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

DEPARTMENT ORDER

Standard Biocarbon Corporation **Penobscot County** **Enfield, Maine** **A-1158-71-C-A**	**Departmental** **Findings of Fact and Order** **Air Emission License** **Amendment #2**

FINDINGS OF FACT

After review of the air emission license amendment 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

Standard Biocarbon Corporation (SBC) was issued Air Emission License A-1158-71-A-N on November 12, 2021, for the construction and operation of emission sources associated with their biocarbon (also called biochar) production and distribution facility to be located in East Millinocket. The license was subsequently amended on October 13, 2022 (A-1158-71-B-A) to construct and operate the proposed facility in Enfield, Maine, instead of in East Millinocket, and to reduce the number of PYREG units from four to two.

The equipment addressed in this license amendment will be located at 542 Hammett Road in Enfield, Maine.

SBC has requested an amendment to their license in order to add a chip dryer (Dryer #1).

In addition, the Department is taking this opportunity to update visible emission standards as necessary due to recent changes to 06-096 Code of Maine Rules (C.M.R.) ch. 101, *Visible Emissions Regulation*.

B. Emission Equipment

The following equipment is addressed in this air emission license amendment:

Process Equipment

Equipment	Production Rate [a]	Stack #
Dryer #1	2.4 ton/hr green chips 1.5 ODT/hr [b]	2

[a] Throughput rate is approximate.
[b] ODT/hr = Oven-dried tons per hour, i.e., wood at 20% moisture

C. 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.
The modification of a minor source is considered a major or minor modification based on whether or not expected emission increases exceed the "Significant Emissions" levels as defined in the Department's *Definitions Regulation*, 06-096 Code of Maine Rules (C.M.R.) ch. 100. The emission increases are determined by subtracting the current licensed annual emissions preceding the modification from the maximum future licensed annual emissions, as follows:

Pollutant	Current License (tpy)	Future License (tpy)	Net Change (tpy)	Significant Emission Levels
PM	5.5	10.5	+5.0	100
PM_{10}	5.5	10.8	+5.3	100
$PM_{2.5}$	5.5	10.8	+5.3	100
SO_2	0.1	0.1	–	100
NO_x	10.0	10.0	–	100
CO	3.7	3.7	–	100
VOC	0.3	22.5	+22.2	100

This modification is determined to be a minor modification and has been processed as such.

D. Facility Classification

The facility is licensed as follows:

- As a natural minor source of criteria pollutants, 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.

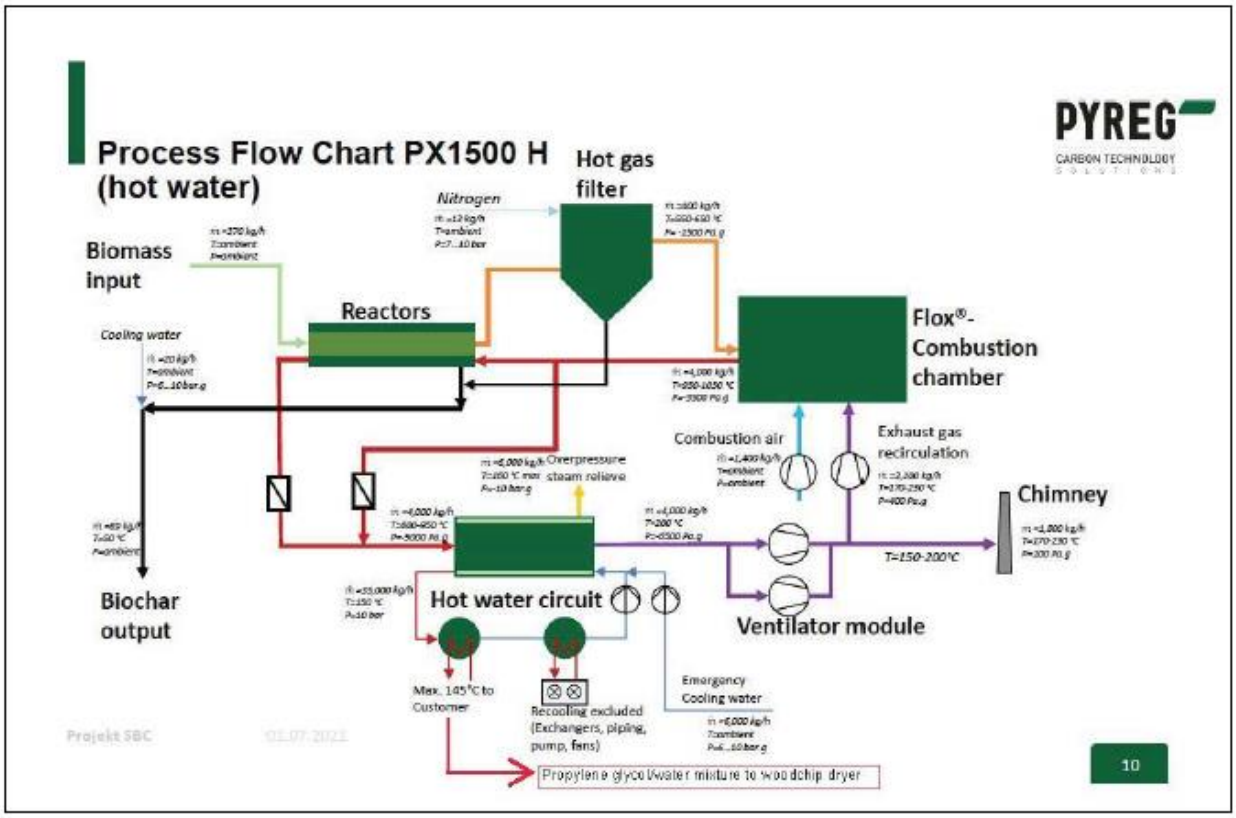
B. Project Description

SBC utilizes two PYREG carbonization units designed to convert dry (20% moisture) woodchips to biochar. However, SBC has not been able to source woodchips at this moisture level. Therefore, SBC is proposing to install and operate a new chip dryer to reduce the moisture content of green woodchips (approximately 50% moisture) to 20% moisture for use in their process.

C. Dryer #1

SBC proposes to install an indirect contact dryer (Dryer #1) which will be a STELA model BTLU 1/3000-6 belt dryer. Dryer #1 will have a maximum feed rate of approximately 2.4 ton/hr of green woodchips and a corresponding production rate of approximately 1.5 ton/hr of dry chips at 20% moisture (1.5 ODT/hr).

Figure 1

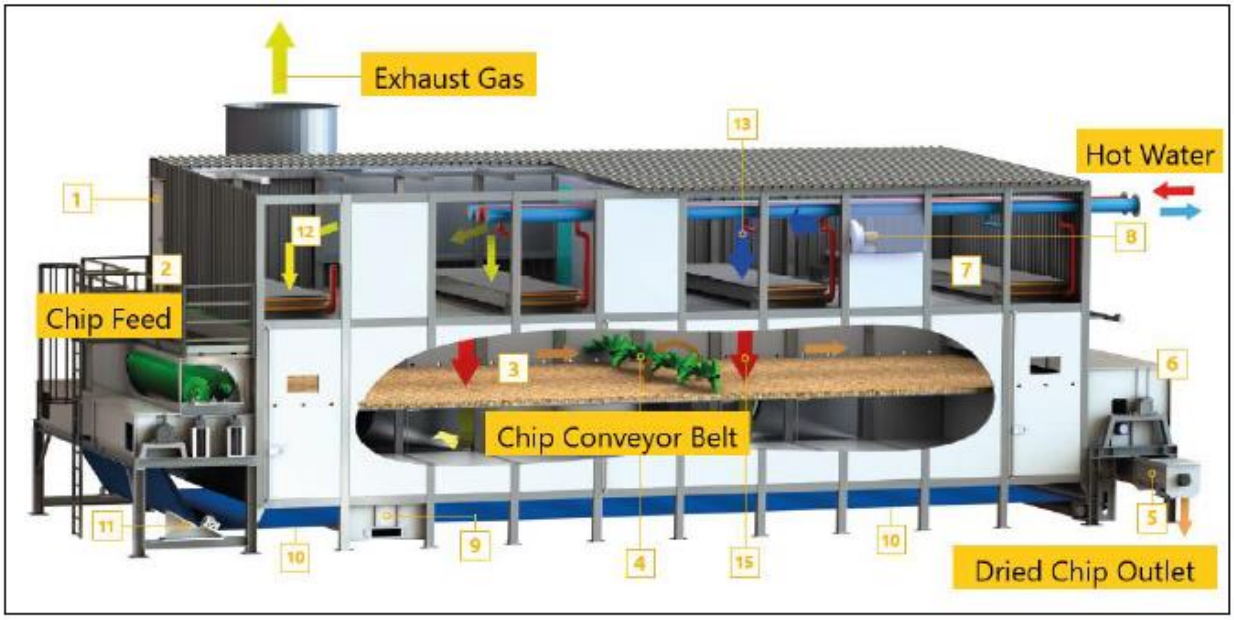


As shown in Figure 1 above, the previously licensed process equipment includes a FLOX combustion chamber and hot water circuit. A portion of the FLOX combustion chamber

exhaust bypasses the PYREG reactors and enters a heat exchanger that generates a pressurized water stream. That water stream leaves the heat exchanger at approximately 300 °F. SBC proposes to install a second heat exchanger that will use a propylene glycol and water mixture to cool the water stream. The propylene glycol/water mixture will exit this heat exchanger at approximately 293 °F.

The propylene glycol/water stream will be directed to Dryer #1 (shown in Figure 2 below) where it will pass through a third heat exchanger where fresh air is warmed to approximately 234 °F. The heated air is directed down through the wood chips that are passing through the dryer on an electric-driven belt conveyor. The belt is made of a woven material with 560-micron openings that limits the amount of dust that can transfer through it. The belt is continuously cleaned and dust collected prior to collecting fresh wood chips. Exhaust from Dryer #1 will vent through a stack (Stack #2) that exhausts at 23 feet above ground level.

Figure 2



1. BACT Findings

SBC submitted a BACT analysis for control of emissions from Dryer #1.

a. <u>Particulate Matter (PM, PM_{10}, $PM_{2.5}$)</u>

Both filterable and condensable particulate matter are expected from operation of Dryer #1. Filterable particulate matter is generated from wood particles being entrained in the air stream. Condensable particulate matter may be emitted from volatile matter driven from the wood as it dries.

(1) Identify Potential Control Options

Potential post-combustion control technologies for particulate matter considered include electrostatic precipitators (ESP), wet scrubbers, multicyclones, and baghouses.

ESPs/WESPs

ESPs work by charging particles in the exhaust stream with a high voltage, oppositely charging a collection surface where the particles accumulate, removing the collected dust by a rapping process, and collecting the dust in hoppers. In wet ESPs (WESPs), the collectors are either intermittently or continuously washed by a spray of liquid, usually water. Instead of collection hoppers, a drainage system is used.

Wet Scrubbers

Wet scrubbers remove PM from gas streams primarily through impaction and, to a lesser extent, other mechanisms such as interception and diffusion. A scrubbing liquid (typically water) is sprayed countercurrent to the exhaust gas stream. Contact between the larger scrubbing liquid droplets and the suspended particulates removes the PM from the gas stream. Entrained liquid droplets then pass through a mist eliminator (coalescing filter) which causes the droplets to become heavier and fall out of the exhaust stream.

Multicyclones

Mechanical separators include cyclonic and inertial separators. In a multicyclone, centrifugal force separates larger PM from the gas stream. The exhaust gas enters a cylindrical chamber on a tangential path and is forced along the outside wall of the chamber at a high velocity, causing the PM to impact collectors on the outer wall of the unit and fall into a hopper for collection.

Baghouses

Baghouses consist of a number of fabric bags placed in parallel that collect particulate matter on the surface of the filter bags 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.

(2) Eliminate Infeasible Control Options

ESPs/WESPs

ESPs are only able to collect particles and droplets that can be electrostatically charged. They provide little to no control of condensable particulate matter. Further, it is expected that the collection plates would become fouled and blinded by organic compounds. Therefore, use of an ESP to control emissions

of particulate matter from Dryer #1 was determined not to be technically feasible.

The ability of a WESP to absorb water-soluble compounds diminishes as the recirculating liquid becomes saturated with these compounds. A WESP produces significant amounts of wastewater effluent that SBC does not have the infrastructure to manage or treat. Additionally, the cost of control was estimated to be in excess of $40,000 per ton based on the expected flowrate from Dryer #1 and EPA's Air Pollution Control Technology Fact Sheet for Wet ESPs, EPA-452/F-03-030. Therefore, use of a WESP to control emissions of particulate matter from Dryer #1 was determined to have too many adverse environmental tradeoffs as well as not being economically feasible.

Wet Scrubbers

Similar to WESPs, the ability of the equipment to remove water-soluble compounds diminishes as the recirculating liquid becomes saturated, and SBC does not have the infrastructure to manage or treat the wastewater effluent. Additionally, the cost of control was estimated to be in excess of $25,000 per ton based on the expected flowrate from Dryer #1 and EPA's Air Pollution Control Technology Fact Sheet for Venturi Scrubbers, EPA-452/F-03-017. Therefore, use of a wet scrubber to control emissions of particulate matter from Dryer #1 was determined to have too many adverse environmental tradeoffs as well as not being economically feasible.

Multicyclones

In the Department's experience, multicyclones work poorly in conditions where there is high moisture content and low stack gas temperature such as is expected in this equipment. Water and organic compounds can condense inside the multicyclone causing particulate matter to stick to the inside and eventually clog the equipment. Therefore, use of a multicyclone to control emissions of particulate matter from Dryer #1 was determined not to be technically feasible.

Baghouses

Similar to multicyclones, baghouses do not perform well under conditions where water vapor and/or organic compounds can condense inside the equipment. The bags can quickly become blinded dramatically increasing backpressure in the system and forcing a shutdown. Therefore, use of a baghouse to control emissions of particulate matter from Dryer #1 was determined not to be technically feasible.

(3) Ranking of Control Options

There are no control options for control of emissions of particulate matter from Dryer #1 that are both technically and economically feasible and that do not have significant adverse environmental impacts.

(4) Determination

The Department finds that there are no available feasible add-on control options for reducing emissions of particulate matter from Dryer #1. SBC proposed the use of a dryer system with an integrated belt as a basic filter system and emission limits of 0.76 lb/hr for PM and 0.80 lb/hr for PM_{10} and $PM_{2.5}$. These proposed emission limits were based on emission factors from EPA's Compilation of Air Emission Factors (AP-42), Fifth Edition, Volume 1, Chapter10, Table 10.6.1-1 for indirect-heated conveyor dryers at oriented strandboard manufacturing facilities.

Emissions of particulate matter, especially condensable particulate matter, are variable and highly dependent on equipment design and species dried. For these reasons, a safety factor of 1.5 has been applied to the emission factors derived from AP-42 to conservatively establish BACT emission limits for particulate matter.

The Department finds that emission limits of 1.14 lb/hr for PM and 1.20 lb/hr for PM_{10} and $PM_{2.5}$ represent BACT for emissions of particulate matter from Dryer #1. These standards apply at all times.

The Department finds that a visible emissions limit of 10% opacity on a six-minute block average basis from Dryer #1 represents BACT.

Dryer #1 is subject to the following visible emission stand pursuant to 06-096 C.M.R. ch. 101, § 4(B)(4):

> Visible emissions from Dryer #1 shall not exceed 20% opacity on a six-minute block average basis

The Department has determined that this visible emission limit established pursuant to BACT is more stringent than the applicable visible emissions standards in 06-096 C.M.R. ch. 101. Therefore, the visible emissions limit has been streamlined to the more stringent BACT limit, and only this more stringent limit shall be included in the Order section of this air emission license.

(5) Compliance Demonstration

Compliance with the particulate matter limits shall be demonstrated through performance testing 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. SBC 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 SBC elects to demonstrate compliance using EPA Test Method 5, all filterable PM will be assumed to be $PM_{2.5}$.

b. Volatile Organic Compounds (VOC)

Drying of wood chips releases naturally occurring VOC from the wood.

(1) Identify Potential Control Options

Potential post-combustion control technologies for VOC considered include WESPs, wet scrubbers, thermal oxidation, and condensers.

WESPs
Although primarily used for control of particulate matter, WESPs may also control some VOC. They utilize a pre-quench to cool and saturate the exhaust gas prior to entering the collection chamber. The pre-quench section may remove a fraction of highly water-soluble VOC.

Wet Scrubbers
Similar to WESPs, wet scrubbers have the potential to remove some water-soluble VOC by directly contacting the exhaust stream with water.

Thermal Oxidation
A thermal oxidizer raises the temperature of the exhaust stream to oxidize (burn) or pyrolyze (thermally break down) the constituents. Complete combustion of VOC produces carbon dioxide and water. Regenerative thermal oxidizers (RTOs) are designed to preheat the inlet emission stream with heat recovered from the exhaust gases with a heat recovery rate of around 90%. Gases entering an RTO are heated by passing through preheated beds packed with a ceramic media. A gas burner brings the preheated emissions up to an incineration temperature of approximately 1,600 °F in a combustion chamber with sufficient gas residence time to complete the combustion. Combustion gases then pass through a cooled ceramic bed where heat is extracted. By reversing the flow through the beds, the heat transferred from the combustion exhaust air preheats the gases to be treated, thereby reducing auxiliary fuel requirements.

Condensers
Condensation systems, or condensers, utilize a refrigeration source to cool the exhaust stream to condense VOC from a gaseous phase to a liquid phase. They are most often used for exhaust streams with high concentrations of VOC to be condensed. Recovery efficiencies greater than 95% can be achieved for exhaust streams with VOC concentrations of 5,000 – 10,000 ppmv or greater. Recovery efficiencies are significantly less for exhaust streams with lower concentrations.

(2) Eliminate Infeasible Control Options

WESPs and Wet Scrubbers
The ability of a WESP or wet scrubber to absorb water-soluble compounds diminishes as the recirculating liquid becomes saturated with these compounds. Both produce significant amounts of wastewater effluent that SBC does not have the infrastructure to manage or treat.

Additionally, the cost of control was estimated to be in excess of $19,000 per ton for either a WESP or a wet scrubber. This assessment is based on EPA's Air Pollution Control Technology Fact Sheets[1] which list an estimated annualized cost[2] of $9 – $47 per scfm for WESPs and $5.7 – $193 per scfm for wet scrubbers. The analysis conservatively assumed $10 per scfm which converts to $17.36 per scfm in 2024 dollars. The analysis also assumed a 50% control efficiency, because testing at another wood product manufacturer in Maine has shown that VOC removal efficiencies for the type of compounds that are released from wood drying are not likely to exceed 50%.

Therefore, use of a WESP or wet scrubber to control emissions of VOC from Dryer #1 was determined to have too many adverse environmental tradeoffs as well as to not being economically feasible.

Thermal Oxidation
The cost of control using an RTO was estimated to be in excess of $21,000 per ton based on the expected flowrate from Dryer #1 and EPA's Air Pollution Control Technology Fact Sheet for Thermal Oxidizers, EPA-452/F-03-021. Therefore, use of an RTO to control emissions of VOC from Dryer #1 was determined not to be economically feasible.

Condensers
The VOC concentration in the exhaust from Dryer #1 is expected to be below 100 ppmv and made up of various naturally occurring compounds, resulting in an expected low control efficiency. Therefore, the use of condensers is determined to not be technically feasible for control of VOC from Dryer #1.

(3) Ranking of Control Options

There are no control options that are both technically and economically feasible and that do not have significant adverse environmental impacts for control of emissions of VOC from Dryer #1.

[1] EPA's Air Pollution Control Technology Fact Sheets for Wet ESPs (EPA-452/F-03-030) and for Venturi Scrubbers (EPA-452/F-03-17). conservatively assuming an annualized cost of $10 per scfm which was then converted from 2002 to 2024 dollars. Also assumes a 50% control efficiency.
[2] Listed in 2002 dollars.

(4) Determination

The Department finds that there are no available feasible add-on control options for reducing emissions of VOC from Dryer #1.

Emissions of VOC are highly dependent upon the species of wood dried. Softwoods (such as spruce, fir, and pine) tend to release more VOC than hardwood, and pine releases significantly more VOC than other softwood species. SBC expects to dry primarily spruce and fir but would like to maintain the flexibility to process some pine.

The dryer manufacturer provided estimated VOC emissions of 1.45 lb/ODT or 2.20 lb/hr based on testing conducted in Europe for spruce and fir. Due to the highly variable nature of VOC estimates and potential differences in wood grown in Maine compared to Europe, a safety factor of 1.5 has been applied to this emission factor resulting in 3.30 lb/hr for VOC from Dryer #1 from spruce/fir.

Emissions of VOC from the drying of pine have been estimated to be 8.1 lb/ODT or 12.15 lb/hr based on emission factors in AP-42 Table 10.6.1-3 for direct-fired rotary dryers drying softwood. Although Dryer #1 is not direct-fired or a rotary dryer, these numbers are expected to conservatively represent worst-case emissions.

SBC has proposed limiting the drying of pine to 20% of Dryer #1's maximum capacity (by weight) on an annual basis. This is equivalent to processing 4,200 tons of green pine per year and limits emissions of VOC to 10.6 tpy from pine and 22.2 tpy for all wood species combined.

The Department finds the following to represent BACT for emissions of VOC from Dryer #1:

(i) A VOC emission limit of 3.30 lb/hr when processing only non-pine species;
(ii) A VOC emission limit of 12.15 lb/hr when processing only pine;
(iii) A pro-rated VOC emission limit when processing mixtures of pine and non-pine species based on the emission limits above and the weight of the green material being dried;
(iv) An annual throughput limit of 4,200 tons of green pine per year on a calendar year basis; and
(v) An annual throughput limit of 21,000 tons of green wood chips per year for all wood species combined.

These standards apply at all times.

(5) Compliance Demonstration (lb/hr limits)

Compliance with the VOC emission limits shall be demonstrated through performance testing conducted within 180 days of startup.

SBC is not required to dry pine during the initial compliance test. However, SBC shall conduct performance testing for VOC while processing at least 50% pine (on a green basis) within 180 days of December 31st at the end of any calendar year if more than 2,000 tons of green pine is dried during the previous year.

SBC shall record the following data on the day of testing and include the data in the performance test report:

(i) The amount (weight), corresponding time, and species of all green wood added to the infeed for Dryer #1 for at least six consecutive hours that encompass all test runs on the day of testing and determine the average hourly dryer feed rate for each species for that day; and
(ii) The moisture content of the wood entering and exiting Dryer #1. A minimum of one sample (each) per hour shall be collected.

(6) Compliance Demonstration (throughput limits)

SBC shall keep the following records for Dryer #1:

(i) Amount (tons) of green pine processed in Dryer #1 on a monthly and calendar year total basis; and
(ii) Amount (tons) of green wood processed in Dryer #1 (all species combined) on a monthly and calendar year total basis.

2. 06-096 C.M.R. ch. 105

Emissions from Stack #2 are subject to *General Process Source Particulate Emission Standard,* 06-096 C.M.R. ch. 105, for emissions of PM, because Dryer #1 is considered a general process source. This rule limits emissions of PM on a sliding scale based on the process weight rate, i.e., the amount of material dried. Process weight rate is the average total weight of all materials introduced into the system excluding fuels, moisture, and combustion air[3]. The maximum process rate is assumed to be 1.5 ODT/hr resulting in a PM emission limit of 4.62 lb/hr.

The Department has determined that the PM emission limit established pursuant to BACT is more stringent than the applicable standard in 06-096 C.M.R. ch. 105. Therefore, the PM limit for Dryer #1 has been streamlined to the more stringent BACT

[3] See definition of "Process weight rate" in 06-096 C.M.R. ch. 100, § 140.

limit, and only this more stringent limit shall be included in the Order section of this air emission license.

D. Performance Test Protocol

For any performance testing required by this license, SBC 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

E. Visible Emissions

In 2023, the Department completed rulemaking on revisions to *Visible Emissions Regulation*, 06-096 C.M.R. ch. 101. The revised rule went into effect on January 1, 2024. The following section addresses any necessary revisions to applicable requirements due to this rulemaking.

1. PYREG Units #1 - #2 (when firing propane)

The visible emissions standard for PYREG Units #1 - #2 has not changed. However, the citation is updated to 06-096 C.M.R. ch. 101, § 4(A)(3).

2. PYREG Units #1 - #2 (when firing syngas)

a. 06-096 C.M.R. ch. 101

PYREG Units #1 - #2 are subject to the following visible emissions standards pursuant to 06-096 C.M.R. ch. 101, § 4(A)(8):

> Visible emissions from PYREG Units #1 - #2 each shall not exceed 30% opacity on a six-minute block average basis, except for periods of startup, shutdown, or malfunction during which time SBC must meet the normal operating visible emissions standard or the following alternative visible emissions standard.
>
> During periods of startup, shutdown, or malfunction, visible emissions shall not exceed 40% opacity on a six-minute block average basis. This alternative visible emissions standard shall not be utilized for more than two hours (20 consecutive six-minute block averages) per event. SBC shall keep records of the date, time, and duration of each event.

b. 06-096 C.M.R. ch. 115, BACT

PYREG Units #1 - #2 are subject to the following visible emissions standards pursuant to 06-096 C.M.R. ch. 115, BACT:

> Visible emissions from each PYREG unit when firing syngas shall not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BACT (A-1158-71-B-A, 10/13/2022)]

c. Streamlining

The Department has determined that the BACT visible emissions standard is more stringent than the applicable visible emissions standard in 06-096 C.M.R. ch. 101. Therefore, the visible emissions limit has been streamlined to the more stringent BACT limit, and only this more stringent limit shall be included in the Order section of this air emission license.

3. General Process Sources

The visible emission standard for general process sources (including conveyor belts, material handling cyclones, building vents, and storage bins or hoppers) has not changed. However, the citation is updated to 06-096 C.M.R. ch. 101, § 4(B)(4).

4. Fugitive Emissions

On January 1, 2024, the applicable visible emissions standard for Fugitive Emissions contained in 06-096 C.M.R. ch. 101 changed to the following:

> SBC shall not cause emissions of any fugitive dust during any period of construction, reconstruction, or operation without taking reasonable precautions. Such reasonable precautions shall be included in the facility's continuing program of best management practices for suppression of fugitive particulate matter. See 06-096 C.M.R. ch. 101, § 4(C) for a list of potential reasonable precautions.
>
> SBC shall not cause or allow visible emissions within 20 feet of ground level, measured as any level of opacity and not including water vapor, beyond the legal boundary of the property on which such emissions occur. Compliance with this standard shall be determined pursuant to EPA Test Method 22.
>
> [06-096 C.M.R. ch. 101, § 4(C)]

F. <u>Annual Emissions</u>

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 the following assumptions:

- Operating each PYREG unit for 8,760 hr/year;
- Propane emissions are not included because the normal hourly emissions from combusting syngas are higher;
- Operating Dryer #1 for 8,760 hr/year;
- Processing no more than 4,200 ton/year of green pine (assumed 50% moisture) in Dryer #1; and
- Processing no more than 21,000 ton/year (assumed 50% moisture) of all species combined in Dryer #1.

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)

	PM	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**NO_x**	**CO**	**VOC**
PYREG Units #1 - #2	5.5	5.5	5.5	0.1	10.0	3.7	0.3
Dryer #1	5.0	5.3	5.3	–	–	–	22.2
Total TPY	**10.5**	**10.8**	**10.8**	**0.1**	**10.0**	**3.7**	**22.5**

Pollutant	**Tons/year**
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_{10}	25
$PM_{2.5}$	15
SO_2	50
NO_x	50
CO	250

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 amendment.

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 SBC to submit additional information and may require an ambient air quality impact analysis at that time.

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 Amendment A-1158-71-C-A subject to the conditions found in Air Emission License A-1158-71-A-N, in amendment A-1158-71-B-A, and the following conditions.

Severability. The invalidity or unenforceability of any provision of this License Amendment or part thereof shall not affect the remainder of the provision or any other provisions. This License Amendment 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 replaces Condition (17)(F)(1) of Air Emission License A-1158-71-B-A:

(17) **PYREG Units #1 - #2**

F. Visible Emissions

1. Visible emissions from the each PYREG unit firing propane shall not exceed 10% opacity on a six-minute block average basis.
[06-096 C.M.R. ch. 101, § 4(A)(3)]

The following replace Conditions (18) and (19) of Air Emission License A-1158-71-A-N:

(18) **General Process Sources**

Visible emissions from any general process source (including conveyor belts, material handling cyclones, building vents, and storage bins or hoppers) shall not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, § 4(B)(4)]

(19) **Fugitive Emissions**

1. SBC shall not cause emissions of any fugitive dust during any period of construction, reconstruction, or operation without taking reasonable precautions. Such reasonable precautions shall be included in the facility's continuing program of best management practices for suppression of fugitive particulate matter. See 06-096 C.M.R. ch. 101, § 4(C) for a list of potential reasonable precautions.

2. SBC shall not cause or allow visible emissions within 20 feet of ground level, measured as any level of opacity and not including water vapor, beyond the legal boundary of the property on which such emissions occur. Compliance with this standard shall be determined pursuant to 40 C.F.R. Part 60, Appendix A, Method 22.

[06-096 C.M.R. ch. 101, § 4(C)]

Condition (17)(G)(3) of Air Emission License A-1158-71-B-A is Deleted.

The following are new conditions:

(20) **Performance Test Protocol**

For any performance testing required by this license, SBC 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]

(21) **Dryer #1**

A. SBC is licensed to install and operate Dryer #1. SBC shall notify the Department in writing of the date of initial startup of Dryer #1 within 30 days of its occurrence. [06-096 C.M.R. ch. 115, BACT]

B. The annual throughput for Dryer #1 shall not exceed the following on a calendar year total basis:

1. 4,200 green tons per year of pine; and
2. 21,000 green tons per year for all species combined.

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

C. SBC shall keep the following records for Dryer #1:

1. Amount (tons) of green pine processed in Dryer #1 on a monthly and calendar year total basis; and
2. Amount (tons) of green wood processed in Dryer #1 (all species combined) on a monthly and calendar year total basis.

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

D. Emissions of particulate matter shall not exceed the following (1-hour basis):
[06-096 C.M.R. ch. 115, BACT]

Emission Unit	PM (lb/hr)	PM_{10} (lb/hr)	$PM_{2.5}$ (lb/hr)
Dryer #1	1.14	1.20	1.20

E. Emissions of VOC shall not exceed the following:

1. 3.30 lb/hr when processing only non-pine species;
2. 12.15 lb/hr when processing only pine; and
3. A pro-rated VOC emission limit when processing mixtures of pine and non-pine species based on the emission limits in (1) and (2) above and the weight of the green material being dried.

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

F. The exhaust from Dryer #1 shall be a minimum of 23 feet above ground level.
[06-096 C.M.R. ch. 115, BACT]

G. Visible emissions from Dryer #1 shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BACT]

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

1. SBC shall conduct performance testing for PM, PM_{10}, $PM_{2.5}$, and VOC within 180 days of startup of Dryer #1 and upon Department request thereafter.

2. Performance tests for PM shall be conducted in accordance with EPA Test Method 5 or other methods as approved by the Department.

3. Performance tests for PM_{10} and $PM_{2.5}$ shall be conducted 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 SBC elects to demonstrate compliance using EPA Test Method 5, all filterable PM will be assumed to be $PM_{2.5}$.

4. Performance tests for VOC shall be conducted in accordance with EPA Test Method 25A or other method as approved by the Department.

5. Testing shall be performed under normal representative operating conditions or other conditions as approved by the Department. SBC is not required to dry pine during the initial compliance test. However, SBC shall conduct performance testing for VOC while processing at least 50% pine (on a green basis) within 180 days of December 31st at the end of any calendar year if more than 2,000 tons of green pine is dried during the previous year.

6. SBC shall record the following on the day of testing and include the data in the performance test report:

    a. The amount (weight), corresponding time, and species of all green wood added to the infeed for Dryer #1 for at least six consecutive hours that encompass all test runs on the day of testing and determine the average hourly dryer feed rate for each species for that day; and
    b. The moisture content of the wood entering and exiting Dryer #1. A minimum of one sample (each) per hour shall be collected.

(22) If the Department determines that any parameter value pertaining to construction and operation of the 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, SBC may be required to submit additional information. Upon written request from the Department, SBC 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 15th DAY OF MAY, 2024.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____ for _____
MELANIE LOYZIM, COMMISSIONER

The term of this license amendment shall be ten (10) years from the issuance of Air Emission License A-1158-71-A-N (issued 11/12/2021).

[Note: If a renewal application, determined as complete by the Department, is submitted prior to expiration of this license, then pursuant to Title 5 M.R.S. § 10002, all terms and conditions of the license shall remain in effect until the Department takes final action on the license renewal application.]

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 2/7/2024
Date of application acceptance: 2/7/2024

Date filed with the Board of Environmental Protection:

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

FILED

MAY 15, 2024

State of Maine
Board of Environmental Protection