Fiberight LLC and
Municipal Review Committee, Inc.
Penobscot County
Hampden, Maine
A-1111-71-A-N (SM)

Departmental
Findings of Fact and Order
Air Emission License

FINDINGS OF FACT

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

I. REGISTRATION

A. Introduction

Fiberight LLC (Fiberight) has applied for an Air Emission License permitting the operation of emission sources associated with a Municipal Solid Waste (MSW) processing facility. Municipal Review Committee, Inc. has applied as a co-applicant. Sufficient documentation has been provided to the Department to demonstrate Title, Right, or Interest for both companies. Therefore, wherever "Fiberight" is used throughout this document, it is intended to refer to both entities equally and jointly. The equipment addressed in this license will be located off Coldbrook Road in Hampden, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Boilers

Equipment	Maximum Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel Type	Date of Manuf.	Stack #
Boiler #1	48	5.1 ton/hr* 47,000 scf/hr	Post-Hydrolysis Solids Natural Gas	2016	1
Boiler #2	48	5.1 ton/hr* 47,000 scf/hr	Post-Hydrolysis Solids Natural Gas	2016	2

*Assumes a moisture content of 41.5% and HHV of 8100 Btu/lb on a dry basis.

Other Fuel Burning Equipment

Equipment	Maximum Firing Rate	Fuel Type, sulfur content	Date of Manuf.
Thermal Oxidizer	386 scfm 209 scfm	Tail Gas, 1600 ppmv H_2S Digester Gas, 500 ppmv H_2S	2016
Flare	1200 scfm	Digester Gas, 500 ppmv H_2S	2016

Process Equipment

Equipment	Pollution Control Equipment
Tipping Floor	(2) scrubber trains
Pulpers	(2) scrubber trains
Wash Tunnels	(2) scrubber trains
Hydrolysis Reactors	N/A
PHS Dryers	multiclone & baghouse
Anaerobic Digesters	thermal oxidizer & flare
Ash Handling	N/A
Cooling Towers*	drift eliminators

*The Cooling Towers are considered insignificant activities, but are included in this license for completeness purposes.

C. Application Classification

A new source is considered a major source based on whether or not total licensed annual emissions exceed the "Significant Emission" levels as defined in the Department's *Definition Regulation*, 06-096 CMR 100 (as amended).

Pollutant	Total Licensed Annual Emissions (TPY)	Significant Emission Levels
PM	13.7	100
PM_{10}	13.7	100
$PM_{2.5}$	13.7	100
SO_2	49.9	100
NO_x	41.0	100
CO	93.3	100
VOC	12.9	50
CO_2e	91,910	100,000
Single HAP	9.9	10
Total HAP	24.9	25

The Department has determined the facility is a minor source and the application has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (as amended). With the annual fuel limits on the boilers, thermal oxidizer, and flare, the facility is licensed below the major source thresholds for criteria pollutants and is considered a synthetic minor. The same limits restrict the facility below the major source thresholds for hazardous air pollutants (HAP) and it is considered an area source of 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 CMR 100 (as amended). 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 CMR 100 (as amended). BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

B. Process Description

Fiberight proposes to construct and operate a facility for the processing of MSW.

MSW will be delivered to the facility and deposited on the tipping floor. The tipping floor is contained within the main building. Trucks enter the tipping area through entrances equipped with high-speed fabric doors.

First, unprocessable items such as masonry, furniture, domestic appliances, carpet, etc. are removed by hand and disposed of off-site. This includes wooden items such as household furniture, pieces of lumber, tree limbs, etc.

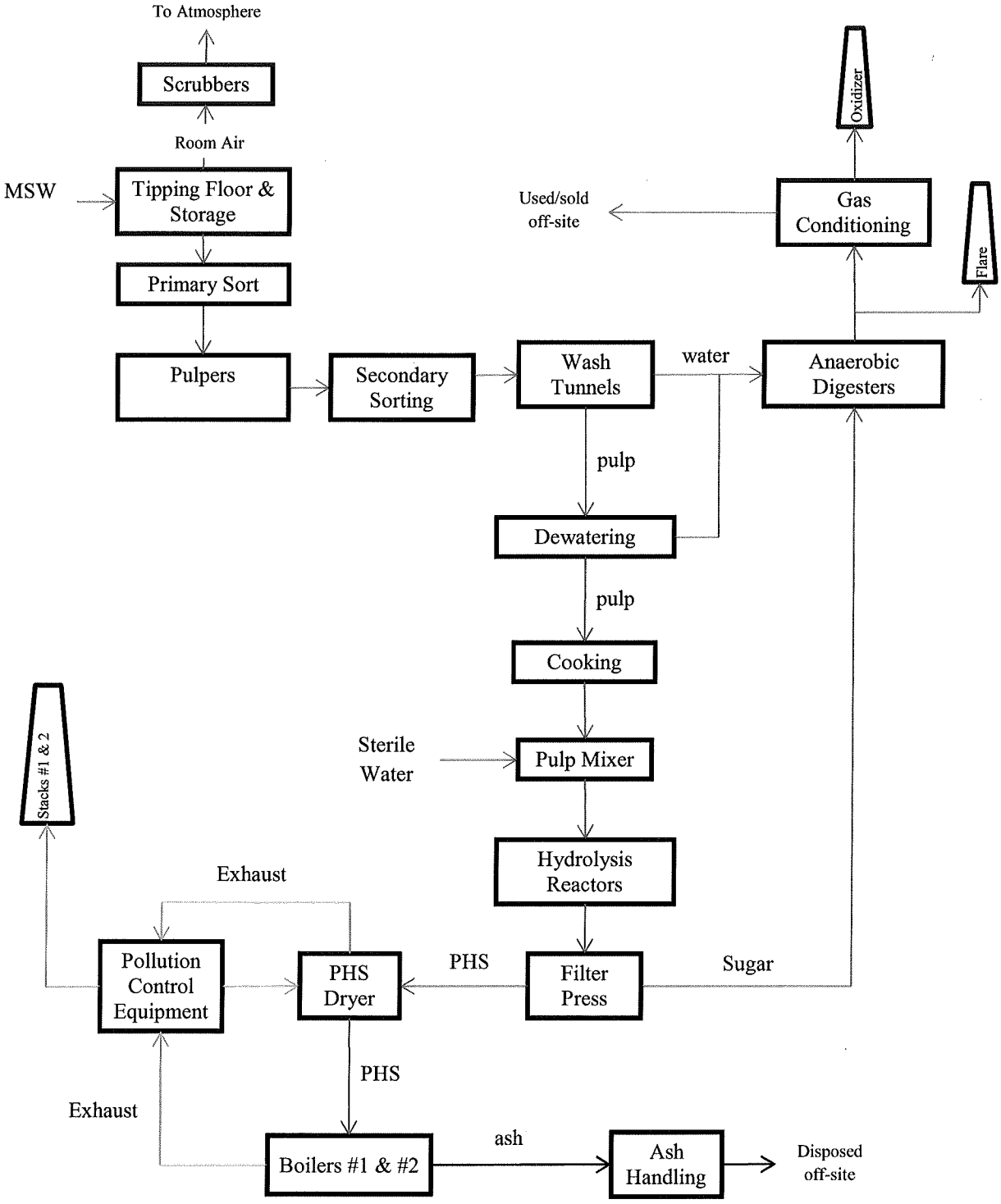
Then the MSW is conveyed to a series of sort trommels and screening operations. Fines, such as glass and grit, are removed and disposed of off-site. Materials such as plastic containers, film plastic, aluminum, and other metals are removed and sent off-site for recycling.

The remaining organic material is mechanically pulped by tumbling and mixing with water and the pulp is washed. The organic-laden wash water is sent to one of two anaerobic digesters. The anaerobic digesters produce methane which is either conditioned and piped into the Bangor Gas natural gas pipeline for sale and use off-site, conditioned to pipeline natural gas standards and fired in the boiler, or combusted in a flare. Reject or "Tail Gas" from the gas conditioning system is destroyed using a thermal oxidizer. The facility's flare is primarily intended for destruction of excess or off-specification digester gas produced during startup, shutdown, or upset conditions.

The de-watered pulp is "cooked" (heated with steam) to sterilize it. Heat for the cooking process is provided by the facility's boilers. Sterile water is added back to the cooked pulp, which is then sent to one of two hydrolysis reactors. The hydrolysis reactors convert portions of the pulp to sugars through the use of enzymes. The sugar is introduced into the anaerobic digesters for additional production of methane.

The pulp exiting the hydrolysis reactors is called post-hydrolysis solids (PHS). The PHS is dewatered and then dried to a maximum moisture content of 41.5%. The PHS is then gasified and combusted in the facility's boilers. Steam from the boilers will be used to power steam turbines which will provide power for the facility. Cooling towers will be used to transfer waste heat to the atmosphere.

On the next page is a simplified process diagram of the proposed facility.


To Atmosphere
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Room Air
MSW
Tipping Floor & Storage
Primary Sort
Pulpers
Secondary Sorting
Wash Tunnels
water
Anaerobic Digesters
Oxidizer
Used/sold off-site
Gas Conditioning
Flare
pulp
Dewatering
pulp
Cooking
Sterile Water
Pulp Mixer
Hydrolysis Reactors
Stacks #1 & 2
Exhaust
Pollution Control Equipment
PHS Dryer
PHS
Filter Press
Sugar
PHS
Exhaust
Boilers #1 & #2
ash
Ash Handling
Disposed off-site

C. Boilers #1 & #2 and PHS Dryers

Fiberight proposes to install two new close-coupled gasifier/boilers manufactured by Hurst Boilers, Inc. Close-coupled gasifier/boilers are designed to gasify the fuel in the lower portion of the furnace (gasification region) in close proximity (i.e. within the same process unit) to the boiler region where combustion occurs. Due to combustion taking place within the process unit and steam or hot water being produced, a close-coupled gasifier/boiler meets EPA's definitions of "steam generating unit" and "boiler." Therefore, these pieces of equipment will be referred to as boilers throughout this license.

Boilers #1 & #2 are each rated for a maximum heat input of 48 MMBtu/hr. Their primary fuel is the post-hydrolysis solids (PHS) produced at the facility. Natural gas, or digester gas which has been conditioned to pipeline quality, may also be fired, primarily to aid in boiler startup.

The boilers will be used to produce steam for the process, to dry the PHS prior to combustion, to provide building heat, and to power steam turbines which will provide power to the facility.

A portion of the exhaust from each boiler will be used to help dry the PHS prior to combustion. A PHS dryer is essentially a box that contains multiple screws. The wet PHS is introduced at the top and is moved sideways by the first screw, then reversed to the other side by the next screw, and back and forth by subsequent screws until it exits the bottom of the box. Boiler exhaust gas is introduced at the bottom of one of the two PHS Dryers and flows vertically upwards, physically passing by the PHS and causing it to dry. The boiler exhaust exits the top of the PHS Dryer and is then routed to a bank of multiclones and a baghouse before being discharged to the atmosphere.

Each boiler/dryer train will exhaust through its own stack (Stacks #1 and #2) at approximately 65 feet above ground level.

1. BACT (Best Available Control Technology) Findings

The data obtained from the Reasonably Available Control Technology (RACT)/BACT/ Lowest Achievable Emission Rate (LAER) Clearinghouse (RBLC) and the review of licenses from similar sources, along with information on the economic impact, technical feasibility, and environmental impact of various control options was used to determine the available control technologies and corresponding levels of control for emissions from Boilers #1 and #2 and the PHS Dryers.

The following summarizes the BACT findings for Boilers #1 & #2 and PHS Dryers:

a. $PM/PM_{10}/PM_{2.5}$

Particulate matter emissions in the exhaust from Boilers #1 & #2 will be generated primarily from the combustion of PHS and entrainment of larger particles in the PHS dryers.

Potential PM controls for the boilers consist of add-on controls, good combustion and operating practices, or a combination of options. The evaluation of add-on controls for this project included baghouses, electrostatic precipitators (ESPs), wet electrostatic precipitators (WESPs), and a multiclone system.

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. Baghouse systems are capable of PM collection efficiencies greater than 98%. Operation of these units is relatively simple and a large number of fabrics and configurations are available to allow the unit to be customized to the specific process. The use of a baghouse on the exhaust from each boiler has been determined to be feasible and has been selected as part of the BACT strategy for Boilers #1 & #2 and PHS Dryers.

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. ESPs function optimally in steady state conditions. The proposed boilers will be prone to load and flow fluctuations that would make efficient operation of an ESP difficult or impractical. Therefore, the installation of ESPs for control of particulate matter emissions from the boilers has been determined not to be technically feasible.

WESPs utilize a pre-quench to cool and saturate the gases prior to entering the ESP. WESPs collect only particles and droplets that can be electrostatically charged and consume significant water quantities during operation. The resulting effluent requires treatment and must be discharged to a solids-removing clarifying system prior to final disposal. The effluent may require additional sludge removal, pH adjustment, and/or additional treatment to remove dissolved solids. There are significant environmental impacts from the wastewater production. In addition, a WESP is subject to the same limitations as a dry ESP in regards to load and flow fluctuations. Therefore, the installation of WESPs for control of particulate matter emissions from the boilers and PHS Dryers has been determined not to be technically or environmentally feasible.

Cyclones are a very common particulate control device used in many applications. Cyclones utilize centrifugal force to separate particles from gas streams, especially where relatively large particles need to be collected. Cyclones are commonly constructed of sheet metal, have relatively low capital cost, low operating costs, and no moving parts. Multiclones are smaller diameter cyclone units operating in parallel or in series and designed to achieve high efficiency PM collection using the same operational principle as the single cyclone. The use of multiclones on each boiler (after the PHS Dryer and prior to the boiler's baghouse) has been determined to be feasible and has been selected as part of the BACT strategy for Boilers #1 & #2 and PHS Dryers.

BACT for $PM/PM_{10}/PM_{2.5}$ emissions from Boilers #1 & #2 and the PHS Dryers is the use of a multiclone and baghouse on each boiler after the PHS Dryer, an annual fuel limit of 80,000 ton/year of PHS at 41.5% moisture (or equivalent on a dry solids basis) and 2 million scf/year of natural gas for both boilers combined, and emission limits of 0.030 lb/MMBtu and 1.44 lb/hr from each boiler stack.

The exhausts from Stacks #1 and #2 are a combination of $PM/PM_{10}/PM_{2.5}$ emissions from both fuel burning and process emissions. The BACT PM/PM_{10} limits above are determined to be more stringent than the combination of the particulate matter limits found in *Fuel Burning Equipment Particulate Emission Standard* 06-096 CMR 103 and *General Process Source Particulate Emission Standard* 06-096 CMR 105 and are therefore the only $PM/PM_{10}/PM_{2.5}$ limits contained in this license.

b. SO_2 and Acid Gases

Sulfur dioxide (SO_2) is formed from the combustion of sulfur present in the fuel. Acid gases (including HCl and H_2SO_3 and H_2SO_4) are also formed from the combustion of fuel containing sulfur and chlorine. Control options for SO_2 and acid gases include scrubbing the sulfur and chlorine from the flue gas by contact with an alkaline material or restricting the sulfur and chlorine content of the fuel.

Dry sorbent injection involves the addition of an alkaline material, such as hydrated lime or soda ash, into the gas stream to react with the SO_2 and acid gases to form salts that are then removed with a particulate control device.

The sulfur and chlorine content of the PHS is difficult to predict until it has been produced at the facility and a significant number of samples has been collected. However, data from PHS produced at Fiberight's Virginia facility indicates that, without additional controls, there is a potential for annual SO_2 and HCl emissions to exceed major source thresholds. Therefore, Fiberight has proposed the installation of a dry sorbent injection system using hydrated lime for the control of SO_2 and acid gases. The manufacturer of the hydrated lime injection system indicates a minimum control efficiency of 85% for SO_2 and 95% for HCl.

BACT for emissions of SO_2 and acid gases (including HCl) from Boilers #1 & #2 and the PHS Dryers is the use of hydrated lime injection and a baghouse on each boiler, SO_2 emission limits of 14.22 lb/hr from each boiler stack and 1.81 tons per 30 day rolling total for both boilers combined, an HCl emission limit of 1.13 lb/hr from each boiler stack, and the use of a SO_2 Continuous Emissions Monitoring System (CEMS). BACT for the boilers shall also include ongoing testing of the PHS fuel as well as emissions from combustion/drying of the PHS to develop a more substantial data set on the contaminants found in the PHS and emitted in the boiler/PHS dryer exhaust.

c. NO_x

Nitrogen oxide (NO_x) is a product of combustion and generated from fuel NO_x, thermal NO_x, and prompt NO_x. Oxidation radicals near the combustion flame form prompt NO_x in insignificant amounts. Reducing NO_x formation from the two other NO_x generating mechanisms includes firing a low nitrogen content fuel to minimize fuel NO_x and maintaining combustion temperatures below 2000°F to minimize thermal NO_x. Potential add-on control technologies for NO_x include selective catalytic reduction (SCR), selective non-catalytic reduction (SNCR), and water/steam injection.

SCR reduces NO_x emissions through the injection of ammonia in the gas exhaust stream in the presence of a catalyst to produce nitrogen and water. The reduction is considered "selective" because the catalyst selectively targets NO_x reduction in the presence of ammonia. The presence of high concentrations of particulate matter may have a masking effect on the catalyst surface causing a reduction or cessation of catalyst activity. Use of an SCR system would also require reheating of the exhaust stream in order for the exhaust to be at the correct temperature while also in the presence of the catalyst. The technical limitations as well as the energy and environmental impacts associated with an SCR system make it infeasible for this project.

SNCR reduces NO_x to nitrogen and water by reacting the exhaust gas with a reagent such as ammonia or urea, similar to SCR. However, the use of a catalyst is negated when the chemical reaction takes place at temperatures ranging between 1600°F and 2100°F and enough residence time is provided for the reaction to occur. Boilers #1 & #2 have been designed with an injection point following the afterburner (i.e. the combustion chamber) in order to allow for SNCR. The use of SNCR on each boiler has been determined to be feasible and has been selected as part of the BACT strategy for Boilers #1 & #2 and PHS Dryer.

Water/steam injection is the process of injecting water or steam into the combustion chamber to act as a thermal ballast in the combustion process. This

lowers the combustion temperature, minimizing the formation of thermal NO_x. However, introducing additional moisture into a process designed to dry material would be counterproductive to the purpose of the PHS Dryer. Therefore, water/steam injection has been determined to be technically infeasible for Boilers #1 & #2.

BACT for NO_x emissions from Boilers #1 & #2 and the PHS Dryers is the use of SNCR on each boiler, an annual fuel limit of 80,000 ton/year of PHS at 41.5% moisture (or equivalent on a dry solids basis) and 2 million scf/year of natural gas for both boilers combined, NO_x emission limits of 0.10 lb/MMBtu and 4.80 lb/hr from each boiler stack, an NH_3 emission limit 20 ppmdv at 15% O_2 on a one-hour average, and the use of a NO_x Continuous Emissions Monitoring System (CEMS).

The lb/MMBtu limits apply at all times except for periods of startup and shutdown. During periods of startup and shutdown only the lb/hr limits apply.

A startup period is defined as a period of time commencing when fuel is first fired into the boiler and ending when both solid fuel has been introduced into the unit and the combustion chamber temperature exceeds 1,600°F. The total duration of this period shall not exceed four (4) hours.

A shutdown period is defined as a period of time commencing when solid fuel is no longer being fed into the boiler and ending when ash is no longer exiting the ash handling system. The total duration of this period shall not exceed four (4) hours.

d. CO

Carbon monoxide (CO) emissions are a result of incomplete combustion, caused by conditions such as insufficient residence time or limited oxygen availability. Potential control strategies for CO emissions from units with burners are typically minimization by good combustion, although oxidation catalyst systems have been used on larger units. Thermal oxidation is also an option for add-on CO control.

An oxidation catalyst lowers the activation energy needed for CO to react with available oxygen in the exhaust to produce CO_2. In order to prevent the occurrence of particulate contamination in a biomass system, the oxidation catalyst would need to be located downstream of the baghouse. However, the process exhaust gas would then need to be reheated prior to contact with the catalyst bed. The cost of the oxidation catalyst, the associated need for a reheat burner, and the PHS plugging potential does not result in an oxidation catalyst as a feasible option for this project.

Thermal oxidation reduces CO emissions in the flue gas with high temperature post combustion. The application of a thermal oxidizer would require additional fuel usage, would result in additional secondary emissions, and would have a large economic impact on the project. Therefore, thermal oxidation for CO control is not a feasible option for this project.

Good combustion efficiency and proper equipment operation and maintenance incorporate various techniques to minimize CO emissions. Proper combustion techniques include maintaining optimum combustion conditions within the system via optimization of residence time, temperature, and mixing. The use of an oxygen trim control system to maintain adequate and optimum combustion air-to-fuel ratios is considered part of good combustion techniques.

BACT for CO emissions from Boilers #1 & #2 and the PHS Dryers is the use of good combustion techniques, including an oxygen trim control system, proper equipment maintenance, an annual fuel limit of 80,000 ton/year of PHS at 41.5% moisture (or equivalent on a dry solids basis) and 2 million scf/year of natural gas for both boilers combined, an emission limit of 10.56 lb/hr from each boiler stack, and the use of a CO Continuous Emissions Monitoring System (CEMS).

e. VOC

Volatile Organic Compounds (VOCs) in the exhaust from Boilers #1 & #2 will be generated primarily from the incomplete combustion of PHS and from the evaporation of VOCs in the PHS Dryer. VOC emissions from the PHS Dryers are expected to be insignificant as the PHS has already been exposed to elevated temperatures several times in the process previous to the PHS Dryers.

Good combustion efficiency, including an oxygen trim control system, and proper equipment operation and maintenance incorporate various techniques to minimize VOC emissions from combustion in Boilers #1 & #2. Proper combustion techniques include maintaining optimum combustion conditions within the system via optimization of residence time, temperature, and mixing. The use of an oxygen trim control system to maintain adequate and optimum combustion air-to-fuel ratios is considered part of good combustion techniques.

BACT for VOC emissions from Boilers #1 & #2 and the PHS Dryers is the use of good combustion techniques, proper equipment maintenance, an annual fuel limit of 80,000 ton/year of PHS at 41.5% moisture (or equivalent on a dry solids basis) and 2 million scf/year of natural gas for both boilers combined, and an emission limit of 0.82 lb/hr from each boiler stack.

f. Mercury

Mercury is a Hazardous Air Pollutant (HAP). Mercury emissions in the exhaust from Boilers #1 & #2 may be generated from combustion of the PHS fuel. A potential control strategy for mercury emissions from boilers is activated carbon injection (ACI).

ACI reduces mercury emissions through the injection of powdered activated carbon (PAC) into the gas exhaust stream where it adsorbs mercury. The PAC is then collected in the facility's particulate collection system.

The mercury content of the PHS is difficult to predict until it has been produced at the facility and a significant number of samples have been collected. However, in order to comply with 38 Maine Revised Statutes Annotated (M.R.S.A.) §585-B, the facility cannot emit more than 25 lb/year of mercury. Data from PHS produced at Fiberight's Virginia facility indicates that, without additional controls, there is a potential for annual mercury emissions to exceed this level. Therefore, Fiberight has proposed the installation of an ACI system for the control of mercury. The manufacturer of the ACI system indicates a minimum control efficiency of 95%.

Therefore, BACT for mercury emissions from Boilers #1 & #2 and the PHS Dryers is the use of ACI, an emission limit of 1.427E-3 lb/hr from each boiler stack, and a facility-wide emission limit of 25 lb/year of mercury. BACT for the boilers shall also include ongoing testing of the PHS fuel as well as emissions from combustion/drying of the PHS to develop a more substantial data set on the contaminants found in the PHS and emitted in the boiler/PHS dryer exhaust.

g. Heavy Metals

Many heavy metals are considered Hazardous Air Pollutants (HAPs). Although a significant portion of any heavy metals found in the PHS will likely remain with the boiler bottom ash, emissions of this type may be generated from combustion/drying of the PHS fuel. Control strategies for control of heavy metals typically include the same controls applicable to the control of particulate matter.

BACT for emissions of heavy metals from Boilers #1 & #2 and the PHS Dryers is the use of a multiclone and baghouse on each boiler after the PHS Dryer and facility-wide emission limits of 9.9 ton/year of any single HAP and 24.9 ton/year for all HAP emissions combined. BACT for the boilers and PHS dryers shall also include ongoing testing of the PHS fuel as well as emissions from combustion/drying of the PHS to develop a more substantial data set on the contaminants found in the PHS and emitted in the boiler/PHS dryer exhaust.

h. Opacity

Boilers #1 & #2 are subject to an opacity standard per New Source Performance Standards (NSPS) found in 40 CFR Part 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.* Per Subpart Dc, visible emissions from each boiler shall not exceed 20% opacity on a six (6)-minute block average basis except for no more than one (1) six (6)-minute block average per hour of not more than 27% opacity.

The exhaust from Stacks #1 & #2 is a combination of emissions from both fuel burning and process emissions, and reference to emission limits for each individual boiler below includes emissions from both the boiler and dryer associated with each boiler train (i.e. references to "Boiler #1 include emissions from Boiler #1 and the PHS dryer associated with Boiler #1). There are additional opacity requirements for Boilers #1 & #2 and the PHS Dryers contained in *Visible Emissions* rule 06-096 CMR 101. However, the NSPS standards above are determined to be more stringent. Therefore, emissions from Stacks #1 & #2 shall each be limited to the opacity requirements of 40 CFR Part 60, Subpart Dc.

i. BACT Emission Limit Summary

The BACT emission limits for Boilers #1 and #2 were based on the following:

$PM/PM_{10}/PM_{2.5}$	–	0.030 lb/MMBtu based on 40 CFR Part 60, Subpart Dc and 40 CFR Part 63, Subpart JJJJJJ
SO_2	–	- lb/hr limits based on PHS sulfur content of 0.8% and 85% control - 30-day rolling total based on total boiler SO_2 emissions not to exceed 22 ton/year
NO_x	–	0.10 lb/MMBtu based on proposed controls
CO	–	0.22 lb/MMBtu based on good combustion practices and vendor supplied data
VOC	–	0.017 lb/MMBtu based on AP-42 Table 1.6-3 dated 9/03
Opacity	–	40 CFR Part 60, Subpart Dc
HCl	–	9.9 ton/year facility-wide limit assuming each boiler can operate 8,760 hour/year
Mercury	–	25 lb/year facility-wide limit assuming each boiler can operate 8,760 hour/year

The BACT emission limits for Boilers #1 and #2 are the following:

Unit	Pollutant	lb/MMBtu
Boiler #1	PM	0.030
Boiler #1	NO_x	0.10
Boiler #2	PM	0.030
Boiler #2	NO_x	0.10

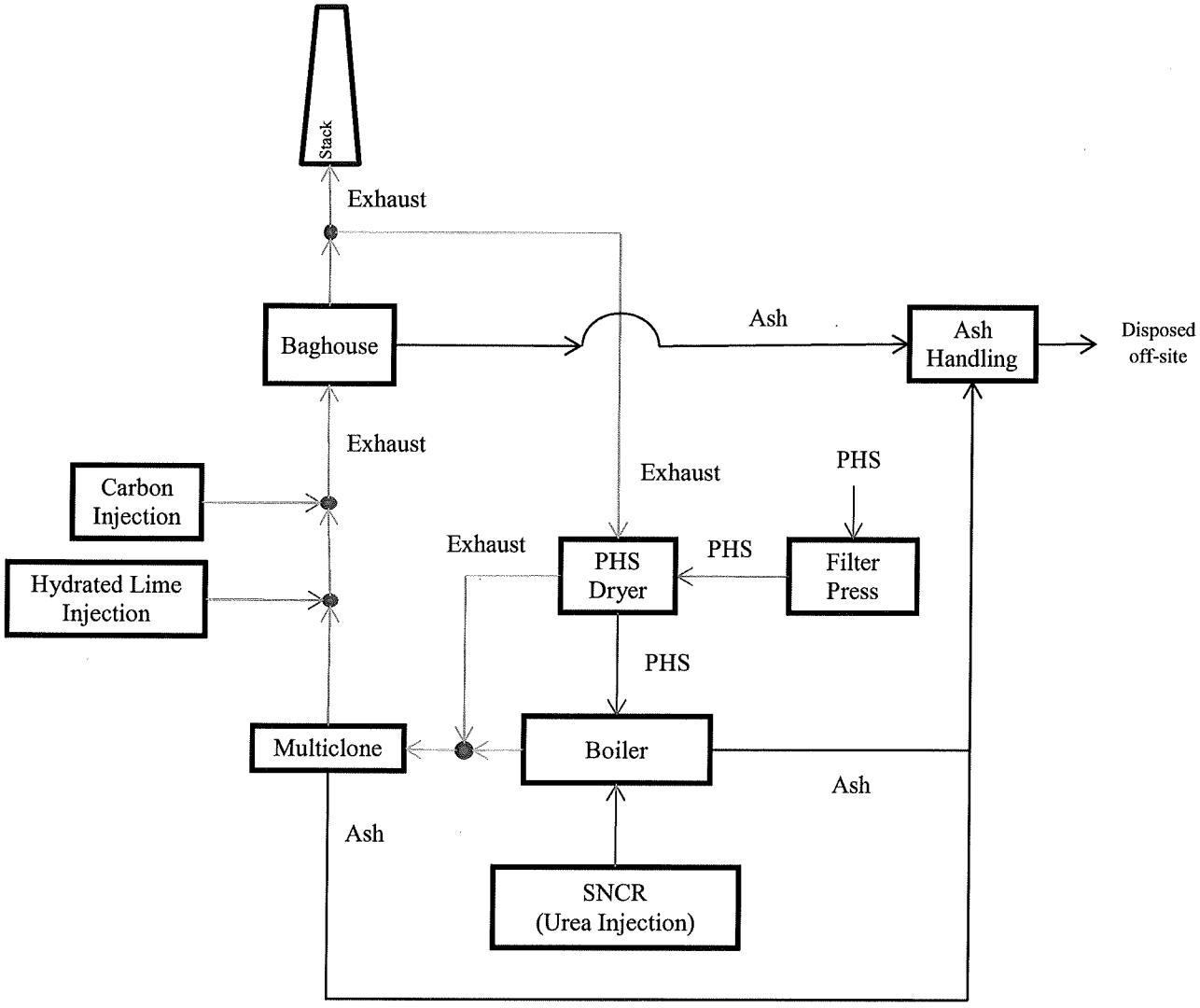
Unit	PM (lb/hr)	PM_{10} (lb/hr)	$PM_{2.5}$ (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1	1.44	1.44	1.44	14.22	4.80	10.56	0.82
Boiler #2	1.44	1.44	1.44	14.22	4.80	10.56	0.82

Unit	HCl (lb/hr)	Mercury (lb/hr)
Boiler #1	1.13	1.427E-3
Boiler #2	1.13	1.427E-3

BACT emission limits for the boilers also includes a limit of 1.81 tons of SO_2 per 30-day rolling total for both boilers combined.

j. Control Equipment Arrangement

On the next page is a diagram of the arrangement of the proposed control equipment on Boilers #1 and #2. Each boiler will have its own independent set of control equipment.


Stack
Exhaust
Baghouse
Ash
Ash Handling
Disposed off-site
Exhaust
Carbon Injection
Hydrated Lime Injection
Exhaust
PHS
Exhaust
PHS Dryer
PHS
Filter Press
PHS
Multiclone
Boiler
Ash
Ash
SNCR (Urea Injection)

2. Federal Rule Applicability Determination

Several Federal rules were investigated for potential applicability to Boilers #1 and #2. Determining which rule(s) apply is dependent upon several factors, including the equipment's size, age, and fuel(s) fired. The size and age of the units are defined above.

The primary fuel for these units is the PHS produced by the process. To determine which rules may apply to the combustion of PHS, it must first be determined whether the PHS is considered a waste or non-waste.

All definitions referenced in the following paragraph come from 40 CFR Part 60, Subpart AAAA, *Standards of Performance for Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 or for which Modification or Reconstruction is Commenced After June 6, 2001.* If PHS were to be considered a waste, it would be considered "Refuse Derived Fuel" as defined in §60.1465. Refuse Derived Fuel is included in the definition of Municipal Solid Waste (MSW), meaning Refuse Derived Fuel is considered MSW. Therefore, if PHS is considered a waste, it would be MSW and the boilers would be subject to 40 CFR Part 60, Subpart AAAA.

However, Fiberight maintains that PHS should not be considered a waste, asserting it meets the legitimacy criteria for non-hazardous secondary materials set forth in 40 CFR Part 241.3, *Standards and procedures for identification of non-hazardous secondary materials that are solid wastes when used as fuels or ingredients in combustion units*. The qualification of fuels as non-waste per this section is intended to be a self-certification, meaning no response from EPA is required. However, in 2013 Fiberight submitted their self-certification to EPA and requested a determination on whether EPA is in concurrence that the PHS should be classified as a non-waste. Although there have been several exchanges between Fiberight and EPA and requests for additional information, to date EPA has not issued any decision.

Fiberight has requested that their license be processed based on their self-certification that the PHS is a non-waste. Fiberight acknowledges and understands that relying on their self-certification puts them at significant risk of not being able to operate in compliance with Federal rules should EPA make a determination that PHS does not meet the requirements to be considered a non-waste.

By considering PHS to be a non-waste, it is treated like a "traditional" fuel similar to biomass. As such, Boilers #1 and #2 are being licensed assuming they are new biomass-fired boilers.

3. 40 CFR Part 60, Subpart Dc

   Boilers #1 and #2 are subject to the New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, for units greater than 10 MMBtu/hr manufactured after June 9, 1989. However, Subpart Dc contains only limited requirements for new boilers which fire only biomass and natural gas.

   Fiberight shall submit notification to EPA and the Department of the date of construction, anticipated start-up, and actual start-up of Boilers #1 and #2. This notification shall include the design heat input capacity of the boilers and the type(s) of fuel to be combusted. [40 CFR Part 60.48c(a)]

   Fiberight shall keep records of the amount of each fuel combusted in Boilers #1 and #2 during each calendar month. [40 CFR Part 60.48c(g)(2)]

4. 40 CFR Part 63, Subpart JJJJJJ

   Boilers #1 and #2 are subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* (40 CFR Part 63 Subpart JJJJJJ). The units are considered new biomass-fired boilers rated greater than 10 MMBtu/hr.

   A summary of the currently applicable federal 40 CFR Part 63 Subpart JJJJJJ requirements is listed below. The rule may contain additional requirements and/or clarifications not outlined below. At this time, the Department has not taken delegation of this area source MACT (Maximum Achievable Control Technology) rule promulgated by EPA. However, Fiberight is still subject to all applicable requirements contained in the rule. Notification forms and additional rule information can be found on the following website: http://www.epa.gov/ttn/atw/boiler/boilerpg.html.

   a. General Requirements

      Fiberight shall operate and maintain Boilers #1 and #2, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. [40 CFR §63.11205(a)]

b. Emission Limits and Work Practice Requirements

(1) Boilers #1 and #2 are each subject to the following limits:

i. Limit emissions of PM (filterable) to less than or equal to 0.030 lb/MMBtu except for periods of startup and shutdown. [40 CFR Part 63, Subpart JJJJJJ, Table 1]
ii. Minimize the boiler's startup and shutdown periods and conduct startups and shutdowns according to the manufacturer's recommended procedures. [40 CFR Part §63.11214(d) and Table 2]
iii. Install and operate a bag leak detection system according to §63.11224 and operate the fabric filter such that the bag leak detection system alarm does not sound more than 5% of the unit operating time during each 6-month period. [40 CFR Part 63, Subpart JJJJJJ, Table 3]
iv. Maintain the 30-day rolling average operating load of the boiler such that it does not exceed 110 percent of the average operating load recorded during the most recent performance stack test. [40 CFR Part 63, Subpart JJJJJJ, Table 3]
v. These standards apply at all times the boiler is operating, except during periods of startup and shutdown as defined in 40 CFR §63.11237 during which time Fiberight must comply only with work practice standards. [40 CFR §63.11201(d)]

(2) Boiler Tune-Up Program

i. A boiler tune-up program shall be implemented. The first tune-up is due no later than 61 months after the initial startup of each boiler. [40 CFR Part 63.11223]
ii. Tune-ups for Boilers #1 and #2 shall be conducted every five years with no more than 61 months between tune-ups. [40 CFR Part 63.11223(c) and 40 CFR Part 63, Subpart JJJJJJ, Table 2]
iii. The boiler tune-up program 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 72 months from the previous inspection. [40 CFR Part 63.11223(b)(1) & (c)]
    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 CFR Part 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 72 months from the previous inspection. [40 CFR Part 63.11223(b)(3) & (c)]

4. Optimize total emissions of CO, consistent with manufacturer's specifications. [40 CFR Part 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 CFR Part 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 CFR Part 63.11223(b)(7)]

iv. Tune-Up Report: A tune-up report shall be maintained onsite and, if requested, submitted to EPA and the Department. 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 CFR §63.11223(b)(6)]

c. Continuous Monitoring System (CMS) and Continuous Parameter Monitoring System (CPMS)

(1) Fiberight shall install, operate, and maintain a CPMS for Boilers #1 and #2. The CPMS for Boilers #1 and #2 includes operating load data (fuel feed rate or steam generation data for each boiler) and a bag leak detection system for each baghouse. [40 CFR §63.11222(a)]
(2) Fiberight shall install a bag leak detection system on each baghouse that meets the requirements of §63.11224(f) per 40 CFR Part 63, Subpart JJJJJJ, Table 6.
(3) Fiberight shall initiate corrective action within 1 hour of a bag leak detection system alarm and operate and maintain the fabric filter system such that the alarm does not sound more than 5% of the operating time during a 6-month period. In calculating the operating time percentage, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If corrective action is required, each alarm is counted as a minimum of 1 hour. If more than 1 hour is taken to initiate corrective action, the alarm

time is counted as the actual amount of time taken to initiate corrective action. [40 CFR §63.11222(a)(4)]

(4) Fiberight shall establish a unit-specific limit for maximum operating load (fuel feed rate or steam generation data) per 40 CFR Part 63, Subpart JJJJJJ, Table 6.

(5) Fiberight shall continuously monitor the boiler operating load and reduce this data to 30-day rolling averages to demonstrate compliance with the limitations on the maximum operating load per 40 CFR Part 63, Subpart JJJJJJ, Table 7.

(6) Fiberight shall not operate either boiler above 110% of the operating load (30-day rolling average) established at the most recent successful performance stack test, except during performance tests conducted to determine compliance with the emission and operating limits or to establish new operating limits. Operating limits are confirmed or reestablished during performance tests. Operation above 110% of the established operating load constitutes a deviation from operating limits. [40 CFR §63.11222(a)(1)]

(7) Fiberight shall prepare a site-specific monitoring plan that addresses the requirements outlined in 40 CFR §63.11224(c).

(8) The CPMS shall be continuously operated in accordance with the site-specific monitoring plan at all times that the boiler is operating except for periods of monitoring system malfunctions or out-of-control periods, repairs associated with monitoring system malfunctions or out-of-control periods, and required monitoring system quality assurance or quality control activities including, as applicable, calibration checks, required zero and span adjustments, and scheduled CMS maintenance as defined in the site-specific monitoring plan. Failure to collect required data, except for the periods described above, is a deviation of the monitoring requirements. [40 CFR §63.11221(b)&(d)]

(9) The CPMS shall complete a minimum of one cycle of operation every 15 minutes. Fiberight shall have data values from a minimum of four successive cycles of operation representing each of the four 15-minute periods in an hour, or at least two 15-minute data values during an hour when CMS calibration, quality assurance, or maintenance activities are being performed, to have a valid hour of data. [40 CFR §63.11224(d)(1)]

(10) Fiberight shall calculate hourly arithmetic averages from each hour of CPMS data and determine the 30-day rolling average of all recorded readings. [40 CFR §63.11224(d)(2)]

d. Performance Tests (for Subpart JJJJJJ only)

(1) Fiberight shall conduct an initial performance test for PM on each boiler in accordance with 40 CFR Part 63, Subpart JJJJJJ, Table 4 within 180 days of startup. [40 CFR §63.11210(a) & (d)]

(2) Fiberight shall conduct performance stack tests at the representative operating load conditions while burning the type of fuel (or mixture of fuels) that have the highest emissions potential. [40 CFR §63.11212(c)]

(3) Fiberight shall conduct a minimum of three separate test runs for each performance stack test. [40 CFR §63.11212(d)]
(4) Fiberight shall establish operating load limits for each boiler during the performance test. Fiberight shall collect operating load data (fuel feed rate or steam generation data) every 15 minutes during the entire period of the performance test. Fiberight shall determine the average operating load for each run using all of the 15-minute readings taken during that run. The three runs shall be averaged together and multiplied by 1.1 (110%) to determine the operating load limit. [40 CFR §63.11211(a) and Table 6]
(5) If the results of the performance stack test demonstrate emissions equal to or less than half of the PM emission limit (i.e. ≤0.015 lb/MMBtu), no further PM performance stack tests are required. [40 CFR §63.11220(b)]
(6) If the results of the performance stack test demonstrate emissions greater than half of the PM emission limit (i.e. >0.015 lb/MMBtu), Fiberight shall conduct triennial performance tests with no more than 37 months between tests. [40 CFR §63.11220(a)]

e. Notifications and Reports

Fiberight shall submit to EPA and the Department all reports required by 40 CFR Part 63, Subpart JJJJJJ including, but not limited to, the following:

(1) An Initial Notification submittal is due within 120 days after the source becomes subject to the standard. [40 CFR Part 63.11225(a)(2)]
(2) A Notification of Intent to conduct a performance test shall be submitted to EPA at least 60 days before the performance stack test is scheduled to begin. [40 CFR §63.11225(a)(3)] Fiberight shall also notify the Department of their intent to conduct a performance test at the same time notification is given to EPA.
(3) Within 60 days after the date of completing each performance test, Fiberight shall submit the results of the performance test to EPA's WebFIRE database. [40 CFR §63.11225(e)(1)] Fiberight shall also submit results to the Department in accordance with Standard Condition (11)(C) of this air emission license.
(4) A Notification of Compliance Status shall be submitted to EPA no later than 60 days following the completion of the performance stack test. [40 CFR Part 63.11225(a)(4)] EPA requires submission of Notification of Compliance Status reports for tune-ups through their electronic reporting system. [63.11225(a)(4)(vi)]
(5) Compliance Reports
A compliance report shall be prepared by March 1st of each year. The report shall be maintained by the source and submitted to the Department and to the EPA upon request, unless the source experiences any deviations from the applicable requirements of this Subpart during the previous calendar year,

then the report must be submitted to the Department and to the EPA by March 15th. The report must include the items contained in §63.11225(b)(1) through (4), including the following: [40 CFR §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 CFR §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 40 CFR §§63.11214(d) to conduct a tune-up of each applicable boiler according to 40 CFR §63.11223(b)."
v. If the source experiences any deviations from the applicable requirements during the reporting period, include a description of deviations, the time periods during which the deviations occurred, and the corrective actions taken; and
vi. The total fuel use by each boiler for each calendar month within the reporting period, including a description of the fuel, whether the fuel has received a non-waste determination by Fiberight or EPA through a petition process to be a non-waste under 40 CFR §241.3(c), whether the fuel(s) were processed from discarded non-hazardous secondary materials within the meaning of 40 CFR §241.3, and the total fuel usage amount with units of measure.

f. Recordkeeping

Records shall be maintained consistent with the requirements of 40 CFR Part 63, Subpart JJJJJJ including the following [40 CFR Part 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 which document how the non-hazardous secondary material combusted in the boilers meets each of the legitimacy criteria under 40 CFR §241.3(d)(1) and how the operations that produced the fuel satisfies the definition of processing in 40 CFR §241.2. If Fiberight receives a non-waste

determination from EPA pursuant to the petition process, records must be kept that document how the fuel satisfies the requirements of the petition process.;

(4) Records of monthly fuel use including the type(s) of fuel and amount(s) used;
(5) Records of the occurrence and duration of each malfunction of each applicable boiler;
(6) Records of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore the malfunctioning boiler;
(7) Records of all inspection and monitoring data; and
(8) Records associated with each bag leak detection system including:
   i. Records of bag leak detection system output;
   ii. Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and
   iii. The date and time of all bag leak detection system alarms, and for each valid alarm, the time you initiated corrective action, the corrective action taken, and the date on which corrective action was completed.
(9) Records shall be in a form suitable and readily available for expeditious review.

D. Anaerobic Digesters, Thermal Oxidizer, and Flare

Fiberight proposes to install two Anaerobic Digesters (ADs). The ADs produce biogas heavily laden with methane from digestion of the organic material in the wash water from the pulping operation. Industrial sugars produced by the hydrolysis reactors are also sent to the ADs to increase biogas output.

The ADs will produce up to 1200 scfm of biogas (Digester Gas). The Digester Gas is assumed to contain approximately 70% methane and have a maximum hydrogen sulfide (H_2S) concentration of 500 ppmv.

The Digester Gas will be sent to a conditioning system which will convert it to "Sales Gas" as described below. Sales Gas will be sold for use off-site. It is expected this will occur through injection into the Bangor Gas natural gas pipeline. As such, Sales Gas must meet the requirements of pipeline quality natural gas including a composition of greater than 98% methane and removal of the H_2S to pipeline quality natural gas specifications.

The conditioning system proposed consists of two Molecular Gate™ Pressure Swing Adsorption (PSA) units provided by Guild Associates, Inc. The PSA units remove impurities (mostly carbon dioxide and H_2S) from the Digester Gas resulting in two gas streams, the Sales Gas and Tail Gas. Tail Gas is assumed to have a methane content of approximately 10% and a maximum H_2S concentration of 1600 ppmv.

Under normal operating conditions, all Digester Gas will be conditioned and the Sales Gas portion sent off-site. The remaining Tail Gas will be controlled by a thermal oxidizer.

The thermal oxidizer proposed is an Enclosed ZBRID System for Low BTU Gases (ZBRID TO) manufactured by John Zink Company LLC. This type of thermal oxidizer is often referred to as an enclosed flare. Since the Tail Gas has such low methane content, the ZBRID TO requires supplemental fuel to maintain ignition. Fiberight plans to use Digester Gas for this purpose. The ZBRID TO fires up to 209 scfm of Digester Gas during startup and up to 26 scfm during normal operation. The maximum Tail Gas destruction rate is 386 scfm.

The ZBRID TO is designed only to handle the Tail Gas from the PSA and not the full load of the ADs. Therefore, during startup, shutdown, or under upset conditions the ZBRID TO may not be adequate to handle the gas being produced. Fiberight does not have the ability to store gas. Therefore, under conditions where Digester Gas, Sales Gas, Tail Gas, or any combination of the three cannot be either sent off-site or controlled using the ZBRID TO, emissions shall be controlled by an Elevated ZEF® Flare (Flare #1) manufactured by John Zink Company LLC. Flare #1 is sized to control up to 1200 scfm of Digester Gas, the maximum amount expected to be produced by the facility. Since Flare #1 is intended for destruction of gases with a relatively high methane content, a continuous assist burner is not required.

BACT Findings

1. The BACT emission limits for the ZBRID TO were based on the following:

   a. Firing 386 scfm of Tail Gas and 26 scfm of Digester Gas.
   b. The following emission factors:

$PM/PM_{10}/PM_{2.5}$	–	17 lb/MMscf based on AP-42 Table 2.4-5 dated 11/98
SO_2	–	mass balance based on 1600 ppmv of H_2S in Tail Gas and 500 ppmv of H_2S in Digester Gas
NO_x	–	0.10 lb/MMBtu based on manufacturer supplied data
CO	–	0.20 lb/MMBtu based on manufacturer supplied data
VOC	–	5.5 lb/MMscf based on AP-42 Table 1.4-2 dated 7/98
Opacity	–	06-096 CMR 115, BACT

2. The BACT emission limits for Flare #1 were based on the following:

   a. Firing 1200 scfm of Digester Gas.
   b. The following emission factors:

$PM/PM_{10}/PM_{2.5}$	–	17 lb/MMscf based on AP-42 Table 2.4-5 dated 11/98
SO_2	–	mass balance based on 500 ppmv of H_2S in Digester Gas
NO_x	–	0.068 lb/MMBtu based on manufacturer supplied data
CO	–	0.31 lb/MMBtu based on manufacturer supplied data
VOC	–	5.5 lb/MMscf based on AP-42 Table 1.4-2 dated 7/98
Opacity	–	06-096 CMR 115, BACT

3. The BACT emission limits for the ZBRID TO and Flare #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)
ZBRID TO	0.42	0.42	0.42	6.40	0.37	0.73	0.14
Flare #1	1.22	1.22	1.22	6.09	3.46	15.78	0.40

Visible emissions from the ZBRID TO and Flare #1 shall each not exceed 20% opacity on a 6-minute block average.

Fiberight shall be limited to firing 182.6 million scf of Tail Gas and 12.3 million scf of Digester gas per year in the ZBRID TO. Fiberight shall be limited to firing 63.07 million scf of Digester gas per year in Flare #1. Fiberight shall keep records of each type of gas combusted in the ZBRID TO and Flare #1 on a monthly and 12-month rolling total basis.

E. Fugitive VOCs and HAPs

The receiving, sorting, pulping, cooking, and other operations performed inside the building have the potential to emit fugitive VOCs and HAPs. It is difficult to quantify expected actual amounts, but estimates have been made based on the similarity to other industries and best practices looked at for the minimization of these emissions. Although odor is not regulated by this air emissions license, the reduction of VOCs and HAPs emitted from the facility should have the added benefit of reducing odors.

Fiberight has proposed an air handling system that will draw air from inside the building and treat it in either of two scrubber trains. Each scrubber train will consist of two packed bed wet scrubbers in series, a Duall Model F105-202s Cross Flow Scrubber followed by a Duall Model PT510-132 Packed Tower Scrubber. Contaminant removal is achieved by absorption of gases, condensation of condensable vapors, and impaction of aerosols. The flow through each scrubber train is controlled by a fan rated for 50,000 acfm.

One of the scrubber trains shall be operated at all times MSW is present on the tipping floor. Both scrubber trains shall be operated whenever the overhead doors used for truck entry or exit is open.

Based on VOC emissions from similar tipping floor operations, an assumed capture efficiency of 90%, and an assumed control efficiency of 95%, VOC emissions from each scrubber train are expected to be less than 2.9 ton/year. The scrubber trains are also expected to reduce fugitive emissions of any HAPs present in the air stream. The scrubber trains shall be maintained in good working order. Fiberight shall perform monthly inspections of the scrubbers and maintain records of all inspections and maintenance activities performed.

F. Cooling Towers

Fiberight will be using cooling towers to dispose of waste heat. Cooling towers function by spraying cool water over a column of packing while a fan draws air up through the packing to promote evaporative cooling. During the process, water mist droplets can become entrained in the circulating air and get discharged to the atmosphere. The "drift" droplets can be a source of particulate matter emissions as the water evaporates and the dissolved salts in the water solidify.

Although the cooling towers are considered insignificant activities per 06-096 CMR 115, Appendix B, Section A.99, Fiberight has proposed the installation of drift eliminators to minimize any emissions of particulate that may occur.

G. Ash Handling

Boilers #1 and #2 will produce ash that will be disposed of off-site. In order to minimize fugitive emissions, Fiberight shall develop and follow an established Best Management Practice (BMP) Plan as described in Standard Condition (4). The BMP Plan shall include a plan for how to minimize fugitive emissions from ash handling.

Visible emissions from ash handling shall not exceed an opacity of 10% on a six (6) minute block average basis.

H. Hydrated Lime and Carbon Silos

The boiler pollution control equipment will require silos for storage of hydrated lime and carbon. Typically, hydrated lime and carbon are delivered by truck or bags. Each silo shall be equipped with a vent filter to minimize particulate emissions and visible emissions when the silos are filled. Visible emissions from either the hydrated lime silo or the carbon silo shall not exceed an opacity of 10% on a six (6) minute block average basis.

I. Fugitive Emissions

Visible emissions from a fugitive emission source (including roadways) shall not exceed an opacity of 20%.

J. General Process Emissions

Visible emissions from any general process source not already specifically addressed in this license shall not exceed an opacity of 20% on a six (6) minute block average basis.

K. Annual Emissions

1. Total Annual Emissions
   Fiberight shall be restricted to the following annual emissions, based on a 12-month rolling total. The tons per year limits were calculated based on the following:
   - Firing 80,000 ton/year of PHS at 41.5% moisture (or equivalent on a dry solids basis) in the boilers;
   - Firing 2.0 MMscf/year of natural gas in the boilers;
   - A 30-day rolling total limit for SO_2 of 1.81 tons;
   - Firing 182.6 MMscf/year of Tail Gas and 12.3 MMscf/year of Digester Gas in the ZBRID TO;
   - Firing 63.07 MMscf/year of Digester Gas in Flare #1;
   - Maximum VOC emissions of 2.9 ton/year from each scrubber train.

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
Boilers #1 & #2 (PHS)	11.4	11.4	11.4	22.0	37.9	83.4	6.4
Boilers #1 & #2 (NG)	0.1	0.1	0.1	–	0.1	0.1	–
ZBRID TO	1.7	1.7	1.7	25.2	1.5	2.9	0.5
Flare #1	0.5	0.5	0.5	2.7	1.5	6.9	0.2
Scrubber Trains (2)	–	–	–	–	–	–	5.8
Total TPY	**13.7**	**13.7**	**13.7**	**49.9**	**41.0**	**93.3**	**12.9**

Pollutant	Tons/year
Single HAP	9.9
Total HAP	24.9

Pollutant	lb/year
Mercury	25.0

2. Greenhouse Gases
Greenhouse gases are considered regulated pollutants as of January 2, 2011, through 'Tailoring' revisions made to EPA's *Approval and Promulgation of Implementation Plans,* 40 CFR Part 52, Subpart A, §52.21, *Prevention of Significant Deterioration of Air Quality* rule. Greenhouse gases, as defined in 06-096 CMR 100 (as amended), are the aggregate group of the following gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. For licensing purposes, greenhouse gases (GHG) are calculated and reported as carbon dioxide equivalents (CO_2e).

The quantity of CO_2e emissions from this facility is less than 100,000 tons per year, based on the following:

- the facility's fuel use limits;
- worst case emission factors from the following sources: U.S. EPA's AP-42, the Intergovernmental Panel on Climate Change (IPCC), and 40 CFR Part 98, *Mandatory Greenhouse Gas Reporting*; and
- global warming potentials contained in 40 CFR Part 98.

No additional licensing actions to address GHG emissions are required at this time.

III. AMBIENT AIR QUALITY ANALYSIS

The level of ambient air quality impact modeling required for a minor source shall be determined by the Department on a case-by case basis. In accordance with 06-096 CMR 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.

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-111-71-A-N subject to the following conditions.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License 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.A. §347-C).

(2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 115. [06-096 CMR 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 CMR 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 CMR 115]

(5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S.A. §353-A. [06-096 CMR 115]

(6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 CMR 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 CMR 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 CMR 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 CMR 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 CMR 115]

(11) In accordance with the Department's air emission compliance test protocol and 40 CFR 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 CFR 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 CMR 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 such test results, 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 CFR 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 CMR 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 Part 70 license requirement. [06-096 CMR 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 CMR 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 CMR 115]

SPECIFIC CONDITIONS

(16) Boilers #1 & #2 and PHS Dryers

A. Fuel

1. Fiberight shall only combust PHS and pipeline quality natural gas in Boilers #1 & #2. [06-096 CMR 115, BACT]
2. Fiberight shall not exceed a total annual fuel limit of 80,000 ton/year at 41.5% moisture (or equivalent) of PHS for Boilers #1 & #2 combined based on a 12-month rolling total. [06-096 CMR 115, BACT]
3. Fiberight shall not exceed a total annual fuel limit of 2.0 MMscf/year of pipeline quality natural gas for Boilers #1 & #2 combined based on a 12-month rolling total. [06-096 CMR 115, BACT]
4. Fiberight shall keep records of the amount (tons of PHS and MMscf of gas) of fuel combusted in Boilers #1 & #2 during each calendar month as well as on a 12-month rolling total basis. Tons of PHS will be corrected to 41.5% moisture. [40 CFR §60.48c(g)(2)]
5. Fiberight shall sample and test the PHS at least twice per year with no more than eight (8) months between tests. Sampling and testing shall be performed using methods approved by the Department. A test report of the results shall be submitted to the Department no later than 60 days from the date of sampling. At a minimum, the PHS shall be tested for the following:
   a. Heat Content (Btu/lb on a dry basis)
   b. Moisture Content
   c. Levels of the following compounds. Report levels in units of pounds of each compound per MMBtu of heat content.
      - Total Chlorine
      - Total Sulfur
      - Mercury
      - Total Select Metals (Arsenic, Beryllium, Cadmium, Chromium, Lead, Manganese, Nickel, Selenium)

B. Air Pollution Control Equipment

1. Fiberight shall use multiclones and baghouses to control PM emissions from each boiler (Boilers #1 & #2) when firing PHS. [06-096 CMR 115, BACT]
2. Fiberight shall install a hydrated lime injection system in the exhaust stream of each boiler (Boilers #1 & #2) and operate as necessary to meet an HCl emission limit of 1.13 lb/hr from each boiler and the SO_2 emission limits required by this license. [06-096 CMR 115, BACT]
3. Fiberight shall maintain records of the hydrated lime injection operations, including amount of hydrated lime used on an hourly, monthly, and 12-month rolling total basis. [06-096 CMR 115, BACT]

4. Fiberight shall maintain the hydrated lime injection rate into each boiler exhaust stream at or above the injection rate measured during the most recent performance stack test demonstrating compliance with the HCl lb/hr emission limit. [06-096 CMR 115, BACT]
5. Fiberight shall install an activated carbon injection (ACI) system in the exhaust stream of each boiler (Boilers #1 & #2) and operate as necessary to meet a mercury emission limit of 1.427E-3 lb/hr for each boiler. [06-096 CMR 115, BACT]
6. Fiberight shall maintain records of the ACI operations, including amount of activated carbon used on an hourly, monthly, and 12-month rolling total basis. [06-096 CMR 115, BACT]
7. Fiberight shall maintain the activated carbon rate into each boiler exhaust stream at or above the injection rate measured during the most recent performance stack test demonstrating compliance with the mercury lb/hr emission limit. [06-096 CMR 115, BACT]
8. Fiberight shall install an SNCR system on each boiler (Boilers #1 & #2) and operate it as necessary to meet a NO_x emission limit of 0.10 lb/MMBtu for each boiler. [06-096 CMR 115, BACT]
9. Fiberight shall maintain records of the SNCR injection operations, including amounts of reagent used on an hourly, monthly, and 12-month rolling total basis. [06-096 CMR 115, BACT]

C. Emissions shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Boiler #1	PM	0.030	40 CFR §60.43c(e)(1) 40 CFR §63 §§JJJJJJ, Table 1 06-096 CMR 115, BACT
	NO_x	0.10 (See Notes 1 & 2)	06-096 CMR 115, BACT
Boiler #2	PM	0.030	40 CFR §60.43c(e)(1) 40 CFR §63 §§JJJJJJ, Table 1 06-096 CMR 115, BACT
	NO_x	0.10 (See Notes 1 & 2)	06-096 CMR 115, BACT

Note 1: Based on a 1-hour average

Note 2: The NO_x lb/MMBtu limits do not apply during periods of startup or shutdown as defined in this license.

D. Fiberight shall install, operate, and maintain a NO_x CEMS (in accordance with 40 CFR Part 60, Appendix B and 06-096 CMR 117) on each boiler (Boilers #1 & #2) to demonstrate compliance with the NO_x lb/MMBtu emission limits.
[06-096 CMR 115, BACT]

E. Emissions shall not exceed the following [06-096 CMR 115, BACT]:

Emission 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	1.44	1.44	1.44	14.22	4.80	10.56	0.82
Boiler #2	1.44	1.44	1.44	14.22	4.80	10.56	0.82

F. Emissions shall not exceed the following [06-096 CMR 115, BACT]:

Emission Unit	HCl (lb/hr)	Mercury (lb/hr)
Boiler #1	1.13	1.427E-3
Boiler #2	1.13	1.427E-3

G. Combined SO_2 emissions from Boilers #1 and #2 shall not exceed an emission limit of 1.81 tons on a 30-day rolling total basis. To calculate the 30-day rolling total, Fiberight shall sum each day's 1-hour data for each boiler and sum the previous 30 calendar days for both boilers combined. [06-096 CMR 115, BACT]

H. Fiberight shall install, operate, and maintain a SO_2 CEMS (in accordance with 40 CFR Part 60, Appendix B and 06-096 CMR 117) on each boiler (Boilers #1 & #2) to demonstrate compliance with the SO_2 lb/hr and tons per 30-day rolling total emission limits. [06-096 CMR 115, BACT]

I. Fiberight shall install, operate, and maintain a CO CEMS (in accordance with 40 CFR Part 60, Appendix B and 06-096 CMR 117) on each boiler (Boilers #1 & #2) to demonstrate compliance with the CO lb/hr emission limits.
[06-096 CMR 115, BACT]

J. Fiberight shall be limited to an NH_3 emission limit of 20 ppmdv at 15% O_2 on a 1-hour average basis. [06-096 CMR 115, BACT]

K. Visible emissions from Boilers #1 & #2 shall each not exceed 20% opacity on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average per hour of not more than 27% opacity. [40 CFR §60.43c(c)]

L. Performance Tests

In addition to the performance tests required by 40 CFR Part 63, Subpart JJJJJJ, Fiberight is subject to the following:

1. Fiberight shall demonstrate compliance with the VOC lb/hr emission limits for each boiler through stack testing within 180 days of initial startup. The associated PHS Dryer must be operating during compliance testing. Additional compliance testing shall be performed upon the request of the Department. [06-096 CMR 115, BACT]

2. Fiberight shall demonstrate compliance with the HCl and mercury lb/hr emission limits for each boiler through stack testing within 180 days of initial startup. The associated PHS Dryer must be operating during compliance testing. Additional compliance testing shall be performed once per calendar year with no more than 14 months between tests. [06-096 CMR 115, BACT]

3. The performance stack tests for VOC, HCl, and mercury shall be conducted at representative operating load conditions and while firing and drying PHS. [06-096 CMR 115, BACT]

4. Fiberight shall perform stack testing on the combustion of PHS in each boiler for the following:

    - Total Select Metals (Arsenic, Beryllium, Cadmium, Chromium, Lead, Manganese, Nickel, Selenium)
    - Dioxins/Furans

    Tests shall be performed within 180 days of initial startup using test methods approved by the Department. The associated PHS dryer must be operating during testing. Results shall be reported in units of lb/MMBtu. Additional testing shall be performed once per calendar year with no more than 14 months between tests. [06-096 CMR 115, BACT]

5. Fiberight shall demonstrate compliance with the NH_3 ppmdv emission limit for each boiler within 180 days of initial startup and every other calendar year thereafter with no more than 14 months between tests. [06-096 CMR 115, BACT]

M. Requirements of 40 CFR Part 60, Subpart Dc for Boilers #1 & #2 Not Covered Elsewhere in this Order Section

1. Fiberight shall comply with all requirements of 40 CFR Part 60, Subpart Dc applicable to Boilers #1 & #2.

2. Fiberight shall submit notification to EPA and the Department of the date of construction, anticipated start-up, and actual start-up of Boilers #1 and #2. This notification shall include the design heat input capacity of the boiler and the type of fuel(s) to be combusted. [40 CFR Part 60.48c(a)]

N. Requirements of 40 CFR Part 63, Subpart JJJJJJ for Boilers #1 & #2 Not Covered Elsewhere in this Order Section [incorporated under 06-096 CMR 115, BACT]

1. Fiberight shall operate and maintain Boilers #1 and #2, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. [40 CFR §63.11205(a)]

2. Emission Limits and Work Practice Standards

a. Boilers #1 & #2 are each subject to the following limits:

(1) Limit emissions of PM (filterable) to less than or equal to 0.030 lb/MMBtu except for periods of startup and shutdown. [40 CFR Part 63, Subpart JJJJJJ, Table 1]
(2) Minimize the boiler's startup and shutdown periods and conduct startups and shutdowns according to the manufacturer's recommended procedures. [40 CFR Part §63.11214(d) and Table 2]
(3) Install and operate a bag leak detection system according to §63.11224 and operate the fabric filter such that the bag leak detection system alarm does not sound more than 5% of the unit operating time during each 6-month period (as defined by the subpart). [40 CFR Part 63, Subpart JJJJJJ, Table 3]
(4) Maintain the 30-day rolling average operating load of the boiler such that it does not exceed 110 percent of the average operating load recorded during the most recent performance stack test. [40 CFR Part 63, Subpart JJJJJJ, Table 3]
(5) These standards apply at all times the boiler is operating, except during periods of startup and shutdown as defined in 40 CFR §63.11237 during which time Fiberight must comply only with work practice standards. [40 CFR §63.11201(d)]

b. Boiler Tune-Up Program

(1) A boiler tune-up program shall be implemented. The first tune-up is due no later than 61 months after the initial startup of each boiler. [40 CFR Part 63.11223]

(2) Tune-ups for Boilers #1 and #2 shall be conducted every five years with no more than 61 months between tune-ups. [40 CFR Part 63.11223(c) and 40 CFR Part 63, Subpart JJJJJJ, Table 2]

(3) The boiler tune-up program shall be performed as specified below:

i. 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 72 months from the previous inspection. [40 CFR Part 63.11223(b)(1) & (c)]

ii. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern, consistent with the manufacturer's specifications. [40 CFR Part 63.11223(b)(2)]

iii. 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 72 months from the previous inspection. [40 CFR Part 63.11223(b)(3) & (c)]

iv. Optimize total emissions of CO, consistent with manufacturer's specifications. [40 CFR Part 63.11223(b)(4)]

v. 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 CFR Part 63.11223(b)(5)]

vi. 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 CFR Part 63.11223(b)(7)]

(4) Tune-Up Report: A tune-up report shall be maintained onsite and, if requested, submitted to EPA and the Department. The report shall contain the following information:

i. 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;

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

iii. 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 CFR §63.11223(b)(6)]

3. Continuous Monitoring System (CMS) and Continuous Parameter Monitoring System (CPMS)

   a. Fiberight shall install, operate, and maintain a CPMS for Boilers #1 and #2. The CPMS for Boilers #1 and #2 includes operating load data (fuel feed rate or steam generation data for each boiler) and a bag leak detection system for each baghouse. [40 CFR §63.11222(a)]
   b. Fiberight shall install a bag leak detection system on each baghouse that meets the requirements of §63.11224(f) per 40 CFR Part 63, Subpart JJJJJJ, Table 6.
   c. Fiberight shall initiate corrective action within 1 hour of a bag leak detection system alarm and operate and maintain the fabric filter system such that the alarm does not sound more than 5% of the operating time during a 6-month period. In calculating the operating time percentage, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If corrective action is required, each alarm is counted as a minimum of 1 hour. If more than 1 hour is taken to initiate corrective action, the alarm time is counted as the actual amount of time taken to initiate corrective action. [40 CFR §63.11222(a)(4)]
   d. Fiberight shall establish a unit-specific limit for maximum operating load (fuel feed rate or steam generation data) per 40 CFR Part 63, Subpart JJJJJJ, Table 6.
   e. Fiberight shall continuously monitor the boiler operating load and reduce this data to 30-day rolling averages to demonstrate compliance with the limitations on the maximum operating load per 40 CFR Part 63, Subpart JJJJJJ, Table 7.
   f. Fiberight shall not operate either boiler above 110% of the operating load (30-day rolling average) established at the most recent successful performance stack test, except during performance tests conducted to determine compliance with the emission and operating limits or to establish new operating limits. Operating limits are confirmed or reestablished during performance tests. Operation above 110% of the established operating load constitutes a deviation from operating limits. [40 CFR §63.11222(a)(1)]
   g. Fiberight shall prepare a site-specific monitoring plan that addresses the requirements outlined in 40 CFR §63.11224(c).
   h. The CPMS shall be continuously operated in accordance with the site-specific monitoring plan at all times that the boiler is operating except for periods of monitoring system malfunctions or out-of-control periods, repairs associated with monitoring system malfunctions or out-of-control periods, and required monitoring system quality assurance or quality control activities including, as applicable, calibration checks, required zero and span adjustments, and scheduled CMS maintenance as defined in the site-specific monitoring plan. Failure to collect required data, except for the periods described above, is a deviation of the monitoring requirements. [40 CFR §63.11221(b)&(d)]
   i. The CPMS shall complete a minimum of one cycle of operation every 15 minutes. Fiberight shall have data values from a minimum of four successive

cycles of operation representing each of the four 15-minute periods in an hour, or at least two 15-minute data values during an hour when CMS calibration, quality assurance, or maintenance activities are being performed, to have a valid hour of data. [40 CFR §63.11224(d)(1)]

j. Fiberight shall calculate hourly arithmetic averages from each hour of CPMS data and determine the 30-day rolling average of all recorded readings. [40 CFR §63.11224(d)(2)]

4. Performance Tests

a. Fiberight shall conduct an initial performance test for PM on each boiler in accordance with 40 CFR Part 63, Subpart JJJJJJ, Table 4 within 180 days of startup. [40 CFR §63.11210(a) & (d)]
b. Fiberight shall conduct performance stack tests at the representative operating load conditions while burning the type of fuel (or mixture of fuels) that have the highest emissions potential. [40 CFR §63.11212(c)]
c. Fiberight shall conduct a minimum of three separate test runs for each performance stack test. [40 CFR §63.11212(d)]
d. Fiberight shall establish operating load limits for each boiler during the performance test. Fiberight shall collect operating load data (fuel feed rate or steam generation data) every 15 minutes during the entire period of the performance test. Fiberight shall determine the average operating load for each run using all of the 15-minute readings taken during that run. The three runs shall be averaged together and multiplied by 1.1 (110%) to determine the operating load limit. [40 CFR §63.11211(a) and Table 6]
e. If the results of the performance stack test demonstrate emissions equal to or less than half of the PM emission limit (i.e. $\leq$0.015 lb/MMBtu), no further performance stack tests are required. [40 CFR §63.11220(b)]
f. If the results of the performance stack test demonstrate emissions greater than half of the PM emission limit (i.e. >0.015 lb/MMBtu), Fiberight shall conduct triennial performance tests with no more than 37 months between tests. [40 CFR §63.11220(a)]

5. Notifications and Reports

Fiberight shall submit to EPA and the Department all reports required by 40 CFR Part 63, Subpart JJJJJJ including, but not limited to, the following:

a. An Initial Notification submittal to EPA is due within 120 days after the source becomes subject to the standard. [40 CFR Part 63.11225(a)(2)]
b. A Notification of Intent to conduct a performance test shall be submitted to EPA at least 60 days before the performance stack test is scheduled to begin. [40 CFR §63.11225(a)(3)] Fiberight shall also notify the Department of their

intent to conduct a performance test at the same time notification is given to EPA.

c. Within 60 days after the date of completing each performance test, Fiberight shall submit the results of the performance test to EPA's WebFIRE database. [40 CFR §63.11225(e)(1)] Fiberight shall also submit results to the Department in accordance with Standard Condition (11)(C) of this air emission license.

d. A Notification of Compliance Status shall be submitted to EPA no later than 60 days following the completion of the performance stack test. [40 CFR Part 63.11225(a)(4)] EPA requires submission of Notification of Compliance Status reports for tune-ups through their electronic reporting system. [63.11225(a)(4)(vi)]

e. Compliance Reports

A compliance report shall be prepared by March 1st of each year. The report shall be maintained by the source and submitted to the Department and to the EPA upon request, unless the source experiences any deviations from the applicable requirements of this Subpart during the previous calendar year, then the report must be submitted to the Department and to the EPA by March 15th. The report must include the items contained in §63.11225(b)(1) through (4), including the following: [40 CFR §63.11225(b)]

(1) Company name and address;

(2) A statement of whether the source has complied with all the relevant requirements of this Subpart;

(3) 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;

(4) The following certifications, as applicable:

i. "This facility complies with the requirements in 40 CFR §63.11223 to conduct tune-ups of each boiler in accordance with the frequency specified in this Subpart."

ii. "No secondary materials that are solid waste were combusted in any affected unit."

iii. "This facility complies with the requirement in 40 CFR §§63.11214(d) to conduct a tune-up of each applicable boiler according to 40 CFR §63.11223(b)."

(5) If the source experiences any deviations from the applicable requirements during the reporting period, include a description of deviations, the time periods during which the deviations occurred, and the corrective actions taken; and

(6) The total fuel use by each boiler for each calendar month within the reporting period, including a description of the fuel, whether the fuel has received a non-waste determination by Fiberight or EPA through a petition process to be a non-waste under 40 CFR §241.3(c), whether the fuel(s)

were processed from discarded non-hazardous secondary materials within the meaning of 40 CFR §241.3, and the total fuel usage amount with units of measure.

6. Recordkeeping

Records shall be maintained consistent with the requirements of 40 CFR Part 63, Subpart JJJJJJ including the following [40 CFR Part 63.11225(c)]:

a. Copies of notifications and reports with supporting compliance documentation;
b. 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;
c. Records which document how the non-hazardous secondary material combusted in the boilers meets each of the legitimacy criteria under 40 CFR §241.3(d)(1) and how the operations that produced the fuel satisfies the definition of processing in 40 CFR §241.2. If Fiberight receives a non-waste determination from EPA pursuant to the petition process, records must be kept that document how the fuel satisfies the requirements of the petition process.;
d. Records of monthly fuel use including the type(s) of fuel and amount(s) used;
e. Records of the occurrence and duration of each malfunction of each applicable boiler;
f. Records of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore the malfunctioning boiler;
g. Records of all inspection and monitoring data; and
h. Records associated with each bag leak detection system including:
   (1) Records of bag leak detection system output;
   (2) Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and
   (3) The date and time of all bag leak detection system alarms, and for each valid alarm, the time you initiated corrective action, the corrective action taken, and the date on which corrective action was completed.
i. Records shall be in a form suitable and readily available for expeditious review.

(17) **Facility Wide HAP Limits**

A. Fiberight shall not exceed facility-wide total annual emissions of 9.9 ton per year of any single HAP or 24.9 ton per year of any combination of HAPs based on a 12-month rolling total. [06-096 CMR 115, BACT]

B. Fiberight shall not exceed a facility-wide total annual emission limit of 25.0 pounds per year of mercury based on a 12-month rolling total. [06-096 CMR 115, BACT and 38 M.R.S.A. §585-B]

(18) **Anaerobic Digesters, ZBRID TO, and Flare #1**

A. Combustion Limits

1. Fiberight shall not exceed the combustion of 182.6 MMscf/year of Tail Gas in the ZBRID TO based on a 12-month rolling total. [06-096 CMR 115, BACT]
2. Fiberight shall not exceed the combustion of 12.3 MMscf/year of Digester Gas in the ZBRID TO based on a 12-month rolling total. [06-096 CMR 115, BACT]
3. Fiberight shall not exceed the combustion of 63.07 MMscf/year of Digester Gas in Flare #1 based on a 12-month rolling total. [06-096 CMR 115, BACT]
4. Fiberight shall use flow meters to measure the amount (scf) of each type of gas (Digester Gas, Tail Gas, and Sales Gas) fired in the ZBRID TO and Flare #1. Records of the amount of each gas combusted in each unit shall be kept on a monthly and 12- month rolling total basis. [06-096 CMR 115, BACT]

B. H_2S Limits and Sampling

1. Fiberight shall sample and record the H_2S concentration of the Digester Gas monthly using a test method approved by the Department. The frequency of H_2S sampling shall be reduced to once quarterly if the results of the monthly sampling are less than 400 ppmv for 12 consecutive monthly monitoring events, and to once annually if the results of quarterly sampling are less than 250 ppmv for four (4) consecutive quarterly monitoring events. [06-096 CMR 115, BACT]
2. If the frequency of sampling the Digester Gas for H_2S is reduced to annually and the results of two (2) consecutive sampling events exceed 250 ppmv, Fiberight shall increase the sampling frequency to quarterly. If the frequency of sampling the Digester Gas for H_2S is reduced to less than monthly (quarterly or annually) and the results of two (2) consecutive sampling events exceeds 400 ppmv, Fiberight shall increase the sampling frequency to monthly.
[06-096 CMR 115, BACT]
3. If the frequency of sampling the Digester Gas for H_2S is increased, it may be subsequently decreased according to the schedule established above.
[06-096 CMR 115, BACT]

4. If the concentration of the H_2S in the Digester Gas exceeds 500 ppmv for two or more consecutive months, Fiberight shall apply to amend their license to more accurately represent SO_2 emissions from the combustion of Digester Gas and Tail Gas. [06-096 CMR 115, BACT]

C. Emissions shall not exceed the following [06-096 CMR 115, BACT]:

Emission 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)
ZBRID TO	0.42	0.42	0.42	6.40	0.37	0.73	0.14
Flare #1	1.22	1.22	1.22	6.09	3.49	15.78	0.40

D. Visible emissions from the ZBRID TO and Flare #1 shall each not exceed 20% opacity on a 6-minute block average basis. [06-096 CMR 115, BACT]

(19) **Scrubber Trains**

A. At least one scrubber train shall be operated at all times MSW is present on the tipping florr. Both scrubber trains shall be operated whenever an overhead door is open. [06-096 CMR 115, BACT]

B. All components of the scrubber trains shall be maintained in good working order. Fiberight shall perform monthly inspections of each scrubber and maintain records of all inspection and maintenance activities performed on the scrubbers. [06-096 CMR 115, BACT]

(20) **Cooling Towers**

A. Fiberight shall use drift eliminators in the cooling towers to reduce drift and resulting $PM/PM_{10}/PM_{2.5}$ emissions. [06-096 CMR 115, BACT]

B. Fiberight shall maintain proper operation and maintenance of the cooling towers, including drift eliminators. [06-096 CMR 115, BACT]

(21) **Ash Handling**

A. Fiberight shall include ash handling activities in the BMP Plan required by Standard Condition (4). [06-096 CMR 115, BACT]

B. Visible emissions from ash handling shall not exceed an opacity of 10% on a six (6) minute block average basis. [06-096 CMR 115, BACT]

(22) **Hydrated Lime and Carbon Silos**

A. Visible emissions from either the hydrated lime silo or the carbon silo shall not exceed an opacity of 10% on a six (6) minute block average basis. [06-096 CMR 115, BACT]

B. Fiberight shall maintain and operate fabric filters to control emissions during filling operations for the hydrated lime silo and the carbon silo. [06-096 CMR 115, BACT]

(23) **Fugitive Emissions**

Visible emissions from a fugitive emission source (including roadways) shall not exceed an opacity of 20%. [06-096 CMR 115, BACT]

(24) **General Process Sources**

Visible emissions from any general process source not already specifically addressed in this license shall not exceed an opacity of 20% on a six (6) minute block average basis. [06-096 CMR 115, BACT]

(25) **Parameter Monitors**

Each parameter monitor must record accurate and reliable data. If the parameter monitor is recording accurate and reliable data less than 98% of the source operating time within any quarter of the calendar year, the Department may initiate enforcement action and may include in that enforcement action any period of time that the parameter monitor was not recording accurate and reliable data during that quarter unless the licensee can demonstrate to the satisfaction of the Department that the failure of the system to record accurate and reliable data was due to the performance of established quality assurance and quality control procedures or unavoidable malfunctions. [06-096 CMR 115, BACT]

The following are considered parameter monitors for the purposes of this license:

1. Flow meters and other devices used to monitor the amount of fuel combusted in the boilers and the amount of gas destroyed in the ZBRID TO and Flare #1;
2. Monitoring of hourly reagent injection rates for the SNCR, hydrated lime injection, and ACI systems; and
3. The CPMS for Boilers #1 and #2.

(26) **CEMS Recordkeeping**

A. Fiberight shall maintain records documenting that all CEMS are continuously accurate, reliable and operated in accordance with 06-096 CMR 117, 40 CFR Part 51, Appendix P, and 40 CFR Part 60, Appendices B and F as applicable.

B. Fiberight shall maintain records of all measurements, performance evaluations, calibration checks, and maintenance or adjustments for each CEMS as required by 40 CFR Part 51 Appendix P.

C. Fiberight shall maintain records of other data indicative of compliance with the applicable emission standards for those periods when the CEMS were not in operation or produced invalid data. In the event the Department does not concur with the licensee's compliance determination, the licensee shall, upon the Department's request, provide additional data, and shall have the burden of demonstrating that the data is indicative of compliance with the applicable standard.
[06-096 CMR 115, BACT]

(27) **Quarterly Reporting**

Fiberight shall submit a Quarterly Report to the Bureau of Air Quality within 30 days after the end of each calendar quarter, detailing the following for the control equipment, parameter monitors, and Continuous Emission Monitoring Systems (CEMS) required by this license. [06-096 CMR 117]

A. All control equipment downtimes and malfunctions;
B. All CEMS downtimes and malfunctions;
C. All parameter monitor downtimes and malfunctions;
D. All excess events of emission and operational limitations set by this Order, Statute, state or federal regulations, as appropriate. The following information shall be reported for each excess event;
    1. Standard exceeded;
    2. Date, time, and duration of excess event;
    3. Amount of air contaminant emitted in excess of the applicable emission standard expressed in the units of the standard;
    4. A description of what caused the excess event;
    5. The strategy employed to minimize the excess event; and
    6. The strategy employed to prevent reoccurrence.
E. A report certifying there were no excess emissions, if that is the case.

(28) **Annual Emission Statement**

In accordance with *Emission Statements*, 06-096 CMR 137 (as amended), the licensee 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 CMR 137.

(29) Fiberight 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.A. §605).

DONE AND DATED IN AUGUSTA, MAINE THIS 14 DAY OF July , 2016.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Cone for
PAUL MERCER, COMMISSIONER

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

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

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 6/25/15
Date of application acceptance: 6/25/15

Date filed with the Board of Environmental Protection:

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

Filed
JUL 14 2016
State of Maine
Board of Environmental Protection