



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
SECTOR POLICIES AND PROGRAMS DIVISION
OFFICE OF AIR QUALITY PLANNING AND STANDARDS
OFFICE OF AIR AND RADIATION

DATE: May 25, 2017

SUBJECT: Addendum to the Review of the Continuous Opacity Monitoring System Data from the Pulp and Paper ICR Responses for Subpart MM Sources

FROM: Kelley Spence (EPA/OAR/OAQPS/SPPD/NRG)

TO: EPA-HQ-OAR-2014-0741

I. Introduction

The U.S. Environmental Protection Agency (EPA) proposed amendments to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semicemical Mills (40 CFR part 63, subpart MM) in the *Federal Register* on December 30, 2016. A 60-day period, ending February 28, 2017, was provided for the public to submit comments on the proposal to the EPA. The EPA received various comments on the proposed revisions to the opacity limits and monitoring allowances. The purpose of this memo is to present updated results from our re-analysis of the continuous opacity monitoring system (COMS) data considering public comments. This memo is an addendum to the proposal memo titled, *Review of the Continuous Opacity Monitoring System Data from the Pulp and Paper ICR Responses for Subpart MM Sources* (see Docket Item No. EPA-HQ-OAR-2014-0741-0158).

II. Updates to the COMS Data Analysis

The EPA proposed to revise the subpart MM opacity limits by:

- Reducing the opacity limit from 35 percent to 20 percent, removing the 20 percent opacity corrective action level, and reducing the monitoring allowance from 6 percent to 1 percent for existing recovery furnaces; and
- Reducing the monitoring allowance from 6 percent to 1 percent for new recovery furnaces and new/existing lime kilns.

The EPA received public comments focused on the cost of the proposed opacity revisions, arguing that capital costs for electrostatic precipitator (ESP) upgrades would likely be needed instead of improved ESP maintenance for many more units than the EPA had estimated at proposal. Other comments focused on the EPA's analysis of COMS data which was documented in the proposal memo, *Review of the Continuous Opacity Monitoring System Data from the Pulp and Paper ICR Responses for Subpart MM Sources* (see Docket Item No. EPA-HQ-OAR-2014-0741-0158). This memo updates the results presented in the aforementioned

memo. Our re-analysis of the costs is provided in a separate memo for the final rule titled, *Revised Costs/Impacts of the Subpart MM Residual Risk and Technology Review for Promulgation*. All comments and responses regarding the COMS analysis, associated cost analysis, and the resulting final opacity limits can be found in the response to public comments document in the docket.¹

A. Data Clarifications

The EPA received one data clarification to be incorporated into the COMS analysis. As a result, the data for Unit ID 145.55 was updated to remove opacity values labeled “F” indicating that the unit was offline. Once updated, we found that the unit would meet all opacity options under consideration at proposal.

No other clarifications or revisions of opacity data sets were submitted by commenters.

B. Data for Startup and Shutdown

Multiple commenters expressed concern that startup and shutdown periods were not included in all of the opacity data analyzed. Therefore, the opacity data sets were reviewed to assess coverage of startup and shutdown periods as described below.

Recovery furnaces. Further analysis of the recovery furnace COMS data sets show that 109 of the 158 data sets analyzed contained startup and shutdown data, not associated with periods of “0” production rates. Approximately 62,200 6-minute averages for periods of startup and shutdown were used in the COMS analysis for the proposed rulemaking. Of these 6-minute averages, 2,485 exceeded 20 percent opacity. The average for the data set was 44 percent, and the median was 40 percent.

Lime kilns. Further analysis of the lime kiln COMS data provided in the 2011 ICR responses shows that 16 units (17 data sets) contained startup and shutdown data, not associated with periods of “0” production rates. Approximately 16,700 6-minute averages for periods of startup and shutdown were used in the COMS analysis for the proposed rulemaking. Of these 6-minute averages, 435 exceeded 20 percent opacity. The average and the median for these 6-minute averages were each 42 percent.

Appendix B summarizes the startup and shutdown data available in each data set and included in the COMS analysis.

¹ See the document titled, *National Emissions Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills (40 CFR Part 63, Subpart MM) Residual Risk and Technology Review, Final Amendments, Response to Public Comments on December 30, 2016 Proposal*, in Docket ID No. EPA-HQ-OAR-2014-0741.

III. Re-analysis Results

The results from the re-analysis of the COMS data were not re-plotted because only one data point was updated. This section discusses the emission units estimated to meet the options considered between the proposal and final rulemakings as a result of public comments.

Similar to the analysis for the proposed rule, emission units were identified, where appropriate, as either:

- Existing units (*i.e.*, units only subject to subpart MM);
- BB + existing units (*i.e.*, units subject to the subpart BB New Source Performance Standards [NSPS] and considered existing units under subpart MM);
- BB + new units (*i.e.*, units subject to the subpart BB NSPS and considered new units under subpart MM);
- BBa + new MM units (*i.e.*, units subject to the subpart BBa NSPS and considered new units under subpart MM); or
- New MM units (*i.e.*, soda units subject to the new source standards in subpart MM).

A. *Recovery Furnace COMS Re-analysis*

Table 1 summarizes the number of COMS data sets analyzed for recovery furnaces. A total of 158 data sets were analyzed for recovery furnaces, including 1 soda (new MM), 81 BB + existing MM, 75 existing MM, and 1 BB + new MM data sets. The re-analysis shows that all COMS data sets met the original MM standard and that 15 units did not meet the proposed revisions. In response to public comments, we re-evaluated the costs associated with the proposed revisions and found that the proposed option was not cost-effective. Therefore, we reviewed the opacity data to determine whether there are other opacity options to consider for the final rule. We determined the number of units that would be impacted by (1) reducing the opacity limit to 20 percent with a 6 percent allowance, and (2) maintaining the originally-promulgated 35 percent opacity limit and reducing the monitoring allowance to a level met in all of the data sets (*i.e.*, a 2 percent monitoring allowance). The first option, 20 percent opacity and a 6 percent monitoring allowance, resulted in 153 data sets meeting the potential standard. All data sets met the 35 percent opacity with the 2 percent monitoring allowance. The costs of these options were evaluated in the updated cost analysis.² Appendix A provides the list of recovery furnaces expected to be impacted by the revised options.

B. *Lime Kiln COMS Re-analysis*

Table 2 summarizes the number of COMS data sets analyzed for lime kilns. A total of 30 data sets were analyzed, including 1 soda, 24 BB + existing MM, 1 BB + new MM, and 4 existing MM. As part of the proposed rulemaking, a reduction in the monitoring allowance from 6 percent to 1 percent was investigated to provide an incentive to improve ESP performance. Only two kilns did not meet the 1 percent monitoring allowance when reporting on a semiannual

² See the document titled, *Revised Costs/Impacts of the Subpart MM Residual Risk and Technology Review for Promulgation*, in Docket ID No. EPA-HQ-OAR-2014-0741.

basis. The EPA received public comment on this proposed revision and re-evaluated the cost based on ESP upgrades in lieu of increased ESP maintenance and found that this option was not cost-effective, considering no associated emissions reductions were estimated to be achieved. We evaluated an option to increase the monitoring allowance to 3 percent as part of the final rulemaking and found that all data sets would meet this limit. Appendix A provides the list of lime kilns impacted by the revised options for further evaluation in the cost analysis.

Table 1. Summary of Recovery Furnace COMS Data Sets Re-analyzed

COMS classification	Data set count	Notes
No. of COMS data sets	158	157 kraft data sets + 1 soda data set
BB + existing MM	81	These are units subject to the NSPS and considered existing units under subpart MM.
BBa + new MM	0	No data were available for units subject to NSPS subpart BBa and considered as new units under subpart MM, if such units exist.
BB + new MM	1	These are units subject to the NSPS and considered new units under subpart MM.
Existing MM	75	These are units not subject to the NSPS and considered existing units under subpart MM.
Soda (new MM)	1	
Original Subpart MM: No. of COMS meeting 35% opacity with a 6% allowance with quarterly reporting	158	
Option A (Proposed revision): No. of COMS meeting 20% opacity with a 2% allowance with semiannual reporting	141	
Proposed revision: No. of COMS <i>not</i> meeting 20% opacity with a 2% allowance with semiannual reporting	17	Four sets of COMS data are from 2 units with 2 stacks, therefore 15 units did not meet the proposed revisions.
Option B: No. of COMS meeting 20% opacity with a 6% allowance with semiannual reporting	153	
Option C: No. of COMS meeting 35% opacity with a 2% allowance with semiannual reporting	158	

Table 2. Summary of Lime Kiln COMS Data Sets Re-analyzed

COMS classification	Data set count	Notes
No. of COMS data sets	30	29 kraft + 1 soda
BB + existing MM	24	These are units subject to the NSPS and considered existing units under subpart MM.
BBa + new MM	0	No data were available for units subject to NSPS subpart BBa and considered as new units under subpart MM, if such units exist.
BB + new MM	1	These are units subject to the NSPS and considered new units under subpart MM.
Existing MM	4	These are units not subject to the NSPS and considered existing units under subpart MM.
Soda (new MM)	1	
Original Subpart MM: No. of COMS meeting 20% opacity with a 6% allowance with quarterly reporting	30	
Option A (Proposed revision): No. of COMS meeting 20% opacity with a 1% allowance with semiannual reporting	28	
Proposed revision: No. of COMS <i>not</i> meeting 20% opacity with a 1% allowance with semiannual reporting	2	Both units were BB + existing MM units, utilizing just an ESP as the control device.
Option B: No. of COMS meeting 20% opacity with a 3% allowance with semiannual reporting	30	

APPENDIX A: Emission Units to be Included in Impacts Analysis

Recovery Furnaces Potentially Impacted by Opacity Monitoring Limit Options

Original Subpart MM: No change. 35% opacity, 20% corrective action level (CAL), 6% monitoring allowance (MA), quarterly reporting

- No emission units affected because this option represents the baseline

**Option A (Proposed Revision): 20% opacity, 2% MA, semiannual reporting
(15 units affected)**

RTI Code + Emission Unit ID	Stack Configuration Notes	Emission Process Group	APCD	Percent of averaging periods exceeding 20%	
				Semiannual period 1	Semiannual period 2
109.RB3		NDCE	DBESP	5.6%	6.1%
119.EQT010		NDCE	DBESP	3.7%	4.7%
120.F7		NDCE	DBESP	2.7%	2.6%
127.REC1	2 stacks with separate COMS	NDCE	WBESP	4.4%	2.3%
127.REC1	2 stacks with separate COMS	NDCE	WBESP	2.0%	7.7%
139.02		NDCE	DBESP-WPR/DBESP/DBESP	3.9%	3.7%
140.55		NDCE	DBESP	2.2%	2.5%
148.001		NDCE	DBESP	6.1%	1.2%
148.007		NDCE	DBESP	4.3%	2.4%
171.002		DCE	DBESP-WPR	3.5%	1.6%
171.003		DCE	DBESP-WPR	1.7%	2.2%
171.004	2 stacks with separate COMS	DCE	DBESP-WPR	2.6%	0.4%
171.004	2 stacks with separate COMS	DCE	DBESP-WPR	4.6%	2.8%
174.G-32		NDCE	DBESP	2.1%	0.6%
606.RB4		NDCE	DBESP	22.5%	35.2%
208228535.001		NDCE	DBESP	8.0%	6.5%
208228535.007		NDCE	DBESP	3.6%	1.7%

**Option B: 20% opacity, 6% MA, semiannual reporting
(5 units affected)**

RTI Code + Emission Unit ID	Stack Configuration Notes	Emission Process Group	APCD	Percent of averaging periods exceeding 20%	
				Semiannual period 1	Semiannual period 2
109.RB3		NDCE	DBESP	5.6%	6.1%
127.REC1	2 stacks with separate COMS	NDCE	WBESP	2.0%	7.7%
148.001		NDCE	DBESP	6.1%	1.2%
606.RB4		NDCE	DBESP	22.5%	35.2%
208228535.001		NDCE	DBESP	8.0%	6.5%

Option C: 35% opacity, 20% CAL, 2% MA, semiannual reporting

- No emission units estimated to be affected because all data sets meet this limit.

Lime Kilns Potentially Impacted by Opacity Monitoring Limit Options

Original Subpart MM: No change. 20% opacity, 6% MA, quarterly reporting

- No emission units affected because this option represents the baseline.

**Option A (Proposed Revision): 20% opacity, 1% MA, semiannual reporting
(2 units affected)**

RTI Code + Emission Unit ID	Stack Configuration Notes	APCD	Percent of Averaging Periods Exceeding 20%, period 1	Percent of Averaging Periods Exceeding 20%, period 2
109.LK1		ESP	1.84%	0.27%
200.007_10		ESP	2.19%	

Option B: 20% opacity, 3% MA, semiannual reporting

- No emission units estimated to be affected because all data sets meet this limit.

APPENDIX B: Available Startup and Shutdown Data

Recovery Furnace Data

RTI Code + Emission Unit ID	Stack Configuration Notes	Furnace Type	SS?	Count	Greater than 20	Max
100.037A		NDCE	No			
102.RB10		NDCE	Yes	1260	2	43.8
103.G-158		NDCE	No			
104.EUG D6		NDCE	N/A			
105.EU445C		NDCE	Yes	994	6	28
105.EU445A		DCE	N/A			
107.08-P1		NDCE	Yes	226	10	69.7
108.RB3		NDCE	Yes	20	5	85
109.RB4		NDCE	Yes	460	18	94.8
109.RB3		NDCE	Yes	433	36	27.5
111.G-44		NDCE	No			
112.AA-100		NDCE	Yes	30	17	46.9
114.U500		NDCE	No			
115.RE01	2 stacks with separate COMS	NDCE	No			
115.RE01	2 stacks with separate COMS	NDCE	No			
116.003		NDCE	No			
117.B21		NDCE	N/A			
119.EQT010		NDCE	Yes	955	45	49
119.EQT008		DCE	N/A			
120.F7		NDCE	Yes	659	182	77.88
121.000013		DCE	Yes	1227	0	13.66
121.000014		DCE	Yes	994	0	13.59
124.001	2 stacks with separate COMS	DCE	No			
124.001	2 stacks with separate COMS	DCE	No			
124.019	2 stacks with separate COMS	DCE	No			
124.019	2 stacks with separate COMS	DCE	No			
126.RECOV	2 stacks with separate COMS	NDCE	Yes	1028	9	43.5
126.RECOV	2 stacks with separate COMS	NDCE	Yes	728	23	70
127.REC1	2 stacks with separate COMS	NDCE	Yes	498	46	70.2
127.REC1	2 stacks with separate COMS	NDCE	Yes	313	69	72.9
130.1		DCE	Yes	70	0	13.4
130.2		DCE	Yes	79	20	54.9
130.3		NDCE	Yes	87	0	13.2
131.5		DCE	Yes	130	1	27.4
131.6		NDCE	Yes	478	1	22.8

RTI Code + Emission Unit ID	Stack Configuration Notes	Furnace Type	SS?	Count	Greater than 20	Max
132.4RB		NDCE	Yes	283	8	74.2
132.5RB	2 stacks with separate COMS	NDCE	Yes	78	20	63
132.5RB	2 stacks with separate COMS	NDCE	Yes	211	5	32.9
133.10		NDCE	Yes	1053	2	25.5
135.003-1		NDCE	Yes	480	4	36.1
136.EU 005		NDCE	Yes	11	1	24
137.189		NDCE	N/A			
137.721		NDCE	N/A			
138.002		NDCE	Yes	1520	307	100.2
139.02		NDCE	Yes	735	14	83
140.55		NDCE	No			
142.CU7216		DCE	Yes	1577	0	18
142.CU7214		NDCE	Yes	2146	5	50
142.CU7215		DCE	Yes	1538	0	20
143.7000		DCE*	No			
143.7010		DCE*	No			
143.7020		DCE*	No			
145.55		DCE	No			
145.54		DCE	No			
146.16		NDCE	Yes	0	0	0
146.8		DCE	N/A			
147.14	2 stacks with separate COMS	NDCE	Yes	39	0	19.2
147.14	2 stacks with separate COMS	NDCE	Yes	0	0	0
147.5		NDCE	Yes	10	2	49.7
148.001		NDCE	Yes	29	22	96.9
148.007		NDCE	Yes	49	5	58.9
149.B011		NDCE	Yes	2565	74	100
150.CREC-1		NDCE	Yes	2617	95	88.8
151.REC007		DCE	Yes	233	3	56
151.REC004		NDCE	Yes	155	21	42
152.03		DCE	N/A			
153.EQT 0065		NDCE	N/A			
154.P36		DCE	No			
154.P39	154.P39 and 154.P37 each have their own WBESP but vent to a combined stack with a single COMS	DCE	No			
154.P37	154.P39 and 154.P37 each have their own WBESP but vent to a combined stack with a single COMS	DCE	No			
155.RECOVERY FURNACE		NDCE	N/A			
156.RF19		DCE	No			

RTI Code + Emission Unit ID	Stack Configuration Notes	Furnace Type	SS?	Count	Greater than 20	Max
156.RF22		NDCE	No			
156.RF18		DCE	N/A			
157.RB2		NDCE	Yes	692	68	70.7
159.F3		NDCE	N/A			
162.381A		NDCE	No			
162.382A		NDCE	No			
163.RF2904		NDCE	Yes	0	0	0
163.RF1901		DCE	Yes	24	10	61
164.B08	Flue gases from B08 and B10 recovery furnaces combine and then split off to the two 3 field ESPs, C03 and C04.	NDCE	No			
164.B10	Flue gases from B08 and B10 recovery furnaces combine and then split off to the two 3 field ESPs, C03 and C04.	NDCE	No			
165.000013	2 stacks with separate COMS	NDCE	No			
165.000013	2 stacks with separate COMS	NDCE	No			
165.000006	2 stacks with separate COMS	NDCE	No			
165.000006	2 stacks with separate COMS	NDCE	No			
166.RB01	2 stacks with separate COMS	DCE	No			
166.RB01	2 stacks with separate COMS	DCE	No			
166.RB02		DCE	N/A			
167.005RB	2 stacks with separate COMS	DCE	Yes	29	14	70
167.005RB	2 stacks with separate COMS	DCE	Yes	30	19	70
169.04		NDCE	Yes	28	7	50
169.05		NDCE	Yes	51	14	49
171.002		DCE	Yes	16	16	65.1
171.003		DCE	Yes	140	44	62.5
171.004	2 stacks with separate COMS	DCE	Yes	50	18	26.7
171.004	2 stacks with separate COMS	DCE	Yes	75	58	58.8
172.RB01		NDCE	Yes	106	99	78
172.RB02		NDCE	Yes	60	46	71
173.RECOVB	2 stacks with separate COMS. RF ESP has 2 old cells (with one stack) and 1 new cell with a dedicated stack. 2 stacks total.	NDCE	Yes	104	55	65.4
173.RECOVB	2 stacks with separate COMS. RF ESP has 2 old cells (with one stack) and 1 new cell with a dedicated stack. 2 stacks total.	NDCE	No			
174.G-92	2 stacks with separate COMS	DCE	Yes	12	3	61
174.G-92	2 stacks with separate COMS	DCE	Yes	11	5	66
174.G-32		NDCE	Yes	11	3	70
175.RB3A		NDCE	Yes	0	0	0

RTI Code + Emission Unit ID	Stack Configuration Notes	Furnace Type	SS?	Count	Greater than 20	Max
175.RB2A		DCE	Yes	0	0	0
176.RB7		NDCE	No			
177.EU0804		NDCE	Yes	520	0	13
178.08P012		NDCE	Yes	237	101	100
178.08P013		NDCE	Yes	83	18	88
179.RF3		NDCE	No			
180.D001		NDCE	Yes	2640	11	35.6
181.50	Multiple stacks: 1 RF with 2 stacks and 2 COMS	NDCE	Yes	508	0	12.6
181.50	Multiple stacks: 1 RF with 2 stacks and 2 COMS	NDCE	Yes	524	0	9.2
181.10	Multiple stacks: 1 RF with 2 stacks and 2 COMS	NDCE	Yes	305	0	6.1
181.10	Multiple stacks: 1 RF with 2 stacks and 2 COMS	NDCE	Yes	268	0	12.1
182.037		NDCE	Yes	140	2	33.4
183.002		NDCE	Yes	0	0	0
184.72		NDCE	Yes	422	2	35.3
184.73		NDCE	Yes	576	0	14.7
185.02		NDCE	N/A			
186.RB15		NDCE	Yes	13	2	50.1
188.014RB1		DCE	Yes	172	4	23.4
188.016RB2		DCE	Yes	167	11	67.2
189.SN26		NDCE	Yes	100	32	36.7
190.R400	R400 and R401 appear to have their own DBESP that vent through a common stack. Stack testing and TRS CEMS are available for each RF, but the RFs share a COMS. Opacity represents combined total from 2 RFs.	NDCE	Yes	1079	17	65.3
190.R401	R400 and R401 appear to have their own DBESP that vent through a common stack. Stack testing and TRS CEMS are available for each RF, but the RFs share a COMS. Opacity represents combined total from 2 RFs.	NDCE	No			
190.R402	2 stacks with separate COMS	NDCE	Yes	449	0	11.2
190.R402	2 stacks with separate COMS	NDCE	Yes	439	0	14.5
195.003		NDCE	No			
196.SN-06		NDCE	Yes	2684	8	34.1
196.SN-14		NDCE	Yes	610	5	53.4
197.2		DCE	N/A			
198.019		NDCE	No			

RTI Code + Emission Unit ID	Stack Configuration Notes	Furnace Type	SS?	Count	Greater than 20	Max
199.002		NDCE	No			
200.007RF2	2 stacks with separate COMS	NDCE	No			
200.007RF3	2 stacks with separate COMS	NDCE	No			
201.SR0001		NDCE	Yes	810	2	23.2
202.Recovery Furnace EU320		NDCE	Yes	504	0	8.8
203.RF#2		NDCE	Yes	6205	44	29.8
203.RF#3		NDCE	Yes	583	5	24.2
205.009	2 stacks with separate COMS	DCE	Yes	476	12	34.2
205.009	2 stacks with separate COMS	DCE	Yes	476	5	36.88
206.G-32		DCE	Yes	10	1	21.9
206.G-31		DCE	Yes	30	4	80.6
207.038	This RF has 2 DBESPS each with its own stack. Thus, there are 2 stacks with separate COMS.	NDCE	Yes	3360	0	7
207.038	This RF has 2 DBESPS each with its own stack. Thus, there are 2 stacks with separate COMS.	NDCE	Yes	3280	0	7
226.RECB1	2 stacks with separate COMS	NDCE	Yes	468	0	11.2
226.RECB1	2 stacks with separate COMS	NDCE	Yes	448	0	14.2
226.RECB2		NDCE	Yes	750	24	45.
240.RF04		NDCE	Yes	237	21	93
240.RF01		NDCE	Yes	373	40	100
242.AA-011		NDCE	No			
243.R401	2 stacks with separate COMS	NDCE	Yes	730	0	17.4
243.R401	2 stacks with separate COMS	NDCE	Yes	637	4	27.5
243.R407		NDCE	Yes	307	6	40.4
340.005		NDCE	No			
525.EU18		NDCE	Yes	223	0	13.3
531.RF15		NDCE	No			
600.G0803		DCE	Yes	60	49	70
600.G0806		NDCE	Yes	20	3	28
606.RB2		NDCE	Yes	570	82	93.6
606.RB3		DCE**	Yes	10	0	8.1
606.RB4		NDCE	Yes	208	47	54.1
610.4	Combined stack with single COMS for 610.4 and 610.5. Opacity is total for 2 RFs. [However, each RF as separate TRS CEMS.]	NDCE	Yes	552	173	33
610.5	Combined stack with single COMS for 610.4 and 610.5. Opacity is total for 2 RFs. [However, each RF as separate TRS CEMS.]	NDCE	No			

RTI Code + Emission Unit ID	Stack Configuration Notes	Furnace Type	SS?	Count	Greater than 20	Max
613.001	2 stacks with separate COMS [1 RF with 2 ESPs (001L and 001R)]	DCE	Yes	65	11	86.7
613.001	2 stacks with separate COMS [1 RF with 2 ESPs (001L and 001R)]	DCE	Yes	40	0	12.4
613.002	2 stacks with separate COMS [1 RF with 2 ESPs (002L and 002R)]	DCE	Yes	20	2	53.
613.002	2 stacks with separate COMS [1 RF with 2 ESPs (002L and 002R)]	DCE	Yes	26	4	69.5
615.24	2 stacks with separate COMS	NDCE	Yes	290	0	12.6
615.24	2 stacks with separate COMS	NDCE	Yes	290	0	13.2
617.B14		NDCE	Yes	267	0	3.7
208228535.001		NDCE	Yes	390	129	96.8
208228535.007		NDCE	Yes	157	47	98.6

Lime Kiln Data

RTI + Emission Unit ID	Stack Configuration Notes	SS?	Count	Greater than 20	Max
100.115		No			
102.LK	Separate stacks. A portion of the ESP exhaust gas is withdrawn from each stack for use by SMI (a PCC plant). This lowers the stack gas flow and reduces pollutant mass emissions (though opacity remains the same).	Yes	80	0	5.3
102.LK	Separate stacks. A portion of the ESP exhaust gas is withdrawn from each stack for use by SMI (a PCC plant). This lowers the stack gas flow and reduces pollutant mass emissions (though opacity remains the same).	Yes	80	0	5.2
105.EU455	Lime Kilns #2 and #3 vent through same stack (though LK2 is usually only operated as a backup to LK3)	Yes	1210	0	11
107.11-P14		Yes	1337	115	70
109.LK1		Yes	410	3	41.6
114.U800		No			
115.LK01		UK			
127.LK1		Yes	1260	0	18
127.LK2		Yes	1995	0	18.1
132.21LK4		Yes			
136.EU 033		Yes	366	62	79
143.6063		No			
146.30		Yes	140	1	27.4
148.009		Yes	70	6	56.6
154.P30		No			

RTI + Emission Unit ID	Stack Configuration Notes	SS?	Count	Greater than 20	Max
156.LK5	Separate stacks	No			
156.LK5	Separate stacks	No			
162.372A		Yes	22	3	48
174.G-18		No			
178.09P307		No			
179.LK3		No			
186.LK		Yes	538	177	70
196.SN-02		Yes	1298	45	96.4
200.007_10		UK			
240.CA81		Yes	5824	35	99
606.LK4		Yes	324	8	54.9
617.P22		Yes	1418	0	8.5
208228535.009		Yes	330	0	11.9