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

DEPARTMENT ORDER

Lignetics of Maine, LLC **Franklin County** **Strong, Maine** **A-342-71-Y-R**	**Departmental** **Findings of Fact and Order** **Air Emission License** **Renewal**

FINDINGS OF FACT

After review of the air emission license renewal 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

Lignetics of Maine, LLC (Lignetics) has applied to renew its Air Emission License for the operation of emission sources associated with its pellet manufacturing facility.

The equipment addressed in this license is located at 30 Norton Hill Road in Strong, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Boiler

Equipment	Max. Capacity (MMBtu/hr)	Maximum Firing Rate (lb/hr)	Fuel Type	Date of Install.	Stack #
Boiler #1	33.7 [a]	9,361 [b]	Biomass, Specification Waste Oil	1980	1

[a] This is the boiler's maximum heat input. However, this unit is limited to firing no more than 20 ton/day.
[b] Based on a heat content of 3,600 Btu/lb for wet wood/bark. This is equivalent to a moisture content of 60%.

Dryer

Equipment	Max. Capacity (MMBtu/hr)	Maximum Firing Rate (lb/hr)	Fuel Type	Date of Install.	Stack #
Dryer #1 [c]	40	8,889 [d]	Biomass	2010	2

[c] Dryer #1 refers to the combination of the dryer with its associated burner.

[d] Based on a heat content of 4,500 Btu/lb for a mixture of wet and dry wood. This is equivalent to a moisture content of 50%.

Lignetics 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, Lignetics 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.

Process Equipment

Equipment	Production Rate	Pollution Control Equipment	Stack #
Pelletizers 1, 2, 3	5.5 ton/hr each	Baghouse	3
Material Handling	various	cyclones	N/A

C. 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. Lignetics should consult with the Department before adding any new biomass type to its fuel mix.

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.

Specification Waste Oil means a petroleum-based oil which, through use or handling, has become unsuitable for its original purpose due to the presence of impurities or loss of original properties, and meets all of the following requirements:

- It has sufficient liquid content to be free flowing;
- It meets all of the constituent and property standards as specified in *Waste Oil Management Rules*, 06-096 C.M.R. ch. 860;
- It does not otherwise exhibit hazardous waste characteristics; and
- It has not been mixed with a hazardous waste.

D. 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 application for Lignetics does not include the licensing of increased emissions or the installation of new or modified equipment. Therefore, the license is considered to be a renewal of currently licensed emission units only and has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 Code of Maine Rules (C.M.R.) ch. 115.

E. Facility Classification

With the annual fuel limit on Boiler #1 and the annual operating hours limit on Dryer #1, the facility is licensed as follows:

- As a synthetic minor source of air emissions for criteria pollutants, because Lignetics is subject to license restrictions that keep facility emissions below major source thresholds for PM_{10} and $PM_{2.5}$; 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 existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;
- the effectiveness of available alternatives for reducing emissions from the source being considered; and
- the economic feasibility for the type of establishment involved.

B. Process Description

Lignetics receives wood residues and wood chips by trailer truck. The wood is stored in a covered outdoor fuel shed and is then transferred via bucket loader to the wood feeder, which controls the feed rate through the system.

The material is then conveyed to Dryer #1 where green wood is dried to approximately 10% moisture. After exiting the dryer, the exhaust gas and dried wood fines go through four process cyclones operating in parallel, separating the exhaust gas from the wood. A portion of the exhaust gas is recycled back to prior to the dryer inlet. The remaining dryer exhaust gas is sent to a multiclone and then to the dryer stack.

The dried wood is reduced in size by the dry hammermill, which has a cyclone collector and air system for collecting the wood fines. The fines drop into the system drag conveyor and are pneumatically conveyed to the dry wood storage and metering bin. The fan discharge air is returned to the burner hot gas manifold to be re-used through the dryer system.

The dry, hammermilled wood is metered to one of the three pelletizers. Pellets are formed through an extrusion process which includes heat and evaporation of moisture. Once the pellets are formed, they are vacuumed from the pelletizers and go through a tumbler and screening process which removes fines and sharp edges. The fines are returned to the pelletizers' in-feed. Emissions of particulate matter from the pelletizers is controlled by a baghouse. The finished pellets are conveyed to storage silos.

The pellets are then conveyed to the 'form, fill, and seal' automatic bagging system. The pellets are put into bags made from rolls of polyethylene, pre-printed, center-folded film. The 40-pound bags are unitized and wrapped in one ton units on pallets. The pallets are loaded onto trucks by forklift at the loading dock.

C. Boiler #1

Lignetics operates Boiler #1 to provide building heat, domestic hot water, and to power a steam turbine. It was installed in 1980 and fires biomass, including bark, screen fines, and wood chips. Specification waste oil generated on-site as liquid or oil-soaked rags may be mixed with the biomass and burned in the boiler.

Boiler #1 has a maximum heat input capacity of 33.7 MMBtu/hr assuming a heat content of 3,600 Btu/lb for wet wood/bark. This is equivalent to a moisture content of 60%. Fuel use for Boiler #1 is capped at 2.25 ton/hour to limit the 1-hour average emissions for NO_x and CO. Fuel use is capped at 20.0 ton/day to limit the 24-hour average emissions for particulate matter and at 7,300 ton/year to limit the annual emissions of all pollutants.

Lignetics uses a multiclone to control emissions of particulate matter from Boiler #1. The boiler exhausts through its own stack with a height of 90 feet. Other equipment associated with the boiler include an oxygen monitor (O_2 monitor) to track combustion efficiency, an induced draft fan on the boiler exhaust, and a stack economizer to increase the efficiency of the boiler.

1. BPT Findings

The BPT emission limits for Boiler #1 were based on the following:

PM	–	0.30 lb/MMBtu from 06-096 C.M.R. ch. 103 and a fuel limit of 20 ton/day
$PM_{10}/PM_{2.5}$	–	0.30 lb/MMBtu from 06-096 C.M.R. ch. 103 and 0.017 lb/MMBtu based on AP-42 Table 1.6-1 dated 4/22 and a fuel limit of 20 ton/day
SO_2	–	0.025 lb/MMBtu based on AP-42 Table 1.6-2 dated 4/22
NO_x	–	0.3 lb/MMBtu and a fuel limit of 2.25 ton/hr from 06-096 C.M.R. ch. 115, BPT
CO	–	1.0 lb/MMBtu and a fuel limit of 2.25 ton/hr from 06-096 C.M.R. ch. 115, BPT
VOC	–	0.017 lb/MMBtu based on AP-42 Table 1.6-3 dated 4/22
Visible Emissions	–	06-096 C.M.R. ch. 101, § 4(A)(5)

The BPT emission limits for Boiler #1 are the following:

Unit	Pollutant	lb/MMBtu
Boiler #1	PM	0.30

Unit	PM (lb/hr)	PM_{10} (lb/hr)	$PM_{2.5}$ (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1 1-hour block avg	10.11	10.68	10.68	0.84	4.86	16.20	0.57
Boiler #1 24-hour block avg	1.80	1.90	1.90	–	–	–	–

Boiler #1 shall be limited to 2.25 tons/hr, 20 tons/day and 7,300 tons/year of biomass corrected to 60% moisture (3,600 Btu/lb). The tons/year fuel use limit shall be on a 12-month rolling total basis.

Specification waste oil generated on-site may be mixed with the boiler's wood fuel, not to exceed 60 gallons/month. Oily rags permeated with specification waste oil and originating at the facility may be fired in the boiler. The specification waste oil shall meet the definition in *Waste Oil Management Rules*, 06-096 C.M.R. ch. 860.

2. Visible Emissions

Visible emissions from Boiler #1 shall not exceed 30% opacity on a six-minute block average basis, except for periods of startup, shutdown, or malfunction during which time Lignetics shall either 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. If this alternative visible emissions standard is utilized, Lignetics shall keep records of the date, time, and duration of all startup, shutdown, and malfunction events and provide them to the Department upon request.

3. Periodic Monitoring

The following periodic monitoring requirements are applicable to Boiler #1:

a. Boiler Fuel Use

Lignetics shall maintain records of all biomass and specification waste oil fired in Boiler #1.

Compliance with the biomass fuel use limits shall be demonstrated through records of hourly and daily fuel use. Fuel use records shall be based on bucket loads of fuel fed into the boiler system. Lignetics shall maintain a log of the number of buckets of fuel fired on an hourly basis, the weight of each bucket, and the moisture content of the fuel. The moisture content of the fuel shall be measured and recorded on a daily basis. Records of biomass fuel use shall be kept on both an as-fired basis and corrected to a 60% moisture (3,600 Btu/lb) basis. Correction for moisture content shall be made according to the following formula:

$$Tons_{M2} = \frac{Tons_{M1} \times (1 - M1)}{(1 - M2)}$$

Where:

$Tons_{M1}$ = Tons of biomass as fired
$Tons_{M2}$ = Tons of Biomass at 60% moisture
$M1$ = Moisture content of biomass as fired expressed as fraction (e.g., 0.55)
$M2$ = 0.60 (i.e., the moisture content of biomass with a heat content of 3,600 Btu/lb)

Records of on-site generated specification waste oil and specification waste oil permeated oily rags fired in the boiler shall be maintained on a monthly basis. An analysis of a representative waste oil sample shall be kept on-site.

b. Boiler Multiclone

Lignetics shall keep a log of all maintenance (planned or unplanned) conducted on the boiler multiclone including a description of the maintenance and the date, time, and reason for the maintenance.

c. Boiler Oxygen (O_2) Curve

Lignetics previously establish an O_2/boiler load curve and shall operate within the curve to maximize boiler efficiency and minimize air emissions. Lignetics shall not re-establish the O_2/boiler load curve without prior written approval from the Department.

The O_2 monitor shall be calibrated in accordance with the manufacturer's recommendations. Records of the oxygen content and boiler load shall be maintained for all boiler operating times.

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

Due to the year of manufacture, Boiler #1 is not subject to *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units* 40 C.F.R.

Part 60, Subpart Dc for units greater than 10 MMBtu/hr manufactured after June 9, 1989. [40 C.F.R. § 60.40c]

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

Boiler #1 is subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*, 40 C.F.R. Part 63, Subpart JJJJJJ. The unit is considered an existing biomass boiler rated more than 10 MMBtu/hr. [40 C.F.R. §§ 63.11193 and 63.11195]

Applicable federal 40 C.F.R. Part 63, Subpart JJJJJJ requirements include the following. Additional rule information can be found on the following website: https://www.epa.gov/stationary-sources-air-pollution/compliance-industrial-commercial-and-institutional-area-source.

a. Work Practice Requirements

(1) Boiler Tune-Up Program

(i) A boiler tune-up program shall be implemented. [40 C.F.R. § 63.11223]

(ii) Tune-ups shall be conducted at a frequency specified by the rule and based on the size, age, and operations of the boiler. Boiler #1 is not a seasonal, limited use, or small oil-fired boiler. Boiler #1 does have an oxygen monitor, but it does not automatically adjust combustion and it is not considered to be an oxygen trim system. Therefore, the tune-up frequency for Boiler #1 shall be every two years. [40 C.F.R. § 63.11223(a) and Table 2]

(iii) The boiler tune-up program, conducted to demonstrate continuous compliance, shall be performed as specified below:

1. As applicable, inspect the burner, and clean or replace any component of the burner as necessary. Delay of the burner inspection until the next scheduled shutdown is permitted, not to exceed 36 months from the previous inspection. [40 C.F.R. § 63.11223(b)(1)]
2. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern, consistent with the manufacturer's specifications. [40 C.F.R. § 63.11223(b)(2)]
3. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure it is correctly calibrated and functioning properly. Delay of the inspection until the next scheduled shutdown is permitted, not to exceed 36 months from the previous inspection. [40 C.F.R. § 63.11223(b)(3)]

4. Optimize total emissions of CO, consistent with manufacturer's specifications. [40 C.F.R. § 63.11223(b)(4)]
5. Measure the concentration in the effluent stream of CO in parts per million by volume (ppmv), and oxygen in volume percent, before and after adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer. [40 C.F.R. § 63.11223(b)(5)]
6. If a unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 days of start-up. [40 C.F.R. § 63.11223(b)(7)]

(iv) Tune-Up Report: A tune-up report shall be maintained onsite and, submitted to the Department and/or EPA upon request. The report shall contain the following information:

1. The concentration of CO in the effluent stream (ppmv) and oxygen (volume percent) measured at high fire or typical operating load both **before** and **after** the boiler tune-up;

2. A description of any corrective actions taken as part of the tune-up of the boiler; and

3. The types and amounts of fuels used over the 12 months prior to the tune-up of the boiler, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit. [40 C.F.R. § 63.11223(b)(6)]

(2) Compliance Report

A compliance report shall be prepared by March 1st biennially which covers the previous two calendar years. The report shall be maintained by the source and submitted to the Department and/or to the EPA upon request. The report must include the items contained in §§ 63.11225(b)(1) and (2), including the following: [40 C.F.R. § 63.11225(b)]

(i) Company name and address;
(ii) A statement of whether the source has complied with all the relevant requirements of this Subpart;
(iii) A statement certifying truth, accuracy, and completeness of the notification and signed by a responsible official and containing the official's name, title, phone number, email address, and signature;
(iv) The following certifications, as applicable:
1. "This facility complies with the requirements in 40 C.F.R. § 63.11223 to conduct tune-ups of each boiler in accordance with the frequency specified in this Subpart."

2. "No secondary materials that are solid waste were combusted in any affected unit."
3. "This facility complies with the requirement in §§ 63.11214(d) and 63.11223(g) to minimize the boiler's time spent during startup and shutdown and to conduct startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available."

b. Recordkeeping

(1) Records shall be maintained consistent with the requirements of 40 C.F.R. Part 63, Subpart JJJJJJ including the following [40 C.F.R. § 63.11225(c)]:
(i) Copies of notifications and reports with supporting compliance documentation;
(ii) Identification of each boiler, the date of tune-up, procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned;
(iii) Records of the occurrence and duration of each malfunction of each applicable boiler; and
(iv) Records of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore the malfunctioning boiler.

(2) Records shall be in a form suitable and readily available for expeditious review. Each record must be kept for 5 years following the date of each recorded action. Each record must be kept on-site or be accessible from a central location by computer or other means that instantly provides access at the site for at least 2 years after the date of each recorded action. The records may be maintained off-site for the remaining 3 years. [40 C.F.R. § 63.11225(d)] Note: Standard Condition (8) of this license requires all records be retained for six years; therefore, the five-year record retention requirement of Subpart JJJJJJ shall be streamlined to the more stringent six-year requirement.

D. Dryer #1

Dryer #1 is a direct-contact, single-pass, rotary drum dryer with nominal throughput rate of approximately 16.4 oven-dried ton per hour (ODT/hr). Lignetics processes primarily hardwood species with a small amount of softwood for lubricity.

The burner associated with Dryer #1 has a maximum heat input capacity of 40 MMBtu/hr firing a combination of wet and dry biomass (15 – 55% moisture). For licensing purposes, the fuel is assumed to be biomass with a moisture content of 50% (4,500 Btu/lb). Records of fuel use shall be converted to a 50% moisture basis.

The green wood entering Dryer #1 is dried to approximately 10% moisture content by direct-vented burner exhaust mixed with recycled exhaust. A dryer fan pulls the air through the dryer and process cyclones which separate the exhaust gas from the wood. The exhaust gas goes through a multiclone. A portion of the exhaust may be recycled back to the dryer inlet and the remainder exits through a 96-foot tall stack (Stack #2). Previous licensing established a dryer operating limit of 8,322 hours/year.

In 2017, Lignetics installed a "Tee" where the combustion gases exit the burner that allows the facility to introduce and blend ambient air with the burner exhaust before introducing it to the dryer. In addition to allowing Lignetics to temper the gas sent to Dryer #1, this installation serves as a bypass stack in the event of an upset condition or emergency shutdown. Use of the bypass stack is limited to periods of startup, shutdown, and malfunction not to exceed one hour in duration.

1. BPT Findings

Controls for Dryer #1 include the use of a multiclone for particulate matter control, 90% excess air in the combustion chamber to provide oxygen while minimizing NO_x, and a combustion temperature between 1,600 °F and 1,850 °F to minimize CO emissions (formed below 1,600 °F) and NO_x emissions (formed above 1,850 °F). These controls shall continue to be required as BPT for Dryer #1.

a. Particulate Matter ($PM/PM_{10}/PM_{2.5}$)

Elevated temperatures in the dryer can lead to increased visible emissions from such systems. Therefore, Dryer #1 is limited to a dryer inlet temperature of no more than 825 °F.

Lignetics uses a multiclone to control emissions of filterable particulate matter from Dryer #1.

BPT for emissions of PM, PM_{10}, and $PM_{2.5}$ from Dryer #1 is the use of a multiclone, an operating limit of 8,322 hours per year (12-month rolling total basis), limiting the dryer inlet temperature to no more than 825 °F (on a 1-hour average), and the emission limits listed in the tables below. The emission limits for PM_{10} and $PM_{2.5}$ have been adjusted to account for condensable particulate matter.

b. Sulfur Dioxide (SO_2)

BPT for emissions of SO_2 from Dryer #1 is the use of biomass as a fuel for the burner and the emission limits listed in the tables below.

c. Nitrogen Oxides (NO_x) and Carbon Monoxide (CO)

BPT for emissions of NO_x and CO from Dryer #1 is operation within a temperature range of 1,600 °F to 1,850 °F and the emission limits listed in the tables below.

d. Volatile Organic Compounds (VOC)

VOC is produced both by combustion of the fuel and volatilization of organic compounds in the wood being dried. The drying of softwood species (especially pine) lead to higher VOC emissions than the drying of hardwood species. The amount of softwood processed in Dryer #1 is limited to 60% or less by weight on an annual average basis to minimize VOC emissions. Additionally, elevated temperatures in the dryer (above 825 °F) can lead to increased emissions of VOC.

BPT for emissions of VOC from Dryer #1 is determined to be limiting the amount of softwood (including pine) introduced into Dryer #1 to 60% by weight or less on an annual average (12-month rolling average), limiting the dryer inlet temperature to no more than 825 °F, and the emission limits listed in the tables below.

2. The BPT emission limits for Dryer #1 were based on the following:

PM	–	12.5 lb/hr from 06-096 C.M.R. ch. 115, BPT
$PM_{10}/PM_{2.5}$	–	12.5 lb/hr from 06-096 C.M.R. ch. 115, BPT and 0.017 lb/MMBtu based on AP-42 Table 1.6-1 dated 4/22
SO_2	–	0.025 lb/MMBtu based on AP-42 Table 1.6-2 dated 4/22
NO_x	–	10.8 lb/hr from 06-096 C.M.R. ch. 115, BPT
CO	–	10.8 lb/hr from 06-096 C.M.R. ch. 115, BPT
VOC	–	9.66 lb/hr from 06-096 C.M.R. ch. 115, BPT
Visible Emissions	–	06-096 C.M.R. ch. 115, BPT

The BPT emission limits for Dryer #1 are the following:

Unit	PM (lb/hr)	PM_{10} (lb/hr)	$PM_{2.5}$ (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Dryer #1 1-hour block avg	12.50	13.18	13.18	1.00	10.80	10.80	9.66

3. Visible Emissions

Visible emissions from Dryer #1 shall not exceed 20% opacity on a six-minute block average basis, except for periods of startup, shutdown, or malfunction during which time Lignetics shall either meet the normal operating visible emissions standard or the following alternative visible emissions standard.

During periods of startup, shutdown, or malfunction, visible emissions from Stack #2 or the bypass stack (as applicable) 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. If this alternative visible emissions standard is utilized, Lignetics shall keep records of the date, time, and duration of all startup, shutdown, and malfunction events and provide them to the Department upon request.

The Department has determined that the BPT visible emission limit is more stringent than the applicable limit in 06-096 C.M.R. ch. 101. Therefore, the visible emission limit for Dryer #1 has been streamlined to the more stringent BPT limit, and only this more stringent limit shall be included in the Order of this air emission license.

4. Periodic Monitoring

The following periodic monitoring requirements are applicable to Dryer #1:

a. Dryer #1 Fuel Use

Lignetics shall maintain records of all biomass fuel fired in Dryer #1's burner on a monthly and 12-month rolling total basis. Records of biomass fuel use shall be kept on both an as-fired basis and corrected to a 50% moisture (4,500 Btu/lb) basis. Correction for moisture content shall be made according to the following formula:

$$Tons_{M2} = \frac{Tons_{M1} \times (1 - M1)}{(1 - M2)}$$

Where:

$Tons_{M1}$ = Tons of biomass as fired
$Tons_{M2}$ = Tons of biomass at 60% moisture
M1 = Moisture content of biomass as fired expressed as fraction (e.g., 0.55)
M2 = 0.60 (i.e., the moisture content of biomass with a heat content of 4,500 Btu/lb)

b. Burner Temperature

The combustion temperature of the burner shall be monitored and recorded on a continuous basis for a minimum of 98% of the time the rotary dryer is operating. Continuous is defined as at least two readings in separate 15-minute periods per hour. The date and time of each temperature reading shall be included as part of the record. The temperature monitoring system shall be operated, maintained, and calibrated in accordance with the manufacturer's recommendations. The operating temperature range shall be maintained between 1,600 °F – 1,850 °F.

c. Dryer #1 Inlet Temperature

The inlet temperature to Dryer #1 shall be monitored and recorded on a continuous basis for a minimum of 98% of the time the rotary dryer is operating. Continuous is defined as at least two readings in separate 15-minute periods per hour. The date and time of each temperature reading shall be included as part of the record. The temperature monitoring system shall be operated, maintained, and calibrated in accordance with the manufacturer's recommendations. The dryer inlet temperature shall be maintained at 825 °F or below on a 1-hour average basis.

d. Dryer #1 Multiclone

Lignetics shall keep a log of all maintenance (planned or unplanned) conducted on the dryer multiclone including a description of the maintenance and the date, time, and reason for the maintenance.

e. Bypass Stack Use

Lignetics shall maintain records of all startups, shutdowns, and malfunctions including date, time, duration, cause, and whether the bypass stack was utilized and for how long.

5. Performance Testing

Lignetics shall conduct performance testing to demonstrate compliance with the PM, PM_{10}, and $PM_{2.5}$ lb/hr emission limits within 180 days of the issuance of this license and once every three calendar years thereafter.

Lignetics shall conduct performance testing to demonstrate compliance with the VOC lb/hr emission limit concurrent with any performance test for PM, PM_{10}, or $PM_{2.5}$.

Tests shall be performed under representative operating conditions. Performance tests for PM_{10} and $PM_{2.5}$ shall be conducted in accordance with EPA Test Method 5 to determine the filterable portions for these pollutants and in accordance with EPA Test Method 202 to determine the condensable portions for these pollutants (or other methods as approved by the Department). Emissions of filterable PM_{10} shall be assumed to be 100% of filterable PM, and filterable $PM_{2.5}$ shall be assumed to be 42% of filterable PM. The filterable and condensable portions shall be added together to determine compliance with the lb/hr emission limits for each pollutant.

Lignetics shall record the amount (tons) of green wood fed into the dryer 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 that day. This data shall be included in the stack test report.

Lignetics 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. Wood Handling and Pelletizers

After exiting the dryer, the exhaust gas and dried wood fines go through four process cyclones operating in parallel, separating the exhaust gas from the wood. The dried wood is reduced in size by the dry hammermill, which has a cyclone collector and air system for collecting the wood fines. The fines drop into the system drag conveyor and are pneumatically conveyed to the dry wood storage and metering bin. The fan discharge air is returned to the burner hot gas manifold to be re-used through the dryer system.

Lignetics operates three pelletizers in parallel. The pelletizers consist of two rotating dies that interlock. The pellets are formed through extrusion which results in heat and evaporation of moisture. Once the pellets are produced, they are picked up by the vacuum system and moved to the tumbler and screening process. The tumbling and screening process removes the fines and sharp edges from the pellets. The screened fines are put back into the pelletizing process for reuse. Particulate matter emissions from the pelletizers are controlled by a baghouse.

1. BPT Findings

Lignetics shall inspect all cyclones monthly for leaks. Visible emissions from each cyclone shall not exceed 20% opacity on a six-minute block average basis.

A baghouse shall be operated and maintained to control emissions from the exhaust from the pelletizers. Visible emissions from the baghouse shall not exceed 10% opacity on a six-minute block average basis.

2. Periodic Monitoring

Lignetics shall keep a log of all maintenance (planned or unplanned) conducted on the pelletizer baghouse and all material handling cyclones including a description of the maintenance and the date, time, and reason for the maintenance.

F. General Process Emissions

Visible emissions from any general process source not otherwise addressed shall not exceed 20% opacity on a six-minute block average basis.

G. Fugitive Emissions

Lignetics 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.

Lignetics 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.

H. Emission Statements

Lignetics is subject to emissions inventory requirements contained in *Emission Statements*, 06-096 C.M.R. ch. 137. Lignetics shall maintain the following records in order to comply with this rule:

1. Amount (tons) of biomass fired in Boiler #1 corrected to 60% moisture on a monthly and calendar year total basis;
2. Amount (tons) of biomass fired in Dryer #1's burner corrected to 50% moisture on a monthly and calendar year total basis; and
3. Hours of operation of Boiler #1 and Dryer #1 on a monthly and calendar year total basis.

Every third year, or as requested by the Department, Lignetics shall report to the Department emissions of hazardous air pollutants as required pursuant to 06-096 C.M.R. ch. 137, § (3)(C). The next report is due no later than May 15, 2024, for emissions occurring in calendar year 2023. The Department will use these reports to calculate and invoice for the applicable annual air quality surcharge for the subsequent three billing periods. Lignetics shall pay the annual air quality surcharge, calculated by the Department based on these reported emissions of hazardous air pollutants, by the date required in Title 38 M.R.S. § 353-A(3). [38 M.R.S. § 353-A(1-A)]

I. 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 the following assumptions:

- Firing 7,300 ton/year of biomass at 60% moisture in Boiler #1; and
- Operating Dryer #1 for 8,322 hours/year.

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**
Boiler #1	7.9	8.3	8.3	0.7	7.9	26.3	0.5
Dryer #1	52.1	54.8	54.8	4.2	44.9	44.9	40.2
Total TPY	**60.0**	**63.1**	**63.1**	**4.9**	**52.8**	**71.2**	**40.7**

Pollutant	**Tons/year**
Single HAP	7.9
Total HAP	19.9

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

Lignetics previously submitted an ambient air quality impact analysis outlined in air emission license A-342-71-T-R/A (dated July 8, 2013) demonstrating that emissions from the facility, in conjunction with all other sources, do not violate Ambient Air Quality Standards (AAQS). An additional air quality impact analysis is not required for this renewal.

This determination is based on information provided by the applicant regarding licensed 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 Lignetics 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 A-342-71-Y-R 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 beginning actual 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) **Boiler #1**

A. Biomass Fuel Use

1. Hourly fuel use for Boiler #1 shall not exceed 2.25 tons/hr corrected to 60% moisture (3,600 Btu/lb).

2. Daily fuel use for Boiler #1 shall not exceed 20 ton/day corrected to 60% moisture (3,600 Btu/lb).

3. Annual fuel use for Boiler #1 shall not exceed 7,300 ton/year on a 12-month rolling total basis corrected to 60% moisture (3,600 Btu/lb).

4. Compliance with the biomass fuel use limits shall be demonstrated through records of hourly, daily, and annual (12-month rolling total) fuel use. Fuel use records shall be based on bucket loads of fuel fed into the boiler system. Lignetics shall maintain a log of the number of buckets of fuel fired on an hourly basis, the weight of each bucket, and the moisture content of the fuel. The moisture content of the fuel shall be measured and recorded on a daily basis. Records of biomass fuel use shall be kept on both an as-fired basis and corrected to a 60% moisture (3,600 Btu/lb) basis. Correction for moisture content shall be made according to the following formula:

$$Tons_{M2} = \frac{Tons_{M1} \times (1 - M1)}{(1 - M2)}$$

Where:

$Tons_{M1}$ = Tons of biomass as fired
$Tons_{M2}$ = Tons of biomass at 60% moisture
$M1$ = Moisture content of biomass as fired expressed as fraction (e.g., 0.55)
$M2$ = 0.60 (i.e., the moisture content of biomass with a heat content of 3,600 Btu/lb)

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

B. Specification Waste Oil and Oily Rags

1. Lignetics may mix specification waste oil with the biomass fired in Boiler #1. The specification waste oil use shall not exceed 60 gallons/month. Records shall be maintained documenting the gallons of specification waste oil fired each month.

2. Lignetics may mix oily rags with the biomass fired in Boiler #1. The oily rags must originate from the facility, and the permeated oil on the rags must meet the definition of specification waste oil. Lignetics shall maintain records of the amount of oily rags burned each month (e.g., a full 55 gallon drum, ½ drum, etc).

3. An analysis of a representative waste oil sample shall be kept on site. If there are changes in the process or if there are changes in the maintenance garage that may affect the composition of the waste oil collected, a new representative sample shall be tested. These test results shall be kept on-site and a copy shall be submitted to the Department upon request.

[06-096 C.M.R. ch. 115, BPT and 06-096 C.M.R. ch. 860]

C. Emissions shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Boiler #1	PM	0.30	06-096 C.M.R. ch. 103, § 2(B)(4)(a)

D. Emissions shall not exceed the following [06-096 C.M.R. ch. 115, BPT]:

Unit	PM (lb/hr)	PM_{10} (lb/hr)	$PM_{2.5}$ (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1 1-hour block avg	10.11	10.68	10.68	0.84	4.86	16.20	0.57
Boiler #1 24-hour block avg	1.80	1.90	1.90	–	–	–	–

E. Visible Emissions

Visible emissions from Boiler #1 shall not exceed 30% opacity on a six-minute block average basis, except for periods of startup, shutdown, or malfunction during which time Lignetics shall either 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. If this alternative visible emissions standard is utilized, Lignetics

shall keep records of the date, time, and duration of all startup, shutdown, and malfunction events and provide them to the Department upon request.

[06-096 C.M.R. ch. 101, 4(A)(5)]

F. Multiclone

1. Lignetics shall continuously use a multiclone to control emissions of particulate matter from Boiler #1 during all operating times, including period of startup and shutdown.

2. Lignetics shall keep a log of all maintenance (planned or unplanned) conducted on the boiler multiclone including a description of the maintenance and the date, time, and reason for the maintenance.

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

G. Boiler O_2 Curve

1. Lignetics shall operated with the established O_2/boiler load curve. Compliance shall be documented by records of the oxygen content and boiler load for all boiler operating times. Lignetics shall not re-establish the O_2/boiler load curve without prior written approval from the Department.

2. The O_2 monitor shall be calibrated in accordance with the manufacturer's recommendations. Lignetics shall maintain records of all calibrations.

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

H. Boiler #1 shall exhaust through a stack that is at least 90 feet above ground level. [06-096 C.M.R. ch. 115, BPT]

I. Lignetics shall comply with all requirements of 40 C.F.R. Part 63, Subpart JJJJJJ applicable to Boiler #1 including, but not limited to, the following: [incorporated under 06-096 C.M.R. ch. 115, BPT]

1. The facility shall implement a boiler tune-up program. [40 C.F.R. § 63.11223]

a. Each tune-up shall be conducted at a frequency specified by the rule and based on the size, age, and operations of the boiler. The tune-up frequency for Boiler #1 shall be every two years. [40 C.F.R. § 63.11223(a) and Table 2]

b. The boiler tune-up program, conducted to demonstrate continuous compliance, shall be performed as specified below:
   (1) As applicable, inspect the burner, and clean or replace any component of the burner as necessary. Delay of the burner inspection until the next scheduled shutdown is permitted, not to exceed 36 months from the previous inspection. [40 C.F.R. § 63.11223(b)(1)]
   (2) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern, consistent with the manufacturer's specifications. [40 C.F..R § 63.11223(b)(2)]
   (3) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure it is correctly calibrated and functioning properly. Delay of the inspection until the next scheduled shutdown is permitted, not to exceed 36 months from the previous inspection. [40 C.F.R. § 63.11223(b)(3)]
   (4) Optimize total emissions of CO, consistent with manufacturer's specifications. [40 C.F.R. § 63.11223(b)(4)]
   (5) Measure the concentration in the effluent stream of CO in parts per million by volume (ppmv), and oxygen in volume percent, before and after adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer.
   [40 C.F.R. § 63.11223(b)(5)]
   (6) If a unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 days of start-up.
   [40 C.F.R. § 63.11223(b)(7)]

c. Tune-Up Report: A tune-up report shall be maintained onsite and submitted to the Department and EPA upon request. The report shall contain the following information:
   (1) The concentration of CO in the effluent stream (ppmv) and oxygen (volume percent) measured at high fire or typical operating load both **before** and **after** the boiler tune-up;
   (2) A description of any corrective actions taken as part of the tune-up of the boiler; and
   (3) The types and amounts of fuels used over the 12 months prior to the tune-up of the boiler, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit. [40 C.F.R. § 63.11223(b)(6)]

2. Compliance Report

A compliance report shall be prepared by March 1st biennially which covers the previous two calendar years. The report shall be maintained by the source and submitted to the Department and/or to the EPA upon request. The report must include the items contained in §§ 63.11225(b)(1) and (2), including the following: [40 C.F.R. § 63.11225(b)]

a. Company name and address;
b. A statement of whether the source has complied with all the relevant requirements of this Subpart;
c. A statement certifying truth, accuracy, and completeness of the notification and signed by a responsible official and containing the official's name, title, phone number, email address, and signature;
d. The following certifications, as applicable:
   (1) "This facility complies with the requirements in 40 C.F.R. § 63.11223 to conduct tune-ups of each boiler in accordance with the frequency specified in this Subpart."
   (2) "No secondary materials that are solid waste were combusted in any affected unit."
   (3) "This facility complies with the requirement in §§ 63.11214(d) and 63.11223(g) to minimize the boiler's time spent during startup and shutdown and to conduct startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available."

3. Recordkeeping

a. Records shall be maintained consistent with the requirements of 40 C.F.R. Part 63, Subpart JJJJJJ including the following [40 C.F.R. § 63.11225(c)]:

   (1) Copies of notifications and reports with supporting compliance documentation;
   (2) Identification of each boiler, the date of tune-up, procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned;
   (3) Records of the occurrence and duration of each malfunction of each applicable boiler; and
   (4) Records of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore the malfunctioning boiler.

b. Records shall be in a form suitable and readily available for expeditious review. Each record must be kept for 5 years following the date of each recorded action. Each record must be kept on-site or be accessible from a central location by

computer or other means that instantly provides access at the site for at least 2 years after the date of each recorded action. The records may be maintained off-site for the remaining 3 years. [40 C.F.R. § 63.11225(d)] Note: Standard Condition (8) of this license requires all records be retained for six years; therefore, the five-year record retention requirement of Subpart JJJJJJ shall be streamlined to the more stringent six-year requirement.

(18) **Dryer #1**

A. Biomass Fuel Use

1. The burner on Dryer #1 is licensed to fire biomass.

2. Lignetics shall maintain records of all biomass fuel fired in Dryer #1's burner on a monthly and 12-month rolling total basis. Records of biomass fuel use shall be kept on both an as-fired basis and corrected to a 50% moisture (4,500 Btu/lb) basis. Correction for moisture content shall be made according to the following formula:

$$Tons_{M2} = \frac{Tons_{M1} \times (1 - M1)}{(1 - M2)}$$

Where:

$Tons_{M1}$ = Tons of biomass as fired
$Tons_{M2}$ = Tons of biomass at 60% moisture
M1 = Moisture content of biomass as fired expressed as fraction (e.g., 0.55)
M2 = 0.60 (i.e., the moisture content of biomass with a heat content of 3,600 Btu/lb)

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

B. Emissions shall not exceed the following [06-096 C.M.R. ch. 115, BPT]:

Unit	PM (lb/hr)	PM_{10} (lb/hr)	$PM_{2.5}$ (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Dryer #1 1-hour block avg	12.50	13.18	13.18	1.00	10.80	10.80	9.66

C. Visible Emissions

Visible emissions from Dryer #1 shall not exceed 20% opacity on a six-minute block average basis, except for periods of startup, shutdown, or malfunction during which time Lignetics shall either meet the normal operating visible emissions standard or the following alternative visible emissions standard.

During periods of startup, shutdown, or malfunction, visible emissions from Stack #2 or the bypass stack (as applicable) 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. If this alternative visible emissions standard is utilized, Lignetics shall keep records of the date, time, and duration of all startup, shutdown, and malfunction events and provide them to the Department upon request.

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

D. Multiclone

1. Lignetics shall continuously use a multiclone to control emissions of particulate matter from Dryer #1 during all operating times, including period of startup and shutdown.

2. Lignetics shall keep a log of all maintenance (planned or unplanned) conducted on the dryer multiclone including a description of the maintenance and the date, time, and reason for the maintenance.

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

E. Operation of Dryer #1 shall be limited to 8,322 hours per year (12-month rolling total basis). An hour meter shall be operated on the dryer and records shall be maintained daily, monthly, and on a 12 month rolling total. [06-096 C.M.R. ch. 115, BPT]

F. The amount of softwood (including pine) introduced into Dryer #1 shall not exceed 60% by weight on an annual average basis (12-month rolling average). To demonstrate compliance, Lignetics shall maintain records of the amount (tons) of green hardwood and softwood processed on a monthly basis. [06-096 C.M.R. ch. 115, BPT]

G. Burner Temperature

1. Except for periods of startup and shutdown, the temperature of the dryer burner shall be maintained between 1,600 °F –1,850 °F.

2. The combustion temperature of the burner shall be monitored and recorded on a continuous basis for a minimum of 98% of the time the rotary dryer is operating. Continuous is defined as at least two readings in separate 15-minute periods per hour. The date and time of each temperature reading shall be included as part of the record. The temperature monitoring system shall be operated, maintained, and calibrated in accordance with the manufacturer’s recommendations.

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

H. Dryer Inlet Temperature

1. Except for periods of startup and shutdown, the dryer inlet temperature shall be maintained at 825 °F or below on a 1-hour average basis.

2. The inlet temperature to Dryer #1 shall be monitored and recorded on a continuous basis for a minimum of 98% of the time the rotary dryer is operating. Continuous is defined as at least two readings in separate 15-minute periods per hour. The date and time of each temperature reading shall be included as part of the record. The temperature monitoring system shall be operated, maintained, and calibrated in accordance with the manufacturer's recommendations.

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

I. Periods of Startup, Shutdown, and Malfunction

1. During periods of startup, shutdown, or malfunction, the bypass stack may be used for no more than one hour for any event. [06-096 C.M.R. ch. 115, BPT]

2. Records shall be maintained documenting startups, shutdowns, and malfunctions. These records shall include date, time, duration, cause, and whether the bypass stack was utilized and for how long. [06-096 C.M.R. ch. 115, BPT]

J. A portion of the exhaust of Dryer #1 may be recycled back into the system. Any exhaust not recycled shall be vented through the dryer multiclone and exit through a 96-foot above ground level stack except for periods of startup, shutdown, or malfunction. [06-096 C.M.R. ch. 115, BPT]

K. Performance Testing

1. Lignetics shall conduct performance testing under representative operating conditions to demonstrate compliance with the PM, PM_{10}, and $PM_{2.5}$, lb/hr emission limits and the visible emission limit within 180 days of the issuance of this license and once every three calendar years thereafter.

2. Lignetics shall conduct performance testing to demonstrate compliance with the VOC lb/hr emission limit concurrent with any performance test for PM, PM_{10}, or $PM_{2.5}$.

3. For any performance testing required by this license, Lignetics 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.

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

5. Performance tests for PM_{10} and $PM_{2.5}$ shall be conducted in accordance with EPA Test Method 5 to determine the filterable portions for these pollutants and in accordance with EPA Test Method 202 to determine the condensable portions for these pollutants (or other methods as approved by the Department). Emissions of filterable PM_{10} shall be assumed to be 100% of filterable PM, and filterable $PM_{2.5}$ shall be assumed to be 42% of filterable PM. The filterable and condensable portions shall be added together to determine compliance with the lb/hr emission limits for each pollutant.

6. Performance tests for visible emissions shall be conducted in accordance with EPA Test Method 9 or other method as approved by the Department.

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

8. Lignetics shall record the amount (tons) of green wood fed into the dryer 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 that day. This data shall be included in the stack test report.

9. Concurrent with each test run, Lignetics shall collect representative samples of the green wood fed into the dryer and determine the moisture content of each using a test method approved by the Department. A minimum of one sample per test run shall be collected. This information shall be included in the stack test report.

(19) **Wood Handling and Pellet Processing Operations**

A. All exterior conveyors shall be equipped and operated with covers. [06-096 C.M.R. ch. 115, BPT]

B. Lignetics shall inspect each cyclone monthly for leaks. [06-096 C.M.R. ch. 115, BPT]

C. Visible emissions from each cyclone shall not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, § 4(B)(4)]

D. A baghouse shall be operated and maintained to control emissions from the exhaust from the pelletizers. [06-096 C.M.R. ch. 115, BPT]

E. Visible emissions from the pelletizer baghouse shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, 4(B)(3)]

F. Lignetics shall keep a log of all maintenance (planned or unplanned) conducted on the pelletizer baghouse and all material handling cyclones including a description of the maintenance and the date, time, and reason for the maintenance.
[06-096 C.M.R. ch. 115, BPT]

(20) **General Process Sources**

Visible emissions from any general process source not otherwise addressed shall not exceed 20% opacity on a six-minute block average basis.
[06-096 C.M.R. ch. 101, § 4(B)(4)]

(21) **Fugitive Emissions**

A. Lignetics 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.

B. Lignetics 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)]

(22) **Annual Emission Statements**

A. In accordance with *Emission Statements*, 06-096 C.M.R. ch. 137, Lignetics shall annually report to the Department, in a format prescribed by the Department, the information necessary to accurately update the State's emission inventory. The emission statement shall be submitted as specified by the date in 06-096 C.M.R. ch. 137.

B. Lignetics shall keep the following records in order to comply with 06-096 C.M.R. ch. 137:

1. Amount (tons) of biomass fired in Boiler #1 corrected to 60% moisture on a monthly and calendar year total basis;
2. Amount (tons) of biomass fired in Dryer #1's burner corrected to 50% moisture on a monthly and calendar year total basis; and
3. Hours of operation of Boiler #1 and Dryer #1 on a monthly and calendar year total basis.

[06-096 C.M.R. ch. 137]

C. Every third year, or as requested by the Department, Lignetics shall report to the Department emissions of hazardous air pollutants as required pursuant to 06-096 C.M.R. ch. 137, § (3)(C). The next report is due no later than May 15, 2024, for emissions occurring in calendar year 2023. Lignetics shall pay the annual air quality surcharge, calculated by the Department based on these reported emissions of hazardous air pollutants, by the date required in Title 38 M.R.S. § 353-A(3). [38 M.R.S. § 353-A(1-A)]

(23) 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, Lignetics may be required to submit additional information. Upon written request from the Department, Lignetics 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 16th DAY OF OCTOBER, 2024.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____ for _____
MELANIE LOYZIM, COMMISSIONER

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

[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: 6/27/2023
Date of application acceptance: 7/5/2023

Date filed with the Board of Environmental Protection:

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

FILED

OCT 16, 2024

State of Maine
Board of Environmental Protection