Geneva Wood Fuels, LLC
Franklin County
Strong, Maine
A-342-71-T-R/A (SM)

Departmental
Findings of Fact and Order
Air Emission License
Renewal/Amendment

FINDINGS OF FACT

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

I. REGISTRATION

A. Introduction

Geneva Wood Fuels, LLC (Geneva Wood Fuels) has applied to renew and amend their Air Emission License permitting the operation of emission sources associated with their wood pellet manufacturing facility.

An amendment application was submitted to modify the particulate matter (PM) and PM_{10} emission limits for the wood dryer (from 8.5 lb/hr to 12.5 lb/hr and from 35.4 tons/year to 52 tons/year) and to increase the dryer stack to 96 feet above ground level. A renewal application was submitted after receipt of the amendment application. Both the renewal and amendment applications have been processed together for this license.

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

B. Emission Equipment

The following equipment is addressed in this air emission license:

Boiler

Equipment	Maximum Capacity (MMBtu/hr)	Maximum Firing Rate (lb/hr)	Fuel Type	Manufacture Date	Installation Date	Pollution Control Equipment	Stack #
Boiler 1	33.7*	9361 (3600 Btu/lb wet wood/bark)	Wood, spec. waste oil	unknown	1980	Multi-cyclone	1

* Limited to a fuel restriction of 20 tons of fuel per day.

Dryer

Equipment	Maximum Capacity (MMBtu/hr)	Maximum Firing Rate (gal/hr)	Fuel Type	Manufacture Date	Installation Date	Pollution Control Equipment	Stack #
Dryer with fuel-flex burner	40	9073 lb/hr (50% moisture)	Wood	2009/2010	2010	Multi-cyclone	2

Process Equipment

Equipment	Production Rate	Installation Date	Pollution Control Equipment	Stack #
Pelletizers 1, 2, 3	5.5 tons/hr each	Jan. 2008	Baghouse	3

C. Application Classification

The modification of a minor source is considered a major or minor modification based on whether or not expected emission increases exceed the "Significant Emission Levels" as defined in the Department's regulations. The emission increases are determined by subtracting the current licensed emissions preceding the modification from the maximum future licensed allowed emissions, as follows:

Pollutant	Current License (TPY)	Future License (TPY)	Net Change (TPY)	Sig. Level
PM	43.3	59.9	+ 16.6	100
PM_{10}	43.3	59.9	+ 16.6	100
SO_2	8.9	8.9	-	100
NO_x	52.9	52.9	-	100
CO	71.3	71.3	-	100
VOC	41.8	41.8	-	50
CO_2e	n/a	<100,000	n/a	100,000

This modification is determined to be a minor modification and has been processed as a combination renewal/amendment. With the fuel limit on the boiler and the operational limit on the dryer, the facility is licensed below the major source thresholds and is considered a synthetic minor.

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 as well as for those sources located in designated non-attainment areas.

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.

BPT for existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

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

Before proceeding with the control requirements for each unit, a general process description is provided to identify where the equipment fits into the process.

Process Description

The Geneva Wood Fuels facility receives wood residues and wood chips by trailer truck. The wood is stored in a covered outdoor fuel shed and is then transferred

via bucket loader to the wood feeder, which controls the feed rate through the system. The material is then conveyed to the rotary drum dryer. The original dryer was taken out of service due to extensive damage. The current rotary drum dryer was installed in 2010.

In the rotary drum dryer, the green wood is dried to approximately 10% moisture content by heat supplied by the burner. The dryer burner fires wet and dry wood with 15-55% moisture content. The burner's chamber exhaust is mixed with recycled exhaust gas to attain the desired gas temperature and is vented directly into the dryer. After exiting the dryer, the exhaust gas and dried wood fines go through four process cyclones operating in parallel, separating the gas from the wood. A dryer air fan pulls the air through the dryer and collectors. A portion of the exhaust gas is recycled and mixed with the burner chamber exhaust prior to the dryer. The remaining dryer exhaust gas is sent to a multi-cyclone and then up the dryer stack.

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

The dry, hammermilled wood is metered to one of the three pelletizers. These pelletizers were installed as part of the original dryer system. The pellets are formed through an extrusion process which includes heat and evaporation of moisture. Once the pellets are formed, they are vacuumed from the pelletizers and go through a tumbler and screening process which removes fines and sharp edges. The fines are returned to the pelletizers' in-feed. PM emissions from the pelletizers are controlled by a baghouse. The finished pellets are conveyed to storage silos.

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

B. Boiler 1

Geneva Wood Fuels operates Boiler 1 for heating, hot water, steam for the dryer, and steam for the turbine. The turbine turns a 1.25 megawatt generator. Installed in 1980, the boiler is rated at 33.7 MMBtu/hr and fires wood waste, including bark, screen fines, and wood chips. Specification waste oil generated on-site as liquid or on oil soaked rags may be mixed with the wood waste fired in the boiler. The boiler was installed in 1980 and exhausts through its own 90 foot stack (stack #1). The flyash from the boiler is controlled by a multi-cyclone. The boiler

operations include an automatic boiler fuel feed, an oxygen monitor for boiler combustion efficiency purposes, an induced draft fan on the boiler exhaust, and a stack economizer to increase the efficiency of the boiler.

Boiler 1 was capped at various fuel limits over several licensing actions since it was relicensed in A-342-71-M-N (December 28, 2007). Boiler 1 is currently limited to 7300 tons/year of wet wood with a fuel heat content of 3600 Btu/lb (or equivalent) on a 12 month rolling total basis. The tons/year limit on the boiler corresponds to the daily fuel limit of 20 tons/day (20 tons/day * 365 days = 7300 tons/year). The daily fuel limit was initially established to meet the short-term 24-hour PM_{10} National Ambient Air Quality Standard.

Due to the year of installation, the boiler is not 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.

1. BPT Findings

The BPT emission limits for the boiler were based on previously established limits:

PM/PM_{10} – 0.30 lb/MMBtu
SO_2 – 0.04 lb/MMBtu
NO_X – 0.3 lb/MMBtu
CO – 1.0 lb/MMBtu
VOC – 0.06 lb/MMBtu
Opacity – 06-096 CMR 101

The BPT emission limits for the boiler are the following:

Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler 1 (33.7 MMBtu/hr) wood	10.1*	10.1*	0.65***	4.86***	16.20***	0.97***
	1.8** (24 hr ave)	1.8** (24 hr ave)				

Table Notes:

* The PM/PM_{10} 10.1 lb/hr emission limit is on an hourly basis, using maximum boiler capacity.

** The PM/PM_{10} 1.8 lb/hr emission limit on a 24 hour average is reflective of the 20 tons/day fuel limit established to meet the 24-hour ambient air quality standard for PM_{10}:

(20 tons wood/day)*(2000 lb wood/ton wood)*(day/24 hrs)*(0.30 lb PM/MMBtu)*(0.003600 MMBtu/lb wood) = 1.8 lb/hr

*** The SO_2, NO_X, CO, and VOC lb/hr emissions were calculated based on a 2.25 tons wood/hr firing rate, which is historically the average hourly bucket load fired in the boiler (equating to 16.2 MMBtu/hr).

Visible emissions from the boiler shall not exceed 30% opacity on a 6 minute block average, except for no more than two (2) six (6) minute block averages in a continuous 3-hour period.

Boiler 1 shall be limited to 2.25 tons/hr, 20 tons/day and 7300 tons/year of wet wood with a fuel heat content of 3600 Btu/lb (or equivalent). The tons/year fuel use limit shall be on a 12 month rolling total basis.

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

2. Periodic Monitoring

The following periodic monitoring requirements are applicable to the boiler system:

a. Boiler Fuel Use
Geneva Wood Fuels shall maintain records to document wood fuel use and specification waste oil use. Compliance with the annual boiler wood fuel use limit shall be recorded hourly and daily in a fuel use log, based on bucket loads of wood fuel fired. The log shall include the estimation of the amount of wood fuel in a bucket load. Wood fuel use records shall be maintained hourly, daily, monthly, and on a 12 month rolling total basis. Currently, the hourly boiler fuel use is back-calculated from daily fuel use and conveyor operations. Records of on-site generated specification waste oil and specification waste oil permeated oily rags fired in the boiler shall be maintained on a monthly basis. An analysis of a representative waste oil sample shall be kept on-site.

b. Boiler Multi-cyclone
Geneva Wood Fuels shall keep records of the boiler multi-cyclone in a maintenance log. The log entries shall include details on malfunctions and routine maintenance on the multi-cyclone (i.e., time, date, reason for maintenance, any corrective action taken).

c. Boiler Oxygen (O_2) Curve
Periodic monitoring for boiler operations shall include an O_2/boiler load curve established by Geneva Wood Fuels and operation of the boiler within the curve to meet good air pollution control practices.

3. 40 CFR Part 63 Subpart JJJJJJ

Boiler 1 may be 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 unit is considered an existing biomass boiler.

For informational purposes, a summary of the currently applicable federal 40 CFR Part 63 Subpart JJJJJJ requirements is listed below. At this time, the Department has not taken delegation of this area source MACT (Maximum Achievable Control Technology) rule promulgated by EPA, however Geneva Wood Fuels is still subject to the requirements. Notification forms and additional rule information can be found on the following website: http://www.epa.gov/ttn/atw/boiler/boilerpg.html.

a. Compliance Dates, Notifications, and Work Practice Requirements

i. Initial Notification of Compliance

An Initial Notification submittal to EPA is due no later than January 20, 2014. [40 CFR Part 63.11225(a)(2)]

ii. Boiler Tune-Up Program

(a) A boiler tune-up program shall be implemented to include the initial tune-up of the applicable boiler no later than March 21, 2014. [40 CFR Part 63.11196(a)(1)]

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

1. As applicable, inspect the burner, and clean or replace any component of the burner as necessary. Delay of the burner inspection until the next scheduled shutdown is permitted; not to exceed 36 months from the previous inspection for boilers greater than 5 MMBtu/hr or 72 months from the previous inspection for oil fired boilers less than 5 MMBtu/hr, boilers with oxygen trim system, seasonal boilers, and limited use boilers. [40 CFR Part 63.11223(b)(1)]

2. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern, consistent with the manufacturer's specifications. [40 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 36 months from the previous inspection for boilers greater than 5 MMBtu/hr or 72 months from the previous inspection for oil fired boilers less than 5 MMBtu/hr, boilers with oxygen trim system, seasonal boilers, and limited use boilers. [40 CFR Part 63.11223(b)(3)]
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)]

(c) After conducting the initial boiler tune-up, a Notification of Compliance Status shall be submitted to EPA no later than July 19, 2014. [40 CFR Part 63.11225(a)(4) and 40 CFR Part 63.11214(b)]

(d) The facility shall implement a boiler tune-up program after the initial tune-up and initial compliance report (called a Notification of Compliance Status) has been submitted.
1. Each tune-up shall be conducted at a frequency specified by the rule and based on the size, age, and operations of the boiler. See chart below:

Boiler Category	Tune-Up Frequency
New or Existing Oil, Biomass and Coal fired boilers that are not designated as "Boilers with less frequent tune up requirements" listed below	Every 2 years
New and Existing Oil, Biomass, and Coal fired Boilers with less frequent tune up requirements	
Seasonal (see definition §63.11237)	Every 5 years
Limited use (see definition §63.11237)	Every 5 years
With a heat input capacity of <5MMBtu/hr	Every 5 years
Boiler with oxygen trim system which maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune up	Every 5 years

[40 CFR Part 63.11223(a) and Table 2]

2. The tune-up compliance report shall be maintained onsite and, if requested, submitted to EPA. The report shall contain the concentration of CO in the effluent stream (ppmv) and oxygen in volume percent, measured at high fire or typical operating load, before and after the boiler tune-up, a description of any corrective actions taken as part of the tune-up of the boiler, and the types and amounts of fuels used over the 12 months prior to the tune-up of the boiler. [40 CFR Part 63.11223(b)(6)]
   The compliance report shall also include the company name and address; a compliance statement signed by a responsible official certifying truth, accuracy, and completeness; and a description of any deviations and corrective actions. [40 CFR Part 63.11225(b)]

iii. Energy Assessment

Boiler 1 may be subject to the energy assessment requirement as follows:

(a) A one-time energy assessment shall be performed by a qualified energy assessor on the applicable boilers no later than March 21, 2014. [40 CFR Part 63.11196(a)(3)]

(b) The energy assessment shall include a visual inspection of the boiler system; an evaluation of operating characteristics of the

affected boiler systems, specifications of energy use systems, operating and maintenance procedures, and unusual operating constraints; an inventory of major energy use systems consuming energy from affected boiler(s) and which are under control of the boiler owner or operator; a review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage; a list of major energy conservation measures that are within the facility's control; a list of the energy savings potential of the energy conservation measures identified; and a comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments.
[40 CFR Part 63, Table 2(4)]

(c) A Notification of Compliance Status shall be submitted to EPA no later than July 19, 2014. [40 CFR Part 63.11225(a)(4) and 40 CFR Part 63.11214(c)]

b. 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)]: copies of notifications and reports with supporting compliance documentation; 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; documentation of fuel type(s) used monthly by each boiler; the occurrence and duration of each malfunction of the boiler; and actions taken during periods of malfunction to minimize emissions and actions taken to restore the malfunctioning boiler to its usual manner of operation. Records shall be in a form suitable and readily available for expeditious review.

Note: EPA will require submission of Notification of Compliance Status reports for tune-ups and energy assessments through their electronic reporting system. However, the system will not be in place until October 2013, so sources may submit the written NOCS to the EPA Administrator. [63.1125(a)(4)(vi)]

C. Dryer with Fuel-Flex Burner

The dryer at Geneva Wood Fuels is a single pass recycle dryer manufactured by TSI, Inc. Installed in April 2010, the dryer system includes a wood fired burner, the dryer, and a multi-cyclone.

The burner has a maximum heat input capacity of 40 MMBtu/hr and fires wet and dry wood with 15-55% moisture content. The dryer has a maximum throughput

of 29.8 tons/hr of green wood at approximately 45% moisture content (equivalent to 16.38 oven-dried tons per hour at 0% moisture). The green wood entering the unit is dried to approximately 10% moisture content by direct vented burner exhaust mixed with recycled exhaust. A dryer fan pulls the air through the dryer and process cyclones which separate the exhaust gas from the wood. The exhaust gas goes through a multi-cyclone and then up the stack. The dryer has an operating limit of 8322 hours/year for the purpose of staying under the major source thresholds.

In addition to the renewal, Geneva Wood Fuels submitted an amendment to increase the PM and PM_{10} hourly emission limits from 8.5 lb/hr to 12.5 lb/hr. This proposed increase is based on results from PM stack testing performed in November 2011. In addition to the PM and PM_{10} emission limit change, Geneva Wood Fuels has proposed to raise the dryer stack from 90 feet to 96 feet above ground level in order to meet Ambient Air Quality Standards.

The November 2011 stack tests showed CO and VOC emissions were below license limits. The CO stack test results averaged 5.32 lb/hr as compared to the 10.8 lb/hr license limit. VOC stack test results averaged 2.32 lb/hr as compared to the 9.66 lb/hr license limit.

1. BPT/BACT Findings

Dryer controls include the use of the multi-cyclone for particulate matter control, 90% excess air in the combustion chamber to provide oxygen while minimizing NO_X, and a combustion temperature between 1600°F and 1850°F to minimize CO emissions (formed below 1600°F) and NO_X emissions (formed above 1850°F). These controls shall continue to be required as BPT for the dryer.

PM/PM_{10} – BACT for PM and PM_{10} is the use of a high efficiency multi-cyclone, in addition to the process cyclones, for this size and type of unit. Stack test results showed that at near design capacity operating conditions, a BACT limit of 12.5 lb/hr emission limit each for PM and PM_{10} is more appropriate than the previous limit for the dryer.

The 12.5 lb/hr PM/PM_{10} limit will replace the 8.5 lb/hr PM/PM_{10} limit in the previous license.

SO_2 – BPT for SO_2 continues to be the use of wood in the dryer burner and a 1.88 lb/hr emission limit, as currently licensed.

NO_X – BPT for NO_X continues to be good combustion practices and the use of low NO_X burners. To minimize NO_X formation, the temperature is

maintained at or around 1800°F and available oxygen is limited in the combustion air.

The BPT NO_X emission limit of 10.8 lb/hr, as currently licensed, is based on 0.66 lb/oven-dried ton (ODT).

CO – BPT for CO continues to be good combustion practices and a CO emission limit of 10.8 lb/hr, based on 0.66 lb/oven-dried ton (ODT), as currently licensed.

VOC - BPT for VOC continues to be good combustion practices and a VOC emission limit of 9.66 lb/hr, based on 0.59 lb/oven-dried ton (ODT), as currently licensed.

Opacity – the dryer shall continue to have a visible emission limit of 20% opacity on a 6-minute block average basis, except for no more than one (1) six (6) minute block average in a 1-hour period, based on *Visible Emissions Regulation* 06-096 CMR 101 (as amended).

Operating Limitations – The Dryer shall be limited to operating 8322 hours/year, on a 12 month rolling total basis.

Dryer Stack – The Dryer shall exhaust through a multi-cyclone and through a stack that is 96 feet above ground level. The increased stack height (from the previous 90 feet) shall occur within 90 days of license issuance.

2. Periodic Monitoring

The following periodic monitoring requirements are applicable to the Dryer system:

a. Dryer Temperature - The combustion temperature of the rotary dryer shall be monitored and recorded on a continuous basis for a minimum of 98% of the time the rotary dryer is operating. Continuous is defined as at least two readings in separate 15-minute periods per hour. The date and time of each temperature reading shall be included as part of the record. The temperature monitoring system shall be operated, maintained, and calibrated in accordance with the manufacturer's recommendations (the operating temperature range shall be maintained between 1600°F–1850°F).

b. Dryer Hour Monitor – Geneva Wood Fuels shall operate an hour meter on the dryer and record hours of dryer operations daily, monthly, and on a 12 month rolling total.

c. Dryer Production - Product output records shall be kept on a monthly basis.

d. Dryer Burner - Wood fuel records shall be maintained for the dryer burner daily, monthly, and on a 12 month rolling total.

e. Dryer Multi-cyclone Records – Geneva Wood Fuels shall keep records for the dryer multi-cyclone in a maintenance log. The log entries shall include details on malfunctions and routine maintenance on the multi-cyclone (i.e., time, date, reason for maintenance, any corrective action taken).

f. Dryer Start-up/Shutdown/Malfunction - Each startup, shutdown, and malfunction event of the dryer and multi-cyclone shall be recorded and shall include start time, end time, duration, cause, and method utilized to minimize the duration of the event and/or to prevent a reoccurrence.

g. Dryer Stack Testing – A stack test for PM shall be performed within 3 years from issuance of this license and every 3 years thereafter, based on the appropriate EPA test method. Geneva Wood Fuels may submit an amendment to change the frequency of the stack testing depending on future test results. [06-096 CMR 115]

D. Pelletizers

Geneva Wood Fuels operates three pelletizers in parallel. The pelletizers consist of two rotating dies that interlock. The pellets are formed through extrusion which results in heat and evaporation of moisture, and the pellets reach a temperature of 120°F. Once the pellets are produced, they are picked up by the vacuum system and moved to the tumbler and screening process. The tumbling and screening process removes the fines and sharp edges from the pellets. The screened fines are put back into the pelletizing process for reuse. Particulate matter emissions from the pelletizers are controlled by a baghouse.

1. BPT Findings

A baghouse shall be operated and maintained to control emissions from the exhaust from the pelletizers. Visible emissions from the pelletizers' baghouse shall not exceed an opacity of 10 percent on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 1-hour period. The facility shall take corrective action if visible emissions from the baghouse exceed five (5) percent opacity, based on 06-096 CMR 101 (as amended).

2. Periodic Monitoring
   Geneva Wood Fuels shall keep records for the pelletizers' baghouse in a maintenance log. The log entries shall include details on malfunctions and routine maintenance on the baghouse (i.e., time, date, reason for maintenance, any corrective action taken).

E. General Process Emissions

Visible emissions from any general process source, including the fuel/wood material conveying systems and the pellet bagging operations, shall not exceed an opacity of 20% on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 1-hour period.

F. Fugitive Emissions

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed an opacity of 20%, except for no more than five (5) minutes in any 1-hour period. Compliance shall be determined by an aggregate of the individual fifteen (15)-second opacity observations which exceed 20% in any one (1) hour.

G. Annual Emissions

1. Total Annual Emissions
   Geneva Wood Fuels shall be limited to the following annual emissions, based on a 12 month rolling total and calculated from an annual boiler fuel limit of 7300 tons/year wood waste (55% moisture or equivalent) and an annual operating limit on the dryer of 8322 hrs/yr at the production rate of 16.38 oven dried tons/hour:

Total Licensed Annual Emissions for the Facility
Tons/year
(used to calculate the annual license fee)

	PM	PM_{10}	SO_2	NO_x	CO	VOC
Boiler	7.9	7.9	1.1	7.9	26.3	1.6
Dryer	52.0	52.0	7.8	45.0	45.0	40.2
Total TPY	**59.9**	**59.9**	**8.9**	**52.9**	**71.3**	**41.8**

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).

Based on the facility's fuel use limit(s), the worst case emission factors from AP-42, IPCC (Intergovernmental Panel on Climate Change), and *Mandatory Greenhouse Gas Reporting*, 40 CFR Part 98, and the global warming potentials contained in 40 CFR Part 98, Geneva Wood Fuels is below the major source threshold of 100,000 tons of CO_2e per year. Total 50-55% moisture fuel use is 7300 tons/year from the boiler and 37,753 tons/year from the dryer (9073 lb/hr firing rate and 8322 hours/yr operating limit), which equates to approximately 45,053 tons/year of wood for the facility. The annual wood use calculates to approximately 40,500 total CO_2e tons/year. Therefore, no additional licensing requirements are needed to address GHG emissions at this time.

III. AMBIENT AIR QUALITY ANALYSIS

A. Overview

A refined modeling analysis was performed to show that emissions from Geneva Wood Fuels, in conjunction with other sources, will not cause or contribute to violations of National Ambient Air Quality Standards (NAAQS) and Class II increments for PM_{10}. Since SO_2, NO_2 and CO were addressed as part of a previous modeling analysis and because no emissions changes for these pollutants are proposed, no further modeling for these pollutants is required.

Since the current licensing action for Geneva Wood Fuels represents a minor modification to an existing minor source, it has been determined by MEDEP-BAQ that an assessment of Class I Air Quality Related Values (AQRVs) is not required.

B. Model Inputs

The AERMOD-PRIME refined model was used to address standards and increments in all areas. The modeling analysis accounted for the potential of building wake and cavity effects on emissions from all modeled stacks that are below their calculated formula GEP stack heights.

All modeling was performed in accordance with all applicable requirements of the Maine Department of Environmental Protection, Bureau of Air Quality (MEDEP-BAQ) and the United States Environmental Protection Agency (USEPA).

A valid 5-year hourly off-site meteorological database was used in the AERMOD-PRIME refined modeling analysis. Five years of wind data was collected at heights of 10 and 70 meters at the Madison Paper Industries meteorological monitoring site from 1991-1995. Surface data collected at the Augusta State Airport FAA site were substituted for missing surface data. All other missing data were interpolated or coded as missing, per USEPA guidance.

The surface meteorological data was combined with concurrent hourly cloud cover and upper-air data obtained from the Caribou National Weather Service (NWS). Missing cloud cover and/or upper-air data values were interpolated or coded as missing, per USEPA guidance.

All necessary representative micrometeorological surface variables for inclusion into AERMET (surface roughness, Bowen ratio and albedo) were calculated using AERSURFACE from procedures recommended by USEPA.

Point-source parameters, used in the modeling for Geneva Wood Fuels are listed in Table III-1.

TABLE III-1 : Point Source Stack Parameters

Facility/Stack	Stack Base Elevation (m)	Stack Height (m)	GEP Stack Height (m)	Stack Diameter (m)	UTM Easting NAD83 (km)	UTM Northing NAD83 (km)
CURRENT/PROPOSED						
Geneva Wood Fuels						
• Boiler Stack	162.45	27.43	26.66	1.37	403.641	4962.153
• Dryer Stack	162.45	29.26	26.66	1.12	403.637	4962.136
1987 BASELINE						
Geneva Wood Fuels						
• Geneva Wood Fuels conservatively assumed no credit for sources existing in the 1987 baseline year.						
1977 BASELINE						
Geneva Wood Fuels						
• Boiler Stack	162.45	27.43	26.66	1.37	403.637	4962.136

Emission parameters for Geneva Wood Fuels for NAAQS and increment modeling are listed in Table III-2. The emission parameters for Geneva Wood Fuels are based on the maximum license allowed operating configuration. For the purposes of determining PM_{10}, all PM emissions were conservatively assumed to convert to PM_{10}.

TABLE III-2 : Stack Emission Parameters

Facility/Stack	Averaging Periods	PM_{10} (g/s)	Stack Temp (K)	Stack Velocity (m/s)
MAXIMUM LICENSE ALLOWED				
Geneva Wood Fuels – Scenario 1				
• Boiler Stack (100%)	All	0.23	449.82	1.98
• Dryer Stack (100%)	All	1.58	370.37	9.34
Geneva Wood Fuels – Scenario 2				
• Boiler Stack (80%)	All	0.18	449.82	1.59
• Dryer Stack (100%)	All	1.58	370.37	9.34
Geneva Wood Fuels – Scenario 3				
• Boiler Stack (100%)	All	0.23	449.82	1.98
• Dryer Stack (67%)	All	1.06	370.37	6.25
Geneva Wood Fuels – Scenario 4				
• Boiler Stack (100%)	All	0.23	449.82	1.98
• Dryer Stack (33%)	All	0.53	370.37	3.08
BASELINE – 1977				
Geneva Wood Fuels				
• Boiler Stack	All	1.06	455.37	3.43

C. Single Source Modeling Impacts

Refined modeling was performed for a total of four operating scenarios that represented a range of maximum, typical and minimum operations.

The AERMOD-PRIME model results for Geneva Wood Fuels alone are shown in Table III-3. Maximum predicted impacts that exceed their respective significance level are indicated in boldface type. No further modeling was required for pollutant/terrain combinations that did not exceed their respective significance levels.

TABLE III-3 : Maximum AERMOD-PRIME Impacts from Geneva Wood Fuels Alone

Pollutant	Averaging Period	Max Impact Scenario	Max Impact ($\mu g/m^3$)	Receptor UTM E (km)	Receptor UTM N (km)	Receptor Elevation (m)	Class II Significance Level ($\mu g/m^3$)
PM_{10}	24-hour	**1**	**79.96**	403.636	4962.070	158.92	**5**
	Annual	**3**	**7.40**	403.654	4962.087	161.94	**1**

D. Combined Source Modeling Impacts

For predicted modeled impacts from Geneva Wood Fuels alone that exceeded significance levels, as indicated in boldface type in Table III-3, other sources not

explicitly included in the modeling analysis must be accounted for by using representative background concentrations for the area.

Background concentrations, listed in Table III-4, are derived from representative rural background data for use in the Central Maine region.

TABLE III-4 : Background Concentrations

Pollutant	Averaging Period	Background Concentration ($\mu g/m^3$)	Date
PM_{10}	24-hour	47	2002 – 2003 [1]
	Annual	11	

Notes:

[1] Jewell Property Site, Jay

MEDEP examined other nearby sources to determine if any impacts would be significant in or near Geneva Wood Fuels significant impact area. Due to the Geneva Wood Fuels location, extent of the predicted significant impact area and other nearby source's emissions, MEDEP has determined that no other sources would be considered for combined source modeling.

For pollutant averaging periods that exceeded significance levels, the maximum modeled impacts from the model predicting the highest concentrations were added with conservative rural background concentrations to demonstrate compliance with NAAQS, as shown in Table III-5. Because all pollutant/averaging period impacts using this method meet NAAQS, no further NAAQS modeling analyses need to be performed.

TABLE III-5 : Maximum Combined Sources Impacts

Pollutant	Averaging Period	Max Impact ($\mu g/m^3$)	Back-Ground ($\mu g/m^3$)	Max Total Impact ($\mu g/m^3$)	MAAQS/ NAAQS ($\mu g/m^3$)
PM_{10}	24-hour	**79.96**	47	**126.96**	**150**
	Annual	**7.40**	11	**18.40**	**40**

E. Increment

The AERMOD-PRIME refined model was used to predict maximum Class II increment impacts in all areas.

Results of the Class II increment analysis are shown in Tables III-6. Because all predicted increment impacts meet increment standards, no further Class II PM_{10} increment modeling needed to be performed.

TABLE III-6 : Class II Increment Consumption

Pollutant	Averaging Period	Max Impact Scenario	Max Impact ($\mu g/m^3$)	Receptor UTM E (km)	Receptor UTM N (km)	Receptor Elevation (m)	Class II Increment ($\mu g/m^3$)
PM_{10}	24-hour	**1**	**8.73**	403.777	4926.141	172.47	**30**
	Annual	**3**	**1.13**	403.647	4962.311	161.91	**17**

Federal regulations and 06-096 CMR 140 require that any major new source or major source undergoing a major modification provide additional analyses of impacts that would occur as a direct result of the general, commercial, residential, industrial and mobile-source growth associated with the construction and operation of that source. Since this licensing action represents a minor modification to an existing minor source, no additional analyses were required.

F. Class I Impacts

Since the current licensing action for Geneva Wood Fuels represents a minor modification to an existing minor source, it has been determined by MEDEP-BAQ that an assessment of Class I Air Quality Related Values (AQRVs) is not required.

G. Summary

In summary, it has been demonstrated that Geneva Wood Fuels in its proposed configuration will not cause or contribute to a violation of any PM_{10} averaging period NAAQS or Class II increment standard.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards, and
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-342-71-T-R/A 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) **Boiler 1 (33.7 MMBtu/hr – wood fired)**

A. Emissions from Boiler 1 shall not exceed the following:

Pollutant	lb/MMBtu	Origin and Authority
PM	0.3	06-096 CMR 103(2)(B)(4)(a)
NO_X	0.3	06-096 CMR 115, BPT

B. Emissions from Boiler 1 shall not exceed the following (lb/hr are on a 1-hr basis, except as noted): [06-096 CMR 115, BPT]:

PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
10.1	10.1	0.65	4.86	16.2	0.97
1.8 (24 hr ave)	1.8 (24 hr ave)				

C. Visible emissions from Boiler 1 shall not exceed 30% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous 3-hour period. [06-096 CMR 101]

D. Boiler 1 Fuel Use

1. Wood Fuel
   a. Hourly fuel use shall not exceed 2.25 tons/hr at 3600 Btu/lb and 55% moisture, or equivalent. [06-096 CMR 115, basis of the Ambient Air Quality Modeling input for SO_2, NO_X, CO]
   b. Daily fuel use shall not exceed 20 tons/day wood waste at 3600 Btu/lb and 55% moisture, or equivalent. [06-096 CMR 115, basis of the Ambient Air Quality Modeling input for PM_{10}]
   c. Fuel use in the boiler shall not exceed 7300 tons/yr wood waste at 3600 Btu/lb and 55% moisture, or equivalent, on a 12 month rolling total basis. [06-096 CMR 115, BPT]
   d. Compliance with the hourly, daily and annual boiler fuel use limits shall be documented by recordkeeping in a fuel use log. Current fuel recordkeeping, based on bucket loads of fuel and conveyor operations, shall include the estimation of the amount of fuel in a bucket load and any other estimations/assumptions used in the fuel calculations. Fuel use records shall be maintained hourly, daily, monthly, and on a 12 month rolling total basis. [06-096 CMR 115, BPT]

2. Specification Waste Oil and Oily Rags
   a. Geneva Wood Fuels may mix specification waste oil with the wood waste residue fired in the wood fired boiler. The specification waste oil use shall not exceed 60 gallons/month. Records shall be maintained documenting the gallons of specification waste oil fired each month.
   b. Geneva Wood Fuels may mix oily rags with the wood waste residue fired in the wood fired boiler. The oily rags must originate from the facility and the permeated oil on the rags must meet the definition of specification waste oil. Geneva Wood Fuels shall maintain records of the amount of oily rags burned each month (ie – a full 55 gallon drum, ½ drum, etc.).
   c. An analysis of a representative waste oil sample shall be kept on site. If there are changes in the process or if there are changes in the

maintenance garage that may affect the composition of the waste oil collected, a new representative sample shall be tested. These test results shall be kept on-site and a copy shall be submitted to the Bureau of Air Quality.

[06-096 CMR 115, BPT and 06-096 CMR 860]

E. Boiler 1 Multi-cyclone

1. The boiler emissions shall be controlled through a multi-cyclone. [06-096 CMR 115]
2. Geneva Wood Fuels shall keep records of the boiler multi-cyclone in a maintenance log. The log entries shall include details on malfunctions and routine maintenance on the multi-cyclone (i.e., time, date, reason for maintenance, any corrective action taken). [06-096 CMR 115, BPT]

F. Boiler 1 O_2 Curve

Geneva Wood Fuels shall establish an O_2/boiler load curve and shall operate within the curve to maximize boiler efficiency and minimize air emissions. [06-096 CMR 115, BPT]

(17) **Dryer**

A. Emissions from the Dryer Process (including the 40 MMBtu/hr wood dryer burner) shall not exceed the following: [06-096 CMR 115, BACT]

PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_X (lb/hr)	CO (lb/hr)	VOC (lb/hr)
12.5	12.5	1.88	10.8	10.8	9.66

B. Visible emissions from the dryer stack shall not exceed 20% opacity on a 6-minute block average basis, except for no more than one (1) six (6) minute block average in a 1-hour period. [06-096 CMR 101]

C. Dryer Combustion Temperature

1. The combustion temperature of the rotary dryer shall be monitored and recorded on a continuous basis for a minimum of 98% of the time the rotary dryer is operating. Continuous is defined as at least two readings in separate 15-minute periods per hour. The date and time of each temperature reading shall be included as part of the record.
2. The temperature monitoring system shall be operated, maintained, and calibrated in accordance with the manufacturer's recommendations and the operating temperature range shall be maintained between 1600°F–1850°F.

[06-096 CMR 115, BPT]

D. Dryer Operating Hours and Hour Meter
Geneva Wood Fuels shall limit the dryer use to 8322 hours/year on a 12 month rolling total basis. An hour meter shall be installed and operated on the dryer and records shall be maintained daily, monthly, and on a 12 month rolling total. [06-096 CMR 115, BPT]

E. Dryer Wood Burner Fuel Recordkeeping
Geneva Wood Fuels shall maintain dryer burner wood fuel records daily, monthly, and on a 12 month rolling total. [06-096 CMR 115, BACT]

F. Dryer Production Recordkeeping
Geneva Wood Fuels shall maintain records of product output on a monthly basis. [06-096 CMR 115, BACT]

G. Dryer Multi-cyclone
1. The dryer emissions shall be controlled through a multi-cyclone. [06-096 CMR 115]
2. Geneva Wood Fuels shall keep records of the dryer multi-cyclone in a maintenance log. The log entries shall include details on malfunctions and routine maintenance on the multi-cyclone (i.e., time, date, reason for maintenance, any corrective action taken). [06-096 CMR 115, BPT]

H. Startup/Shutdown/Malfunction Recordkeeping
Geneva Wood Fuels shall record each startup, shutdown, and malfunction event of the dryer and multi-cyclone including start time, end time, duration, cause, and method utilized to minimize the duration of the event and/or to prevent a reoccurrence. [06-096 CMR 115, BPT]

I. Dryer Stack Testing
Geneva Wood Fuels shall perform PM stack tests on the Dryer in accordance with the appropriate EPA test methods within 3 years of license issuance and every 3 years thereafter. Geneva Wood Fuels may submit an amendment to change the frequency of the stack testing based on the test results. [06-096 CMR 115, BPT]

J. Dryer Stack
The dryer shall exhaust through a 96 foot stack above ground level. The stack shall be extended to 96 feet from the current 90 foot stack height within 90 days of issuance of this license. [06-096 CMR 115, BPT]

(18) **Pelletizers**

A. The pelletizer emissions shall be controlled through a baghouse. [06-096 CMR 115, BPT]

B. Visible emissions from the pelletizers' baghouse shall not exceed an opacity of 10 percent on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 1-hour period. The facility shall take corrective action if visible emissions from the baghouse exceed five (5) percent opacity. [06-096 CMR 101]

C. Geneva Wood Fuels shall keep pelletizer baghouse records in a maintenance log. The log entries shall include details on malfunctions and routine maintenance on the baghouse (i.e., time, date, reason for maintenance, any corrective action taken). [06-096 CMR 115, BPT]

(19) **General Process Sources**

Visible emissions from any general process source (including the fuel/wood material conveying systems and the pellet bagging operations) shall not exceed an opacity of 20% on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 1-hour period. [06-096 CMR 101]

(20) **Fugitive Emissions**

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed an opacity of 20%, except for no more than five (5) minutes in any 1-hour period. Compliance shall be determined by an aggregate of the individual fifteen (15)-second opacity observations which exceed 20% in any one (1) hour. [06-096 CMR 101]

(21) **Annual Emission Statement**

In accordance with *Emission Statements*, 06-096 CMR 137 (as amended), the licensee shall annually report to the Department the information necessary to accurately update the State's emission inventory by means of either:

1) A computer program and accompanying instructions supplied by the Department; or
2) A written emission statement containing the information required in 06-096 CMR 137.

The emission statement must be submitted as specified by the date in 06-096 CMR 137.

(22) Geneva Wood Fuels 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 8 DAY OF July , 2013.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Cone for
PATRICIA W. AHO, 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 MRSA §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 most recent application: September 6, 2012
Date of most recent application acceptance: September 11, 2012

Date filed with the Board of Environmental Protection:

This Order prepared by Kathleen E. Tarbuck, Bureau of Air Quality.

Filed
JUL - 8 2013
State of Maine
Board of Environmental Protection