HUBER ENGINEERED WOODS, LLC	**)**	**DEPARTMENT**
AROOSTOOK COUNTY	**)**	**FINDINGS OF FACT AND ORDER**
EASTON, MAINE	**)**	**NEW SOURCE REVIEW LICENSE**
A-62-77-2-A	**)**	
	1	

After review of the air emission license amendment application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A, Section 344, Section 590, Chapter 115 and the Department finds the following facts:

I. REGISTRATION

A. Introduction

FACILITY	Huber Engineered Woods, LLC (Huber)
PART 70 LICENSE NUMBER	A-62-70-A-I
LICENSE TYPE	Chapter 115 Major Modification
NAIC CODES	321219
NATURE OF BUSINESS	Oriented Strand Board Manufacturer
FACILITY LOCATION	333 Station Road, Easton
DATE OF NSR LICENSE ISSUANCE	June 13, 2007

B. Modification Description and Affected Emission Equipment

Huber submitted an application for a project that addresses compliance with both the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial, and Institutional Boilers and Process Heaters (Boiler MACT) and the NESHAP for Plywood and Composite Wood Products (PCWP MACT) requirements that were in effect as of the date the application was filed (March 28, 2007). The project is divided into two phases – MACT compliance (Phase One) and capacity expansion (Phase Two). Phase One is scheduled to begin construction in June/July 2007. Phase two is scheduled to begin construction in 2010.

To comply with the Maximum Achievable Control Technology (MACT) requirements, Huber is installing systems that reduce emissions of volatile organic compounds (VOCs), Hazardous Air Pollutants (HAPs) and particulate matter using state of the art equipment design, air flow recovery/recirculation, and conventional pollution control.

Phase One of the project includes the following major elements:

- Replace two existing dryers and dedicated burners with two new low temperature dryers equipped with exhaust gas recirculation, along with associated new drying system cyclones, screens, and conveyors. The new dryers (Dryers #3 and #4) have inherently low emissions due to their design and will comply with the Production Based Compliance Option (PBCO) under the PCWP MACT.
- The two new dryers will not be equipped with burners. Instead, heat to the new dryers will be provided by a new biomass-fired furnace. (The furnace and two new dryers together being referred to as the "Drying System").
- Route the exhaust from the new press enclosure (complying with the wood products enclosure requirements under the PCWP MACT) to the new dryer furnace and/or the existing boiler for combustion of the Hazardous Air Pollutants (HAPs).
- Upgrade the existing Boiler #1 to improve efficiency and potentially increase steam production. The boiler will also receive some or all of the press exhaust air stream as combustion air.
- Replace existing fuel feed system (made up of belt conveyors) with new system to feed both the new furnace and the existing boiler with enclosed trough, drag chain conveyors.
- Install single dry Electrostatic Precipitator (ESP) for control of particulate from the Dryer System and Boiler #1. The new ESP will ensure Boiler #1 meets applicable Boiler MACT standards.

Phase Two (the capacity expansion) will be achieved by modifying the forming line and press systems. The green end will be modified as necessary to provide the raw material to meet the increased press demand and surge capacity of the Drying System installed during Phase One.

C. Emission Equipment

The following emission units are addressed by this Chapter 115 Major Modification:

EMISSION UNIT ID	UNIT CAPACITY*	UNIT TYPE
Boiler #1	84 MMBtu/hr (Biomass) 52.4 MMBtu/hr (Oil)	Fuel Burning
Dryer No. 3	42.5 oven dried tons/hr	Process Equipment
Dryer No. 4	42.5 oven dried tons/hr	Process Equipment
Dryer Furnace	152 MMBtu/hr	Fuel Burning
Press	N/A	Process Equipment
Ink Jet Printer	N/A	Process Equipment
Blending and Forming	N/A	Process Equipment
Dust Handling Systems**	N/A	Process Equipment
Edge Spraying	N/A	Process Equipment
Emergency Generator	0.86 MMBtu/hr	Fuel Burning
Fuel Conveyor Systems	N/A	Process Equipment

* Unit capacities are nominal and listed for informational purposes only and are not intended as license restrictions.

** Includes Dust and Fines Baghouse, Sander Baghouse, Trim and Grade Baghouse and Dry Fuel Bin Baghouse.

Huber has additional activities not listed in the emission equipment table above as they will not be modified as part of this license application or as they are deemed insignificant emission units, including green end activities (e.g., hot log ponds, sawing, debarking, chip piles and chip handling) and OSB handling activities.

The following existing emission units will be permanently shutdown following an appropriate shakedown period of the new Dryer System and new Dry Fuel Bin:

EMISSION UNIT ID	UNIT CAPACITY	UNIT TYPE
Dryer #1	50 MMBtu/hr Wood/Oil	Heater Process
Dryer #2	50 MMBtu/hr Wood/Oil	Heater Process
Existing Dry Fuel Bin	N/A	Process

This license addresses new, modified and affected emission units at the Easton facility. Existing emissions units that are unaffected by the project are not addressed in this license.

D. Application Classification

Huber is a major source per the Maine Department of Environmental Protection's Chapter 100 regulation. For Huber's project only one of the criteria pollutants (NOx) exceeds the applicable major modification thresholds and is subject to full PSD review. With respect to oxides of nitrogen (NOx), U.S. EPA has issued a waiver for certain Maine counties, including Aroostook, which waives the requirement for nonattainment NSR (NNSR) for NOx major modifications.[1] Particulate matter (PM and PM_{10}), carbon monoxide (CO), volatile organic compounds (VOCs), lead (Pb) and sulfur dioxides (SO_2) are below the major modification thresholds.

[1] Federal Register, February 3, 2006, Volume 71, No. 23, page 5791. Effective March 6, 2006.

Summary of Emission Increases

POLLUTANT	BASELINE ACTUAL EMISSIONS (TPY)	FUTURE LICENSED ALLOWED EMISSIONS (TPY)	MAJOR MODIFICATION THRESHOLD (TPY)	EMISSIONS INCREASE/ DECREASE (TPY)	MAJOR MODIFICATION ?
PM	95.6	100.2	25	4.6	No
PM_{10}	95.6	100.2	15	4.6	No
NOx	106.8	318.2	40	211.4	Yes
CO	645.8	488.9	100	(-156.9)	No
SO_2	9.3	38.3	40	29.0	No
VOC*	184.6	141.1	40	(-43.5)	No
Lead	0.0035	0.0072	0.60	0.0037	No

***** As carbon.

Accordingly, the application has been processed as a major modification of a major source and has been processed through Chapter 115 of the Department's regulations.

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 Chapter 100 of the Department's regulations. 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 and modified units requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in Chapter 100 of the Department's regulations. BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

B. Process Description

Huber owns and operates an oriented strand board (OSB) manufacturing facility in Easton, Maine. Logs are received at the plant by truck or rail and are stockpiled on site. The logs are soaked in hot water to thaw and clean the wood. They are then debarked, waferized into wood strands, and conveyed to green wood storage bins.

From the green wood storage bins, the strands are conveyed through rotary dryers where the strands are heated to reduce the moisture content. Heat for the drying process was historically provided by direct-fired wood burners and oil burners. Huber is installing a biomass-fired furnace to provide direct heat for two new low temperature dryers. The exhaust from the furnace will be routed directly into the dryers for direct contact drying of the wood strands.

After passing through the dryers, the dried strands are screened and stored in dry chip storage bins. From the dry storage bins, the strands are fed into blending drums where binders and wax are applied to the wood. The resinated strands are then oriented into loosely formed mats and hot pressed to produce 8-foot by 16-foot sheets.

The pressed sheets are then trimmed into panels of the desired dimensions. The panels may also be sanded and/or provided with a tongue-and-groove edge. Some are edge sprayed and labeled with an ink jet printer. To prepare for shipment, the panels are stacked and strapped together. The finished product is then shipped to market by truck or rail.

A biomass and oil fired boiler, Boiler #1, provides steam heat for plant heating needs and to the thermal oil heater for the press. Excess steam is sold to a neighboring manufacturing facility. Boiler #1 was installed in 1982 and is currently controlled with cyclones and an electrified filter bed (EFB) for control of particulate matter. As part of the proposed project, a new central dry ESP will be installed to control particulate emissions from the new Dryer System and from Boiler #1.

1. <u>New Emission Units</u>

a. Dryer System

The project will include installation of two new low temperature dryers equipped with exhaust recirculation. The maximum production rate of the dryers is a combined total of 42.5 Oven Dried Tons per hour (ODT/hr). Inlet temperatures for the low temperature dryers are several hundred degrees less than normal dryers. A new biomass-fired furnace with a nominal heat input rating of 152 MMBtu/hr (at 50% moisture content fuel) will provide direct heat to the dryers. The furnace may fire at slightly higher rates for short periods depending on air flows and fuel moisture content. The furnace will be fired with bark, wood, and OSB process waste, including hogged trim, sander dust, wood fines, paper, cardboard, wood pallets, used oil/grease, vehicle wash water, binders, wax, release agent, stamp ink, edge seals, and other non-hazardous OSB process wastes. Propane, oil, kerosene, and oil or kerosene-soaked rags may be used for cold startup ignition. Press exhaust will also be fired in the furnace and/or Boiler #1 for control of HAPs. (Note that all emissions figures for the Dyer System in this license include the relatively minor emissions due to combustion of the Press exhaust.) This type of dryer system generates inherently low VOC and HAP emissions when compared with traditional high temperature OSB wafer dryers, as is evidenced by the emissions estimates, which show compliance with the PCWP MACT production based compliance option. Exhaust from the dryers will be routed through a new dry electrostatic precipitator (ESP) for PM and PM_{10} removal. The ESP will also serve Boiler #1. Except for startups, shutdowns and malfunctions, the Dryer System will not operate if Boiler #1 is offline. Also, the Dryer Furnace will be equipped with a by-pass vent that may be used in the event of an equipment malfunction, including over or under-pressure situations. The vent may also be used when maintenance is performed on the dryers or the furnace is in idle condition. Huber will maintain records of the date, time, duration and cause for use of the vent. A detailed description of these scenarios is described in Appendix C of Huber's March 2007 application.

b. Dry Fuel Bin Baghouse

The project will include installation of a new dry fuel bin baghouse on top of a new dry fuel bin. This equipment will replace the existing dry fuel bin and associated baghouse. The baghouse will be designed to maintain PM and PM_{10} emissions to less than 1.0 tpy, which are less than the insignificant thresholds under Chapter 115 Appendix B. The baghouse will use high-efficiency bags to limit emissions to this level.

c. Emergency Generator

The project will include installation of a new diesel fired emergency generator. The unit will be 250 kW with heat input of 0.86 MMBtu/hr. As an emergency generator, the generator will be limited to less than 500 hours per year and will utilize very low-sulfur (0.05%) diesel fuel.

d. Fuel Conveyor Systems

The project will significantly change the fuel conveyor system at the facility. The current conveyor system uses a number of open conveyors with the possibility of generating fugitive emissions. The project will involve several new fuel conveyors. The proposed conveyors will be enclosed trough, drag chain conveyors to minimize fugitive emissions and are expected to result in a significant reduction in fugitive PM and PM_{10} emissions from the fuel handling systems.

2. Modified Emission Units

a. Boiler #1

Boiler #1 will be modified to improve efficiency and potentially increase steam production. Boiler capacity will not be increased above existing name plate capacity of 84 MMBtu/hr. The proposed project includes installation of a new Programmable Logic Controller system on the boiler to improve performance and control of the system. In addition, the existing fuel feed system will be replaced to provide more uniform and controlled fuel feed to the boiler. The boiler will continue to burn existing fuels, including bark, wood, and OSB process waste, including hogged trim, sander dust, wood fines, paper, cardboard, wood pallets, used oil/grease, vehicle wash water, binders, wax, release agent, stamp ink, edge seals, other non-hazardous OSB process wastes , and oil. Propane, oil, kerosene, and oil or kerosene-soaked rags may continue to be used for cold startup ignition. In addition, a portion of the press exhaust gases (with the percentage of press exhaust going to the boiler or routed to the dryer furnace being based on operating conditions) will be routed to the boiler firebox for combustion of 90% or greater of total HAP as defined under the PCWP MACT. Huber will be requesting an alternative to the current PCWP MACT test requirement for destruction efficiency. In order to comply with Boiler MACT regulations and BACT requirements, the PM and PM_{10} emissions from the boiler will be controlled with the same ESP as that used for the new Dryer System.

b. Press

The project will include installation of a new press enclosure meeting the definition of a wood products enclosure under the PCWP MACT. Under the PCWP MACT, enclosures meeting the definition of a wood products enclosure are considered to capture 100% of the press emissions.

The exhaust from the press enclosure will be routed to the boiler firebox and/or the new dryer furnace firebox for combustion. Addition of the press enclosure will result in a reduction in fugitive VOC emissions. In addition, although not a new source review pollutant, Huber has reviewed methyl diisocyanate (MDI) emissions and determined that the project will reduce MDI emissions to levels approaching the Department’s insignificant activity threshold. On this basis, emissions of MDI are not expected to be of concern.

c. Blending and Forming Vent

As part of the project, the blender and forming vent will be ducted to the existing dust and fines baghouse, rather than venting separately. Potential PM and VOC emissions from the blender and forming line pickup points are included in the Dust and Fines Baghouse potential emissions.

d. Dust Handling Systems

The Easton mill has three existing dust handling systems (Dust and Fines Baghouse, Sander Baghouse, and the Trim and Grade Baghouse) listed in the license that will be improved as part of the project. The only changes to these units will be the installation of more efficient filter bags in the baghouses to maintain particulate emissions from each baghouse less than 1 tpy, which is less than the insignificant thresholds under Chapter 115 Appendix B. In addition, the vent from the Blending and Forming Unit will be routed through the Dust and Fines Baghouse. VOC emissions from the Baghouses are expected to be minimal.

e. Fugitive Emissions

The project will include installation of a new fuel conveyor system, using enclosed conveyors. Installation of the new conveyor system is expected to result in significant reductions in fugitive particulate emissions from the facility. The project will also include installation of a wood products enclosure on the press. This project is expected to result in significant decreases in fugitive VOC emissions from the manufacturing building. The facility will continue to have fugitive VOC emissions from categorically insignificant emission units such as OSB storage, hot log ponds, log storage, chip/bark piles, chip handling, roads, and other miscellaneous manufacturing processes.

3. <u>Affected Emission Units</u>

Affected emission units are emission units that are not being physically modified but are affected (e.g., debottlenecked sources) by the proposed project.

a. Ink Jet Printer

The existing Ink Jet Printer has potential emission increases associated with the project due to potential increased throughput. No other changes to the Ink Jet Printer are included in the project.

b. Edge Spraying

Edge spraying is currently limited to materials with 2 percent VOC. Historical VOC content in the edge seal has been well below 2 percent VOC. The existing Edge Spraying process has potential emission increases associated with the project due to potential increased throughput. VOC content of edge seal materials will be limited to 1 percent following the project.

C. BACT Control Reviews

The BACT analysis submitted by Huber included identification of the control technologies currently in use for reducing emissions, a review of vendor literature, as available, and a review of the RACT/BACT/LAER Clearinghouse (RBLC). For BACT purposes, technical feasibility, control effectiveness, and economics were considered in selecting BACT for new or modified equipment. For purposes of BACT and state BPT, the following potential control technologies were considered for Boiler #1 and the new dryer system:

POLLUTANT	CONTROL TECHNOLOGY	LOCATION OF CONTROL	POTENTIALLY APPLICABLE EMISSION UNITS
NO_x	Selective Catalytic Reduction (SCR)	Post-Process	Dryer, Boiler
	Selective Non-catalytic Reduction (SNCR)	Post-Process	Dryer, Boiler
	Staged Combustion (includes Overfire Air / Ecotube®)	Combustion Chamber	Dryer, Boiler
	Selective Catalytic Oxidation and Scrubbing ($SCONO_x$)	Post-Process	Dryer, Boiler
	Water/Steam Injection	Combustion Chamber	Dryer, Boiler
	Flue Gas Recirculation (FGR)	Combustion Chamber	Dryer, Boiler
	Low NO_x Burners	Combustion Chamber	Dryer, Boiler
	Low Excess Air	Combustion Chamber	Dryer, Boiler
	Good Design and Operation or Good Combustion Practices	In-Process	Dryer, Boiler
CO	Catalytic Oxidation	Post-Process	Dryer, Boiler
	Regenerative Thermal Oxidation (RTO)	Post-Process	Dryer, Boiler
	Regenerative Catalytic Oxidation (RCO)	Post-Process	Dryer, Boiler
	Staged Combustion (includes Overfire Air / Ecotube®)	Combustion Chamber	Dryer, Boiler
	Low Temperature Dryers/Exhaust Gas Recirculation	In-Process	Dryers
	Good Design and Operation or Good Combustion Practices	In-Process	Dryer, Boiler

POLLUTANT	CONTROL TECHNOLOGY	LOCATION OF CONTROL	POTENTIALLY APPLICABLE EMISSION UNITS
VOC	Catalytic Oxidation	Post-Process	Dryers, Boiler
	Regenerative Thermal Oxidation (RTO)	Post-Process	Dryers, Boiler, Baghouses, Ink Jet Printer
	Regenerative Catalytic Oxidation (RCO)	Post-Process	Dryers, Boiler, Baghouses, Ink Jet Printer
	Staged Combustion (includes Overfire Air / Ecotube®)	Combustion Chamber	Dryer, Boiler
	Biofiltration	Post-Process	Dryers, Boiler, Baghouses, Ink Jet Printer
	Low Temperature Dryers/Exhaust Gas Recirculation	In-Process	Dryers
	Material Use – Low VOC Ink	In-Process	Ink Jet Printer
	Good Design and Operation or Good Combustion Practices	In-Process	Dryers, Boiler, Baghouses, Ink Jet Printer
PM_{10}	Baghouse	Post-Process	Dryers, Boiler, Baghouses
	Dry Electrostatic Precipitator (Dry ESP)	Post-Process	Dryers, Boiler, Baghouses
	Wet Electrostatic Precipitator (WESP)	Post-Process	Dryers, Boiler, Baghouses
	Multiclone	Post-Process	Dryers, Boiler
	Good Design and Operation or Good Combustion Practices	In-Process	Dryers, Boiler, Baghouses
SO_2	Wet Scrubber	Post-Process	Dryers, Boiler
	Good Design and Operation	In-Process	Dryers, Boiler

Boiler #1 and the Dryer System will vent to the same new ESP and their combined post-ESP emissions will be exhausted through a single stack. The Department has previously approved Huber's request to "bubble" emissions limits for Boiler #1 and the existing dryers to maximize operational flexibility as allowed in Air License Amendment #A-62-77-1-A. This license contains similar bubble limits for Boiler #1 and the new Dryer System.

1. **Boiler #1**

a. **Particulate Matter technologies evaluated:**

(i) Baghouse – The emissions from the Drying System contain a large amount of water vapor and can contain some condensable material (i.e., resins and high molecular weight organics), which can build up in a baghouse, plug bags, increase pressure drop and affect removal efficiency. Therefore, a baghouse is considered technically infeasible for the proposed project.

(ii) Dry ESP – A dry ESP is proposed for the project. Additional control devices are not discussed because the dry ESP is considered to be the most effective, technically feasible, control device considered in the analysis.

BACT for PM/PM_{10} is a dry ESP and a 0.07 lb/MMBtu emission limit which is lower than most comparable entries in the RBLC. The BACT limit is more stringent than the NSPS Subpart Dc limit of 0.10 lb/MMBtu that was recently revised in February, 2006. The BACT limit represents nearly a 50% reduction from current licensed limits for the boiler.

The proposed dry ESP will control emissions from both Boiler #1 and the new Drying System and will be sized accordingly. Under normal operations, both the Drying System (approximately 70% of flow and 87% of mass loading) and Boiler #1 (approximately 30% of flow and 13% of mass loading) will be operating. Therefore, when operating only Boiler #1, flow and mass loadings will be below the ESP design levels and the ESP is not expected to achieve the same levels of efficiency that will be achieved during normal operations. In view of these facts and the expectation that Boiler #1 will operate alone less than 10% of the time, a BACT limit of 0.07 lb/MMBtu is determined to be appropriate for Boiler #1. The Department may reevaluate the lbs/MMBtu limit based on actual stack test results. A BACT limit of 22.0 lbs/hour is appropriate for the combined emissions of Boiler #1 and the Dryer System. This limit is comparable to the BACT limit established by the Department for similar equipment in the PSD air license, A-327-77-1-N, issued to Louisiana-Pacific Corporation in 2006.

b. NOx technologies evaluated:

(i) SCR – Infeasible due to wood ash alkalinity (a known catalyst poison), high potential for catastrophic failure due to the presence of highly abrasive wood ash and exhaust temperatures below SCR minimum requirements.

(ii) SNCR - Boiler #1 is a relatively small boiler (<100 MMBtu/hr) and its expected heat input varies based on process steam demand while burning a highly variable fuel supply, including green or dry wood, bark, snow, ice or rain soaked wood waste, bark, sawdust, etc. There is no fixed flue gas distribution pattern across the boiler nor fixed temperature window at which to optimally inject ammonia to enable the SNCR process to be continuously effective. The use of SNCR on such boilers would have limited effectiveness (estimated in the range of 10-30%), would invariably result in excessive NH_3 slip (a $PM_{2.5}$ formation precursor), and would cost

$7,000 to over $11,000 per ton of NOx removed.[2] At such low control efficiency, there would be a much greater opportunity for slip to occur, which would result in excess ammonia or urea emissions through the stack. Additionally, there is risk of accidental release of ammonia through transport, storage, and handling of the reagent. SNCR is not listed as BACT for any wood-fired boilers listed in the RBLC with a heat input capacity less than 100 MMBtu/hr. SNCR for this size boiler is infeasible based on technical, economic and environmental considerations.

(iii) Ecotube Systems – Reagent injection in the combustion chamber is infeasible for the reasons detailed for SNCR. In addition, Ecotube technology has not been demonstrated on boilers less than 200 MMBtu/hr. Huber's Boiler #1 is rated at a maximum design heat input capacity of 84 MMBtu/hr.

(iv) Staged combustion – Is currently being used on Boiler #1. As part of the project, Boiler #1 will be equipped with new combustion controls. Oxygen sensors will also be installed to provide data for controlling combustion.

(v) SCONOx – Not proven technology for units other than natural gas-fired turbines.

(vi) Water/Steam Injection - No wood-fired boilers identified in the RBLC search that used water/steam injection as BACT. The usual high moisture content of wood fuels (approximately 50% at Easton) in effect is already adding water to the combustion chamber. Furthermore, there would be a significant energy penalty in steam production from injecting water to further lower the combustion temperature for Boiler #1.

(vii) Flue Gas Recirculation – Applying FGR as a means of controlling NOx is considered a relatively ineffective method for wood-fired combustion units.

(viii) Low NOx burners – Not feasible in the boiler itself as it fires solid-fuels.

(ix) Low Excess Air – Low level of overall excess air will cause incomplete combustion, resulting in increased CO emissions and is considered technically infeasible for Boiler #1.

---

[2] AF&PA Comments on Draft NOx Model Rule and Related 6.7.06 OTC Resolution, Letter from Mr. Timothy G. Hunt (AF&PA) to Mr. Christopher Recchia (Ozone Transport Commission), November 1, 2006.

BACT for NOx is use of staged combustion and combustion controls to meet an emission limit of 0.40 lb/MMBtu which is below several of the recent RBLC entries for similar sized wood-fired units. The use of OSB wood waste which includes nitrogen-containing resins as one of the primary fuels for the boiler justifies a BACT limit of 0.40 lb/MMBtu.

c. CO control technologies evaluated:

(i) Catalytic oxidation – For wood combustion operations, high alkalinity of wood ash particles inhibits catalyst performance. If installed downstream of ESP, reheating of the combustion stream would be required. Catalytic oxidation is infeasible based on technical and environmental considerations.

(ii) RTO/RCO – Generally installed as a control device for VOC reductions. Inlet concentrations of VOC are likely too low to provide control without substantial auxiliary fuel and likely not at a reasonably high control efficiency. Without sufficient VOC to justify use of an RTO/RCO, it is not a feasible option for ancillary CO reductions.

(iii) Ecotube Systems – Reagent injection in the combustion chamber is infeasible for the reasons detailed for SNCR. In addition, Ecotube technology has not been demonstrated on boilers less than 200 MMBtu/hr. Huber's Boiler #1 is rated at a maximum design heat input capacity of 84 MMBtu/hr.

BACT for CO is good staged combustion practices and an emission limit of 111.58 lb/hr for Boiler #1 and Dryer System emissions combined.

d. SO_2 control technologies evaluated:

Add-on controls for SO_2 involve wet scrubbing technology. Biomass is an inherently low sulfur fuel. In addition, Huber proposes to use limited amounts of low sulfur No. 2 fuel oil. The uncontrolled level of SO_2 concentration is comparable to SO_2 concentrations found in post-control exhaust streams. The use of scrubbing technology as an add-on control is deemed to have minimal potential for SO_2 emission reduction and is not considered in this BACT analysis. For this reason, scrubbing technology is not considered feasible for the boiler.

BACT for SO_2 is the use of low sulfur fuels, including biomass and No. 2 fuel oil, and an emission limit of 5.9 lbs/hr for Boiler #1 and Dryer System emissions combined when firing only biomass. BACT for SO_2 from oil use shall be the use of fuel which meets the criteria in ASTM D396 for #2 fuel oil. The ASTM D396 criteria for #2 fuel oil complies with the 0.5% by weight sulfur content requirement found in 40 CFR Part 60 Subpart Dc.

e. VOC control technologies evaluated:

Potential emission controls listed for VOC from the boiler include those options presented for CO. The technical feasibility of applying these technologies for reduction of VOC from the boiler is the same as those for CO. Therefore, catalytic oxidation and RTO technology are considered technically infeasible for reducing VOC emissions from the boiler. Biofiltration was also listed as a potential VOC removal technology. The VOC emissions from the boiler are very low compared with typical VOC emissions considered for biofiltration. The amount of VOCs in the boiler gas would not be sufficient to serve as an energy source for the microbial population in a biofilter. Therefore, a biofilter is considered technically infeasible for removal of VOC from the boiler exhaust.

BACT for VOC is good combustion practices and an emission limit of 21.8 lbs/hr for Boiler #1 and Dryer System emissions combined.

2. <u>Dryer System (Dryer #3, Dryer #4 and Dryer Furnace)</u>

a. PM and PM_{10} control technologies evaluated:

(i) Baghouse – Technically infeasible given the moisture content of exhaust from the Dryer System.

(ii) Dry ESP - Highest ranked control device that is technically feasible.

BACT for the Dryer System is the dry ESP with a 22.0 lb/hr emission limit for the Drying System and Boiler #1 emissions combined. This limit is comparable to the BACT limit established by the Department for similar equipment in the PSD air license, A-327-77-1-N.

b. NOx control technologies evaluated:

(i) SCR – Infeasible given the high particulate loading associated with the proper temperature range in the system reduces the number of active catalyst sites for the required reaction. Alkalinity of wood ash can poison the catalyst.

(ii) SNCR – Infeasible given injection of ammonia in the combustion chamber of Dryer Furnace negatively impacts process operations of the dryers and product quality. In addition, using SNCR downstream of the drying process would require reheating of the exhaust stream for the reaction to occur, resulting in the generation of additional NOx emissions to obtain NOx reductions.

(iii) Ecotube Systems – Ecotube Technology has been installed on large electrical generating units. It has not been installed on any units less than 200 MMBtu/hr and therefore has not been demonstrated on units of comparable size to Huber's proposed dryer furnace. In addition, the primary objective of the Ecotube technology is to provide high-velocity air to create turbulence in the furnace to improve the mixing of over fire air with partially burned gases leaving the lower area of the furnace or boiler. Huber's proposed dryer furnace will incorporate good combustion design, including staged combustion air which will perform the function that the Ecotube technology performs. The new dryer furnace is expected to achieve CO levels below those achieved by electrical generating units using Ecotube technology. Use of Ecotube technology with reagent injection in the combustion chamber is infeasible for the reasons detailed for SNCR.

(iv) SCONOx – Not a proven technology for units other than natural gas-fired turbines.

(v) Water/Steam Injection – Contradicts purpose of process dryers by adding moisture to the system.

(vi) Flue Gas Recirculation – Applying FGR as a means of controlling NOx is considered a relatively ineffective method for wood-fired combustion units.

(vii) Low NOx burners – Not feasible in the Dryer Furnace itself as it fires solid-fuels.

(viii) Low Excess Air – Low level of overall excess air will cause incomplete combustion, resulting in increased NOx emissions and is considered technically infeasible for the Dryer Furnace.

BACT for NOx from the Dryer System is staged combustion air and good combustion practices and an emission limit of 38.84 lb/hr for the Dryer System emissions. This limit is comparable to the BACT limit established by the Department for similar equipment in the PSD air license, A-327-77-1-N. It is not feasible to accurately determine the amount of Btu's input to the furnace at any one time. Because the Dryer System furnace is not a boiler, it is not possible to determine Btu input based on steam output and f factors. Therefore, it is not feasible to impose a lb/MMBtu limit as BACT. A lb/hour BACT limit for NOx is consistent with a number of other recent BACT determinations listed in EPA's RBLC for similar units.

c. CO control technologies evaluated:

(i) Catalytic oxidation – For wood combustion operations, high alkalinity of wood ash particles inhibits catalyst performance. If installed downstream of PM control device, reheating of the combustion stream would be required. Catalytic oxidation is infeasible based on technical and environmental concerns.

(ii) RCO – For similar reasons as for catalytic oxidation, an RCO is technically infeasible. Industry practice has illustrated that RCO technology has not successfully been applied to rotary-type wood chip dryers.

(iii) RTO – Inlet concentration of VOCs will be low, due to low VOC design of the dryers, so a great deal of fuel would be required to maintain temperature for oxidation, thus forming CO and NOx. RTO is not feasible based on energy and environmental concerns.

(iv) Ecotube Systems – Ecotube Technology has been installed on large electrical generating units. It has not been installed on any units less than 200 MMBtu/hr and therefore has not been demonstrated on units of comparable size to Huber's proposed dryer furnace. In addition, the primary objective of the Ecotube technology is to provide high-velocity air to create turbulence in the furnace to improve the mixing of over fire air with partially burned gases leaving the lower area of the furnace or boiler. Huber's proposed dryer furnace will incorporate good combustion design, including staged combustion air which will perform the function that the Ecotube technology performs. The new dryer furnace is expected to achieve CO levels below those achieved by electrical generating units using Ecotube technology.

BACT for CO is good combustion practices using staged combustion with overfire air and an emission limit of 111.58 lb/hr emission limit for Boiler #1 and Dryer System emissions combined, which falls within the range of limits listed in the RBLC.

d. SO_2 control technologies evaluated:

(i) Wet scrubber – While technically feasible, environmental considerations such as additional fresh water usage and waste disposal ponds are significant drawbacks given the limited amount of SO_2 reduction anticipated. Costs per ton removed would easily exceed $10,000.

BACT for the Dryer System is good combustion practices with low sulfur fuel (i.e., wood) and an emission limit of 5.9 lb/hr for Boiler #1 and Dryer System emissions combined when firing only biomass.

e. VOC control technologies evaluated:

(i) Biofiltration – Exhaust streams from the dryers are at high flowrates and temperatures of approximately 300^{o}F. Exhaust temperatures would result in the death of significant portions of the active microorganisms in the biofilter. Additionally, there is a potential of plugging of biofilters due to the high particulate load in dryer exhaust. Biofilter control is therefore deemed technically infeasible for the Dryer System.

(ii) RCO – RCO technology is considered technically infeasible for the Dryer System due to the level of particulate matter loading in the exhaust.

(iii) RTO – Given the low VOC design of dryers, the level of uncontrolled VOCs is relatively low. RTO is expected to result in cost-effectiveness of approximately $11,000-$45,000 per ton of VOC removed and is not considered economically feasible.

(iv) Low Temperature Dryers - Huber proposes that VOC BACT for the dryer system is the use of low temperature dryer technology with exhaust gas recirculation and a maximum hourly VOC emission rate of 21.80 lb/hr from the dry ESP. This limit includes the boiler and the Dryer System, and any residual VOCs from the press that are not destroyed in the dryer furnace or boiler. This value, on a pound per Oven Dried Ton of product (lb/ODT) basis, is less than several of the recent RBLC determinations listed in Table 3-25 that used RTO technology to control VOC from OSB dryers. Furthermore, the emissions proposed do not result in the extra fossil fuel use and generation of ancillary emissions due to the heat required to operate a RTO device.

BACT for VOCs is the use of low temperature dryer technology with exhaust gas recirculation and a maximum hourly VOC emission rate of 21.80 lb/hr for the Drying System and Boiler #1 emissions combined.

f. CO, NOx, and VOC Emissions

(i) Huber will submit for Department approval a monitoring program that minimizes the balance of CO, NOx, and VOC emissions from the dryer system. The minimizing of one pollutant can result in the increase of another as well as affect product quality considerations, therefore, the plan Huber develops will take this into account.

3. <u>Press</u>

BACT for the Press is a press enclosure meeting the definition of a wood products enclosure under the PCWP MACT and routing of Press exhaust to the Dryer Furnace and/or Boiler #1.

The Press is not further considered separately for BACT because it does not have a separate emission point under the process design. The BACT emissions limitations and control technologies evaluated for Boiler #1 and the Dryer System incorporate the emissions from combustion of the Press exhaust.

4. <u>Ink Jet Printer</u>

a. VOC control technologies considered:

(i) Biofiltration – To ensure the health of microorganisms in the biofilter, a constant feed stream of VOCs must be maintained. Inking operations at Huber's Easton facility are sufficiently intermittent to not support a biofilter. Therefore, a biofilter is technically infeasible for the Ink Jet Printer.

(ii) Low VOC Ink – Although used in various industrial coatings operations, the use of currently available low VOC inks needed for the specific application in the Huber operation have not yet proven to be feasible. To meet Huber's needs, inks must meet specific criteria relating to, for example, clarity, drying time, adhesion, and bleeding. To date, low VOC inks have not met Huber's criteria. Huber will continue to evaluate the potential to use low VOC inks as new products become available.

BACT for VOCs from the Ink Jet Printer is good housekeeping practices and a limit of 20.7 tons per year. The Ink Jet Printer is not being physically changed but will experience increased production as a result of the project. This BACT limit is based on the existing license limit of 11.9 tons per year adjusted for the increased production as a result of the project. Huber will also be required to review the availability of new, low VOC containing inks as new products become available and, on an annual basis, provide a summary to the Department of any such reviews.

5. Dust Handling Systems

a. Particulate Matter

The most effective control technique for particulate matter from pneumatic transfer is baghouse control. Baghouse technology is considered as BACT for this application, with annual particulate emissions less than 1 tpy from each baghouse.

b. VOC

Recent BACT determinations for VOC from baghouses are “no control” or “good design and operation.” There is no design method for baghouses that affects VOC emissions.

6. Fuel Conveyor Systems

The conveyors that are proposed to be installed with the project will be enclosed trough drag chain conveyors designed to minimize fugitive particulate matter emissions.

BACT for this equipment is enclosed design and an opacity limit of 20% except for no more than one 6 minute block in any one hour period.

7. Diesel-Fired Emergency Generator

BACT for the emergency diesel generator is a limit of 500 hours of operation per year, firing 0.05 percent sulfur (documented through supplier fuel records) diesel fuel, based on a 12-month rolling total.

IV. APPLICABLE REGULATIONS

A. Boiler #1

Boiler #1 has a maximum design heat input of 84 MMBtu/hr firing biomass and 52.4 MMBtu/hr firing No. 2 fuel oil. The boiler was installed in 1982 prior to the applicability of New Source Performance Standards (NSPS) Subpart Dc applicability date. However, as a result of this project, the boiler will become subject to Subpart Dc.

1. Streamlining

a. Opacity

(i) MEDEP Chapter 101, Section 2(B)(5) establishes an opacity limit for combined stack emissions of 30% on a 6-minute block average basis except for no more than three 6-minute block averages in a 3-hour period.

(ii) NSPS Subpart Dc establishes an opacity limit of 20% on a 6-minute block average, except for one 6-minute period per hour of not more than 27% opacity, and except for periods of startup, shutdown, and malfunction.

Huber accepts streamlining for the opacity standards of MEDEP Chapter 101 and NSPS Subpart Dc. The NSPS Subpart Dc standard is more stringent than the MEDEP Chapter 101 limit. The NSPS Subpart Dc limit is therefore the only standard of the two included in this license.

b. PM

(i) MEDEP Chapter 103 establishes a PM emission rate of 0.35 lb/MMBtu.

(ii) BACT establishes an applicable PM emission standard of 0.07 lb/MMBtu.

Huber accepts streamlining for the PM standards of MEDEP Chapter 103 and BACT. The BACT PM standard is more stringent than the MEDEP Chapter 103 limit. The BACT limit is therefore the only standard of the two included in this license.

c. PM_{10}

BACT establishes the only applicable PM_{10} lb/MMBtu emission limit of 0.07 lb/MMBtu. **No streamlining requested.**

d. SO_2

(i) MEDEP Chapter 106 limits the sulfur content (by weight) of oil to 2.0%.

(ii) NSPS Subpart Dc limits the sulfur content of fuel oil to 0.5% or less.

(iii) BACT establishes an applicable SO_2 emission standard of 5.9 lb/hr for the exhaust from Boiler #1 and the Dryer System combined while burning wood and use of fuel which meets the criteria in ASTM D396 for #2 fuel oil.

Huber accepts streamlining for the SO_2 standards of MEDEP Chapter 106 and NSPS Subpart Dc and BACT. The NSPS Subpart Dc and BACT SO_2 standards are more stringent than the MEDEP Chapter 106 limit. The NSPS Subpart Dc and BACT limits are therefore the only standards of the two included in this license.

e. NOx

(i) MEDEP Chapter 138 establishes a NOx emission limit of 0.40 lb/MMBtu.

(ii) BACT establishes an applicable NOx emission standard of 0.40 lb/MMBtu. **No streamlining requested.**

f. CO

BACT establishes the only applicable CO emission limit for the exhaust for Boiler #1 and the Dryer System combined of 111.58 lb/hr. **No streamlining requested.**

g. VOC

BACT establishes the only applicable VOC lb/hr emission limit for Boiler #1 and the Dryer System combined of 21.80 lb/hr. **No streamlining requested.**

2. <u>National Emission Standards for Hazardous Air Pollutants (NESHAP)</u>

Boiler #1 may be subject to 40 C.F.R. Part 63, Subpart DDDDD, the NESHAP for Industrial, Commercial and Institutional Boilers and Process Heaters (“Boiler MACT”).

3. Parameter Monitors

NSPS Subpart Dc requires Boiler #1 to be equipped with a continuous emission monitoring system for opacity. Huber will also be required to monitor secondary voltage on each field, primary current on each field and secondary current on each field of the ESP controlling emissions from Boiler #1 and the Dryer System.

B. Dryer System

Huber will replace its existing two dryers and associated heating systems with two new low temperature dryers equipped with exhaust recirculation. The maximum production rate of the new dryers is a combined total of 42.5 oven dried tons per hour. A new biomass-fired furnace with a nominal heat input of 152 MMBtu/hr (at 50% moisture content fuel) will provide direct heat to the dryers. The Dryer Furnace will not produce any steam and, therefore, is not subject to MEDEP Chapter 103 or NSPS Subpart Db.

1. Streamlining

a. Opacity

(i) MEDEP Chapter 101, Section 2(B)(5) establishes an opacity limit for combined stack emissions of 30% on a 6-minute block average basis except for no more than three 6-minute block averages in a 3-hour period.

(ii) BACT establishes an opacity limit of 20% on a 6-minute block average, except for one 6-minute period per hour of not more than 27% opacity, and except for periods of startup, shutdown, and malfunction.

Huber accepts streamlining for the opacity standards of MEDEP Chapter 101 and BACT. The BACT standard is more stringent than the MEDEP Chapter 101 limit. The BACT limit is therefore the only standard of the two included in this license.

b. PM

(i) MEDEP Chapter 105 establishes a PM emission rate of 31.5 lb/hr from the dryers based on the process weight input rate for the dryers of 42.5 Oven Dried Tons (ODT) per hour and the following Chapter 105 formula:

Emission rate (lb/hr) = 17.31 * (process weight rate)$^{0.16}$

(ii) BACT establishes an applicable PM emission standard for the exhaust of the Dryer System and Boiler #1 combined, of 22.0 lb/hr.

Huber accepts streamlining for the PM standards of MEDEP Chapter 105 and BACT. The BACT PM standard is more stringent than the MEDEP Chapter 105 limit. The BACT limit is therefore the only standard of the two included in this license.

c. PM_{10}

BACT establishes the only applicable PM_{10} lb/MMBtu emission limit for the exhaust of the Dryer System and Boiler #1 combined of 22.0 lb/hr. **No streamlining requested.**

d. SO_2

BACT establishes the only applicable SO_2 emission limit for the exhaust of the Dryer System and Boiler #1 combined of 5.9 lb/hr (for biomass fuels). **No streamlining requested.**

e. NOx

BACT establishes the only applicable NOx emission limit for the exhaust of the Dryer System of 38.84 lb/hr. **No streamlining requested.**

f. CO

BACT establishes the only applicable CO emission limit for the exhaust from Boiler #1 and the Dryer System combined of 111.58 lb/hr. **No streamlining requested.**

g. VOC

BACT establishes the only applicable VOC lb/hr emission standard for the exhaust of the Dryer System and Boiler #1 combined of 21.80 lb/hr. **No streamlining requested.**

2. National Emission Standards for Hazardous Air Pollutants (NESHAP)

The Dryer System will be subject to 40 C.F.R. Part 63, Subpart DDDD, the NESHAP for Plywood and Composite Wood Products ("PCWP MACT").

3. Parameter Monitors

The dry ESP will control emissions from both the Dryer System and Boiler #1. NSPS Subpart Dc requires Boiler #1 to be equipped with a continuous emission monitoring system for opacity. Because this monitor will be located after the ESP it will monitor the combined emissions of Boiler #1 and the Dryer System. Huber will also be required to monitor secondary voltage on each field, primary current on each field and secondary current on each field of the ESP controlling emissions from Boiler #1 and the Dryer System.

C. Press Vent

Huber's Press compacts wood flakes, binders and wax, and OSB product. Release agents and catalysts may also be used in the press. The Press will be equipped with an enclosure meeting the definition of wood products enclosure at 40 C.F.R. Part 63, Subpart DDDD and emissions will be vented to the Boiler #1 and/or Dryer Furnace for control. Emissions applicable to the Boiler #1 and Dryer System inherently address press vent emissions. Therefore, there are no separate applicable emission limits for the Press.

D. Ink Jet Printer

The ink jet printer system is used to apply logos and nail grids to the OSB products through printer heads at the facility's sanding machine. The inks utilized are solvent-based. The average VOC content of the inks historically used in the Ink Jet Printer has been approximately 7 pounds of VOC per gallon. Huber is limited by BACT license condition to 20.7 tons per year of VOC emissions from the ink jet printer. The average VOC content in this paragraph is not a limit. Huber may utilize different types and amounts of inks provided it limits annual VOC emissions from the ink jet printer to 20.7 tpy.

1. Periodic Monitoring

Periodic monitoring for the ink jet printer consists of maintaining records of the VOC content of inks utilized, the amount of inks used and the amount of VOCs in the inks on a monthly basis and 12-month rolling total basis.

E. Edge Spraying

Huber conducts several different types of edge spraying activities on its OSB. Huber has historically used only edge coatings containing less than 2% VOC by weight. BACT for Edge Spraying is the continued use of edge coatings containing not more than 1% VOCs and keeping records of the VOC and coating amounts. BACT establishes the only applicable limit for Edge Spraying.

F. Blending and Forming

The dried wood strands are fed into blending drums where binders and wax are applied to the strands prior to being formed into mats and pressed. A ventilation system maintains the blenders and formers under negative pressure to ensure adequate indoor air quality. The air removed by the system is filtered to remove particulate matter by the Dust and Fines Baghouse which is addressed in the next section. There are no additional applicable requirements for the Blending and Forming unit.

G. Dust Handling Systems

Huber operates the following dust handling and control systems:

1. Dust & fines baghouse,
2. Trim & grade baghouse
3. Sanding baghouse, and
4. Dry fuel bin and baghouse.

In order to minimize fugitive emissions, Huber will follow a written, Best Management Practices (BMP) plan for all plant dust handling and control systems. The BMP shall be available to the Department upon request. For the dust handling systems, Huber shall:

1. Maintain an alarm system and proper operating condition.
2. Maintain all baghouses to achieve visible emissions no greater than 10% opacity on a 6-minute average basis except for one 6-minute period per hour.
3. Take corrective action if opacity exceeds 5% from the baghouses.
4. Inspect the dust collection and control systems for leaks and malfunctions as described in Huber's BMP plan.
5. Install bags rated to maintain PM emissions at less than 1 ton per year.

H. Emergency Generator

Huber will install a diesel-fired stationary electric generator rated at less than 1.0 MMBtu/hr for backup electric power. The generator will only be operated during an emergency and for testing and maintenance purposes. It will fire diesel fuel with a sulfur content not to exceed 0.05% by weight. The Emergency Generator shall have an operating limit of 500 hours per year, on a 12-month rolling total.

Annual Potential Emissions from the New, Modified and Affected Emissions Units

Emission Units	Potential Emissions (tons/year)						
	PM	**PM_{10}**	**NOx**	**CO**	**SO_2**	**VOC**	**Lead**
ESP Stack (includes press, furnace, dryers, boiler)	96.33	96.33	317.28	488.74	38.27	95.49	7.2E-03
Press	--	--	--	--	--	--	--
Dryer #1 (Core)	--	--	--	--	--	--	--
Dryer #2 (Surface)	--	--	--	--	--	--	--
Dry Fuel Bin Baghouse (new)	0.97	0.97	--	--	--	3.33	--
Ink Jet Printing	--	--	--	--	--	20.68	--
Edge Spraying	--	--	--	--	--	6.46	--
Blending Forming Vents	Vent removed (blender pickups routed to Dust & Fines Baghouse)						
Dust & Fines Baghouse	0.96	0.96	--	--	--	5.48	--
Trim & Grade Baghouse	0.95	0.95	--	--	--	2.54	--
Sander Baghouse	0.97	0.97	--	--	--	7.04	--
Dry Fuel Bin & Baghouse	Being removed with project.						
Secondary Dust Recovery Baghouse	Being removed with project.						
EFB Baghouse	Being removed with project.						
Emergency Generator	0.07	0.07	0.94	0.20	0.01	0.08	--
TOTAL	100.2	100.2	318.2	488.9	38.3	141.1	7.2E-03

III. Ambient Air Quality Analysis

A. Overview

A refined modeling analysis was performed to demonstrate that emissions from Huber will not cause or contribute to violations of Maine Ambient Air Quality Standards (MAAQS) for SO_2, PM_{10}, NO_2 or CO or to Class II increment standards for SO_2, PM_{10} or NO_2.

Based upon the distance from Huber to the nearest Class I area (178 kilometers) and the magnitude of emissions increase, the affected Federal Land Managers (FLMs) and MEDEP-BAQ have determined that an assessment of Class I increment standards and 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 (simple, intermediate and complex terrain). 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. Wind data was collected at a height of 10 meters at the Caribou National Weather Service (NWS) meteorological monitoring site during the 5-year period 2001-2005. When possible, surface data collected at the Presque Isle DEP meteorological site were substituted for missing Caribou NWS surface data. All other missing data were interpolated or coded as missing, per EPA guidance. Hourly cloud cover, ceiling height and wind data measured at the 10-meter level, also collected at the Caribou NWS site, were used to determine stability.

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 EPA guidance.

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

Point-source parameters, used in the modeling for Huber 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 NAD27 (km)	UTM Northing NAD27 (km)
CURRENT/PROPOSED						
Huber Engineered Woods						
Main Stack	197.60	51.82	63.53	2.44	583.689	5168.594

Emission parameters for Huber, based on the worst-case operating scenarios, for MAAQS modeling are listed in Table III-2. For the purposes of determining PM_{10} and NO_2 impacts, all PM and NO_x emissions were conservatively assumed to convert to PM_{10} and NO_2, respectively.

TABLE III-2: Stack Emission Parameters

Facility/Stack	Averaging Periods	SO_2 (g/s)	PM_{10} (g/s)	NO_2 (g/s)	CO (g/s)	Stack Temp (K)	Stack Velocity (m/s)
MAXIMUM LICENSE ALLOWED							
Huber Engineered Woods							
Main Stack							
• Maximum Load Case	All	3.61	2.77	9.13	14.06	460.40	18.47
• Minimum Load Case	All				11.02	494.80	13.17

C. Single Source Modeling Impacts

AERMOD-PRIME refined modeling, using five years of sequential meteorological data, was performed for Huber operating scenarios that represented maximum, typical and minimum operations. It has been determined that the maximum load case predicted the maximum impacts for all pollutants/averaging periods, except 8-hour CO, for which the minimum load case predicted the maximum impact.

AERMOD-PRIME model results for Huber alone are shown in Tables III-3. All SO_2, PM_{10}, NO_2 and CO averaging period impacts were below their respective significance levels in both simple and complex terrain, therefore, no further analysis was required for these pollutant/terrain combinations.

TABLE III-3 : Maximum AERMOD-PRIME Impacts from Huber Alone

Pollutant	Averaging Period	Max Impact ($\mu g/m^3$)	Receptor UTM E (km)	Receptor UTM N (km)	Receptor Elevation (m)	Load Case	Class II Significance Level ($\mu g/m^3$)
SO_2	3-hour	8.99	583.850	5168.950	195.30	Maximum	**25**
	24-hour	4.99	583.975	5168.525	193.73	Maximum	**5**
	Annual	0.39	584.150	5168.200	193.50	Maximum	**1**
PM_{10}	24-hour	3.83	583.975	5168.525	193.73	Maximum	**5**
	Annual	0.30	584.150	5168.200	193.50	Maximum	**1**
NO_2	Annual	0.98	584.150	5168.200	193.50	Maximum	**1**
CO	1-hour	52.27	583.800	5168.950	196.00	Minimum	**2000**
	8-hour	29.87	583.650	5168.325	194.70	Maximum	**500**

D. Combined Source Modeling Impacts

Because all modeled impacts from Huber alone were less than the significance levels for all SO_2, PM_{10}, NO_2 and CO averaging periods, no background data or other local sources need to be included.

E. Increment

Because all modeled project-only impacts from Huber alone were less than the significance levels for all SO_2, PM_{10} and NO_2 averaging periods, no Class II increment modeling needs to be performed.

F. Class I Impacts

Based upon the distance from Huber to the nearest Class I area (178 kilometers) and the magnitude of emissions increase, the affected Federal Land Managers (FLMs) and MEDEP-BAQ have determined that an assessment of Class I Air Quality Related Values (AQRVs) is not required.

G. Summary

It has been demonstrated that emissions from Huber, will not cause or contribute to violations of Maine Ambient Air Quality Standards (MAAQS) for SO_2, PM_{10}, NO_2 or CO or to Class II increments for SO_2, PM_{10} or NO_2.

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,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants this New Source Review Air Emission License A-62-77-2-A, pursuant to the preconstruction licensing requirements of MEDEP Chapter 115 and subject to the standard and special conditions below.

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 (reference Title 38 M.R.S.A. §347-C);

(2) The licensee shall acquire a new or amended air emission license prior to beginning actual construction of a modification, unless specifically provided for in Chapter 115;

(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;

(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;

(5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S.A. §353.

(6) The license does not convey any property rights of any sort, or any exclusive privilege;

(7) The licensee shall maintain and operate all emission units, air pollution control and monitoring systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions;

(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;

(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 the renewal of a license or amendment shall not stay any condition of the license.

(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;

(11) In accordance with the Department's air emission compliance test protocol and 40 C.F.R. Part 60 or other method approved or required by the Department, the licensee shall:

(i) perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:

a. 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

b. pursuant to any other requirement of this license to perform stack testing.

(ii) install or make provisions to install test ports that meet the criteria of 40 C.F.R. Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and

(iii) submit a written report to the Department within thirty (30) days from date of test completion.

(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:

(i) within thirty (30) days following receipt of the written test report by the Department, or another alternative timeframe approved by the Department, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 C.F.R. Part 60 or other method approved or required by the Department;

(ii) 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

(iii) 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.

(13) Notwithstanding any other provision in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or license requirement.

(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; and

(15) Upon written request of 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 manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status.

(16) The licensee shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (reference Title 38 M.R.S.A. §605-C).

SPECIFIC CONDITIONS

(17) Boiler #1

A. Huber may fire in Boiler #1: bark, wood and OSB process waste, including hogged trim, sander dust, wood files, paper, cardboard, wood pallets, used oil/grease, vehicle wash water, binders, wax, release agent, stamp ink, edge seals and other non-hazardous OSB process wastes. Propane, kerosene or rags soaked with kerosene or oil may be fired for startup purposes. Huber may also fire oil that meets the criteria in ASTM D396 for No. 2 oil. [MEDEP Chapter 115, BACT]

B. Huber shall replace the existing electrostatic filter bed (EFB) with an electrostatic precipitator (ESP) to control particulate matter (PM, PM_{10}) emissions from Boiler #1 and the new Dryer System. [MEDEP Chapter 115, BACT]

C. Beginning the day after the initial performance test or 180 days after startup of the new ESP, whichever is earlier, emissions from Boiler #1 shall not exceed the following lb/MMBtu limits and the lb/hr limits in Condition (19) of this license, except for periods of startup, shutdown, or malfunction:

Pollutant	**Emission Rate lb/MMBtu**	**Origin and Authority**
PM	0.07	MEDEP Chapter 115, BACT
NOx	0.40	MEDEP Chapter 115, BACT and 138 NOx RACT

D. For Boiler #1, Huber shall not exceed 8,400 gallons per day or 350,000 gallons per year (on a 12-month rolling total) of No. 2 fuel oil containing 0.5% sulfur by weight or an amount of No. 2 fuel oil with a sulfur quantity equivalent. [MEDEP Chapter 115, BACT]

E. Compliance with the fuel oil limits shall be based on records of fuel use and fuel oil supplier receipts identifying that the oil meets the criteria in ASTM D396 for #2 fuel oil. If Huber exceeds 8,400 gallons per day or 350,000 gallons per year, then the fuel receipts must also identify the sulfur content of the oil to demonstrate the sulfur equivalency allowed in paragraph D of this Condition (17). Huber shall maintain a record of fuel oil used in Boiler #1 on a daily basis and 12-month rolling total basis and shall maintain records of fuel oil supplier receipts. [MEDEP Chapter 115, BACT]

F. Huber shall maintain records of steam production from Boiler #1 and calculations of wood fuel used in the boiler based on steam production on a monthly basis. [MEDEP Chapter 115, BACT]

G. After start-up of the new ESP, particulate matter (PM, PM_{10}) emissions from Boiler #1 shall be controlled by the operation and maintenance of the ESP, except for periods of startup, shutdown, and malfunction. [40 CFR Part 60 Subpart A,Dc & 38 MRSA 349 (9)]

H. Compliance with the PM emission limits in paragraph C of this Condition (17) shall be demonstrated through stack testing with only Boiler #1 emitting to the ESP and in accordance with 40 C.F.R. Part 60, App. A, Method 5, within 180 days of start-up of the new ESP and, thereafter, as requested by the Department. [MEDEP Chapter 115, BACT]

I. Compliance with the NOx emission limits in paragraph C of this Condition (17) shall be demonstrated through stack testing of only Boiler #1 emissions in accordance with 40 C.F.R. Part 60, App. A, Method 7E within 180 days of start-up of the new ESP and, thereafter, is requested by the Department. [MEDEP Chapter 115, BACT]

J. New Source Performance Standards [40 CFR Part 60 Subpart A & Dc]

(i) Boiler #1 is subject to 40 C.F.R. Part 60, Subparts A and Dc. Huber shall provide notifications, maintain records, and submit reports as required by the subparts or approved alternatives.

(ii) After start-up of the new ESP, and within 60 days after achieving the maximum production rate at which the Boiler #1 will be operated, but no later than 180 days after initial startup of the new ESP, Huber shall perform initial performance testing of Boiler #1 for PM and opacity in accordance with 40 C.F.R. Part 60, Appendix A, Methods 5 and 9, respectively.

(iii) Huber shall maintain records of the amount of wood fuel and oil combusted each day and calculation of annual capacity factor for each calendar quarter.

(iv) Visible emissions from Boiler #1 shall not exceed 20% opacity on a 6-minute average except for one 6-minute period per hour of not more than 27% opacity. This opacity standard shall apply at all times, except during periods of startup, shutdown, and malfunction.

(v) Compliance with the opacity limit for Boiler #1 and the Dryer System shall be demonstrated by means of a single continuous opacity monitoring system (COM) located after the ESP. The COMs must be installed and operational within 180 days of Dryer System start-up and subsequently operated, certified, and maintained in accordance with 40 C.F.R. Part 60, Subparts A and Dc.

(18) Dryer System

A. Huber is licensed to construct and operate two new low temperature wood flake dryers and an associated dryer furnace with a nominal heat input rating of 152 MMBtu/hr (50% moisture equivalent) (together referred to as the "Dryer System"). Huber is licensed to fire bark, wood and OSB process waste, including hogged trim, sander dust, wood files, paper, cardboard, wood pallets, used oil/grease, vehicle wash water, binders, wax, release agent, stamp ink, edge seals and other non-hazardous OSB process wastes. Propane, kerosene, or rags soaked with kerosene or oil may be fired for startup purposes [MEDEP Chapter 115 BACT]

B. The maximum firing rate of fuel in the furnace shall not exceed on a monthly average an amount of fuel with the heat input equivalent of 420 tons/day of 4,350 Btu/lb, 50% moisture fuel. Compliance shall be demonstrated by monitoring and recording the fuel feed to the unit. [MEDEP Chapter 115 BACT]

C. Except as provided in paragraph D of this Condition (18) particulate matter (PM, PM_{10}) emissions from the Dryer System shall be controlled by the operation and maintenance of an ESP. This ESP shall also control particulate matter emissions from Boiler #1. [MEDEP Chapter 115 BACT]

D. The Dryer Furnace will be equipped with a by-pass vent that may be used in the event of an equipment malfunction, including over or under-pressure situations. The vent may also be used when maintenance is performed on the dryers or the furnace is in idle condition. Huber shall maintain records of the date, time, duration and cause for use of the vent. Use of the vent for pressure relief situations is limited to 100 hours per year. Use of the vent beyond these limits may be exempt if due to unavoidable malfunction. Use of the vent during furnace idle conditions is limited to 288 hours per year. The vent may also be used during the 180 day initial startup and shakedown period for Phase II of the project. [MEDEP Chapter 115 BACT]

E. Beginning the day after the initial performance test or 180 days after startup of the new ESP, whichever is earlier, emissions from the Dryer System shall not exceed the following lb/hr limit and the lb/hr limits in Condition (19) of this license, except for periods of startup, shutdown, or malfunction:

Pollutant	**Emission Rate lb/hr**	**Origin and Authority**
NOx	38.84	MEDEP Chapter 115, BACT

F. Compliance with the NOx limit in paragraph E of this Condition (18) shall be demonstrated by stack testing the ESP Stack Combined NOx emissions in accordance with Condition (19) and subtracting the lb/hr NOx emissions from Boiler #1. NOx testing for the Dryer System shall be conducted within 180 days of commencing operation of the Dryer System and, thereafter, as requested by the Department. [MEDEP Chapter 115, BACT]

(19) ESP Stack Combined emissions from Boiler #1 and Dryer System

A. Emissions from the ESP Stack shall not exceed the following:

Pollutant	lb/hr	Origin and Authority
PM	22.0	MEDEP, Chapter 115, BACT
PM_{10}	22.0	MEDEP, Chapter 115, BACT
SO_2 (firing wood only)	5.9	MEDEP, Chapter 115, BACT
NOx	72.44	MEDEP, Chapter 115, BACT
CO	111.58	MEDEP, Chapter 115, BACT
VOC	21.80	MEDEP, Chapter 115, BACT

[MEDEP Chapter 115, BACT]

B. Compliance with the PM, PM_{10}, NOx, CO and VOC limits in paragraph A of this Condition (19) shall be demonstrated through stack testing in accordance with the following methods within 180 days of commencing operation of the Dryer System and, thereafter, as requested by the Department. Compliance with the SO_2 limit in paragraph A of this Condition (19) shall be demonstrated through stack testing in accordance with the following method as requested by the Department.

Pollutant	Compliance Method
PM	40 C.F.R. Part 60, Appendix A, Method 5
PM_{10}	40 C.F.R. Part 60, Appendix A, Method 5 or Method 201/201A 40 C.F.R. Part 51, Appendix M
NOx	40 C.F.R. Part 60, Appendix A, Method 7E
SO_2	40 C.F.R. Part 60, Appendix A, Method 6C
VOC	40 C.F.R. Part 60, Appendix A, Method 25 or 25A
CO	40 C.F.R. Part 60, Appendix A, Method 10

C. Huber shall operate, at a minimum, the number of ESP chambers and number of fields per chamber that operated during the most recent demonstration of compliance with the licensed particulate emission limits. Data for the following points in the ESP shall be recorded once every twelve hours (once 7:00 a.m. to 7:00 p.m. and once 7:00 p.m. to 7:00 a.m.), except during periods of monitor malfunction per shift during operation:

1) Secondary voltages on each field
2) Primary current on each field
3) Secondary current on each field

Upon written notification to the Department, and in accordance with the Bureau of Air Quality's Air Emission Compliance Test Protocol, Huber may perform additional particulate emission testing to demonstrate compliance with alternative operating scenarios, but under no circumstances shall Huber be relieved of its obligation to meet its licensed emission limits. [MEDEP Chapter 115 BACT]

D. Huber shall develop a monitoring program that minimizes NOx, CO, and VOC emissions and shall submit this plan to the Department within one year of start-up. [MEDEP Chapter 115 BACT]

E. The ESP shall have a minimum stack height of 170 feet above ground level. [MEDEP Chapter 115 BACT]

(20) Press Vent

The press shall be equipped with an enclosure meeting the definition of a "woods products enclosure" at 40 C.F.R. Part 63, Subpart DDDD. Emissions from the press enclosure shall be routed to the combustion chamber of Boiler #1 and/or the dryer furnace. [MEDEP Chapter 115, BACT]

(21) Alternative Raw Materials

Huber may use alternative wood species, glues, waxes, resins, release agents or other substances in the process upon notification to the Department. Huber may run trials with such new materials for a period up to 90 days. Huber shall provide notice to the DEP not later than 2 weeks after permanently switching to use of new materials. Upon request of the Department, Huber may be required to conduct stack tests to demonstrate compliance with this license after making the permanent switch to a new substance. [MEDEP Chapter 115, BACT]

(22) Ink Jet Printer

Huber shall maintain monthly records of the amounts and VOC content of inks used in the ink jet printer and records of maintenance and tune-ups/repairs. Huber may use alternative inks. The total VOC emissions from all inks applied by the Ink Jet Printer shall not exceed 20.7 tons per year on a 12-month rolling total from this process. [MEDEP Chapter 115, BACT]

(23) Edge Spraying

Huber shall use only edge coatings containing one percent or less VOCs. Huber shall maintain documentation from the suppliers to demonstrate VOC content of edge coatings and maintain documentation with amount of VOC emitted. [MEDEP Chapter 115, BACT]

(24) Dust Handling Systems

Huber shall operate the following dust handling and control systems:

1. Dust & fines baghouse (including blending and forming vent),

2. Trim & grade baghouse,
3. Sanding baghouse, and
4. Dry fuel bin and baghouse.

Huber may install a new baghouse on the new dry fuel bin.

In order to minimize fugitive emissions, Huber will follow a written, Best Management Practices (BMP) plan for all plant dust handling and control systems. The BMP shall be available to the Department upon request. For the dust handling systems listed above, Huber shall:

1. Maintain an alarm system and proper operating condition.
2. Maintain all baghouses to achieve visible emissions no greater than 10% opacity on a 6-minute average basis except for one 6-minute period per hour.
3. Take corrective action if opacity exceeds 5% from the baghouses.
4. Inspect the dust collection and control systems for leaks and malfunctions as described in Huber's BMP plan.
5. Use bags rated to maintain PM emissions at less than one ton/yr.

[MEDEP Chapter 101, Visible Emissions and Chapter 115, BACT]

(25) Fugitive PM 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. [MEDEP Chapter 101, Visible Emissions and Chapter 115, BACT]

(26) New Fuel Conveyor Systems

A. New fuel conveyor systems shall be covered. [MEDEP Chapter 115, BACT]

B. Visible emissions shall not exceed an opacity of 20 percent on a six (6) minute block average basis for more than one (1) six (6) minute block averages in a one hour period. [MEDEP Chapter 101, Section 2(B)(3)(d) and MEDEP Chapter 115, BACT]

(27) Diesel-Fired Emergency Generator

A. The diesel-fired emergency generator shall be limited to 500 hours of operation per year, firing 0.05% sulfur (documented through supplier fuel records) diesel fuel, based on a 12 month rolling total. Hours of operation shall be kept by an hour meter on the generator. Fuel purchase receipts indicating percent sulfur by weight shall be kept as well. [MEDEP Chapter 115 BACT]

B. Visible emissions shall not exceed an opacity of 20 percent on a six (6) minute block average basis, for more than two (2) six (6) minute block averages in a 3-hour period. [MEDEP Chapter 101, Section 2(B)(1)(d) and Chapter 115, BACT]

(28) For COMS recordkeeping shall include:

A. Documentation that COMS is continuously accurate, reliable and operated in accordance with Chapter 117, 40 CFR Part 51, Appendix P, and 40 CFR Part 60, Appendices B and F;

B. Records of all measurements, performance evaluations, calibration checks, and maintenance or adjustments for COMS as required by 40 CFR Part 51 Appendix P;

C. Other data indicative of compliance with the applicable emission standards for those periods when the COMS was 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.

(29) Part 70 Air License.

Not later than one year after startup of the new Dryer System, Huber shall submit an application under Chapter 140 of the Department's regulations for a Part 70 Administrative Revision to Huber's Part 70 Air Emissions License to incorporate the terms of this license. [MEDEP Chapter 140]

DONE AND DATED IN AUGUSTA, MAINE THIS DAY OF 2007.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: ____

DAVID P. LITTELL, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: **March 28, 2007**

Date of application acceptance: **March 28, 2007**

Date filed with the Board of Environmental Protection _____________________

This Order prepared by Edwin Cousins, Bureau of Air Quality