STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

Catalyst Paper Operations Inc. **Oxford County** **Rumford, Maine** **A-214-77-15-A**	**Departmental** **Findings of Fact and Order** **New Source Review** **NSR #15**

FINDINGS OF FACT

After review of the air emission license application, staff investigation reports, and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 Maine Revised Statutes (M.R.S.) § 344 and § 590, the Maine Department of Environmental Protection (the Department) finds the following facts:

I. REGISTRATION

A. Introduction

FACILITY	Catalyst Paper Operations Inc.
LICENSE TYPE	06-096 C.M.R. ch. 115, Minor Modification
NAICS CODES	322121
NATURE OF BUSINESS	Pulp and Paper Mill
FACILITY LOCATION	35 Hartford Street, Rumford, Maine

B. NSR License Description

Catalyst Paper Operations Inc. (Catalyst) has requested a New Source Review (NSR) license to address several physical modifications to their pulp mill and liquor recovery cycle, collectively known as the "pulp mill reliability project," including the following:

1. Brown Stock to Bleach Pump Upgrade
   The current drive associated with this pump's motor is over capacity based on Catalyst's current and projected production rates, causing reliability issues and downtime. Catalyst proposes to replace this drive with an appropriately sized, variable frequency drive in order to minimize downtime. This may result in increased annual digester production and related emissions.

2. Lime Kiln ID Fan Upgrade
   The current Lime Kiln ID Fan is operating with the original (circa 1991) rotor with a blade design that does not support the current and projected production rate. This causes lime dust to calcify on the blades, leading to unbalanced conditions and excessive vibration that ultimately requires shutdown of the Lime Kiln to replace with a spare fan assembly. Catalyst has proposed replacement of the fan rotating assembly with one which is designed to minimize buildup and calcification thereby minimizing downtime of the Lime Kiln. This may result in an increase of annual Lime Kiln

operation and associated emissions. The new fan design will be able to move more air; however, the capacity of the Lime Kiln will continue to be limited by the physical dimensions of the kiln tube.

3. Recovery Boiler C Soot Blowers
   The sustained current and projected firing rate of Recovery Boiler C causes the salt-cake hoppers to gradually plug, forcing the flue salt cake to carry over through the generating section of the boiler and economizer. The build-up of salt cake in these areas leads to restricted draft and plugging in these sections, requiring the boiler to be taken off-line for a waterwash. This downtime of Recovery Boiler C requires the curtailment of pulp mill operation in order to manage black liquor inventories. Catalyst has proposed the installation of sootblowers in the generating bank hoppers to prevent salt-cake plugging and eliminate the need to shut down the boiler to waterwash. Eliminating this downtime may result in increased annual production from the pulp mill and related emissions.

4. Evaporator System Upgrade
   Catalyst has proposed increasing the nominal process rate of the evaporators from 1,800 gpm to 2,000 gpm by modifying piping and valves. The existing pre-evaporator surface condenser will be replaced with a new design that reduces energy consumption by maximizing heat recovery. The new pre-evaporator surface condenser will not increase annual liquor throughput (which will continue to be limited by the capacity of Recovery Boiler C); however, it is sized to accommodate additional short-term peak throughput capacity.

5. Pulp Storage
   Catalyst has proposed the potential installation of a high-density hardwood pulp feed chest for R-9 Pulp Dryer. The work will include the demolition of an abandoned bleaching tower, installation of a new stainless steel 7-ton high density storage chest, piping to fill the new chest from the hardwood pulp bleach plant, and a tie-in to the existing pulp dryer stock approach system. This change will free up 100 tons of existing capacity for softwood pulp storage and reduce the species grade change conversion time by one hour per grade change. The mill has proposed to install piping that will tie into the existing pulp dryer stock approach system and allow mechanical groundwood pulp to supplement hardwood or softwood pulp on the R-9 Pulp Dryer. The mill has also proposed to install a fiber analyzer that will reduce the time for grade changes. By reducing the time to switch between grades and providing additional fiber, there is reduced downtime of the R-9 Pulp Dryer, and therefore, a potential increase in annual emissions. Also, the current lack of softwood pulp storage may cause periods of curtailment of the softwood pulp mill. Adding additional softwood pulp storage capacity will reduce this downtime as well.

6. Miscellaneous Changes
   Catalyst proposes making several various physical and instrumentation changes to the recausticizing system to improve reliability, quality control, and process control. These changes include potentially relocating the feed piping to the slaker and piping configuration changes to the causticizers which tie into the slaker scrubber. Catalyst also proposes multiple minor changes to equipment in the pulp mill and liquor cycle including new instrumentation and controls and reconfiguring or modifying piping and valves. These changes are intended to reduce scaling and plugging, eliminate flow restrictions, and optimize production with improved process control.

C. Emission Equipment

The following existing emission units are affected and modified by this project:

Equipment	Maximum Capacity (MMBtu/hr)	Maximum Capacity	Fuel Type, % sulfur	Control Equipment
Recovery Boiler C	759 (fuel oil)	4.4 MMlb BLS/day	#6 fuel oil, natural gas, black liquor, soap	ESP
Lime Kiln	100 (#6 fuel oil) 110 (natural gas)	350 tons/day CaO	#6 fuel oil, natural gas, LVHCs	Wet Scrubber

Equipment	Production Rate/Capacity	Pollution Control Equipment	Exhaust or Stack #
Lime Slaker	1,050 gpm	Static scrubber	LK16

The following existing emission units are affected, but not modified, by this project:

Equipment	Production Rate/Capacity	Pollution Control Equipment	Exhaust or Stack #
Smelt Tank C	4.4 MMlb BLS/day	2 Venturi scrubbers	CR15, 18
Bleach Plant – Lines A and B	--	Wet scrubber system	SCRB
Kamyr Continuous Digester System	--	Collection system, then incineration	LVHC/HVLC System
Batch Digester System	--	Collection system, then incineration	LVHC System
A Line and B Line Brownstock Washers	--	Collection system, then incineration	HVLC System
Multiple Effect Evaporators	4.4 MMlb BLS/day	Collection system, then incineration	LVHC System
Steam Stripper System	--	--	SOG System
SOG System	--	Collection system, then incineration	--
LVHC System	--	Collection system, then incineration	--
HVLC System	--	Collection system, then incineration	--
R-9 Pulp Dryer	--	--	fugitive

D. Acronym List

BACT	Best Available Control Technology
BAE	Baseline Actual Emissions
BLS	Black Liquor Solids
BPT	Best Practical Treatment
CEMS	Continuous Emissions Monitoring System
C.F.R.	Code of Federal Regulations
C.M.R.	Code of Maine Rules
CO	Carbon Monoxide
CO_2e	Carbon Dioxide equivalent
COMS	Continuous Opacity Monitoring System
EPA or US EPA	United States Environmental Protection Agency
ESP	Electrostatic Precipitator
FD	Forced Draft
gal/min	gallon per minute
GHG	Greenhouse Gases
gr/dscf	grains per dry standard cubic feet
HAP	Hazardous Air Pollutants
ID	Induced Draft

lb	pound
lb/hr	pound per hour
lb/MMBtu	pound per million British thermal units
M.R.S.	Maine Revised Statutes
MMBtu	Millions of British Thermal Units
MMBtu/hr	Million British thermal units per hour
MMlb BLS/day	Million pounds of black liquor solids per day
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_x	Nitrogen Oxides
NSPS	New Source Performance Standards
NSR	New Source Review
PAE	Projected Actual Emissions
Pb	Lead
PM	Particulate Matter less than 100 microns in diameter
PM_{10}	Particulate Matter less than 10 microns in diameter
$PM_{2.5}$	Particulate Matter less than 2.5 microns in diameter
ppmdv	parts per million on a dry volume basis
PSD	Prevention of Significant Deterioration
PTE	Potential To Emit
RBLC	RACT/BACT/LAER Clearinghouse
SO_2	Sulfur Dioxide
ton/hr	ton per hour
tpy or ton/yr	ton per year
TRS	Total Reduced Sulfur
VOC	Volatile Organic Compounds

E. Application Classification

All rules, regulations, or statutes referenced in this air emission license refer to the amended version in effect as of the issued date of this license.

The application for Catalyst does not violate any applicable federal or state requirements and does not reduce monitoring, reporting, testing, or recordkeeping requirements.

The modification of a major source is considered a major or minor modification based on whether or not expected emissions increases exceed the "Significant Emission Increase" levels as given in *Definitions Regulation*, 06-096 Code of Maine Rules (C.M.R.) ch. 100. For a major stationary source, the expected emissions increase from each modified or affected unit may be calculated as equal to the difference between the post-modification projected actual emissions and the baseline actual emissions for each NSR regulated pollutant.

1. Baseline Actual Emissions

Baseline actual emissions are equal to the average annual emissions from any consecutive 24-month period within the ten years prior to submittal of a complete license application. The selected 24-month baseline period can differ on a pollutant-by-pollutant basis. Catalyst has proposed using March 2016 through February 2018 as the 24-month baseline period from which to determine baseline actual emissions for all pollutants for emission units affected as part of this project. The results of this baseline analysis are presented in the table below.

Baseline Actual Emissions (3/2016 – 2/2018 Average)

Equipment	PM (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	SO_2 (tpy)	NO_x (tpy)	CO (tpy)	VOC (tpy)	TRS (tpy)	Pb (tpy)	GHG (tpy)
Recovery Boiler C	83.10	62.16	55.93	83.94	461.69	440.16	15.62	5.46	–	871,607.64
Lime Kiln	31.22	30.69	29.97	0.07	116.81	2.31	2.07	0.41	0.02	45,052.52
Lime Slaker	0.25	0.25	0.25	–	–	–	7.59	–	–	–
Smelt Tank C	30.19	27.02	24.55	5.46	–	–	22.55	1.82	–	–
R-9 Pulp Dryer	1.84	4.14	4.14	–	–	–	3.17	–	–	–
Total	**146.60**	**124.26**	**114.84**	**89.47**	**578.50**	**442.47**	**51.00**	**7.69**	**0.02**	**916,660.16**

Please note, the above table accounts for emissions from all affected units listed on page 3. Emission units not listed in this table are collected and incinerated by emission units which are included in the table. Therefore, emissions are accounted for under the combustion unit.

2. Projected Actual Emissions

Projected actual emissions (PAE) are the maximum actual annual emissions anticipated to occur in any one of the 5 years (12-month periods) following the date existing units resume regular operation after the project or any one 12-month period in the 10 years following if the project involves increasing the unit's design capacity or its potential to emit of a regulated pollutant.

New emission units must use potential to emit emissions for projected actual emissions. This project does not involve the installation of any new emission units.

Affected equipment includes any new or physically modified equipment as well as upstream or downstream activities such as pulp mill equipment or the R-9 Pulp Dryer. Projected actual emissions from pulp mill equipment were calculated based on the projected maximum annual BLS processing rate of Recovery Boiler C. Projected actual

emissions from the R-9 Pulp Dryer were based on baseline emissions plus the increase in market pulp that could be produced by the pulp mill in the future state as described above.

Projected actual emissions from the affected equipment are shown below.

Projected Actual Emissions

Equipment	PM (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	SO_2 (tpy)	NO_x (tpy)	CO (tpy)	VOC (tpy)	TRS (tpy)	Pb (tpy)	GHG (tpy)
Recovery Boiler C	91.59	68.51	61.64	92.51	508.83	484.93	16.25	5.68	–	960,600.64
Lime Kiln	34.33	33.75	32.96	0.07	128.67	2.55	2.28	0.43	0.02	49,616.05
Lime Slaker	0.27	0.27	0.27	–	–	–	8.44	–	–	–
Smelt Tank C	33.26	29.77	27.04	6.01	–	–	24.85	2.00	–	–
R-9 Pulp Dryer	2.67	6.00	6.00	–	–	–	4.60	–	–	–
Total	**162.12**	**138.30**	**127.91**	**98.59**	**637.50**	**487.48**	**56.42**	**8.11**	**0.02**	**1,010,216.69**

3. Emission Adjustments

In determining projected actual emissions, Catalyst excluded increases in emissions that the existing equipment could have accommodated during the baseline period and are unrelated to the current project. This is known as the Demand Growth Exclusion.

Current and future plans for Catalyst are to maximize pulp production due to a growing market demand. Any pulp not utilized by the mill itself is, and will continue to be, sold for use off-site.

The pulp mill capacity is ultimately limited by the recovery boiler. PAE in this license have been based on operation of Recovery Boiler C at maximum capacity. However, in order for the recovery boiler to operate at capacity, Catalyst must experience both a reduction in equipment downtime (due to this project) and an increase in market demand (independent of this project).

To determine how much of the emissions increases are attributable to the project versus market demand, Catalyst analyzed the causes of lost production and identified losses due to an issue that could be resolved with a physical project and those caused by lack of demand. Based on this analysis, Catalyst estimates that 40% of lost production is caused by lack of demand. Therefore, 40% of the emissions increases is excludable under the Demand Growth Exclusion as shown below.

Demand Growth Exclusion Emissions Adjustments

	PM (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	SO_2 (tpy)	NO_x (tpy)	CO (tpy)	VOC (tpy)	TRS (tpy)	Pb (tpy)	GHG (tpy)
PAE	162.12	138.30	127.91	98.59	637.50	487.48	56.42	8.11	0.02	1,010,216.69
BAE	146.60	124.26	114.84	89.47	578.50	442.47	51.00	7.69	0.02	916,660.16
Emissions Difference (PAE – BAE)	15.52	14.04	13.07	9.12	59.00	45.01	5.42	0.42	0.00	93,556.53
Excludable (40% of Difference)	**6.21**	**5.62**	**5.23**	**3.65**	**23.60**	**18.00**	**2.17**	**0.17**	**0.00**	**37,422.61**

4. Emissions Increases

Emissions increases are calculated by subtracting BAE and excludable emissions from the PAE. The emission increase is then compared to the significant emissions increase levels.

Pollutant	Baseline Actual Emissions 3/2016 – 2/2018 (ton/year)	Projected Actual Emissions (ton/year)	Excludable Emissions (ton/year)	Emissions Increase (ton/year)	Significant Emissions Increase Levels (ton/year)
PM	146.60	162.12	6.21	9.31	25
PM_{10}	124.26	138.30	5.62	8.42	15
$PM_{2.5}$	114.84	127.91	5.23	7.84	10
SO_2	89.47	98.59	3.65	5.47	40
NO_x	578.50	637.50	23.60	35.40	40
CO	442.47	487.48	18.00	27.01	100
VOC	51.00	56.42	2.17	3.25	40
TRS	7.69	8.11	0.17	0.25	10
Pb	0.02	0.02	0.00	0.00	0.6
CO_2e	916,660.16	1,010,216.69	37,422.61	56,133.92	75,000

5. Classification

Since emissions increases do not exceed significant emissions increase levels, this NSR license is determined to be a minor modification under *Minor and Major Source Air Emission License Regulations,* 06-096 C.M.R. ch. 115. An application to incorporate the requirements of this NSR license into the Part 70 air emission license shall be submitted no later than 12 months from commencement of operations associated with the pulp mill reliability project.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license, the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 C.M.R. ch. 100. Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications to existing sources require a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in 06-096 C.M.R. ch. 100. BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

BACT is not required to be applied to equipment which is affected by a project. However, equipment which is considered modified by the project is required to undergo a BACT analysis.

B. Recovery Boiler C

Catalyst has proposed the installation of sootblowers in the generating bank hoppers to prevent salt-cake plugging and eliminate the need to shut down the boiler to waterwash.

1. New Source Performance Standards (NSPS)

Recovery Boiler C is subject to *Standards of Performance for Kraft Pulp Mills*, 40 C.F.R. Part 60, Subpart BB for recovery boilers manufactured after September 24, 1976. However, recovery boilers which commence construction, reconstruction, or modification after May 23, 2013 are subject to the requirements of *Standards of Performance for Kraft Pulp Mill Affected Sources for Which Construction, Reconstruction, or Modification Commenced After May 23, 2013*, 40 C.F.R Part 60, Subpart BBa.

For the purposes of NSPS, *General Provisions*, 40 C.F.R. Part 60, Subpart A states that a modification is any physical change or operational change to an existing facility which results in an increase in the emission rate (e.g. lb/hr) to the atmosphere of any pollutant to which a standard applies. The pulp mill reliability project will not result in an increase in short-term emission rates from Recovery Boiler C. Therefore, Recovery Boiler C is not considered "modified" for the purposes of NSPS.

Subpart A defines reconstruction to mean the replacement of components of an existing facility to such an extent that (1) the fixed capital cost of the new components exceeds

50% of the fixed capital cost that would be required to construct a comparable entirely new facility, and (2) it is technologically and economically feasible to meet the applicable standards set forth in 40 C.F.R. Part 60. The entire pulp mill reliability project is estimated to cost approximately $2.7 million to implement. The cost of a typical recovery boiler would exceed $100 million. Therefore, Recovery Boiler C is not considered "reconstructed" for the purposes of NSPS.

Since Recovery Boiler C will be neither modified nor reconstructed as part of this project, it is not subject to Subpart BBa and will continue to be subject to Subpart BB.

2. National Emission Standards for Hazardous Air Pollutants (NESHAP)

Recovery Boiler C is considered an existing unit subject to the requirements of *NESHAPs for Chemical Recovery Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills*, 40 C.F.R. Part 63, Subpart MM.

Under 40 C.F.R Part 63, affected sources are classified as either "existing" or "new." There are no provisions for modified units as in NSPS. However, if a unit is reconstructed, it is considered new. Reconstruction for NESHAP is defined similarly as under NSPS. Since the new components will not exceed 50% of the fixed capital cost of a comparable new facility, Recovery Boiler C is not considered to be reconstructed as part of this project and will continue to be considered an existing emission unit.

3. BACT Findings

Catalyst submitted a BACT analysis for control of emissions from Recovery Boiler C.

a. Particulate Matter (PM/PM_{10})

Emissions of particulate matter from kraft recovery boilers mainly consist of sodium salts that are generated primarily by carryover of solids and sublimation and condensation of the inorganic chemicals.

A review of the RACT/BACT/LAER Clearinghouse (RBLC) shows that particulate emissions from kraft recovery boilers are primarily controlled by use of an electrostatic precipitator (ESP). Auxiliary scrubbers may also be employed after the ESP for additional control. According to the RBLC, licenses issued in the past decade for recovery boilers similar to Recovery Boiler C have PM/PM_{10} emission limits of 0.015 gr/dscf to 0.03 gr/dscf.

Catalyst currently uses an ESP consisting of two chambers with four fields per chamber to meet an emission limit of 0.044 gr/dscf at 8% O_2. Cost estimates to add additional ESP banks or a venturi scrubber were developed based on EPA's Air

Pollution Control Technology Fact Sheets for Wire-Plate Type ESPs (EPA-452/F-03-028) and Venturi Scrubbers (EPA-452/F-03-017). The estimated capital cost alone to reduce the PM/PM_{10} emission limit incrementally from 0.044 gr/dscf to 0.020 gr/dscf would exceed $22,000/ton for additional ESP banks and $10,000/ton for a venturi scrubber. These estimates are conservatively low as they do not include annual operating costs. Therefore, the addition of new or additional add-on pollution control equipment for control of PM/PM_{10} from Recovery Boiler C is determined to be economically infeasible.

BACT for emissions of PM/PM_{10} from Recovery Boiler C is determined to be the continued use of the existing ESP and the following existing emission limits:

Pollutant	Emission Limit
PM	0.044 gr/dscf @ 8% O_2
	86.7 lb/hr
PM_{10}	65.0 lb/hr

Compliance shall be demonstrated by conducting performance testing at least once every five calendar years in accordance with 40 C.F.R. Part 60, Appendix A, Method 5 or other method as approved by the Department.

Visible emissions from Recovery Boiler C shall not exceed an opacity of 30% on a six (6) minute block average basis, except for periods of startup, shutdown, or malfunction during which time Catalyst may elect to comply with the following work practice standards in lieu of this visible emission standard:

(1) Catalyst shall maintain a log (written or electronic) of the date, time, and duration of all startups and shutdowns and malfunctions of Recovery Boiler C and its associated ESP which result in Catalyst electing to comply with these work practice standards.
(2) Catalyst shall develop and implement a written startup and shutdown plan.
(3) Recovery Boiler C and its associated ESP shall be operated at all times in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Department that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, and inspection of the unit.

For the purposes of this license, the definitions of *Startup* and *Shutdown* of Recovery Boiler C are as follows:

Startup is defined as the activities leading to and including firing of fuel in Recovery Boiler C for the purposes of achieving operating conditions which support the stable firing of black liquor. These activities include starting the ID/FD

fans; manipulating dampers in the flue gas path for the boiler/precipitator; energizing and starting the precipitator; and firing fuel oil or natural gas, either alone or in combination with black liquor, until the conditions are achieved which support stable firing of black liquor.

Shutdown is defined as the activities leading to the cessation of operation of Recovery Boiler C, such as reducing the boiler/load and firing rate, and/or burning out the smelt bed while firing fuel oil or natural gas, alone or in combination with black liquor.

Startup and shutdown include the time period following the startup and shutdown of the FD and ID fans. The ESP includes safety interlocks to prevent ESP operation when explosive gases may be present in the boiler, to prevent the sparking of an explosion by the ESP. In particular, a safety interlock prohibits the operation of the ESP until after the Primary FD fan, Secondary FD fan, and ID fan have been in operation for long enough to purge potentially explosive gases from the boiler. Safety interlocks are also in place to prevent ESP operation if either the FD or the ID fan stops. Startups and shutdowns of these FD and ID fans are infrequent, and the associated visible emissions are unavoidable and not caused by operator error or poor maintenance.

Compliance with the visible emission standard shall be demonstrated by use of a COMS in accordance with *Source Surveillance – Emissions Monitoring,* 06-096 C.M.R. ch 117 and the work practice standards listed above.

b. Sulfur Dioxide (SO_2)

Sulfur dioxide emissions from Recovery Boiler C are formed from reduced sulfur compounds generated by the combustion of black liquor.

Add-on pollution control for this pollutant is primarily flue gas desulfurization through use of a wet scrubber. Recovery Boiler C does not have a wet scrubber but is subject to an SO_2 emission limit of 100 ppm.

A review of the RBLC shows that recently licensed sources have emission limits which range between 60 ppm to 500 ppm. Both facilities with limits lower than Catalyst burn natural gas and distillate fuel as supplemental fuel, fuels that have an inherently lower sulfur content than the residual oil used as a supplemental fuel by Catalyst. Although Catalyst is licensed to burn natural gas in Recovery Boiler C, the required infrastructure has not yet been installed. Due to the already low emission limit being met, addition of a new wet scrubber for control of SO_2 from Recovery Boiler C is determined to be economically infeasible.

BACT for emissions of SO_2 from Recovery Boiler C is determined to be the existing emission limits of 100 ppmdv at 8% O_2 on a 30-day rolling average and 206.3 lb/hr on a 3-hour block average.

As an alternative to the 206.3 lb/hr SO_2 emission limit, Catalyst shall be considered in compliance when Recovery Boiler C exceeds the 206.3 lb/hr limit if all of the following requirements are met:

(1) SO_2 emissions from Recovery Boiler C shall not exceed 650.0 lb/hr on a time-weighted 3-hour block average basis.
(2) SO_2 emissions from the Cogen Boilers #6 and #7 combined shall not exceed 250.0 lb/hr on a time-weighted 3-hour block average basis.
(3) SO_2 emissions from the Boiler #3 shall not exceed 60.0 lb/hr on a time-weighted 3-hour block average basis.
(4) Catalyst shall not utilize these limits to demonstrate compliance for more than 300 hours in any calendar year and shall report the dates, times, and number of 3-hour blocks when these alternate limits were utilized each quarter.

Compliance shall be demonstrated by use of an SO_2 CEMS in accordance with *Source Surveillance – Emissions Monitoring,* 06-096 C.M.R. ch 117.

c. Total Reduced Sulfur (TRS)

Recover Boiler C emits reduced sulfur compounds, primarily hydrogen sulfide as well as methyl mercaptan, dimethyl sulfide, and dimethyl disulfide. Together these compounds are referred to as total reduced sulfur (TRS).

Sodium fumes (gaseous Na and NaOH), carbon monoxide, hydrogen sulfide and other volatile organics are oxidized as they rise through the furnace and react with secondary and tertiary air. Secondary air provides oxygen for burning the organics and to raise the lower furnace temperature. Tertiary air supplies oxygen to completely combust all the volatile organics and reduced sulfur gases. As a result, in passing through the secondary and tertiary zones, TRS is oxidized to sulfur dioxide. Any TRS not oxidized by this point will be emitted.

Control strategies for the reduction of TRS include combustion controls for the efficient operation of the recovery boiler such as those employed by Catalyst. Recovery Boiler C is subject to a TRS emission limit of 5 ppmdv at 8% O_2 on a 12-hour block average.

Other facilities in the RBLC had similar emission limits and none utilized add-on controls for TRS.

BACT for emissions of TRS from Recovery Boiler C is determined to be the existing emission limit of 5 ppmdv at 8% O_2 on a 12-hour block average. Per *Total*

Reduced Sulfur Control from Kraft Pulp Mills, 06-096 C.M.R. ch. 124, § (4)(C)(3)(a), two 12-hour block averages of TRS emissions in a quarter which exceed either license limits or the emission standards of Section 3(H) of 06-096 C.M.R. ch. 124 shall not be considered violations of 06-096 C.M.R. ch. 124.

Compliance shall be demonstrated by use of a TRS CEMS in accordance with *Source Surveillance – Emissions Monitoring,* 06-096 C.M.R. ch 117.

d. Nitrogen Oxides (NO_x)

NO_x is generated in one of three mechanisms: fuel NO_x, thermal NO_x, and prompt NO_x. Fuel NO_x is produced by oxidation of nitrogen in the fuel source. Combustion of fuels with high nitrogen content produces greater amounts of NO_x than those with lower nitrogen content. Thermal NO_x is formed by the fixation of nitrogen (N_2) and oxygen (O_2) at temperatures greater than 3,600°F. Prompt NO_x forms from the oxidation of hydrocarbon radicals near the combustion flame and produces an insignificant amount of NO_x.

Potential control technologies for NO_x emissions from boilers include add-on controls such as selective non-catalytic reduction (SNCR) and selective catalytic reduction (SCR), and proper boiler combustion control and air combustion optimization.

Studies performed in Sweden and Japan have demonstrated that NO_x reduction using SNCR technology on recovery boilers may only be effective for short-term periods. Long-term SNCR operation on kraft recovery boilers may lead to an increase in nitrogen and chlorine concentrations in the liquor, thus increasing NO_x emissions and causing fouling and plugging in the boiler due to high levels of chloride deposits. Therefore, use of SNCR for control of NO_x on Recovery Boiler C has been determined to not be feasible due to other environmental impacts.

SCR is currently not a practical option for recovery boilers because of the high temperature window (450 °F to 750 °F) needed for proper SCR operation. Temperatures in this range are only found in the economizer section of the recovery boiler. However, because the flue stream is still loaded with particulate at this time (pre-ESP), the catalyst would not remain effective. Utilizing SCR after the ESP would require heating the flue gas to the required temperature range, which would cause additional emissions of combustion pollutants. Therefore, use of SCR for control of NO_x on Recovery Boiler C has been determined to not be feasible due to environmental trade-offs.

Catalyst currently uses combustion controls to limit NO_x emissions to 110 ppmdv at 8% O_2 on a 24-hour block average. Other facilities in the RBLC had both higher

and lower emission limits; however, none utilized add-on controls for NO_x. Some facilities with lower emission limits had longer averaging periods as well.

BACT for emissions of NO_x from Recovery Boiler C is determined to be the existing emission limits of 110 ppmdv at 8% O_2 on a 24-hour block average and 215.0 lb/hr on a 24-hour block average.

Compliance shall be demonstrated by use of a NO_x CEMS in accordance with *Source Surveillance – Emissions Monitoring,* 06-096 C.M.R. ch 117.

e. Carbon Monoxide (CO)

CO is a product of incomplete combustion of organic compounds contained in the black liquor and other supplemental fuels.

Catalytic oxidation is a post combustion alternative that has been used with gas turbines and internal combustion engines firing liquid or gaseous fuels that have relatively clean exhaust gases. However, this technology has not been demonstrated on a recovery boiler. It is expected that fouling of the catalyst would occur due to heavy concentrations of PM in the exhaust stream physically blocking the pores of the catalyst bed. While the temperatures needed for catalytic oxidation are lower than those required for thermal oxidation (due to the presence of the catalyst), the typical temperature range needed for oxidation to occur is 700 °F to 900 °F. Therefore, placing the catalyst bed after ESP would require reheating the flue gas to the required temperature range causing additional emissions of combustion pollutants. Therefore, use of catalytic oxidation for control of CO on Recovery Boiler C has been determined to not be feasible due to environmental trade-offs.

Catalyst currently uses combustion controls to limit CO emissions to 222.0 lb/hr. No other facilities in the RBLC utilized add-on controls for control of CO.

BACT for emissions of CO from Recovery Boiler C is determined to be the existing emission limit of 222.0 lb/hr.

Compliance with the CO emission limit shall be demonstrated by conducting performance testing upon request by the Department using methods as approved by the Department.

f. Volatile Organic Compounds (VOC)

VOC is emitted in small amounts from recovery boilers mainly deriving from incomplete combustion or the volatilization of the black liquor itself when it comes into contact with combustion gases.

Relevant add-on control options include carbon adsorption, absorbers (scrubbers), condensers, biofilters, and thermal oxidation. Different air pollution control technologies can be applied to sources, once they are covered, enclosed, or vented in order to capture and then recover or destroy the VOC emissions. The application of a particular control technology depends on the gas stream under consideration. A control technology is selected based on stream-specific characteristics (flow rate, hydrocarbon concentration, temperature, moisture content, etc.) and the desired control efficiency. The concentration of organics in the gas stream is a key characteristic that affects the applicability of a particular control technology.

Add-on control technologies to reduce VOC emissions are not employed on kraft recovery boilers because the VOC content of the flue gas stream is too low for efficient and cost effective pollutant removal. A review of the RBLC database concluded that there are no facilities that are utilizing control technology as BACT for VOC emissions. Recovery Boiler C's current VOC limit of 3.7 lb/hr is consistent with units of similar size and age and is on the low end of the range of limits seen in the RBLC (3.7 lb/hr to 43 lb/hr).

BACT for emission of VOC from Recovery Boiler C is determined to be the existing emission limit of 3.7 lb/hr.

Compliance with the VOC emission limit shall be demonstrated by conducting performance testing upon request by the Department using methods as approved by the Department.

C. Lime Kiln

Catalyst has proposed replacement of the Lime Kiln ID Fan rotating assembly with one which has design modifications intended to minimize buildup and calcification thereby minimizing downtime of the Lime Kiln.

1. New Source Performance Standards (NSPS)

The Lime Kiln is subject to *Standards of Performance for Kraft Pulp Mills*, 40 C.F.R. Part 60, Subpart BB for lime kilns manufactured after September 24, 1976. However, lime kilns which commence construction, reconstruction, or modification after May 23, 2013 are subject to the requirements of *Standards of Performance for Kraft Pulp Mill*

Affected Sources for Which Construction, Reconstruction, or Modification Commenced After May 23, 2013, 40 C.F.R Part 60, Subpart BBa.

For the purposes of NSPS, *General Provisions*, 40 C.F.R. Part 60, Subpart A states that a modification is any physical change or operational change to an existing facility which results in an increase in the emission rate (e.g. lb/hr) to the atmosphere of any pollutant to which a standard applies. The pulp mill reliability project will not result in an increase in short-term emission rates from the Lime Kiln. Therefore, the Lime Kiln is not considered "modified" for the purposes of NSPS.

Subpart A defines reconstruction to mean the replacement of components of an existing facility to such an extent that (1) the fixed capital cost of the new components exceeds 50% of the fixed capital cost that would be required to construct a comparable entirely new facility, and (2) it is technologically and economically feasible to meet the applicable standards set forth in 40 C.F.R. Part 60. The entire pulp mill reliability project is estimated to cost approximately $2.7 million to implement. The cost of a new lime kiln and recausticizing system is estimated to be approximately $60 million. Therefore, the Lime Kiln is not considered "reconstructed" for the purposes of NSPS.

Since the Lime Kiln will be neither modified nor reconstructed as part of this project, it is not subject to Subpart BBa and will continue to be subject to Subpart BB.

2. National Emission Standards for Hazardous Air Pollutants (NESHAP)

The Lime Kiln is considered an existing unit subject to the requirements of *NESHAPs for Chemical Recovery Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills*, 40 C.F.R. Part 63, Subpart MM.

Under 40 C.F.R Part 63, affected sources are classified as either "existing" or "new." There are no provisions for modified units as in NSPS. However, if a unit is reconstructed, it is considered new. Reconstruction for NESHAP is defined similarly as under NSPS. Since the new components will not exceed 50% of the fixed capital cost of a comparable new facility, the Lime Kiln is not considered to be reconstructed as part of this project and will continue to be considered an existing emission unit.

3. BACT Findings

Catalyst submitted a BACT analysis for control of emissions from the Lime Kiln.

a. Particulate Matter (PM/$PM1_{10}$)

Emissions of particulate matter from lime kilns consist mainly of sodium sulfate and sodium carbonate generated primarily by either carryover of solids or sublimation and condensation of the inorganic chemicals. Control of particulate

matter is typically achieved through the use of mechanical devices such as dust chambers or cyclones, which are used to removed larger particles. A wet scrubber or an electrostatic precipitator (ESP) may be used for the removal of smaller particles.

Catalyst currently uses a wet scrubber to control particulate matter and meet an emission limit of 0.064 gr/dscf at 10% O_2.

There is at least one facility in the RBLC which uses an ESP to meet a PM emission limit of 0.01 gr/dscf at 10% O_2. Cost estimates to replace the existing wet scrubber with an ESP were developed based on EPA's Air Pollution Control Technology Fact Sheets for Wire-Plate Type ESPs (EPA-452/F-03-028). The estimated capital cost alone to reduce the PM/PM_{10} emission limit incrementally from 0.064 gr/dscf to 0.01 gr/dscf would exceed $10,000/ton. This estimate is conservatively low as it does not include the required demolition or annual operating costs. Therefore, the replacement of the existing wet scrubber with an ESP for control of PM/PM_{10} from the Lime Kiln is determined to be economically infeasible.

BACT for emissions of PM/PM_{10} from Lime Kiln is determined to be the continued use of the existing wet scrubber and the following existing emission limits:

Pollutant	Emission Limit
PM	0.064 gr/dscf @ 10% O_2
	24.0 lb/hr
PM_{10}	24.0 lb/hr

Compliance shall be demonstrated by conducting performance testing at least once every five calendar years in accordance with 40 C.F.R. Part 60, Appendix A, Method 5 or other method as approved by the Department.

Visible emissions from the Lime Kiln shall not exceed an opacity of 30% on a six (6) minute block average basis.

Compliance with the visible emissions limit shall be demonstrated by conducting performance testing in accordance with 40 C.F.R. Part 60, Appendix A, Method 9 upon request of the Department.

b. Sulfur Dioxide (SO_2)

SO_2 is formed in the Lime Kiln through the combustion of fuels containing sulfur or when the Lime Kiln is used as a control device to combust sulfur-containing gases from the pulp mill. Lime mud also contains a small quantity of sulfur, and when oxidized, the sulfur in the lime mud can form SO_2.

The regenerated quicklime in the kiln acts as an inherent scrubbing agent. Test data from similar lime kilns indicate that over 95% of the SO_2 generated from combustion was captured and controlled within the kiln. Additional add-on pollution control options to reduce the emissions of SO_2 include the use of scrubbers.

Catalyst currently employs the use of a wet scrubber to meet an SO_2 emission limit of 23.0 lb/hr. Other facilities in the RBLC used similar controls or none at all.

BACT for emissions of SO_2 from the Lime Kiln is determined to be the continued use of the existing wet scrubber and the existing emission limit of 23.0 lb/hr.

Compliance with the SO_2 emission limit shall be demonstrated by conducting performance testing upon request by the Department using methods as approved by the Department.

c. Total Reduced Sulfur (TRS)

The Lime Kiln emits reduced sulfur compounds, primarily hydrogen sulfide as well as methyl mercaptan, dimethyl sulfide, and dimethyl disulfide. Together these compounds are referred to as total reduced sulfur (TRS). Hydrogen sulfide is released when the carbon dioxide-rich flue gases come into contact with sodium sulfide in the lime mud.

The only technologies identified for control of TRS from lime kilns are wet scrubbing and good kiln design and combustion practices. Catalyst employs both these technologies already to control TRS and has the lowest BACT emission rate amongst pulp and paper mills in Maine at 8 ppmdv at 10% O_2.

BACT for emissions of TRS from the Lime Kiln is determined to be the continued use of the existing wet scrubber and the existing emission limit 8.0 ppmdv at 10% O_2.

Compliance shall be demonstrated by use of a TRS CEMS in accordance with *Source Surveillance – Emissions Monitoring,* 06-096 C.M.R. ch 117.

d. Nitrogen Oxides (NO_x)

NO_x is generated in the Lime Kiln primarily as the result of fuel combustion. Fuel NO_x is produced by oxidation of nitrogen in the fuel source. Combustion of fuels with high nitrogen content produces greater amounts of NO_x than those with low nitrogen content such as distillate oil and natural gas. Thermal NO_x is formed by the fixation of nitrogen (N_2) and oxygen (O_2) at temperatures greater than 3,600°F.

Prompt NO_x forms from the oxidation of hydrocarbon radicals near the combustion flame and produces an insignificant amount of NO_x.

No facilities in the RBLC database proposed add-on control technology for lime kilns as BACT. Other control strategies for the reduction of NO_x include combustion controls for efficient operation of the Lime Kiln such as those employed by Catalyst. The Lime Kiln is subject to a NO_x emission limit of 120 ppmv (wet) at 10% O_2 on a 1-hour block average.

Other facilities in the RBLC had similar emission limits and none utilized add-on controls for NO_x.

BACT for emissions of NO_x from the Lime Kiln is determined to be the existing emission limits of 120 ppmv (wet) at 10% O_2 on a 1-hour block average and 52.0 lb/hr.

Compliance with the NO_x emission limit shall be demonstrated by conducting performance testing upon request by the Department using methods as approved by the Department.

e. Carbon Monoxide (CO)

CO from the Lime Kiln is primarily a product of incomplete combustion.

Catalytic oxidation is a post combustion alternative that has been used with gas turbines and internal combustion engines firing liquid or gaseous fuels that have relatively clean exhaust gases. However, this technology has not been demonstrated on lime kilns. It is expected that fouling of the catalyst would occur due to the heavy concentration of PM in the exhaust stream physically blocking the pores of the catalyst bed. While the temperatures needed for catalytic oxidation are lower than those required for thermal oxidation (due to the presence of the catalyst), the typical temperature range needed for oxidation to occur is 700 °F to 900 °F. Therefore, placing the catalyst bed after wet scrubber would require reheating the flue gas to the required temperature range causing additional emissions of combustion pollutants. Therefore, use of catalytic oxidation for control of CO on the Lime Kiln has been determined to not be feasible due to environmental impacts.

Catalyst currently uses combustion controls to limit CO emissions to 39.0 lb/hr which is the lowest among comparable facilities in Maine. No other facilities in the RBLC utilized add-on controls for control of CO.

BACT for emissions of CO from the Lime Kiln is determined to be the existing emission limit of 39.0 lb/hr.

Compliance with the CO emission limit shall be demonstrated by conducting performance testing upon request by the Department using methods as approved by the Department.

f. Volatile Organic Compounds (VOC)

Emissions of VOC from the Lime Kiln are the result of incomplete fuel combustion. They can also be released from the liquid component of lime mud or stripped from scrubber makeup water by flue gas exiting the lime kiln.

The facilities listed in the RBLC had BACT limits for VOCs of 2.5 lb/hr and 2.14 lb/hr, and comparable facilities in the state of Maine have permitted emission limits of VOCs from lime kilns of 1.4 lb/hr to 10 lb/hr. The VOC limit currently required for Catalyst's lime kiln is 2.0 lb/hr, which is within the range of limits similar facilities are meeting, and lower than other facilities identified in the RBLC database.

Relevant add-on control options include carbon adsorption, absorbers (scrubbers), condensers, biofilters, and thermal oxidation. Different air pollution control technologies can be applied to sources, once they are covered, enclosed, or vented in order to capture and then recover or destroy the VOC emissions. The application of a particular control technology depends on the gas stream under consideration. A control technology is selected based on stream-specific characteristics (flow rate, hydrocarbon concentration, temperature, moisture content, etc.) and the desired control efficiency. The concentration of organics in the gas stream is a key characteristic that affects the applicability of a particular control technology.

A review of the RBLC database found no facilities that are utilizing add-on control technology as BACT for control of VOC emissions from lime kilns. The Lime Kiln's current VOC limit of 2.0 lb/hr is consistent with units of similar size and age and is on the low end of the range of limits seen in the RBLC (1.4 lb/hr to 10 lb/hr).

BACT for emission of VOC from the Lime Kiln is determined to be the existing emission limit of 2.0 lb/hr.

Compliance with the VOC emission limit shall be demonstrated by conducting performance testing upon request by the Department using methods as approved by the Department.

D. Lime Slaker

Catalyst has proposed changes which include potentially relocating the feed piping to the Lime Slaker and piping configuration changes to the causticizers which tie into the slaker scrubber.

BACT Findings
Catalyst submitted a BACT analysis for control of emissions from the Lime Slaker.

In the Lime Slaker, green liquor is reacted with lime (CaO) to form white liquor and lime mud (CaCO3). The white liquor is used in the kraft pulping process, and the lime mud is oxidized in the lime kilns to recover lime. The Lime Slaker is vented through a stack to discharge the large amounts of steam generated. The steam contains PM which is largely calcium and sodium carbonates and sulfates. Throughout the kraft pulping industry, scrubbers are generally employed to capture PM. Catalyst currently employs a static scrubber to control PM emissions from the lime slaker. A review of the RBLC did not identify any emission limits or control technologies that applied to lime slakers at pulp and paper facilities and there are no emission limits that apply to the lime slakers in use at any of the currently operating pulp and paper facilities located in Maine.

BACT for emissions of PM from the Lime Slaker is determined to be the continued use of the existing static scrubber.

Visible emissions from the Lime Slaker shall not exceed an opacity of 20% on a six (6) minute block average basis.

Compliance with the visible emissions limit shall be demonstrated by conducting performance testing in accordance with 40 C.F.R. Part 60, Appendix A, Method 9 upon request of the Department.

E. Incorporation Into the Part 70 Air Emission License

The requirements in this 06-096 C.M.R. ch. 115 New Source Review license shall apply to the facility upon issuance. Per *Part 70 Air Emission License Regulations*, 06-096 C.M.R. ch. 140 § 1(C)(8), for a modification at the facility that has undergone NSR requirements or been processed through 06-096 C.M.R. ch. 115, the source must apply for an amendment to their Part 70 license within one year of commencing the proposed operations, as provided in 40 C.F.R. Part 70.5. Catalyst has applied to incorporate the requirements of this NSR license as part of the facility's pending Part 70 renewal.

F. Annual Emissions

This NSR license will have no impact on the facility's licensed annual emissions.

III. AMBIENT AIR QUALITY ANALYSIS

Catalyst previously submitted an ambient air quality analysis demonstrating that emissions from the facility, in conjunction with all other sources, do not violate ambient air quality standards. [See NO_x modeling results in license A-214-71-AN-A (April 9, 2002) and modeling results for other pollutants in license A-214-71-S-A/R (September 3, 1996).] An additional ambient air quality analysis is not required for this NSR License.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants New Source Review License A-214-77-15-A pursuant to the preconstruction licensing requirements of 06-096 C.M.R. ch. 115 and subject to the standard and specific conditions below.

Severability. The invalidity or unenforceability of any provision of this License or part thereof shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

SPECIFIC CONDITIONS

The following shall replace the BACT Conditions for Recovery Boiler C in any previously issued NSR License:

(1) **Recovery Boiler C**

A. Emissions of particulate matter from Recovery Boiler C shall be controlled by the operation and maintenance of an ESP during all operating times except for periods of startup, shutdown, or malfunction. [06-096 C.M.R. ch. 115, BACT]

B. Emissions from Recovery Boiler C shall not exceed the following limits. Compliance with the emission limits associated with Recovery Boiler C shall be demonstrated in accordance with the methods and frequencies indicated in the table below or other methods or frequencies as approved by the Department.
[06-096 C.M.R. ch. 115, BACT]

Pollutant	Emission Limit	Compliance Method	Frequency
PM	0.044 gr/dscf @ 8% O_2	Performance testing in accordance with 40 C.F.R. Part 60, Appendix A, Method 5	Once every five calendar years or more frequently upon request from the Department
	86.7 lb/hour		
PM_{10}	65.0 lb/hour		Upon request
SO_2	100 ppmdv [a] @ 8% O_2 30-day rolling average	SO_2 CEMS	Continuously, in accordance with 40 CFR Part 60, Appendix B and 06-069 C.M.R. ch. 117
	206.3 lb/hour [b] 3-hour block average	SO_2 CEMS	
NO_X	110 ppmdv @ 8% O_2 24-hour block average	NO_x CEMS	
	215.0 lb/hour		
CO	222.0 lb/hour	Performance Testing	Upon request
VOC	3.7 lb/hour	Performance Testing	
TRS	5 ppmdv @ 8% O_2, measured as H_2S 12-hour block average	TRS CEMS	Continuously, in accordance with 40 CFR Part 60, Appendix B and 06-069 C.M.R. ch. 117
Visible Emissions	30% opacity on a six (6) minute block average basis, except for periods of startup, shutdown, and malfunction during which time Catalyst may elect to comply with work practice standards	COMS and work practice standards	

[a] When RBC is firing only fuel oil, the monitored SO_2 ppmdv emissions during that period shall not be included in determining the 30-day rolling average SO_2 ppmdv emission rate.

[b] As an alternative to the 206.3 lb/hr SO_2 emission limit, Catalyst shall be determined to be in compliance when Recovery Boiler C exceeds the 206.3 lb/hr limit if all of the following requirements are met:

i. SO_2 emissions from Recovery Boiler C shall not exceed 650.0 lb/hr on a 3-hour block average basis.

ii. SO_2 emissions from Cogen Boilers #6 and #7 combined shall not exceed 250.0 lb/hr on a 3-hour block average basis.

iii. SO_2 emissions from Boiler #3 shall not exceed 60.0 lb/hr on a 3-hour block average basis.

iv. Catalyst shall not utilize these limits to demonstrate compliance for more than 300 hours in any calendar year and shall report quarterly the dates, times, and number of 3-hour blocks when these limits were utilized for the quarter.

C. Visible emissions from Recovery Boiler C shall not exceed 30% opacity on a six (6) minute block average basis, except for periods of startup, shutdown, and malfunction. During periods of startup, shutdown, and malfunction Catalyst may elect to demonstrate compliance by complying with all of the following work practice standards:

1. Catalyst shall maintain a log (written or electronic) of the date, time, and duration of all startups and shutdowns and malfunctions of Recovery Boiler C and its associated ESP which result in Catalyst electing to comply with these work practice standards.

2. Catalyst shall develop and implement a written startup and shutdown plan.

3. Recovery Boiler C and its associated ESP, shall be operated at all times in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Department that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the unit.

[06-096 C.M.R. ch. 115, BACT]

The following shall replace the BACT Conditions for the Lime Kiln in any previously issued NSR License:

(2) **Lime Kiln**

A. Emissions of particulate matter from the Lime Kiln shall be controlled by the operation and maintenance of a wet scrubber during all operating times except for periods when only natural gas is being fired and there is no lime in the Lime Kiln.
[06-096 C.M.R. ch. 115, BACT]

B. Emissions from the Lime Kiln shall not exceed the following limits. Compliance with the emission limits associated with the Lime Kiln shall be demonstrated in accordance with the methods and frequencies indicated in the table below or other methods or frequencies as approved by the Department.
[06-096 C.M.R. ch. 115, BACT]

Pollutant	Emission Limit	Compliance Method	Frequency
PM	0.064 gr/dscf @ 10% O_2	Performance testing in accordance with 40 C.F.R. Part 60, Appendix A, Method 5	Once every five calendar years or more frequently upon request from the Department
	24.0 lb/hour		
PM_{10}	24.0 lb/hour		Upon request
SO_2	23.0 lb/hour	Performance Testing	Upon request
NO_X	120 ppmdv @ 10% O_2 1-hour block average		
	52.0 lb/hour		
CO	39.0 lb/hour		
VOC	2.0 lb/hour		
TRS	8 ppmdv @ 10% O_2, measured as H_2S 12-hour block average	TRS CEMS	Continuously, in accordance with 40 CFR Part 60, Appendix B and 06-069 C.M.R. ch. 117
Visible Emissions	30% opacity on a six (6) minute block average basis	Performance testing in accordance with 40 C.F.R. Part 60, Appendix A, Method 9	Upon request

The following shall replace the BACT Conditions for the Lime Slaker in any previously issued NSR License:

(3) **Lime Slaker**

A. Emissions of particulate matter from the Lime Slaker shall be controlled by the operation and maintenance of a static scrubber during all operating times. [06-096 C.M.R. ch. 115, BACT]

B. Visible emssions from the Lime Slaker shall not exceed 20% on a six (6) minute block average basis. [06-096 C.M.R. ch. 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 14 DAY OF September , 2018.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Cone for
PAUL MERCER, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 6/19/18
Date of application acceptance: 6/28/18

Date filed with the Board of Environmental Protection:

This Order prepared by Lynn Muzzey, Bureau of Air Quality.