

### Sulfur Dioxide Emissions

#### *lb/hr* Sulfur Dioxide Emissions (lbs/million Btu)

Run Number	Btu Input (million Btu/hr)	317A Stack	317B Stack	Alkali Bypass Stack	Total
2	475.152	0.155	0.142	0.000	0.297
3	487.797	0.173	0.185	0.000	0.358
6	482.910	0.259	0.345	0.000	0.604
	<i>Avg.</i>	<i>94.3</i>	<i>108.1</i>	<i>0.0</i>	<i>0.420</i> $\xrightarrow{\$ 202.4}$

### Oxides of Nitrogen Emissions

#### *lb/hr* Oxides of Nitrogen Emissions (lbs/ton of Cement)

Run Number	Cement Production* (tons/hr)	317A Stack	317B Stack	Alkali Bypass Stack	Total
2	128.6	1.74	2.13	0.02	3.89
3	127.6	1.62	2.03	0.03	3.68
6	126.2	1.70	2.11	0.03	3.84
	<i>Avg</i>	<i>1.69</i>	<i>2.09</i>	<i>0.03</i>	<i>3.80</i>

\* Assumes Cement is equal to 52.8 percent of Kiln Feed.