FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
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Jacksonville Lime, LLC
Post Office Box 37
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Authorized Representative:
Nick Caggiano, Production Manager

Air Permit No. 0310583-002-AC (PSD-FL-426A)
Expires: March 31, 2019
Greenhouse Gases (GHGs)
Jacksonville Lime, LLC
Facility ID No. 0310583
Lime Manufacturing Project

PROJECT

This is the final air construction permit, which specifies best available control technology (BACT) for greenhouse gases (GHGs) for the Jacksonville Lime, LLC lime manufacturing plant. The facility is categorized under Standard Industrial Classification No. 3274. The location is 1915 Wigmore Street in Jacksonville, Florida. The UTM coordinates are Zone 17, 439.33 kilometers (km) East, and 3359.62 km North.

This final permit is organized into the following sections: Section 1 (General Information); Section 2 (Administrative Requirements); Section 3 (Emissions Unit Specific Conditions); and Section 4 (Appendices). Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of Section 4 of this permit.

STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of: Chapter 403 of the Florida Statutes (F.S.) and Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297 of the Florida Administrative Code (F.A.C.). The permittee is authorized to conduct the proposed work in accordance with the conditions of this permit. This project is subject to the general preconstruction review requirements in Rule 62-212.300, F.A.C. and the preconstruction review requirements for major stationary sources in Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

Upon issuance of this final permit, any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel (Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000) and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within 30 days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida

for Jeffery F. Koerner, Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management

JFK/dlr/aal

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Final Air Permit package (including the Final Determination and Final Permit with Appendices) was sent by electronic mail, or a link to these documents made available electronically on a publicly accessible server, with received receipt requested before the close of business on the date indicated below to the following persons.

Nick Caggiano, Authorized Representative: nick.caggiano@carmeusena.com
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Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

PROPOSED PROJECT

Jacksonville Lime, LLC proposes to construct and operate a lime manufacturing plant. The facility will receive limestone containing primarily calcium carbonate ($CaCO_3$) and in some instances magnesium carbonate ($MgCO_3$). Under high temperatures, the limestone is calcined to produce lime and carbon dioxide (CO_2). The project will be constructed on a Brownfield site located on the west bank of the St. Johns River in Jacksonville, Florida. The project was previously reviewed for Prevention of Significant Deterioration (PSD) for carbon monoxide (CO), nitrogen oxides (NO_X), sulfur dioxide (SO_2), and particulate matter (PM), PM with a mean particle diameter of 10 microns or less (PM_{10}), and PM with a mean particle diameter of 2.5 microns or less ($PM_{2.5}$). The PSD review and best available control technology (BACT) determinations were conducted and approved by the Department under Permit No. 0310583-001-AC (PSD-FL-426) dated February 20, 2014.

The project is also subject to PSD and BACT for greenhouse gases (GHGs) as carbon dioxide equivalent (CO_2e). The PSD GHG review and BACT determination were conducted and approved by the Department under the present Permit No. 0310583-002-AC (PSD-FL-426A).

The plant will consist of two twin-shaft vertical parallel flow regenerative lime kilns (Cimprogetti – FS Design, or equivalent) and associated raw material, product, and fuel handling systems. The kilns are operated at peak temperatures of approximately 1,800 degrees Fahrenheit (°F) at which temperature the thermal decomposition of limestone to lime and CO_2 occurs. Each kiln has two vertical shafts connected by a cross-over channel. The shafts are alternately operated in burning and preheat mode, cycling approximately 10 to 15 minutes. Limestone undergoing calcination, fuel and combustion gases flow downward together in the burning shaft. Limestone flows counter-currently to exhaust (provided via the cross-over channel) and cooling/combustion air in the shaft operating in preheat mode. Each kiln has a nominal lime production rate of 330 tons/day (maximum 396 tons/day) and is capable of firing petroleum coke (petcoke), coal (including lignite), natural gas, and wood chips. The lime kilns are each equipped with and are vented through a large baghouse (fabric filter) and a single exhaust stack that is approximately 213 feet tall.

The facility's fuel handling system consists of a mill for petcoke/coal processing, in conjunction with a natural gas fired heater to dry the fuel. Emissions will be controlled by fabric filter dust collectors. Wood derived fuel will be loaded into a dump hopper by front end loaders or trucks and sent to a raw storage area. From the wood storage area the biomass will be transferred via drag chain conveyor to mill then to small bins for kiln feed. Multiple conveyors, storage bins, wet suppression points, and dust collectors will be associated with fuel handling. This GHG PSD permit and BACT emission limits affect the following emissions units (EU).

EU No.	Emission Unit Description
001	Vertical Lime Kiln No. 1
002	Vertical Lime Kiln No. 2
019	Stack ST-902 – Bowl Mill, Classifier, Feeder, Heater and Conveyor through Baghouse 630

FACILITY REGULATORY CLASSIFICATION

- The project will be a major source of hazardous air pollutants (HAP).
- The project will be a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C.
- The project includes no units subject to the acid rain provisions of the Clean Air Act.
- The project is subject to PSD preconstruction review in accordance with Rule 62-212.400, F.A.C.
- The project includes units subject to applicable New Source Performance Standards (NSPS) in Title 40, Part 60 of the Code of Federal Regulations.
- The project includes units subject to applicable National Emissions Standards for Hazardous Air Pollutants (NESHAP) in Title 40, Part 63 of the Code of Federal Regulations.

SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: The Permitting Authority for this project is the Office of Permitting and Compliance in the Division of Air Resource Management of the Department of Environmental Protection (Department). The mailing address for the Office of Permitting and Compliance is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400.

2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Northeast District at: 8800 Baymeadows Way West, Suite 100, Jacksonville, Florida 32256-7590.

3. Appendices: The following Appendices are attached as a part of this permit: Appendix A (Citation Formats and Glossary of Common Terms); Appendix B (General Conditions); and Appendix C (Greenhouse Gases Reporting Requirements).

4. Applicable Regulations, Forms and Application Procedures: Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403, F.S.; and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296 and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.

5. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

6. Modifications: No emissions unit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]

7. Construction and Expiration. The expiration date shown on the first page of this permit provides time to complete the physical construction activities authorized by this permit, complete any necessary compliance testing, and obtain an operation permit. Notwithstanding this expiration date, all specific emissions limitations and operating requirements established by this permit shall remain in effect until the facility or emissions unit is permanently shut down. For good cause, the permittee may request that that a permit be extended. Pursuant to Rule 62-4.080(3), F.A.C., such a request shall be submitted to the Permitting Authority in writing before the permit expires. [Rules 62-4.070(4), 62-4.080 & 62-210.300(1), F.A.C.]

8. Source Obligation:

   a. Authorization to construct shall expire if construction is not commenced within 18 months after receipt of the permit, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. This provision does not apply to the time period between construction of the approved phases of a phased construction project except that each phase must commence construction within 18 months of the commencement date established by the Department in the permit.

      {This provision applies to receipt of Permit No. 0310853-002-AC. It does not reset the requirement to commence construction in accordance with Section 2, Condition 8.a. of Permit No. 0310583-001-AC (PSD-FL-426) issued February 20, 2014}

   b. At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

c. At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by exceeding its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

[Rule 62-212.400(12), F.A.C.]

9. Title V Permit: This permit authorizes specific modifications and/or new construction on the affected emissions units as well as initial operation to determine compliance with conditions of this permit. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after completing the required work and commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to each Compliance Authority.
[Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

A. Vertical Lime Kilns (EU 001 and EU 002)

This section of the permit addresses the following emissions units.

EU No.	Emission Unit Description
001	Vertical Lime Kiln No. 1
002	Vertical Lime Kiln No. 2

{Permitting Note: The present permit addresses only the requirements related to PSD and BACT for GHGs}

EQUIPMENT

1. Vertical Lime Kilns: The permittee is authorized to install and operate two vertical twin-shaft parallel flow regenerative (PFR) lime kilns that will have the capability of firing petcoke, coal (including lignite), natural gas, and wood chips. The kilns will be equipped with baghouses and a single exhaust stack with an approximate height of 213 feet and an approximate diameter of 4.8 feet.
[Design; Permit No. 030583-001-AC; Application No. 0310583-002-AC]

PERFORMANCE RESTRICTIONS

2. Permitted Capacity: Production from each twin-shaft PFR lime kiln shall not exceed 396 tons of lime in any 24-hour period (396 tons/day, 24-hour average).
[Design; Permit No. 0310583-001-AC; Application No. 0310583-002-AC; and Rule 62-210.200(PTE), F.A.C.]

3. Authorized Fuels: Except as described in Condition 4 below, the lime kilns are permitted to fire petroleum coke, coal (including lignite), natural gas, and wood chips. The maximum amount of wood chips fired in both lime kilns (total, combined) shall not exceed 54,312 tons per year.
[Design; Permit No. 0310583-001-AC; Application No. 0310583-002-AC; and Rule 62-210.200(PTE), F.A.C.]

4. Fuel for Cold Startups: The only approved fuel for cold startups is natural gas. A cold startup of either lime kiln is defined as the use of the startup burners that are located within the kiln crossover channel when: (i) no fuel has been fired in the kiln within the preceding 72 hours, and (ii) the temperature in the crossover channel is below 1,100 °F. A cold startup ends when: (i) the temperature in the crossover channel exceeds 1,100 °F degrees Fahrenheit; (ii) the start up burners are no longer fired; and (iii) the main burners (lances) begin firing. [Design; Permit No. 0310583-001-AC; Application No. 0310583-002-AC; and Rule 62-210.400(BACT), F.A.C.]

5. Hours of Operation: The lime kilns are permitted to operate continuously (8,760 hours/year).
[Design; Permit No. 0310583-001-AC; Application No. 0310583-002-AC; and Rule 62-210.200(PTE), F.A.C.]

EMISSIONS STANDARDS

6. Emissions Standards: GHGs as CO_2e emissions from each vertical lime kiln shall not exceed the following:

Fuel	BACT Emissions Standards (ton CO_2e/ton lime) [b]		Compliance Method
	High Calcium Lime	Dolomitic Lime	
Natural Gas	0.99	1.09	12-operating months, rolling, using procedures in 40 CFR 98, Subpart S and described in Condition 15 below.
Solid Fuels [a]	1.17	1.27	

a. Solid fuels are coal (including lignite), petcoke and wood.
b. A composite emission standard applies when burning fuel combinations as described in Condition 14 below.

[Rule 62-212.400(BACT), F.A.C.]

7. Specific Fuel Input: Each kiln shall be designed to consume 3.25 million Btu per ton of lime produced (lower heating value, LHV), or less, based on use of either petcoke or natural gas. Within 60 days after achieving permitted production capacity, but not later than 180 days after initial operation of the unit, the permittee shall provide the final manufacturer guarantee or test results derived from the kiln acceptance testing. The kiln acceptance test results shall be corrected to reflect production of high calcium lime with less than 2% residual CO_2 in the product. The results may be further corrected to account for higher moisture in limestone, different reactivity and different size of stone than given in the guarantee.
[Design; Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

{Permitting note: Once this permit condition is satisfied pursuant to this construction permit, it will not be included in the subsequent facility Title V Operating Permit.}

MONITORING, REPORTING AND COMPLIANCE REQUIREMENTS FOR GHGS

8. GHG Monitoring Plan: The permittee shall prepare and maintain a GHG Monitoring Plan as specified in 40 CFR, Part 98, Mandatory GHG Reporting, Subpart A – General Provisions. The applicable section is 40 CFR 98.3 (g)(5)(i-iv). [40 CFR 98, Subpart A]
9. Mandatory GHG Reporting for Lime Kilns: The permittee shall comply with all of the applicable requirements contained in 40 CFR 98, , Subpart S - Lime Manufacturing. The applicable sections are 40 CFR 98.190 – 98.198. [40 CFR 98, Subpart S; Permit Appendix C]
10. Mandatory GHG Reporting for General Stationary Fuel Combustion Sources: The permittee shall for each kiln comply with all of the applicable requirements contained in 40 CFR 98, Mandatory GHG Reporting, Subpart C – General Stationary Fuel Combustion Sources. [40 CFR 98, Subpart S, 40 CFR 98, Subpart C]
11. Calculation of Process Emissions of GHGs for the PFR Lime Kilns: The permittee shall calculate process CO_2 emissions from each lime kiln using the applicable procedures contained in 40 CFR 98.193 and 40 CFR 98.196 for kilns that are not equipped with continuous emissions monitoring systems (CEMS). In addition to the requirement to report annual process CO_2 emissions from each lime kiln to EPA, the permittee shall, on a monthly basis, calculate emissions during the most recent 12 operating months. The records shall be maintained and available upon request to the Department.
[40 CFR 98, Subpart S; Rule 62-212.400(BACT), F.A.C.]
12. Calculation of Fuel Combustion Emissions of GHGs for the PFR Lime Kilns: The permittee shall, in accordance with 40 CFR 98.193(b)(2)(v), calculate fuel combustion CO_2 emissions from each lime kiln using the applicable procedures contained in 40 CFR 98, Subpart C. In addition to the requirement to report annual fuel combustion CO_2 emissions from each lime kiln to EPA, the permittee shall, on a monthly basis, calculate emissions during the most recent 12 operating months. The records shall be maintained and available upon request to the Department. For the purposes of calculating GHG as CO_2e for emissions other than CO_2, the permittee shall use the Global Warming Potential (GWP) values listed in 40 CFR 98, subpart A, Table A-1 as of May 30, 2014. The current GWP factors for the GHG that are relevant to this project are:
CO_2 = 1; methane (CH_4) = 25; and nitrous oxide (N_2O) = 298.
[40 CFR 98, Subpart S; 40 CFR 98, Subpart C; Rule 62-212.400(BACT), F.A.C.]
13. Calculation of Quantities of Lime Products and Byproducts: The permittee shall calculate the total quantity of each type of lime product and byproduct that is produced from each kiln using the applicable procedures contained in 40 CFR 98.194 and 40 CFR 98.196. In addition to the requirement to determine monthly or annual quantities for each product or byproduct, the permittee shall, on a monthly basis, calculate the quantity of each product that is produced during the most recent 12-months of operation. The records shall be maintained and provided to the Department upon request.
[40 CFR 98, Subpart S; Rule 62-212.400(BACT), F.A.C.]

14. Calculation of Applicable Emission Standard: Beginning the 12th operating month and then monthly thereafter, the permittee shall for each kiln calculate and record the applicable rolling 12-operating month emission standard in accordance with the following formula:

    [(0.99 tons CO_2e/ton NHLime)*(tons NHLime) + (1.17 CO_2e/ton SHLime)*(tons SHLime) + (1.09 CO_2e/ton NDLime)*(tons NDLime) + (1.27 SDLime)*(tons SDLime)**] ÷ [**total tons lime produced**]**

    Where:

    tons NHLime = tons of high calcium lime produced when using natural gas;

    tons SHLime = tons of high calcium lime produced when using solid fuels;

    tons NDLime = tons of dolimitic lime produced when using natural gas; and

    tons SDLime = tons of dolimitic lime produced when using solid fuels.

    Calculations for each 12 operating month period shall be completed and available to the Department upon request within 30 days of the end of the respective period.

    [Rule 62-212.400(BACT), F.A.C.]

15. Compliance with 12-Operating Month Emission Standard: Beginning the 12th operating month and monthly thereafter, the permittee shall for each kiln divide the sum of emissions calculated in accordance with Conditions 11 and 12. above by the total tons of lime calculated in accordance with Condition 13. Beginning the 12th operating month and monthly thereafter, the resulting value shall not exceed the corresponding value calculated in accordance with Condition 14 above. Periods of startup and idling may be excluded by the applicant when performing this calculation. Calculations for each 12 operating month period shall be completed and available to the Department upon request within 30 days of the end of the respective period. [Rule 62-212.400(BACT), F.A.C.]

B. Fuel Handling Operations (EU 019)

This section of the permit addresses the following emissions units.

EU No.	Emission Unit Description
019	Stack ST-902 – Bowl Mill, Classifier, Feeder, Heater and Conveyor through Baghouse 630

{Permitting Note: The present permit addresses only the requirements related to PSD and BACT for GHGs}

EQUIPMENT

1. Petroleum Coke/Coal Grinding System: The permittee is authorized to install and operate a Petroleum Coke/Coal Grinding System, including: front-end loader/dump truck area; dump hopper; conveyors; feeders; petroleum coke and coal storage bin; an enclosure containing bowl mill, 3.5 Million British thermal units/hour (MMBtu/hour) heater; CO_2 systems; ground coke bin, dosing bin; shared ribbon mixer; blowers; baghouses; and a stack. [Design, Permit 0310583-001-AC and Application No. 0310583-002-AC]

PERFORMANCE RESTRICTIONS

2. Hours of Operation: The hours of operation are not limited (8,760 hours per year).
[Design, Permit 0310583-001-AC and Application No. 0310583-002-AC]

3. Limitation on Coal Preparation and Transfer: The coal preparation and processing equipment (consisting of thermal dryers, pneumatic coal-cleaning equipment (air tables), coal processing and conveying equipment (including breakers and crushers), and coal storage systems, transfer and loading systems) shall not process more 200 tons of coal per day. [Permit 0310583-001-AC]

4. Authorized Fuels: The heater/dryer located within the petroleum coke and coal grinding system is permitted to fire only natural gas.
[Design; Permit 0310583-001-AC; Application No. 0310583-002-AC; and Rule 62-212.200(BACT), F.A.C.]

EMISSIONS STANDARDS

5. Emissions Standards: GHG emissions from the heater/dryer within the petroleum coke and coal grinding system shall not exceed the following standards:

EU No.	Emission Point	Description	Rule Applicability	BACT Emissions Standard (tons CO_2e/year)[a]
019	ST-902	Heater/Dryer within Coke Grinding Stack	Rule 62-212.400(BACT), F.A.C.	1,795 tons/12 operating months, rolling basis and exclusive use of natural gas

[Design, Application No. 0310583-002-AC; and Rule 62-212.200(BACT), F.A.C.]

6. Good Combustion Practices: The permittee shall employ good combustion as a work practice standard.
[Design; Application No. 0310583-002-AC; Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

GHG MONITORING AND COMPLIANCE FOR THE FUEL DRYER

7. Mandatory GHG Reporting for General Stationary Fuel Combustion Sources: The permittee shall, for the natural gas-fired fuel heater/dryer, comply with all of the applicable requirements contained in 40 CFR 98, Mandatory GHG Reporting, Subpart C – General Stationary Fuel Combustion Sources. The records shall be maintained and available upon request to the Department. [40 CFR 98, Subpart C; Permit Appendix C]

8. Gas Flow Meter: The permittee shall install or ensure that the supplier installs certified natural gas flow meter to measure the natural gas mass or volume used in the natural gas-fired fuel heater/dryer.
[40 CFR 98, Subpart C; Rules 62-4-070(3), F.A.C. and Rule 62-212.400(BACT), F.A.C.]

9. Natural Gas Parameters: The permittee shall determine the natural gas heat content and the carbon content of the fuel at least semi-annually and use the fuel flow meter to calculate the heat input to the fuel dryer for each hour of operation. The records shall be maintained by the permittee and made available upon request to the Department. [40 CFR 98, Subpart C; Rules 62-4-070(3), F.A.C. and Rule 62-212.400(BACT), F.A.C.]
10. Calculation of GHG Emissions from the Heater/Dryer: The permittee shall calculate fuel combustion CO_2 emissions the heater/dryer using the applicable procedures contained in 40 CFR 98, Subpart C. In addition to the requirement to report annual fuel combustion CO_2 emissions from the heater/dryer to EPA, the permittee shall, on a monthly basis, calculate emissions during the most recent 12 operating months. The records shall be maintained and available upon request to the Department. For the purposes of calculating GHG as CO_2e for emissions other than CO_2, the permittee shall use the Global Warming Potential (GWP) values listed in 40 CFR 98, subpart A, Table A-1 as of May 30, 2014. The current GWP factors for the GHG that are relevant to this project are: CO_2 = 1; methane (CH_4) = 25; and nitrous oxide (N_2O) = 298.
[40 CFR 98, Subpart C; Rule 62-212.400(BACT), F.A.C.]