



DEPARTMENT ORDER

**Clean Maine Carbon, LLC  
Piscataquis County  
Greenville, Maine  
A-1164-71-A-N**

**Departmental  
Findings of Fact and Order  
Air Emission License**

**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 (Department) finds the following facts:

**I. REGISTRATION**

A. Introduction

Clean Maine Carbon, LLC (CMC) has applied for an Air Emission License for the operation of emission sources associated with their biochar manufacturing facility.

The equipment addressed in this license will be located at 185 Greenville Steam Rd, Greenville, Maine.

B. Title, Right, or Interest

In their application, CMC submitted copies of a property deed demonstrating Greenville Partners, LLC had ownership of the property where the facility is to be constructed as well as documentation that Greenville Partners, LLC has subsequently changed their legal name to Clean Maine Carbon, LLC. CMC has provided sufficient evidence of title, right, or interest in the facility for purposes of this air emission license.

C. Emission Equipment

The following equipment is addressed in this air emission license:

**Fuel Burning**

Equipment	Heat Input	Firing Rate	Fuel Type	Date of Install.	Stack #
Biochar Line 1 Combustion Chamber	1.1 MMBtu/hr	220 lb/hr*	Biomass	2022	1

\*Assumes moisture content of 40%.

**Process Equipment**

Equipment	Feed Rate	Production Rate	Pollution Control Equipment	Stack #
Biochar Line 1	2,200 lb/hr*	550 lb/hr	thermal oxidation	1

\*Assumes moisture content of 40%.

CMC may operate small stationary engines smaller than 0.5 MMBtu/hr. These engines are considered insignificant activities and are not required to be included in this license. However, they are still subject to applicable State and Federal regulations. More information regarding requirements for small stationary engines is available on the Department's website at the link below.

<http://www.maine.gov/dep/air/publications/docs/SmallRICEGuidance.pdf>

Additionally, CMC may operate portable engines used for maintenance or emergency-only purposes. These engines are considered insignificant activities and are not required to be included in this license. However, they may still be subject to applicable State and Federal regulations.

D. Definitions

Biomass means any biomass-based solid fuel that is not a solid waste. This includes, but is not limited to, wood residue and wood products (e.g., trees, tree stumps, tree limbs, bark, lumber, sawdust, sander dust, chips, scraps, slabs, millings, and shavings). This definition also includes wood chips and processed pellets made from wood or other forest residues. Inclusion in this definition does not constitute a determination that the material is not considered a solid waste. CMC should consult with the Department before adding any new biomass type to its fuel mix.

Continuous. For the purposes of this license, continuous means at least three (3) data points in each full operating hour with at least one (1) data point in each half-hour period.

Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

Particulate Matter (PM) means any airborne finely divided solid or liquid material with an aerodynamic diameter smaller than 100 micrometers as measured by applicable reference methods.

Particulate Matter (PM<sub>10</sub>) means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by applicable reference methods. PM<sub>10</sub> emissions include gaseous emissions from a source or activity which condense to form particulate matter at ambient temperatures (i.e., condensables).

Particulate Matter (PM<sub>2.5</sub>) means particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers as measured by applicable reference methods. PM<sub>2.5</sub> emissions include gaseous emissions from a source or activity which condense to form particulate matter at ambient temperatures (i.e., condensables).

Portable or Non-Road Engine means an internal combustion engine which is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform. This definition does NOT include engines which remain or will remain at a location (excluding storage locations) for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period.

An engine is not a non-road (portable) engine if it remains or will remain at a location for more than 12 consecutive months or for a shorter period of time if sited at a seasonal source. A seasonal source is a source that remains in a single location for two years or more and which operates for fewer than 12 months in a calendar year. If an engine operates at a seasonal source for one entire season, the engine does not meet the criteria of a non-road (portable) engine and is subject to applicable stationary engine requirements.

Records or Logs mean either hardcopy or electronic records.

Shutdown means a period of time beginning when fuel feed to the Biochar Line 1 Combustion Chamber has stopped and the temperature in the thermal oxidation chamber drops below 1,300 °F and ending when the temperature in the thermal oxidation chamber drops below 200 °F.

Startup means a period of time beginning when fire is first introduced into the Biochar Line 1 Combustion Chamber and ending when the temperature in the thermal oxidation chamber exceeds 1,300 °F.

E. Application Classification

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

A new source is considered a major source based on whether or not total licensed annual emissions exceed the “Significant Emission” levels as defined in the Department’s *Definitions Regulation*, 06-096 Code of Maine Rules (C.M.R.) ch. 100.

Pollutant	Total Licensed Annual Emissions (TPY)	Significant Emission Levels
PM	14.0	100
PM <sub>10</sub>	14.0	100
PM <sub>2.5</sub>	14.0	100
SO <sub>2</sub>	2.8	100
NO <sub>x</sub>	15.0	100
CO	5.0	100
VOC	5.0	100

The Department has determined the facility is a minor source, and the application has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 C.M.R. ch. 115.

F. Facility Classification

The facility is licensed as follows:

- As a natural minor source of air emissions, because no license restrictions are necessary to keep facility emissions below major source thresholds for criteria pollutants; and
- As an area source of hazardous air pollutants (HAP), because the licensed emissions are below the major source thresholds for HAP.

II. **BEST PRACTICAL TREATMENT (BPT)**

A. Introduction

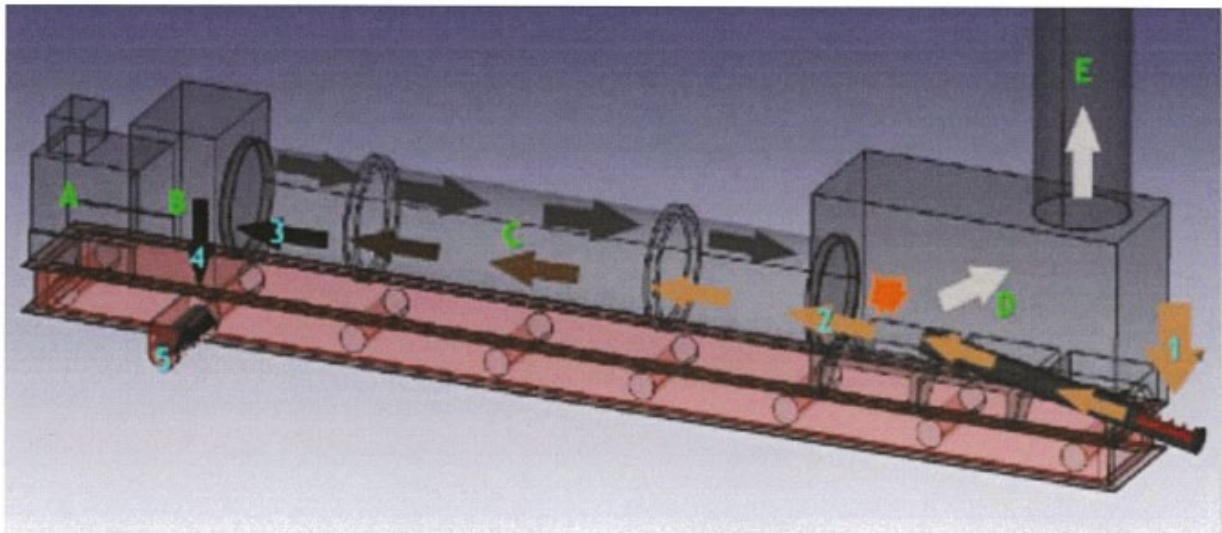
In order to receive a license, the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 C.M.R. ch. 100. Separate control requirement categories exist for new and existing equipment.

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

### B. Biochar Line 1

CMC proposes to install a biochar manufacturing line (Biochar Line 1) which is comprised of a combustion chamber (Biochar Line 1 Combustion Chamber), a retention chamber, a rotary kiln, a thermal oxidation chamber, and a water cooler. Biochar Line 1 is a model BET 24-PRD developed by BioMass Energy Techniques Inc. Figure 1-1 provides a simplified depiction of the unit's operation.

Figure 1-1: Process Flow Visual Depiction



Chamber A is the Biochar Line 1 Combustion Chamber which is the primary combustion chamber. Approximately 220 lb/hr of biomass with a moisture content around 40% is gravity fed into this chamber. It provides the thermal heat needed to initiate and sustain combustion in Chamber B.

Chamber B is a high-temperature retention chamber which allows condensable gases to achieve complete combustion. A negative draft pulls the gases off the feedstock in Chamber A and into Chamber B.

Chamber C is a refractory-lined rotary drum pyrolysis kiln, in which thermal energy from Chamber B makes contact via countercurrent flow with the biomass feedstock (input into the process at point 1 in the diagram). Gases generated during the pyrolysis process in

Chamber C increase the thermal energy of the system above the thermal energy in Chamber B.

Chamber D is a thermal oxidation chamber that provides space and residence time to facilitate more complete combustion of gases generated in Chamber C. Additional information on the thermal oxidation chamber is provided in the BACT section below.

Chamber E is the exhaust stack. The current proposal is to exhaust to atmosphere through a stack (Stack #1) that is 15 feet above ground level and 2.2 feet in diameter. CMC anticipates possible future scenarios that involve using the exhaust gases for other purposes including facility heating or power generation.

Approximately 2,200 lb/hr of green biomass feedstock is fed into the rotary drum at Point 1. Biochar manufactured by this process is fed into a water cooler and exits the system at Point 5.

1. 06-096 C.M.R. ch. 103

*Fuel Burning Equipment Particulate Emission Standard*, 06-096 C.M.R. ch. 103, is not applicable to Biochar Line 1. This regulation applies to all fuel burning equipment with a rated capacity of 3 MMBtu/hr or greater. The Biochar Line 1 Combustion Chamber has a maximum heat input less than 3 MMBtu/hr.

2. BACT Findings

CMC submitted a BACT analysis for control of emissions from Biochar Line 1.

a. Particulate Matter (PM, PM<sub>10</sub>, PM<sub>2.5</sub>)

Potential particulate matter emissions from Biochar Line 1 include entrained particles from direct contact with the feed biomass and particles from incomplete combustion of fuel and non-combustible material in the fuel. Particulate matter controls considered included baghouses, wet electrostatic precipitators (WESPs), dry electrostatic precipitators (ESPs), and thermal oxidizers. Baghouses, WESPs, and thermal oxidizers each are capable of achieving 98% control or greater for emissions of filterable particulate matter, and ESPs can achieve a slightly lower control of 95-98% for filterable particulate matter.

Baghouses, also known as fabric filters, consist of a number of fabric bags placed in parallel that collect particulate on the surface of the bag as the exhaust stream passes through the fabric membrane. The collected particulate is periodically dislodged from the bags' surface to collection hoppers via short blasts of high-pressure air, physical agitation of the bags, or by reversing the gas flow.

ESPs work by charging particles in the exhaust stream with a high voltage while oppositely charging a collection surface where particles accumulate. The collected

particulate matter is dislodged from the collection surface by a rapping process and collected in hoppers. Dry ESPs work well in exhaust streams with minimal organic particulate. Organic particulate tends to adhere to the positively charged collection surface, subsequently requiring additional rapping to dislodge the particulate and reducing control efficiency.

WESPs utilize a pre-quench to cool and saturate the gases prior to entering the ESP. WESPs collect only particles and droplets that can be electrostatically charged and consume significant quantities of water during operation. The resulting effluent requires treatment and must be discharged to a solids-removing clarifying system prior to final disposal.

Thermal oxidizers destroy condensable PM by burning the exhaust gas at high temperatures. CMC has proposed inclusion of an thermal oxidation chamber that is an integrated part of Biochar Line 1. The thermal oxidation chamber will maintain a minimum temperature of 1,300 °F with a retention time of at least 1.0 second for all operating times except for periods of startup, shutdown, and malfunction. The thermal oxidation chamber has a control efficiency equivalent to or higher than the other control options considered.

The Department finds that BACT for PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from Biochar Line 1 is the use of the integrated thermal oxidation chamber and the emission limits listed in the table below for all operating times other than periods of startup, shutdown, and malfunction. Definitions of startup, shutdown, and malfunction are addressed in Section I(D) of this license. CMC has indicated that startups and shutdowns typically take 1-2 hours.

Compliance shall be demonstrated by continuous monitoring of the temperature inside the thermal oxidation chamber during all operating times and records of the date, time, and duration of all startups, shutdowns, and malfunctions.

Compliance with the PM, PM<sub>10</sub>, and PM<sub>2.5</sub> lb/hr emission limits shall be demonstrated through performance testing of emissions from Stack #1 conducted within 180 days of startup and upon Department request thereafter. The test report shall include results for emissions of both filterable and condensable particulate matter. CMC may elect to either conduct testing in accordance with EPA Test Methods 201/201A and 202 or in accordance with EPA Test Method 5 and 202 (or other methods as approved by the Department). If CMC elects to demonstrate compliance using EPA Test Method 5, all filterable PM shall be assumed to be PM<sub>2.5</sub>.

BACT for particulate matter emissions during startup, shutdown, and malfunction is determined to be limiting the duration of these activities. Startups and shutdowns shall be limited to no more than two hours per occurrence. Compliance shall be

demonstrated by recordkeeping of the date, time, and duration of all startups and shutdowns. If a malfunction cannot be resolved within one hour, CMC shall initiate shutdown and shall not restart Biochar Line 1 until corrective actions have been completed. Compliance shall be demonstrated by recordkeeping of the date, time, and duration of all malfunctions and any corrective action taken to correct the malfunction.

b. Sulfur Dioxide (SO<sub>2</sub>)

CMC has proposed to fire only biomass in Biochar Line 1. The use of this fuel results in minimal emissions of SO<sub>2</sub>, and additional add-on pollution controls are not economically feasible.

The Department finds that BACT for SO<sub>2</sub> emissions from Biochar Line 1 is the firing of only biomass fuel and the emission limits listed in the tables below.

Compliance with the SO<sub>2</sub> lb/hr emission limit shall be demonstrated through performance testing upon request by the Department.

c. Nitrogen Oxides (NO<sub>x</sub>)

NO<sub>x</sub> from combustion is generated through one of three mechanisms: fuel NO<sub>x</sub>, thermal NO<sub>x</sub>, and prompt NO<sub>x</sub>. Fuel NO<sub>x</sub> is produced by the oxidation of nitrogen in the fuel. Thermal NO<sub>x</sub> forms in the high temperature area of the combustor and increases exponentially with increases in flame temperature and linearly with increases in residence time. Prompt NO<sub>x</sub> forms from the oxidation of hydrocarbon radicals near the combustion flame; this produces an insignificant amount of NO<sub>x</sub>.

Several control strategies for the control of NO<sub>x</sub> were considered including Selective Catalytic Reduction (SCR), Selective Non-Catalytic Reduction (SNCR), and flue gas recirculation (FGR). However, none of these systems is considered feasible for Biochar Line 1 based on its small size and the application.

The Department finds that BACT for NO<sub>x</sub> emissions from Biochar Line 1 is the firing of only biomass fuel and the emission limits listed in the tables below.

Compliance with the NO<sub>x</sub> lb/hr emission limit shall be demonstrated through performance testing of emissions from Stack #1 conducted within 180 days of startup and upon Department request thereafter.

BACT for NO<sub>x</sub> during startup, shutdown, and malfunction is determined to be limiting the duration of these activities. Startups and shutdowns shall be limited to no more than two hours per occurrence. Compliance shall be demonstrated by recordkeeping of the date, time, and duration of all startups and shutdowns. If a malfunction cannot be resolved within one hour, CMC shall initiate shutdown and shall not restart Biochar Line 1 until corrective actions have been completed.



Compliance shall be demonstrated by recordkeeping of the date, time, and duration of all malfunctions and any corrective action taken to correct the malfunction.

d. Carbon Monoxide (CO) and Volatile Organic Compounds (VOC)

CO and VOC emissions are attributable to the incomplete combustion of organic compounds. Pollution control options to reduce CO and VOC emissions include thermal oxidizers. Thermal oxidizers destroy CO and VOC by burning them at high temperatures and reducing them to water and carbon dioxide.

As described above in the particulate matter section, CMC has proposed inclusion of a thermal oxidation chamber that is an integrated part of Biochar Line 1. This represents the highest level of control.

The Department finds that BACT for CO and VOC emissions from Biochar Line 1 is the use of the integrated thermal oxidation chamber and the emission limits listed in the tables below for all operating times other than periods of startup, shutdown, and malfunction.

Compliance shall be demonstrated by continuous monitoring of the temperature inside the thermal oxidation chamber during all operating times and records of the date, time, and duration of all startups, shutdowns, and malfunctions. For the purposes of this license, startup shall be defined as beginning when fire is first introduced into the Biochar Line 1 Combustion Chamber and ending when the temperature in the thermal oxidation chamber exceeds 1,300 °F.

Compliance with the CO and VOC lb/hr emission limits shall be demonstrated through performance testing of emissions from Stack #1 conducted within 180 days of startup and upon Department request thereafter.

BACT for CO and VOC during startup, shutdown, and malfunction is determined to be limiting the duration of these activities. Startups and shutdowns shall be limited to no more than two hours per occurrence. Compliance shall be demonstrated by recordkeeping of the date, time, and duration of all startups and shutdowns. If a malfunction cannot be resolved within one hour, CMC shall initiate shutdown and shall not restart Biochar Line 1 until corrective actions have been completed. Compliance shall be demonstrated by recordkeeping of the date, time, and duration of all malfunctions and any corrective action taken to correct the malfunction.

e. Emission Limits

The BACT emission limits for Biochar Line 1 were based on stack test information from similar equipment located in another state.

The BACT emission limits for Biochar Line 1 are the following:

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	PM <sub>2.5</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Biochar Line 1	3.20	3.20	3.20	0.64	3.42	1.14	1.14

f. Performance Test Protocol

For any performance testing required by this license, CMC shall submit to the Department for approval a performance test protocol, as outlined in the Department's Performance Testing Guidance, at least 30 days prior to the scheduled date of the performance test. [06-096 C.M.R. ch. 115, BPT]

The Department's Performance Testing Guidance is available online at:  
<https://www.maine.gov/dep/air/emissions/testing.html>

3. Visible Emissions

Visible emissions from Biochar Line 1 shall not exceed 20% opacity on a six-minute block average basis, except for periods of startup, shutdown, or malfunction during which time CMC may comply with the following work practice standards in lieu of the numerical visible emissions standard.

- a. Maintain a log (written or electronic) of the date, time, and duration of all operating time, startups, shutdowns, and malfunctions.
- b. Develop and implement a written startup and shutdown plan for Biochar Line 1.
- c. Limit the duration of unit startups, shutdowns, or malfunctions to each not exceed two hours per occurrence for startups and shutdowns and one hour per occurrence for malfunctions.
- d. Operate Biochar Line 1 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.

The BACT visible emission limit listed above is determined to be more stringent than the applicable limit in 06-096 C.M.R. ch. 101. Therefore, the visible emission limit for Biochar Line 1 has been streamlined to the more stringent BACT limit and only the more stringent limit shall be included in this air emission license

4. New Source Performance Standards (NSPS): 40 C.F.R. Part 60, Subpart Dc

Biochar Line 1 is not subject to *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, 40 C.F.R. Part 60, Subpart Dc, which is applicable to steam generating units greater than or equal to 10 MMBtu/hr and less than or equal to 100 MMBtu/hr for which construction, modification, or reconstruction occurred after June 9, 1989. Steam generating unit is defined in 40 C.F.R. Part 60, Subpart Dc as “a device that combusts any fuel and produces steam or heats water or heats any heat transfer medium. This term includes any duct burner that combusts fuel and is part of a combined cycle system. This term does not include process heaters as defined in this subpart.”

Biochar Line 1 does not use heat transfer mediums; therefore, 40 C.F.R. Part 60, Subpart Dc is not applicable to this equipment since it is not considered a steam generating unit.

5. National Emission Standards for Hazardous Air Pollutants (NESHAP): 40 C.F.R. Part 63, Subpart JJJJJ

Biochar Line 1 is not subject to *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*, 40 C.F.R. Part 63, Subpart JJJJJ, which is applicable to all new, reconstructed, and existing boilers firing coal, biomass, or oil located at an area source of hazardous air pollutants (HAPs). CMC is an area source for HAP, with the facility’s potential to emit less than 10 tons per year of a single HAP and 25 tons per year combined HAP. The definition of boiler in 40 C.F.R. Part 63, Subpart JJJJJ states: “Boiler means an enclosed device using controlled flame combustion in which water is heated to recover thermal energy in the form of steam or hot water. Controlled flame combustion refers to a steady-state, or near steady-state, process wherein fuel and/or oxidizer feed rates are controlled. Waste heat boilers are excluded from this definition.” Biochar Line 1 does not heat water to recover thermal energy; therefore, 40 C.F.R. Part 63, Subpart JJJJJ is not applicable to this unit since it is not considered a boiler.

C. General Process and Fugitive Emissions

All wood handling and processing operations are located outside. This includes various conveyors and stockpiles of fuel, raw material, and final product. BACT for the control of particulate matter emissions from this equipment includes the use of covers on all outdoor conveyors and the fugitive and general process visible emission limits listed in this license, as appropriate.

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed 20% opacity on a five-minute block average basis.

Visible emissions from any general process source (including conveyors and material handling equipment) shall not exceed 20% opacity on a six-minute block average basis.

CMC shall not cause visible emissions (not including water vapor), measured as any level of opacity, totaling twelve minutes or more in any one-hour period at ground level over any land or surrounding any buildings not owned by CMC. Opacity under this condition shall be determined pursuant to EPA Method 22, *Visible Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares*, 40 C.F.R. Part 60, Appendix A.

D. Annual Emissions

The table below provides an estimate of facility-wide annual emissions for the purposes of calculating the facility's annual air license fee and establishing the facility's potential to emit (PTE). Only licensed equipment is included, i.e., emissions from insignificant activities are excluded. Similarly, unquantifiable fugitive particulate matter emissions are not included except when required by state or federal regulations. Maximum potential emissions were calculated based on unlimited operation of Biochar Line 1 (8,760 hr/yr) at the licensed lb/hr emission limits.

This information does not represent a comprehensive list of license restrictions or permissions. That information is provided in the Order section of this license.

**Total Licensed Annual Emissions for the Facility**  
**Tons/year**

(used to calculate the annual license fee)

	<b>PM</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>SO<sub>2</sub></b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>VOC</b>
Biochar Line 1	14.0	14.0	14.0	2.8	15.0	5.0	5.0
<b>Total TPY</b>	<b>14.0</b>	<b>14.0</b>	<b>14.0</b>	<b>2.8</b>	<b>15.0</b>	<b>5.0</b>	<b>5.0</b>

<b>Pollutant</b>	<b>Tons/year</b>
Single HAP	9.9
Total HAP	24.9

**III. AMBIENT AIR QUALITY ANALYSIS**

The level of ambient air quality impact modeling required for a minor source is determined by the Department on a case-by case basis. In accordance with 06-096 C.M.R. ch. 115, an ambient air quality impact analysis is not required for a minor source if the total licensed annual emissions of any pollutant released do not exceed the following levels and there are no extenuating circumstances:

Pollutant	Tons/Year
PM <sub>10</sub>	25
PM <sub>2.5</sub>	15
SO <sub>2</sub>	50
NO <sub>x</sub>	50
CO	250

This determination is based on information provided by the applicant regarding the expected construction and operation of the proposed emission units. If the Department determines that any parameter (e.g., stack size, configuration, flow rate, emission rates, nearby structures, etc.) deviates from what was included in the application, the Department may require CMC to submit additional information and may require an ambient air quality impact analysis at that time.

The total licensed annual emissions for the facility are below the emission levels contained in the table above and there are no extenuating circumstances; therefore, an ambient air quality impact analysis is not required as part of this 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, and
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-1164-71-A-N subject to the following conditions.

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.

### STANDARD CONDITIONS

- (1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions (38 M.R.S. § 347-C).

- (2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 115. [06-096 C.M.R. ch. 115]
- (3) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both. [06-096 C.M.R. ch. 115]
- (4) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [06-096 C.M.R. ch. 115]
- (5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S. § 353-A. [06-096 C.M.R. ch. 115]
- (6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 C.M.R. ch. 115]
- (7) The licensee shall maintain and operate all emission units and air pollution systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [06-096 C.M.R. ch. 115]
- (8) The licensee shall maintain sufficient records to accurately document compliance with emission standards and license conditions and shall maintain such records for a minimum of six (6) years. The records shall be submitted to the Department upon written request. [06-096 C.M.R. ch. 115]
- (9) The licensee shall comply with all terms and conditions of the air emission license. The filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for a renewal of a license or amendment shall not stay any condition of the license. [06-096 C.M.R. ch. 115]
- (10) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license. [06-096 C.M.R. ch. 115]

- (11) In accordance with the Department's air emission compliance test protocol and 40 C.F.R. Part 60 or other method approved or required by the Department, the licensee shall:
- A. Perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:
    - 1. Within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions; or
    - 2. Pursuant to any other requirement of this license to perform stack testing.
  - B. Install or make provisions to install test ports that meet the criteria of 40 C.F.R. Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and
  - C. Submit a written report to the Department within thirty (30) days from date of test completion.  
[06-096 C.M.R. ch. 115]
- (12) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicate emissions in excess of the applicable standards, then:
- A. Within thirty (30) days following receipt of the written test report by the Department, or another alternative timeframe approved by the Department, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 C.F.R. Part 60 or other method approved or required by the Department; and
  - B. The days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and
  - C. The licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.  
[06-096 C.M.R. ch. 115]

- (13) Notwithstanding any other provisions in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or license requirement. [06-096 C.M.R. ch. 115]
- (14) The licensee shall maintain records of malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emissions unit itself that would affect emissions and that is not consistent with the terms and conditions of the air emission license. The licensee shall notify the Department within two (2) days or the next state working day, whichever is later, of such occasions where such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitation. [06-096 C.M.R. ch. 115]
- (15) Upon written request from the Department, the licensee shall establish and maintain such records, make such reports, install, use and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such a manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. [06-096 C.M.R. ch. 115]
- (16) The licensee shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (38 M.R.S. § 605). [06-096 C.M.R. ch. 115]

#### **SPECIFIC CONDITIONS**

- (17) **Biochar Line 1**
  - A. CMC is authorized to install and operate Biochar Line 1. CMC shall submit to the Department notification of the date of initial startup within 30 days of occurrence. [06-096 C.M.R. ch. 115, BACT]
  - B. Biochar Line 1 shall fire only biomass. [06-096 C.M.R. ch. 115, BACT]
  - C. Periods of startup and shutdown shall each not exceed two hours in duration. Compliance shall be demonstrated by recordkeeping of the date, time, and duration of each startup, shutdown, and malfunction. [06-096 C.M.R. ch. 115, BACT]
  - D. If a malfunction cannot be resolved within one hour, CMC shall initiate shutdown and shall not restart Biochar Line 1 until corrective actions have been completed. Compliance shall be demonstrated by recordkeeping of the date, time, and duration of all malfunctions and any corrective action taken to correct the malfunction. [06-096 C.M.R. ch. 115, BACT]



Note: Definitions of startup, shutdown, and malfunction are addressed in Section I(D) of this license.

- E. Stack #1 shall be a minimum of 15 feet above ground level and no more than 26 inches in diameter at the exhaust point. [06-096 C.M.R. ch. 115, § 7]
- F. CMC shall operate the thermal oxidation chamber to control emissions of particulate matter, CO, and VOC from Biochar Line 1 during all operating times except for periods of startup, shutdown, and malfunction. [06-096 C.M.R. ch. 115, BACT]
- G. The thermal oxidation chamber shall be designed to achieve a minimum residence time of 1.0 second at 1,300 °F and shall be maintained at a minimum temperature of 1,300 °F during all operating times except for periods of startup, shutdown, and malfunction. [06-096 C.M.R. ch. 115, BACT]
- H. CMC shall continuously monitor and record the temperature inside the thermal oxidation chamber during all operating times. [06-096 C.M.R. ch. 115, BACT]
- I. Emissions shall not exceed the following [06-096 C.M.R. ch. 115, BACT]:

Emission Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	PM <sub>2.5</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Biochar Line 1	3.20	3.20	3.20	0.64	3.42	1.14	1.14

- J. Performance Testing [06-096 C.M.R. ch. 115, BACT]
  - 1. Compliance with the PM, PM<sub>10</sub>, and PM<sub>2.5</sub>, NO<sub>x</sub>, CO, and VOC lb/hr emission limits shall be demonstrated through performance testing of Stack #1 conducted within 180 days of startup and upon Department request thereafter.
  - 2. CMC shall submit to the Department for approval a performance test protocol, as outlined in the Department's Performance Testing Guidance, at least 30 days prior to the scheduled date of the performance test.
  - 3. CMC may elect to conduct PM, PM<sub>10</sub>, and PM<sub>2.5</sub> testing either in accordance with EPA Test Methods 201/201A and 202 or in accordance with EPA Test Methods 5 and 202 (or other methods as approved by the Department). If CMC elects to demonstrate compliance using EPA Test Method 5, all filterable PM shall be assumed to be PM<sub>2.5</sub>.
  - 4. The test report shall include results for emissions of both filterable and condensable particulate matter as applicable for the given pollutant.

- K. Visible emissions from Biochar Line 1 shall not exceed 20% opacity on a six-minute block average basis, except for periods of startup, shutdown, or malfunction during which time CMC may comply with the following work practice standards in lieu of the numerical visible emissions standard. [06-096 C.M.R. ch. 115, BACT]
1. Maintain a log (written or electronic) of the date, time, and duration of all operating time, startups, shutdowns, and malfunctions for Biochar Line 1.
  2. Develop and implement a written startup and shutdown plan for Biochar Line 1.
  3. Limit the duration of unit startups, shutdowns, or malfunctions to each not exceed two hours per occurrence for startups and shutdowns and one hour per occurrence for malfunctions.
  4. Operate Biochar Line 1 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.

(18) **General Process and Fugitive Emissions**

- A. All exterior conveyors shall be equipped and operated with covers.  
[06-096 C.M.R. ch. 115, BACT]
- B. Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed 20% opacity on a five-minute block average basis.  
[06-096 C.M.R. ch. 101, § 3(C)]
- C. Visible emissions from any general process source (including conveyors and material handling equipment) shall not exceed 20% opacity on a six-minute block average basis.  
[06-096 C.M.R. ch. 101, § 3(B)(4)]
- D. CMC shall not cause visible emissions (not including water vapor), measured as any level of opacity, totaling twelve minutes or more in any one-hour period at ground level over any land or surrounding any buildings not owned by CMC. Opacity under this condition shall be determined pursuant to EPA Method 22, *Visible Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares*, 40 C.F.R. Part 60, Appendix A. [06-096 C.M.R. ch. 115, BACT]

- (19) If the Department determines that any parameter value pertaining to construction and operation of the proposed emissions units, including but not limited to stack size, configuration, flow rate, emission rates, nearby structures, etc., deviates from what was submitted in the application or ambient air quality impact analysis for this air emission license, CMC may be required to submit additional information. Upon written request from the Department, CMC shall provide information necessary to demonstrate AAQS will not be exceeded, potentially including submission of an ambient air quality impact analysis or an application to amend this air emission license to resolve any deficiencies and ensure compliance with AAQS. Submission of this information is due within 60 days of the Department's written request unless otherwise stated in the Department's letter.  
[06-096 C.M.R. ch. 115, § 2(O)]

DONE AND DATED IN AUGUSTA, MAINE THIS 25<sup>th</sup> DAY OF OCTOBER, 2022.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:  for  
MELANIE LOYZIM, COMMISSIONER

**The term of this license shall be ten (10) years from the signature date above.**

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 8/30/2022

Date of application acceptance: 8/31/2022

Date filed with the Board of Environmental Protection:

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

