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.

Background Report Reference

AP-42 Section Number: 11.17

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Title: Results of Particulate Emission TEsts at bAsic Magnesia, Inc

Environmental Science and Engineering

Environmental Science and Engineering

June 1973

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RESULTS OF PARTICULATE EMISSION TESTS
BASIC MAGNESIA, INC.
PORT ST. JOE, FLORIDA

JUNE 1973

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
2324 SOUTHWEST 34 STREET
GAINESVILLE, FLORIDA 32601

74-LIM-2

RESULTS OF PARTICULATE EMISSION TESTS
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TABLE OF CONTENTS

	Page
INTRODUCTION	1
SUMMARY OF RESULTS	2
SAMPLING AND ANALYTICAL PROCEDURES	13
APPENDICES	18
APPENDIX A: COMPLETE PARTICULATE EMISSION RESULTS	
APPENDIX B: FIELD DATA SHEETS	
APPENDIX C: LABORATORY DATA SHEETS	
APPENDIX D: PROJECT PARTICIPANTS	

I. INTRODUCTION

On June 5 and 6, 1973, Environmental Science and Engineering, Inc. of Gainesville, Florida, conducted particulate emission tests on several stationary sources at Basic Magnesia, Inc. in Port St. Joe, Florida.

The following five sources were tested: No. 1 MgO Calciner, No. 2 MgO Calciner, No. 3 MgO Calciner, Periclase Kiln, and ESP Outlet Dryer Kiln. There are bag collectors (fabric filters) on all three MgO Calciners, and an electrostatic precipitator on the Dryer Kiln. The Periclase Kiln does not have a control device at this time.

An EPA sample train and a Florida sample train were operated simultaneously at each source in order to compare test methods. Both methods are described on page 16, "Sampling and Analytical Procedures." A schematic diagram of each sample train is also included.

Two 1-hour tests were conducted simultaneously, with the EPA and Florida trains, on each source while the plant was operating normally.

II. SUMMARY OF RESULTS

Summarized results of the particulate emissions are shown in Tables 1 through 10. Complete test results are included in Appendix A.

Insoluble particulate refers to the sampling train catch that was filtered on a glass fiber filter, and the soluble particulate refers to the residue remaining after evaporating the filtrate at 212°F.

The "Florida" particulate sampling method used is described in the Florida Department of Pollution Control's "Standard Sampling Techniques and Methods of Analysis for the Determination of Air Pollutants From Point Sources."

The "EPA" sampling method used is described in Method 5 of the Federal Register, Vol. 36, No. 247, December 23, 1971.

SOURCE TEST DATA

TEST NO - 73033002
PLANT - BASIC MAGNESIA PORT ST. JOE, FLA.
SOURCE - NO. 1 MGO CALCINER (EPA TRAIN)
TYPE OF PLANT - MANUFACTURING MAGNESIUM OXIDE
CONTROL EQUIPMENT - BAG COLLECTORS
POLLUTANTS SAMPLED - PARTICULATES

1)RUN NUMBER	1	2
2)DATE	6/5/73	6/5/73
3)TIME BEGAN	9:15	11:00
4)TIME END	10:15	12:00
5)BAROMETRIC PRESSURE, IN HG	30	30
6)METER ORIFICE PRESSURE DROP, IN H2O	0.88	0.84
7)VOL DRY GAS METER COND., CUBIC FEET	36.301	36.2
8)AVERAGE GAS METER TEMPERATURE, DEG F	92.6	101.9
9)VOL DRY GAS, S. T. P., CUBIC FEET	34.985	34.31
10)TOTAL H2O COLLECTED, ML	47.6	161.4
11)VOL H2O VAPOR COLLECTED, S. T. P. CU FT	2.26	7.65
12)STACK GAS MOISTURE, PERCENT VOLUME	6.1	18.2
13)ASSUMED STACK GAS MOISTURE, PCT VOL	20	20
14)PERCENT CO2	2	2.8
15)PERCENT O2	16.2	15.2
16)PERCENT CO	0.8	0.6
17)PERCENT N2	81	81.4
18)PERCENT EXCESS AIR	275	221
19)MOLECULAR WEIGHT OF STACK GAS, DRY	28.97	29.06
20)MOLECULAR WEIGHT OF STACK GAS, STK COND	28.3	27.04
21)STACK GAS SPECIFIC GRAVITY	0.98	0.93
22)AVG SQUARE ROOT (VEL HEAD), IN H2O	1.137	1.111
23)AVERAGE STACK GAS TEMPERATURE, DEG F	325	325
24)AVG SQUARE ROOT (STK TEMP×VEL HEAD)	31.864	31.129
25)PITOT CORRECTION FACTOR	0.83	0.83
26)STACK PRESSURE, IN HG, ABSOLUTE	29.5	29.5
27)STACK GAS VEL, STACK COND, F. P. M.	4690.3	4688
28)STACK AREA, SQ FEET	6.87	6.87
29)EFFECTIVE STACK AREA, SQUARE FEET	6.87	6.87
30)STACK GAS FLOW RATE, S. T. P. ,SCFMD	20161	17530
31)NET TIME OF TEST, MINUTES	60	60
32)SAMPLING NOZZLE DIAMETER, INCHES	0.1875	0.1875
33)PERCENT ISOKINETIC	103.7	116.8

Filter lb/hr	6.49	3.62
Front Half lb/hr	3.51	13.87
Back Half lb/hr	1.62	0.66
Totals lb/hr	11.61	18.15

S. T. P. ↔DRY, 70 DEGREES F, 29.92 INCHES MERCURY

SOURCE TEST DATA

TEST NO - 73033002
PLANT - BASIC MAGNESIA PORT ST. JOE, FLA.
SOURCE - NO. 2 MGO CALCINER (EPA TRAIN)
TYPE OF PLANT - MANUFACTURING MAGNESIUM OXIDE
CONTROL EQUIPMENT - BAG COLLECTORS
POLLUTANTS SAMPLED - PARTICULATES

1)RUN NUMBER	1	2
2)DATE	6/5/73	6/6/73
3)TIME BEGAN	9:22	8:35
4)TIME END	10:22	9:35
5)BAROMETRIC PRESSURE, IN HG	30	30
6)METER ORIFICE PRESSURE DROP, IN H2O	0.82	0.79
7)VOL DRY GAS METER COND., CUBIC FEET	32.18	31.28
8)AVERAGE GAS METER TEMPERATURE, DEG F	86.5	85.9
9)VOL DRY GAS, S. T. P., CUBIC FEET	31.354	30.512
10)TOTAL H2O COLLECTED, ML	95.7	86
11)VOL H2O VAPOR COLLECTED, S. T. P. CU FT	4.54	4.08
12)STACK GAS MOISTURE, PERCENT VOLUME	12.6	11.8
13)ASSUMED STACK GAS MOISTURE, PCT VOL	20	20
14)PERCENT CO2	2.4	1.8
15)PERCENT O2	16.4	16.8
16)PERCENT CO	1.6	0.6
17)PERCENT N2	79.6	80.8
18)PERCENT EXCESS AIR	280	330
19)MOLECULAR WEIGHT OF STACK GAS, DRY	29.04	28.96
20)MOLECULAR WEIGHT OF STACK GAS, STK COND	27.64	27.67
21)STACK GAS SPECIFIC GRAVITY	0.95	0.95
22)AVG SQUARE ROOT (VEL HEAD), IN H2O	1.091	1.075
23)AVERAGE STACK GAS TEMPERATURE, DEG F	325	310
24)AVG SQUARE ROOT (STK TEMP×VEL HEAD)	30.569	29.827
25)PITOT CORRECTION FACTOR	0.83	0.83
26)STACK PRESSURE, IN HG, ABSOLUTE	29.5	29.5
27)STACK GAS VEL, STACK COND, F. P. M.	4553	4440.6
28)STACK AREA, SQ FEET	6.87	6.87
29)EFFECTIVE STACK AREA, SQUARE FEET	6.87	6.87
30)STACK GAS FLOW RATE, S. T. P. ,SCFMD	18190	18263
31)NET TIME OF TEST, MINUTES	60	60
32)SAMPLING NOZZLE DIAMETER, INCHES	0.1875	0.1875
33)PERCENT ISOKINETIC	102.9	99.7

Filter	lb/hr	3.54	1.81
Front Half	lb/hr	3.99	13.28
Back Half	lb/hr	1.69	1.69
Totals	lb/hr	9.21	16.79

S. T. P. ↔DRY, 70 DEGREES F, 29.92 INCHES MERCURY

SOURCE TEST DATA

TEST NO - 73033002
PLANT - BASIC MAGNESIA PORT ST. JOE, FLA.
SOURCE - NO. 3 MGO CALCINER (EPA TRAIN)
TYPE OF PLANT - MANUFACTURING MAGNESIUM OXIDE
CONTROL EQUIPMENT - BAG COLLECTORS
POLLUTANTS SAMPLED - PARTICUAATES

1)RUN NUMBER	1	2
2)DATE	6/5/73	6/5/73
3)TIME BEGAN	14:00	15:55
4)TIME END	15:00	17:15
5)BAROMETRIC PRESSURE, IN HG	30	30
6)METER ORIFICE PRESSURE DROP, IN H2O	0.8	0.74
7)VOL DRY GAS METER COND., CUBIC FEET	32.635	30.59
8)AVERAGE GAS METER TEMPERATURE, DEG F	95.5	91.6
9)VOL DRY GAS, S. T. P., CUBIC FEET	31.281	29.527
10)TOTAL H2O COLLECTED, ML	11.9	91.8
11)VOL H2O VAPOR COLLECTED, S. T. P. CU FT	0.56	4.35
12)STACK GAS MOISTURE, PERCENT VOLUME	1.8	12.8
13)ASSUMED STACK GAS MOISTURE, PCT VOL	20	20
14)PERCENT CO2	1.8	1.4
15)PERCENT O2	17.2	16.4
16)PERCENT CO	0.8	0.4
17)PERCENT N2	80.2	81.8
18)PERCENT EXCESS AIR	371	291
19)MOLECULAR WEIGHT OF STACK GAS, DRY	28.98	28.88
20)MOLECULAR WEIGHT OF STACK GAS, STK COND	28.78	27.48
21)STACK GAS SPECIFIC GRAVITY	0.99	0.95
22)AVG SQUARE ROOT (VEL HEAD), IN H2O	1.137	1.091
23)AVERAGE STACK GAS TEMPERATURE, DEG F	375	375
24)AVG SQUARE ROOT (STK TEMP×VEL HEAD)	32.841	31.512
25)PITOT CORRECTION FACTOR	0.83	0.83
26)STACK PRESSURE, IN HG, ABSOLUTE	29.4	29.4
27)STACK GAS VEL, STACK COND, F. P. M.	4802	4715.3
28)STACK AREA, SQ FEET	10.08	10.08
29)EFFECTIVE STACK AREA, SQUARE FEET	10.08	10.08
30)STACK GAS FLOW RATE, S. T. P. ,SCFMD	29669	25837
31)NET TIME OF TEST, MINUTES	60	60
32)SAMPLING NOZZLE DIAMETER, INCHES	0.1875	0.1875
33)PERCENT ISOKINETIC	92.4	100.1

Filter	lb/hr	2.07	0.86
Front Half	lb/hr	28.73	8.09
Back Half	lb/hr	4.89	4.49
Totals		35.69	13.43

S. T. P. ←→DRY, 70 DEGREES F, 29.92 INCHES MERCURY

SOURCE TEST DATA

TEST NO - 73033002
PLANT - BASIC MAGNESIA PORT ST. JOE, FLA.
SOURCE - PERICLASE KILN (EPA TRAIN)
TYPE OF PLANT - MANUFACTURING MAGNESIUM OXIDE
CONTROL EQUIPMENT -
POLLUTANTS SAMPLED - PARTICULATES

1)RUN NUMBER	1	2
2)DATE	6/6/73	6/6/73
3)TIME BEGAN	10:15	13:25
4)TIME END	11:15	14:25
5)BAROMETRIC PRESSURE, IN HG	30	30
6)METER ORIFICE PRESSURE DROP, IN H2O	1.31	1.47
7)VOL DRY GAS METER COND., CUBIC FEET	41.87	43.555
8)AVERAGE GAS METER TEMPERATURE, DEG F	112	107
9)VOL DRY GAS, S. T. P., CUBIC FEET	39.025	40.968
10)TOTAL H2O COLLECTED, ML	149.7	148.9
11)VOL H2O VAPOR COLLECTED, S. T. P. CU FT	7.1	7.06
12)STACK GAS MOISTURE, PERCENT VOLUME	15.4	14.7
13)ASSUMED STACK GAS MOISTURE, PCT VOL	10	10
14)PERCENT CO2	3	4.6
15)PERCENT O2	14	13.8
16)PERCENT CO	0.8	0.6
17)PERCENT N2	82.2	81
18)PERCENT EXCESS AIR	165	168
19)MOLECULAR WEIGHT OF STACK GAS, DRY	29.04	29.29
20)MOLECULAR WEIGHT OF STACK GAS, STK COND	27.34	27.63
21)STACK GAS SPECIFIC GRAVITY	0.94	0.95
22)AVG SQUARE ROOT (VEL HEAD), IN H2O	0.824	0.87
23)AVERAGE STACK GAS TEMPERATURE, DEG F	580	580
24)AVG SQUARE ROOT (STK TEMP×VEL HEAD)	26.576	28.055
25)PITOT CORRECTION FACTOR	0.83	0.83
26)STACK PRESSURE, IN HG, ABSOLUTE	30	30
27)STACK GAS VEL, STACK COND, F. P. M.	3946.8	4144.8
28)STACK AREA, SQ FEET	11.79	11.79
29)EFFECTIVE STACK AREA, SQUARE FEET	11.79	11.79
30)STACK GAS FLOW RATE, S. T. P. ,SCFHD	20125	21300
31)NET TIME OF TEST, MINUTES	60	60
32)SAMPLING NOZZLE DIAMETER, INCHES	0.25	0.25
33)PERCENT ISOKINETIC	111.8	110.8

Filter	lb/hr	21.58	20.23
Front Half	lb/hr	476.57	348.53
Back Half	lb/hr	24.68	11.27
Totals	lb/hr	522.83	380.04

S. T. P. ←→DRY, 70 DEGREES F, 29.92 INCHES MERCURY

SOURCE TEST DATA

TEST NO - 73063002
PLANT - BASIC MAGNESIA PORT ST. JOE, FLA.
SOURCE - ESP OUTLET DRYER (EPA TRAIN)
TYPE OF PLANT - MANUFACTURING MAGNESIUM OXIDE
CONTROL EQUIPMENT - ELECTROSTATIC PRECIPITATOR
POLLUTANTS SAMPLED - PARTICULATES

1)RUN NUMBER	1	2
2)DATE	6/6/73	6/6/73
3)TIME BEGAN	16:30	18:00
4)TIME END	17:30	19:00
5)BAROMETRIC PRESSURE, IN HG	30	30
6)METER ORIFICE PRESSURE DROP, IN H2O	1.1	0.99
7)VOL DRY GAS METER COND., CUBIC FEET	36.31	34.125
8)AVERAGE GAS METER TEMPERATURE, DEG F	100.6	95.9
9)VOL DRY GAS, S. T. P., CUBIC FEET	34.511	32.703
10)TOTAL H2O COLLECTED, ML	226.4	172.1
11)VOL H2O VAPOR COLLECTED, S. T. P. CU FT	10.73	8.16
12)STACK GAS MOISTURE, PERCENT VOLUME	23.7	20
13)ASSUMED STACK GAS MOISTURE, PCT VOL	10	10
14)PERCENT CO2	18.8	16.8
15)PERCENT O2	6.2	8.2
16)PERCENT CO	1	0.8
17)PERCENT N2	74	74.2
18)PERCENT EXCESS AIR	41	65
19)MOLECULAR WEIGHT OF STACK GAS, DRY	31.26	31.02
20)MOLECULAR WEIGHT OF STACK GAS, STK COND	28.11	28.42
21)STACK GAS SPECIFIC GRAVITY	0.97	0.98
22)AVG SQUARE ROOT (VEL HEAD), IN H2O	0.733	0.697
23)AVERAGE STACK GAS TEMPERATURE, DEG F	530	530
24)AVG SQUARE ROOT (STK TEMP×VEL HEAD)	23.056	21.933
25)PITOT CORRECTION FACTOR	0.83	0.83
26)STACK PRESSURE, IN HG, ABSOLUTE	30	30
27)STACK GAS VEL, STACK COND, F. P. M.	3376.8	3195.1
28)STACK AREA, SQ FEET	24.76	24.76
29)EFFECTIVE STACK AREA, SQUARE FEET	24.76	24.76
30)STACK GAS FLOW RATE, S. T. P. ,SCFMD	34233	33988
31)NET TIME OF TEST, MINUTES	60	60
32)SAMPLING NOZZLE DIAMETER, INCHES	0.25	0.25
33)PERCENT ISOKINETIC	122	116.4

Filter	lb/hr	9.30	5.96
Front Half	lb/hr	2.27	1.14
Back Half	lb/hr	71.79	10.39
Totals	lb/hr	83.36	17.49

S. T. P. ←→DRY, 70 DEGREES F, 29.92 INCHES MERCURY

SOURCE TEST DATA

TEST NO -
PLANT - BASIC MAGNESIA PORT ST. JOE, FLA.
SOURCE - NO. 1 MGO CALCINER (FLA TRAIN)
TYPE OF PLANT - MANUFACTURING MAGNESIUM OXIDE
CONTROL EQUIPMENT - BAG COLLECTOR
POLLUTANTS SAMPLED - PARTICULATES

1)RUN NUMBER	1	2
2)DATE	6/5/73	6/5/73
3)TIME BEGAN	9:15	11:00
4)TIME END	10:15	12:00
5)BAROMETRIC PRESSURE, IN HG	30	30
6)METER ORIFICE PRESSURE DROP, IN H2O	0.85	0.81
7)VOL DRY GAS METER COND., CUBIC FEET	34.684	34.184
8)AVERAGE GAS METER TEMPERATURE, DEG F	100.8	107
9)VOL DRY GAS, S. T. P., CUBIC FEET	32.935	32.102
10)TOTAL H2O COLLECTED, ML	152.1	197.8
11)VOL H2O VAPOR COLLECTED, S. T. P. CU FT	7.21	9.38
12)STACK GAS MOISTURE, PERCENT VOLUME	18	22.6
13)ASSUMED STACK GAS MOISTURE, PCT VOL	20	20
14)PERCENT CO2	2	2.8
15)PERCENT O2	16.2	15.2
16)PERCENT CO	0.8	0.6
17)PERCENT N2	81	81.4
18)PERCENT EXCESS AIR	275	221
19)MOLECULAR WEIGHT OF STACK GAS, DRY	28.97	29.06
20)MOLECULAR WEIGHT OF STACK GAS, STK COND	27	26.56
21)STACK GAS SPECIFIC GRAVITY	0.93	0.92
22)AVG SQUARE ROOT (VEL HEAD), IN H2O	1.137	1.111
23)AVERAGE STACK GAS TEMPERATURE, DEG F	325	325
24)AVG SQUARE ROOT (STK TEMP×VEL HEAD)	31.864	31.129
25)PITOT CORRECTION FACTOR	0.83	0.83
26)STACK PRESSURE, IN HG, ABSOLUTE	29.5	29.5
27)STACK GAS VEL, STACK COND, F. P. M.	4802.4	4730.5
28)STACK AREA, SQ FEET	6.87	6.87
29)EFFECTIVE STACK AREA, SQUARE FEET	6.87	6.87
30)STACK GAS FLOW RATE, S. T. P. ,SCFMD	18028	16744
31)NET TIME OF TEST, MINUTES	60	60
32)SAMPLING NOZZLE DIAMETER, INCHES	0.1875	0.1875
33)PERCENT ISOKINETIC	109.1	114.4

Filter	lb/hr	0.17	0.28
Insoluble	lb/hr	0.28	0.37
Soluble	lb/hr	18.62	19.66
Totals	lb/hr	19.06	20.30

S. T. P. ←→DRY, 70 DEGREES F, 29.92 INCHES MERCURY

SOURCE TEST DATA

TEST NO -
PLANT - BASIC MAGNESIA PORT ST. JOE, FLA.
SOURCE - NO. 2 MGO CALCINER (FLA TRAIN)
TYPE OF PLANT - MANUFACTURING MAGNESIUM OXIDE
CONTROL EQUIPMENT - BAG COLLECTORS
POLLUTANTS SAMPLED - PARTICULATES

1)RUN NUMBER	1	2
2)DATE	6/5/73	6/6/73
3)TIME BEGAN	9:22	8:35
4)TIME END	10:22	9:35
5)BAROMETRIC PRESSURE, IN HG	30	30
6)METER ORIFICE PRESSURE DROP, IN H2O	0.84	0.8
7)VOL DRY GAS METER COND., CUBIC FEET	25.358	23.805
8)AVERAGE GAS METER TEMPERATURE, DEG F	94.3	85.9
9)VOL DRY GAS, S. T. P., CUBIC FEET	24.363	23.219
10)TOTAL H2O COLLECTED, ML	42.7	90.4
11)VOL H2O VAPOR COLLECTED, S. T. P. CU FT	2.02	4.28
12)STACK GAS MOISTURE, PERCENT VOLUME	7.7	15.6
13)ASSUMED STACK GAS MOISTURE, PCT VOL	20	20
14)PERCENT CO2	2.4	1.8
15)PERCENT O2	16.4	16.8
16)PERCENT CO	1.6	0.6
17)PERCENT N2	79.6	80.8
18)PERCENT EXCESS AIR	280	330
19)MOLECULAR WEIGHT OF STACK GAS, DRY	29.04	28.96
20)MOLECULAR WEIGHT OF STACK GAS, STK COND	28.19	27.25
21)STACK GAS SPECIFIC GRAVITY	0.97	0.94
22)AVG SQUARE ROOT (VEL HEAD), IN H2O	1.091	1.075
23)AVERAGE STACK GAS TEMPERATURE, DEG F	325	320
24)AVG SQUARE ROOT (STK TEMP×VEL HEAD)	30.569	30.024
25)PITOT CORRECTION FACTOR	0.83	0.83
26)STACK PRESSURE, IN HG, ABSOLUTE	29.5	29.5
27)STACK GAS VEL, STACK COND, F. P. M.	4508.5	4503.9
28)STACK AREA, SQ FEET	6.87	6.87
29)EFFECTIVE STACK AREA, SQUARE FEET	6.87	6.87
30)STACK GAS FLOW RATE, S. T. P. ,SCFMD	19037	17500
31)NET TIME OF TEST, MINUTES	60	60
32)SAMPLING NOZZLE DIAMETER, INCHES	0.1875	0.1875
33)PERCENT ISOKINETIC	76.4	79.2

Filter	lb/hr	0.08	0.03
Insoluble	lb/hr	4.47	0.23
Soluble	lb/hr	12.09	11.60
Totals	lb/hr	16.65	11.86

S. T. P. ↔DRY, 70 DEGREES F, 29.92 INCHES MERCURY

SOURCE TEST DATA

TEST NO -
PLANT - BASIC MAGNESIA PORT ST. JOE, FLA.
SOURCE - NO. 3 MGO CALCINER (FLA TRAIN)
TYPE OF PLANT - MANUFACTURING MAGNESIUM OXIDE
CONTROL EQUIPMENT - BAG COLLECTORS
POLLUTANTS SAMPLED - PARTICULATES

1)RUN NUMBER	1	2
2)DATE	6/5/73	6/5/73
3)TIME BEGAN	14:00	15:55
4)TIME END	15:00	17:12
5)BAROMETRIC PRESSURE, IN HG	30	30
6)METER ORIFICE PRESSURE DROP, IN H2O	0.81	0.74
7)VOL DRY GAS METER COND., CUBIC FEET	24.795	24.415
8)AVERAGE GAS METER TEMPERATURE, DEG F	97.3	96.8
9)VOL DRY GAS, S. T. P., CUBIC FEET	23.59	23.346
10)TOTAL H2O COLLECTED, ML	102.2	127.4
11)VOL H2O VAPOR COLLECTED, S. T. P. CU FT	4.84	6.04
12)STACK GAS MOISTURE, PERCENT VOLUME	17	20.6
13)ASSUMED STACK GAS MOISTURE, PCT VOL	20	20
14)PERCENT CO2	1.8	1.4
15)PERCENT O2	17.2	16.4
16)PERCENT CO	0.8	0.4
17)PERCENT N2	80.2	81.8
18)PERCENT EXCESS AIR	371	291
19)MOLECULAR WEIGHT OF STACK GAS, DRY	28.98	28.88
20)MOLECULAR WEIGHT OF STACK GAS, STK COND	27.11	26.64
21)STACK GAS SPECIFIC GRAVITY	0.94	0.92
22)AVG SQUARE ROOT (VEL HEAD), IN H2O	1.137	1.091
23)AVERAGE STACK GAS TEMPERATURE, DEG F	375	375
24)AVG SQUARE ROOT (STK TEMP×VEL HEAD)	32.841	31.512
25)PITOT CORRECTION FACTOR	0.83	0.83
26)STACK PRESSURE, IN HG, ABSOLUTE	29.4	29.4
27)STACK GAS VEL, STACK COND, F. P. M.	4947.6	4788.9
28)STACK AREA, SQ FEET	10.08	10.08
29)EFFECTIVE STACK AREA, SQUARE FEET	10.08	10.08
30)STACK GAS FLOW RATE, S. T. P. ,SCFMD	25837	23920
31)NET TIME OF TEST, MINUTES	60	60
32)SAMPLING NOZZLE DIAMETER, INCHES	0.1875	0.1875
33)PERCENT ISOKINETIC	80.3	85.5

Filter	lb/hr	1.90	0.14
Insoluble	lb/hr	3.92	1.22
Soluble	lb/hr	69.66	53.58
Totals	lb/hr	75.48	54.94

S. T. P. ↔DRY, 70 DEGREES F, 29.92 INCHES MERCURY

SOURCE TEST DATA

TEST NO -
PLANT - BASIC MAGNESIA PORT ST. JOE, FLA.
SOURCE - PERICLASE KILN (FLA TRAIN)
TYPE OF PLANT - MANUFACTURING MAGNESIUM OXIDE
CONTROL EQUIPMENT -
POLLUTANTS SAMPLED - PARTICULATES

1)RUN NUMBER	1	2
2)DATE	6/6/73	6/6/73
3)TIME BEGAN	10:15	12:25
4)TIME END	11:15	13:25
5)BAROMETRIC PRESSURE, IN HG	30	30
6)METER ORIFICE PRESSURE DROP, IN H2O	1.32	1.45
7)VOL DRY GAS METER COND., CUBIC FEET	40.71	42.735
8)AVERAGE GAS METER TEMPERATURE, DEG F	112.2	107.1
9)VOL DRY GAS, S. T. P., CUBIC FEET	37.93	40.192
10)TOTAL H2O COLLECTED, ML	154.1	176.6
11)VOL H2O VAPOR COLLECTED, S. T. P. CU FT	7.3	8.37
12)STACK GAS MOISTURE, PERCENT VOLUME	16.1	17.2
13)ASSUMED STACK GAS MOISTURE, PCT VOL	3	3
14)PERCENT CO2	3	4.6
15)PERCENT O2	14	13.8
16)PERCENT CO	0.8	0.6
17)PERCENT N2	82.2	81
18)PERCENT EXCESS AIR	165	168
19)MOLECULAR WEIGHT OF STACK GAS, DRY	29.04	29.29
20)MOLECULAR WEIGHT OF STACK GAS, STK COND	27.26	27.34
21)STACK GAS SPECIFIC GRAVITY	0.94	0.94
22)AVG SQUARE ROOT (VEL HEAD), IN H2O	0.824	0.87
23)AVERAGE STACK GAS TEMPERATURE, DEG F	580	580
24)AVG SQUARE ROOT (STK TEMP×VEL HEAD)	26.576	28.055
25)PITOT CORRECTION FACTOR	0.83	0.83
26)STACK PRESSURE, IN HG, ABSOLUTE	30	30
27)STACK GAS VEL, STACK COND, F. P. M.	3952.9	4166.5
28)STACK AREA, SQ FEET	11.79	11.79
29)EFFECTIVE STACK AREA, SQUARE FEET	11.79	11.79
30)STACK GAS FLOW RATE, S. T. P. ,SCFMD	19974	20774
31)NET TIME OF TEST, MINUTES	60	60
32)SAMPLING NOZZLE DIAMETER, INCHES	0.25	0.25
33)PERCENT ISOKINETIC	109.5	111.5

Filter	lb/hr	8.77	9.47
Insoluble	lb/hr	408.75	243.72
Soluble	lb/hr	178.45	119.92
Totals	lb/hr	595.96	373.11

S. T. P. ↔DRY, 70 DEGREES F, 29.92 INCHES MERCURY

SOURCE TEST DATA

TEST NO -
PLANT - BASIC MAGNESIA PORT ST. JOE, FLA.
SOURCE - ESP OUTLET DRYER (FLA TRAIN)
TYPE OF PLANT - MANUFACTURING MAGNESIUM OXIDE
CONTROL EQUIPMENT - ELECTROSTATIC PRECIPITATOR
POLLUTANTS SAMPLED - PARTICULATES

1)RUN NUMBER	1	2
2)DATE	6/7/73	6/7/73
3)TIME BEGAN	16:30	18:00
4)TIME END	17:30	19:00
5)BAROMETRIC PRESSURE, IN HG	30.1	30.1
6)METER ORIFICE PRESSURE DROP, IN H2O	1.04	0.95
7)VOL DRY GAS METER COND., CUBIC FEET	28.31	27.015
8)AVERAGE GAS METER TEMPERATURE, DEG F	109.1	101.9
9)VOL DRY GAS, S. T. P., CUBIC FEET	26.59	25.694
10)TOTAL H2O COLLECTED, ML	146.9	122.8
11)VOL H2O VAPOR COLLECTED, S. T. P. CU FT	6.96	5.82
12)STACK GAS MOISTURE, PERCENT VOLUME	20.8	18.5
13)ASSUMED STACK GAS MOISTURE, PCT VOL	10	10
14)PERCENT CO2	18.8	16.8
15)PERCENT O2	6.2	8.2
16)PERCENT CO	1	0.8
17)PERCENT N2	74	74.2
18)PERCENT EXCESS AIR	41	65
19)MOLECULAR WEIGHT OF STACK GAS, DRY	31.26	31.02
20)MOLECULAR WEIGHT OF STACK GAS, STK COND	28.51	28.61
21)STACK GAS SPECIFIC GRAVITY	0.98	0.99
22)AVG SQUARE ROOT (VEL HEAD), IN H2O	0.733	0.697
23)AVERAGE STACK GAS TEMPERATURE, DEG F	530	530
24)AVG SQUARE ROOT (STK TEMP×VEL HEAD)	23.056	21.933
25)PITOT CORRECTION FACTOR	0.83	0.83
26)STACK PRESSURE, IN HG, ABSOLUTE	30	30
27)STACK GAS VEL, STACK COND, F. P. M.	3353.4	3184.2
28)STACK AREA, SQ FEET	24.76	24.76
29)EFFECTIVE STACK AREA, SQUARE FEET	24.76	24.76
30)STACK GAS FLOW RATE, S. T. P. ,SCFMD	35318	34504
31)NET TIME OF TEST, MINUTES	60	60
32)SAMPLING NOZZLE DIAMETER, INCHES	0.25	0.25
33)PERCENT ISOKINETIC	91.1	90.1

Filter	lb/hr	0.28	0.76
Insoluble	lb/hr	0.56	1.79
Soluble	lb/hr	192.15	137.22
Totals		193.00	139.77

S. T. P. ↔DRY, 70 DEGREES F, 29.92 INCHES MERCURY

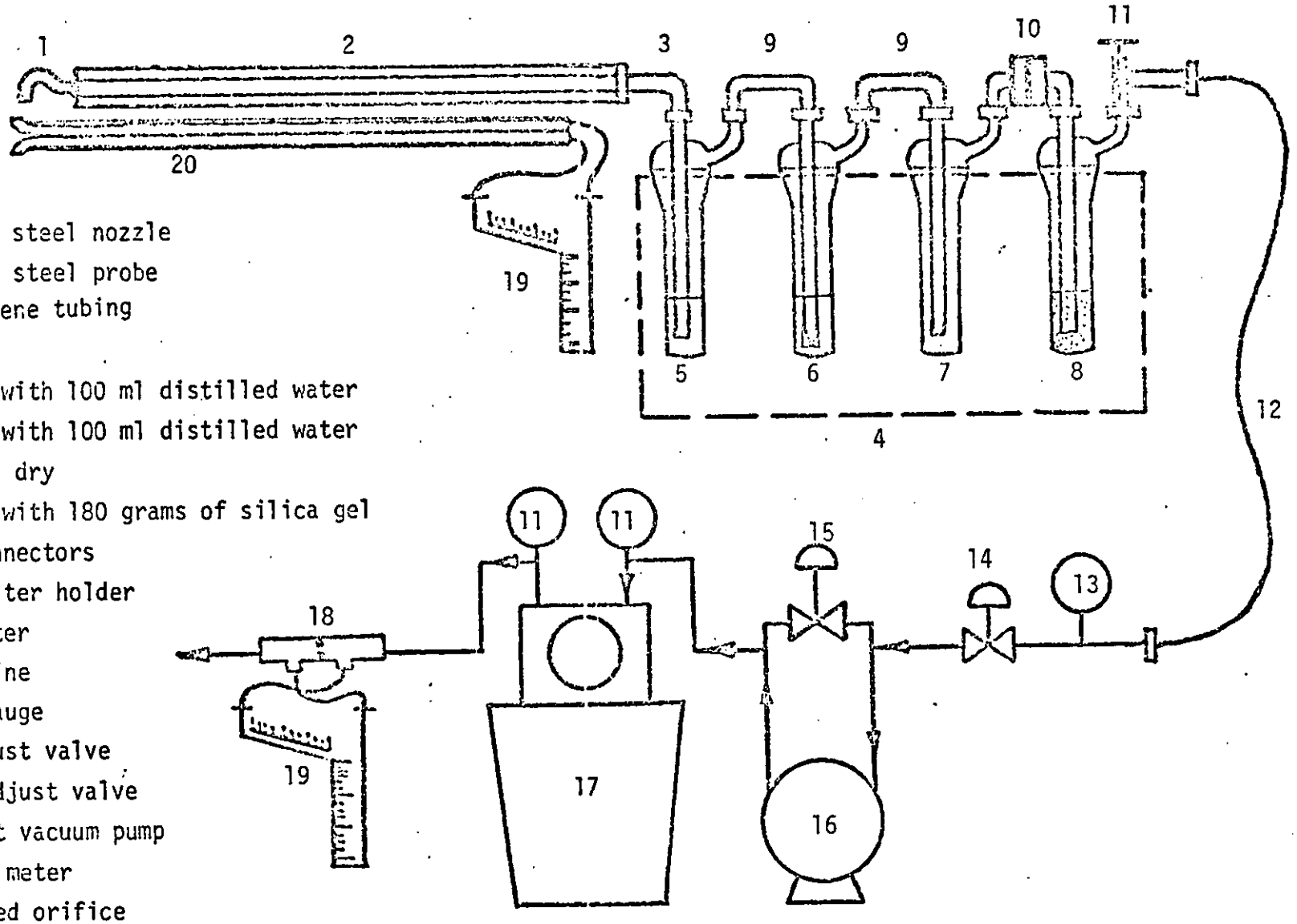
III. SAMPLING AND ANALYTICAL PROCEDURES

Sampling Procedures

Prior to performing the actual emission tests, certain preliminary stack parameter data had to be determined. This preliminary data included the stack diameter, number of sampling points, stack gas velocity, stack gas moisture, and stack gas temperature.

The following "Florida" sample train was used for the particulate tests for the three MgO calciners, the periclase kiln and the lime kiln: stainless steel nozzle; stainless steel probe; polyethylene tubing; two Greenburg-Smith impingers, each with 100 ml of distilled water; a dry impinger; a glass-fiber filter; an impinger with 200 grams of silica gel; a flexible sample line; an air-tight vacuum pump; a dry-test meter; and a calibrated orifice with an inclined manometer (see Figure 1).

The following "EPA" sample train was run simultaneously with the "Florida" train for particulate testing on all sources: a stainless steel nozzle; glass-lined, stainless steel probe; heated compartment containing a miniature cyclone and a glass Gelman filter apparatus; two Greenburg-Smith impingers, each with 100 ml of distilled water; a dry impinger; an impinger with approximately 200 grams of silica gel; a flexible vacuum line (umbilical cord); an air-tight vacuum pump; a dry-test meter; and a calibrated orifice with an inclined manometer (see Figure 2).



1. Stainless steel nozzle
2. Stainless steel probe
3. Polyethylene tubing
4. Ice bath
5. Impinger with 100 ml distilled water
6. Impinger with 100 ml distilled water
7. Impinger, dry
8. Impinger with 180 grams of silica gel
9. Glass connectors
10. Glass filter holder
11. Thermometer
12. Sample line
13. Vacuum gauge
14. Fine-adjust valve
15. Coarse-adjust valve
16. Air-tight vacuum pump
17. Dry-test meter
18. Calibrated orifice
19. Inclined manometer
20. S-type pitot tube

FLORIDA SAMPLE TRAIN

FIGURE 1

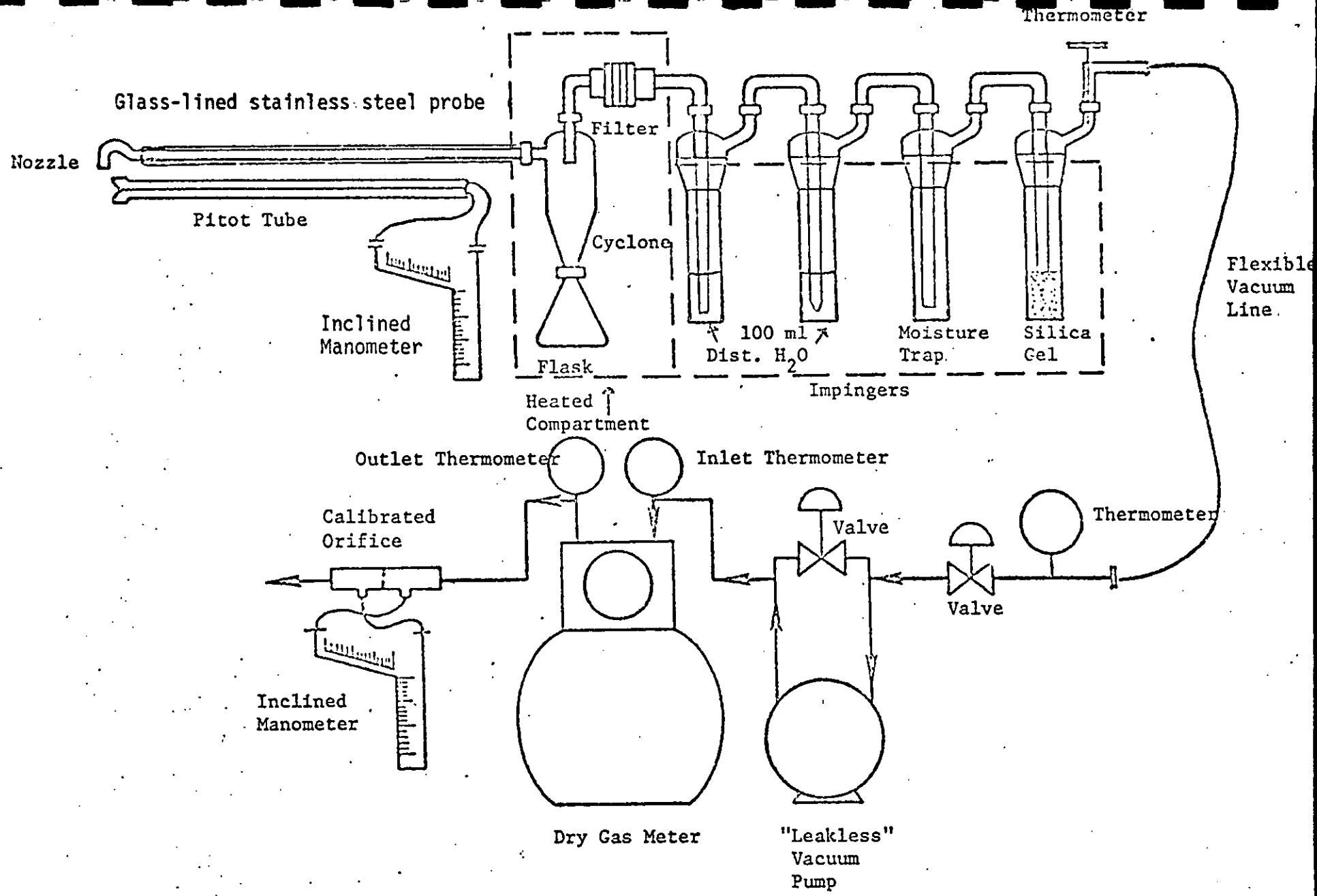


Figure 2

EPA Sample Train

Analytical Procedures (Florida Train)

The particulate sampling train between, and including, the stainless steel nozzle and the filter holder was rinsed with distilled water. The rinsings plus the used impinger water were placed into a container and sealed.

The contents of each container were filtered through a glass-fiber filter. This filter plus the one used in the sample train filter holder were dried, desiccated, and re-weighed. This gain in weight was classified as insoluble particulate.

The remaining filtrate was evaporated at 212°F in a tared beaker, then desiccated and weighed. This weight gain was classified as soluble particulate.

Analytical Procedures (EPA Train)

Sample recovery was accomplished by the following procedures:

1. The pre-tared filter was removed from its holder and placed in Container No. 1 and sealed.
2. All sample-exposed surfaces prior to the filter were washed with acetone and placed into Container No. 2 and sealed.
3. The volume of water in the first three impingers was measured and then placed into Container No. 3.
4. Acetone and water rinsings of all sample-exposed surfaces between the filter and fourth impinger were placed into Container No. 3 and sealed.

5. The used silica gel from the fourth impinger was transferred to the original tared container and sealed.

The five sample containers were analyzed according to the following procedure:

1. The contents of Container No. 1 were transferred to a tared glass weighing dish, desiccated, and dried to a constant weight.
2. The acetone washings from Container No. 2 were transferred to a tared beaker and evaporated to dryness at ambient temperature and pressure. They were then desiccated and dried to a constant weight.
3. The impinger water along with the acetone and water rinsing of the "back half" from Container No. 3, were evaporated at 212°F, and then the residue was desiccated and dried to a constant weight.
4. The used silica gel was weighed to the nearest gram.

APPENDICES

APPENDIX A

COMPLETE PARTICULATE EMISSION RESULTS

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

PLANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/5/73
STACK- NO. 1 MGO CALCINER (EPA TRAIN) RUN 1 FROM 9:15-10:15
WEATHER CONDITIONS- CLEAR PB- 30 IN HG PS- 29.5 IN HG
A'- 6.87 SQ. FEET TS- 785 DEGREES R TM- 552.6 DEGREES R H- 1.137 IN H2O
ΔH- 0.88 IN H2O AN- 0.000192 SQ. FEET CP- 0.83 VM- 36.301 CF VC- 47.6 ML
TOTAL TIME- 60 MIN NPTS- 10 ORSAT: CO2- 2 O2-16.20 CO- 0.80 N2- 81

1) VWV = (0.0474)×(VC)	1)	2.256	SCF
2) VSTPD = ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2)	34.985	SCF
3) VT = (VWV) + (VSTPD)	3)	37.241	SCF
4) W = (VWV) ÷ (VT)	4)	0.061	
5) FDA = (1.0 - W)	5)	0.939	
6) ASSUMED MOISTURE FRACTION	6)	0.2	
7) MD = (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7)	28.97	
8) MS = (MD×FDA) + (18×W)	8)	28.3	
9) GS = (MS) ÷ (28.99)	9)	0.98	
10) EA = (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10)	275	%
11) AVG((H×TS)) = (1÷N)×SUM((H×TS))	11)	31.864	
12) Y = (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12)	4690.3	FPS
13) QS = (U) × (AS')	13)	32239	ACFM
14) QD = (QS) × (FDA)	14)	30286	CFM
15) QSTPD = (QD) × (530÷TS) × (PS÷29.92)	15)	20161	SCFM
16) PISO = ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16)	103.7	%

17) ESTP = (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF
18) E12 = (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF
19) E50 = (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF
20) EM = (0.00857)×(ESTP)×(QSTPD) UNITS : POUNDS/HOUR

PARTICULATE LAB ANALYSIS(GM)			PARTICULATE CONCENTRATIONS(GR/SCF)			EMISSION RAT.
		(Y)	(ESTP)	(E12)	(E50)	(EM) (LBS/H.
FILTER	-	.0851	.0375	0.23	0.09	6.49
FRONT HALF	-	.0461	.0203	0.12	0.05	3.51
BACK HALF	-	.0212	.0094	0.06	0.02	1.62
TOTALS	-	.1524	.0672	0.40	0.17	11.61

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc.

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

PLANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/5/73
STACK- NO. 1 MGO CALCINER (EPA TRAIN) RUN 2 FROM 11:00-12:00
WEATHER CONDITIONS- CLEAR PB- 30 IN HG PS- 29.5 IN HG
AS'- 6.87 SQ. FEET TS- 785 DEGREES R TM- 561.9 DEGREES R H- 1.111 IN H2O
H- 0.84 IN H2O AN- 0.000192 SQ. FEET CP- 0.83 VM- 36.2 CF VC- 161.4 ML
TOTAL TIME- 60 MIN NPTS- 10 ORSAT: CO2- 2.80 O2-15.20 CO- 0.60 N2-81.40

1) VWV	= (0.0474)×(VC)	1) 7.65	SCF
2) VSTPD	= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 34.31	SCF
3) VT	= (VWV) + (VSTPD)	3) 41.96	SCF
4) W	= (VWV) ÷ (VT)	4) 0.182	
5) FDA	= (1.0 - W)	5) 0.818	
6)	ASSUMED MOISTURE FRACTION	6) 0.2	
7) MD	= (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 29.06	
8) MS	= (MD×FDA) + (18×W)	8) 27.04	
9) GS	= (MS) ÷ (28.99)	9) 0.93	
10) EA	= (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 221	%
11) AVG((H×TS))	= (1÷N)×SUM((H×TS))	11) 31.129	
12) U	= (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 4688	FPS
13) QS	= (U) × (AS')	13) 32207	ACFM
14) QD	= (QS) × (FDA)	14) 26335	CFM
15) QSTPD	= (QD) × (530÷TS) × (PS÷29.92)	15) 17530	SCFM
16) PISO	= ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 116.8	%
17) ESTP	= (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF		
18) E12	= (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF		
19) E50	= (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF		
20) EM	= (0.00857)×(ESTP)×(QSTPD) UNITS : POUNDS/HOUR		

	PARTICULATE LAB ANALYSIS(GM) (Y)		PARTICULATE CONCENTRATIONS(GR/SCF) (ESTP)	(E12)	(E50)	EMISSION RATE (EM) (LBS/H
FILTER	-	.0536	.0241	0.10	0.05	3.62
FRONT HALF	-	.2053	.0923	0.40	0.20	13.87
BACK HALF	-	.0097	.0044	0.02	0.01	0.66
TOTALS	-	.2686	.1208	0.52	0.26	18.15

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc.

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

ANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/5/73
ACK- NO. 2 MGO CALCINER (EPA TRAIN) RUN 1 FROM 9:22-10:22
EATHER CONDITIONS- CLEAR PB- 30 IN HG PS- 29.5 IN HG
'- 6.87 SQ. FEET TS- 785 DEGREES R TM- 546.5 DEGREES R H- 1.091 IN H2O
- 0.82 IN H2O AN- 0.000192 SQ. FEET CP- 0.83 VM- 32.18 CF VC- 95.7 ML
OTAL TIME- 60 MIN NPTS- 10 ORSAT: CO2- 2.40 O2-16.40 CO- 1.60 N2-79.60

1	VWV = (0.0474)×(VC)	1) 4.536	SCF
2	VSTPD= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 31.354	SCF
3	VT = (VWV) + (VSTPD)	3) 35.891	SCF
4	W = (VWV) ÷ (VT)	4) 0.126	
5	FDA = (1.0 - W)	5) 0.874	
6	ASSUMED MOISTURE FRACTION	6) 0.2	
7	MD = (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 29.04	
8	MS = (MD×FDA) + (18×W)	8) 27.64	
9	GS = (MS) ÷ (28.99)	9) 0.95	
10	EA = (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 280	%
11	AVG((H×TS)) = (1÷N)×SUM((H×TS))	11) 30.569	
12	U = (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 4553	FPS
13	QS = (U) × (AS')	13) 31279	ACFM
14	QD = (QS) × (FDA)	14) 27326	CFM
15	QSTPD= (QD) × (530÷TS) × (PS÷29.92)	15) 18190	SCFM
16	PISO = ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 102.9	%
17	ESTP = (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF		
18	E12 = (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF		
19	E50 = (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF		
20	EM = (0.00857)×(ESTP)×(QSTPD) UNITS : POUNDS/HOUR		

PARTICULATE LAB ANALYSIS(GM)			PARTICULATE CONCENTRATIONS(GR/SCF)			EMISSION RAT
		(Y)	(ESTP)	(E12)	(E50)	(EM) (LBS/H
ILTER	-	.0461	.0227	0.11	0.06	3.54
RONT HALF	-	.0520	.0256	0.13	0.06	3.99
CK HALF	-	.0220	.0108	0.05	0.03	1.69
TALS	-	.1201	.0591	0.30	0.15	9.21

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc.

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

ANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/6/73
ACK- NO. 2 MGO CALCINER (EPA TRAIN) RUN 2 FROM 8:35-9:35
ATHER CONDITIONS- CLEAR PB- 30 IN HG PS- 29.5 IN HG
'- 6.87 SQ. FEET TS- 770 DEGREES R TM- 545.9 DEGREES R H- 1.075 IN H2O.
- 0.79 IN H2O AN- 0.000192 SQ. FEET CP- 0.83 VM- 31.28 CF VC- 86 ML
OTAL TIME- 60 MIN NPTS- 10 ORSAT: CO2- 1.80 O2-16.80 CO- 0.60 N2-80.80

1	VWV = (0.0474)×(VC)	1) 4.076	SC
2	VSTPD= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 30.512	SC
3	VT = (VWV) + (VSTPD)	3) 34.588	SC
4	W = (VWV) ÷ (VT)	4) 0.118	
5	FDA = (1.0 - W)	5) 0.882	
6	SSUMED MOISTURE FRACTION	6) 0.2	
7	MD = (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 28.96	
8	MS = (MD×FDA) + (18×W)	8) 27.67	
9	GS = (MS) ÷ (28.99)	9) 0.95	
0	EA = (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 330	%
1	AVG((H×TS)) = (1÷N)×SUM((H×TS))	11) 29.827	
2	U = (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 4440.6	FP
3	QS = (U) × (AS')	13) 30507	ACF
4	QD = (QS) × (FDA)	14) 26911	CFM
5	QSTPD= (QD) × (530÷TS) × (PS÷29.92)	15) 18263	SCF
6	PISO = ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 99.7	%
7	ESTP = (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF		
8	E12 = (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF		
9	E50 = (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF		
0	EM = (0.00857)×(ESTP)×(QSTPD) UNITS : POUNDS/HOUR		

PARTICULATE LAB ANALYSIS(GM)			PARTICULATE CONCENTRATIONS(GR/SCF)			EMISSION RAT
		(Y)	(ESTP)	(E12)	(E50)	(EM) (LBS/H
LTER	-	.0229	.0116	0.08	0.03	1.81
RONT HALF	-	.1678	.0849	0.57	0.24	13.28
CK HALF	-	.0214	.0108	0.07	0.03	1.69
TALS	-	.2121	.1073	0.72	0.31	16.79

COMMENTS : _____

EST CONDUCTED BY : _____

environmental sciences and engineering, inc.

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

ANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/5/73
ACK- NO. 3 MGO CALCINER (EPA TRAIN) RUN 1 FROM 14:00-15:00
ATHER CONDITIONS- CLOUDY PB- 30 IN HG PS- 29.4 IN HG
'- 10.08 SQ. FEET TS- 835 DEGREES R TM- 555.5 DEGREES R H- 1.137 IN H2O
- 0.8 IN H2O AN- 0.000192 SQ. FEET CP- 0.83 VM- 32.635 CF VC- 11.9 ML
OTAL TIME- 60 MIN NPTS- 10 ORSAT: CO2- 1.80 O2-17.20 CO- 0.80 N2-80.20

VWV	= (0.0474)×(VC)	1) 0.564	SCF
VSTPD	= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 31.281	SCF
VT	= (VWV) + (VSTPD)	3) 31.846	SCF
W	= (VWV) ÷ (VT)	4) 0.018	
FDA	= (1.0 - W)	5) 0.982	
ASSUMED MOISTURE FRACTION		6) 0.2	
MD	= (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 28.98	
MS	= (MD×FDA) + (18×W)	8) 28.78	
GS	= (MS) ÷ (28.99)	9) 0.99	
EA	= (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 371	%
AVG((H×TS))	= (1÷N)×SUM((H×TS))	11) 32.841	
U	= (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 4802	FPS
QS	= (U) × (AS')	13) 48427	ACFM
QD	= (QS) × (FDA)	14) 47569	CFM
QSTPD	= (QD) × (530÷TS) × (PS÷29.92)	15) 29669	SCFM
PISO	= ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 92.4	%

ESTP = (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF
E12 = (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF
E50 = (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF
M = (0.00857)×(ESTP)×(QSTPD) UNITS : POUNDS/HOUR

	PARTICULATE LAB ANALYSIS(GM) (Y)		PARTICULATE CONCENTRATIONS(GR/SCF) (ESTP)	(E12)	(E50)	EMISSION RATE (EM) (LBS/HR)
ILTER	-	.0165	.0081	0.05	0.03	2.07
RONT HALF	-	.2291	.1130	0.75	0.35	28.73
CK HALF	-	.0390	.0192	0.13	0.06	4.89
TALS	-	.2846	.1404	0.94	0.44	35.69

COMMENTS : _____

EST CONDUCTED BY : _____

environmental science and engineering, inc.

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

ANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/5/73
ACK- NO. 3 MGO CALCINER (EPA TRAIN) RUN 2 FROM 15:55-17:15
EATHER CONDITIONS- CLOUDY PB- 30 IN HG PS- 29.4 IN HG
'- 10.08 SQ. FEET TS- 835 DEGREES R TM- 551.6 DEGREES R H- 1.091 IN H2O
- 0.74 IN H2O AN- 0.000192 SQ. FEET CP- 0.83 VM- 30.59 CF VC- 91.8 ML
OTAL TIME- 60 MIN NPTS- 10 ORSAT: CO2- 1.40 O2-16.40 CO- 0.40 N2-81.80

WV	= (0.0474)×(VC)	1) 4.351	SCF
STPD	= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 29.527	SCF
T	= (VWV) + (VSTPD)	3) 33.878	SCF
W	= (VWV) ÷ (VT)	4) 0.128	
DA	= (1.0 - W)	5) 0.872	
SSUMED MOISTURE FRACTION		6) 0.2	
MD	= (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 28.88	
S	= (MD×FDA) + (18×W)	8) 27.48	
S	= (MS) ÷ (28.99)	9) 0.95	
EA	= (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 291	%
VG((H×TS))	= (1÷N)×SUM((H×TS))	11) 31.512	
	= (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 4715.3	FPM
S	= (U) × (AS')	13) 47530	ACFM
QD	= (QS) × (FDA)	14) 41425	CFMD
STPD	= (QD) × (530÷TS) × (PS÷29.92)	15) 25837	SCFM
ISO	= ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 100.1	%
ESTP	= (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF		
12	= (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF		
50	= (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF		
EM	= (0.00857)×(ESTP)×(QSTPD) UNITS : POUNDS/HOUR		

ARTICULATE LAB ANALYSIS(GM) (Y)			PARTICULATE CONCENTRATIONS(GR/SCF) (ESTP)	(E12)	(E50)	EMISSION RATE (EM) (LBS/HR)
FILTER	-	.0074	.0039	0.03	0.01	0.86
ONT HALF	-	.0699	.0365	0.31	0.10	8.09
CK HALF	-	.0388	.0203	0.17	0.05	4.49
OTALS	-	.1161	.0607	0.52	0.16	13.43

COMMENTS : _____

EST CONDUCTED BY : _____

environmental science and engineering, inc.

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

PLANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/6/73
STACK- PERICLASE KILN (EPA TRAIN) RUN 1 FROM 10:15-11:15
WEATHER CONDITIONS- CLEAR PB- 30 IN HG PS- 30 IN HG
AS'- 11.79 SQ. FEET TS- 1040 DEGREES R TM- 572 DEGREES R H- 0.824 IN H2O
ΔH- 1.31 IN H2O AN- 0.000341 SQ. FEET CP- 0.83 VM- 41.87 CF VC- 149.7 ML
TOTAL TIME- 60 MIN NPTS- 10 ORSAT: CO2- 3 O2-14.00 CO- 0.80 N2-82.20

1) VWV = (0.0474)×(VC)	1) 7.096	SCF
2) VSTPD= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 39.025	SCF
3) VT = (VWV) + (VSTPD)	3) 46.12	SCF
4) W = (VWV) ÷ (VT)	4) 0.154	
5) FDA = (1.0 - W)	5) 0.846	
5) ASSUMED MOISTURE FRACTION	6) 0.1	
7) MD = (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 29.04	
8) MS = (MD×FDA) + (18×W)	8) 27.34	
9) GS = (MS) ÷ (28.99)	9) 0.94	
0) EA = (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 165	%
1) AVG((H×TS)) = (1÷N)×SUM((H×TS))	11) 26.576	
2) U = (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 3946.8	FPS
3) QS = (U) × (AS')	13) 46546	ACFM
4) QD = (QS) × (FDA)	14) 39384	CFM
5) QSTPD= (QD) × (530÷TS) × (PS÷29.92)	15) 20125	SCF
6) EISO = ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 111.8	%
7) ESTP = (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF		
8) E12 = (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF		
9) E50 = (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF		
0) EM = (0.00857)×(ESTP)×(QSTPD) UNITS : POUNDS/HOUR		

PARTICULATE LAB ANALYSIS(GM)			PARTICULATE CONCENTRATIONS(GR/SCF)			EMISSION RAT
		(Y)	(ESTP)	(E12)	(E50)	(EM) (LBS/H
FILTER	-	.3165	.1251	0.50	0.22	21.58
FRONT HALF	-	6.9886	2.7632	11.05	4.87	476.57
BACK HALF	-	.3619	.1431	0.57	0.25	24.68
TOTALS	-	7.6670	3.0315	12.13	5.35	522.83

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc.

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

LANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/6/73
STACK- PERICLASE KILN (EPA TRAIN) RUN 2 FROM 13:25-14:25
WEATHER CONDITIONS- CLEAR PB- 30 IN HG PS- 30 IN HG
A- 11.79 SQ. FEET TS- 1040 DEGREES R TM- 567 DEGREES R H- 0.87 IN H2O
DH- 1.47 IN H2O AN- 0.000341 SQ. FEET CP- 0.83 VM- 43.555 CF VC- 148.9 ML
TOTAL TIME- 60 MIN NPTS- 10 ORSAT: CO2- 4.60 O2-13.80 CO- 0.60 N2- 81

VWV	= (0.0474)×(VC)	1) 7.058	SCF
VSTPD	= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 40.968	SCF
VT	= (VWV) + (VSTPD)	3) 48.026	SCF
W	= (VWV) ÷ (VT)	4) 0.147	
FDA	= (1.0 - W)	5) 0.853	
ASSUMED MOISTURE FRACTION		6) 0.1	
MD	= (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 29.29	
MS	= (MD×FDA) + (18×W)	8) 27.63	
GS	= (MS) ÷ (28.99)	9) 0.95	
EA	= (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 168	%
1VG((H×TS))	= (1÷N)×SUM((H×TS))	11) 28.055	
	= (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 4144.8	FPS
U	= (U) × (AS')	13) 48867	ACFM
QD	= (QS) × (FDA)	14) 41686	CFMD
QSTPD	= (QD) × (530÷TS) × (PS÷29.92)	15) 21300	SCFM
ISO	= ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 110.8	%
ESTP	= (15.43×Y) ÷ (VSTPD)	UNITS : GRAINS/SCF	
E12	= (12×ESTP) ÷ (%CO2)	UNITS : GRAINS/SCF	
E50	= (ESTP×(100+EA)) ÷ (150)	UNITS : GRAINS/SCF	
EM	= (0.00857)×(ESTP)×(QSTPD)	UNITS : POUNDS/HOUR	

PARTICULATE LAB ANALYSIS(GM)			PARTICULATE CONCENTRATIONS(GR/SCF)			EMISSION RATE
		(Y)	(ESTP)	(E12)	(E50)	(EM) (LBS/HR)
FILTER	-	.2943	.1108	0.29	0.20	20.23
FRONT HALF	-	5.0694	1.9093	4.98	3.41	348.53
BACK HALF	-	.1639	.0617	0.16	0.11	11.27
TOTALS	-	5.5276	2.0819	5.43	3.72	380.04

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc.

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

PLANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/6/73
STACK- ESP OUTLET DRYER (EPA TRAIN) RUN 1 FROM 16:30-17:30
WEATHER CONDITIONS- CLEAR PB- 30 IN HG PS- 30 IN HG
AS'- 24.76 SQ. FEET TS- 990 DEGREES R TM- 560.6 DEGREES R H- 0.733 IN H2O
U- 1.1 IN H2O AN- 0.000341 SQ. FEET CP- 0.83 VM- 36.31 CF VC- 226.4 ML
TOTAL TIME- 60 MIN NPTS- 12 ORSAT: CO2-18.80 O2- 6.20 CO- 1 N2- 74

1) VWV = (0.0474)×(VC)	1)	10.731	SCF
2) VSTPD= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2)	34.511	SCF
3) VT = (VWV) + (VSTPD)	3)	45.242	SCF
4) W = (VWV) ÷ (VT)	4)	0.237	
5) FDA = (1.0 - W)	5)	0.763	
6) ASSUMED MOISTURE FRACTION	6)	0.1	
7) MD = (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7)	31.26	
8) MS = (MD×FDA) + (18×W)	8)	28.11	
9) MS = (MS) ÷ (28.99)	9)	0.97	
10) EA = (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10)	41	%
11) AVG((H×TS)) = (1÷N)×SUM((H×TS))	11)	23.056	
12) U = (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12)	3376.8	FPS
13) QS = (U) × (AS')	13)	83605	ACFM
14) QD = (QS) × (FDA)	14)	63774	CFM
15) QSTPD= (QD) × (530÷TS) × (PS÷29.92)	15)	34233	SCFM
16) EISO = ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16)	122	%
17) ESTP = (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF			
18) E12 = (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF			
19) E50 = (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF			
20) EM = (0.00857)×(ESTP)×(QSTPD) UNITS : POUNDS/HOUR			

PARTICULATE LAB ANALYSIS(GM)			PARTICULATE CONCENTRATIONS(GR/SCF)			EMISSION RATE
		(Y)	(ESTP)	(E12)	(E50)	(EM) (LBS/H
FILTER	-	.0709	.0317	0.02	0.03	9.30
FRONT HALF	-	.0173	.0077	0.00	0.01	2.27
BACK HALF	-	.5473	.2447	0.16	0.23	71.79
TOTALS	-	.6355	.2841	0.18	0.27	83.36

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc.

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

PLANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/6/73
STACK- ESP OUTLET DRYER (EPA TRAIN) RUN 2 FROM 18:00-19:00
WEATHER CONDITIONS- CLEAR PB- 30 IN HG PS- 30 IN HG
AS- 24.76 SQ. FEET TS- 990 DEGREES R TM- 555.9 DEGREES R H- 0.697 IN H2O
ΔH- 0.99 IN H2O AN- 0.000341 SQ. FEET CP- 0.83 VM- 34.125 CF VC- 172.1 ML
TOTAL TIME- 60 MIN NPTS- 12 ORSAT: CO2-16.80 O2- 8.20 CO- 0.80 N2-74.20

1) VWV	= (0.0474)×(VC)	1) 8.158	SCF
2) VSTPD	= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 32.703	SCF
3) VT	= (VWV) + (VSTPD)	3) 40.86	SCF
4) W	= (VWV) ÷ (VT)	4) 0.2	
5) FDA	= (1.0 - W)	5) 0.8	
6) ASSUMED MOISTURE FRACTION		6) 0.1	
7) MD	= (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 31.02	
8) MS	= (MD×FDA) + (18×W)	8) 28.42	
9) GS	= (MS) ÷ (28.99)	9) 0.98	
10) EA	= (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 65	%
11) AVG((H×TS))	= (1÷N)×SUM((H×TS))	11) 21.933	
12)	= (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 3195.1	FPS
13) AS	= (U) × (AS')	13) 79111	ACFM
14) QD	= (QS) × (FDA)	14) 63317	CFM
15) QSTPD	= (QD) × (530÷TS) × (PS÷29.92)	15) 33988	SCFM
16) TIISO	= ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 116.4	%
17) ESTP	= (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF		
18) E12	= (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF		
19) E50	= (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF		
20) EM	= (0.00857)×(ESTP)×(QSTPD) UNITS : POUNDS/HOUR		

PARTICULATE LAB ANALYSIS(GM)			PARTICULATE CONCENTRATIONS(GR/SCF)			EMISSION RATE
		(Y)	(ESTP)	(E12)	(E50)	(EM) (LBS/HR)
FILTER	-	.0434	.0205	0.01	0.02	5.96
FRONT HALF	-	.0083	.0039	0.00	0.00	1.14
BACK HALF	-	.0756	.0357	0.03	0.04	10.39
TOTALS	-	.1273	.0601	0.04	0.07	17.49

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc.

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

SOURCE SAMPLING CALCULATIONS

ANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/5/73

ACK- NO. 1 MGO CALCINER (FLA TRAIN) RUN 1 FROM 9:15-10:15

ATHER CONDITIONS- FAIR PB- 30 IN HG PS- 29.5 IN HG

'- 6.87 SQ. FEET TS- 785 DEGREES R TM- 560.8 DEGREES R H- 1.137 IN H2O

- 0.85 IN H2O AN- 0.000192 SQ. FEET CP- 0.83 VM- 34.684 CF VC- 152.1 ML

TAL TIME- 60 MIN NPTS- 10 ORSAT: CO2- 2 O2-16.20 CO- 0.80 N2- 81

1	VWV = (0.0474)×(VC)	1) 7.21	SC
2	VSTPD= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 32.935	SC
3	VT = (VWV) + (VSTPD)	3) 40.145	SC
4	W = (VWV) ÷ (VT)	4) 0.18	
5	FDA = (1.0 - W)	5) 0.82	
6	ASSUMED MOISTURE FRACTION	6) 0.2	
7	MD = (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 28.97	
8	MS = (MD×FDA) + (18×W)	8) 27	
9	GS = (MS) ÷ (28.99)	9) 0.93	
0	EA = (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 275	%
1	AVG((H×TS)) = (1÷N)×SUM((H×TS))	11) 31.864	
2	U = (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 4802.4	FP
3	QS = (U) × (AS')	13) 33010	ACF
4	QD = (QS) × (FDA)	14) 27081	CFM
5	QSTPD= (QD) × (530÷TS) × (PS÷29.92)	15) 18028	SCF
6	PISO = ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 109.1	%
7	ESTP = (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF		
8	E12 = (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF		
9	E50 = (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF		
0	EM = (0.00857)×(ESTP)×(QSTPD) . UNITS : POUNDS/HOUR		

	PARTICULATE LAB ANALYSIS(GM) (Y)		PARTICULATE CONCENTRATIONS(GR/SCF) (ESTP)	(E12)	(E50)	EMISSION RAT (EM) (LBS/H
FILTER	-	.0023	.0011	0.01	0.00	0.17
INSOLUBLE	-	.0038	.0018	0.01	0.00	0.28
SOLUBLE	-	.2572	.1205	0.72	0.30	18.62
TOTALS	-	.2633	.1234	0.74	0.31	19.06

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

PLANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/5/73
STACK- NO. 1 MGO CALCINER (FLA TRAIN) RUN 2 FROM 11:00-12:00
WEATHER CONDITIONS- FAIR PB- 30 IN HG PS- 29.5 IN HG
A'- 6.87 SQ. FEET TS- 785 DEGREES R TM- 567 DEGREES R H- 1.111 IN H2O
ΔH- 0.81 IN H2O AN- 0.000192 SQ. FEET CP- 0.83 VM- 34.184 CF VC- 197.8 ML
TOTAL TIME- 60 MIN NPTS- 10 ORSAT: CO2- 2.80 O2-15.20 CO- 0.60 N2-81.40

1) VWV	= (0.0474)×(VC)	1) 9.376	SC
2) VSTPD	= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 32.102	SC
3) VT	= (VWV) + (VSTPD)	3) 41.478	SC
4) W	= (VWV) ÷ (VT)	4) 0.226	
5) FDA	= (1.0 - W)	5) 0.774	
6) ASSUMED MOISTURE FRACTION		6) 0.2	
7) MD	= (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 29.06	
8) MS	= (MD×FDA) + (18×W)	8) 26.56	
9) GS	= (MS) ÷ (28.99)	9) 0.92	
10) EA	= (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 221	%
11) AVG((H×TS))	= (1÷N)×SUM((H×TS))	11) 31.129	
12) U	= (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 4730.5	FP
13) QS	= (U) × (AS')	13) 32498	ACF
14) QD	= (QS) × (FDA)	14) 25152	CFM
15) QSTPD	= (QD) × (530÷TS) × (PS÷29.92)	15) 16744	SCF
16) PISO	= ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 114.4	%
ESTP	= (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF		
E12	= (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF		
E50	= (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF		
EM	= (0.00857)×(ESTP)×(QSTPD) UNITS : POUNDS/HOUR		

PARTICULATE LAB ANALYSIS(GM)			PARTICULATE CONCENTRATIONS(GR/SCF)			EMISSION RAT
		(Y)	(ESTP)	(E12)	(E50)	(EM) (LBS/H
FILTER	-	.0040	.0019	0.01	0.00	0.28
INSOLUBLE	-	.0054	.0026	0.01	0.01	0.37
SOLUBLE	-	.2850	.1370	0.59	0.29	19.66
TOTALS	-	.2944	.1415	0.61	0.30	20.30

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

ANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/5/73
STACK- NO. 2 MGO CALCINER (FLA TRAIN) RUN 1 FROM 9:22-10:22
WEATHER CONDITIONS- FAIR PB- 30 IN HG PS- 29.5 IN HG
AS'- 6.87 SQ. FEET TS- 785 DEGREES R TM- 554.3 DEGREES R H- 1.091 IN H2O
ΔH- 0.84 IN H2O AN- 0.000192 SQ. FEET CP- 0.83 VM- 25.358 CF VC- 42.7 ML
TOTAL TIME- 60 MIN NPTS- 10 ORSAT: CO2- 2.40 O2-16.40 CO- 1.60 N2-79.60

1) VWV = (0.0474)×(VC)	1) 2.024	SC
2) VSTPD= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 24.363	SC
3) VT = (VWV) + (VSTPD)	3) 26.387	SC
4) W = (VWV) ÷ (VT)	4) 0.077	
5) FDA = (1.0 - W)	5) 0.923	
6) ASSUMED MOISTURE FRACTION	6) 0.2	
7) MD = (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 29.04	
8) MS = (MD×FDA) + (18×W)	8) 28.19	
9) GS = (MS) ÷ (28.99)	9) 0.97	
10) EA = (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 280	%
11) AVG((H×TS)) = (1÷N)×SUM((H×TS))	11) 30.569	
12) U = (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 4508.5	FP
13) QS = (U) × (AS')	13) 30973	ACF
14) QD = (QS) × (FDA)	14) 28598	CFM
15) QSTPD= (QD) × (530÷TS) × (PS÷29.92)	15) 19037	SCF
16) PISO = ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 76.4	%
17) ESTP = (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF		
18) E12 = (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF		
19) E50 = (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF		
20) EM = (0.00857)×(ESTP)×(QSTPD) UNITS : POUNDS/HOUR		

PARTICULATE LAB ANALYSIS(GM) (Y)			PARTICULATE CONCENTRATIONS(GR/SCF) (ESTP)	(E12)	(E50)	EMISSION RA (EM) (LBS/H
FILTER	-	.0008	.0005	0.00	0.00	0.08
INSOLUBLE	-	.0433	.0274	0.14	0.07	4.47
SOLUBLE	-	.1170	.0741	0.37	0.19	12.09
TOTALS	-	.1611	.1020	0.51	0.26	16.65

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

PLANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/6/73
STACK- NO. 2 MGO CALCINER (FLA TRAIN) RUN 2 FROM 8:35-9:35
WEATHER CONDITIONS- CLOUDY PB- 30 IN HG PS- 29.5 IN HG
AS'- 6.87 SQ. FEET TS- 780 DEGREES R TM- 545.9 DEGREES R H- 1.075 IN H2O
H- 0.8 IN H2O AN- 0.000192 SQ. FEET CP- 0.83 VM- 23.805 CF VC- 90.4 ML
TOTAL TIME- 60 MIN NPTS- 10 ORSAT: CO2- 1.80 O2-16.80 CO- 0.60 N2-80.80

1	VWV = (0.0474)×(VC)	1) 4.285	SC
2	VSTPD= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 23.210	SC
3	VT = (VWV) + (VSTPD)	3) 27.504	SC
4	W = (VWV) ÷ (VT)	4) 0.156	
5	FDA = (1.0 - W)	5) 0.844	
6	ASSUMED MOISTURE FRACTION	6) 0.2	
7	MD = (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 28.96	
8	MS = (MD×FDA) + (18×W)	8) 27.25	
9	GS = (MS) ÷ (28.99)	9) 0.94	
10	EA = (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 330	%
11	AVG((H×TS)) = (1÷N)×SUM((H×TS))	11) 30.024	
12	U = (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 4503.9	FP
13	QS = (U) × (AS')	13) 30942	ACF
14	QD = (QS) × (FDA)	14) 26121	CFM
15	QSTPD= (QD) × (530÷TS) × (PS÷29.92)	15) 17500	SCF
16	PISO = ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 79.2	%
17	ESTP = (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF		
18	E12 = (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF		
19	E50 = (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF		
20	EM = (0.00857)×(ESTP)×(QSTPD) UNITS : POUNDS/HOUR		

PARTICULATE LAB ANALYSIS(GM)		(Y)	PARTICULATE CONCENTRATIONS(GR/SCF) (ESTP)	(E12)	(E50)	EMISSION RAT (EM) (LBS/H
FILTER	-	.0003	.0002	0.00	0.00	0.03
INSOLUBLE	-	.0023	.0015	0.01	0.00	0.23
SOLUBLE	-	.1164	.0774	0.52	0.22	11.60
TOTALS	-	.1190	.0791	0.53	0.23	11.86

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

PLANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/5/73
STACK- NO. 3 MGO CALCINER (FLA TRAIN) RUN 1 FROM 14:00-15:00
WEATHER CONDITIONS- CLOUDY PB- 30 IN HG PS- 29.4 IN HG
AS'- 10.08 SQ. FEET TS- 835 DEGREES R TM- 557.3 DEGREES R H- 1.137 IN H2O
ΔH- 0.81 IN H2O AN- 0.000192 SQ. FEET CP- 0.83 VM- 24.795 CF VC- 102.2 ML
TOTAL TIME- 60 MIN NPTS- 10 ORSAT: CO2- 1.80 O2-17.20 CO- 0.80 N2-80.20

1) VWV = (0.0474)×(VC)	1) 4.844	SCF
2) VSTPD= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 23.69	SCF
3) VT = (VWV) + (VSTPD)	3) 28.535	SCF
4) W = (VWV) ÷ (VT)	4) 0.17	
5) FDA = (1.0 - W)	5) 0.83	
6) ASSUMED MOISTURE FRACTION	6) 0.2	
7) MD = (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 28.98	
8) MS = (MD×FDA) + (18×W)	8) 27.11	
9) GS = (MS) ÷ (28.99)	9) 0.94	
10) EA = (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 371	%
11) AVG((H×TS)) = (1÷N)×SUM((H×TS))	11) 32.841	
12) U = (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 4947.6	FPS
13) QS = (U) × (AS')	13) 49895	ACFM
14) QD = (QS) × (FDA)	14) 41425	CFM
15) QSTPD= (QD) × (530÷TS) × (PS÷29.92)	15) 25837	SCFM
16) PISO = ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 80.3	%
17) ESTP = (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF		
18) E12 = (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF		
19) E50 = (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF		
20) EM = (0.00857)×(ESTP)×(QSTPD) UNITS : POUNDS/HOUR		

PARTICULATE LAB ANALYSIS(GM)			PARTICULATE CONCENTRATIONS(GR/SCF)			EMISSION RAT
		(Y)	(ESTP)	(E12)	(E50)	(EM) (LBS/H
FILTER	-	.0132	.0086	0.06	0.03	1.90
INSOLUBLE	-	.0272	.0177	0.12	0.06	3.92
SOLUBLE	-	.4830	.3146	2.10	0.99	69.66
TOTALS	-	.5234	.3409	2.27	1.07	75.48

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

NT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/6/73
TACK- PERICLASE KILN (FLA TRAIN) RUN 1 FROM 10:15-11:15
ATHER CONDITIONS- FAIR PB- 30 IN HG PS- 30 IN HG
- 11.79 SQ. FEET TS- 1040 DEGREES R TM- 572.2 DEGREES R H- 0.824 IN H2O
1.32 IN H2O AN- 0.000341 SQ. FEET CP- 0.83 VM- 40.71 CF VC- 154.1 ML
TAL TIME- 60 MIN NPTS- 10 ORSAT: CO2- 3 O2-14.00 CO- 0.80 N2-82.20

1) VWV = (0.0474)×(VC)	1) 7.304	SC
2) VSTPD= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 37.93	SC
3) VT = (VWV) + (VSTPD)	3) 45.235	SC
4) W = (VWV) ÷ (VT)	4) 0.161	
5) FDA = (1.0 - W)	5) 0.839	
6) ASSUMED MOISTURE FRACTION	6) 0.03	
7) MD = (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 29.04	
8) MS = (MD×FDA) + (18×W)	8) 27.26	
9) GS = (MS) ÷ (28.99)	9) 0.94	
10) EA = (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 165	%
11) AVG((H×TS)) = (1÷N)×SUM((H×TS))	11) 26.576	
12) Y = (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 3952.9	MG
13) QS = (U) × (AS')	13) 46617	ACF
14) QD = (QS) × (FDA)	14) 39090	CFM
15) QSTPD= (QD) × (530÷TS) × (PS÷29.92)	15) 19974	SCF
16) PISO = ((0.00267×VC×TS)+(Po×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 109.5	%
17) ESTP = (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF		
18) E12 = (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF		
19) E50 = (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF		
20) EM = (0.00857)×(ESTP)×(QSTPD) UNITS : POUNDS/HOUR		

PARTICULATE LAB ANALYSIS(GM) (Y)			PARTICULATE CONCENTRATIONS(GR/SCF) (ESTP)	(E12)	(E50)	EMISSION RAT (EM) (LBS/H
FILTER	-	.1259	.0512	0.20	0.09	8.77
SOLUBLE	-	5.8699	2.3879	9.55	4.21	408.75
LUBLE	-	2.5626	1.0425	4.17	1.84	178.45
TOTALS	-	8.5584	3.4815	13.93	6.14	595.96

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

PLANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/5/73
STACK- NO. 3 MGO CALCINER (FLA TRAIN) RUN 2 FROM 15:55-17:12
WEATHER CONDITIONS- CLOUDY PB- 30 IN HG PS- 29.4 IN HG
A- 10.08 SQ. FEET TS- 835 DEGREES R TM- 556.8 DEGREES R H- 1.091 IN H2O
ΔH- 0.74 IN H2O AN- 0.000192 SQ. FEET CP- 0.83 VM- 24.415 CF VC- 127.4 ML
TOTAL TIME- 60 MIN NPTS- 10 ORSAT: CO2- 1.40 O2-16.40 CO- 0.40 N2-81.80

1) VWV = (0.0474)×(VC)	1) 6.039	SCF
2) VSTPD= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 23.346	SCF
3) VT = (VWV) + (VSTPD)	3) 29.385	SCF
4) W = (VWV) ÷ (VT)	4) 0.206	
5) FDA = (1.0 - W)	5) 0.794	
6) ASSUMED MOISTURE FRACTION	6) 0.2	
7) MD = (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 28.88	
8) MS = (MD×FDA) + (18×W)	8) 26.64	
9) GS = (MS) ÷ (28.99)	9) 0.92	
10) EA = (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 291	%
11) AVG((H×TS)) = (1÷N)×SUM((H×TS))	11) 31.512	
12) U = (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 4788.9	FP
13) QS = (U) × (AS')	13) 48272	ACF
14) QD = (QS) × (FDA)	14) 38352	CFM
15) QSTPD= (QD) × (530÷TS) × (PS÷29.92)	15) 23920	SCF
16) PISO = ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 85.5	%

7) ESTP = (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF
8) E12 = (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF
9) E50 = (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF
10) EM = (0.00857)×(ESTP)×(QSTPD) . UNITS : POUNDS/HOUR

	PARTICULATE LAB ANALYSIS(GM) (Y)		PARTICULATE CONCENTRATIONS(GR/SCF) (ESTP)	(E12)	(E50)	EMISSION RAT (EM) (LBS/H
FILTER	-	.0010	.0007	0.01	0.00	0.14
INSOLUBLE	-	.0090	.0059	0.05	0.02	1.22
SOLUBLE	-	.3955	.2614	2.24	0.68	53.58
TOTALS	-	.4055	.2680	2.30	0.70	54.94

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

PLANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/6/73
STACK- PERICLASE KILN (FLA TRAIN) RUN 2 FROM 12:25-13:25
WEATHER CONDITIONS- FAIR PB- 30 IN HG PS- 30 IN HG
AS'- 11.79 SQ. FEET TS- 1040 DEGREES R TM- 567.1 DEGREES R H- 0.87 IN H2O
ΔH- 1.45 IN H2O AN- 0.000341 SQ. FEET CP- 0.83 VM- 42.735 CF VC- 176.6 ML
TOTAL TIME- 60 MIN NPTS- 10 ORSAT: CO2- 4.60 O2-13.80 CO- 0.60 N2- 81

1	VWV = (0.0474)×(VC)	1) 8.371	SCF
2	VSTPD= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 40.192	SCF
3	VT = (VWV) + (VSTPD)	3) 48.563	SCF
4	W = (VWV) ÷ (VT)	4) 0.172	
5	FDA = (1.0 - W)	5) 0.828	
6	ASSUMED MOISTURE FRACTION	6) 0.03	
7	MD = (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 29.29	
8	MS = (MD×FDA) + (18×W)	8) 27.34	
9	GS = (MS) ÷ (28.99)	9) 0.94	
10	EA = (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 168	%
11	AVG((H×TS)) = (1÷N)×SUM((H×TS))	11) 28.055	
12	U = (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 4166.5	FPS
13	QS = (U) × (AS')	13) 49123	ACFM
14	QD = (QS) × (FDA)	14) 40655	CFM
15	QSTPD= (QD) × (530÷TS) × (PS÷29.92)	15) 20774	SCFM
16	PISO = ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 111.5	%

7	ESTP = (15.43×Y) ÷ (VSTPD)	UNITS : GRAINS/SCF
8	E12 = (12×ESTP) ÷ (%CO2)	UNITS : GRAINS/SCF
9	E50 = (ESTP×(100+EA)) ÷ (150)	UNITS : GRAINS/SCF
0	EM = (0.00857)×(ESTP)×(QSTPD)	UNITS : POUNDS/HOUR

PARTICULATE LAB ANALYSIS(GM)		(Y)	PARTICULATE CONCENTRATIONS(GR/SCF) (ESTP)	(E12)	(E50)	EMISSION RAT (EM) (LBS/H
FILTER	-	.1385	.0532	0.14	0.09	9.47
INSOLUBLE	-	3.5659	1.3690	3.57	2.44	243.72
SOLUBLE	-	1.7545	.6736	1.76	1.20	119.92
TOTALS	-	5.4589	2.0957	5.47	3.74	373.11

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

PLANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/7/73
STACK- ESP OUTLET DRYER (FLA TRAIN) RUN 1 FROM 16:30-17:30
WEATHER CONDITIONS- CLOUDY PB- 30.1 IN HG PS- 30 IN HG
AS'- 24.76 SQ. FEET TS- 990 DEGREES R TM- 569.1 DEGREES R H- 0.733 IN H2O
ΔH- 1.04 IN H2O AN- 0.000341 SQ. FEET CP- 0.83 VM- 28.31 CF VC- 146.9 ML
TOTAL TIME- 60 MIN NPTS- 12 ORSAT: CO2-18.80 O2- 6.20 CO- 1 N2- 74

1) VWV = (0.0474)×(VC)	1) 6.963	SCF
2) VSTPD= ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 26.59	SCF
3) VT = (VWV) + (VSTPD)	3) 33.553	SCF
4) W = (VWV) ÷ (VT)	4) 0.208	
5) FDA = (1.0 - W)	5) 0.792	
6) ASSUMED MOISTURE FRACTION	6) 0.1	
7) MD = (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 31.26	
8) MS = (MD×FDA) + (18×W)	8) 28.51	
9) GS = (MS) ÷ (28.99)	9) 0.98	
10) EA = (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 41	%
11) AVG((H×TS)) = (1÷N)×SUM((H×TS))	11) 23.056	
12) U = (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 3353.4	FP
13) QS = (U) × (AS')	13) 83026	ACF
14) QD = (QS) × (FDA)	14) 65796	CFM
15) QSTPD= (QD) × (530÷TS) × (PS÷29.92)	15) 35318	SCF
16) PISO = ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 91.1	%
17) ESTP = (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF		
18) E12 = (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF		
19) E50 = (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF		
20) EM = (0.00857)×(ESTP)×(QSTPD) . UNITS : POUNDS/HOUR		

PARTICULATE LAB ANALYSIS(GM)			PARTICULATE CONCENTRATIONS(GR/SCF)			EMISSION RAT
		(Y)	(ESTP)	(E12)	(E50)	(EM) (LBS/H
FILTER	-	.0016	.0009	0.00	0.00	0.28
INSOLUBLE	-	.0032	.0019	0.00	0.00	0.56
SOLUBLE	-	1.0940	.6348	0.41	0.60	192.15
TOTALS	-	1.0988	.6376	0.41	0.60	193.00

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
SOURCE SAMPLING CALCULATIONS

PLANT- BASIC MAGNESIA PORT ST. JOE, FLA. DATE- 6/7/73
STACK- ESP OUTLET DRYER (FLA TRAIN) RUN 2 FROM 18:00-19:00
WEATHER CONDITIONS- CLOUDY PB- 30.1 IN HG PS- 30 IN HG
AT- 24.76 SQ. FEET TS- 990 DEGREES R TM- 561.9 DEGREES R H- 0.697 IN H2O
ΔH- 0.95 IN H2O AN- 0.000341 SQ. FEET CP- 0.83 VM- 27.015 CF VC- 122.8 ML
TOTAL TIME- 60 MIN NPTS- 12 ORSAT: CO2-16.80 O2- 8.20 CO- 0.80 N2-74.20

1) VWV = (0.0474)×(VC)	1) 5.821	SCF
2) VSTPD = ((530)×(VM)×(PB+(ΔH÷13.6)))÷(29.92×TM)	2) 25.694	SCF
3) VT = (VWV) + (VSTPD)	3) 31.515	SCF
4) W = (VWV) ÷ (VT)	4) 0.185	
5) FDA = (1.0 - W)	5) 0.815	
5 ASSUMED MOISTURE FRACTION	6) 0.1	
7) MD = (.44×CO2) + (.32×O2) + (.28×(CO+N2))	7) 31.02	
8) MS = (MD×FDA) + (18×W)	8) 28.61	
9) GS = (MS) ÷ (28.99)	9) 0.99	
0) EA = (100)×(O2-0.5×CO)÷((0.266×N2)-(O2-0.5×CO))	10) 65	%
1 AVG((H×TS)) = (1÷N)×SUM((H×TS))	11) 21.933	
2 U = (174×CP×((29.92÷PS×GS))×AVG((H×TS))	12) 3184.2	FPS
3) QS = (U) × (AS')	13) 78842	ACF
4) QD = (QS) × (FDA)	14) 64280	CFM
5 QSTPD = (QD) × (530÷TS) × (PS÷29.92)	15) 34504	SCF
6 PISO = ((0.00267×VC×TS)+(PO×TS×VM÷TM)) ÷ (TIME×U×PS×AN)	16) 90.1	%
7) ESTP = (15.43×Y) ÷ (VSTPD) UNITS : GRAINS/SCF		
8 E12 = (12×ESTP) ÷ (%CO2) UNITS : GRAINS/SCF		
9 E50 = (ESTP×(100+EA)) ÷ (150) UNITS : GRAINS/SCF		
0) EM = (0.00857)×(ESTP)×(QSTPD) UNITS : POUNDS/HOUR		

PARTICULATE LAB ANALYSIS(GM)			PARTICULATE CONCENTRATIONS(GR/SCF)			EMISSION RAT
		(Y)	(ESTP)	(E12)	(E50)	(EM) (LBS/H
FILTER	-	.0043	.0026	0.00	0.00	0.76
INSOLUBLE	-	.0101	.0061	0.00	0.01	1.79
SOLUBLE	-	.7727	.4640	0.33	0.51	137.22
TOTALS	-	.7871	.4727	0.34	0.52	139.77

COMMENTS : _____

TEST CONDUCTED BY : _____

environmental science and engineering, inc.

APPENDIX B

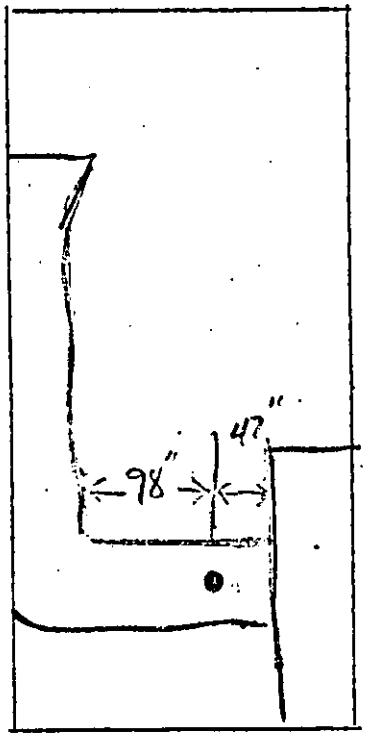
FIELD DATA SHEETS

ENVIRONMENTAL ENGINEERING, INC.
Gainesville, Florida

environmental engineering, inc.

SOURCE SAMPLING FIELD DATA SHEET

Plant Basic Magnesia
Sampling Location No 1 Mgo Calciner
Type of Control Baghouse
Type of Samples Part.
Date 6-5-73 Run No. 1
Time Start 9:15 Time End 10:15
Sample Time [illegible] min/pt 60 Total min
DB 305 °F, WB — °F, VP @ DP — "Hg
Bar. Press. 29.0 "Hg, Stack Press. 29.5 "Hg
Moisture [illegible]%, FDA 80, Gas Density Factor —
Weather [illegible]
Temp. 80 °F, W/D [illegible], W/S
Sample Box No. — Meter Box No. 4
Meter ΔH@ 1.7 Pitot Corr. Factor 0.83
Nozzle Dia. [illegible] in., Probe Length 8 ft
Probe Heater Setting 55% Nomograph C_f .76
Stack Dimensions 35 in
Stack Area ft²
Effective Stack Area ft²
Stack Height ft



Mat'l Processing Rate
Final Gas Meter Reading 304.701 ft³
Initial Gas Meter Reading 268.400 ft³ } 36.3
Condensate Increase in Impingers 100 ml (47.6)
Moisture in Silica Gel [illegible] gm
Silica Gel Container No. 294 Filter No. 421

Orsat:				
$\%CO_2$	2.0			
$\%O_2$	16.8			
%CO	[illegible]			
$\%N_2$				

% Excess Air

Test Conducted By: [illegible]
J. Manning

Remarks: * [illegible]
Test 4-4-73
EPA Train

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time 9:15	Gas Meter Reading (ft³)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Meter Orifice Press. Diff. ("H_2O) Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @Dry Gas Meter (°F) In	Gas Sample Temp. @Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
1	3	9:21	272.2	1.05	.94	.94	305	91	[illegible]	[illegible]	[illegible]	5
2	3	9:37	274.0	1.50	.90	1.00	305	[illegible]	[illegible]	210	65	5
3	5¾	[illegible]	[illegible]	[illegible]	.88	.88	305	92	90	215	65	5
4	8¾	9:39	[illegible]	1.20	.80	[illegible]	305	90	91	[illegible]	65	5
5	12¾	[illegible]	[illegible]	1.20	.82	.80	305	93	91	[illegible]	[illegible]	[illegible]
6	23¾	10:51	[illegible]	1.20	.80	.82	305	[illegible]	92	225	65	5
7	27¾	10:57	293.9	1.30	.88	.88	305	94	[illegible]	[illegible]	65	5

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O)		Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F)		Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
					Calc.	Actual		In	Out			
9	33	11:09	—	1.50	1.00	1.00	305	96	94	220	65	5
10	35½	11:15	304.7	.90	.63	.65	305	97	94	205	65	5

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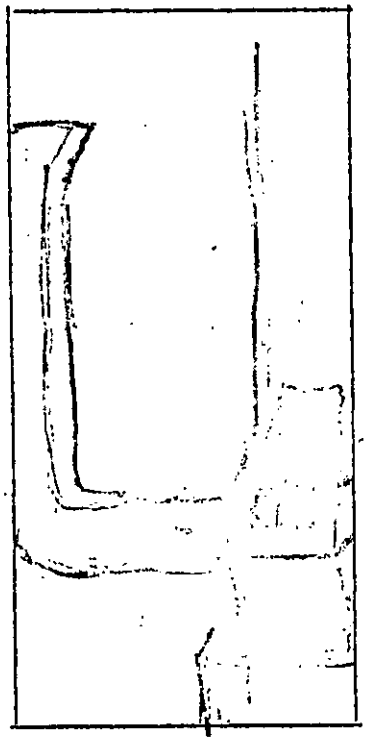
SOURCE SAMPLING FIELD DATA SHEET

Plant Basic Magnesia
Sampling Location No 1 Mag Cal
Type of Control Baghouse
Type of Samples Particulates
Date 6-5-73 Run No. 2
Time Start 11:00 Time End 13:00
Sample Time 60 min/pt 60 Total min
DB 325 °F, WB — °F, VP @ DP — "Hg
Bar. Press. [illegible] "Hg, Stack Press. 29.5 "Hg
Moisture [illegible] %, FDA ____, Gas Density Factor ____
Weather [illegible]
Temp. 90 °F, W/D W, W/S —
Sample Box No. — Meter Box No. 61
Meter ΔH@ [illegible] Pitot Corr. Factor 0.83
Nozzle Dia. [illegible] in., Probe Length 8 ft
Probe Heater Setting ____ Nomograph C_f ____
Stack Dimensions 35½ in
Stack Area ____ ft^2
Effective Stack Area ____ ft^2
Stack Height ____ ft



Mat'l Processing Rate ____
Final Gas Meter Reading 341.000 ft^3
Initial Gas Meter Reading 304.900 ft^3 } 36.2
Condensate Increase in Impingers [illegible] ml (161.4)
Moisture in Silica Gel 13.4 gm
Silica Gel Container No. 80C Filter No. 415

Orsat:				
$\%CO_2$	[illegible]			
$\%O_2$	15.2			
%CO	0.6			
$\%N_2$				

% Excess Air ____

Test Conducted By: L. Watts

2.5 Inches Vac. on stack

Remarks: *Assumed from previous test 4-4-73 EPA.

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Meter Orifice Press. Diff. ("H_2O) Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Gas Sample Temp. @ Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
		11:00										
1		11:06	—	1.30	.88	.88	325	101	99	150	70	4
2		11:12	312.1	1.40	.94	[illegible]	325	102	100	170	65	4
3		11:18	315.9	1.30	.86	.86	325	102	100	[illegible]	65	4
4		11:24	319.5	1.30	[illegible]	[illegible]	325	102	101	[illegible]	65	4
5		11:30	323.2	1.30	.88	[illegible]	325	102	101	[illegible]	[illegible]	4
6		[illegible]	326.6	1.20	[illegible]	[illegible]	[illegible]	102	101	[illegible]	65	4
		[illegible]	[illegible]	[illegible]	[illegible]	.82	325	102	[illegible]	[illegible]	[illegible]	4

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O)		Stack Gas Temp. (°F)	Gas Sample Temp.@Dry Gas Meter (°F)		Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
					Calc.	Actual		In	Out			
9		11:50	307.7	1.20	.12	.12	325	105	105	240	65	4
10		12:00	311.0	.77	.07	.07	325	106	[illegible]	220	65	4

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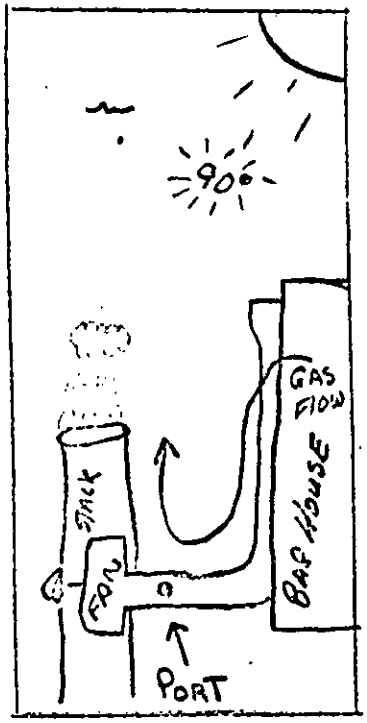
SOURCE SAMPLING FIELD DATA SHEET

Plant Rock Mag
Sampling Location #4 MO Cleaner
Type of Control Bag House
Type of Samples Particulates
Date 6-5-73 Run No. 1
Time Start 9:22 Time End 10:22
Sample Time 6 min/pt 60 Total min
DB 325 °F, WB ____ °F, VP @ DP ____ "Hg
Bar. Press. 30 "Hg, Stack Press. 29.5 "Hg
Moisture 20 %, FDA ____, Gas Density Factor ____
Weather Clear & Hot
Temp. 90 °F, W/D ____, W/S ____
Sample Box No. ____ Meter Box No. 7
Meter ΔHG 1.6 Pitot Corr. Factor ____
Nozzle Dia. 7/16 in., Probe Length 8 ft
Probe Heater Setting 50% Nomograph C_f .69
Stack Dimensions ____ in
Stack Area ____ ft^2
Effective Stack Area ____ ft^2
Stack Height ____ ft



Mat'l Processing Rate ____
Final Gas Meter Reading 188.795 ft^3
Initial Gas Meter Reading 156.615 ft^3 32.180
Condensate Increase in Impingers 84 ml
Moisture in Silica Gel ____ gm
Silica Gel Container No. 818 Filter No. 409 3307

Orsat:					
$\%CO_2$	2.4				
$\%O_2$	16.4				
%CO	1.6				
$\%N_2$					

% Excess Air ____

Test Conducted By: Wright, Holden

Remarks: Shut Down 5 min. Before End of Run - Completed Run

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Meter Orifice Press. Diff. ("H_2O) Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Gas Sample Temp. @ Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
1	7/8	9:22	160.2	.91	.63	.63	325	88	83	260	70	4
2	3	9:28	163.2	.95	.66	.66	325	88	84	260	62	4
3	5¼	9:34	165.9	1.1	.75	.75	325	88	84	250	65	4
4	8½	9:40	169.0	1.2	.82	.82	325	87	84	260	64	4
5	12¼	9:46	172.3	1.3	.88	.88	325	87	84	250	62	4
6	23¾	9:52	175.4	1.2	.82	.82	325	88	84	250	60	4
7	27⅞	9:58	178.7	1.3	.88	.88	325	88	84	250	60	4

Point Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Orifice Press. Diff. ("H_2O) Calc.	Orifice Press. Diff. ("H_2O) Actual	Stack Temp. (°F)	Gas Temp. @ Dry Gas Meter (°F) In	Gas Temp. @ Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
8	30 3/4	10:04	182.4	1.4	.95	.95	325	89	85	260	62	5
9	33	10:10	185.6	1.4	.95	.95	325	91	86	275	62	5
10	35 1/3	10:16	188.795	1.2	.82	.82	325	92	86	300	64	4
	End	10:22										

Port [redacted] Tra[redacted]e Point No.	[redacted] [redacted]rom [redacted]de Stack Wall (in.)	[redacted]me	Gas Meter [redacted] Rea[redacted] (ft^3)	[redacted]cci[redacted] Head ("H_2O)	Meter Or[redacted]e Press. Diff. ("H_2O)		Stack Gas [redacted]Temp[redacted] (°F)	Gas [redacted] Te[redacted] Dry Gas Meter (°F)		[redacted]ox Temp. (°F)	[redacted]inge[redacted] Temp. (°F)	[redacted]on Sample Train ("Hg)
					Calc.	Actual		In	Out			

SOURCE SAMPLING FIELD DATA SHEET

Plant: Basic Mag.
Sampling Location: #2 Lab Calciner
Type of Control: Bag House
Type of Samples: Particulate
Date: 6-6-73 Run No.: Two
Time Start: 8:35 Time End: 9:35
Sample Time: 6 min/pt 60 Total min
DB ____ °F, WB ____ °F, VP @ DP ____ "Hg
Bar. Press. 30 "Hg, Stack Press. 29.5 "Hg
Moisture 20 %, FDA ____, Gas Density Factor ____
Weather: Clear Hot
Temp. 75 °F, W/D ____, W/S ____
Sample Box No. ____ Meter Box No. 7
Meter ΔH@ 1.6 Pitot Corr. Factor ____
Nozzle Dia. 3/16 in., Probe Length 8 ft
Probe Heater Setting 50 Nomograph C_f .69
Stack Dimensions 35.5 ID in
Stack Area ____ ft^2
Effective Stack Area ____ ft^2
Stack Height ____ ft

See Run #1

Mat'l Processing Rate ____
Final Gas Meter Reading 282.305 ft^3 } 31.280
Initial Gas Meter Reading 252.025 ft^3
Condensate Increase in Impingers 64 ml (86)
Moisture in Silica Gel ____ gm
Silica Gel Container No. 802 Filter No. 411 .3217

Orsat:				
$\%CO_2$	1.8			
$\%O_2$	16.8			
%CO	0.6			
$\%N_2$				

% Excess Air ____

Test Conducted By: Billingsley, Bob Holden

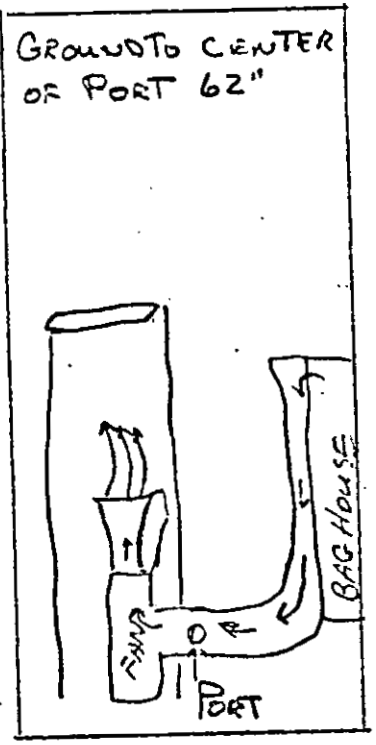
Remarks: ____

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Meter Orifice Press. Diff. ("H_2O) Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Gas Sample Temp. @ Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
1	See Run 1	8:41	254.9	.82	.60	.60	310	80	81	270	60	4
2		8:49	257.9	1.1	.75	.75	310	82	82	270	62	4
3		8:55	261.1	1.2	.81	.81	310	82	82	300	60	4
4		8:57	263.7	.75	.51	.51	310	83	83	270	60	4
5		9:05	266.6	.98	.66	.66	310	85	84	295	60	4
6		9:11	269.5	1.0	.68	.69	310	88	88	260	60	4
7		9:17	272.8	1.4	.95	.95	310	89	88	260	62	4
8		9:23	275.5	1.4	.95	.95	310	90	89	275	62	4

Traverse Point No.	From Inside Stack Wall (in.)	Time	Gas Meter Reading (ft^3)	Velocity Head ("H_2O)	Orifice Press. Diff. ("H_2O)		Stack Temp. (°F)	Dry Gas Meter Temp. (°F)		Box Temp. (°F)	Impinger Temp. (°F)	Sample Train ("Hg)
					Calc.	Actual		In	Out			
9		9:29	277.8	1.5	1.0	1.0	310	90	90	280	62	5
10		9:35	280.305	1.5	1.0	1.0	310	90	90	275	62	5

SOURCE SAMPLING FIELD DATA SHEET

Plant Basic Mag.
Sampling Location #3 MgO CALCINER
Type of Control [illegible]
Type of Samples [illegible]
Date 6-5-73 Run No. [illegible]
Time Start 2:00 Time End 3:00
Sample Time 6 min/pt 60 Total min
DB ____ °F, WB ____ °F, VP @ DP ____ "Hg
Bar. Press. 30 "Hg, Stack Press. 29.4 "Hg
Moisture ____ %, FDA ____, Gas Density Factor ____
Weather [illegible]
Temp. [illegible] °F, W/D SW, W/S [illegible]
Sample Box No. ____ Meter Box No. 7
Meter ΔH@ 1.6 Pitot Corr. Factor 0.83
Nozzle Dia. 3/16 in., Probe Length 6 ft
Probe Heater Setting ____ Nomograph C_f ____
Stack Dimensions 4.3 DIA. in
Stack Area ____ ft^2
Effective Stack Area ____ ft^2
Stack Height ____ ft



Mat'l Processing Rate ____
Final Gas Meter Reading 221.435 ft^3 32.635
Initial Gas Meter Reading 189.800 ft^3
Condensate Increase in Impingers 8 ml
Moisture in Silica Gel ____ gm
Silica Gel Container No. 805 Filter No. 392 .3846

Orsat:				
$\%CO_2$	1.5			
$\%O_2$				
%CO				
$\%N_2$				

% Excess Air ____

Test Conducted By: WRIGHT & HOLDEN

Remarks: ST. VACUUM 8.5" H_2O

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
	1 1/8	2:00	192.2	1.4	.86	.86	375	94	92	200	80	4
	3 3/8	2:06	195.5	1.0	.63	.63	375	92	92	240	75	4
	5 6/8	2:12	198.5	1.1	.68	.68	375	94	95	260	70	4
	8 9/8	2:18	201.9	1.2	.74	.74	375	94	95	270	63	4
	12 14 3/8	2:24	204.6	1.0	.63	.63	375	95	97	280	65	4
	23 27 3/8	2:30	208.0	1.3	.80	.80	375	96	98	290	62	5
	27 7/8 32 1/2	2:36	211.2	1.4	.86	.86	375	96	97	290	60	5

[redacted] Traverse Point No.	[redacted] Stack Wall (in.)	[redacted]	[redacted] (ft³)	[redacted] Head ("H_2O)	[redacted] Press. Diff. ("H_2O) Calc.	Actual	[redacted] (°F)	[redacted] Gas Meter (°F) In.	Out	[redacted] Temp. (°F)	[redacted] Temp. (°F)	[redacted] Train ("Hg)
8	30 3/4 35	2:42	214.6	1.5	.91	.91	375	96	95	275	64	4
9	33 30	2:48	218.4	1.5	.91	.91	375	97	97	280	65	4
10	35 1/8 40	2:54	221.435	1.6	.99	.99	375	98	98	290	66	5

SOURCE SAMPLING FIELD DATA SHEET

Plant: Basic Mfg.
Sampling Location: #3 MgO Calciner
Type of Control: Baghouse
Type of Samples: Particulates
Date: 6-5-73 Run No.: Two
Time Start: 3:55 Time End: 5:15
Sample Time: 60 min/pt 60 Total min
DB 375 °F, WB ____ °F, VP @ DP ____ "Hg
Bar. Press. 30 "Hg, Stack Press. 29.4 "Hg
Moisture 20 %, FDA ____, Gas Density Factor ____
Weather: Cloudy Hot
Temp. 90 °F, W/D ____, W/S ____
Sample Box No. ____ Meter Box No. 7
Meter ΔH@ 1.6 Pitot Corr. Factor ____
Nozzle Dia. 3/16 in., Probe Length 8 ft
Probe Heater Setting 50 Nomograph C_f .69
Stack Dimensions 43 I.D. in
Stack Area ____ ft^2
Effective Stack Area ____ ft^2
Stack Height ____ ft

SEE RUN #1

Mat'l Processing Rate ____
Final Gas Meter Reading 253.026 ft^3 730.590
Initial Gas Meter Reading 223.436 ft^3
Condensate Increase in Impingers ____ ml
Moisture in Silica Gel ____ gm
Silica Gel Container No. 813 Filter No. [illegible]

Orsat:				
$\%CO_2$	1.4			
$\%O_2$	[illegible]			
%CO	[illegible]			
$\%N_2$				

% Excess Air ____

Test Conducted By: DR. [illegible] (S.S.)
Mr. [illegible]

Remarks: STOP ON 2 Impinger Pump

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
1	1 1/8	[illegible]	224.3	.93	.58	.58	375	91	91	200	80	3
2	3 3/8	4:01	227.4	1.2	.73	.73	375	90	91	230	76	3
3	6 1/8	4:27	230.2	1.0	.63	.63	375	92	92	200	80	3
4	9 1/2	4:33	233.2	1.2	.73	.73	375	92	92	280	75	4
5	14 3/8	4:39	236.4	1.3	.81	.81	375	92	92	300	70	4
6	27 1/8	4:45	239.4	1.2	.73	.73	375	90	90	295	65	4
7	32 1/2	4:51	242.4	1.2	.73	.73	375	91	91	[illegible]	62	4
8	35 7/8	4:57	245.4	1.2	.73	.73	375	91	91	[illegible]	[illegible]	

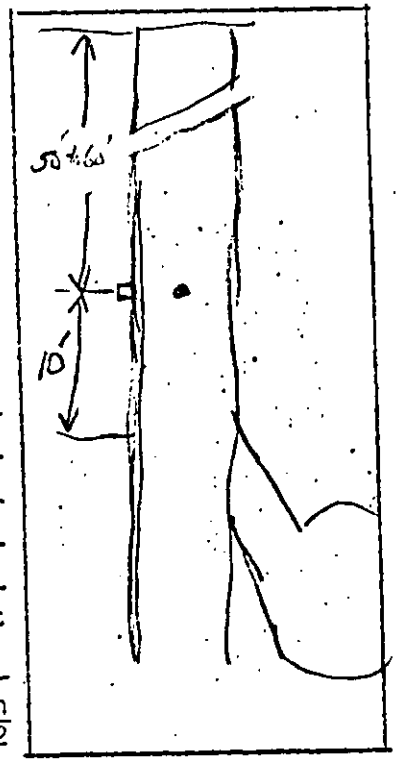
174

[redacted] Traverse Point No.	[redacted] From Inside Stack Wall (in.)	[redacted] Time	[redacted] Reading (ft^3)	[redacted] Velocity Head ("H_2O)	[redacted] Orifice Press. Diff. ("H_2O)		[redacted] Temp. (°F)	[redacted] Dry Gas Meter (°F)		[redacted] Box Temp. (°F)	[redacted] Temp. (°F)	[redacted] Sample Train ("Hg)
					Calc.	Actual		In	Out			
9	30 5/8	5:03	249.1	1.4	.82	.82	375	91	91	250	65	4
10	40 7/8	5:09	252.025	1.3	.82	.82	375	94	96	260	64	4

[redacted] Point No.	[redacted] Stack Wall (in.)	[redacted]	[redacted] (ft)	[redacted] Head ("H_2O)	[redacted] Press. Diff. ("H_2O)		[redacted] (°F)	[redacted] Gas Meter (°F)		[redacted] Temp. (°F)	[redacted] Temp. (°F)	[redacted] Sample Train ("Hg)
					Calc.	Actual		In.	Out			

SOURCE SAMPLING FIELD DATA SHEET

Plant Basic Magnesia
Sampling Location Periclase Kiln
Type of Control None
Type of Samples Dust
Date 6-6-73 Run No. 1
Time Start 10:15 Time End 11:15
Sample Time 60 min/pt 60 Total min
DB 580 °F, WB ____ °F, VP @ DP ____ "Hg
Bar. Press. ____ "Hg, Stack Press. ____ "Hg
Moisture 10 %, FDA ____, Gas Density Factor ____
Weather Clear
Temp. 85 °F, W/D —, W/S —
Sample Box No. — Meter Box No. 4
Meter ΔH@ 1.80 Pitot Corr. Factor 0.83
Nozzle Dia. 1/2 in., Probe Length 4 ft
Probe Heater Setting 55% Nomograph Cf 0.96
Stack Dimensions 46½ in
Stack Area ____ ft²
Effective Stack Area ____ ft²
Stack Height ____ ft



Mat'l Processing Rate ____
Final Gas Meter Reading 383.000 ft³ 342.000
Initial Gas Meter Reading 341.000 ft³
Condensate Increase in Impingers 130 ml (149.7)
Moisture in Silica Gel ____ gm
Silica Gel Container No. 800 Filter No. 419

Orsat:				
%CO_2	3.0			
%O_2	14.0			
%CO	0.8			
%N_2				
% Excess Air				

Test Conducted By: ____

Remarks: E.P.A. Test
* Assumed

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft³)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Meter Orifice Press. Diff. ("H_2O) Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Gas Sample Temp. @ Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
1	1½	11:15		.45	.88	.88	580	115	114	200	65	10
2	3½	11:19	379.1	.68	1.35	1.35	580	114	114	200	65	10
3	6½	11:23	375.1	.68	1.35	1.35	580	114	112	200	65	10
4	10½	11:27	370.1	.70	1.35	1.35	580	112	112	200	65	10
5	15½	10:31	366.3	.68	1.35	1.35	580	112	112	200	65	10
6	20½	10:35	362.0	.70	1.35	1.35	580	112	112	200	65	10
7	35½	10:39	358.0	.70	1.35	1.35	580	112	112	200	65	10
8	39½	10:43	353.7	.72	1.40	1.40	580	110	110	200	65	10

Traverse Point No.	Distance From Inside Stack Wall (in.)	Time	Dry Gas Meter Reading (ft³)	Velocity Head ("H₂O)	Orifice Press. Diff. ("H₂O) Calc.	Orifice Press. Diff. ("H₂O) Actual	Stack Temp (°F)	Dry Gas Meter (°F) In.	Dry Gas Meter (°F) Out	Probe Box Temp. (°F)	Impinger Temp. (°F)	Orsat Sample Train ("Hg)
9	40 3/4	10:27	349.5	.73	1.35	1.38	580	110	110	200	65	10
10	40 3/4	10:31	345.3	.78	1.40	1.40	580	110	110	150	70	10
	start @		10:15									

[redacted] Point No.	[redacted] Stack Wall (in.)	[redacted]	[redacted] ([illegible])	[redacted] Head ("H_2O)	[redacted] Press. Diff. ("H_2O)		[redacted] (°F)	[redacted] Gas Meter (°F)		[redacted] Temp (°F)	[redacted] (°F)	[redacted] Train ("Hg)
					Calc.	Actual		In.	Out			

ENVIRONMENTAL ENGINEERING, INC.
Gainesville, Florida

environmental engineering, inc.

SOURCE SAMPLING FIELD DATA SHEET

Plant Basic Magnesia
Sampling Location Porcelain Kiln
Type of Control None
Type of Samples Part.
Date 6-6-73 Run No. 2
Time Start 13:25 Time End 14:25
Sample Time 60 min/pt 60 Total min
DB 58.0 °F, WB — °F, VP @ DP — "Hg
Bar. Press. 30 "Hg, Stack Press. 30 "Hg
Moisture 10 %, FDA —, Gas Density Factor —
Weather Mon.
Temp. 110 °F, W/D —, W/S —
Sample Box No. — Meter Box No. 4
Meter ΔH@ 1.80 Pitot Corr. Factor 0.93
Nozzle Dia. ____ in., Probe Length 4 ft
Probe Heater Setting 500 Nomograph C_f 0.96
Stack Dimensions 48 x 5 in
Stack Area ____ ft^2
Effective Stack Area ____ ft^2
Stack Height ____ ft

Mat'l Processing Rate ____
Final Gas Meter Reading 42[illegible] ft^3 } 43.555
Initial Gas Meter Reading 39[illegible] ft^3
Condensate Increase in Impingers [illegible] ml 148.7
Moisture in Silica Gel [illegible] gm
Silica Gel Container No. 2[illegible] Filter No. 4[illegible]

Orsat:				
$\%CO_2$	9.6			
$\%O_2$	13.8			
%CO	0.6			
$\%N_2$				

% Excess Air ____

Test Conducted By: L. Wavis
S. [illegible]

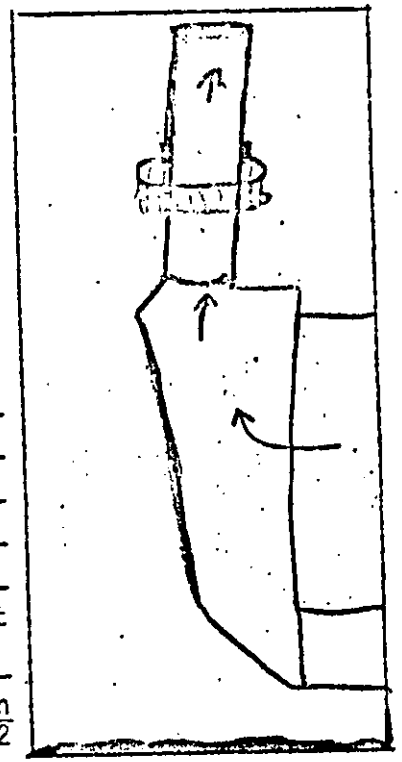
Remarks: * Assumed EPA [illegible]

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Meter Orifice Press. Diff. ("H_2O) Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Gas Sample Temp. @ Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
1	1	[illegible]		.72	[illegible]	[illegible]	[illegible]	107	107	190	[illegible]	10
2	1	[illegible]	420.0	.80	[illegible]	1.55	580	[illegible]	[illegible]	[illegible]	75	[illegible]
3	[illegible]	[illegible]	417.4	.75	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	415.2	.75	[illegible]	[illegible]	580	107	[illegible]	220	85	10
5	[illegible]	[illegible]	408.8	.80	1.55	1.55	[illegible]	107	107	230	75	10
6	[illegible]	[illegible]	[illegible]	.75	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	70	[illegible]
7	1	[illegible]	402.0	.75	1.45	1.45	[illegible]	10[illegible]	[illegible]	[illegible]	[illegible]	10
~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	107	101	[illegible]	[illegible]	[illegible]

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O)		Stack Gas Temp. (°F)	Gas Sample Temp.@Dry Gas Meter (°F)		Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
					Calc.	Actual		In	Out			
8		13:32	385.7	.75	1.45	1.45	580	187	187	[illegible]	[illegible]	10
9		13:37	391.3	.75	1.45	1.45	580	187	187	[illegible]	[illegible]	10
10		13:31	387.2	.75	1.45	1.45	580	187	187	[illegible]	[illegible]	10
	Stabil	[illegible]										

SOURCE SAMPLING FIELD DATA

Plant Baker MAGNESIA
Sampling Location ESP Product Dryer Kiln
Type of Control ESP
Type of Samples PARTICULATES
Date 6-6-73 Run No. 1
Time Start 4:30 Time End 5:30
Sample Time 5 min/pt 60 Total min
DB 530 °F, WB ____ °F, VP @ DP ____ "Hg
Bar. Press. 30 "Hg, Stack Press. 30 "Hg
Moisture 10 %, FDA ____, Gas Density Factor ____
Weather Clear Hot
Temp. 90 °F, W/D ____, W/S ____
Sample Box No. ____ Meter Box No. 7
Meter ΔH@ 1.6 Pitot Corr. Factor ____
Nozzle Dia. 1/4 in., Probe Length 8 ft
Probe Heater Setting 50 Nomograph C_f ____
Stack Dimensions 67 3/4 in
Stack Area ____ ft^2
Effective Stack Area ____ ft^2
Stack Height ____ ft



Mat'l Processing Rate ____
Final Gas Meter Reading 319.630 ft^3 34.310
Initial Gas Meter Reading 285.320 ft^3
Condensate Increase in Impingers 194 ml 226.4
Moisture in Silica Gel 28.4 gm
Silica Gel Container No. 216 Filter No. 47.8

Orsat:				
$\%CO_2$	18.8			
$\%O_2$	6.2			
%CO	1.0			
$\%N_2$				

% Excess Air ____

Test Conducted By: WRIGHTER
HOLDER

Remarks: ____

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
PORT-1												
1	1 3/4	4:30	[illegible]	.50	1.0	1.0	530	103	101	290	80	3
2	4 3/4	4:35	[illegible]	[illegible]	1.0	1.0	530	102	101	[illegible]	[illegible]	3
3	7 3/4	4:40	[illegible]	.50	1.0	1.0	530	[illegible]	[illegible]	[illegible]	78	3
4	11 3/4	4:45	294.6	[illegible]	1.0	1.0	530	100	101	290	72	2
5	16 1/2	4:50	297.7	.53	1.1	1.1	530	100	100	300	68	5
6	23 1/2	4:55	300.9		1.15	1.15	530	100	100	295	67	5

Traverse Point No.	Distance From Inside Stack Wall (in.)	Time	Reading (ft³)	Velocity Head ("H_2O)	Orifice Press. Diff. ("H_2O) Calc.	Orifice Press. Diff. ("H_2O) Actual	Stack Temp (°F)	Dry Gas Meter (°F) In.	Dry Gas Meter (°F) Out	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum Sample Train ("Hg)
7	42½	5:00	304.1	.55	1.15	1.15	530	100	100	260	64	5
8	49½	5:05	307.0	.58	1.2	1.2	530	100	100	[illegible]	[illegible]	5
9	54½	5:10	310.6	.58	1.2	1.2	530	100	100	[illegible]	[illegible]	5
10	58½	5:15	313.0	.58	1.2	1.2	530	100	100	[illegible]	[illegible]	[illegible]
11	61½	5:20	316.3	.58	1.2	1.2	530	101	101	290	60	5
12	64½	5:25	319.6	.50	1.0	1.0	530	100	101	[illegible]	[illegible]	5

[redacted] Point No.	[redacted] Stack Wall (in.)	[redacted]	[redacted] (ft³)	[redacted] Head ("H_2O)	[redacted] Press. Diff. ("H_2O)		[redacted] (°F)	[redacted] Gas Meter (°F)		[redacted] Temp. (°F)	[redacted] Temp. (°F)	[redacted] Sample Train ("Hg)
					Calc.	Actual		In.	Out			

SOURCE SAMPLING FIELD DATA SHEET

Plant [illegible]
Sampling Location ESP Outlet-Drywell
Type of Control ESP
Type of Samples PARTICULATES
Date 6-6-77 Run No. Test
Time Start 6:00 Time End 7:00
Sample Time 5 min/pt 60 Total min
DB 530 °F, WB ____ °F, VP @ DP ____ "Hg
Bar. Press. [illegible] "Hg, Stack Press. [illegible] "Hg
Moisture 10 %, FDA ____, Gas Density Factor ____
Weather CLEAR HOT
Temp. 85 °F, W/D ____, W/S ____
Sample Box No. ____ Meter Box No. 7
Meter ΔH@ 1.6 Pitot Corr. Factor ____
Nozzle Dia. [illegible] in., Probe Length 8 ft
Probe Heater Setting 320 Nomograph C_f .85
Stack Dimensions [illegible] in
Stack Area ____ ft^2
Effective Stack Area ____ ft^2
Stack Height ____ ft

See Run 1

Mat'l Processing Rate ____
Final Gas Meter Reading [illegible] ft^3
Initial Gas Meter Reading [illegible] ft^3
Condensate Increase in Impingers 150 ml
Moisture in Silica Gel [illegible] gm
Silica Gel Container No. [illegible] Filter No. [illegible]

Orsat:				
$\%CO_2$	16.2			
$\%O_2$	8.2			
%CO	0.8			
$\%N_2$				

% Excess Air ____

Test Conducted By: [illegible]

Remarks: ____

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Meter Orifice Press. Diff. ("H_2O) Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Gas Sample Temp. @ Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
1	See Run 1	6:00	322.1	.80	.60	.60	530	100	100	200	[illegible]	.3
2		6:05	[illegible]	.75	.46	.46	530	98	99	[illegible]	[illegible]	.2
3		6:10	[illegible]	[illegible]	.99	.99	530	97	98	210	70	[illegible]
4		6:15	[illegible]	[illegible]	.71	.71	[illegible]	95	97	[illegible]	[illegible]	.3
5		6:20	[illegible]	[illegible]	1.1	1.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.4
6		6:25	334.8	[illegible]	1.1	1.1	[illegible]	94	97	[illegible]	[illegible]	.2
7		6:30	339.0	.60	1.2	1.2	530	93	95	[illegible]	[illegible]	.4
8		6:35	[illegible]	.63	1.25	1.25	[illegible]	93	95	[illegible]	[illegible]	.4

[redacted] Traverse Point No.	[redacted] From Inside Stack Wall (in.)	[redacted] Time	[redacted] Reading (ft^3)	[redacted] Velocity Head ("H_2O)	[redacted] Orifice Press. Diff. ("H_2O) Calc.	Actual	[redacted] Temp. (°F)	[redacted] Gas Meter (°F) In.	Out	[redacted] Temp. (°F)	[redacted] Temp. (°F)	[redacted] Sample Train ("Hg)
9		1610	3450	.60	1.2	1.2	530	94	94	280	62	[illegible]
10		1615	3478	.60	1.2	1.2	530	94	95	[illegible]	[illegible]	[illegible]
11		[illegible]	3500	.60	1.2	1.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12		1625	[illegible]	.45	.90	.90	[illegible]	95	96	300	61	[illegible]

[redacted] Point No.	[redacted] Stack Wall (in.)	[redacted]	[redacted] (ft)	[redacted] Head ("H_2O)	[redacted] Press. Diff. ("H_2O)		[redacted] (°F)	[redacted] Gas Meter (°F)		[redacted] Temp. (°F)	[redacted] Temp. (°F)	[redacted] Sample Train ("Hg)
					Calc.	Actual		In.	Out			

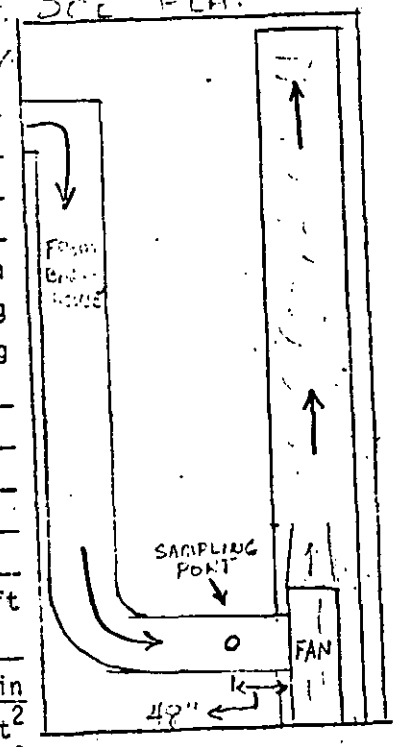
[redacted] Gainesville, Florida

environmental engineering, inc.

FLA

SOURCE SAMPLING FIELD DATA SHEET

Plant BASIC MAGNESIA - PORT ST. JOE FLA.
Sampling Location NO. 1 MOD CALCINER
Type of Control BAGHOUSE
Type of Samples PARTICULATE
Date 6-5-73 Run No. 1
Time Start 9:15 Time End 10:15
Sample Time 6 min/pt 60 Total min
DB ___ °F, WB ___ °F, VP @ DP ___ "Hg
Bar. Press. 30 "Hg, Stack Press. 29.5 "Hg
Moisture 20 %, FDA .80, Gas Density Factor ___
Weather FAIR
Temp. 85 °F, W/D W, W/S 10mph
Sample Box No. — Meter Box No. 6
Meter ΔH@ 1.73 Pitot Corr. Factor 0.83
Nozzle Dia. 3/16 in., Probe Length 6 ft
Probe Heater Setting — Nomograph C_f .73
Stack Dimensions 35½" DIA. in
Stack Area ___ ft^2
Effective Stack Area ___ ft^2
Stack Height ___ ft



Mat'l Processing Rate ___
Final Gas Meter Reading 562.171 ft^3
Initial Gas Meter Reading 557.487 ft^3
Condensate Increase in Impingers [illegible] ml
Moisture in Silica Gel [illegible] cm
Silica Gel Container No. [illegible] Filter No. 408

Orsat:				
$\%CO_2$	[illegible]			
$\%O_2$	[illegible]			
%CO	[illegible]			
$\%N_2$				

% Excess Air ___

Test Conducted By: G. McRAE
J. MANNING

Remarks: FLA. TRAIN
ONLY SAMPLING [illegible] PORT

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Meter Orifice Press. Diff. ("H_2O) Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @Dry Gas Meter (°F) In	Gas Sample Temp. @Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
			557.481									
POINT # 1	½	9:15	561.1	1.40	.92	.92	325	99	97	—	70	11
2	3	9:21	564.8	1.50	.98	.98	325	100	99	—	62	13
3	5¼	9:27	568.2	1.30	.86	.86	325	100	100	—	64	11
4	8⅓	9:33	571.1	1.20	.78	.78	325	100	100	—	65	9
5	12¾	9:39	574.9	1.20	.78	.78	325	101	100	—	66	10
6	22¾	9:45	578.3	1.20	.78	.78	325	101	101	—	67	10
7	27½	9:51	581.8	1.30	.86	.86	325	102	101	—	67	11
8	30¾	9:57	585.5	1.50	.98	.98	325	102	102	—	67	11

Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Orifice Press. Diff. ("H_2O) Calc.	Orifice Press. Diff. ("H_2O) Actual	Stack Temp. (°F)	Gas Meter (°F) In	Gas Meter (°F) Out	Box Temp. (°F)	Probe Temp. (°F)	Pressure on Sample Train ("Hg)
9	33	10:03	589.2	1.50	.98	.98	325	102	102	—	68	14
10	35 1/2	10:09	592.171	.90	.59	.59	325	104	102	—	68	8
		10:15	END OF	RUN								

Traverse Point No.	From Inside Stack Wall (in.)	Time	Reading (ft^3)	Velocity Head ("H_2O)	Orifice Press. Diff. ("H_2O) Calc.	Orifice Press. Diff. ("H_2O) Actual	Temp. (°F)	Temp. Dry Gas Meter (°F) In	Temp. Dry Gas Meter (°F) Out	Box Temp. (°F)	Impinger Temp. (°F)	on Sample Train ("Hg)

SOURCE SAMPLING FIELD DATA SHEET

Plant: BASIC MAGNESIA
Sampling Location: NO 1 MG CALCINER
Type of Control: BAGHOUSE
Type of Samples: PARTICULATE
Date: 6-5-73 Run No. 2
Time Start: 1100 AM Time End: 12[illegible]
Sample Time: 6 min/pt 60 Total min
DB ____ °F, WB ____ °F, VP @ DP ____ "Hg
Bar. Press. 30 "Hg, Stack Press. 29.5 "Hg
Moisture 20%, FDA .80, Gas Density Factor ____
Weather: FAIR
Temp. 88 °F, W/D W, W/S 10 mph
Sample Box No. — Meter Box No. 6
Meter ΔH@ 1.73 Pitot Corr. Factor 0.83
Nozzle Dia. 3/16 in., Probe Length 6 ft
Probe Heater Setting — Nomograph C_f .76
Stack Dimensions 35 ½" DIA in
Stack Area ____ ft^2
Effective Stack Area ____ ft^2
Stack Height ____ ft

SAME AS RUN # 1

Mat'l Processing Rate ____
Final Gas Meter Reading ____ ft^3
Initial Gas Meter Reading 592.171 ft^3
Condensate Increase in Impingers 194 ml
Moisture in Silica Gel ____ gm
Silica Gel Container No. 8 Filter No. 4

Orsat:				
$\%CO_2$	2.9			
$\%O_2$	15.2			
%CO	0.6			
$\%N_2$				

% Excess Air ____

Test Conducted By: G. MOORE
S. [illegible]

Remarks: FLA. TRAIN

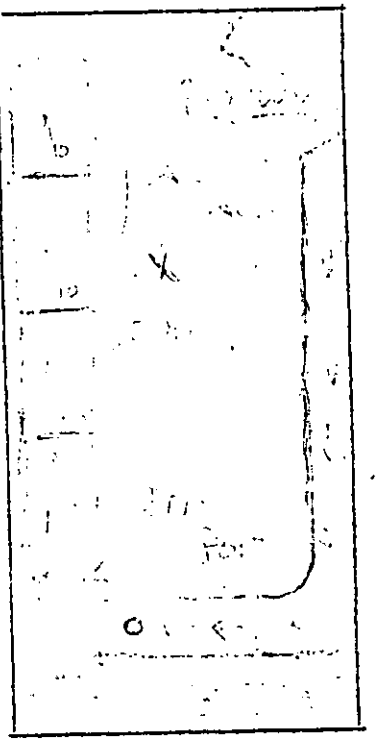
Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
			592.171									
Point # 1	↑	1100	[illegible]	[illegible]	.86	.86	325	107	[illegible]	—		[illegible]
2		1106	[illegible]	[illegible]	.82	.82	325	16				[illegible]
3	SAME AS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	325	[illegible]	[illegible]			[illegible]
4	Point # 2	[illegible]	[illegible]	[illegible]	.76	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]
5		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]
6		[illegible]	613.2	[illegible]	.76	.78	325	[illegible]	[illegible]	—		[illegible]
7		[illegible]	616.6	[illegible]	.76	.78	325	106	107	—		[illegible]
8	↓	[illegible]	[illegible]	[illegible]	.78	.78	325	107	[illegible]			[illegible]

[redacted] Traverse Point No.	[redacted] From Inside Stack Wall (in.)	[redacted] Time	[redacted] Reading (ft³)	[redacted] Velocity Head ("H_2O)	[redacted] Orifice Press. Diff. ("H_2O) Calc.	Actual	[redacted] (°F)	[redacted] Temp. Gas Meter (°F) In.	Out	[redacted] (°F)	[redacted] (°F)	[redacted] Train ("Hg)
		[illegible]	[illegible]	1.20	.78	.78	[illegible]	107	107	—	[illegible]	[illegible]
3		[illegible]	[illegible]	.97	[illegible]	.64	325	[illegible]	[illegible]	—	[illegible]	7
7		[illegible]	[illegible]	[illegible]								
		1500	[illegible]	[illegible]								

Traverse Point No.	[redacted] From Inside Stack Wall (in.)	[redacted] Time	[redacted] Reading (ft^3)	[redacted] Head ("H_2O)	[redacted] Press. Diff. ("H_2O)		[redacted] Temp. (°F)	[redacted] Gas Meter (°F)		[redacted] Temp. (°F)	[redacted] Temp. (°F)	[redacted] Sample Train ("Hg)
					Calc.	Actual		In.	Out			

SOURCE SAMPLING FIELD DATA SHEET

Plant [illegible]
Sampling Location #2 [illegible]
Type of Control Baghouse
Type of Samples [illegible]
Date 6-5-73 Run No. 1
Time Start 9:22 Time End 10:22
Sample Time 6 min/pt 60 Total min
DB ____ °F, WB ____ °F, VP @ DP ____ "Hg
Bar. Press. 30.0 "Hg, Stack Press. 29.5 "Hg
Moisture 2.0%, FDA ____, Gas Density Factor ____
Weather Clear [illegible]
Temp. 90 °F, W/D [illegible], W/S [illegible]
Sample Box No. ____ Meter Box No. 1
Meter ΔHG 1.65 Pitot Corr. Factor 0.8[illegible]
Nozzle Dia. [illegible] in., Probe Length 4 ft
Probe Heater Setting — Nomograph C_f .70
Stack Dimensions [illegible] in
Stack Area ____ ft^2
Effective Stack Area ____ ft^2
Stack Height ____ ft



Mat'l Processing Rate ____
Final Gas Meter Reading [illegible] ft^3
Initial Gas Meter Reading [illegible] ft^3
Condensate Increase in Impingers [illegible] ml
Moisture in Silica Gel [illegible] gm
Silica Gel Container No. [illegible] Filter No. 401 (.30)

Orsat:				
$\%CO_2$	2.4			
$\%O_2$	[illegible]			
%CO	1.6			
$\%N_2$				

% Excess Air ____

Test Conducted By: D. [illegible]
[illegible]

Remarks: [illegible]

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Meter Orifice Press. Diff. ("H_2O) Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Gas Sample Temp. @ Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
		9:22	[illegible]									
1	[illegible]	9:28	[illegible]	.91	.64	.64	325	95	93	—	[illegible]	—
2	3	9:34	[illegible]	[illegible]	.67	.67	325	94	93		[illegible]	
3	5 1/4	9:40	[illegible]	[illegible]	.96	.96	[illegible]	94	[illegible]		[illegible]	4
4	[illegible]	[illegible]	[illegible]	1.2	.86	.86	325	91	91		[illegible]	5
5	12 1/4	[illegible]	[illegible]	1.3	.905	.905	325	91	91		[illegible]	5
6	23 3/4		[illegible]	1.2	.86	.86	[illegible]	[illegible]	91			
7	[illegible]	[illegible]	[illegible]	[illegible]	.905	.905	[illegible]	[illegible]	[illegible]			—
8	[illegible]	[illegible]	[illegible]	1.4	.945	.945	[illegible]	[illegible]	[illegible]			—

[redacted] Traverse Point No.	[redacted] From Inside Stack Wall (in.)	[redacted] Time	[redacted] Reading (ft^3)	[redacted] Velocity Head ($"H_2O$)	[redacted] Press. Diff. ($"H_2O$) Calc.	[redacted] Press. Diff. ($"H_2O$) Actual	[redacted] (°F)	[redacted] Gas Meter (°F) In	[redacted] Gas Meter (°F) Out	[redacted] Temp. (°F)	[redacted] Temp. (°F)	[redacted] Sample Train ($"Hg$)
9	32	10:16	346.[illegible]	1.1	[illegible]	[illegible]	[illegible]	97	9[illegible]	—	[illegible]	[illegible]
10	35 1/2	[illegible]	347.[illegible]	1.2	[illegible]	[illegible]	[illegible]	97	96	[illegible]	[illegible]	[illegible]
		[illegible]	347.[illegible]									

STOP

[redacted] Point No.	[redacted] Stack Wall (in.)	[redacted]ime	[redacted] (ft^3)	[redacted] Head ("H_2O)	[redacted] Press. Diff. ("H_2O)		[redacted] (°F)	[redacted] Gas Meter (°F)		[redacted] Temp. (°F)	[redacted] Temp. (°F)	[redacted] Sample Train ("Hg)
					Calc.	Actual		In.	Out			

SOURCE SAMPLING FIELD DATA SHEET

Plant [illegible]
Sampling Location #2 [illegible]
Type of Control [illegible]
Type of Samples [illegible]
Date [illegible]6 Run No. [illegible]
Time Start [illegible] Time End [illegible]
Sample Time [illegible] min/pt [illegible] Total min
DB ____ °F, WB ____ °F, VP @ DP ____ "Hg
Bar. Press. [illegible] "Hg, Stack Press. [illegible] "Hg
Moisture 20 %, FDA ____, Gas Density Factor ____
Weather [illegible]
Temp. [illegible] °F, W/D [illegible], W/S [illegible]
Sample Box No. ____ Meter Box No. 1
Meter ΔH@ [illegible] Pitot Corr. Factor [illegible]
Nozzle Dia. ____ in., Probe Length [illegible] ft
Probe Heater Setting ____ Nomograph C_f [illegible]
Stack Dimensions [illegible] in
Stack Area ____ ft^2
Effective Stack Area ____ ft^2
Stack Height ____ ft

SAME AS #1

Mat'l Processing Rate ____
Final Gas Meter Reading [illegible] ft^3
Initial Gas Meter Reading [illegible] ft^3
Condensate Increase in Impingers 85 ml (90.4)
Moisture in Silica Gel ____ gm
Silica Gel Container No. [illegible] Filter No. [illegible]

Orsat:				
$\%CO_2$	[illegible]			
$\%O_2$	16.2			
%CO	0.0			
$\%N_2$				

% Excess Air ____

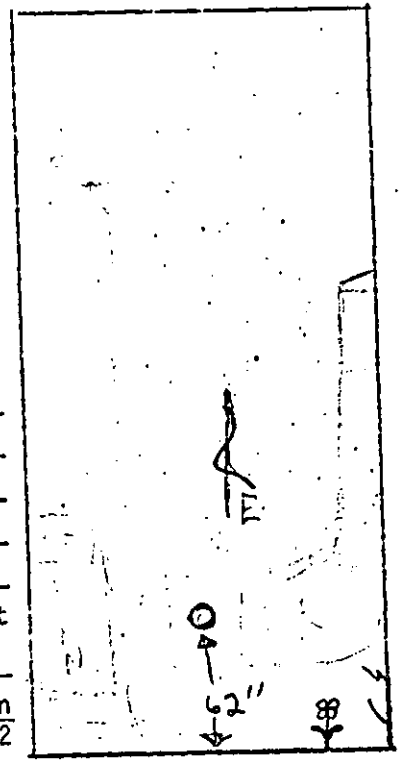
Test Conducted By: D. [illegible]
P. [illegible]

Remarks: ____

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Meter Orifice Press. Diff. ("H_2O) Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Gas Sample Temp. @ Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
	START →	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	1.1	.745	.745	315	82	[illegible]	—	[illegible]	5
3	5 [illegible]	[illegible]	[illegible]	1.2	.825	.825	[illegible]	84	27	—		
4	8 [illegible]	8:59	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—		
5	[illegible]	9:05	[illegible]	[illegible]	.665	.665	[illegible]	[illegible]	[illegible]	—		
6	[illegible]	9:11	405.[illegible]	1.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]
7	[illegible]	9:17	407.[illegible]	1.4	.94	.94	320	87	29	—	[illegible]	[illegible]
8	[illegible]	9:23	410.000	[illegible]	.94	.94	320	87	29	—	[illegible]	—

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Time	Gas Meter Reading (ft^3)	Velocity Head ("H_2O)	Orifice Press. Diff. ("H_2O)		Stack Temp. (°F)	Temp. Dry Gas Meter (°F)		Box Temp. (°F)	Impinger Temp. (°F)	Pump on Sample Train ("Hg)
					Calc.	Actual		In	Out			
1	[illegible]	9:33	412.690	1.5	1.05	1.05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	415.365	1.5	1.05	1.05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	STOP →	9:35	415.365									

Plant [illegible]
Sampling Location [illegible]
Type of Control [illegible]
Type of Samples [illegible]
Date [illegible] Run No. [illegible]
Time Start [illegible] Time End [illegible]
Sample Time [illegible] min/pt [illegible] Total min
DB [illegible] °F, WB [illegible] °F, VP @ DP [illegible] "Hg
Bar. Press. 30 "Hg, Stack Press. 29.4 "Hg
Moisture [illegible] %, FDA [illegible], Gas Density Factor [illegible]
Weather [illegible]
Temp. [illegible] °F, W/D [illegible], W/S [illegible]
Sample Box No. [illegible] Meter Box No. 1
Meter ΔH@ 1.65 Pitot Corr. Factor [illegible]
Nozzle Dia. [illegible] in., Probe Length [illegible] ft
Probe Heater Setting [illegible] Nomograph C_f .7
Stack Dimensions 43 in
Stack Area [illegible] ft^2
Effective Stack Area [illegible] ft^2
Stack Height [illegible] ft



Mat'l Processing Rate [illegible]
Final Gas Meter Reading [illegible] ft^3
Initial Gas Meter Reading [illegible] ft^3
Condensate Increase in Impingers 100 ml
Moisture in Silica Gel [illegible] gm
Silica Gel Container No. 806 Filter No. 416

Orsat:				
$\%CO_2$	1.8			
$\%O_2$	17.9			
%CO	0.8			
$\%N_2$				

% Excess Air [illegible]

Test Conducted By: [illegible]
[illegible]

Remarks: 8.5" [illegible]

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Meter Orifice Press. Diff. ("H_2O) Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Gas Sample Temp. @ Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
		[illegible]	[illegible]									
1	1 1/8	[illegible]	345.195	1.4	.525	[illegible]	[illegible]	98	96	—	[illegible]	4
2	[illegible]	2:12	347.180	1.0	.635	.635	375	98	96	—	70	4
3	[illegible]	2:18	349.715	1.1	.69	.69	375	98	96	[illegible]	[illegible]	4
4	[illegible]	2:24	352.220	1.2	.745	.745	375	98	97		75	5
5	[illegible]	2:30	354.[illegible]5	1.0	.635	.635	375	97	97		75	5
6	[illegible]	[illegible]	356.[illegible]0	[illegible]	.215	.215	[illegible]	97	97	[illegible]	74	5
7	[illegible]	[illegible]	359.470	1.4	.86	.86	375	97	97		74	5
8	[illegible]	[illegible]	362.050	1.5	.93	.93	375	97	[illegible]	[illegible]	[illegible]	[illegible]

Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock	Gas Meter Reading (ft³)	Velocity Head ("H_2O)	Pressure Diff. ("H_2O) Calc.	Pressure Diff. ("H_2O) Actual	Temp. (°F)	Temp. (°F) Dry Gas Meter In.	Temp. (°F) Dry Gas Meter Out	Temp. (°F)	Temp. (°F)	Temp. (°F)	Torr. ("Hg)
9	37 5/8	2:54	364.445	1.5	.93	.93	275	98	98	—	75		5
10	[illegible]	300	367.445	1.6	1.0	1.0	275	92	98	—	[illegible]		[illegible]
		3:00	367.445										

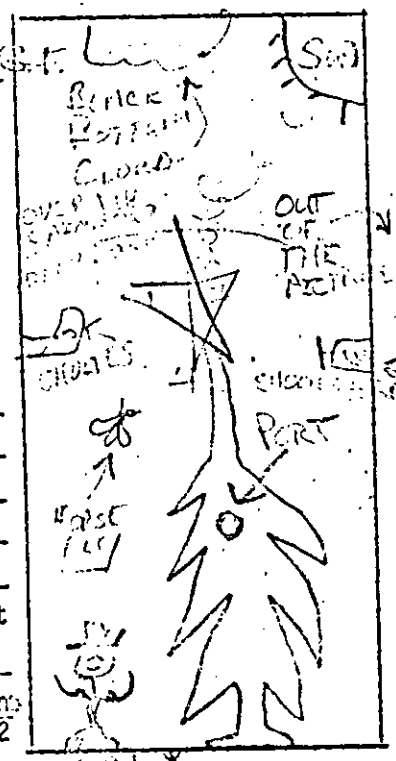
STOP

[redacted]

Traverse Point No.	From Inside Stack Wall (in.)	Time	Reading (ft^3)	Velocity Head ("H_2O)	Orifice Press. Diff. ("H_2O)		Temp. (°F)	Temp. Dry Gas Meter (°F)		Box Temp. (°F)	Impinger Temp. (°F)	on Sample Train ("Hg)
					Calc.	Actual		In.	Out			

SOURCE SAMPLING FIELD DATA SHEET

Plant [illegible] Plant St [illegible]
Sampling Location [illegible]
Type of Control [illegible]
Type of Samples [illegible]
Date 6/5 [illegible] Run No. 2
Time Start [illegible] Time End [illegible]
Sample Time 6 min/pt [illegible] Total min
DB ____ °F, WB ____ °F, VP @ DP ____ "Hg
Bar. Press. 30 "Hg, Stack Press. 29.4 "Hg
Moisture ____ %, FDA ____, Gas Density Factor ____
Weather [illegible]
Temp. [illegible] °F, W/D [illegible], W/S [illegible]
Sample Box No. ____ Meter Box No. [illegible]
Meter ΔH@ [illegible] Pitot Corr. Factor [illegible]
Nozzle Dia. 3/16" in., Probe Length 4 ft
Probe Heater Setting — Nomograph C_f [illegible]
Stack Dimensions [illegible] in.
Stack Area ____ ft^2
Effective Stack Area ____ ft^2
Stack Height ____ ft



* Stack Sample Duct

Mat'l Processing Rate ____
Final Gas Meter Reading [illegible] ft^3
Initial Gas Meter Reading [illegible] ft^3
Condensate Increase in Impingers 122 ml
Moisture in Silica Gel [illegible] cm
Silica Gel Container No. 212 Filter No. 406

Orsat:				
$\%CO_2$	1.4			
$\%O_2$	16.4			
%CO	0.4			
$\%N_2$				

% Excess Air ____

Test Conducted By: "D. Gaeger"
[illegible]

Remarks: * Stopped for [illegible] to change [illegible] Pumps.

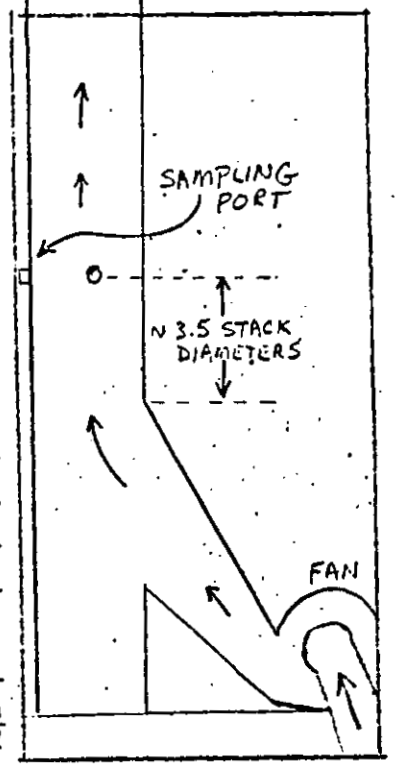
Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
		55	[illegible]									
1	[illegible]	4:01	[illegible]	.93	[illegible]	[illegible]	375	100	96	—	80	[illegible]
2	[illegible]	[illegible]	[illegible]	1.2	.745	[illegible]	375	93	91	—	[illegible]	[illegible]
3	[illegible] *	4:23	374.055	1.0	.635	.635	375	[illegible]	[illegible]	—	[illegible]	3
4	[illegible]	4:39	[illegible]	1.2	.745	.745	375	98	96	—	80	[illegible]
5	[illegible]	4:45	378.979	1.3	.815	.815	375	98	96	—	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	1.2	[illegible]	.745	375	[illegible]	96		80	5
7	[illegible]	[illegible]	381.340	1.2	[illegible]	[illegible]	375	[illegible]	[illegible]			
8	[illegible]	5:05	383.[illegible]	1.2	.745	.745	375	98	96			

Traverse Point No.	From Inside Stack Wall (in.)	Time	Reading (ft^3)	Velocity Head ("H_2O)	Orifice Press. Diff. ("H_2O) Calc.	Orifice Press. Diff. ("H_2O) Actual	Temp. (°F)	Temp. Dry Gas Meter (°F) In.	Temp. Dry Gas Meter (°F) Out	Box Temp. (°F)	Impinger Temp. (°F)	on Sample Train ("Hg)
9		5:06	389.365	1.4	.86	.86	[illegible]	98	[illegible]	—	82	5
10		5:12	391.860	1.3	.815	.815	375	98	[illegible]	—	[illegible]	5
		5:12	391.860									
	STOP											

[redacted] Traverse Point No.	[redacted] From Inside Stack Wall (in.)	[redacted] Time	[redacted] Reading (ft^3)	[redacted] Head ("H_2O)	[redacted] Press. Diff. ("H_2O)		[redacted] (°F)	[redacted] Gas Meter (°F)		[redacted] Temp. (°F)	[redacted] Temp. (°F)	[redacted] Sample Train ("Hg)
					Calc.	Actual		In	Out			

SOURCE SAMPLING FIELD DATA SHEET

Plant BASIC MAGNESIA
Sampling Location PERIPLASE KILN
Type of Control NONE
Type of Samples PARTICULATE
Date 6-6-72 Run No. 1
Time Start 10:15 AM Time End 11:15 AM
Sample Time 6 min/pt 60 Total min
DB ____ °F, WB ____ °F, VP @ DP ____ "Hg
Bar. Press. 30 "Hg, Stack Press. 30 "Hg
Moisture 3 %, FDA .97, Gas Density Factor ____
Weather FAIR
Temp. 90 °F, W/D E, W/S 10-15 mph
Sample Box No. — Meter Box No. 6
Meter ΔH@ 1.73 Pitot Corr. Factor 0.83
Nozzle Dia. 1/4 in., Probe Length 4 ft
Probe Heater Setting — Nomograph C_f .89
Stack Dimensions 46 1/2" DIA. in
Stack Area ____ ft^2
Effective Stack Area ____ ft^2
Stack Height ____ ft



Mat'l Processing Rate ____
Final Gas Meter Reading 667.067 ft^3
Initial Gas Meter Reading 626.357 ft^3 } 40.7
Condensate Increase in Impingers 140 ml (150.7 2/8 11 2/3 340 520 140)
Moisture in Silica Gel ____ gm
Silica Gel Container No. 798 Filter No. 405

Orsat:				
$\%CO_2$	3.0			
$\%O_2$	14.0			
%CO	0.7			
$\%N_2$				
% Excess Air				

Test Conducted By: G. ALPER
J. MANNING

Remarks: FLA. TRAIN
SAMPLING ONE PORT ONLY
* STARTED - OPPOSITE SIDE OF STACK - PROBE ALL THE WAY IN STACK.

Port and Traverse Point No. *	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3) 626.357	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Actual	Stack Gas Temp. (°F) 580-60	Gas Sample Temp. @ Dry Gas Meter (°F) In	Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
POINT # 1	1 1/4	10:15	630.3	.78	1.50	1.50	580	110	112	—	85	4
2	3 3/4	10:21	634.5	.73	1.40	1.40	580	110	111	—	70	4
3	6 1/4	10:27	638.6	.72	1.38	1.38	580	110	113	—	72	4
4	10 3/8	10:33	642.9	.70	1.35	1.35	580	110	114	—	75	5
5	15 3/4	10:39	647.0	.70	1.35	1.35	580	110	114	—	75	5
6	30 9/16	10:45	651.1	.68	1.32	1.32	580	111	115	—	76	5
7	35 5/8	10:51	655.2	.70	1.35	1.35	580	111	115	—	76	5
8	39 5/16	10:57	659.5	.68	1.32	1.32	580	111	114	—	70	5

Traverse Point No.	From Inside Stack Wall (in.)	Time	Reading (ft^3)	Velocity Head ("H_2O)	Orifice Press. Diff. ("H_2O) Calc.	Orifice Press. Diff. ("H_2O) Actual	Temp. (°F)	Temperature Gas Meter (°F) In	Temperature Gas Meter (°F) Out	Box Temp. (°F)	Impinger Temp. (°F)	Sample Train ("Hg)
9	42 1/4	11:03	663.7	.68	1.32	1.32	580	111	115	—	70	5
10	44 7/8	11:09	667.067	.45	.87	.87	580	112	115	—	70	5
		11:15	END OF	RUN								

[redacted] Traverse Point No.	[redacted] Stack Wall (in.)	[redacted]	[redacted] (ft³)	[redacted] Head ("H_2O)	[redacted] Press. Diff. ("H_2O)		[redacted] (°F)	[redacted] (°F)		[redacted] (°F)	[redacted] (°F)	[redacted] Train ("Hg)
					Calc.	Actual		In.	Out			

FLA

SOURCE SAMPLING FIELD DATA SHEET

Plant: BASIC MAGNESIA
Sampling Location: PERICLASE KILN
Type of Control: NONE
Type of Samples: PARTICULATE
Date: 6/6/73 Run No.: 2
Time Start: 12:25 Time End: 1:25
Sample Time: 6 min/pt 60 Total min
DB ____ °F, WB ____ °F, VP @ DP ____ "Hg
Bar. Press. 30 "Hg, Stack Press. 30 "Hg
Moisture 3 %, FDA .97, Gas Density Factor ____
Weather: FAIR
Temp. 85 °F, W/D ____, W/S ____
Sample Box No. ____ Meter Box No. 6
Meter ΔH@ 1.73 Pitot Corr. Factor 0.83
Nozzle Dia. 1/4 in., Probe Length 4 ft
Probe Heater Setting — Nomograph C_f 0.89
Stack Dimensions 46 1/2 DIA in
Stack Area ____ ft^2
Effective Stack Area ____ ft^2
Stack Height ____ ft

SAME AS RUN # 1

Mat'l Processing Rate ____
Final Gas Meter Reading 707.802 ft^3
Initial Gas Meter Reading 667.067 ft^3 } 42.73
Condensate Increase in Impingers 162 ml
Moisture in Silica Gel 14 (17 gm)
Silica Gel Container No. 788 Filter No. 399

Orsat:				
$\%CO_2$	4.6			
$\%O_2$	13.8			
%CO				
$\%N_2$				

% Excess Air ____

Test Conducted By: G. McRAE, J. MANNING

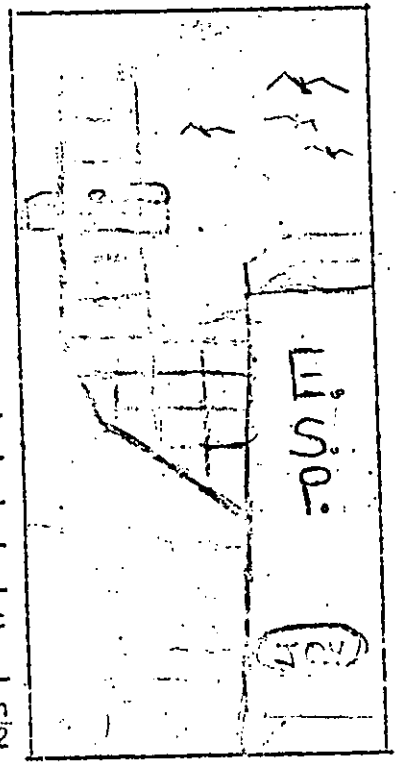
Remarks: FLA. TPD

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Meter Orifice Press. Diff. ("H_2O) Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Gas Sample Temp. @ Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
			667.067									
POINT # 10	↑	12:35	671.3	.75	1.44	1.44	580	107	108	—	75	5
9		12:31	675.6	.75	1.44	1.44	580	106	108	—	75	5
8	SAME AS	12:37	679.7	.75	1.44	1.44	580	106	108	—	75	5
7	RUN # 1	12:43	684.0	.75	1.44	1.44	580	106	108	—	75	5
6		12:49	688.3	.75	1.44	1.44	580	106	108	—	75	6
5		12:55	692.8	.80	1.53	1.53	580	106	108	—	70	5
4		1:01	696.9	.75	1.44	1.44	580	106	108	—	70	5
	↓	[illegible]	701.4	.75	1.44	1.44	580	106	108	—		

[redacted] and [redacted] Traverse Point No.	[redacted] From Inside Stack Wall (in.)	[redacted] Time	[redacted] Reading (ft^3)	[redacted] Velocity Head ("H_2O)	[redacted] Orifice Press. Diff. ("H_2O) Calc.	Actual	[redacted] Temp. (°F)	[redacted] Temperature Gas Meter (°F) In.	Out	[redacted] Box Temp. (°F)	[redacted] Temp. (°F)	[redacted] on Sample Train ("Hg)
2		1:13	705.4	.80	1.52	1.52	5[illegible]	106	108	—	70	6
1		1:19	709.802	.72	1.39	1.39	580	106	108	—	70	7
		1:25										

[redacted] Traverse Point No.	[redacted] From Inside Stack Wall (in.)	Clock [redacted]e	Gas Meter [redacted] Read[redacted] (ft³)	[redacted] Head ("H_2O)	[redacted] Press. Diff. ("H_2O)		[redacted] Temp (°[redacted])	[redacted] Temp[redacted] ry G[redacted] (°F)		[redacted] Box [redacted] (°F)	[redacted] (°F)	[redacted] ("Hg)
					Calc.	Actual		In.	Out			

Plant BASIC MAGNESIA INC.
Sampling Location ESP OUTLET - (DRYER)
Type of Control ESP (Dry)
Type of Samples PARTICULATE
Date 6/7/73 Run No. 1
Time Start 4:30PM Time End 5:30
Sample Time 5 min/pt 60 Total min
DB ____ °F, WB ____ °F, VP @ DP ____ "Hg
Bar. Press. 30.1 "Hg, Stack Press. ____ "Hg
Moisture 10 %, FDA ____, Gas Density Factor ____
Weather Cloudy Hot
Temp. 95 °F, W/D SW, W/S 6 MPH
Sample Box No. — Meter Box No. 1
Meter ΔH@ 1.65 Pitot Corr. Factor 0.83
Nozzle Dia. 1/4 in., Probe Length 6 ft
Probe Heater Setting — Nomograph C_f ____
Stack Dimensions 67 3/8 in
Stack Area ____ ft^2
Effective Stack Area ____ ft^2
Stack Height ____ ft



Mat'l Processing Rate ____
Final Gas Meter Reading 440.510 ft^3
Initial Gas Meter Reading 416.200 ft^3
Condensate Increase in Impingers 138 ml
Moisture in Silica Gel ____ cm
Silica Gel Container No. 814 Filter No. 396

Orsat:				
$\%CO_2$	18.8			
$\%O_2$	6.8			
%CO	1.0			
$\%N_2$				

% Excess Air ____

Test Conducted By: D. GARNER
BOBBY HUTTO

Remarks: ____

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
PORT 1	START →		416.200									
1	1 3/8		[illegible]	.50	.98	.98	530	107	106	—	[illegible]	[illegible]
2	4 3/8		420.900	[illegible]	.98	.98		[illegible]	[illegible]	—	[illegible]	[illegible]
3	7 3/4		[illegible]	.50	.98	.98		109	107	—	[illegible]	[illegible]
4	11 3/4		425.350	[illegible]	.98	.98		110	109	—	74	[illegible]
5	16 1/2		427.670	.53	1.0	1.0		110	109	—	74	[illegible]
6	23 1/2		430.000	.55	1.07	1.07				—		

[redacted] Traverse Point No.	[redacted] From Inside Stack Wall (in.)	[redacted]	[redacted] Head [redacted] (ft³)	[redacted] Head ("H_2O)	[redacted] Press. Diff. ("H_2O) Calc.	Actual	[redacted] (°F)	[redacted] Gas Meter [redacted] (°F) In.	Out	[redacted] (°F)	[redacted] (°F)	[redacted] Train ("Hg)
			432.610	.55	1.07	1.07	530	110	110	—	95	3
7			434.820	.58	1.12	1.12		110	110	—	95	3
8			437.600	.58	1.12	1.12		110	110	—	95	4
9			439.785	.58	1.12	1.12		110	110	—	95	4
10			442.130	.53	1.12	1.12		110	110	—	95	4
11			444.510	.50	.98	.98		110	110	—	95	4
12												

[redacted] Point No.	[redacted] Stack Wall (in.)	[redacted]	[redacted] (ft)	[redacted] Head ("H_2O)	[redacted] Press. Diff. ("H_2O)		[redacted] (°F)	[redacted] Gas Meter (°F)		[redacted] Temp. (°F)	[redacted] Temp. (°F)	[redacted] Sample Train ("Hg)
					Calc.	Actual		In.	Out			

SOURCE SAMPLING FIELD DATA SHEET

Plant: Basic Magnesia Inc.
Sampling Location: E.S.P. Outlet (Cupola)
Type of Control: E.S.P. (Jet)
Type of Samples: Particulate
Date: 6/6/73 Run No. 2
Time Start: 6:00 am Time End: 7:00
Sample Time: 5 min/pt 60 Total min
DB ____ °F, WB ____ °F, VP @ DP ____ "Hg
Bar. Press. 30.1 "Hg, Stack Press. ____ "Hg
Moisture 10 %, FDA ____, Gas Density Factor ____
Weather: Cloudy-Hot-Hot + Hot
Temp. 95 °F, W/D SW, W/S 17 mph
Sample Box No. — Meter Box No. 1
Meter ΔH@ 1.65 Pitot Corr. Factor 0.84
Nozzle Dia. 1/4 in., Probe Length 6 ft
Probe Heater Setting — Nomograph C_f 70
Stack Dimensions 67 3/8 in
Stack Area ____ ft^2
Effective Stack Area ____ ft^2
Stack Height ____ ft

SAME AS #1
61473
52.05

Mat'l Processing Rate ____
Final Gas Meter Reading 471.525 ft^3
Initial Gas Meter Reading 444.510 ft^3
Condensate Increase in Impingers 112 ml
Moisture in Silica Gel 10.8 gm
Silica Gel Container No. 716 Filter No. 436

Orsat:				
$\%CO_2$	16.2			
$\%O_2$	8.2			
%CO	0.7			
$\%N_2$				

% Excess Air ____

Test Conducted By: D.S. Geiser
Barry Hoover

Remarks: ____

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
		6:00	444.510									
1		[illegible]	444.565	.30	.58	.58	530	106	[illegible]	—	90	[illegible]
2		6:10	[illegible]	[illegible]	.45	.45		106	105	—	92	2
3		6:15	456.350	.19	.96	.96		106	[illegible]	—	90	[illegible]
4		6:20	452.155	.35	.665	.665		106	105	—	95	3
5		6:25	454.350	.55	1.05	1.05		106	105	—	95	3
6		6:30	456.500	.55	1.05	1.05				—		
										—		
										—		

[redacted] Traverse Point No.	[redacted] From Inside Stack Wall (in.)	[redacted] Time	[redacted] Reading (ft^3)	[redacted] Velocity Head ("H_2O)	[redacted] Orifice Press. Diff. ("H_2O) Calc.	Actual	[redacted] Temp. (°F)	[redacted] Gas Meter (°F) In	Out	[redacted] Temp. (°F)	[redacted] Temp. (°F)	[redacted] Sample Train ("Hg)
7		6:35	459.070	.60	1.15	1.15	530	98	101	—	95	4
8		6:40	461.850	.63	1.2	1.2	530	98	100	—	95	4
9		6:45	464.600	.60	1.15	1.15	530	98	100	—		4
10		6:50	466.[illegible]	.60	1.15	1.15	530	98	[illegible]	—		4
11		6:55	469.920	.60	[illegible]	[illegible]	530	98	100	—	95	4
12		[illegible]	471.505	.45	.99	.99	[illegible]	[illegible]	[illegible]	—		4
	STOP →	7:00	472.525									

[redacted]	[redacted] From Inside Stack Wall (in.)	[redacted] Time	[redacted] Reading (ft^3)	[redacted] Velocity Head ("H_2O)	[redacted] Orifice Press. Diff. ("H_2O)		[redacted] Temp. (°F)	[redacted] Gas Meter (°F)		[redacted] Temp. (°F)	[redacted] Temp. (°F)	[redacted] Sample Train ("Hg)
					Calc.	Actual		In.	Out			

ORSAT DATA AND CALCULATION SHEET

7.5" H_2O vac.

Source BASIC MAGNESIA PORT ST. JOE, FLA. Location #1 MgO KILN

Run No.	Date	Gas	Orsat Analysis, Dry Basis (% Volume) 1	2	3	Avg.	Wgt./Mole Dry Basis	Remarks
1	6-5-73	CO_2	2.0					
		O_2	16.2					
		CO	0.8					
		N_2	81.0					
		Excess Air						
2	6-5-73	CO_2	2.8					
		O_2	15.3					
		CO	0.6					
		N_2	81.4					
		Excess Air						
3		CO_2						
		O_2						
		CO						
		N_2						
		Excess Air						

Run No.	Avg. Molec. Wgt. Of Dry Stack Gas (Wgt./Mole)	Avg. Excess Air (%)	Stack Gas Flow Rate @ S.T.P. (SCFM) Burners	Burners & Waste	Fraction Of Time All Burners Operating	CO_2 From Burners (% Vol)	CO_2 From Waste (% Vol)
1							
2							
3							

environmental engineering, inc.

ORSAT DATA AND CALCULATION SHEET 7.5" H2O

Source BASIC MAGNESIA PORT ST. JOE, FLA. Location #2 MgO KILN

Run No.	Date	Gas	Orsat Analysis, Dry Basis (% Volume) 1	2	3	Avg.	Wgt./Mole Dry Basis	Remarks
1	6-5-73	CO_2	2.4					
		O_2	16.4					
		CO	1.6					
		N_2	79.6					
		Excess Air						
2	6-6-73	CO_2	1.8					
		O_2	16.8					
		CO	0.6					
		N_2	80.8					
		Excess Air						
3		CO_2						
		O_2						
		CO						
		N_2						
		Excess Air						

Run No.	Avg. Molec. Wgt. Of Dry Stack Gas (Wgt./Mole)	Avg. Excess Air (%)	Stack Gas Flow Rate @ S.T.P. (SCFM) Burners	Burners & Waste	Fraction Of Time All Burners Operating	CO_2 From Burners (% Vol)	CO_2 From Waste (% Vol)
1							
2							
3							

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ORSAT DATA AND CALCULATION SHEET 8.5 H_2O inc

Source BASIC MAGNESIA Location #3 MgO KILN

Run No.	Date	Gas	Orsat Analysis, Dry Basis (% Volume) 1	2	3	Avg.	Wgt./Mole Dry Basis	Remarks
1	6-5-73	CO_2	1.8					
		O_2	17.2					
		CO	0.8					
		N_2						
		Excess Air						
2	6-5-73	CO_2	1.4					
		O_2	16.4					
		CO	0.4					
		N_2						
		Excess Air						
3		CO_2						
		O_2						
		CO						
		N_2						
		Excess Air						

Run No.	Avg. Molec. Wgt. Of Dry Stack Gas (Wgt./Mole)	Avg. Excess Air (%)	Stack Gas Flow Rate @ S.T.P. (SCFM) Burners	Burners & Waste	Fraction Of Time All Burners Operating	CO_2 From Burners (% Vol)	CO_2 From Waste (% Vol)
1							
2							
3							

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ORSAT DATA AND CALCULATION SHEET

Source BASIC MAGNESIA Location PERICLASE KILN
PORT ST. JOE, FLA.

Run No.	Date	Gas	Orsat Analysis, Dry Basis (% Volume) 1	2	3	Avg.	Wgt./Mole Dry Basis	Remarks
1	6-6-73	CO_2	3.0					
		O_2	14.0					
		CO	0.8					
		N_2	82.2					
		Excess Air						
2	6-6-73	CO_2	4.6					
		O_2	13.8					
		CO	0.6					
		N_2	81.0					
		Excess Air						
3		CO_2						
		O_2						
		CO						
		N_2						
		Excess Air						

Run No.	Avg. Molec. Wgt. Of Dry Stack Gas (Wgt./Mole)	Avg. Excess Air (%)	Stack Gas Flow Rate @ S.T.P. (SCFM) Burners	Burners & Waste	Fraction Of Time All Burners Operating	CO_2 From Burners (% Vol)	CO_2 From Waste (% Vol)
1							
2							
3							

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ORSAT DATA AND CALCULATION SHEET

Source BASIC MAGNESIA PORT ST. LUCIE, FLA. Location ESP OUTLET DRYER STACK

Run No.	Date	Gas	Orsat Analysis, Dry Basis (% Volume) 1	2	3	Avg.	Wgt./Mole Dry Basis	Remarks
1	6-6-73	CO_2	18.4					
		O_2	6.2					
		CO	1.0					
		N_2	74.0					
		Excess Air						
2	6-6-73	CO_2	16.8					
		O_2	8.2					
		CO	0.8					
		N_2	74.2					
		Excess Air						
3		CO_2						
		O_2						
		CO						
		N_2						
		Excess Air						

Run No.	Avg. Molec. Wgt. Of Dry Stack Gas (Wgt./Mole)	Avg. Excess Air (%)	Stack Gas Flow Rate @ S.T.P. (SCFM) Burners	Burners & Waste	Fraction Of Time All Burners Operating	CO_2 From Burners (% Vol)	CO_2 From Waste (% Vol)
1							
2							
3							

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APPENDIX C

LABORATORY DATA SHEETS

ENVIRONMENTAL ENGINEERING, INC.

DATA REPORT SHEET

STACK SAMPLE PARTICULATE ANALYSIS

TO: FLA TRAIN (ONLY) PROJECT NO. 73-033-000

CLIENT: BASIC MAGNESIA DATE: 6/15/73

EEI SAMPLE NO. / RUN NO.	#1 MGO CAL RUN1	# 1 MGO CAL RUN2	#2 MGO CAL RUN1	#2 MGO CAL RUN2
FILTER TOTAL NET WT.	.0023g	.0040g	.0008g	.0003g
PROBE SOLUBLES TOTAL NET WT.				
~~PROBE~~ INSOLUBLES SILICA GEL TOTAL NET WT.	8.1	3.8	2.7	5.4
PROBE SOL. + INSOL. TOTAL NET WT.				
~~IMPINGER~~ SOLUBLES TOTAL NET WT.	.2572	.2850	.1170	.1164
~~IMPINGER~~ INSOLUBLES TOTAL NET WT.	.0038	.0054	.0433	.0023
BACK-HALF SOLUBLE TOTAL NET WT.				
BACK-HALF INSOLUBLE TOTAL NET WT.				
BACK-HALF SOL. + INSOL. TOTAL NET WT.				
TOTAL SOLIDS IN SAMPLE				

NOTE: ALL WEIGHTS ARE RECORDED IN GRAMS

ENVIRONMENTAL ENGINEERING, INC.

DATA REPORT SHEET

STACK SAMPLE PARTICULATE ANALYSIS

~~TO:~~ FLA TRAIN (ONLY) PROJECT NO. 73-033-000

CLIENT: BASIC MAGNESIA DATE: 6/15/73

EEI SAMPLE NO. / RUN NO.	#3 MGO CAL RUN 1	#3 MGO CAL RUN 2	PERICLASE KILN RUN 1	PERICLASE KILN RUN 2
FILTER TOTAL NET WT.	.0132 g	.0010 g	.1259 g	.1385 g
PROBE SOLUBLES TOTAL NET WT.				
PROBE INSOLUBLES SILICA GEL TOTAL NET WT.	2.2	5.4	14.1	14.6
PROBE SOL. + INSOL. TOTAL NET WT.				
IMPINGER SOLUBLES TOTAL NET WT.	.4830	.3955	2.5626	1.7545
IMPINGER INSOLUBLES TOTAL NET WT.	.0272	.0090	5.8699	3.5557 ~~.0032~~
BACK-HALF SOLUBLE TOTAL NET WT.				
BACK-HALF INSOLUBLE TOTAL NET WT.				
BACK-HALF SOL. + INSOL. TOTAL NET WT.				
TOTAL SOLIDS IN SAMPLE				

ENVIRONMENTAL ENGINEERING, INC.

DATA REPORT SHEET

STACK SAMPLE PARTICULATE ANALYSIS

~~TO~~: FLA TRAIN (ONLY) PROJECT NO. 73-033-000

CLIENT: BASIC MAGNESIA DATE: 6/15/73

EEI SAMPLE NO. / RUN NO.	ESP OUTLET DRYER RUN 1	ESP OUTLET DRYER RUN 2		
FILTER / TOTAL NET WT.	.0016g	.0043g		
PROBE SOLUBLES / TOTAL NET WT.				
~~PROBE INSOLUBLES~~ SILICA GEL / TOTAL NET WT.	8.9	10.8		
PROBE SOL. + INSOL. / TOTAL NET WT.				
IMPINGER SOLUBLES / TOTAL NET WT.	1.0940	.7727		
IMPINGER INSOLUBLES / TOTAL NET WT.	0.0032 ~~3.7654~~	.0101		
BACK-HALF SOLUBLE / TOTAL NET WT.				
BACK-HALF INSOLUBLE / TOTAL NET WT.				
BACK-HALF SOL. + INSOL. / TOTAL NET WT.				
TOTAL SOLIDS IN SAMPLE				

LAB ANALYSIS SHEET FOR PARTICULATE EMISSION TESTS

Plant Basic Magnesia Stack

Date Sampled Date Analyzed

FLA. #1 MGO CALCINER #2 MGO CAL.

		Run #1	Run #2	Run #1
FILTER				
	Final Weight	#408 .3324	#414 .3347	#401 .3008
	Initial Weight	.3281	.3307	.3000
	Total Solids	.0023	.0040	.0008
PROBE (Insolubles)	Final Weight			
	Initial Weight			
	Total Solids			
PROBE (Solubles)	Total Filtrate			
	Aliquot			
	Final Weight			
	Initial Weight			
	Total Aliquot Solids			
	Total Filtrate Solids			
IMPINGERS (Insolubles)	Final Weight	#72 20.7753	#62 21.7654	#37 20.9931
	Initial Weight	20.7715	21.7600	20.9498
	Total Solids	.0038	.0054	.0433
IMPINGERS (Solubles)	Total Filtrate	#6	#5	#4
	Aliquot			
	Final Weight	113.2513	117.1321	153.6747
	Initial Weight	112.9941	116.8371	153.5577
	Total Aliquot Solids	.2572	.2950	.1170
	Total Filtrate Solids			
	SILICA GEL	#808 8.1 gm	#807 3.6 gm	#795 2.7 gm

TOTAL SOLIDS

(Insolubles)			
(Solubles)			
(Insolubles and Solubles)			

LAB ANALYSIS SHEET FOR PARTICULATE EMISSION TESTS

Plant Basic Magnesia Stack

Date Sampled Date Analyzed

FLA.

		#2 MgO CAL. Run #2	#3 MgO CAL. Run #2	Run #3
FILTER				
	Final Weight	#433 .3298	#416 .3358	#406 .3301
	Initial Weight	.3295	.3326	.3291
	Total Solids	.0003	.0032	.0010
PROBE (Insolubles)	Final Weight			
	Initial Weight			
	Total Solids			
PROBE (Solubles)	Total Filtrate			
	Aliquot			
	Final Weight			
	Initial Weight			
	Total Aliquot Solids			
	Total Filtrate Solids			
IMPINGERS (Insolubles)	Final Weight	#56 21.4922	#31 22.6300	#76 23.4879
	Initial Weight	21.4905	22.6022	23.4797
	Total Solids	.0023	.0276	.0070
IMPINGERS (Solubles)	Total Filtrate	#70	#61	#43
	Aliquot			
	Final Weight	149.7207	146.9069	111.4605
	Initial Weight	149.7103	146.3639	111.0649
	Total Aliquot Solids	.1144	.4930	.3955
	Total Filtrate Solids			
SILICA GEL		#767 57 gm	#536 2.2 gm	57 gm

TOTAL SOLIDS

(Insolubles)			
(Solubles)			
(Insolubles and Solubles)			

LAB ANALYSIS SHEET FOR PARTICULATE EMISSION TESTS

Plant Basic Magnesia Stack

Date Sampled Date Analyzed

		FLA Periclase Kiln Run #1	Run #2	FSP Outlet Dryer Run #1
FILTER				
	Final Weight	#400 .4373	#399 .5251	#396 .3941
	Initial Weight	.3114	.3866	.3925
	Total Solids	.1259	.1385	.0016
PROBE (Insolubles)	Final Weight			
	Initial Weight			
	Total Solids			
PROBE (Solubles)	Total Filtrate			
	Aliquot			
	Final Weight			
	Initial Weight			
	Total Aliquot Solids			
	Total Filtrate Solids			
IMPINGERS (Insolubles)	Final Weight	#51 27.6353	#49 22.6073	#30 27.8401
	Initial Weight	21.7644	22.6051	24.2742
	Total Solids	5.2697	.0022	3.5659
IMPINGERS (Solubles)	Total Filtrate	#82	#97	#101
	Aliquot			
	Final Weight	147.4239	117.4600	146.3040
	Initial Weight	144.[illegible]	117.7055	145.[illegible]100
	Total Aliquot Solids	2.5[illegible]	1.7[illegible]	1.0940
	Total Filtrate Solids			
TOTAL SOLIDS	SILICA GEL	#798 14.1 gm	#958 14.6 gm	#814 8.9 gm
(Insolubles)				
(Solubles)				
(Insolubles and Solubles)				

LAB ANALYSIS SHEET FOR PARTICULATE EMISSION TESTS

Plant Basic Magnesia Stack

Date Sampled Date Analyzed

FLA ESP OUTLET DRYER

		Run #1	Run #2	Run #3
FILTER		#430		
	Final Weight	.3369		
	Initial Weight	.3326		
	Total Solids	.0043		
PROBE (Insolubles)	Final Weight			
	Initial Weight			
	Total Solids			
PROBE (Solubles)	Total Filtrate			
	Aliquot			
	Final Weight			
	Initial Weight			
	Total Aliquot Solids			
	Total Filtrate Solids			
IMPINGERS (Insolubles)		#48		
	Final Weight	21.9596		
	Initial Weight	21.9495		
	Total Solids	.0101		
IMPINGERS (Solubles)		#17		
	Total Filtrate			
	Aliquot			
	Final Weight	119.2894		
	Initial Weight	118.5077		
	Total Aliquot Solids	.7721		
	Total Filtrate Solids			

SILICA GEL #776 10.8 gr.

TOTAL SOLIDS			
(Insolubles)			
(Solubles)			
(Insolubles and Solubles)			

ENVIRONMENTAL ENGINEERING, INC.

DATA REPORT SHEET

STACK SAMPLE PARTICULATE ANALYSIS

TO: EPA TRAIN ONLY PROJECT NO. 73033000

CLIENT: BASIC MAGNESIA DATE: 6/15/73

EEI SAMPLE NO. / RUN NO.	#1 MgO CAL. Run #1	#1 MgO CAL. Run #2	#2 MgO CAL. Run #1	#2 MgO CAL. Run #2
FILTER TOTAL NET WT.	.0851	.0536	.0461	.0229
HI-VOL FILTER TOTAL NET WT.				
PROBE SOLUBLES TOTAL NET WT.	.0108	.1890	* ?	.1505
PROBE INSOLUBLES TOTAL NET WT.	.0353	.0163	.0520	.0173
PROBE TOTAL PARTICULATE TOTAL NET WT.				
IMPINGER SOLUBLES TOTAL NET WT.	.0070	.0013	.0057	.0050
IMPINGER INSOLUBLES TOTAL NET WT.	.0024	.0027	.0007	.0005
IMPINGER TOTAL PARTICULATE TOTAL NET WT.				
SILICA GEL TOTAL NET WT.				
~~TOTAL SOLIDS IN~~ BACK HALF SAMPLE	.0082	.0030	.0113	.0104
BACK HALF INSOLUBLES	.0036	.0027	.0043	.0019
SILICA GEL #	794	829		
	7.6	13.4	11.7	22.0

* sample spilled

ENVIRONMENTAL ENGINEERING, INC.

DATA REPORT SHEET

STACK SAMPLE PARTICULATE ANALYSIS

TO: EPA PROJECT NO. 73 033 000

CLIENT: BASIC MAGNESIA DATE: 6-15-72

EEI SAMPLE NO. / RUN NO.	#3 MgO CAL Run #1	#3 MgO CAL Run #2	Periclase Kiln Run #1	Periclase Kiln Run #2
FILTER TOTAL NET WT.	.0165	.0074	.3165	.2943
HI-VOL FILTER TOTAL NET WT.				
PROBE SOLUBLES TOTAL NET WT.	.2048	.0193	.0962	.0927
PROBE INSOLUBLES TOTAL NET WT.	.0243	.0506	6.8924	4.9767
PROBE TOTAL PARTICULATE TOTAL NET WT.				
IMPINGER SOLUBLES TOTAL NET WT.	.0086	.0269	.0916	.0706
IMPINGER INSOLUBLES TOTAL NET WT.	.0184	.0021	.0019	.0007
IMPINGER TOTAL PARTICULATE TOTAL NET WT.				
SILICA GEL TOTAL NET WT.				
~~TOTAL SOLIDS IN SAMPLE~~ SOLUBLES BACK HALF	.0106	.0078	0.1288	.0915
INSOLUBLES BACK HALF	.0084	.0020	.1396	.0011
S. G.	3.9	7.8	19.7	18.9

ENVIRONMENTAL ENGINEERING, INC.

DATA REPORT SHEET

STACK SAMPLE PARTICULATE ANALYSIS

TO: EPA PROJECT NO. 73033000

CLIENT: BASIC MAGNESIA DATE: 6-15-73

EEI SAMPLE NO. RUN NO.	ESP OUTLET DRYER RUN #1	ESP OUTLET DRYER RUN #2		
FILTER TOTAL NET WT.	.0709	.0434		
HI-VOL FILTER TOTAL NET WT.				
PROBE SOLUBLES TOTAL NET WT.	.0166	.0037		
PROBE INSOLUBLES TOTAL NET WT.	.0007	.0046		
PROBE TOTAL PARTICULATE TOTAL NET WT.				
IMPINGER SOLUBLES TOTAL NET WT.	.5228	.0590		
IMPINGER INSOLUBLES TOTAL NET WT.	.0036	.0005		
IMPINGER TOTAL PARTICULATE TOTAL NET WT.				
SILICA GEL TOTAL NET WT.				
~~TOTAL SOLUBLES~~ BACK ~~SAMPLE~~ SOLUBLES HALF	.0173 ~~.0022~~	.0156 ~~.0002~~		
INSOLUBLES BACK HALF	.0036	.0005		

S. G.

33.4 33.1

LAB ANALYSIS SHEET FOR PARTICULATE EMISSION TESTS

Plant Basic Magnesia Stack

Date Sampled Date Analyzed 6-11-73

	EPA	#1 MGO CAL. Run #1	Run #2	#2 MGO CAL Run #1
FILTER				
	Final Weight	#421 .4203	#415 .3627	#407 .3768
	Initial Weight	.3[illegible]	.3091	.3307
	Total Solids	.0851	.0536	.0461
PROBE (Insolubles)				
	Final Weight	#44 16.9[illegible]	#17 16.3105	#13 16.4957
	Initial Weight	16.5461	16.2942	16.4377
	Total Solids	0.0353	0.0163	0.0580
PROBE (Solubles)				
	Total Filtrate	#6	#17	#2 75
	Aliquot			10 *
	Final Weight	113.1324	150.4[illegible]	100.1391
	Initial Weight	113.[illegible]	150.2[illegible]	100.1[illegible]
	Total Aliquot Solids	0.0105	0.1540	—
	Total Filtrate Solids			
BACK-HALF + IMPINGERS (Insolubles)				
	Final Weight	#6 16.2[illegible]	#4 15.3[illegible]	#21 15.3815
	Initial Weight	16.2[illegible]	15.3[illegible]	15.3772
	Total Solids	0.0034	0.0027	0.0043
BACK-HALF + IMPINGERS (Solubles)				
	Total Filtrate	#66	#21	#5
	Aliquot			
	Final Weight	136.4533	106.[illegible]	106.9[illegible]
	Initial Weight	[illegible]	106.[illegible]	13[illegible]
	Total Aliquot Solids	0.0082	0.0030	0.011[illegible]
	Total Filtrate Solids			
IMPINGERS (Insolubles)				
	Final Weight	#24 17.4566	#15 12.0159	#7 17.5[illegible]
	Initial Weight	17.[illegible]	12.[illegible]	17.5[illegible]
	Total Solids	0.0124	0.0027	0.0007
IMPINGERS (Solubles)				
	Total Filtrate	#22	#5	#7
	Aliquot			
	Final Weight	15[illegible]	114.[illegible]	113.[illegible]
	Initial Weight	15[illegible]	114.[illegible]	113.[illegible]
	Total Aliquot Solids	0.0070	0.0013	[illegible]
	Total Filtrate Solids			

LAB ANALYSIS SHEET FOR PARTICULATE EMISSION TESTS

Plant Basic Magnesia Stack

Date Sampled Date Analyzed 6-11-73

		EPA	#2 MgO CAL Run #1	Run #2	#3 MgO CAL Run #3
FILTER	Final Weight	#411	.3546	#411 .4011	#405 [illegible]
	Initial Weight		.3317	[illegible]	[illegible]
	Total Solids		.0229	.0165	[illegible]
PROBE (Insolubles)	Final Weight	#28	[illegible]	#9 [illegible]	#11 [illegible]
	Initial Weight		[illegible]	[illegible]	[illegible]
	Total Solids		0.0173	0.0243	0.0506
PROBE (Solubles)	Total Filtrate	#33		#21	#11
	Aliquot				
	Final Weight		[illegible]	[illegible]	[illegible]
	Initial Weight		[illegible]	[illegible]	[illegible]
	Total Aliquot Solids		0.1505	[illegible]	0.0193
	Total Filtrate Solids				
BACK-HALF + IMPINGERS (Insolubles)	Final Weight	#3	[illegible]	#15 [illegible]	#45 [illegible]
	Initial Weight		[illegible]	[illegible]	[illegible]
	Total Solids		.0019	0.0014	0.0020
BACK-HALF + IMPINGERS (Solubles)	Total Filtrate	#18		#25	#12
	Aliquot				
	Final Weight		[illegible]	[illegible]	[illegible]
	Initial Weight		[illegible]	[illegible]	[illegible]
	Total Aliquot Solids		0.0144	0.0161	0.0075
	Total Filtrate Solids				
IMPINGERS (Insolubles)	Final Weight	#12	[illegible]	#11 [illegible]	#41 [illegible]
	Initial Weight		[illegible]	[illegible]	[illegible]
	Total Solids		[illegible]	0.0194	0.0021
IMPINGERS (Solubles)	Total Filtrate	#19		#25	#52
	Aliquot				
	Final Weight		[illegible]	[illegible]	[illegible]
	Initial Weight		[illegible]	[illegible]	[illegible]
	Total Aliquot Solids		0.0050	[illegible]	[illegible]

* silica gel

LAB ANALYSIS SHEET FOR PARTICULATE EMISSION TESTS

Plant: Basic Magnesia Stack: _____

Date Sampled: _____ Date Analyzed: 6-11-73

EPA Periclase KILN ESP OUTLET DRYER

		Run #1	Run #2	Run #3
FILTER				
	Final Weight	#409 .6206	#400 .6223	#25 .3537
	Initial Weight	.3041	.3041	.3125
	Total Solids	0.3165	0.2943	0.0909
PROBE (Insolubles)				
	Final Weight	#19 [illegible]	#7 [illegible]	#16 [illegible]
	Initial Weight	17.2082	18.[illegible]	15.[illegible]
	Total Solids	6.[illegible]	4.[illegible]	0.[illegible]
PROBE (Solubles)				
	Total Filtrate	#25 _____	#6 1	#17 1
	Aliquot	_____	_____	_____
	Final Weight	115.2[illegible]	115.3815	100.[illegible]
	Initial Weight	115.1[illegible]	115.[illegible]	100.[illegible]
	Total Aliquot Solids	[illegible]	[illegible]	0.0166
	Total Filtrate Solids	_____	_____	_____
BACK-HALF + IMPINGERS (Insolubles)				
	Final Weight	#20 17.1755	#40 18.1836	2 [illegible]
	Initial Weight	17.[illegible]	18.1755	15.[illegible]
	Total Solids	0.1324	0.0011	0.[illegible]
BACK-HALF + IMPINGERS (Solubles)				
	Total Filtrate	#27 _____	#37 _____	#31 _____
	Aliquot	_____	_____	_____
	Final Weight	100.[illegible]	114.6209	100.1591
	Initial Weight	100.[illegible]	114.[illegible]	100.[illegible]
	Total Aliquot Solids	0.1258	0.0915	0.[illegible]
	Total Filtrate Solids	_____	_____	_____
IMPINGERS (Insolubles)				
	Final Weight	#10 10.0401	#43 10.[illegible]	#5 10.[illegible]
	Initial Weight	10.[illegible]	10.[illegible]	10.[illegible]
	Total Solids	0.[illegible]	0.[illegible]	0.0036
IMPINGERS (Solubles)				
	Total Filtrate	#29 _____	#4 _____	#37 _____
	Aliquot	_____	_____	_____
	Final Weight	14[illegible]	[illegible]	10[illegible]
	Initial Weight	14[illegible]	[illegible]	10[illegible]
	Total Aliquot Solids	0.01[illegible]	0.0706	[illegible]

LAB ANALYSIS SHEET FOR PARTICULATE EMISSION TESTS

Plant Basic Magnesia Stack

Date Sampled Date Analyzed 6-11-73

EPA ESP OUTLET DUCT

		Run #1	Run #2	Run #3
FILTER				
	Final Weight ..... #42	.3244		
	Initial Weight	[illegible]		
	Total Solids	.0434		
PROBE (Insolubles)				
	Final Weight ..... #42	12.9506		
	Initial Weight	12.9502		
	Total Solids	0.0004		
PROBE (Solubles)				
	Total Filtrate ..... #35			
	Aliquot			
	Final Weight	100.5357		
	Initial Weight	[illegible]		
	Total Aliquot Solids	0.0037		
	Total Filtrate Solids			
BACK-HALF + IMPINGERS (Insolubles)				
	Final Weight ..... #1	[illegible]		
	Initial Weight	12.1035		
	Total Solids	0.0025		
BACK-HALF + IMPINGERS (Solubles)				
	Total Filtrate 4T			
	Aliquot			
	Final Weight	139.5353		
	Initial Weight	138.4997		
	Total Aliquot Solids	0.0156		
	Total Filtrate Solids			
IMPINGERS (Insolubles)				
	Final Weight ..... #5	12.5458		
	Initial Weight	[illegible]		
	Total Solids	0.0005		
IMPINGERS (Solubles)				
	Total Filtrate ..... #42			
	Aliquot			
	Final Weight	[illegible]		
	Initial Weight	[illegible]		
	Total Aliquot Solids	[illegible]		
	Total Filtrate Solids			

APPENDIX D

PROJECT PARTICIPANTS

PROJECT PARTICIPANTS

Name	Title
John Dollar, E.I.T., M.S.E.	Project Manager
Robert Durgan, C.E.T.	Sr. Environmental Specialist
Larry Wurts, C.E.T.	Environmental Specialist
Gary McRae, C.E.T.	Environmental Specialist
Don Geiger, Technician	Environmental Specialist
Bill Wrighter, Technician	Environmental Specialist
Jack Manning, Technician	Environmental Specialist
Robert Holden, Technician	Environmental Specialist