

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

MEMORANDUM

June 22, 2012

TO: Phillip Fielder, P.E., Permits and Engineering Group Manager
Air Quality Division

THROUGH: Kendal Stegmann, Senior Environmental Manager, Compliance and
Enforcement

THROUGH: Phil Martin, P.E., Engineering Manager, Existing Source Permit Section

THROUGH: Peer Review

FROM: Jian Yue, P. E., Engineering Section

SUBJECT: Evaluation of Permit Application No. **2003-099-C (M-3) (PSD)**
Huber Engineered Woods, LLC
Broken Bow, McCurtain County, Oklahoma
SW 1/4 Sec. 14, T6S, R24E IM, Latitude: 34.030°, Longitude: -94.768
Directions: From the intersection of U.S. Highway 259 and SH 3 in Broken
Bow, go west 2 miles on SH3, turn south into the facility.

SECTION I. INTRODUCTION

Huber Engineered Woods, LLC, (HEW) a subsidiary of J. M. Huber Corporation (Huber), has applied for a construction permit for its oriented strand board (OSB) mill (Mill) in Broken Bow, Oklahoma (SIC 2493). The facility is currently operating under Permit No. 2003-099-C (M-2) issued on 11/27/2006. Key production processes with source emissions include the OSB pressing operation (press), the wood strand drying operation (drying) and two 150 million BTU per hour (MMBtu/Hr) wood fired furnaces that supply heat for the drying process (energy system). The Mill began operation in May 2004 under Construction Permit No. 2003-099-C at a maximum production rate of 630 Million square feet on a 3/8" basis (MMSF_{3/8}) per year. Press operations are limited under the Construction Permit to 100 thousand square feet (MSF_{3/8}) per hour (daily average). Permit limitations on the dryers are 70.5 oven dried tons (ODT) per hour daily average and 564,000 ODT/yr. Permit Number 2003-099-C (M-2) also restricts the operating hours on the press and dryers to not more than 8,000 hours per year, regardless of actual hourly production rates. HEW is seeking to increase these permitted hourly and annual production rates along with other changes addressed in later part of this introduction.

With these changes, this source will become a PSD "major source" of emissions for oxides of nitrogen (NO_x), particulate matter (PM/PM₁₀), carbon monoxide (CO), and volatile organic compounds (VOC). This permit action will review the entire facility as a new PSD site. Changes proposed in this permit will not be considered as a separate modification but will be

conservatively included in the full analysis. Therefore, the evaluation will be based on full facility emissions not net emission increases.

This permit modification application also requests the capability to use another resin, melamine urea phenol formaldehyde (MUPF) to provide operational flexibility in variable market conditions. MUPF contains more nitrogen than resins currently used at the mill and requires a catalyst that contains a sulfur compound. The use of MUPF and associated catalysts will result in the potential increase in emissions of various pollutants, including NO_x, and SO₂ from the energy system and VOC from the press.

HEW conducted engineering tests to characterize the VOC emission profile for the use of the MUPF resin and discovered the presence of high pinene concentrations in several emission sources including the baghouses. Pinene is a naturally occurring non-hazardous air pollutant VOC present in pine tree sap. Research indicates natural VOC concentrations in pine species can vary as much as 500%. HEW was not previously aware that pinenes occurred at these high concentrations in its baghouse exhaust. The information was disclosed to ODEQ in a letter dated May 5, 2005. Similarly, engineering testing performed in August 2006 indicated a significant increase in the VOC concentrations in the dryer exhaust gases compared to levels measured during the 2004 compliance test. This increase was attributed to high variability of pinene content in the wood strands. This information was disclosed to the ODEQ in a letter dated September 7, 2006.

HEW discovered that, through stack test in October 2004, the biofilter could not consistently achieve the 70% control efficiency proposed in the original permit and that 60% destruction efficiency (DRE) is more appropriate. Through extensive diagnostic testing, HEW identified the following key factors that contribute to the biofilter DRE performance:

1. The press actually generates substantially less HAP inlet concentrations than originally specified in the biofilter design criteria;
2. The actual press hood fumes contain a significantly higher ratio of non-water soluble (hydrophobic) non-HAP compounds (i.e., pinene) to readily biodegradable (HAP) compounds than the anticipated composition used to specify and guarantee the DRE;
3. The water-insoluble (hydrophobic) compounds are not easily degraded because these compounds must first be absorbed by and dissolve in the aqueous environment the biofilter microorganisms live in. Conversely the water soluble (hydrophilic) compounds are readily absorbed;
4. The high variability of pinene content in the wood strands was not known when the DRE was originally calculated; and
5. A source of non-HAP VOC (i.e., volatilized degradation products of lube oils used on the continuous press belt) was not accounted for in the design specifications. This phenomenon is peculiar to continuous presses. Prior to the Broken Bow unit, all boilers designed and in operation for the US OSB industry were for batch presses.

This application proposes that the biofilter with 60% DRE and a maximum VOC emissions rate of 0.42 lb/MSF_{3/8} qualifies as BACT for the press.

The energy and dryer systems have four abort stacks. Two stacks are located on top of the combustion furnaces (heat sources) and two (dryer abort stacks) are located after the rotary dryer cyclones and before the wet electrostatic precipitator (WESP). These abort stacks are normally closed, but may open under various operating conditions. This application includes the dryer abort stacks as permitted sources (EUG 9) for startup, shutdown, and maintenance emissions.

In summary, this application proposes the following changes:

1. Increase OSB press production from 100 MSF/hr and 630 MMSF/yr to 110 MSF/hr and 8,760 hours of operation per year (964 MMSF/yr).
2. Increase dryer throughput rate from 70.5 to 80 ODT/hr and authorize operation of 8,760 hours per year.
3. Authorize the use of MUPF resin.
4. Add permit language to allow operational flexibility to change resins, catalysts, and inks to other resins, catalysts, and inks that will not cause allowable emissions to be exceeded or that result in emissions of new regulated pollutants.
5. Increase the allowable emissions from the dryer system RTO exhaust to account for the high variability of pinene concentrations and increased PM₁₀, CO, NO_x, and SO₂ to accommodate burning wood waste impregnated with MUPF resins and catalyst.
6. Revise the biofilter BACT to reflect a minimum destruction efficiency of 60% and a maximum emission rate of 0.42 lb/MSF_{3/8}.
7. Reduce PM₁₀ emissions limits for baghouses and add VOC emission limits to baghouses.
8. Increase allowable VOC emissions from the branding operation.
9. Permit fugitive VOC emissions from buildings.
10. Permit fugitive PM emissions from buildings as insignificant activities.
11. Permit startup, shutdown, and maintenance emission from dryer and heat source abort stacks.

The source has potential emissions of total hazardous air pollutants (HAPs) greater than 25 tons per year (TPY) and three single HAP emissions (formaldehyde, methanol, and phenol) above 10 TPY. Since the facility is classified as a “major” source of HAP emissions, the facility is in a source category subject to a Maximum Achievable Control Technology (MACT) under Federal Clean Air Act Section 112(d). The applicable MACT standard was not yet promulgated when the original construction permit was issued, therefore, a “case-by-case” MACT (Clean Air Act Section 112(g)) determination was required in the original construction permit in accordance with MACT regulations (40 CFR Part 63). The final rule of 40 CFR Part 63, Subpart DDDD, Plywood and Composite Wood Products, was promulgated on July 30, 2004, and amended on February 16, 2006. The initial compliance date was October 1, 2007, and then postponed to October 1, 2008 (Federal Register, February 16, 2006). However, for facilities that obtained a final and legally effective case-by-case MACT determination prior to the promulgation date of such emission standard, §63.44(b)(1) stated that “ the owner or operator shall comply with the promulgated standard as expeditiously as practicable, but not longer than 8 years after such standard is promulgated.” In this case, Huber will comply with Subpart DDDD requirements as expeditiously as possible but in no case later than July 30, 2012 per §63.44(b)(1).

SECTION II. FACILITY DESCRIPTION

Process Description

The OSB mill manufactures structural panels made from wood wafers, or strands, produced from logs at the plant. The facility uses varying proportions of softwood and hardwood in the manufacturing of OSB. Wood strands are mixed with various resins, liquid phenol formaldehyde (LPF), methylene diphenyl diisocyanate (MDI), and/or phenol formaldehyde (PF), and formed into a layered mat. Strands in each layer can be aligned perpendicularly to adjacent layers to provide structural properties superior to that of randomly oriented strandboard; or they can be aligned in parallel to achieve properties associated with composite strand lumber. The following subsections / activities describe the processes in the OSB plant.

The major activities at the Broken Bow facility include the following:

- Raw Material Handling
- Strand Production
- Strand Drying
- Blending
- OSB Forming
- Product Finishing
- Heat Source
- Process Storage Tanks
- Particulate Handling
- Fuel Storage

Raw Material Handling

OSB manufacturing consists of a series of operations, which convert whole logs into strands that are then blended with resin and either slack or emulsion wax and formed into mats. Logs are delivered to the facility by truck or rail and stored in the wood yard.

Strand Production

Logs arrive in the wood yard via trucks and are transferred into storage piles. A crane transfers the logs from the piles to two debarkers where the bark is removed. Wood waste from debarkers is collected and transferred by conveyers to the bark hog and then onto either a wet fuel bin or bark storage pile.

Once the wood is debarked, the logs are moved to the stranding area. The strander cuts the logs to produce thin green wood strands having typical dimensions of 1.5 inches wide by 5 inches long and 0.002-0.004 inches thick. The strands are then conveyed to green storage bins. No changes to this area are planned in this permit modification.

Strand Drying

From the green storage bins, the strands are conveyed to one of two single-pass rotary dryers to remove moisture from the strands. Air leaving the dryers is passed through two product recovery cyclones where the wood strands are separated from the gas stream. The gas streams from both of the dryers' cyclones are ducted to a wet electrostatic precipitator (WESP) to remove particulate matter and some volatile organic compounds (VOC) and then to a regenerative thermal oxidizer (RTO) to destroy organic compounds.

The dried strands are then screened to remove fines and for further classification. The screened strands are stored in one of three dry bins. Fines are pneumatically conveyed to the dry fuel bin or the truck-loading bin. An emergency bypass discharge area is available in the event of a startup, shutdown or malfunction of related equipment. Material from the bypass area can either be reclaimed as process material or as fuel for the wood-fired heat source.

Tests on the dryer control system, including the RTO, have demonstrated compliance with the 95% DRE requirements of the VOC control system and 90% HAP removal required by MACT. HEW has recently observed increased VOC inlet loading to the RTO. HEW believes this increased loading is attributable to variability in the wood species and seasonal variation of VOC content in the wood. The degree of this variability is unpredictable and was previously unknown. HEW is seeking an increase in the allowable VOC emission rate from the dryer system to accommodate this high variability.

Blending

The dried strands are conveyed from the dry storage bins to one of three blenders where they are mixed under negative pressure with resins, wax, and other additives. Reclaimed wood fines are mixed with wax and resin in a separate fines blender. Wax and resins are stored in bulk storage containers and tanks and piped directly into the blender.

HEW is interested in emerging resin technologies. The use of soybean based phenol formaldehyde (SoyPF) resin offers promise. It is conceivable that better resins and/or technologies (e.g., lower HAPs and VOCs) may be available in the near future. HEW seeks the flexibility to change to resins and/or catalysts that will not cause allowable emissions to be exceeded, or that result in emissions of new regulated pollutants.

Forming

From the blender, the strands are transported via conveyors to bulk storage forming bins. From these bins, the resinated strands are metered out onto a continuously moving forming line belt. During this process, the strands are mechanically oriented in one direction as they fall to the forming belt below. Subsequent forming heads form distinct layers in which the strands are oriented perpendicular to the previous layer of strands. Trim saws continuously cut the edges of the mat and the waste material is conveyed to the dry bins for recycling.

Pressing

The trimmed mat is conveyed into the preheater, which conditions the mat with steam. The mat then continues into the hot press, where the resinated fibers are compressed; heat and pressure activate the resins and bond the strands into a solid product.

The exhaust gases from the press area are captured from the points located at the pre-heater, the front entrance into the press, the exit from the press, and along the entire press length by a series of collection hoods. Exhaust from the pre-heater is routed through a dry cyclone and a WESP to collect particulate matter, then to the biofilter to remove VOCs. The gases from the press fume hood are directly conveyed to the biofilter. Exhaust gases from direct pickup points along the press and heat tunnel are conveyed to a WESP to remove particulates, then to the biofilter to remove VOCs.

The biofilter is designed to remove VOCs from the press vent stream by absorbing the gas molecules onto a media bed and degrading the VOCs using microbes. These microbes live in an aqueous environment and convert VOCs to carbon dioxide and water. Emission testing has revealed that the biofilter control on the press has difficulty maintaining the designed VOC removal efficiency of 70%. HEW has identified several factors that contribute to the DRE performance issue. First, the press actually generates substantially less water soluble VOC (i.e., methanol and formaldehyde) than the amount originally specified in the design criteria. The original biofilter design basis used data from another HEW mill. HEW now believes that those data are not representative. Because there are fewer water soluble VOCs present, the press vent stream contains a significantly higher ratio of hydrophobic (i.e., non-water soluble) compounds like pinene. Pinenes are not easily absorbed and degraded by microbes because the microbes live in an aqueous environment and hydrophobic compounds are not readily available. Second, HEW did not know the degree of high variability of pinene content in the wood strands when the DRE was originally calculated. As mentioned in the Executive Summary, research indicates natural VOC concentrations in southern pine species can vary by as much as 500%. This additional loading of non-water soluble VOCs creates a challenge for the biofilter. Third, a source of non-HAP VOC (i.e., press lube oils) was not accounted for in the design specifications. This additional source of non water-soluble VOC is not found on batch presses, but rather, only found on a continuous press. Prior to the Broken Bow Mill, all biofilters installed in the United States were on batch presses. The combinations of these events have caused a reduced total VOC removal efficiency for the biofilter system.

HEW, in conjunction with the biofilter vendor, has taken steps to improve the DRE including installing an additional 40% of filter media to the biofilter beds. The beds are now at the maximum capacity that can be supported by the existing biofilter structure. HEW also explored an alternative inorganic media in pilot unit trials. As a result of these changes from the original design parameters and ongoing improvement efforts, HEW believes that 60% removal efficiency is more technically feasible than 70% removal efficiency. Diagnostic emissions test data during production trials with MUPF and LPF indicate that use of these resins increase inlet concentrations of water soluble VOC's to the biofilter with a resulting increase in the DRE.

Notwithstanding the expected DRE performance improvements while using these new resins, HEW wants to ensure the biofilter consistently meets permit requirements with respect to BACT. Accordingly, this permit application includes updated emissions calculations and BACT analysis for the press emissions to support a change in the permit for a minimum DRE of 60 percent and maximum emission rate of 0.42 lb VOC/MSF_{3/8}.

From the press, the OSB product is then cut into master mats by a traveling saw and moved into the finishing area for further processing. Emissions from the section of the building that includes the board cooler are subject to NESHAP Subpart DDDD, *National Emission Standards for Hazardous Air Pollutants for Plywood and Composite Wood Products*. The Broken Bow Mill completed a case-by-case MACT determination in the initial construction permit application and complies with the MACT by maintaining negative air pressure within the press and board cooler room and using an add-on control system with HAP percent reduction limits at the outlet. With this application, the Mill does not seek a change in the MACT compliance method. However, the board cooler is not in use at this time. Therefore, the MACT standard will apply to this area of the Mill when the board cooler is in use.

Product Finishing

The work in progress (WIP) panels are trimmed to final dimensions, sawed and sanded to various lengths, depending on product specifications. In some cases, an edge sealant is applied to the edges of the boards in a paint booth to prevent moisture absorption from occurring.

Some products produced at the Mill go through a “branding” operation where the product logo and nailing guidelines are sprayed onto the panels. HEW believes this branding process is a unique and differentiating feature of HEW’s OSB products. In the permit modification 2003-099-C (M-1), HEW requested substitution of a zero VOC content branding ink in place of the high VOC content branding ink.

Although HEW is continuing to use the zero VOC content branding ink the mill is constantly evaluating new inks for performance and cost. HEW is requesting the flexibility to switch to ink formulations that will not cause allowable emissions to be exceeded, or that result in emissions of new regulated pollutants.

Energy System

Energy for the strand dryers and thermal oil heater is provided by two combustion furnaces fueled by bark and wood residuals, including sander dust and board from the process. Huber also burns miscellaneous process biomass and process materials including wood pallets, paper, cardboard, resinated board covered with paper overlay, used oil/grease, wax, off-specification resins, release agent, stamp ink, and other non-hazardous materials. A portion of flue gas (approximately 25%) exiting from the combustion furnaces passes through convection heat exchangers (Thermal Oil Heaters) that transfer heat to thermal fluid for use in heating the press and wax storage tanks. The remaining heat from the flue gas is conserved, as the flue gas is returned to the inlet of the dryer or the furnace with other combustion air. Ash from the furnaces is collected in a wet bin and shipped offsite for disposal. The use of MUPF resin and associated

catalysts will result in increased NO_x and SO₂ emissions due to the increased nitrogen and sulfur content in the wood waste that is used in the energy system. HEW applied emissions data from MUPF trials to estimate the additional emissions.

Miscellaneous Combustion Units

The Mill is equipped with a diesel fire pump, two emergency generators, a railcar steam generator and several air makeup units. These sources are operated intermittently on an as-needed basis. In a prior permit application, emissions from the fire pump engine and the two emergency generators were based on operating 52 hours per year, the rail steam generator 8,760 hrs per year, and air make up units 5,040 hrs per year. In this permit, emissions for the fire pump and emergency generators are calculated based on 240 hours of operation per year for each unit; HEW requests the authority to run these units at those levels, should the need arise.

Storage Tanks

The site includes wax storage tanks, resin storage tanks, catalyst storage tanks, resin bulk containers, release agent storage tanks, a release agent mix tank, a release agent recycle tank, and a caustic storage tank. The Mill also has storage tanks for gasoline, diesel, and propane used in vehicles that operate onsite. The Mill recently converted five of the existing tanks to liquid resin storage. The affected tanks include: Resin Storage Tank Nos. 1, 3, and 5 (EP-RES1TK, EP-RES3TK, EP-RES5TK), Wax Storage Tank No. 1 (EP-WAX1TK) and Release Agent Storage Tank No. 2 (EP-RA2TK). As shown in the minor permit modification application submitted on September 19, 2006, the conversion of the storage tanks to LPF resins will add up to 1.89 TPY of VOC. MUPF resin MSDS indicate a formaldehyde content of 0.1% to 1.0%, (versus 0.1% for LPF resins), so annual formaldehyde emissions are estimated at an additional 34 pounds per year (0.01 TPY). No additional storage tanks are planned at this time.

Particulate Handling

Particulates are collected from various pneumatic conveying systems throughout the Mill. The separate systems include screening, forming, saws, sander, fuel, and the fines reclaim silo. Collected material is pneumatically conveyed to either the Dry Fuel Silo or Sander Dust Silo, where the material is stored before transfer to the heat source. No physical changes or changes in the method of operation to the particulates handling system are planned in this permit modification. However, the results of engineering tests at the Mill indicate that the baghouses that control particulates emit less PM₁₀ than previously characterized. Accordingly, this permit application includes a 45% reduction in particulate emissions to more closely reflect actual baghouse outlet concentrations.

HEW has learned (through diagnostic and engineering testing of emissions from various experimental resins) that certain wood products (strands) emit VOC through the baghouses. These unexpected baghouse VOC emissions were disclosed to the Oklahoma DEQ in a letter dated May 5, 2005. Limited emissions data from these tests and research indicates that the amount of VOC varies depending on the season (when the wood was cut), species (e.g., natural yellow pine vs. plantation pine), and other factors. Using conservative emission factors

developed from these emission test data, HEW has included within this permit application the new information on VOC emissions in the BACT analysis for various baghouses.

Fuel Storage Tanks

The site includes storage tanks for gasoline, diesel, and propane.

SECTION III. EQUIPMENT

Emissions Unit Group No. 1 was designated as the facility as a whole.

EUG 2 - COMBUSTION UNITS				
Emission Unit	Point	EU Name/Model	Size	Construction
EU-EG1	EP-EG1	Diesel Fired Emergency Generator #1	900-hp	2003
EU-EG2	EP-EG2	Diesel Fired Emergency Generator #2	900-hp	2003
EU-FP1	EP-FP1	Diesel Fired Fire Pump Engine	210-hp	2003
EU-SG1	EP-SG1	Gas Fired Rail Steam Generator	1.5 MMBTUH	2003
EU-AMU1 - 18	EP-AMU1 - 18	Gas Fired Air Make Up Units (18)	24.7 MMBTUH	2003

EUG3 – Energy System/ Dryers				
Emission Unit	Point	EU Name/Model	Size(MMBTUH)	Construction Date
EU-HS1	EP-RTO1	Heat Source No. 1	150	2003
EU-DR1		Dryer No. 1	-	2003
EU-HS2		Heat Source No. 2	150	2003
EU-DR2		Dryer No. 2	-	2003

EUG 4 – PRESS				
Emission	Point	EU Name/Model	Maximum Throughputs	Construction
EU-PR1	EP-BF1	Press No. 1	110 MSF/hr OSB 3/8"	2003

EUG 5 - PM SYSTEMS				
Emission	Point	EU Name/Model	Control	Const. Date
EU-SYS9120	EP-FF2	Screening – System 9120	CD-FF2 ¹	2003
EU-SYS9130	EP-FF3	Forming – System 9130	CD-FF3 ²	2003
EU-SYS9140	EP-FF4	Saws – System 9140	CD-FF4 ³	2003
EU-SYS9150	EP-FF5	Sander – System 9150	CD-FF5 ⁴	2003
EU-SYS9195	EP-FF6	Fuel – System 9195	CD-FF6 ⁵	2003

¹Screening Fabric Filter, ²Forming Fabric Filter, ³Saws Fabric Filter, ⁴Sander Fabric Filter, ⁵Fuel Fabric Filter.

EUG 6 – TANKS				
Emission Unit	Point	EU Name	Capacity/ Throughputs	Const. Date
EU-GAS1TK	EP-GAS1TK	Gasoline Storage Tank No. 1	550-gal/ 20000 gal/yr	2003
EU-EG1TK	EP-EG1TK	Emergency Gen. No. 1 Diesel Tank	500-gal/ 13,850 gal/yr	2003
EU-EG2TK	EP-EG2TK	Emergency Gen. No. 2 Diesel Tank	500-gal/ 13,850 gal/yr	2003
EU-FP1TK	EP-FP1TK	Fire Pump Engine No. 1 Diesel Tank	250-gal/ 6,920 gal/yr	2003
EU-ME1TK	EP-ME1TK	Mobile Equipment Diesel Tank No. 1	1,000-gal 40,000 gal/yr	2003
EU-WAX2TK	EP-WAX2TK	Wax Storage Tank No. 2	25,000-gal each 41,000,000 lb/yr total	2003
EU-WAX3TK	EP-WAX3TK	Wax Storage Tank No. 3		2003
EU-RES2TK	EP-RES2TK	Resin Storage Tank No. 2	25,000-gal each 50,000,000 lb/yr	2003
EU-RES4TK	EP-RES4TK	Resin Storage Tank No. 4		2003
EU-RES6TK	EP-RES6TK	Resin Storage Tank No. 6		2003
EU-LPFRESIN	EP-WAX1TK	Wax or Resin Storage Tank	25,000-gal each 51,100,000 lb/yr total	2003
	EP-RES1TK	Resin Storage Tank No. 1		2003
	EP-RES3TK	Resin Storage Tank No. 3		2003
	EP-RES5TK	Resin Storage Tank No. 5		2003
	EP-RA2TK	Release Agent or Resin Storage Tank		2003
EU-RA1TK	EP-RA1TK	Release Agent Storage Tank No. 1	25,000-gal 3,200,000 lb/yr	2003
EU-CAU1TK	EP-CAU1TK	Caustic Storage Tank No. 1	10,000-gal/ 800,000 lb/yr	2003
EU-RAMIX1TK	EP-RAMIX1TK	Release Agent Mix Tank No. 1	1,000-gal/ 3,200,000 lb/yr	2003
EU-RAR1TK	EP-RAR1TK	Release Agent Recycle Tank 1	500-gal/ 3,200,000 lb/yr	2003

EUG 7 – BRANDING AND COATING OPERATIONS				
Emission Unit	Point	EU Name/Model	Control	Const. Date
EU-Coatings	Coating Fugitive	Paint Booth No. 1 Rim Board	Does not exhaust outside the building except for building vents	2003
		Paint Booth No. 2 Sander		2003
		Paint Booth No. 3 Finish/hand		2003
EU-Stamping	Stamp Fugitive	Stamp Fugitive		2003
EU-BRAND	EP-BRANDB1F	Branding operations	To atmosphere	2003

EUG 8 – BUILDING FUGITIVES				
Emission Unit	Point	EU Name/Model	Control	Const. Date
EU-WH1	EU-WH1	Warehouse Area	None	2003
EU-BL2	EU-BL2	Blending Area		2003
EU-FRM3	EU-FRM3	Forming Area		2003
EU-SRN4	EU-SRN4	Screening Area		2003
EU-GE5	EU-GE5	Green End Area		2003

EUG 9 – DRYER ABORT STACKS				
Emission Unit	Point	EU Name/Model	Control	Const. Date
EU-DA1	EU-DA1	Dryer 1 Abort Stack	None	2003
EU-DA2	EU-DA2	Dryer 2 Abort Stack		2003

SECTION IV. EMISSIONS

Emission calculation methodology

VOC as emitted:

VOC emissions to show compliance with permit limits are calculated as follows:

- Subtract the methane determined by Method 18 from the THC as propane.
- Subtract predetermined responses of formaldehyde, phenol, and methanol from the THC as propane less methane. The remaining VOCs are assumed to be alpha and beta pinene, which fully respond on the THC monitor. The VOC mass emission rate is then calculated using the molecular weight of pinene.
- Determine the concentrations and rates of methanol, formaldehyde, and phenol using the Method 320 measured concentrations.
- Sum the pinenes, methanol, formaldehyde, and phenol rates and the resulting total is VOC as emitted rate.

However, MACT testing and emission calculation for MACT purposes will be based on the MACT specific methods.

PM₁₀ as a Surrogate for PM_{2.5}

HEW has historically relied on the PM₁₀ BACT and NAAQS analyses as a surrogate for PM_{2.5}. However, EPA has recently proposed rules to require applicants to demonstrate that it is reasonable to use PM₁₀ as a surrogate for PM_{2.5}. EPA suggested two steps as a possible approach to demonstrating that PM₁₀ is a reasonable surrogate for PM_{2.5}. First, the source should establish in the record “a strong statistical relationship between PM₁₀ and PM_{2.5} emissions from the proposed unit, both with and without the proposed control technology in operation.” Second, the permittee should show “that the degree of control of PM_{2.5} by the control technology selected in the PM₁₀ BACT analysis will be at least as effective as the technology that would have been selected if a BACT analysis specific to PM_{2.5} emissions had been conducted.” An analysis for the sources at the Broken Bow Mill is shown below:

Stranding, Debarking, and Green Bins

There are no data available (ie., AP-42, industry factors) that quantify PM₁₀ emissions from these operations. HEW assumed that these emissions are negligible due to the high moisture content of the wood. Therefore, the emissions of PM_{2.5} from these sources are negligible and no additional analysis is required.

Energy Systems/Dryers

The only PM speciation data Huber was able to identify for wood-fired furnaces is that in AP-42 (9/03), Chapter 1.6, Wood Residue Combustion in Boilers. This section provides uncontrolled PM speciation data from underfeed stokers in Table 1.6-5 that may be applicable to wood-fired units. Table 1.6-5 demonstrates that PM_{2.5} emissions are approximately 84% of PM₁₀ emissions. The BACT analysis identifies that the existing wet electrostatic precipitators at 75% for PM₁₀ emissions from the wood-fired energy system. In addition, the furnace and dryers at the Mill are routed to RTOs to control VOC and CO emissions. Since the RTOs achieve some destruction of condensable PM, some additional control of PM_{2.5} is expected.

OSB Press Vent

AP-42 (3/2002), Chapter 10.6.1-Waferboard Oriented Strandboard provides no estimate of PM speciation for OSB presses. The BACT analysis for the OSB press indicates that PM₁₀ control is cost prohibitive. Due to the lack of available data related to PM_{2.5} emissions, Huber assumes that PM₁₀ is an appropriate surrogate for PM_{2.5} on OSB Press Vent.

PM Control Systems (Baghouses)

HEW was able to identify several sources of information related to the particle size distribution of wood dust. However, the distributions varied based on the testing equipment used, the type of wood sampled, and manner in which the wood was processed. Due to the lack of standardization in the particle size distribution determination process, Huber is unable to accurately determine PM_{2.5} emissions using the particle size distribution data. The BACT analysis for PM control systems identifies baghouses as the best control type for these sources. Collection efficiencies in excess of 99.5% are achievable with fabric filters for particle sizes down to 1.0 micron. HEW expects nearly all PM generated to be larger than 1.0 micron in aerodynamic diameter, resulting in equivalent control for PM_{2.5} and PM₁₀.

HEW concluded that it is reasonable to use PM₁₀ as a surrogate for PM_{2.5} for the sources at the Broken Bow Mill. The limited available data shows a consistent relationship between PM_{2.5} and PM₁₀ emissions and the pollution control technologies selected for PM₁₀ are also the best technologies for controlling direct PM_{2.5} emissions. The data presented is the best available until issues with the reference test methods for PM_{2.5} direct emissions can be resolved and the EPA promulgates PM_{2.5} increments for PSD analyses.

On February 11, 2010, EPA published a proposed rule in the Federal Register that would end EPA's 1997 policy that allows a demonstration of compliance with the Prevention of Significant Deterioration (PSD) requirements for particulate matter less than 10 micrometers (PM₁₀) as a surrogate for meeting PM_{2.5} requirements. However, for those states with EPA approved PSD programs, the 1997 NSR guidance to use PM₁₀ as a surrogate for PM_{2.5} is allowed during the SIP development period. This permit still incorporates the PM_{10/2.5} surrogate evaluation since there

is insufficient PM_{2.5} data for this area of Oklahoma to allow an evaluation."

However, PM_{2.5} modeling was conducted subsequently and results are addressed in SECTION VII.

EMISSION POINTS

Discharge	Point	Height ft	Diameter ft	Temp °F	Velocity ft/sec
Regen. Thermal Oxidizer No. 1	EP-RTO1	80	10.00	240	51.60
Biofilter No. 1 Exhaust	EP-BF1	80	8.00	100	70.07
Screening Fabric Filter Exhaust	EP-FF2	43	3.17	70	71.95
Forming Fabric Filter Exhaust	EP-FF3	55	4.17	70	76.23
Saws Fabric Filter Exhaust	EP-FF4	55	4.17	70	67.80
Sander Fabric Filter Exhaust	EP-FF5	55	4.17	70	73.09
Fuel Fabric Filter Exhaust	EP-FF6	64	1.83	70	63.14
Fire Pump Engine #1 Exhaust	EP-FP1	12	0.67	1,030	214.86
Emergency Generator #1 Exhaust	EP-EG1	12	0.83	932	153.22
Emergency Generator #2 Exhaust	EP-EG2	12	0.83	932	153.22
Rail Steam Generator	EP-SG1	42	1.00	575	9.32
Branding Booth Exhaust	EP-BRANDB1F	73	1.33	70	226.35
Dryer 1 Abort Stack	EP-DA1	56	6.30	293	118.50
Dryer 2 Abort Stack	EP-DA2	56	6.30	293	118.50

EUG 2 – MISCELLANEOUS COMBUSTION UNITS

Emissions from the miscellaneous combustion sources (including a 210-hp diesel fire pump engine, two 900-hp diesel emergency generators, a rail steam generator and 19 air makeup units) were revised to accommodate more hours of operation for the fire pumps (EP-FP1) and emergency generators (EP-EG1 and -EG2). The pumps and generators were calculated operating 240 hours per year (versus 52 hrs/yr used previously). The allowable hours of operation for the other miscellaneous combustion units are 8,760 hrs/yr for the steam generator (EP-SG1) and 5,040 hrs/yr for the air make-up units (EP-AMU1 through -AMU18). Emission factors are based on AP-42 (10/96), Table 3.3-1 for diesel engines and AP-42 (7/98), Tables 1.4-1 and 1.4-2 for natural gas combustion units.

Emission Unit	Point	NO _x		CO		Total PM ₁₀		VOC		SO ₂	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
210-hp Fire Pump Engine	EP-FP1	6.50	0.80	1.40	0.20	0.50	0.06	0.50	0.06	0.40	0.05
900-hp Emergency Generator #1	EP-EG1	27.90	3.30	6.00	0.70	2.00	0.20	2.20	0.30	1.80	0.20
900-hp Emergency Generator #2	EP-EG2	27.90	3.30	6.00	0.70	2.00	0.20	2.20	0.30	1.80	0.20
1.5 MMBtu/hr Rail Steam Generator	EP-SG1	0.10	0.60	0.10	0.50	0.01	0.05	0.08	0.03	0.001	0.004
24.7 MMBtu/hr Air Make Up Units (18)	EP-AMU1-18	2.40	6.10	2.00	5.10	0.20	0.50	0.10	0.30	0.01	0.04
Total		64.8	14.2	15.6	7.2	4.6	0.9	5.08	0.99	4.01	0.49

EUG 3 – ENERGY SYSTEM/DRYER UNITS

Emissions from this group are based on the following emission factors, maximum combined process rate of 80 ODT/hr (ODT means oven dried ton), 300 MMBtu/hr total heat input and operating hours of 8,760 hrs/yr. The dryer VOC emission factor has been increased to account for the seasonal variability of VOC in process woods. Other emission factors have been revised to reflect the fuel-bound nitrogen and sulfur content of the MUPF resin and information from other OSB Mills.

Energy System/Dryer Emission Factor Summary

Emission Units	Pollutants	Emission Factors
RTO for Energy System and Dryers ¹	PM ₁₀	0.23 lb/ODT
	NO _x	2.57 lb/ODT
	CO	1.16 lb/ODT
	VOC	0.77 lb/ODT
	SO ₂	0.18 lb/ODT
	HCOH	0.06 lb/ODT
	MeOH	0.06 lb/ODT
	Acetal	0.02 lb/ODT
	Phenol	0.07 lb/ODT
Uncontrolled Energy System ²	Lead	4.80E-05 lb/MMBTU
	SO ₂	0.11 lb/MMBTU
	PM ₁₀	0.1 lb/MMBTU

¹ Emission factors calculated from MUPF trial stack test data with highest emission rates at Commerce GA except: PM from Broken Bow, Phenol from NCASI, and SO₂ calculated from mass balance representing emissions exiting the RTO outlet, after the primary cyclone and emission control devices and includes the contribution from the bark burner. ² Emission factors from AP-42, Tables 1.6-2 and 1.6-4.

Energy System/Dryer RTO Criteria Pollutant Emissions

		NO _x		CO		Total PM ₁₀		VOC as Emitted		SO ₂	
Emission Unit	Point	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
No. 1 Heat Source/Dryer	EP-RTO1	205.60	900.53	92.8	406.5	18.7	82.0	61.60	269.81	14.1	61.6
No. 2 Heat Source/Dryer											

Energy System/Dryer RTO Criteria HAP Emissions

		Formaldehyde		Methanol		Acetal		Phenol	
Emission Unit	Point	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
No. 1 Heat Source/Dryer	EP-RTO1	4.80	21.0	4.60	19.90	1.20	5.30	5.30	23.10
No. 2 Heat Source/Dryer									

EUG 4 – PRESS

The use of MUPF resins will result in higher VOC and formaldehyde emission rates than the petroleum-based MDI resin mixed with PF resin currently in use at the plant. Updated estimates of VOC emissions from the press are based upon engineering data at Broken Bow and other Huber mills across the country, which indicate uncontrolled VOC emissions from the press of 1.05 lb VOC/MSF_{3/8}. Existing allowable VOC emissions (based on MDI resin usage) are listed in Permit No. 2003-99-C (M-2) at 0.31 lb VOC/MSF_{3/8} (as emitted). HEW believes that the addition of water soluble VOC to the biofilter will improve overall removal efficiency. Engineering test data accumulated during MUPF trial production runs indicate a DRE ranging from 68 percent to 84.7 percent while using MUPF. MUPF will also impact the emissions of other criteria pollutants. MUPF requires catalysts that contain both nitrogen and sulfur compounds. HEW expects increased emissions of NO_x, ammonia and SO₂ from the press.

Press Emission Factors

Emission Units	Pollutants	Emission Factors	Sources
Press	Total PM ₁₀	0.122 lb/MSF 3/8" basis	Avg. uncontrolled factors from other OSB facilities
	VOC as propane	1.06 lb/MSF 3/8" basis	
	NO _x	0.020 lb/MSF 3/8" basis	
	CO	0.024 lb/MSF 3/8" basis	
	SO _x	0.010 lb/MSF 3/8" basis	
	HCOH	0.348 lb/MSF 3/8" basis	
	Phenol	0.06 lb/MSF 3/8" basis	
	Methanol	0.36 lb/MSF 3/8" basis	

Press Operating Parameters

Maximum Production Capacity (MSF _{3/8} /hr)	110
Hours of Operation (hrs/yr)	8,760
Biofilter VOC Control Efficiency (%)	60
Biofilter HAP Control Efficiency (%)	90
Biofilter Phenol Control Efficiency (%)	50

Press Criteria Pollutant Emissions

Emission Unit	Point	NO _x		CO		Total PM ₁₀		VOC as Emitted		SO _x	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Press No. 1 (post control)	EP-BF1	2.20	9.60	2.60	11.60	13.40	58.7	46.6	204.3	1.1	4.80

Press HAP Emissions

Emission Unit	Point	Formaldehyde		Phenol		Methanol	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Press No. 1 (post control)	EP-BF1	3.80	16.80	3.00	13.20	3.90	17.20

EUG 5 – PM CONTROL SYSTEMS (Baghouses)

PM₁₀ emissions from this group are based on 0.005 gr/dscf grain loading tests at the OSB Mill and applicable flow rates and operating hours of 8,760 hrs/yr. Emission testing of the PM control systems indicates that VOC in addition to PM₁₀ emissions are being emitted from the baghouses. Estimates of emissions from the various baghouses have been updated in accordance with available engineering test data. This permit includes a 46% reduction in particulate emissions to more closely reflect actual baghouse outlet concentrations.

VOC Emission Factors Obtained Through Stack Tests

Emission Unit	Point	VOC	Formaldehyde	Methanol
Screening – System 9120	EP-FF2	0.133 lb/ODT	0.002 lb/ODT	0.002 lb/ODT
Forming – System 9130	EP-FF3	0.124 MSF _{3/8} /hr	0.005 MSF _{3/8} /hr	0.062 MSF _{3/8} /hr
Saws – System 9140	EP-FF4	0.117 MSF _{3/8} /hr	0.006 MSF _{3/8} /hr	0.113 MSF _{3/8} /hr
Sander – System 9150	EP-FF5	0.102 MSF _{3/8} /hr	0.001 MSF _{3/8} /hr	0.002 MSF _{3/8} /hr

Baghouse Criteria Pollutant Emissions

Emission Unit	Point	PM ₁₀ Emissions		VOC Emissions	
		lb/hr	TPY	lb/hr	TPY
Screening – System 9120	EP-FF2	1.46	6.40	25.30	110.90
Forming – System 9130	EP-FF3	2.68	11.73	17.40	76.20
Saws – System 9140	EP-FF4	2.38	10.43	29.20	127.70
Sander – System 9150	EP-FF5	2.57	11.24	9.70	42.40
Fuel – System 9195	EP-FF6	0.43	1.87	0.90	3.90
Subtotal		9.51	41.66	82.50	361.10

Baghouse HAP Emissions

Emission Unit	Point	Formaldehyde		Methanol	
		lb/hr	TPY	lb/hr	TPY
Screening – System 9120	EP-FF2	0.20	0.60	0.40	1.70
Forming – System 9130	EP-FF3	1.30	5.80	8.60	37.80
Saws – System 9140	EP-FF4	1.20	5.30	15.90	69.40
Sander – System 9150	EP-FF5	0.60	2.20	0.90	4.20
Fuel – System 9195	EP-FF6	0	0	0	0
Subtotal		3.30	13.90	25.80	113.10

EUG 6 – TANKS

Permit No. 2003-099-C (M-2) authorized HEW to convert five 25,000-gallon storage tanks (EP-RES1TK, EP-RES3TK, EP-RES5TK, EP-WAX1TK, and EP-RA2TK) to LPF storage. HEW will utilize one or more of these tanks to store MUPF. The conversion of the storage tank to MUPF from LPF resins is not expected to add significant VOC emissions. The MSDS from MUPF resin indicates that the product contains up to 1% formaldehyde, so formaldehyde emissions are expected to increase by 34 lb/year or 0.017 TPY. Storage tank VOC emissions were calculated using the EPA program, "TANKS4.0d" and the previously listed throughput limits.

Emission Unit	Point	VOC	
		lb/hr	TPY
Mobile Diesel Tank	EP-ME1TK	0.02	<0.01
Fire Pump Diesel Tank	EP-FP1TK	0.01	<0.01
Emer. Gen. 1 Diesel Tank	EP-EG1TK	0.02	<0.01
Emer. Gen. 2 Diesel Tank	EP-EG2TK	0.02	<0.01
Gasoline Tank	EP-GAS1TK	4.23	0.11
Caustic Tank	EP-CAU1TK	0.01	0.01
Urea Tank	EP-UR1TK	2.03	0.02
Resin Tank No. 2	EP-RES2TK	0.01	0.01
Resin Tank No. 4	EP-RES4TK		
Resin Tank No. 6	EP-RES6TK		
Resin Tank No. 1	EP-RES1TK	0.43 (LPF)	1.89 (LPF)
Resin Tank No. 3	EP-RES3TK		
Resin Tank No. 5	EP-RES5TK		
Resin Tank No. 7	EP-RES7TK		
Release Agent Tank No. 2	EP-RA2TK		
Wax Tank No. 1	EP-WAX1TK	0.002	<0.01
Wax Tank No. 2	EP-WAX2TK		
Release Agent Tank No. 1	EP-RA1TK	2.2	0.05
Release Agent Tank No. 2	EP-RA2TK		
Release Agent Mix Tank	EP-RAMIXTK	0.18	0.05
Release Agent Rec. Tank	EP-RAR1TK	0.09	0.05
Subtotal		9.24	2.24

EUG 7 – BRANDING AND COATING OPERATIONS

Emissions from coating and branding operations are based on a 12 month rolling average of VOC emissions calculated from a monthly mass balance. PM emissions are negligible since the coating operations are equipped with fabric filters that exhaust inside the building and the branding ink is applied with an industrial ink jet printer that has near zero PM emissions.

Branding and Coating Operations	Point	VOC	
		lb/hr	TPY
Branding	BRAND	1.8	7.5
Coatings	Coat Fugitive	0.734	3.58
Stamping	Stamp Fugitive	0.03	3.9
Total		2.564	14.98

EUG 8 – FUGITIVE BUILDING EMISSIONS

Through Industrial Hygiene (IH) testing at another mill, HEW has determined that VOCs exist inside the finishing, warehouse, and certain production areas not covered by the MACT standard. Product testing indicates that the VOCs from the wood strands and various resins may continue to be emitted as the product cures in the finishing stages and the warehouse. HEW used the available (IH) sampling data from existing HEW facilities on the assumption that they are representative of concentrations that may occur at Broken Bow Mill based on exhaust fan rates.

Emission Factors

Area	VOC	Methanol	Formaldehyde	PM ₁₀
	mg/m ³	mg/m ³	mg/m ³	mg/m ³
Warehouse	3.45	0.23	0.0947	0.06
Blending	6.97	2.96	0.169	0.13
Forming	12.33	6.32	0.31	0.18
Screening	12.1	-	-	0.21
Green End	-	-	-	0.21

Emissions

Area	Flow cf/minute	VOC		Methanol		Formaldehyde		PM ₁₀	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Warehouse	240,000	3.10	13.56	0.21	0.90	0.09	0.37	0.05	0.24
Blending	180,000	4.69	20.55	1.99	8.73	0.11	0.50	0.09	0.38
Forming	90,000	4.15	18.18	2.13	9.32	0.10	0.46	0.06	0.27
Screening	60,000	2.72	11.89	--	--	--	--	0.05	0.21
Green End	10,300	2.74	12.00	--	--	--	--	0.01	0.04
Total		17.40	76.18	4.33	18.95	0.30	1.33	0.26	1.14

EUG 9 – STARTUP, SHUTDOWN, AND MAINTENANCE EMISSIONS FROM DRYER ABORT STACKS (INCLUDE HEAT SOURCE EMISSIONS)

The two rotary dryer systems each have an abort stack located after the dryer cyclones and before the WESP. These abort stacks are normally closed, but may open under various operating conditions and when control equipment is under maintenance . HAP emissions from the dryer abort events are covered by the Mill’s Startup, Shutdown, and Malfunction (SSM) plan. Emissions listed in the following table represent emissions from maintenance related aborts which will include the cleaning of facility air abatement equipment, such as ducts, dampers, fans, WESPs, RTOs, demister pads etc. This is not an exhaustive list and may include other plant maintenance activities that arise. Hourly emissions are calculated based upon the maximum dryer operating rate.

**EUG 9 Dryer Abort Stacks (Includes Heat Source)
Startup, Shutdown, and Maintenance Emissions**

		PM ₁₀	NO _x	CO	VOC	SO ₂
Uncontrolled Emissions Factors	lb/ODT	2.29 ⁽¹⁾	2.55 ⁽²⁾	2.25 ⁽³⁾	6.30 ⁽⁴⁾	0.18 ⁽⁵⁾
Maximum Dryer Emissions Rate (at 80 ODT/hr)	lb/hr	183	204	180	504	14
Allowable Annual Abort Emissions	TPY	18.3	20.4	18.0	50.4	1.4

Note (1) The PM₁₀ emission factor was derived from the average of total PM samples collected at the inlet to the WESPs in August 2004, normalized up to 80 ODT/HR and reduced by 28.6% based on the ratio of Total PM to PM₁₀ as reported in AP42 Table 1.6-1.

Note (2) NO_x emission factor derived from highest HEW NO_x emission factor during MUPF resin trials at Commerce, GA plus 20% safety factor.

Note (3) CO emission factor derived from AP42 Table 1.6-2 Emissions Factors for Wood Residue Combustion because these emissions are generated in the furnace.

Note (4) The VOC emission factor was derived from the average of total VOC samples collected at the inlet to the WESPs in August and October 2004 and August 2006, normalized up to 80 ODT/HR.

Note (5) The SO₂ emission factor was derived from a site specific mass balance.

FACILITY WIDE CRITERIA POLLUTANT EMISSIONS

Emission Groups	NOx		CO		Total PM ₁₀		VOC		SO ₂	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
EUG 2	64.8	14.2	15.6	7.2	4.6	0.9	5.08	0.99	4.01	0.49
EUG 3	205.60	900.53	92.8	406.5	18.40	80.59	61.60	269.81	14.4	63.07
EUG 4	2.20	9.60	2.60	11.60	13.40	58.50	46.50	203.50	1.10	4.80
EUG 5	0.00	0.00	0.00	0.00	9.51	41.66	82.50	361.10	0.00	0.00
EUG 6	0.00	0.00	0.00	0.00	0.00	0.00	9.24	2.24	0.00	0.00
EUG 7	0.00	0.00	0.00	0.00	0	0	24.62	106.84	0.00	0.00
EUG 8	0.00	0.00	0.00	0.00	0.26	1.13	17.40	76.21	0.00	0.00
EUG 9	204.0	20.4	180.0	18.0	182.8	18.3	504.0	50.4	14.1	1.4
New Total	476.6	944.73	291	443.3	228.97	201.08	750.94	1071.09	33.61	69.76
Total Before Change	132.28	242.03	41.51	102.02	50.33	170.45	65.60	177.49	5.98	3.35
Emission Change	344.32	702.70	249.49	341.28	178.64	30.63	685.34	893.60	27.63	66.41

Applicant also estimated PM_{2.5} emissions as listed in the following table.

Emission Groups	PM _{2.5}	
	lb/hr	TPY
EUG 2	4.61	20.19
EUG 3	16.30	71.39
EUG 4	7.50	32.85
EUG 5	4.75	20.81
EUG 6	0	0
EUG 7	0.001	0.004
EUG 8	0	0
EUG 9	39.8	3.98
Total	72.961	149.224

Facility Wide HAP Emissions

Unit	Formaldehyde		Methanol		Acetaldehyde		Phenol	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
EUG3	4.80	21.02	4.55	19.93	1.20	5.26	5.28	23.13
EUG4	3.83	16.77	3.93	17.20	-	-	3.03	13.25
EUG5	3.32	13.90	25.80	113.10	-	-	-	-
EUG 8	0.30	1.33	4.33	18.95	-	-	-	-
EUG-9	160.00	16.00	8.00	0.80	8.80	0.88	1.20	0.12
Total	172.25	69.02	46.61	169.18	10.00	6.14	9.51	36.50

EPA’s Tailoring rule became effective on January 2, 2011. HEW provided CO₂ emission estimates for each unit and BACT analysis as addressed in the last part of SECTION VI.

Combustion source CO₂ emissions

Emission Unit	Fuel Type	Maximum Heat Input Capacity
		MMBtu/hr ^a
Energy System/Dryers	Biomass	300
RTO Burners ^b	Natural Gas	84
Fire Pump	Diesel	1.96
Emergency Generators #1	Diesel	8.40
Emergency Generators #2	Diesel	8.40
Railcar Steam Generator	Natural Gas	0.01
Air Makeup Units (all)	Natural Gas	0.23

^aHeat input for fuel burning equipment based upon 7,000 Btu/hp-hr (out[put] and a 75% engine efficiency.

^bEmissions from the energy sources and dryers are controlled by five RTOs with two burners each with a maximum heat input capacity of 8.4 MMBtu/hr per burner.

Greenhouse Gas	Natural Gas Emission Factor ^a	Biomass Emission Factor ^a	Diesel Emission Factor ^a	Global Warming Potential ^b
	(Kg/MMBtu)	(Kg/MMBtu)	(Kg/MMBtu)	(GWP)
CO ₂	53.02	93.8	73.96	1
CH ₄	1.00E-03	3.20E-02	3.00E-03	21
N ₂ O	1.00E-04	4.20E-03	6.00E-04	310

^aGHG emission factors from the GHG Mandatory Reporting rule (40 CFR Part 98) Subpart C, Table C-1 and C-2.

^bGlobal Warming Potentials are from the GHG Mandatory Reporting rule (40 CFR Part 98) Subpart A, Table A-1.

The energy system/dryers are controlled by a regenerative thermal oxidizer (RTO). Emissions from the energy source/dryers and the RTO burners are being emitted through a common exhaust stack. As such, emissions from the RTO burners cannot be separated from those of the energy source and dryers and are therefore combined together with the energy source and dryers here and in the BACT analysis.

Emission Unit	Fuel Type	CO ₂ ^a	CH ₄ ^b	N ₂ O ^c	CO ₂ e ^d
		TPY	TPY	TPY	TPY
Energy System/Dryers	Biomass	271650.1	92.67	12.16	277366.87
RTO Burners	Natural Gas	42993.69	0.81	0.08	43035.86
Fire pump & Emergency Generators	Diesel	367.07	0.01	0.00	368.30
Railcar Steam Generator	Natural Gas	7.02	0.00	0000	7.03
Air Makeup Units	Diesel	67.91	0.00	0.00	67.97
Total		315085.79	93.49	12.24	320846.03

^a Based on Equation C-2a from the GHG Mandatory Reporting Rule Subpart C.

^b Based on Equation C-9a from the GHG Mandatory Reporting Rule Subpart C.

^c Based on Equation C-9a from the GHG Mandatory Reporting Rule Subpart C.

^d Based on Equation A-1 from the GHG Mandatory Reporting Rule Subpart A.

Biofilter CO₂ Emissions

CO₂ emissions are based on worst case scenario that 100% of VOC controlled by the biofilter is converted to CO₂.

Pollutant	Pre-Controlled (lb/hr)	Post-Controlled (lb/hr)	Controlled (lb/hr)	CO ₂ Production (%)	CO ₂ Emissions	
					lb/hr	TPY
VOC	116.6	46.64	69.96	100	69.96	306.42

SECTION V. INSIGNIFICANT ACTIVITIES

The insignificant activities identified and justified in the application and listed in OAC 252:100-8, Appendix I, are listed below. Recordkeeping requirements for activities indicated with an asterisk "*" are listed in the Specific Conditions.

- * Stationary reciprocating engines burning natural gas, gasoline, aircraft fuels, or diesel fuel are used exclusively for emergency power generation or for peaking power service not exceeding 500 hours per year.
- Space heaters, boilers, process heaters, and emergency flares less than or equal to 5 MMBTUH heat input (commercial natural gas). Various space heaters are in this category.
- * Emissions from fuel storage/dispensing equipment operated solely for facility-owned vehicles if fuel throughput is not more than 2,175 gallons/day, averaged over a 30-day period.

- * Storage tanks with less than or equal to 10,000 gallons capacity that store volatile organic liquids with a true vapor pressure less than or equal to 1.0 psia at maximum storage temperature.
- Gasoline and aircraft fuel handling facilities, equipment, and storage tanks except those subject to New Source Performance Standards and standards OAC 252:100-39-30, 39-41, and 39-48.
- Emissions from storage tanks constructed with a capacity less than 39,894 gallons which store VOC with a vapor pressure less than 1.5 psia at maximum storage temperature.
- Cold degreasing operations utilizing solvents that are denser than air.
- Welding and soldering operations utilizing less than 100 pounds of solder and 53 tons per year of electrodes.
- Torch cutting and welding of less than 200,000 tons of steel fabricated per year.
- Hazardous waste and hazardous materials drum staging areas.
- Surface coating and degreasing operations which do not exceed a combined total usage of more than 60 gallons/month of coatings, thinners, clean-up solvents, and degreasing solvents at any one emissions unit.
- Activities having the potential to emit no more than 5 TPY (actual) of any criteria pollutant. These activities includes (but are not limited to):
 - Roadways;
 - Storage piles;
 - Transfer points; and
 - Debarker

SECTION VI. BEST AVAILABLE CONTROL TECHNOLOGY

Any major stationary source or major modification subject to federal PSD review must conduct an analysis to ensure the implementation of BACT. The requirement to conduct a BACT analysis can be found in the Clean Air Act itself, in the federal regulations implementing the PSD program, in the regulations governing federal approval of state PSD programs, and in Oklahoma regulations. The State of Oklahoma defines BACT in OAC 252:100-8-1.1, as follows:

"...the control technology to be applied for a major source or modification is the best that is available as determined by the Director on a case-by-case basis taking into account energy, environmental, and economic impacts and other costs of alternate control systems."

Although BACT is determined by evaluating control technologies to determine which are technically and economically feasible, BACT is an emission limit, not the use of a specific technology. The BACT requirement applies to each individual new or modified affected emissions unit and pollutant emitting activity at which a net emissions increase would occur. Individual BACT determinations are performed for each pollutant subject to a PSD review emitted from the same emission unit. Consequently, the BACT determination must separately address, for each regulated pollutant with a significant emissions increase at the source, air pollution controls for each emissions unit or pollutant emitting activity subject to review. The following table summarizes the units and pollutants that will be subjected to BACT determination.

BACT APPLICABILITY BY POLLUTANT AND EMISSIONS UNIT

Unit Description	NO_x	CO	PM₁₀	VOC	SO₂
PM Control Systems	No	No	Yes	Yes	No
Press	Yes	Yes	Yes	Yes	Yes
Energy System/Dryers	Yes	Yes	Yes	Yes	Yes
Dryer Abort Stacks (Startup, Shutdown, and Maintenance)	Yes	Yes	Yes	Yes	Yes
Storage Vessels	No	No	No	Yes	No
Branding Operations	No	No	No	Yes	No
Miscellaneous Combustion Units	Yes	Yes	Yes	Yes	Yes

In a memorandum dated December 1, 1987, U.S. EPA stated its preference for a “top-down” analysis (U.S. EPA, Office of Air and Radiation, Memorandum from J.C. Potter to the Regional Administrators. Washington, D.C. December 1, 1987). After determining whether any NSPS is applicable, the first step in this approach is to determine for the emissions unit in question, the most stringent control available for a similar or identical source or source category. If it can be shown that this level of control is technically or economically infeasible for the unit in question, the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic concerns. The five basic steps of a top down BACT review procedure as identified by U.S. EPA in the March 15, 1990, Draft BACT Guidelines are as follows (U.S. EPA, Draft BACT Guidelines. (Research Triangle Park, NC). March 15, 1990):

- Step 1. Identify all control technologies
- Step 2. Eliminate technically infeasible options
- Step 3. Rank remaining control technologies by control effectiveness
- Step 4. Evaluate most effective controls and document results
- Step 5. Select BACT

U.S. EPA has consistently interpreted statutory and regulatory BACT definitions as containing two core requirements that the agency believes must be met by any BACT determination, regardless of whether it is conducted in a “top-down” manner. First, the BACT analysis must include consideration of the most stringent available control technologies (i.e., those which provide the “maximum degree of emissions reduction”). Second, any decision to require a lesser degree of emissions reduction must be justified by an objective analysis of “energy, environmental, and economic impacts (U.S. EPA, Office of Air and Radiation, Memorandum from J.C. Potter to the Regional Administrators. Washington, D.C. December 1, 1987)”.

Potentially applicable emission control technologies were identified by researching the U.S. EPA control technology database, technical literature, and control equipment vendor information and by using process knowledge and engineering experience. The Reasonably Available Control Technology (RACT)/BACT/Lowest Achievable Emission Rate (LAER) Clearinghouse (RBLC), a database made available to the public through the U.S. EPA’s Office of Air Quality Planning and Standards (OAQPS) Technology Transfer Network (TTN), lists technologies that have been approved in PSD permits as BACT for numerous types of process units.

BACT Determination for Energy System/Dryer

The energy system/dryer is composed of two 150 MMBTU/hr bark combustors, providing process heat for two rotary strand dryers and the thermal oil for the press. Combustion exhaust from the energy system provides the heat to dry the wood strands in the rotary dryers prior to forming the OSB boards. Emissions from this system include combustion emissions from the energy system (primarily NOx, CO, and SO₂), as well as VOC and PM emissions from wafer drying. BACT for the bark burner and dryers was evaluated as a single emission unit since these processes share airflows and exhaust from a single point.

1. Identify All Control Technologies

The table below shows the control technologies identified as being commercially available for control of the pollutants emitted by the energy system/dryers. Consistent with U.S. EPA’s top down approach, the control technologies for each pollutant were considered in order of decreasing emissions reduction potential.

Potential Control Technologies for the Energy/Dryer System

Pollutant	Listed Control Technologies
CO	Regenerative Thermal Oxidation (RTO)
	Good Design/Operation
VOC	RTO
	Biofilter
	Good Design/Operation
NOx	SCR
	SNCR
	Water/Steam Injection (WSI)
	Staged Combustion
	Flue Gas Recirculation
	Low NOx Burners
	Reduced Air Preheat
	Low Excess Air
	Good Design/Operation
PM ₁₀	Baghouse
	Electrostatic Precipitator (ESP)
	Wet Electrostatic Precipitator (WESP)
	Venturi Scrubber
	Good Design/Operation
SO ₂	Wet/Dry Scrubber
	Good Design/Operation

2. Eliminate Technically Infeasible Options

Each control technology for each pollutant is considered, and those that are clearly technically infeasible are listed in the following table and are eliminated.

Pollutants	Infeasible Technologies	Reasoning
VOC	Biofilter	The exhaust gases from the energy system/dryer are discharged at very high flow rates at an exhaust temperature of 225-240 °F, which would result in the death of significant portions of the active microorganisms in the biofilter.
NO _x	Water/Steam Injection	Water/steam injection is the process of injecting water or steam into the combustion chamber so as to act as thermal ballast to the combustion process to reduce the thermal formation of NO _x . The introduction of moisture into the energy system, which furnishes a hot exhaust stream that is used to dry wood wafers in the rotary dryers, is counterproductive to the purpose of the energy system-to dry wood strands in the rotary dryers.
	SCR	The combustion products and composition of the exhaust stream from wood-fired units is not conducive to installation of such add-on controls. The alkalinity of wood ash and high particulate loading associated with wood combustion causes SCR catalyst blinding and contamination and significantly reduces NO _x removal efficiency.
	SNCR	SNCR is unsuitable for a wood combustion exhaust stream. The SNCR reaction requires a temperature range between 1,600 to 2,000°F. Flue gas temperatures from the energy/dryer system are approximately 240 °F, which is well outside of the SNCR operating range.
PM ₁₀	Baghouse	The energy system exhaust has an exit temperature of 225 °F and also contains 30% water. The moisture content combined with the presence of condensable PM can cause blinding of the fabric filter. This will in turn result in lower airflow rates, greater pressure drop, and reduce control efficiency.
SO ₂	Wet/Dry Scrubber	Add-on controls for SO ₂ involve scrubbing technology, either dry or wet. SO ₂ emissions from the energy system/dryer are approximately 34 lb/hr. Based upon unit exhaust rates, this corresponds to a control device inlet concentration of 25-30 ppm. This range of inlet concentration is comparable to typical SO ₂ control device outlet concentrations. Therefore, the inlet concentrations are below the typical lower design limit for optimal control efficiency. 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.
	Low Sulfur Fuel	Sulfur comes from ammonium sulfate which is added to the surface mixture as an accelerant to cure the MUPF resin. This material remains in the surface layer after the boards are cured. Only AdvanTech product is given a surface sand and it represents about 65% of the plant production volume. HEW calculated that it would cost the mill approximately \$22,000 to reduce a ton of SO ₂ by replacing 65% of the sand dust burned in the furnace with other low sulfur fuel without accounting the cost of disposing of sand dust. This option is not further considered due to the prohibitive cost.

3. Rank Remaining Control Technologies by Effectiveness

The following table lists the remaining technically feasible controls and their efficiencies. The efficiencies are vendor quotes when available, or accepted industry literature values. These values are provided for informational and ranking purposes only.

Pollutant	Listed Control Technologies	Potential Control Efficiency (%)
CO	Regenerative Thermal Oxidation (RTO)	90%
	Good Design/Operation	Base Case
VOC	RTO	90%
	Good Design/Operation	Base Case
NO _x	Staged Combustion	45%
	Flue Gas Recirculation	40%
	Low NO _x Burners	<40%
	Reduced Air Preheat	25%
	Low Excess Air	10%
	Good Design/Operation	Base Case
PM ₁₀	Dry Electrostatic Precipitator	>90%
	Wet Electrostatic Precipitator	>90%
	Venturi Scrubber	50-90%
	Good Design/Operation	Base Case
SO ₂	Good Design/Operation	Base Case

4. Top-Down Evaluation of Control Options and BACT Selection

The highest ranked control option is evaluated first. If this option is technically and economically feasible, and the option has acceptable energy and adverse environmental impacts, the option is deemed BACT. Otherwise, the next ranked control option is evaluated. The evaluation process continues until a control option is found that meets all of the BACT requirements. Once BACT is determined, it is unnecessary to evaluate any remaining options that are ranked below the selected BACT.

Carbon Monoxide

An RTO has the highest control efficiency for CO and is accepted as BACT for CO from the energy system. No other options need to be evaluated further.

Volatile Organic Compounds

An RTO has the highest control efficiency for VOC and is accepted as BACT for VOC from the energy system. No other options need to be evaluated further.

Oxides of Nitrogen

Staged combustion is a combustion unit design/operational technique that allows for the reduction of thermal and rapid NO_x formation. This is achieved by modifying the primary combustion zone stoichiometry or air/fuel ratio. The combustion air is provided in a staged manner to control the burn rate. Typically, plenums are used with air control dampers to control the distribution of the combustion air. This control allows for a slower burning of the fuel, whose resulting pyrolysis products are allowed to oxidize in lower temperature zones of the

combustion unit, thus reducing the high instantaneous temperatures responsible for NO_x formation.

In addition, the under grate air is staged in a manner to control the burn rate to achieve complete combustion of the wood. Because the wood fuel has varying moisture content and composition (bark, dry fines, green fines, etc.), combustion controls on the furnace allow it burn the variable fuel material efficiently. The bark burner unit will inherently utilize staged combustion in order to achieve adequate combustion. Since Huber is utilizing the inherent design of the energy system as BACT and this is the highest ranked potential control strategy, the other potential control technologies (i.e., flue gas recirculation, reduced air preheat, and low excess air) are not evaluated.

Low NO_x burners (LNB) are not available for solid fuel fired units. By design, LNBs work by carefully controlling the air to fuel ratio in different areas of the flame. The use of solid fuel in the bark burners precludes this design. Huber is using burners emitting 0.2 lb/MMBTU NO_x in the RTOs as part of the NO_x BACT for the energy system/dryer.

Particulate Matter

Electrostatic precipitation (wet and dry) technology is the highest ranked technology remaining for PM/PM₁₀ control on this process unit and a wet electrostatic precipitator is accepted as BACT at this facility. No other options need to be evaluated further.

Sulfur Dioxide

Sulfur dioxide emissions from the energy system/dryer are not related to the design or operation of the units, but are controlled by the composition of the wood and bark used as fuel. As a result, good design and operation of the energy system/dryer is not feasible as BACT.

Add-on controls for SO₂ involve scrubbing technology, either dry or wet. SO₂ emissions from the energy system/dryer are approximately 34 lb/hr. Based upon unit exhaust rates, this corresponds to a control device inlet concentration of 25-30 ppm. This range of inlet concentration is comparable to typical SO₂ control device outlet concentrations. Therefore, the inlet concentrations are below the typical lower design limit for optimal control efficiency. Huber calculated that the cost effectiveness to be from \$18,173 to 93,656/ ton of SO₂ removed for using a wet scrubber and from \$22,012 to \$2,275,400 per ton of SO₂ removed for using a dry scrubber. Therefore, the use of scrubbing technology as an add-on control is deemed to have minimal potential for SO₂ emission reduction and is not considered in this BACT analysis.

BACT is proposed as is.

Summary

BACT Summary for the Energy/Dryer System

Pollutant	Emission Limit lb/ODT	Control Technology
CO	1.16	RTO
VOC	0.77	RTO
NO _x	2.57	Staged Combustion
PM ₁₀	0.23	Wet electrostatic Precipitator
SO ₂	0.18	None

Emission Limits Compare to RBLC Search Results

Company	Location	Permit Date	NO _x	CO	VOC	PM	SO ₂
			lb/ODT*				
HEW selected BACT	Broken Bow, OK		2.57**	0.78	0.77	0.23	0.18
RBLC Search Results							
Louisiana-Pacific	Panola, TX	12/16/98	1.23	11.27	--	0.55	0.05
Georgia-Pacific	Calhoun, AR	1/7/03	1.49	5.29	3.24	1.91	--
Georgia-Pacific	Calhoun, AR	6/8/99	1.88	0.86	--	1.91	--
Georgia-Pacific	Liberty, FL	10/13/00	1.54	0.86	--	--	--
Louisiana-Pacific	Jasper, TX	7/6/99	1.23	7.51	--	0.55	0.04
Louisiana-Pacific	Clarke, AL	6/14/06	1.74	0.57	0.67	0.23	0.13
Martco Limited Partnership	Allen, LA	6/13/05	8.52	1.4	0.74	0.23	0.51
Georgia-Pacific	Calhoun, AR	6/29/00	1.88	0.86	3.24	1.91	--
Paragon Panels of Alabama, L.L.C.	Barbour, AL	4/12/06	6.47	--	--	1.66	--

*Oven dried ton

**Huber's NO_x emissions are based on NO_x factor on the highest case emissions scenario which will occur when MUPF resin is used in the process. MUPF has higher nitrogen content than PF or MDI resin and as a result the wood residuals burned in the wood furnace have higher fuel bound nitrogen content.

Control Technology Compare to RBLC Search Results

Company	Location	Permit Date	NOx	CO	VOC	PM	SO ₂
HEW selected BACT	Broken Bow, OK			RTO	RTO	Wet ESP	None
RBLC Search Results							
Louisiana-Pacific	Panola, TX	12/16/98	NI*	RTO	RTO	RTO	NI
Georgia-Pacific	Calhoun, AR	1/7/03	Low NOx Burner	RTO	Temperature of 1550°F	Multiclones	NI
Georgia-Pacific	Calhoun, AR	6/8/99	Enhanced Fuel	RTO	RTO	Multiclones	NI
Georgia-Pacific	Liberty, FL	10/13/00	Low NOx Burner	RTO	RTO	Multiclone	NI
Louisiana-Pacific	Jasper, TX	7/6/99	NI	RTO	RTO	RTO	Low S. Fuel
Louisiana-Pacific	Clarke, AL	6/14/06	NI	RTO	RTO	WET ESP	NI
Martco Limited Partnership	Allen, LA	6/13/05	Low NOx Burner	RTO	RTO	Venturi Scrubber	NI
Georgia-Pacific	Calhoun, AR	6/29/00	Low NOx Burner	RTO	RTO	NI	NI
Paragon Panels of Alabama, L.L.C.	Barbour, AL	4/12/06	Low NOx Burner	NI	RTO	RTO	NI

*NI – None Indicated.

BACT Determination for Dryer Abort Stacks

Emissions from dryer abort stacks (including heat source emissions) result from process shutdowns necessary for maintenance activities. A full dryer will empty in approximately 15 minutes after material feed stops and emissions decrease considerably when the dryers are empty. To minimize emissions as much as possible during dryer aborts HEW stops feeding process material to the associated dryer immediately. Maintenance activities begin as soon as it is safe to do so and HEW completes the maintenance as expeditiously as possible. HEW proposes BACT for the startup, shutdown, and maintenance emissions from dryer abort stacks as cessation of process material feed to the dryer and attention to the maintenance issue causing the abort in a timely manner, along with a limit of 200 hours per year for each dryer abort stack.

BACT Determination for OSB Press Vent

The press has an OSB processing capacity of 110 MSF/hr 3/8” basis. Thermal oil provides the heat required to cure the OSB during pressing. VOC and PM emissions are emitted from the OSB press vent during pressing operations. Smaller amounts of NOx, CO, and SO₂ are also released.

1. Identify All Control Technologies

The table below shows the control technologies identified as being commercially available for control of the pollutants emitted by the OSB press. Consistent with U.S. EPA’s top-down

approach, the control technologies for each pollutant were considered in order of decreasing emissions reduction potential.

Emissions of NOx generated by the press stem from the resin formulation used during the board making process. Accordingly, the only method by which the NOx emitted directly from the press could be controlled would be to reformulate the resins. As a result, NOx control technology that is generally designed for combustion control applications are not examined.

Potential Control Technologies for the OSB Press

Pollutant	Listed Control Technologies
CO	RCO/RTO
	Good Operating Practices
VOC	RCO/RTO
	Biofilter
	Good Design/Operation
NOx	Material Usage
	Good Design/Operation
PM ₁₀	Baghouse
	Dry Electrostatic Precipitator
	Wet Electrostatic Precipitator
	Venturi Scrubber
	Good Design/Operation
SO ₂	Wet Scrubber (Dual Alkali)
	Dry Scrubber
	Material Usage
	Good Design/Operation

2. Eliminate Technically Infeasible Options

Each control technology for each pollutant is considered, and those that are clearly technically infeasible are listed in the following table and are eliminated.

Pollutants	Infeasible Technologies	Reasoning
CO	RTO/RCO	As evidenced in the relatively low CO emission limits requested for the press, CO pollutant loading is low. Based upon operating data collected during emission tests, CO concentrations in the uncontrolled press exhaust stream ranges from 3 to 10 ppm, which is comparable to post-control emission levels in RTO/RCO applications. As a result, RTO/RCO technology is considered technically infeasible as a CO emissions reduction strategy.
NOx	Material Usage	At present, current resin technology has nitrogen present to a degree in all available products. While Huber is and will continue to be mindful of the availability of other resins that have the potential to reduce or eliminate NO _x emissions, non-nitrogen resins currently available would necessitate and/or represent a process change, and are not technically feasible for the production process.

Pollutants	Infeasible Technologies	Reasoning
PM ₁₀	Baghouse	Baghouses have the potential to be blinded by the waxes and resins used during press operations. Blinding of the filters will result in lower airflow rates, greater pressure drop, and reduced TSP/PM10 control efficiency. As a result, the use of a baghouse is considered technically infeasible for the press vent.
SO ₂	Scrubber (Wet or Dry)	Add-on controls for SO ₂ involve scrubbing technology, either dry or wet. Based upon press vent stream SO ₂ concentration of less than 20 ppm, the use of add-on scrubbing technology would have minimal SO ₂ emission reduction. Additional control is not considered because the device inlet concentration is comparable to SO ₂ concentrations found in post-control exhaust streams.
	Material Usage	At present, the switch to MUPF resin use is primarily responsible for SO ₂ emissions from the OSB press. Material change would represent a process change, and therefore is considered technically infeasible.

3. Rank Remaining Control Technologies by Effectiveness

The following table lists the remaining technically feasible controls and their efficiencies. The efficiencies are vendor quotes when available, or accepted industry literature values. These values are provided for informational and ranking purposes only.

Pollutant	Listed Control Technologies	Potential Control Efficiency (%)
CO	Good Design/Operation	Base Case
VOC	RTO/RCO	90%
	Biofilter	50-75%
	Good Design/Operation	Base Case
NOx	Good Design/Operation	Base Case
PM ₁₀	Electrostatic Precipitator	>90%
	Wet Electrostatic Precipitator	>90%
	Venturi Scrubber	50-90%
	Good Design/Operation	Base Case

4. Top-Down Evaluation of Control Options and BACT Selection

Carbon Monoxide

Good operating practices are accepted as BACT for the press as it is the only remaining option. HEW will ensure that lubricating oils are utilized in the OSB press in a manner that minimizes CO emissions.

Volatile Organic Compounds

(1). Cost Analysis

For RTO and RCO, direct capital cost data were provided per MEGTEC quote dated June 13, 2008. Indirect capital cost factors were taken from Section 3, VOC Controls of the OAQPS Cost Control Manual (CCM), Sixth Edition, January 2002. Purchased Equipment Costs (PEC) were derived from the total direct costs via the equation $1.3 * PEC = DC$ from the OA. Annual cost factors are taken from OAQPS CCM, Section 3.2, chapter 2, Table 2.10, “Annual Costs for Thermal and Catalytic Incinerators,” sixth Edition, January 2002. For biofilter, direct capital cost is based on vendor quote, indirect capital cost factors were from CCM used for RTO and RCO. Annual cost calculation was based on vendor’s quote on man-hours and electricity cost, along with a 15 year equipment lifetime and a 7% interest rate. The following table compares the cost effectiveness for RTO, RCO, and biofilter.

	Biofilter @ 60%	RTO @ 90%	RCO @ 90%
Annual Control Cost (\$)	1,457,704	5,327,539	3,898,350
Controlled Emissions (TPY)	305.4	458.1	458.1
Average Cost Effectiveness (\$/ton)	4,773	11,634	8,513
Incremental Cost Effectiveness (\$/ton)	N/A	26,832	17,472

Apparently, a biofilter is more cost effective than a RTO or a RCO.

(2). Energy and Environmental Impact Analysis

The use of a RTO/RCO is very energy intensive. At 42 MMBTUH, a RTO would use up to 324 million cubic feet of natural gas per year. With the average household usage approaching 120,000 cubic feet per year, the amount of natural gas used by a RTO would meet the needs of over 2,500 homes in Oklahoma for an entire year.

The use of a RTO/RCO would also result in an increase in NOx and CO emissions (as combustion products). NOx emissions, in particular, have the additional environmental impact of increasing ground-level ozone. The consideration of the trade-off between VOC and NOx/CO is a legitimate “other environmental impact” to be evaluated in determining BACT for this source. In particular, the EPA’s “New Source Review Workshop Manual” (October 1990) states at page B.49:

“One environmental impact that could be examined is the trade-off between emissions of the various pollutants resulting from the application of a specific control technology. The use of certain control technologies may lead to increases in emissions of pollutants other than those the technology was designed to control. For example, the use of certain volatile organic compound (VOC) control technologies can increase nitrogen oxides (NOx) emissions. In this instance, the reviewing authority may want to give consideration to any relevant local air quality concern relative to the secondary pollutant (in this case NOx) in the region of the proposed source. For example, if the region in the example were non-attainment for NOx, a premium could be place on the potential NOx

impact. This could lead to elimination of the most stringent VOC technology (assuming it generated high quantities of NO_x) in favor of one having less of an impact on ambient NO_x concentrations.”

In this instance, the area does not have NO_x non-attainment issues, but there are regional aspects to the consideration of this trade-off. Again, ozone formation is the result of the interaction between NO_x and VOC, and ground-level ozone formation is the impact of concern in relation to VOC emissions. In heavily forested rural areas, there is already a substantial load of naturally-occurring VOCs, resulting in very high VOC to NO_x ratios. While Oklahoma is not considered a heavily forested region of the United States, land-use land-cover data compiled by the United States Geologic Survey indicates that the southeastern corner of the state that includes Broken Bow, Valliant, and Wright City are sufficiently forested that they exhibit these characteristics. In such areas, ozone formation is strongly NO_x limited, and the introduction of additional NO_x into the regional air shed has a directly proportional relationship to ozone formation. To decrease VOC emissions at the expense of increasing NO_x emissions, another ozone precursor, is at cross purposes, especially when rural ozone formation is more sensitive to NO_x.

In addition, the specific characteristics and relatively low VOC concentration for the OSB press exhaust stream limits the effectiveness of RTO/RCO in this application. Based upon operating data collected during emission tests, VOC concentrations in the uncontrolled press exhaust stream ranges from 65 to 90 ppm. Per 40 CFR 60, Subpart III (SOCMI Air Oxidation Unit Processes), VOC concentrations in post-RTO exhausts can be expected to be approximately 20 ppm. When applied to an OSB press vent stream with a VOC concentration that is less than 200 ppm, this post-RTO concentration translates into RTO/RCO performance within the range of 70-90%. While this level of performance is adequate, the use of an RTO/RCO is very energy intensive, and results in an increase in NO_x and CO emissions (as combustion products). NO_x emissions, in particular, have the additional environmental impact of increasing ground-level ozone.

As a result of high cost, adverse energy and environmental impacts, and its reduced control efficiency (70-90%) based on lower VOC concentrations at the inlet to the device) when applied to the continuous OSB press, HEW eliminates RTO/RCO from further consideration.

(3). Proposed BACT

HEW proposes the current biofilter as BACT technology for this application. Biofiltration is a process in which living organisms are used to “consume” the VOC present in a waste stream. Its use in OSB mills is relatively new but promising. An RBLC search indicates at least one other OSB mill operated by Weyerhaeuser in Crawford, MI has made use of biofilters for VOC control. HEW also obtained a copy of a recently issued PSD permit for Louisiana-Pacific’s Clarke County, Alabama Mill. While the press emissions for the Clarke County mill do not yet appear in the RBLC database, the permit indicates the mill is similar in size (98/MSF/hr_{3/8}) and processes southern pine wood. The Clarke County OSB press has a VOC limit of 0.786 lb/Msf_{3/8}, which is nearly two times HEW’s proposed limit of 0.42 lb VOC/Msf_{3/8}.

Biofilter technology provides an energy efficient and environmentally sound alternative to an RTO or RCO for VOC removal from the press exhaust. In particular, a biofilter has several benefits over RTO/RCO systems, including no consumption of fossil fuel, no additional (i.e., via control device fuel combustion) CO or NOx emissions, and limited greenhouse gas emissions.

Based on HEW’s experience with the biofilters, HEW has found that biofilters are very effective (over 90%) in control of organic hazardous air pollutants (HAPs) in accordance with the Plywood and Composite Wood Products Maximum Achievable Control Technology (MACT) requirements. They are less effective in control of some of the long-chain organic compounds resulting from wood decomposition, such as pinenes, due to residence time and water solubility issues. As such, their overall efficiency from a total VOC standpoint ranges between 60-70 percent.

In an attempt to gauge biofilter performance, HEW recently added two feet of filter media (30% increase in filter media) to the existing biofilter. Test results indicated negligible reduction in total VOC emissions. To achieve 70% VOC control, significantly extended residence times are necessary for the biofilter media to digest the hydrophobic compounds. The residence times required for 70% VOC control would substantially increase the size of the biofilter. When compared to a biofilter unit achieving 60% reduction, the costs associated with constructing a biofilter capable of 70% VOC control results in an incremental cost of \$17,904 per additional ton of VOC removed as listed in the following table. HEW considers the additional VOC removal from the larger biofilter to be cost prohibitive.

Incremental Costs for a Biofilter with 70% VOC Control

Control Device	Biofilter @ 60%	Biofilter @ 70%	Incremental Difference
Annual Control Cost (\$)	\$1,457,704	\$2,370,828	\$913,124
Emissions Removed (TPY)	305.4	356.3	50.9
Incremental Cost (\$/ton)	-	-	\$17,904

Based on these considerations, HEW proposes a biofilter minimum DRE of 60 percent and maximum emission rate of 0.42 lb VOC/MSF_{3/8} as BACT for VOC control of the press.

Particulate Matter

(1). Electrostatic Precipitator (Wet or Dry)

ESP technology is the highest rated PM₁₀ control option available for the OSB press and must be considered first. A WESP is a proven control technology in the wood products field for removal of PM₁₀. However, the cost effectiveness for WESP control of PM₁₀ on the OSB press is \$27,653 per ton of PM₁₀ removed. Based on this, a WESP is not economically viable as BACT for PM₁₀ emitted from the OSB press.

(2). Venturi Scrubber

The next highest rated control is a venture scrubber, which is capable of achieving anywhere from between 50-90% control depending upon particle size and inlet concentration. However,

implementation of a venture scrubber would require significant additional quantities of fresh water, water disposal facilities (i.e., retention ponds) and, given the nature of OSB manufacturing, necessitate its handling as industrial waste. As a result of these additional adverse environmental impacts, a venturi scrubber is eliminated from consideration as BACT.

(3). Good Design/Operation

As the remaining base case control option, HEW proposes good operating practices as BACT for emissions of PM₁₀ from the press.

Summary

BACT Summary for the Press

Pollutant	Emission Limit lb/MSF_{3/8}	Control Technology
CO	0.024	Good Operating Practices (GOP)
VOC	0.42	Biofilter
NOx	0.02	Good Operating Practices (GOP)
PM ₁₀	0.122	Good Operating Practices (GOP)
SO ₂		None

Emission Limits Compare to RBLC Search Results

Company	Location	Permit Date	NOx	CO	VOC	PM
			lb/MSF_{3/8}			
HEW selected BACT	Broken Bow, OK		0.02	0.024	0.42	0.122
RBLC Search Results						
Louisiana-Pacific	Panola, TX	12/16/98	0.54	0.54	0.08	0.14
Georgia-Pacific	Calhoun, AR	1/7/03	0.20	0.13	0.37	0.05
Georgia-Pacific	Calhoun, AR	6/8/99	0.20	0.13	0.37	0.05
Georgia-Pacific	Liberty, FL	10/13/00	0.20	0.13	0.18	0.05
Temple-Inland Forest Products Corporation	Monroe, AL	3/16/98	-	0.65	0.36	-
Louisiana-Pacific	Jasper, TX	7/6/99	0.18	-	0.08	0.14
Georgia-Pacific	Calhoun, AR	6/29/00	0.20	0.13	0.37	0.05
Louisiana-Pacific	Clarke, AL	6/14/2006	0.05	0.05	0.79	0.06
Martco Limited Partnership	Allen, LA	6/13/05	0.42	0.25	0.01	0.08

Control Technology Compare to RBLC Search Results

Company	Location	Permit Date	NOx	CO	VOC	PM	SO ₂
HEW selected BACT	Broken Bow, OK		GOP	GOP	Biofilter	GOP	None
RBLC Search Results							
Louisiana-Pacific	Panola, TX	12/16/98	RTO	RTO	RTO	RTO	NI
Georgia-Pacific	Calhoun, AR	1/7/03	Low NOx Burner	RTO	RTO/TCO	Multiclones	NI
Georgia-Pacific	Calhoun, AR	6/8/99	Low NOx Burner	RTO	RTO	RTO	NI
Georgia-Pacific	Liberty, FL	10/13/00	Low NOx Burner	RTO	RTO/TCO	RTO/TCO	NI
Temple-Inland Forest Products Corporation	Monroe, AL	3/16/98	NI	RTO	RTO	NI	NI
Louisiana-Pacific	Jasper, TX	7/6/99	RTO	NI	RTO	RTO	NI
Louisiana-Pacific	Clarke, AL	6/14/06	Good Design	Good Design	Biofilter	Good Design	NI
Martco Limited Partnership	Allen, LA	6/13/05	NI	TCO	TCO	Hood Capture	NI
Georgia-Pacific	Calhoun, AR	6/29/00	Low NOx Burner	RTO	RTO	Multiclones	NI

BACT Determination for PM Control System (All)

The PM control systems collect particulate matter from various processes throughout the mill. These processes include blending, forming, and finishing operations. In addition to PM emissions, certain processes may emit VOC that are eventually emitted through the PM control devices in use at the mill. The discovery of VOC emissions from the baghouses and the subsequent request for VOC emission limits on these units necessitate a BACT determination for VOC from the PM control system.

1. Identify All Control Technologies

As with the previous analyses, the first step is to identify the possible control technologies for each applicable pollutant for comparable emissions sources. The same list of commercially available control technologies as previously described for PM₁₀ and VOC is utilized for initial consideration.

Potential Control Technologies for the PM Control System

Pollutant	Listed Control Technologies
VOC	RCO/RTO
	Biofilter
	Good Design/Operation
PM ₁₀	Baghouse/Fabric Filter
	Electrostatic Precipitator (ESP)
	Wet Electrostatic Precipitator (WESP)
	Venturi Scrubber
	Multiclones
	Good Design/Operation

2. Eliminate Technically Infeasible Options

Each control technology for each pollutant is considered, and those that are clearly technically infeasible are listed in the following table and are eliminated.

Pollutants	Infeasible Technologies	Reasoning
VOC	RTO/RCO	Installation of an RTO/RCO, while effective at controlling VOC from the particulate handling systems, would also destroy collected dust and wood, precluding their use as a fuel source in mill energy systems. In addition, RTO/RCO technology is not designed to accommodate an inlet gas stream with such high quantities of particulate matter. As a result, a standalone RTO/RCO is considered technically infeasible. Installation of a baghouse/fabric filter before the RTO would reduce the content of particulate matter in the gas stream and condition it to a point that would render the use of RTO/RCO technology feasible. In the event of baghouse failure, however, such a setup would create a fire hazard sending significant amounts of resinated wood particles into the incinerator. As a result, use of baghouse in conjunction with an RTO/RCO is considered technically infeasible.
PM ₁₀	WESP	The existing PM control systems in operation with particulate handling systems collect dust and wood generated during board production. This collected material is then utilized as fuel in facility heat sources. The use of a WESP, however, would render this material useless due to the volumes of moisture that would be added to the material stream. As a result, the application of a WESP is considered technically infeasible.

3. Rank Remaining Control Technologies by Effectiveness

The following table lists the remaining technically feasible controls and their efficiencies. The efficiencies are vendor quotes when available, or accepted industry literature values. These values are provided for informational and ranking purposes only.

Pollutant	Listed Control Technologies	Potential Control Efficiency (%)
VOC	Biofilter	50-75%
	Good Design/Operation	Base Case
PM ₁₀	Baghouse/Fabric Filter	99%
	Dry ESP	>90%
	Venturi Scrubber	50-90%
	Multiclones	60%
	Good Design/Operation	Base Case

4. Top-Down Evaluation of Control Options and BACT Selection

Particulate Matter

The baghouse/fabric filter control device is the highest ranked technology remaining for PM₁₀ control on this PM control system. Therefore, no other options are evaluated.

Volatile Organic Compounds

VOC emissions occur during product screening, blending, forming, and finishing, with the amount released decreasing as the product moves through the process.

(1). Biofilter

Biofilter control technology was evaluated for reducing VOC emissions from the PM control systems. The cost effectiveness for biofilter VOC control on the baghouses (i.e., one unit controlling all baghouses) is \$7,297 per ton of pollutant removed. Due to the high cost associated with the biofilter, the control technology is not economically viable. HEW also considered routing baghouse emissions to the press biofilter (with additional media contact sections). An incremental cost analysis results in costs of \$13,020 per additional ton of VOC removed. In addition, there are concerns about the addition of more pinenes to the biofilter since the microorganisms do not readily consume the pinenes. Additionally, if a baghouse were to fail, the resulting PM loading to the biofilter would be detrimental to its operation. Accordingly, given the technical concerns as well as the incremental cost, HEW considers this control option as not viable to the PM control system.

(2). Good Design/Operation

The RBLC database contains several entries for the PM control areas, which have no additional control for VOC. Thus, HEW proposes no additional control as BACT for the baghouses.

Summary

BACT Summary for the PM Control System

Pollutant	Emission Limit gr/dscf	Control Technology
PM ₁₀	0.005	Baghouses

Emission Limits Compare to RBLC Search Results

Company	Location	Permit Date	PM
			gr/dscf
HEW selected BACT	Broken Bow, OK		0.005
RBLC Search Results			
HOMANIT USA, INC	Montgomery, NC	12/29/99	0.0024
Beauty Craft Furniture Corp	Sacramento, CA	9/29/05	0.018
Louisiana-Pacific	Clarke, AL	6/17/2006	0.005

BACT Determination for Branding Operations

The branding operation systems utilize ink that may contain VOC and involves application of ink to the OSB.

VOC control options including RTO/RCO, biofilter, and low-VOC ink were reevaluated. Biofilter is technically infeasible due to low bioavailability of non-water soluble compounds in some ink formulations.

The remaining technically feasible control option is RTO/RCO with a potential control efficiency of 90%. These are proven technologies but the cost effectiveness has been determined to be \$7,730 per ton for RTO control and \$5,452 per ton for RCO control. Huber has reviewed the current operation of the dryer RTO and it is operating at design capacity. The dryer RTO does not have the physical capability to accommodate the additional flow (approximately 20,000 ASCM) that would come from the branding operations. Therefore, ducting the branding emissions to the RTO is not feasible at this time.

Based on the above analysis, HEW proposes that using inks that have a VOC content equal to or less than 7.76% VOC and an emission limit of 7.5 TPY as BACT for branding operation.

BACT Determination for Emergency Diesel Generators, Diesel Fire Pump, Rail Steam Generator, and Air Make Up Units

VOC emissions from these units are based on equipment design and are proposed as BACT. A review of the RBLC indicates that additional VOC controls have not been required for this type of equipment because they operate intermittently and are insignificant emission sources. The proposed BACT has no adverse environmental or energy impacts. DEQ agrees that equipment design and a limitation on hours of operation is acceptable as BACT.

NOx emissions from these units are based on equipment designs and are proposed as BACT. A review of the RBLC indicates that additional NOx controls have not been required for this type of equipment because they operate intermittently and are insignificant emission sources. The proposed BACT has no adverse environmental or energy impacts. ODEQ agrees that equipment design and a limitation on hours of operation acceptable as BACT.

CO emissions from these units are based on equipment designs and are proposed as BACT. A review of the RBLC indicates that additional CO controls have not been required for this type of

equipment because they operate intermittently and are insignificant emission sources. The proposed BACT has no adverse environmental or energy impacts. DEQ agrees that equipment design and a limitation on hours of operation are acceptable as BACT.

PM₁₀ emissions from these units are based on equipment designs and are proposed as BACT. A review of the RBLC indicates that additional PM₁₀ controls have not been required for this type of equipment because they operate intermittently and are insignificant emission sources. The proposed BACT has no adverse environmental or energy impacts. DEQ agrees that equipment design and a limitation on hours of operation is acceptable as BACT.

SO₂ emissions from these units are based on equipment design and are proposed as BACT. A review of the RBLC indicates additional SO₂ controls have not been required for this type of equipment because they operate intermittently and are insignificant emission sources, the proposed BACT has no adverse environmental or energy impacts. DEQ agrees that equipment design and a limitation on hours of operation is acceptable as BACT.

BACT Determination for Storage Vessels

The storage vessels will have emissions of less than 5 TPY of VOC pollutants. Given the small quantity of emissions, use of add-on controls would be cost prohibitive for these units. RBLC entries for similar storage vessels show good design/operation as BACT for all pollutants. HEW is also proposing good design/operation as BACT for the storage vessels for regulated pollutants.

BACT Determination for CO₂e Emissions

Energy Source/Dryers and RTO Burners

As stated in the emission section, the energy source/dryers are controlled by a regenerative thermal oxidizer (RTO) and emissions from the energy source/dryers and the RTO burners are being emitted through a common exhaust stack. As such, emissions from the RTO burners cannot be separated from those of the energy source and dryers and are therefore combined together with the energy source and dryers for the BACT analysis.

1. Identify All Control Technologies

According to the EPA “ Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production (March 2011)”, combustion of biomass fuels alone is considered BACT for CO₂ emissions.

Pollutant	Control Technologies
CO ₂ e	Biomass Fuel
	Good Combustion/Operating Practices

2. Eliminate Technically Infeasible Control Options

The wood-fired energy system and dryers at the Mill burn waste biomass from the OSB

production process to provide heat to the drying process. Therefore, combustion of biomass is a technically feasible option.

The Mill operates the wood-fired furnace as efficiently as possible in order to provide sufficient heat to the dryers and minimize the need to purchase additional fuel from external sources. Therefore, good combustion/operating practices is a technically feasible control option.

3. Rank Remaining Control Options by Effectiveness

Since both feasible options are employed, it is not necessary to rank them.

4. Top-Down Evaluation of Control Options

Through the use of waste biomass from the OSB production process, the Mill does not require the combustion of fossil fuels with greater CO₂e emissions and does not require additional energy input to dispose of the waste biomass. Therefore, biomass is the best fuel selection for the facility from an efficiency and heat rate standpoint given the process heat requirements for the facility.

It is in the best interest of the Mill to operate the wood-fired furnaces as efficiently as possible in order to reduce the amount of fuel required to meet the process heat requirements of the facility and minimize the need to purchase fuel from external sources. Therefore, the Mill utilizes good combustion/operating practices to maximize efficiency and reduce CO₂e emissions.

No adverse energy, environmental, or economic impacts are associated with the combustion of biomass or good combustion/operating practices for reducing CO₂e emissions from the wood-fired furnace.

5. Select CO₂e BACT for Energy Source/Dryers and RTO Burners

Based on the above analysis, HEW had proposed BACT for the wood-fired furnace to be use of biomass fuel and good combustion/operating practices.

CO₂e BACT Evaluation for Natural Gas & Diesel Fuel Sources

1. Identify All Control Technologies

The other combustion sources at the facility include the fire pump, two emergency generators, a railcar steam generator, and 19 air makeup units. These sources produce relatively insignificant total potential emissions (less than 450 TPY CO₂e). Rather than address the individual components, the total CO₂e amount was considered due to the relatively small methane and nitrous oxide emissions. The following table summarizes the potential CO₂e control strategies of natural gas and diesel fuel combustion sources.

Pollutant	Control Technologies
CO ₂ e	Carbon Capture and Sequestration (CCS)
	Good Combustion/Operating Practices

2. Eliminate Technically Infeasible Control Options

For the purposes of a BACT analysis for GHGs, EPA classifies CCS as an add-on pollution control technology that is available for facilities emitting CO₂ in large amounts, including fossil fuel-fired power plants, and for industrial facilities with high-purity CO₂ streams. However, according to the “PSD and Title V Permitting Guidance for Greenhouse Gases (March 2011)”, EPA acknowledges that at this time, CCS is not technically feasible in certain cases. CCS is composed of three main components: CO₂ capture and/or compression, transport, and storage. CCS may be eliminated from a BACT analysis if the three components working together are deemed technically infeasible, taking into account site specific considerations such as access to an existing pipeline, access to suitable geologic reservoirs for sequestration, or other storage options. In addition, a permitting authority may make a determination to dismiss CCS for a small natural gas-fired package boiler on grounds that no reasonable opportunity exists for the capture and long-term storage or reuse of captured CO₂. In HEW’s case, these sources are small natural gas fired or diesel fired sources and there are no infrastructure currently exists for capturing and sequestering CO_{2e} at the facility. Therefore, CCS is considered technically infeasible.

The facility operates the natural gas and diesel-fired sources as efficiently as possible in order to minimize fuel costs while maximizing utilization. Therefore, good combustion/operating practice is a technically feasible control option.

3. Rank Remaining Control Options by Effectiveness

Good combustion/operating practice is the only remaining option.

4. Top-Down Evaluation of Control Options

It is in the best interest of the facility to operate the natural gas and diesel-fired sources as efficiently as possible in order to reduce the amount of fuel required to meet the process heat requirements of the facility. No adverse energy, environmental, or economic impacts are associated with good combustion/operating practices.

5. Select CO_{2e} BACT for Natural Gas and Diesel-Fired Sources

Based on the above analysis, HEW had determined BACT for the natural gas and diesel-fired sources to be good combustion/operating practices. HEW proposes a combined emission limit of 450 TPY for these sources.

CO₂ BACT Evaluation for the Press Biofilter

1. Identify All Control Technologies

Emissions of VOC from the press are controlled by a biofilter. The microbial decomposition of VOC in a biofilter produces CO₂ emissions that will vary from species to species as well as from

carbon source to carbon source. HEW estimated CO₂ emissions based on the conservative assumption that 100% VOC is converted to CO₂ emissions and resulted in a small amount of 306 TPY. The following table summarizes the potential CO₂e control strategies.

Pollutant	Control Technologies
CO ₂ e	Carbon Capture and Sequestration (CCS)
	Good Combustion/Operating Practices

2. Eliminate Technically Infeasible Control Options

As analyzed previously, this is a small CO₂ source and there are no infrastructure currently exists for capturing and sequestering CO₂e at the facility. Therefore, CCS is considered technically infeasible.

The primary purpose of the biofilter is to control VOC from the press by converting them to CO₂, thus, good operating practices for the biofilter actually results in increased CO₂ emissions, and is not a technically feasible control option.

The facility operates the natural gas and diesel-fired sources as efficiently as possible in order to minimize fuel costs while maximizing utilization. Therefore, good combustion/operating practice is a technically feasible control option.

3. Select CO₂e BACT for Natural Gas and Diesel-Fired Sources

Based on the above analysis, HEW had determined no BACT control options are currently available for the biofilter. As such, HEW proposes operating the biofilter in accordance with the manufacturer’s guidance to reduce VOC emissions from the press. HEW proposes no limit for CO₂ emissions from the biofilter because a limit would work against the primary purpose of the biofilter, to control VOC emissions.

SECTION VII. AIR QUALITY IMPACTS

For an area which will be affected by emissions from a new major source, an analysis of the air quality impact is required for those pollutants which will be emitted in significant quantities; in this case NO_x, CO, PM₁₀, PM_{2.5}, SO₂, and VOC. The owner or operator must demonstrate that the new source will not cause nor contribute to a violation of the National Ambient Air Quality Standards (NAAQS).

Ozone Monitoring

Pre-construction monitoring for ozone is required for any new source or modified existing source located in an unclassified or attainment area with greater than 100 tons per year of VOC emissions. Continuous ozone monitoring data must be used to establish existing air quality concentrations in the vicinity of the proposed source or modification.

In accordance with the “Ambient Monitoring Guidelines for Prevention of Significant Deterioration”, EPA-450/4-87-007, existing monitoring data can be used to meet this requirement. The existing monitoring data should be representative of three types of areas: (1) the location(s) of maximum concentration increase from the proposed source or modification, (2) the location(s) of the maximum air pollutant concentration from existing sources, and (3) the location(s) of the maximum impact area, i.e., where the maximum pollutant concentration would hypothetically occur based on the combined effect of existing sources and the proposed new source or modification.

The locations and size of the three types of areas are determined through the application of air quality models. The areas of maximum concentration or maximum combined impact vary in size and are influenced by factors such as the size and relative distribution of ground level and elevated sources, the averaging times of concern, and the distances between impact areas and contributing sources. In situations where there is no existing monitor in the modeled areas, monitors located outside these three types of areas may be used. Each determination must be made on a case-by-case basis. The EPA guidance on this issue is not designed for the evaluation of a secondary pollutant like ozone and the guidance document clearly discusses the evaluation of the impact of primary pollutants. Demonstrations that existing monitoring data for ozone is representative of the three areas listed above can generally be made, but in this instance the issue is complicated by the terrain in southeast Oklahoma, the transport of pollution from northeast Texas, and the lack of any recent ozone monitoring data within 50-km of the Huber facility. The four nearest monitors surrounding the area were evaluated to provide representative preconstruction data.

Monitor	Distance	2008 4th High	2009 4th High	2010 4th High	Average
AQS Site No.	km	ppm	ppm	ppm	ppm
40-121-0415	140 NW	0.068	0.067	0.067	0.067
05-113-0003	75 NE	0.073	0.069	0.069	0.070
48-203-0002	165 SE	0.069	0.069	0.068	0.068
48-231-1006	160 SW	0.064	0.067	0.063	0.064

Of the four monitors evaluated the Arkansas monitor (AQS 05-113-0003) has the highest design value. The monitor is located on high terrain for the area and is intended to capture ozone transport. Use of the Arkansas data should yield a conservative estimate for the regional average of the Broken Bow area and satisfy the need for preconstruction monitoring data.

Ozone Modeling

As modeled, the potential increase in emissions of NO_x from the project is approximately 950 TPY and potential increase in emissions of VOC is 1072 TPY. OAC 252:100-8-35 requires an air quality impact evaluation for each regulated pollutant for which a major modification would result in a significant net emissions increase. No de minimis air quality level is provided for ozone. However, any net increase of 100 tons per year or more of volatile organic compounds subject to PSD is required to perform an ambient impact analysis. Methods for evaluating single source impacts on ozone concentrations are not consistent, due to the lack of availability of data

at a refined level, readily available tools and EPA guidance. DEQ has evaluated the impact of the proposed modification to the Huber facility using an existing air quality database generated for a SIP evaluation and the CAMx photochemical modeling system.

Oklahoma entered into Early Action Compact (EAC) agreements with EPA for the Tulsa and Oklahoma City metropolitan areas. Photochemical modeling evaluations were prepared in support of the agreements. These evaluations were conducted in accordance with EPA guidance and underwent an extensive public comment process and EPA review. The modeling was based on a two week episode beginning in Mid-August of 1999 and extending through the first week of September 1999. This episode was chosen both by virtue of being a prolonged period of high ozone concentrations and a reflection of the most common meteorological conditions that spawn high concentrations for Tulsa and Oklahoma City.

Modeling for Huber was conducted using the EAC 2007 control case. Emissions to be modeled were calculated by adding the future potential increases identified in the application to the 2007 grown emissions. VOC emissions were further speciated by Source Classification Code, SCC, using speciation tables generated by EPA and SCCs for Huber processes.

Maximum impacts from the proposed increases occur in McCurtain, Choctaw, and Pushmataha Counties. Maximum 8-hour increases of as much as 3.1 ppb were predicted for the three counties. This impact is due to NO_x emissions and not VOC. NO_x generally reacts more rapidly than VOC in air masses. NO_x is removed preferentially and in rural areas (VOC dominated) downwind of large NO_x sources a localized increase in ozone concentrations should be expected. Maximum downwind impacts in adjoining counties were less than 2.5 ppb dropping off to less than 1ppb over a very short distance. Maximum downwind impacts in Tulsa and Oklahoma City were negligible.

Modeling for NO_x, CO, SO₂, PM₁₀, and PM_{2.5}

For NO_x, CO, SO₂, PM₁₀, and PM_{2.5}, the latest EPA AERMOD PRIME (version 07026) dispersion model was used to predict the maximum concentrations for the project emission sources. The -AERMOD model was used for both short-term (1-hour, 3-hour, and 24-hour) and long-term (annual) averaging periods.

General Model Input Information

The facility is located at Broken Bow, Oklahoma. The area in the immediate vicinity of the facility is largely undeveloped. Although a number of small commercial/industrial type sources are located within 3-kilometers of the site, a large percentage of the area is commercially undeveloped and rural in character.

The following model options were used in the application of the AERMOD model:

1. Regulatory default option was enabled.
2. Calm processing option was enabled.
3. Rural mode was used.

4. Elevated terrain was used for modeling the area around the facility. The terrain elevation was determined to be greater than the site base elevation for various locations within the modeled area.
5. The emission sources were modeled at their actual stack heights. None of these stack heights exceeded the calculated GEP level or 65 meters, whichever is greater.
6. The anemometer height parameter was set to the Shreveport, Louisiana meteorological station height of 10 meters.
7. In order to account for building wake effects, direction-specific building dimensions used as input to the model are calculated using the algorithms of the U.S. EPA-sanctioned Building Profile Input Program (BPIP).

The receptor grids consist of:

1. A coarse grid containing 1,000-meter spaced receptors, extending approximately 10 km from the fence line, exclusive of the medium grid.
2. A medium grid containing 500-meter spaced receptors, extending approximately 5.0 km from the fence line, exclusive of the fine grid.
3. A fine grid containing 100-meter spaced receptors, extending approximately 1.0 km from the fence line, exclusive of the fence line grid.
4. A fence line grid containing 50-meter spaced receptors directly along the property boundaries.

Five years of meteorological data set (2001 – 2005) for Broken Bow (provided by Oklahoma Mesonet) were used in this modeling analysis, with ISH data from Texarkana, Arkansas (KTXK) and upper air meteorological data from Shreveport, Louisiana (SHV).

Significance Analysis

A significant analysis was conducted to determine if NO₂, CO, SO₂, PM₁₀, and PM_{2.5} exceeded their respective MSLs, and if so, to establish a radius of impact (ROI) for them. EPA requires that a full impact analysis be conducted if the project emissions result in maximum predicted concentrations exceeding the MSLs. HEW modeled the potential emissions from the entire mill in this analysis. The following table lists the results. A significant analysis was not performed for the new 1-hr NO₂ standard, because the modeled concentrations from the mill far exceed the DEQ-approved modeling significance level of 2 µg/m³.

Significance Analysis Results

	NO₂ Annual	CO 8-Hr	CO 1-Hr	SO₂ Annual	SO₂ 24-Hr	SO₂ 3-Hr	PM₁₀ 24-Hr	PM_{2.5} Annual	PM_{2.5} 24-Hr
	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
Modeled Maximum	4.84	52.55	183.27	0.49	3.34	14.56	27.60	3.9	14.3
Class II MSL	1	500	2,000	1	5	25	5	0.3	1.2
Monitoring De Minimis	14	575	-	-	13	-	10		
Full Impact Analysis Required?	Yes	No	No	No	No	No	Yes	Yes	Yes

This analysis indicates that concentrations of NO₂ exceed the annual averaging MSL, PM₁₀ exceeded the 24-hour averaging MSL, and PM_{2.5} exceeded both the annual and 24-hour averaging MSL. Therefore, a full impact NAAQS analysis was performed for each of the three pollutants at each receptor with MSL exceedences. A PSD increment analysis was also performed for NO₂ and PM₁₀. A PM_{2.5} PSD increment analysis is not triggered because there has not been a PSD permit application submitted in McCurtain County, Oklahoma to trigger the baseline date for PM_{2.5}.

Full Impact Analysis

NAAQS Analysis

The proposed NO_x, PM₁₀, and PM_{2.5} emissions from the Mill are modeled simultaneously with the NO_x, PM₁₀, and PM_{2.5} emissions from the NAAQS sources identified in the inventory provided by the DEQ. The eighth highest high of 1-hour NO₂, the highest annual average NO₂, the sixth highest high 24-hour PM₁₀ concentrations, the highest first high five-year average of 24-hr PM_{2.5}, and the highest first high annual average of PM_{2.5} to compare against NAAQS. The results are listed in the following table and the analysis shows that the proposed project NO₂, PM₁₀, and PM_{2.5} emissions will not cause or contribute to a violation of the NAAQS. Startup, shutdown, and maintenance emissions from dryer abort stacks were included in the modeling.

A Full Impact Analysis was performed to demonstrate compliance with the 1-hour SO₂ NAAQS. Emissions from Pan Pacific's Broken Bow Mill are based on data provided by DEQ. To complete the NAAQS Analysis, the proposed SO₂ emissions from the Mill are modeled simultaneously with the SO₂ emissions from the NAAQS sources identified in the inventory provided by the DEQ. The highest fourth high modeled SO₂ 1-hour concentration averaged over the 5 year period modeled was compared to the 1-hour NAAQS standard of 196 µg/m₃, as listed in the following table, demonstrating compliance with the new standard. Therefore, this analysis shows that the proposed project SO₂ emissions will not cause or contribute to a violation of the NAAQS.

NAAQS Analysis Results

	NO ₂		PM ₁₀	SO ₂	PM _{2.5}	
	1-Hour	Annual	24-Hour	1-Hour	24-hr	Annual
	µg/m ³					
Maximum Modeled Results	75.1	4.94	25.02	44.40	14.40	4.30
Background Concentration	46.5	7.65	53.00	33.80	20.4	10.5
Total Concentration	121.6	12.59	78.02	78.20	34.8	14.8
NAAQS	188	100	150	196	35	15
Violation?	No	No	No	No	No	No

PSD Increment Analysis

The PSD increment is the maximum increase in concentration that is allowed to occur above a baseline concentration for a pollutant. The baseline concentration is defined (for each pollutant and averaging time) as the ambient concentration that existed at the time the first PSD application affecting an area was submitted. The major source baseline date for annual NO_x is February 8, 1988 and for PM₁₀ is January 6, 1975. The sources that contributed to emissions increases after the baseline date were obtained from the DEQ. The following table lists the PSD increment analysis results. No increment analysis occurred for NO₂ 1-hour standard and SO₂ 1-hour standard, because there are currently no NO₂ 1-hour and SO₂ 1-hour increments.

PSD Increment Analysis Result

	NO ₂ Annual	PM ₁₀ 24-Hour
	µg/m ³	µg/m ³
Maximum Modeled Results	4.90	27.12
Class II PSD Increment	25	30
Exceed Increment?	No	No

Class I Area Analysis

PSD regulations require a Class I area analysis be conducted for all proposed sources with potential for air quality impacts on a Class I area. Class I areas are federally protected areas for which more stringent air quality standards apply to protect unique natural, cultural, recreational, and/or historic values.

The four Class I areas nearest to the Broken Bow Mill are:

1. Caney Creek Wilderness in Western-central Arkansas, located approximately 69 km east of the mill.
2. Hercules-Glades Wilderness in southwestern Missouri, located approximately 231 km northeast of the Mill,
3. Wichita Mountains National Wildlife Refuge in southwestern Oklahoma, located approximately 366 km west of the Mill.
4. Upper Buffalo Wilderness Area in north-central Arkansas, located approximately 231 kilometers northeast of the Mill.

Two principal air quality impact evaluations are typically considered for Class I areas: PSD Increments and AQRV. A PSD Class I Increment significance analysis was performed for the project emission increases of PM₁₀, SO₂, and NO₂. A visibility analysis was conducted including increases in all visibility impairing pollutants. Since the proposed project triggers PSD review for NO₂ and SO₂, a nitrogen and sulfur deposition analysis was also conducted as part of this assessment.

The Class I Increment, visibility, and deposition analyses were conducted according to the following comments provided by FS:

- ▲ Class I modeling can be performed for Caney Creek Wilderness only; Upper Buffalo Wilderness Area may be omitted from modeling provided the results for Caney Creek prove no significant impact.
- ▲ Utilize CALMET observational data from Hugo Unit 2 CALPUFF modeling.
- ▲ If an alternative modeling approach is used for visibility, Method 8 should be used and provided as a supplement to Method 2 calculations.
- ▲ CALMET and CALPUFF files should set the regulatory default switch to MREG = 1.

The CALPUFF modeling system is currently the recommended model for assessment of long-range pollutant transport and chemical transformation, i.e., for areas that are greater than 50 km away from a source. Since the Mill is more than 50 km away from the Class I area of interest, the Class I PSD Increment, visibility, and deposition analyses for this area were conducted with the CALPUFF modeling system.

For the Class I increment significance analysis, the modeled ground-level concentrations are compared to the PM₁₀, SO₂, and NO₂ significant impact levels (SILs) to determine if any modeled ground-level concentrations at any receptor location exceeds the SIL. As shown in the following table, PM₁₀, SO₂, and NO₂ values for the Caney Creek Wilderness does not exceed their respective SILs. Therefore, no further review is required for Caney Creek.

CLASS I SIGNIFICANCE ANALYSIS RESULTS

Parameter	Significance Level (µg/m ³)	Year		
		2001	2002	2003
PM ₁₀ - 24-hour	0.3	0.231	0.172	0.213
PM ₁₀ - Annual	0.2	0.008	0.006	0.009
SO ₂ - 3-hour	1.0	0.137	0.173	0.179
SO ₂ - 24-hour	0.2	0.035	0.032	0.044
SO ₂ - Annual	0.1	0.001	0.001	0.002
NO ₂ - Annual	0.1	0.015	0.011	0.019

As previously discussed, the Class I area visibility analysis was performed in accordance with the methodology prescribed in the FLAG 2010 guidance. For this project, Method 8 was used to estimate background light extinction. Visibility modeling results are presented at 98th percentile

levels consistent with FLAG 2010 guidance. The model-predicted values for the 2001, 2002, and 2003 model years are presented in the following table for the Caney Creek Wilderness Class I area.

MODEL-PREDICTED EXTINCTION CHANGE

Class I Area	Parameter	Year		
		2001	2002	2003
Caney Creek Wilderness	8th High (%)	2.77	2.55	3.20
	No. Days > 5%	2	1	1

As shown above, potential impacts from the Mill do not exceed the 5% threshold for the 98th percentile of each year modeled. Therefore, the proposed project will not have an adverse effect on the visibility at the Class I area considered in this analysis.

The deposition of nitrogen and sulfur species was calculated at the Caney Creek Wilderness Class I area. The maximum deposition for both nitrogen and sulfur is shown in the following table and is compared with the DAT value of 0.01 kg/ha/yr (http://www.fs.fed.us/air/technical/class_1/wilds.php?recordID=10, U.S. Department of Agriculture – Forest Service, Caney Creek Wilderness),

The CALPUFF-predicted deposition is well less than the DAT for both sulfur and nitrogen deposition at Caney Creek Wilderness. Thus, there will be no significant impact of nitrogen and sulfur deposition for the Caney Creek Wilderness Class I area.

NITROGEN AND SULFUR DEPOSITION

Class I Area	Parameter	Year		
		2001	2002	2003
Caney Creek Wilderness	Nitrogen (kg/ha/yr)	0.0061	0.0040	0.0072
	Sulfur (kg/ha/yr)	0.0011	0.0008	0.0012

SECTION VIII. OKLAHOMA AIR POLLUTION CONTROL RULES

OAC 252:100-1 (General Provisions) [Applicable]
 Subchapter 1 includes definitions but there are no regulatory requirements.

OAC 252:100-2 (Incorporation by Reference) [Applicable]
 Subchapter 2 incorporates by reference applicable provisions of Title 40 of the Code of Federal Regulations as they existed on September 1, 2006 and in accordance with OAC 252:100 Appendix Q. NSPS and NESHAP will be addressed in the “Federal Regulations” section.

OAC 252:100-3 (Air Quality Standards and Increments) [Applicable]
Primary Standards are in Appendix E and Secondary Standards are in Appendix F of the Air Pollution Control Rules. At this time, all of Oklahoma is in attainment of these standards.

OAC 252:100-5 (Registration, Emissions Inventory and Annual Operating Fees) [Applicable]
Subchapter 5 requires sources of air contaminants to register with Air Quality, file emission inventories annually, and pay annual operating fees based upon total annual emissions of regulated pollutants.

OAC 252:100-8 (Permits for Part 70 Sources) [Applicable]
Part 5 includes the general administrative requirements for Part 70 permits. Any planned changes in the operation of the facility which result in emissions not authorized in the permit and which exceed the “Insignificant Activities” or “Trivial Activities” thresholds require prior notification to AQD and may require a permit modification. Insignificant activities mean individual emission units that either are on the list in Appendix I (OAC 252:100) or whose actual calendar year emissions do not exceed the following limits:

- 5 TPY of any one criteria pollutant
- 2 TPY of any one hazardous air pollutant (HAP) or 5 TPY of multiple HAPs or 20% of any threshold less than 10 TPY for a HAP that the EPA may establish by rule

The applicant has fulfilled all applicable requirements relative to the construction permit application provisions. Subchapter 8-4(b)(5) requires facilities subject to requirements to submit a major source operating permit application within 180 days of commencement of operation. An application for Title V Permit Number 2003-099-TV is under review at DEQ. An update of the Title V permit will be submitted to DEQ within 180 days after this permit is issued.

OAC 252:100-9 (Excess Emission Reporting Requirements) [Applicable]
Except as provided in OAC 252:100-9-7(a)(1), the owner or operator of a source of excess emissions shall notify the Director as soon as possible but no later than 4:30 p.m. the following working day of the first occurrence of excess emissions in each excess emission event. No later than thirty (30) calendar days after the start of any excess emission event, the owner or operator of an air contaminant source from which excess emissions have occurred shall submit a report for each excess emission event describing the extent of the event and the actions taken by the owner or operator of the facility in response to this event. Request for affirmative defense, as described in OAC 252:100-9-8, shall be included in the excess emission event report. Additional reporting may be required in the case of ongoing emission events and in the case of excess emissions reporting required by 40 CFR Parts 60, 61, or 63.

OAC 252:100-13 (Prohibition of Open Burning) [Applicable]
Open burning of refuse and other combustible material is prohibited except as authorized in the specific examples and under the conditions listed in this subchapter.

OAC 252:100-17 (Incinerators) [Not Applicable]
The heat sources (EU-HS1 and EU-HS2) could potentially subject to the requirements of OAC 252-100-17, Part 11, Other Solid Waste Incineration Units (OSWI). However, EPA proposed

“Identification of Non-Hazardous Secondary Materials That Are Solid Waste” on June 4, 2010 to determine which non-hazardous secondary materials that are used as fuels or ingredients in combustion units are solid wastes under the Resource Conservation and Recovery Act (RCRA). The meaning of “solid waste” as defined under RCRA is of particular importance since it will determine whether a combustion unit is required to meet emissions standards for solid waste incineration units issued under section 129 of the Clean Air Act (CAA) or emissions standards for commercial, industrial, and institutional boilers issued under CAA section 112. In this rule, EPA proposed that legitimate fuel or ingredient products that result from the processing of discarded non-hazardous secondary materials are not solid wastes. Therefore, the heat sources are not solid waste incineration unit and are not subject to this subchapter.

OAC 252:100-19 (Particulate Matter) [Applicable]

This subchapter limits emissions of particulate matter from processes other than fuel-burning equipment based on their process weight rate (Appendix G).

If the Process Rate Weight (P) is less than or equal to 30 tons/hour:

$$E_{\text{Allow lbs/hr}} = 4.10 (P)^{0.67}$$

If the Process Weight Rate (P) is greater than 30 tons/hour:

$$E_{\text{Allow lbs./hr}} = 55 (P)^{0.11} - 40$$

The allowable emissions, calculated in the following table for process units, are based on the above two formulas. No specific periodic monitoring, other than recordkeeping on the total process throughput is required to demonstrate compliance with this subchapter for the facility.

COMPLIANCE WITH SUBCHAPTER 19

Emission Point	Total Process Weight Rate Related To Emission Point TPH	Allowable PM Emissions Per Subchap. 19-12 lb/hr	Permitted Total PM₁₀ Emissions, lb/hr
EP-RTO1 (RTO)	80.0	49.06	18.70
EP-BF1 (Biofilter)	57.4	45.87	13.40
EP-FF2 (Screening)	70.5	47.83	1.46
EP-FF3 (Forming)	70.5	47.83	2.68
EP-FF4 (Saws)	57.4	45.87	2.38
EP-FF5 (Sander)	51.7	44.89	2.57
EP-FF6 (Fuel)	70.5	47.83	0.43

The allowable emissions for the indirect fired combustion units (subject to OAC 252:100-19-4) are determined by OAC 252:100, Appendix C. Emissions are computed based on estimated maximum particulate matter emissions.

Emission Point	Max Heat Rating MMBtu/Hr	Allowable PM Emissions Per Subchapter 19.4, lb/ MMBTU	Estimated PM Emissions, lb/MMBTU
EP-EG1 (Em Gen 1)	6.3	0.6	0.32 (diesel)
EP-EG2 (Em Gen 2)	6.3	0.6	0.32 (diesel)
EP-FP1 (Fire Pump 1)	1.5	0.6	0.33 (diesel)
EP-AMU1-18 (Air Make Up Units(18))	24.7, individual 1.5	0.6	0.006

OAC 252:100-25 (Visible Emissions and Particulates) [Applicable]
 No discharge of greater than 20% opacity is allowed except for short-term occurrences which consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case shall the average of any six-minute period exceed 60% opacity. The facility will conduct observations for visible emissions from stacks and egress points on an annual basis to demonstrate compliance with this requirement.

OAC 252:100-29 (Fugitive Dust) [Applicable]
 Subchapter 29 prohibits the handling, transportation, or disposition of any substance likely to become airborne or windborne without taking “reasonable precautions” to minimize emissions of fugitive dust. No person shall cause or permit the discharge of any visible fugitive dust emissions beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or to interfere with the maintenance of air quality standards. Most of the materials handled are wood and wood waste, therefore non-brittle and not very susceptible to becoming fugitive dust. The facility will use best management practices to minimize particulate emissions from industrial activities and roads, in and around the plant site.

OAC 252:100-31 (Sulfur Compounds) [Applicable]
Part 5 limits sulfur dioxide emissions from new equipment (constructed after July 1, 1972). This subchapter specifies an SO₂ emission limitation of 1.2 lb/MMBTU for solid fuel, 0.80 lb/MMBTU for liquid fuel, and 0.20 lb/MMBTU for gaseous fuel. The two heat sources (EU-HS1 and EU-HS2) are rated 150 MMBTU/H each and burn residual wood waste. Only small amounts of kerosene are used to light the wood fuel on a cold start-up, the heat sources are not equipped to fire liquid or gaseous fuels. Therefore the 1.2 lb/MMBTU limit applies to these two sources. Each heat source emits 0.047 lb/MMBTU SO₂, therefore they are in compliance.

OAC 252:100-33 (Nitrogen Oxides) [Applicable]
 Subchapter 33 sets the following NO_x limits for new fuel-burning equipment with a rated heat input greater than or equal to 50 MMBTUH: 0.2 lb/MMBTU for gas-fired fuel-burning equipment, 0.3 lb/MMBTU for liquid-fired fuel-burning equipment, and 0.7 lb/MMBTU for solid fossil fuel-burning equipment. The two heat sources (EU-HS1 and EU-HS2) are rated 150 MMBTU/H each and burns residual wood waste, therefore, they are subject to this subchapter. Each heat source emits 0.68 lb MMBTU NO_x, therefore, is in compliance.

OAC 252:100-35 (Carbon Monoxide) [Not Applicable]
None of the following affected processes are part of this project: gray iron cupola, blast furnace, basic oxygen furnace, petroleum catalytic cracking unit or catalytic reforming unit.

OAC 252:100-37 (Volatile Organic Compounds) [Applicable]
Part 3 requires new (constructed after December 28, 1974) storage tanks with a capacity between 400 and 40,000 gallons holding an organic liquid with a true vapor pressure greater than 1.5 psia to be operated with a submerged fill pipe or with an organic vapor recovery system. Consistent with OAC 252:100-37-15(b), the permit will require storage tanks that are storing a VOC with vapor pressure greater than 1.5 psia and have a capacity greater than 400 gallons to be equipped with a permanent submerged fill pipe or a vapor recovery system as required in 252:100-37-15(a)(2).

Part 3 requires loading facilities with a throughput equal to or less than 40,000 gallons per day to be equipped with a system for submerged filling of tank trucks or trailers if the capacity of the vehicle is greater than 200 gallons. The facility does not have the physical equipment (loading arm and pump) to conduct this type of loading. Therefore, this requirement is not applicable.

Part 5 limits the VOC content of paints and coatings. Consistent with OAC 252-37-25, any coating line or coating operation (that emits more than 100 pounds per 24 hour day) with VOC emissions shall use coatings that comply with the following amounts listed below. (Limits are expressed in pounds VOC per gallon coating, excluding the volume of any water and exempt organic compounds).

- 1) Alkyd primer – 4.8
- 2) Vinyls – 6.0
- 3) NC lacquers – 6.4
- 4) Acrylics – 6.0
- 5) Epoxies – 4.8
- 6) Maintenance finishes – 4.8
- 7) Custom product finishes – 6.5

The branding operations involve application of ink marking to the product (OSB). The marking applied to the product cannot be classified as one of the seven VOC coating operations listed above, therefore, the VOC limits associated with this regulation are not applicable to the branding operations. The paint booths other than branding at the facility utilize water-based coatings that have minimal or no VOC contained in the coating.

Part 7 requires all effluent water separators, openings or floating roofs to be sealed or equipped with an organic vapor recovery system. Consistent with OAC 252:100-37-37, the Huber facility will not utilize a single compartment or multiple compartment VOC/water separator that receives effluent water containing 200 gallons per day or more of VOC (with vapor pressure greater than 1.5 psia) from any equipment processing, refining, treating, storing, or handling VOCs.

Part 7 also requires fuel-burning and refuse burning equipment to be operated and maintained to minimize emissions. Temperature and available air must be sufficient to provide essentially complete combustion. The Huber facility utilizes fuel-burning and refuse-burning equipment that will handle a VOC with vapor pressure greater than 1.5 psia. The fuel-burning equipment will be operated to minimize emissions of VOC, consistent with OAC 252:100-37-36. The RTO will control VOC emissions from the Heat Sources and Dryers and the Biofilter will control VOC emissions from the Press.

OAC 252:100-42 (Toxic Air Contaminants (TAC)) [Not Applicable]
 This Subchapter regulates toxic air contaminants (TAC) that are emitted into the ambient air in areas of concern (AOC). Any work practice, material substitution, or control equipment required by the Department prior to June 11, 2004, to control a TAC, shall be retained unless a modification is approved by the Director. Since no AOC has been designated anywhere in the state, there are no specific requirements for this facility at this time.

OAC 252:100-43 (Testing, Monitoring, and Recordkeeping) [Applicable]
 This subchapter provides general requirements for testing, monitoring and recordkeeping and applies to any testing, monitoring or recordkeeping activity conducted at any stationary source. To determine compliance with emissions limitations or standards, the Air Quality Director may require the owner or operator of any source in the state of Oklahoma to install, maintain and operate monitoring equipment or to conduct tests, including stack tests, of the air contaminant source. All required testing must be conducted by methods approved by the Air Quality Director and under the direction of qualified personnel. A notice-of-intent to test and a testing protocol shall be submitted to Air Quality at least 30 days prior to any EPA Reference Method stack tests. Emissions and other data required to demonstrate compliance with any federal or state emission limit or standard, or any requirement set forth in a valid permit shall be recorded, maintained, and submitted as required by this subchapter, an applicable rule, or permit requirement. Data from any required testing or monitoring not conducted in accordance with the provisions of this subchapter shall be considered invalid. Nothing shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

The following Oklahoma Air Pollution Control Rules are not applicable to this facility:

OAC 252:100-11	Alternative Emissions Reduction	not requested
OAC 252:100-15	Mobile Sources	not in source category
OAC 252:100-17	Incinerators	not type of emission unit
OAC 252:100-23	Cotton Gins	not type of emission unit
OAC 252:100-24	Grain Elevators	not in source category
OAC 252:100-39	Nonattainment Areas	not in area category
OAC 252:100-47	Municipal Solid Waste Landfills	not in source category

SECTION IX. FEDERAL REGULATIONS

PSD, 40 CFR Part 52 [Applicable]
 The total emissions of VOC, NO_x, CO, PM₁₀, and SO₂ exceed the threshold level of 250 TPY of any single regulated pollutant and / or exceed the significant emission rate (SER) increase for this project. Full PSD review has been conducted in previous sections.

NSPS, 40 CFR Part 60 [Db Applicable]
Subpart Db, Industrial-Commercial-Institutional Steam Generating Units. This subpart affects each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating

units of greater than 100 MMBTUH. The two heat sources are subject to this subpart and shall comply with all applicable requirements.

§60.42b(d)(1) sets the SO₂ standard as 0.5 lb/MMBTU for affected facilities that have an annual capacity factor for coal and oil of 30 percent or less and are subject to a federally enforceable permit limiting the operation of the affected facility to an annual capacity factor for coal and oil of 30% or less. Percent reduction requirements are not applicable. The permit will limit the facility's annual capacity factor for oil to 30% or less, thus the facility will not be subject to the NO_x standard.

§60.45b(j) and §60.47b(f) exempt facilities that combust very low sulfur oil from testing and monitoring requirements if the owner or operator obtains fuel receipts as described in §60.49b(r). §60.49b(r) requires that the owner operator of an affected facility who elects to demonstrate that the affected facility combusts only very low sulfur oil under §60.42b(j)(2) shall obtain and maintain at the affected facility fuel receipts from the fuel supplier which certify that the oil meets the definition of distillate oil as defined in §60.41b. For the purposes of this section, the oil need not meet the fuel nitrogen content specification in the definition of distillate oil. Reports shall be submitted to the Administrator certifying that only very low sulfur oil meeting this definition was combusted in the affected facility during the preceding reporting period.

§60.43b(c)(1) sets the PM standard as 0.1 lb/MMBTU for affected facilities that combust wood, or wood with other fuels, except coal, and have an annual capacity factor greater than 30% for wood.

§60.43b(f) sets the opacity limit to 20% for an affected facility that combusts coal, oil, wood, or mixtures of these fuels with any other fuels.

§60.43b(g) provides that particulate matter and opacity limits apply at all times, except during periods of startup, shutdown or malfunction.

§60.44b(d) sets the NO_x standard to 0.3 lb/MMBTU for an affected facility that simultaneously combusts natural gas with wood, municipal-type solid waste, or other solid fuel, except coal, unless the affected facility has an annual capacity factor for natural gas of 10 percent or less and is subject to a federally enforceable requirement that limits operation of the affected facility to an annual capacity factor of 10 percent or less for natural gas. The permit will limit the facility's annual capacity factor for natural gas to 10% or less, thus the facility will not be subject to the NO_x standard.

§60.44b(l) does not apply as the permit will limit the facility's annual capacity factor for natural gas and oil to 10% or less per §60.44b(l)(1).

§60.48b(a) requires that the owner or operator of an affected facility subject to the opacity standard under §60.43b shall install, calibrate, maintain, and operate a continuous monitoring system for measuring the opacity of emissions discharged to the atmosphere and record the output of the system.

Subpart Kb, Volatile Organic Liquids Storage Vessels. This subpart applies to volatile organic liquids storage vessels for which construction, reconstruction, or modification commenced after July 23, 1984, and which have a capacity of 19,812 gallons (75 cubic meters) or greater. Tanks EU-RES1TK, EU-RES2TK, EU-RES3TK, EU-RES4TK, EU-RES5TK, EU-RES6TK, EU-WAX1TK, EU-WAX2TK, EU-WAX3TK, EU-RA1TK, EU-RA2TK, EU-RESCAT1TK, and EU-RAR1TK exceed the 19,812 gallons capacity. Paragraph 60.110b(b) specifies that this subpart does not apply to vessels with a design capacity greater than 75 m³ (19,812 gallons) but less than 151 m³ (39,980 gallons) containing a VOL that, as stored, has a maximum true vapor pressure less than 15.0 kPa (2.2 psi). None of these vessels store a material with a vapor

pressure greater than 15.0 kPa. Therefore, this subpart does not apply.

Subpart IIII, Stationary Compression Ignition Internal Combustion Engines. This subpart applies to certain Compression Ignition (CI or Diesel) Engines constructed (ordered) or modified after July 11, 2005. The three diesel engines at the facility were all constructed in 2003 and have not been modified. Therefore, they are not subject.

NESHAP, 40 CFR Part 61

[Not Applicable]

There will be no sources at the facility subject to any of the requirements of 40 CFR 61, National Emission Standards for HAPs (NESHAPs).

NESHAP, 40 CFR Part 63

[Subparts DDDD & ZZZZ Applicable]

Subpart DDDD, Plywood and Composite Wood Products (PCWP), was promulgated on July 30, 2004, with amendments promulgated on February 16, 2006. This rule applies to OSB manufacturing and associated operations. The affected source, as defined by the rule, is the collection of dryers, blenders, formers, presses, board coolers, and other process units associated with the manufacturing of plywood and composite wood products at a plant site. The affected source includes, but is not limited to green end operations, drying operations, blending and forming operations, pressing and board cooling operations, miscellaneous finishing operations (such as sanding, sawing, patching, edge sealing and other finishing operations not subject to other NESHAP), raw material storage, onsite wastewater treatment operations specifically associated with PCWP manufacturing, miscellaneous coating operations, and lumber kilns. Compliance options based on production, add-on control, and emission-averaging are described in the MACT. The initial compliance date was October 1, 2007, and then postponed to October 1, 2008 (Federal Register, February 16, 2006). However, for facilities that obtained a final and legally effective case-by-case MACT determination prior to the promulgation date of such emission standard, §63.44(b)(1) stated that “ the owner or operator shall comply with the promulgated standard as expeditiously as practicable, but not longer than 8 years after such standard is promulgated.” In this case, Huber will comply with Subpart DDDD requirements as expeditiously as possible but in no case later than July 30, 2012 per §63.44(b)(1).

Subpart ZZZZ, Reciprocating Internal Combustion Engines (RICE). This subpart previously affected only SI RICE with a site-rating greater than 500 brake horsepower that are located at a major source of HAP emissions. On March 3, 2010, EPA published new final rules in the Federal Register for existing CI RICE (diesel engines). The two emergency generators and the fire pump engine are subject to this subpart. However, EG1 and EG2 are greater than 500-hp and an emergency stationary RICE greater than 500-hp located at a major HAP source does not need to comply with the emission limitations in Tables 1a, 2a, 2c, and 2d to this subpart or operating limitations in Tables 1b and 2b to this subpart. For FP1, an emergency stationary RICE less than 500-hp located at a major HAP source shall meet the following requirement by May 3, 2013:

	You must meet the following requirement, except during periods of startup	During periods of startup you must
Emergency stationary CI RICE and black start stationary CI RICE	a. Change oil and filter every 500 hours of operation or annually, whichever comes first; ² b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.

- All existing emergency rice must have non-resettable hour meter and can operate up to 100 hr/yr for maintenance checks. No performance testing is required for these engines.
- Any existing emergency CI must maintain and operate engine and control devices (if any) per manufacturer’s written instructions; no performance testing is required for these engines.

Subpart DDDDD, Industrial, Commercial, and Institutional Boilers and Process Heaters. This subpart was proposed on March 21, 2011, and becomes effective on May 20, 2011. This subpart establishes emission limitations and work practice standards for HAP emitted from industrial, commercial, and institutional boilers and process heaters within a fuel subcategory located at major sources of HAP. A boiler or process heater is new or reconstructed if it commenced construction or reconstruction after June 4, 2010. A new or existing boiler or process heater with a heat input capacity of less than 10 MMBTUH or a limited use boiler or process heater must conduct a tune-up of the boiler or process heater biennially as specified in § 63.7540. A new or existing boiler or process heater in the gaseous fuel 1 subcategory with heat input capacity of 10 MMBTUH or greater must conduct a tune-up of the boiler or process heater annually as specified in § 63.7540. Gaseous fuel 1 category includes, but is not limited to, natural gas, process gas, landfill gas, coal derived gas, refinery gas, and biogas. Hot water heaters with a capacity of less than 120-gallons are not subject to this subpart. An existing boiler or process heater located at a major source facility must have a one-time energy assessment performed by a qualified energy assessor. Existing boilers and process heaters must comply with this subpart by May 20, 2014.

All emissions from the combustion unit pass through the dryer before being emitted to the atmosphere. Combustion unit/dryer emissions are controlled by a regenerative thermal oxidizer. In the preamble to the Federal Register (Vol. 69, No. 146 / Friday, July 30, 2004) National Emission Standards for Hazardous Air Pollutants: Plywood and Composite Wood Products, the EPA established that combustion gasses which routinely pass through the dryer are regulated by the PCWP MACT. Emissions subject to the PCWP are exempt from other requirements under this part.

Compliance Assurance Monitoring, 40 CFR Part 64 [Applicable]
Compliance Assurance Monitoring, as published in the Federal Register on October 22, 1997, applies to any pollutant specific emission unit at a major source, which is required to obtain a Title V permit, if it meets all the following criteria:

- It is subject to an emission limit or standard for an applicable regulated air pollutant.
- It uses a control device to achieve compliance with the applicable emission limit or standard.
- It has potential emissions, prior to the control device, of the applicable regulated air pollutant of 100 TPY.

The sources and pollutants that meet these three conditions are as follows:

- Heat sources/Dryers – NO_x, VOC, CO, and PM
- Press – VOC
- Pneumatic conveying systems (five emission points) – PM

HAP is excluded because the major HAP sources must comply with MACT monitoring requirements.

CAM requirements will be addressed in the Title V Operating Permit.

Chemical Accident Prevention Provisions, 40 CFR Part 68 [Not Applicable]
The definition of a stationary source does not apply to transportation, including storage incident to transportation, of any regulated substance or any other extremely hazardous substance under the provisions of this part. The definition of a stationary source also does not include naturally occurring hydrocarbon reservoirs. Naturally occurring hydrocarbon mixtures, prior to entry into a natural gas processing plant or a petroleum refining process unit, including: condensate, crude oil, field gas, and produced water, are exempt for the purpose of determining whether more than a threshold quantity of a regulated substance is present at the stationary source. This facility does not store any regulated substance above the applicable threshold limits. More information on this federal program is available on the web page: www.epa.gov/ceppo.

Stratospheric Ozone Protection, 40 CFR Part 82 [Subpart A and F Applicable]
This facility does not produce, consume, recycle, import, or export any controlled substances or controlled products as defined in this part, nor does this facility perform service on motor (fleet) vehicles which involves ozone-depleting substances. Therefore, as currently operated, this facility is not subject to these requirements. To the extent that the facility has air-conditioning units that apply, the permit requires compliance with Part 82.

SECTION X. COMPLIANCE

Tier Classification and Public Review

This application has been determined to be a **Tier II** based on the request for an updated PSD review for a major facility. The applicant has submitted an affidavit that they are not seeking a permit for land use or for any operation upon land owned by others without their knowledge. The

affidavit certifies that the landowner has been notified. Information on all permit actions is available for review by the public in the Air Quality Section of DEQ Web Page: <http://www.deq.state.ok.us>.

The applicant published a "Notice of Tier II Permit Application Filing" in the *McCurtain Gazette*, a daily newspaper printed in the City of Idabel, McCurtain County on April 8, 2007. The notice stated that the application could be reviewed at the Idabel Public Library, 2 SE D Ave, Idabel OK, 74728 or at the Air Quality Division's main office. The applicant also published a "Notice of Tier II Draft Permit" in the same newspaper on November 19, 2010 for a 30-day period public review. The draft permit was also available on the DEQ Web site <http://www.deq.state.ok.us/>. This facility is located within 50 miles of the border of Texas and Oklahoma and the state of Texas was given notice of the availability of the draft. The draft permit was also sent to EPA for a concurrent review.

Comments were received from the public and a response to those comments from the public is provided below.

Response to Comments from the Public on the Draft Permit

The following comments dated December 18, 2010, were received from Tim Tadlock, Environmental Manager of Pan Pacific Products.

Comment 1: The Draft Permit appears to provide the facility with another 18 months to comply with 40 CFR 63 Subpart DDDD.

- a. HEW is an existing source under the MACT and therefore knew the MACT applied to the facility in 2004. HEW should have been compliant with the MACT as of October 2008. The Draft Permit and its associated memorandum do not provide a rationale for the continued noncompliance with the underlying federal regulation.
- b. Other wood products facilities have been required to meet these standards for more than three years. Huber has been aware of the requirements for more than four years. What does HEW need to do in order to comply with the federal regulation? Why can the facility not comply as of the issuance of the Draft Permit?
- c. Pan Pacific Products initially intended to pursue the Low Risk Determination Risk Assessment compliance option provided in the original Subpart DDDD. Only because of that intent was Pan Pacific able to achieve an extension of the MACT compliance date for the facility. Pan Pacific entered into a Consent Order detailing milestones for achieving compliance and was required by ODEQ to complete the process in two years (October 2010). To Pan Pacific's knowledge, HEW never anticipated using the Low Risk Determination Risk Assessment process for its MACT compliance. If the DEQ continues to believe a further extension is defensible, the rationale for the extension beyond October 2008 should be provided in the Memorandum and the Permit should include milestones for compliance.

Response to Comment 1

HEW was issued a construction permit (Permit No. 2003-099-C) in 2003 prior to promulgation of the final PCWP MACT on July 30, 2004. The construction permit required the facility to comply with case-by-case MACT determination. 40 CFR §63.44(b)(2) addresses situations such as in Huber's case as follows:

If no compliance date has been established in the promulgated 112(d) or 112(h) standard or section 112(j) determination, for those sources which have obtained a final and legally effective MACT determination under this subpart, then the permitting authority shall establish a compliance date in the permit that assures that the owner or operator shall comply with the promulgated standard or determination as expeditiously as practicable, but not longer than 8 years after such standard is promulgated.

The Huber Broken Bow facility construction permit (2003-099-C) contained a Case-by-Case MACT determination (The Determination). ODEQ has evaluated the current control levels against the MACT standards. The Determination required Huber to construct both a press hall and board cooler room designed to meet the definition of a "Wood products enclosure" as contained in 40 CFR Subpart DDDD. Accordingly, Huber maintains a negative pressure on the board cooler room and alternatively a minimum facial velocity through the press hall natural draft openings of 200 feet per minute. Further, The Determination required Huber to control furnace/dryer emissions by use of a regenerative thermal oxidizer and a biofilter to control board cooler/press hall emissions.

The permit required performance testing after plant start up to demonstrate compliance with The Determination. For the furnace and dryers Huber measured reduction in THC concentration at the inlet and outlet of the RTOs using Method 25A. The average percent reduction of THC for three one hour test runs was 95.1 percent. The PCWP MACT requires a minimum percent reduction of 90. The average percent reduction of methanol for three one hour test runs was greater than 93.9 percent. The PCWP MACT requires a minimum percent reduction of 90. Based on Huber demonstrating compliance with the substantial control requirement levels of Subpart DDDD, ODEQ agrees that the 8 year compliance deadline (July 30, 2012) is acceptable. A specific condition has been added to clarify.

Comment 2. The increase in NO_x emissions is concerning. The Permit Memo indicates that modeling completed by HEW suggests increases in ozone of 3 ppb. Ozone ambient air quality standards are currently under review at EPA and are expected to be decreased from the current 0.075 ppb standard. Thus, using the data generated by HEW, the increases could cause the area to become noncompliant. Additional NO_x controls should be required.

Response to Comment 2

The current ozone standard is in units of parts per million (0.075 ppm) and is not, as stated in the comment, 0.075 ppb. By using consistent units between the modeled impact and the standard to ease comparison, the standard could be restated as 75 parts per billion or 75 ppb.

The modeling review indicated a maximum impact of 3.1 ppb. Conservatively assuming these impacts occur in the area of the highest monitored concentration of 70 ppb, the modeling

demonstrates compliance with the current standard of 75 ppb. This is a worst case review. Additionally, modeling indicated that impacts would decline over short distances.

Based on the review conducted, ODEQ agrees with the control determinations.

Comment 3. Particulate matter emissions are also increased in the draft permit. How was the PSD Increment consumption determined?

Response to Comment 3

This was addressed in the permit memorandum modeling section. ODEQ provides increment consuming sources based on appropriate baselines. This information was provided to HEW. The resulting modeling was then reviewed to assure all sources were included and proper modeling procedures were utilized.

Comment 4. How can a biofilter have more than 50 tpy of PM emissions?

Response to Comment 4

The design of the HEW biofilter incorporates a packed media. The media packing is comprised of organic matter consisting mainly of peat. In addition, all biofilter media develops a significant layer of microbial slime which sloughs off. The microbial cell populations die-off and gradual degradation of the organic media occurs over time. This natural process contributes to the total particulate emissions. In addition to the “front half” particulates, a significant fraction of the total particulate matter emissions consists of condensable particulate. The wet electrostatic precipitator which is upstream from the biofilter inlet does not remove this condensable portion of the particulate emissions.

Comment 5. Volatile Organic Compound emissions more than quadruple in this permit. The facility should have obtained a PSD permit prior to beginning construction. Had it done so, the facility could have designed its operations better to allow better control of emissions. The fact that the facility is now built in such a way that further pollutant reductions are problematic is not a reason for the DEQ not to require better controls.

- a. The RTO emission estimate includes outlet emissions of nearly 277 tons per year. This is not reasonable nor appropriate.
- b. The branding operations should be routed to the existing RTO or controlled in another manner. The fact that the current system is undersized should not become a design constraint.

Response to Comment 5

Production and control equipment were designed and manufactured pursuant to the best available information. After construction had occurred and operations were commenced, many previously unknown factors developed or were discovered including: (1) significant seasonal variability in the natural VOC content of the logged trees utilized as raw material, (2) the presence of baghouse VOC emissions, and (3) significant world-wide market variations and limited production capacities that created considerable supply shortages of certain permitted resins.

During facility emission testing HEW discovered unknown peaks to the baghouses and to the RTO in the stack test results. These peaks were identified as various compounds in the terpene family known as pinene. Pinenes are naturally occurring, non-HAP VOC's found in many wood species, particularly southern pine varieties. These high levels of VOC emissions were previously unknown to HEW and the wood industry as a whole. HEW immediately disclosed these unpermitted emissions to the ODEQ and began corrective actions to address the issue. Subsequently, HEW conducted research that indicated VOC content of southern pine can vary significantly by species, time of year, region, and from one forest to another. For this reason, HEW determined that a high variability in pinene concentrations both to the baghouses and at the inlet to the RTOs would require a significant increase in allowable VOC emissions in order to bracket the potential range of uncontrolled and controlled VOC emissions from the facility.

Based on these considerations, the facility was constructed such that best available control technologies were utilized.

In regard to the RTO outlet emissions, ODEQ is only required to assure BACT level control is applied and that the facility demonstrates NAAQS compliance. Stack testing results conducted on RTO emissions demonstrate that the RTO equipment exceeds the required 95% removal efficiency for VOC. Additionally, the facility also meets or exceeds the lb/oven dried ton standardized VOC emissions as demonstrated in the BACT review. TPY emissions are mainly a product of annual throughput rates and modeling has indicated compliance with both short-term and long term NAAQS.

Regarding the branding operations and control, ODEQ agrees that current RTO flow limitations should not be a constraint regarding controlling the branding emissions. As a result, HEW has committed to significant reductions in allowable emissions from the branding operations. These reductions will result from the use of low-VOC inks. Branding operations will be limited to 1.8 lb/hr and 7.5 TPY. ODEQ has agreed that the cost associated with reconfiguration of plant operations to control the 7.5 TPY VOC emissions through the existing RTO is not cost effective. Therefore, ODEQ accepts a 7.5 TPY VOC emission limit and low-VOC inks with less or equal to 7.6% VOC content (0.563 lb/gal) as BACT.

Comment 6. VOC emission limits are not clearly stated in the permit. Is the facility limited by the lb/hr, the ton/year, the % DRE, or the lb/MSF 3/8" basis? The permit allows the facility to increase production rates until it reaches its emission limit. Is the facility limited to the most restrictive of these compliance demonstrations or the most lax? What if the facility's lb/hr is met and the DRE is not? What if the DRE is met but the lb/hr is not? By wording the permit as "60% DRE or 0.42 lb/msf 3/8"" the reader is not clear what standard is acceptable.

Response to Comment 6

Paragraph D of this condition has been modified to require compliance with the 60% DRE and the 0.42 lb/msf 3/8" to clarify

Comment 7. The branding operation is a coating operation. The draft permit memo seems to suggest that the limits included in OAC 252:100-37-25 do not apply to the type of coating operation being performed by HEW. This is not well explained. If the facility is using the

material to apply a finish (whether complete coverage or not) the facility should be subject to the requirements of the state regulation. There may be other coatings that do not contribute an additional 100 tons/year of VOC to the environment.

Response to Comment 7

Branding operation is not a coating operation. That is, HEW is not applying protective coating materials or a “finish”; rather ink is applied with inkjet printers for marketing purposes. The ink materials utilized to brand the products do not fit within the requirements or definitions of OAC 252:100-37-25. There are some small coating operations at the facility that would have some fugitive emissions, HEW lumped these emissions together with the branding emissions and made it one emission entry. The permit has been revised to separate them into individual emission entries and the Subchapter 37 discussion has been updated to clarify.

Comment 8. What stack testing will be performed and when is it required? The draft permit references that HEW can increase production rates while stack testing, but there does not appear to be a requirement to conduct testing. The permit should include a specific condition addressing the testing requirements and timeline.

Response to Comment 8

HEW has agreed to remove the flexibility to increase productions based on stack testing results. This allowance has been removed.

Comment 9. BACT limits as listed in the permit memorandum need to be incorporated into the permit. For instance, the Energy System and Press BACT limits listed on pages 29 and 36 of the memo, respectively, are not incorporated into the permit itself. These lb/ton limits should be a part of the permit. Any future changes to the production rate of the facility should be compliant with these limits. The other lb/ton or lb/msf limits as determined in the BACT review should also be incorporated into the permit itself.

Response to Comment 9

While emission limits listed in the permit were derived by the BACT lb/oven dried ton/hr (ODT/hr) and the annual average ODT/hr process limit, ODEQ agrees it is appropriate to specify the BACT levels as determined in the review. These have been added.

Comment 10. It does not appear that BACT for start up and shut down operations were considered. Historically, the market for HEW’s product has precluded continuous operations. Thus, significant portions of its operational time are spent in starting and stopping. The emissions associated with these events and the controls required should be detailed in the permit.

Response to Comment 10

HEW does not start up the furnace and drying operation without having all pollution control equipment on line and ready to receive exhaust gasses for proper treatment. Huber maintains the Biofilter in a ready state during down periods by continuous recycling of the sump water and feeding of nutrients and a carbon source as a supplement food source for the microbial population.

Huber does have maintenances that would require shutdown of control equipment for energy system/dryers. BACT has been addressed in Section VI. For the other emission points, regular BACT applies all time.

Comment 11. Please confirm if there is an averaging period for determining compliance with the hourly emission limits in the permit or if the hourly limits apply for each hour.

- a. The draft permit should also explicitly state how HEW will demonstrate compliance with each applicable permit condition. For instance, Specific Condition 1, EUG 5, B, specifies a PM limit of 0.005 gr/dscf. How will the facility demonstrate compliance?

Response to Comment 11

Where hourly limits do not have averaging specified in the permit the average is driven by the applicable method to demonstrate compliance. Since EPA reference method stack testing would be used to demonstrate compliance and these methods rely on 3-hr average testing, the applicable limits are a 3-hr average. Stack testing has already been completed per the original permit to demonstrate the baghouses meet the BACT levels. Future compliance is based on maintenance and monitoring requirements.

Comment 12. Specific Condition 1, EUG 2: The emergency generators are subject to a MACT standard. It does not seem consistent with previous DEQ practice to characterize these as insignificant.

Response to Comment 12

Any emergency generator subject to a MACT standard does not qualify as insignificant. While the units can qualify as insignificant because rule applicability is based on the compliance date of the rule (May 3, 2013), ODEQ is proposing to remove the units from the insignificant list based on the future applicability. The permit has been revised to reflect this comment.

Comment 13. The VOC definition in this permit is not consistent with how VOC is determined under the MACT. The permit memo should explain that the facility is also subject to VOC compliance options under the MACT and that the calculation for VOC for MACT purposes will be completed differently.

Response to Comment 13

SECTION IV of the draft permit memorandum has been updated to clarify that VOC emissions are calculated on an "as-emitted" basis to show compliance with permit limits while MACT testing and emission calculation for MACT purposes will be based on the MACT specific methods.

Comment 14. The permit memorandum seems to indicate that the facility has found it problematic to comply with its original construction permit. What if Huber is unable to meet the emission limits specified in the draft permit (as was the case previously) and the resulting emissions result in a violation of the PSD increment for the area (particularly PM). Would the DEQ look first to Huber for the required emission reductions to achieve compliance rather than all of industry in the area?

Response to Comment 14

We cannot predetermine what kind of scenarios will happen in the future. However, if Huber does need another PSD permit for more emission increases, the general NAAQS or PSD increment compliance demonstration guideline would apply as to any other PSD permit applications. Basically, according to the Draft EPA New Source Review Manual (1990), when a violation of any NAAQS or increment is predicted at one or more receptors in the impact area, the applicant can determine whether the net emissions increase from the proposed source will result in a significant ambient impact at the point of each predicted violation, and at the time the violation is predicted to occur. The source will not be considered to cause or contribute to the violation if its own impact is not significant at any violating receptor at the time of each predicted violation. In situations where a proposed source would cause or contribute to a PSD increment violation, a PSD permit cannot be issued until the increment violation is entirely corrected. If the proposed source would cause a new increment violation, the applicant must obtain emissions reductions that are sufficient to offset enough of the source's ambient impact to avoid the violation. In an area where an increment violation already exists, and the proposed source would significantly impact that violation, emissions reductions must not only offset the source's adverse ambient impact, but must be sufficient to alleviate the PSD increment violation, as well.

Comment 15. The BACT determination for the biofilter seems to rely on the fact that it is a continuous process when it appears that operations have been anything other than continuous due to the significant down times, operating schedules, etc. What requirements does HEW have for maintaining an active microbial community when the unit is not functioning?

Response to Comment 15

Specific condition No. 6 requires the applicant to specify operating parameters which indicate proper functioning of each air pollution device. When the Title V permit is issued, all detailed requirements will be incorporated. In the meantime, HEW follows manufacturer's recommendations for operating the Bio-Filter. Specific recommendations for maintaining a viable microbial population during periods of downtime was anticipated and taken into consideration for the Bio-Filter design and operating parameters. When the plant is not producing board, the Bio-Filter trickle filter pump continues to circulate water at a rate of approximately 1000 gallons per minute. HEW personnel supplement the Bio-Filter with fertilizer and a carbon source to sustain a healthy colony of biological activity.

Comment 16. Finally, it does not appear that this PSD permit will be issued until after January 2011. Will HEW be supplementing this permit application to address CO₂ emissions in accordance with the Tailoring Rule? Although the Mandatory Reporting Rule does not require HEW to consider CO₂ emissions associated with the combustion of wood, the Tailoring Rule looks only at the emissions of CO₂. Has HEW determined its CO₂ emissions for permitting purposes?

Response to Comment 16

CO₂ emissions and BACT have been addressed in the permit.

No comments were received from the states of Texas. Since this permit now contains green house gas BACT determination that was not addressed in the previous draft, the 30-day public review and 45-day EPA concurrent review was restarted. The applicant published a “Notice of Tier II Draft Permit” in the same local newspaper and the draft permit was also be available on the DEQ Web site <http://www.deq.state.ok.us/>.

Comments were received from the EPA Region VI and a response to those comments is provided below.

Response to Comments from EPA Region VI on the Proposed Permit

The following comments dated February 1, 2012, were received from Dinesh Senghani of EPA Region VI.

General Comments/Concerns:

- a) Page 19/82 gives the table titled ‘Facility wide criteria pollutant emissions’. The ‘Emission Change’ is calculated as the difference between ‘Total before change’, and the ‘New total’. Calculations should comply with the requirements of 40 CFR 51.166(b)(3)(i) which defines how Net emissions increase is to be calculated.

Response

This permit action is a retroactive PSD permit that reviewed the entire facility as a new PSD site. The permit also addresses several proposed changes. These changes were not considered as a separate modification but were conservatively included in the full analysis. Therefore, the evaluation was based on full facility emissions and net increases are not relevant. These were listed in the memorandum for historical purposes only. The introduction paragraph has been updated to explicitly indicate all emissions and emission units were part of the review.

- b) Pages 20/82 and 21/82 give the ‘Combustion source CO₂ emissions’. Calculations should be carried out as defined in 40 CFR 98.33 Calculating GHG emissions. The ‘Guidance to evaluating *PSD Applicability for GHGs – Modified Sources* given in Section II-C of the EPA publication “PSD and Title V permitting guidance for Greenhouse Gases” dated March 2011 assists in these calculations. Reference note 32 on page 11 of the EPA Guidance please note that short tons [2000 lbs] are used in PSD applicability calculations while metric tons [1000 kg] are used in GHG reporting.

Response

A quick calculation based on the numbers presented on the referenced pages clearly confirms the use of short tons as required under PSD applicability.

- c) Page 20/82 shows the Natural Gas Emission Factor as 53.2 kg/mmBtu. 40 CFR 98 Subpart C Table C-1 however gives the ‘Default CO₂ emission factor’ as 53.02 kg/mmBtu. The value given on page 20/82 should therefore be corrected.

Response

53.3 on page 20 was a typo, this has been corrected. Based on the numbers given a quick calculation confirms the correct factor usage.

- d) Page 21/82 states that Equation C-2a was used to determine the annual emission rate of CO₂e. 40 CFR 98 Subpart C shows the Equation C-2a as follows.

$$\text{CO}_2 = 1 \times 10^{-3} * \text{Fuel} * \text{HHV} * \text{EF}.$$

The following points should be clarified.

- i) Was the mass or volume of fuel determined from company records as defined in §98.6?
 ii) Was the HHV calculated according to the requirements of paragraph (a)(2)(ii)?

Response

The maximum heat input capacity of each unit along with the maximum (requested) hours of operation per year were used rather than the fuel usage and high heat value of each fuel. Using the maximum heat input capacity and maximum hours of operation per year results in an equivalent maximum emission rate for each greenhouse gas constituent as would be calculated if the fuel usage and HHV were used.

- iii) Are the units of TPY in metric tons [1000 kg] that are used in GHG reporting?

Response

No, PSD requires the use of short tons. Please see response to previous questions.

- e) Page 21/82 gives the combined emissions of CO₂ generated by Biomass and Natural Gas. 40 CFR 98 Subpart C (e) states as follows: “*Biogenic CO 2 emissions from combustion of biomass with other fuels.* Use the applicable procedures of this paragraph (e) to estimate biogenic CO₂emissions from units that combust a combination of biomass and fossil fuels (*i.e.*, either co-fired or blended fuels). Separate reporting of biogenic CO₂emissions from the combined combustion of biomass and fossil fuels is required for those biomass fuels listed in Table C–1 of this section and for municipal solid waste.” Pursuant to these regulations “Biogenic CO₂ emission from combustion of biomass” and the CO_s emissions from “other fuels” should be given separately in. The steps taken to calculate these values should be clearly stated.

Response

These have now been separated for clarity. It should be noted that PSD permitting does not require these types of listings. The facility shall only report to EPA under the reporting rule in this format.

- f) 40 CFR 98 Subpart A §98.3(g)(5) requires the submission of a GHG Monitoring Plan that includes an explanation of the processes and methods used to collect the necessary data for the GHG calculations. Submission of a copy of the GHG Monitoring Plan would clarify the issues listed here.

Response

This requirement is not a part of the PSD issuance process but a clearly separate requirement. In any event, the actual GHG emissions from this Mill are below the applicable threshold and therefore the facility is not required to prepare a GHG monitoring plan.

- g) Specific Condition 4 on page 73/82 lays down that “ The facility is subject to NESHAP Subpart DDDD and shall comply with applicable requirements including but not limited to the following as expeditiously as possible but in no case later than July 30, 2012 per §63.44(b)(1)” . However in view of the time available for compliance is less than nine months, a definite plan and proposal as to how this will be achieved by the facility should be incorporated in the permit.

Response

This is dealing with the switch from case-by-case MACT to normal MACT. 63.44(b)(1) says “the permitting authority shall incorporate the applicable compliance date in the title V permit.” This is a PSD permit action. The facility was designed and constructed with all necessary control equipment to comply with the MACT standards upon initial construction. The facility has already conducted initial performance testing that demonstrated compliance with the selected MACT emission compliance options. When issued, the actual Title V permit will address this issue appropriately.

- h) Page 74/82 lists “Emergency engines (EG1, EG2 and FP1) are subject to NESHAP Subpart ZZZZ”. Page 57/82 states that: “An emergency stationary RICE less than 500-hp located at a major HAP source shall meet the following requirement by May 3, 2013” However page 9/82 shows that each Emission Unit EU-EG1 and EU-EG2 are 900 hp and are not “less than 500 hp”. This apparent discrepancy in designating the horse power of the units EG1 and EG2 should be corrected. The regulations applicable to engines of horse power greater than 500 should then be applied to them.

Response

The specific condition number 5 has been update to include requirement for units larger than 500 hp. The horsepower references are correct no changes needed.

- i) Reference page 9/82 the Emission Unit EU-FP1 is rated at 210 hp and is less than 500 hp. The statement on page 57/82 quoted above apparently relates to this engine. The requirements listed on page 57/82 are regular routine requirements that are applicable to a Diesel Engine. Reasons as to why release from these requirements have been given till May 3, 2013 should be given.

Response

No release has been provided for anything. The rule itself set the compliance date for May 3, 2013. It is not clear what the issue is since the permit requires full compliance with the rule.

- j) Please refer to the following five quotations.
- i) **Page 7/82.** “A portion of flue gas (approximately 25%) exiting from the combustion furnaces passes through convection heat exchangers (Thermal Oil Heaters) that **transfer heat to thermal fluid** for use in heating the press and wax storage tanks.”
 - ii) **Page 58/82.** “The sensible heat transferred to the Dryers is 230 MMBTU/hr and to the **thermal fluid is 70 MMBTU/hr.**”
 - iii) **Page 58/82.** “Since each Heat Source does not recover thermal energy in the form of steam or hot water and its primary purpose is not to transfer heat indirectly to a process stream and the thermal energy of the hot gases come into direct contact with process materials (wood strands), this MACT [Subpart DDDDD] **does not apply** to the two Heat Sources at the Mill.”
 - iv) **40 CFR 63.7575.** “Process heater means an enclosed device using controlled flame, that is not a boiler, and the unit's primary purpose is to transfer heat indirectly to **a process material (liquid, gas, or solid)** or to a heat transfer material for use in a process unit, instead of generating steam. Process heaters are devices in which the combustion gases do not directly come into contact with process materials. Process heaters do not include units used for comfort heat or space heat, food preparation for on-site consumption, or autoclaves.
 - v) **40 CFR 63.7490(d).** “A boiler or process heater is existing if it is not new or reconstructed.”
- k) Please explain why Subpart DDDDD – “NESHAP for ---Process Heaters” is not applicable to the process heater that transfers 70mmBtu/hr to a thermal fluid.

Response

All emissions from the combustion unit pass through the dryer before being emitted to the atmosphere. Combustion unit/dryer emissions are controlled by a regenerative thermal oxidizer. In the preamble to the Federal Register (Vol. 69, No. 146 / Friday, July 30, 2004) National Emission Standards for Hazardous Air Pollutants: Plywood and Composite Wood Products, the EPA established that combustion gasses which routinely pass through the dryer are regulated by the PCWP MACT. Emissions subject to the PCWP are exempt from other requirements under this part. Page 58 has been updated to clarify that all emissions from the heat sources completely pass through the dryer system and subsequently through the RTO. Additionally, the primary purpose of each heat source is not to transfer heat indirectly to a process stream.

EPA has provided no regulatory reasoning as to why these heat sources are subject to Subpart DDDDD

- l) HW has not complied with either of the two guidelines EPA established to use PM₁₀ as a surrogate for PM_{2.5} as shown below. Corrective action is therefore necessary.
 - i) Reference Page 12/82 Reference Pg 12/82, HEW has *assumed* that the emissions from the Sanding, Debarking and Green Bins are negligible due to high moisture content of the wood.
 - ii) Reference Page 12/82 Energy System Dryers, HEW states that “some additional control of PM_{2.5} is *expected*”.

- iii) Reference Page 12/82 PM Control Systems (Baghouses) HEW states that 99.5% are *achievable* with fabric filters for particle sizes *down to 1.0 micron*.
- m) How ODEQ enjoys an exception during its SIP development period with regard to PM₁₀ surrogacy to PM_{2.5} as in the 1997 NSR and needs to be established.

Responses to l and m

ODEQ's decision to allow the surrogate policy was based on the application submittal date of March 3, 2007. EPA did not end the policy until February, 2010. ODEQ does not "enjoy" an exception during the SIP development process. EPA reviews all ODEQ permits which should clarify this. This exception wording probably came from an old understanding of how the process would work out as the PM_{2.5} program was implemented. The exception wording has been removed. Starting on Page 12 of the memo ODEQ clearly indicates how emissions from each source were considered with regard to PM_{2.5} vs PM₁₀. Huber has also completed PM_{2.5} modeling that demonstrates compliance. These results are included in the memo.

Based on the original application date, the application of reasonable controls, and modeling demonstrating PM_{2.5} compliance ODEQ feels Huber has appropriately addressed regulatory requirements.

- n) Startup, Shutdown, and Maintenance Emissions should be included in the total plant wide emissions, in the "Facility wide criteria pollutant emissions" table on page 19/82 and in the "Facility wide HAP emissions" table on page 20/82.

Response

SSM emissions were included on page 19 as EUG 9. The HAP table on page 20 has been updated to include SSM.

- o) Pursuant to: [§63.6\(e\)\(3\)\(i\)](#) a written SSM Plan is required by the compliance date. Has a written SSM Plan been submitted?

Response

Since startup HEW has had a written SSM plan per [§63.6\(e\)\(3\)](#).

Per [§63.6\(e\)\(3\)\(v\)](#) The Administrator may at any time request in writing that the owner or operator submit a copy of any startup, shutdown, and malfunction plan (or a portion thereof) which is maintained at the affected source or in the possession of the owner or operator. Upon receipt of such a request, the owner or operator must promptly submit a copy of the requested plan (or a portion thereof) to the Administrator.

ODEQ has not formally requested a copy of the plan but reviews these during normal inspections.

- p) Whether "the majority of the issues" in the consent order No. 09-183 have been resolved need to be clarified before the permit is issued.

Response

ODEQ issued a closure letter dated November 24, 2010 stating that all requirements in the consent order have been satisfied.

Air Modeling Analyses Comments/Concerns**Question #1**

Based on the review of the air dispersion modeling analysis submitted by Huber Engineered Woods for review, we understand that the 1-hour NO₂ NAAQS compliance demonstration was conducted using PVMRM. Since the use of PVMRM is a non-guideline technique, a modeling protocol is required to be submitted by the applicant to the USEPA Regional Office for review and approval. This PVMRM modeling protocol should include the appropriate documentation to justify the specific model inputs (e.g., in-stack ratios, background ozone data, and equilibrium ratio) utilized in the Tier 3 PVMRM modeling approach. We look forward to the receipt of the applicant's modeling protocol and to working with ODEQ to resolve any concerns related to the PVMRM modeling methodology.

Response

A formal protocol for NO₂ 1-hour NAAQS modeling was submitted to DEQ on April 22, 2010 and forwarded to EPA by DEQ on April 23, 2010. Comments were received from Erik Snyder of EPA Region 6 via Eric Milligan of DEQ on April 27, 2010. A revised protocol was submitted on May 5, 2010. The modeling was updated based on the comments received from EPA and results were submitted to DEQ on May 27, 2010.

Question #2

The emergency generators and fire pump engine were not included in the 1-hour NO₂ NAAQS modeling analysis submitted by Huber Engineered Woods for review. While the draft permit does limit the operating hours of each piece of this equipment to 240 hours per year, limiting operations to 240 hours per year without additional limitations regarding the frequency of operation (e.g., once per week) is not sufficient to ensure that these sources will not significantly contribute to annual distributions of 1-hour NO₂ concentrations. The permit conditions should be revised to limit the frequency of operation for routine testing activities to ensure the protection of the 1-hour NO₂ NAAQS. For instance the testing activities could be limited to periods of the day when conversion of NO to NO₂ occurs less rapidly or periods when atmospheric conditions have more mixing and less vertical structure.

Response

The March 1, 2011 EPA modeling guidance for the 1-hour NO₂ NAAQS recommends "that compliance demonstrations for the 1-hour NO₂ NAAQS be based on emission scenarios that can logically be assumed to be relatively continuous or which occur frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations. EPA believes that existing modeling guidelines provide sufficient discretion for reviewing authorities to exclude certain types of intermittent emissions from compliance demonstrations for the 1-hour NO₂ standard under these circumstances."

The guidance goes on to state that “For example, an intermittent source that is permitted to operate up to 500 hours per year, but typically operates much less than 500 hours per year and on a random schedule that cannot be controlled would be appropriate to consider under this guidance.”

While the guidance indicates it may be appropriate to include a permit condition that restricts operation of emergency generators during testing to certain hours of the day to mitigate the contribution to ambient NO₂ levels (based on dispersion conditions), that additional protection is not justified for this action.

Testing activities are infrequent with duration of an hour. The two emergency generators and fire water pump are not tested simultaneously. Under testing conditions, emissions from these units are only a small fraction of the facility total emissions. While there can be advance planning for testing activities, these activities do not occur frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations.

Question #3

A 10D rule was utilized by the applicant when developing the off-property inventory for inclusion in the 1-hour NO₂ NAAQS full impacts modeling analysis. The applicant indicated that an inventory for off-property sources was obtained from ODEQ within 100 km of the facility. The 10D rule was applied so that all sources whose emissions are greater than 10 times the distance were included in the full impacts analysis. Additional justification is not provided by the applicant or ODEQ regarding the appropriateness of applying the 10D rule for the 1-hour NO₂ NAAQS demonstration. Additional information is needed to clearly show that the off-property inventory sources that were excluding from the 1-hour NO₂ modeling analysis do not have the potential to contribute significantly within the Huber Engineered Woods facility’s ROI plus 50 km.

Response

The March 1, 2011 EPA modeling guidance for the 1-hour NO₂ NAAQS states that “Even accounting for some terrain influences on the location and gradients of maximum 1-hour concentrations, these considerations suggest that the emphasis on determining which nearby sources to include in the modeling analysis should focus on the area within about 10 kilometers of the project location in most cases. The routine inclusion of all sources within 50 kilometers of the project location, the nominal distance for which AERMOD is applicable, is likely to produce an overly conservative result in most cases.” DEQ provided a list of background sources to the applicant having applied the 10D rule. However, no NO₂ sources were removed within 50 kilometers of the facility. Further, DEQ required that large sources at distances greater than 50 kilometers be included in the analysis; thus, the modeled background sources provided an overly conservative result per EPA guidance. No additional analysis is warranted.

Question #4

We note that the ozone impact analysis indicated maximum 8-hour increases of as much as 3.1 ppb were predicted for three counties (max impacts occur in McCurtain, Choctaw, and Pushmataha Counties) and the impacts dropped off to less than 2.5 ppb in some adjoining counties. We note that Oklahoma chose the closest ozone monitor that is approximately 75 km

from the facility for a background ozone level. This monitor has a 2008-2010 design value of 70 ppb with the highest annual 4th High of 73 ppb. When the 3.1 ppb estimated impacts are added to 70 or 73 ppb, the resulting ozone concentration is near the 75 ppb standard.

The new source emissions are fairly large with increases of approximately 950 tpy and 1072 tpy of VOCs. In EPA's recent CrossState Air Pollution Rule (CASPR) we used a value of 0.85 ppb for significance for determining significant impact of one state upon another state's modeled ozone exceedances. EPA has not yet developed a Significant Impact Level (SIL) for ozone, but the combination of background ozone and the impacts from the source could be considered to be large enough to be significant, but based on the analysis would be below the 75 ppb 8-hour ozone NAAQS. The modeled impacts and background levels and distance to the background monitor do raise some question of what the ozone levels may be locally around the facility. We recommend the source be required to conduct post-construction monitoring for ozone in a location at or near where expected maximum impacts on ozone levels may occur for a period of 2 years. This will help insure that the source is not potentially causing or contributing to an ozone NAAQS violation.

Response

The Choctaw Nation monitoring site, 40-089-2001, located 31 miles NNE of the Huber facility has been collecting ozone data since 2010. The design value for the monitor from the 2010 and 2011 ozone seasons is 68 ppb with a highest annual 4th high of 70 ppb. The monitor is located downwind of the Huber facility and within some of the the higher predicted ambient concentrations that result from the permitting action in McCurtain County. Continued monitoring of ozone concentrations observed at this site will help insure that the source is not potentially causing or contributing to an ozone NAAQS violation.

Comments Received from Applicant to Clarify Some Wording in Specific Conditions

Comment 1:

In the specific conditions on page 10 under 8-D: Pressure drop across fabric filters (daily) for EUG5 sources maintained at least 0.2"wc for 12-hr period. We are requesting that this condition be consistent with the other requirements and be changed to 12-hr average rather than a 12-hr period.

Response: ODEQ agrees and the permit has been updated to reflect it.

Comment 2:

In the specific conditions on page 10 under 8-G Static pressure at the inlet of the RTO on the dryer exhaust gas stream (continuous/3-hr average). We would like to remove this condition since this condition was from the proposed MACT requirements for the RTOs and was not included in the final published rule. The PCWP MACT only requires us to monitor the firebox temperatures. We simply missed this during our review, since it was incorporated from our original construction permit.

Response: ODEQ agrees and the permit has been updated to reflect it.

Comment 3:

As we discussed a few weeks ago via a phone conference, we are requesting that EUG 7 be changed to the following, including the removal of the lbs per hour limit for fugitive coatings:

Branding and Coating Operations	Point	VOC	
		lb/hr	TPY
Branding	BRAND	1.8	7.5
Coatings Operations	Coatings Fugitive	-	7.48

The coating operations are fugitive and are covered as one unit leaving flexibility for change in these operations.

Response: ODEQ agrees and the permit has been updated to reflect it.

Comment 4:

We would also like to add the following language to EUG 7 F(b)

Material Safety Data Sheets (MSDS) or other documentation from the manufacturer including technical data sheets, product data sheets, or similar correspondence which documents the VOC content and HAP content of each coating used.

Response: ODEQ agrees and the permit has been updated to reflect it.

Comment 5:

We would also like to make a small change to Specific Condition 11.1.b to read as:

Material Safety Data Sheets (MSDS) or other documentation from the manufacturer including technical data sheets, product data sheets, or similar correspondence which documents the VOC content and HAP content of each coating used.

Response: ODEQ agrees and the permit has been updated to reflect it.

Fees Paid

Part 70 construction permit modification application fee of \$1,500.

SECTION XI. SUMMARY

The applicant has demonstrated the ability to achieve compliance with all applicable Air Quality Rules and Regulations. Ambient air quality standards are not threatened at this site. There is no other active Air Quality compliance or enforcement issues other than those noted above. Issuance of the construction permit is recommended.

**PERMIT TO CONSTRUCT
AIR POLLUTION CONTROL FACILITY
SPECIFIC CONDITIONS**

**Huber Engineered Woods
Broken Bow OSB Mill**

Permit No. 2003-099-C (M-3) (PSD)

The permittee is authorized to construct in conformity with the specifications submitted to Air Quality Division on March 7 and 30, 2007, with new updates submitted on October 1, 2009, November 8 and 9, 2010, April 7, 2011, August 11, 2011, and May 31, 2012. The Evaluation Memorandum dated June 22, 2012, explains the derivation of applicable permit requirements and estimates of emissions; however, it does not contain operating limitations or permit requirements. Commencing construction or operations under this permit constitutes acceptance of, and consent to, the conditions contained herein.

1. Points of emissions and emission limitations for each point: [OAC 252:100-8-6(a)]

EUG 2 – MISC COMBUSTION UNITS

EU-SG1 and EU-AMU1-18 are considered insignificant because each emits less than 5 TPY.

Emission Unit	Point	EU Name/Model	Size	Construction Date
EU-SG1	EP-SG1	Gas Fired Rail Steam Generator	1.5 MMBTUH	2003
EU-AMU1 – 18	EP-AMU1 - 18	Air Make Up Units (18)	24.7 MMBTUH	2003

EP-AMU1 - 18 are equipped with hour meters.

The equipment items listed below are subject to NESHAP Subpart ZZZZ.

Emission Unit	Point	EU Name/Model	Size	Construction Date
EU-EG1	EP-EG1	Emergency Generator #1	900-hp	2003
EU-EG2	EP-EG2	Emergency Generator #2	900-hp	2003
EU-FP1	EP-FP1	Fire Pump Engine	210 hp	2003

EU-EG1, EU-EG2, and EU-FP1 are equipped with hour meters.

Emission Unit	Point	NO_x		CO		Total PM₁₀		VOC		SO₂	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
210-hp Fire Pump Engine	EP-FP1	6.50	0.80	1.40	0.20	0.50	0.06	0.50	0.06	0.40	0.05
900-hp Emergency Generator #1	EP-EG1	27.90	3.30	6.00	0.70	2.00	0.20	2.20	0.30	1.80	0.20
900-hp Emergency Generator #2	EP-EG2	27.90	3.30	6.00	0.70	2.00	0.20	2.20	0.30	1.80	0.20

Emission Unit	Point	CO ₂ e
		TPY
210-hp Fire Pump Engine	EP-FP1	450
900-hp Emergency Generator #1	EP-EG1	
900-hp Emergency Generator #2	EP-EG2	
EU-SG1	EP-SG1	
EU-AMU1 - 18	EP-AMU1 - 18	

EUG 3 – ENERGY SYSTEM/DRYER UNITS

Emission Unit	Point	NO _x		CO		Total PM ₁₀		VOC as Emitted		SO ₂	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Heat Source No. 1	EP-RTO1	205.6	900.53	92.80	406.46	18.7	82.0	61.60	269.81	14.1	61.6
Heat Source No. 2											

Emission Unit	Point	NO _x	CO	VOC	PM ₁₀	SO ₂
		lb/ODT*				
Heat Source No. 1	EP-RTO1	2.57	1.16	0.77	0.23	0.18
Heat Source No. 2						

Emission Unit	Point	CO ₂ e
		TPY
Heat Source No. 1	EP-RTO1	320,494.41

- A. Combined throughput of the two dryers shall not exceed 80.0 ODT/hr based on a 12 month rolling average calculated monthly (ODT means Oven Dried Ton), operating 8,760 hours per year when utilizing methylene diphenyl diisocyanate (MDI), and/or phenol formaldehyde (PF) and/or melamine urea phenol formaldehyde (MUPF) resins and/or other resins that will not cause allowable emissions to be exceeded, or that result in emissions of new regulated pollutants.
- B. The two heat sources shall be fueled with the following :

The majority of fuel consists of bark and wood residuals, including sander dust and waste resinated board from the process some of which will have a paper overlay. Huber also burns miscellaneous, non-hazardous housekeeping and process materials generated on-site including paper, plastic, cardboard, used motor oil, used hydraulic oil, miscellaneous oils/grease, centrifuge dust, stamp ink, stencil paint, grinding fluid, WESP recycle water/sludge, resin, release agent, wax, edge seal, and a small amount of very low sulfur diesel fuel to ignite the furnace fire during startup.
- C. All air exhausts from the heat sources/dryers shall be processed by a wet electrostatic precipitator (WESP) controlling PM₁₀ and a regenerative thermal oxidizer (RTO)

controlling 95% VOC under normal operating conditions, or other equivalent air pollution control devices.

- D. The annual capacity factor for municipal-type waste shall not exceed 30% and the annual capacity factor of natural gas and oil as fuel shall not exceed 10%.

EUG 4 - PRESS

		NO _x		CO		Total PM ₁₀		VOC as emitted		SO _x	
Emission Unit	Point	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Press No. 1 (post control)	EP-BF1	2.20	9.60	2.60	11.60	13.40	58.7	46.6	204.3	1.1	4.8

		CO ₂
Emission Unit	Point	TPY
Press No. 1	EP-BF1	306.42

- A. Throughput of the press shall not exceed 110 MSF/hr 3/8” basis (based on a 12 month rolling average calculated monthly), operating 8,760 hours per year.
- B. The press shall be operated only when a negative pressure is maintained within the press enclosure and the building housing the press while capturing decompression emissions from the product produced in the press via a press length hood. The average facial velocity of air through any open natural draft openings (NDO) in the press enclosure shall be at least 200 fpm. This shall be demonstrated by continuous monitoring of facial velocity at the press infeed and outfeed NDO. If a man door or bay door will remain open for longer than necessary for personnel egress/ingress, a portable air flow monitor will be used once per shift to monitor and document that a minimum of 200 feet per minute velocity into the press room is being maintained until the door is closed.
- C. When the board cooler is operating, all air exhausts from the board cooler room shall be routed to the press building. The board cooler shall be operated only when a negative pressure is maintained within the board cooler room.
- D. The direct press exhaust pickup points shall be processed by a wet electrostatic precipitator (WESP) and a biofilter; the air exhausts collected by the press hoods and the general room air exhausts shall be processed by the biofilter; and the air exhaust from the pre-heater shall be processed by a scrubber and the biofilter, providing a total control efficiency of 60% DRE and a maximum VOC emission rate of 0.42 pounds per MSF_{3/8} for VOC during normal operating conditions.

EUG 5 – BAGHOUSE SYSTEMS

Emission Unit	Point	Total PM ₁₀		Total VOC	
		lb/hr	TPY	lb/hr	TPY
Screening – System 9120	EP-FF2	1.46	6.40	25.30	110.90
Forming – System 9130	EP-FF3	2.68	11.73	17.40	76.20
Saws – System 9140	EP-FF4	2.38	10.43	29.20	127.70
Sander – System 9150	EP-FF5	2.57	11.24	9.70	42.40
Fuel – System 9195	EP-FF6	0.43	1.87	0.90	3.90

- A. Each operation shall be equipped with a fabric filter that controls PM₁₀ emission to the allowable emission rate, or other equivalent air pollution control devices.
- B. PM₁₀ emissions from this group are based on 0.005 gr/dscf grain loading derived from stack tests at the OSB Mill and applicable flow rates and operating hours of 8,760 hrs/yr.

EUG 6 - TANKS

The equipment items listed below are considered insignificant because each emits less than 5 TPY. Nominal throughputs are not limits.

Emission Unit	Point	EU Name/Model	Capacity/ Nominal Throughputs	Const. Date
EU-GAS1TK	EP-GAS1TK	Gasoline Storage Tank No. 1	550-gal/ 20,000 gal/yr	2003
EU-EG1TK	EP-EG1TK	Emergency Gen. No. 1 Diesel Tank	1,000-gal/ 13,850 gal/yr	2003
EU-EG2TK	EP-EG2TK	Emergency Gen. No. 2 Diesel Tank	1,000-gal/ 13,850 gal/yr	2003
EU-FP1TK	EP-FP1TK	Fire Pump Engine No. 1 Diesel Tank	500-gal/ 6,920 gal/yr	2003
EU-ME1TK	EP-ME1TK	Mobile Equipment Diesel Tank No. 1	1,000-gal 40,000 gal/yr	2003
EU-UR1TK	EP-UR1TK	Urea Storage Tank No. 1	10,000 gal/ 127,962 gal/yr	2003
EU-WAX2TK	EP-WAX2TK	Wax Storage Tank No. 2	25,000-gal each	2003
EU-WAX3TK	EP-WAX3TK	Wax Storage Tank No. 3	41,000,000 lb/yr total	2003
EU-RES2TK	EU-RES2TK	Resin Storage Tank No.2	25,000-gal each	2003
EU-RES4TK	EU-RES4TK	Resin Storage Tank No.4	50,000,000 lb/yr total	2003
EU-RES6TK	EU-RES6TK	Resin Storage Tank No.6		2003
	EU-WAX1TK	Wax or Resin Storage Tank No. 1		2003
	EP-RES1TK	Resin Storage Tank No. 1		2003
	EP-RES3TK	Resin Storage Tank No. 3		2003
	EP-RES5TK	Resin Storage Tank No. 5	25,000-gal each	2003

	EP-RA2TK	Release Agent or Resin Storage Tank	51,100,000 lb/yr	2003
EU-RA1TK	EP-RA1TK	Release Agent Storage Tank No. 1	25,000-gal each 3,200,000 lb/yr	2003
EU-CAU1TK	EP-CAU1TK	Caustic Storage Tank No. 1	10,000-gal/ 800,000 lb/yr	2003
EU-RAMIX1TK	EP-RAMIX1TK	Release Agent Mix Tank No. 1	1,000-gal/ 3,200,000 lb/yr	2003
EU-RAR1TK	EP-RAR1TK	Release Agent Recycle Tank 1	500-gal/ 3,200,000 lb/yr	2003

EUG 7 – BRANDING & COATING OPERATIONS

Branding and Coating Operations	Point	VOC	
		lb/hr	TPY
Branding	BRAND	1.8	7.5
Coatings Operations	Coatings Fugitive	-	7.48

A. The VOC content of coatings as applied, less water and exempt solvents, shall not exceed the following limits:

Coating	lbs/gallon
Alkyd Primers	4.8
Epoxies	4.8
Maintenance Finishes	4.8
Vinyls	6.0
Acrylics	6.0
NC lacquers	6.4
Custom Product Finishes	6.5

- B. The VOC content of branding ink shall not exceed 7.6% or 0.563 lb/gal.
- C. Paint spraying equipment shall be cleaned with solvents being drained into a closed container.
- D. The permittee shall maintain paint spray guns in good working order so as to minimize paint overspray during operations.
- E. Paint spray booths shall be equipped with filters for control of overspray. Spray booths and filter systems shall be maintained per manufacturers' recommendations.
- F. The following records shall be maintained on-site. All such records shall be made available to regulatory personnel upon request. These records shall be maintained for a period of at least five years after the time they are made. Such records may include but are not limited to the following:
 - a. Usage of coatings, solvents, and inks by type and volume (monthly and 12-month rolling total).

- b. Material Safety Data Sheets (MSDS) or other documentation from the manufacturer including technical data sheets, product data sheets, or similar correspondence which documents the VOC content and HAP content of each coating used.
- c. Inspection and maintenance of all air pollution control devices (weekly).
- d. Amount of collected cleaning solvent or wastes for disposal (monthly and 12-month rolling total).
- e. Total emissions of all VOCs and HAPs (monthly and 12-month rolling total).

EUG 8 – FUGITIVE BUILDING EMISSIONS

Area	Flow cf/minute	VOC		Methanol		Formaldehyde		PM ₁₀	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Warehouse	240,000	3.10	13.56	0.21	0.90	0.09	0.37	0.05	0.24
Blending	180,000	4.69	20.55	1.99	8.73	0.11	0.50	0.09	0.38
Forming	90,000	4.15	18.18	2.13	9.32	0.10	0.46	0.06	0.27
Screening	60,000	2.72	11.89	--	--	--	--	0.05	0.21
Green End	10,300	2.74	12.00	--	--	--	--	0.01	0.04

EUG 9 – MAINTENANCE EMISSIONS FROM THE DRYER ABORT STACKS (INCLUDE HEAT SOURCE EMISSIONS)

Emission Unit	Point	NO _x		CO		Total PM ₁₀		VOC		SO _x	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Dryer Abort Stacks	EUG-9	204	20.4	180	18	183	18.3	504	50.4	14	1.4

- A. These stacks are limited to operate 200 hours a year each or any combination of durations not to exceed the allowable annual and hourly emission rates up to a total of 400 hours.
 - B. Permittee shall stop feeding process material to the dryers immediately when these stacks are open.
 - C. Permittee shall maintain records of the durations each abort stack is open while the heat sources and dryers are operating.
2. Upon issuance of an operating permit, the facility shall be authorized to operate as follows based on 12-month rolling totals:

EU-FP1, EU-EG1, and EU-EG2:	240 hrs/yr each
EU-AMU1-18:	5,040 hrs/yr each
The rest of the facility:	8,760 hrs/yr
 3. The two heat sources are subject to NSPS Subpart Db and shall comply with applicable requirements including but not limited to the following: [40 CFR Part 60.40b-49b]

- A. Emissions Standards:
 - a. PM: 0.1 lb/MMBTU [40 CFR Part 60.43b(c)(1)]
 - b. Opacity: 20% (6-minute average), except for one 6-minute period per hour of not more than 27% opacity. [40 CFR Part 60.43b(f)]
 - B. Test Requirements:
 - a. Compliance with PM standard shall be determined through performance testing as described in 60.46b(d).
 - C. Emission Monitoring
 - a. 60.48b(a) requires that the owner or operator of an affected facility subject to the opacity standard under 60.43b shall install, calibrate, maintain, and operate a continuous monitoring system for measuring the opacity of emissions discharged to the atmosphere and record the output of the system.
 - D. 60.49b: Reporting and Recordkeeping requirements
4. The facility is subject to NESHAP Subpart DDDD and shall comply with applicable requirements including but not limited to the following as expeditiously as possible but in no case later than July 30, 2012 per §63.44(b)(1): [40 CFR Part 63.2230 to 63.2292]

- §63.2230 What is the purpose of this subpart?
- §63.2231 Does this subpart apply to me?
- §63.2232 What parts of my plant does this subpart cover?
- §63.2233 When do I have to comply with this subpart?
- §63.2240 What are the compliance options and operating requirements and how must I meet them?
- §63.2241 What are the work practice requirements and how must I meet them?
- §63.2250 What are the general requirements?
- §63.2251 What are the requirements for the routine control device maintenance exemption?
- §63.2252 What are the requirements for process units that have no control or work practice requirements?
- §63.2260 How do I demonstrate initial compliance with the compliance options, operating requirements, and work practice requirements?
- §63.2261 By what date must I conduct performance tests or other initial compliance demonstrations?
- §63.2262 How do I conduct performance tests and establish operating requirements?
- §63.2263 Initial compliance demonstration for a dry rotary dryer.
- §63.2264 Initial compliance demonstration for a hardwood veneer dryer.
- §63.2265 Initial compliance demonstration for a softwood veneer dryer.
- §63.2266 Initial compliance demonstration for a veneer redryer.
- §63.2267 Initial compliance demonstration for a reconstituted wood product press or board cooler.
- §63.2268 Initial compliance demonstration for a wet control device.
- §63.2269 What are my monitoring installation, operation, and maintenance requirements?

- §63.2270 How do I monitor and collect data to demonstrate continuous compliance?
- §63.2271 How do I demonstrate continuous compliance with the compliance options, operating requirements, and work practice requirements?
- §63.2280 What notifications must I submit and when?
- §63.2281 What reports must I submit and when?
- §63.2282 What records must I keep?
- §63.2283 In what form and how long must I keep my records?
- §63.2290 What parts of the General Provisions apply to me?
- §63.2291 Who implements and enforces this subpart?
- §63.2292 What definitions apply to this subpart?

5. Emergency engines (EG1, EG2, and FP1) are subject to NESHAP Subpart ZZZZ and shall comply with all applicable requirements by the compliance date of May 3, 2013.

- § 63.6600 What emission limitations and operating limitations must I meet if I own or operate an existing stationary CI RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?
- § 63.6602 What emission limitations must I meet if I own or operate an existing stationary CI RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions?
- § 63.6604 What fuel requirements must I meet if I own or operate an existing stationary CI RICE?
- § 63.6610 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?
- § 63.6612 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions?

6. Compliance with emission limitations by EUG 3 and EUG 4 shall be demonstrated by performance tests by the permittee using the following test methods specified in 40 CFR 60 within 180 days of this permit's issuance. The permittee shall furnish a written report to Air Quality. Performance testing shall be conducted while the unit is operated within 10% of the rate at which operating permit authorization is sought, unless the permittee can sufficiently demonstrate, at the time of testing, that the facility cannot operate at 90% capacity rate, then a least of 80% capacity rate will be accepted. The following USEPA methods shall be used for testing of emissions, unless otherwise approved by Air Quality:

OAC 252:100-8-6(a)]

Method 1: Sample and Velocity Traverses for Stationary Sources.

Method 2: Determination of Stack Gas Velocity and Volumetric Flow Rate.

Method 3: Gas Analysis for Carbon Dioxide, Excess Air, and Dry Molecular Weight.

Method 4: Determination of Moisture in Stack Gases.

Method 5: Determination of Particulate Emissions From Stationary Sources.

Method 7 or 7E: Determination of Nitrogen Oxide Emissions From Stationary Sources

Method 10: Determination of Carbon Monoxide Emissions From Stationary Sources

Method 18 or 25A: Determination of Volatile Organic Compounds Emissions From Stationary Sources.

Method 201/201A: Determination of PM₁₀ Emissions

Method 202: Determination of condensable particulate emissions

Method 320: Measurement of Vapor Phase Organic and Inorganic Emission by Extractive FTIR, for specified compounds.

Or as an alternative to Method 320, NCASI Method CI/WP-98.01, Chilled Impinger Method for Use at Wood Products Mills to Measure Formaldehyde, Methanol, and Phenol.

MACT testing and emission calculation for MACT purposes shall be based on the MACT specific methods.

VOC as emitted shall be calculated as follows:

- Subtract the methane determined by Method 18 from the THC as propane.
- Subtract predetermined responses of formaldehyde, phenol, and methanol from the THC as propane less methane. The remaining VOCs are assumed to be alpha and beta pinene which fully respond on the THC monitor. The VOC mass emission rate is then calculated using the molecular weight of pinene.
- Determine the concentrations and rates of methanol, formaldehyde, and phenol using the Method 320 measured concentrations.
- Sum the pinenes, methanol, formaldehyde, and phenol rates and the resulting total is VOC as emitted rate.

7. As part of the operating permit application, the permittee shall include a copy of the format in which required records will be kept and shall specify operating parameters which indicate proper functioning of each air pollution control device. These parameters shall include, but not be limited to, the following: [OAC 252:100-43]

- Pressure drop across fabric filters (FF2 – FF7)
- Secondary transformer/rectifier voltage of the WESPs for dryers
- RTO firebox temperature
- Static pressure at the inlet of the RTO
- Fuel flow rate for all fuels that are fed to the heat sources
- Biofilter bed temperature for each of the six media cells

8. The permittee shall keep records as follows. Required records shall be retained on location for a period of at least five years following dates of recording and shall be made available to regulatory personnel upon request. [OAC 252:100-8-6(A)(3)]

- A. Dryer throughput expressed as ODT/hr (12 month rolling average calculated monthly) and ODT/yr (12 month rolling average calculated monthly).
 - B. Press throughput expressed as MSF/hr 3/8" basis (12 month rolling average calculated monthly) and MMSF/yr 3/8" basis (12 month rolling average calculated monthly).
 - C. Records required for branding and coating operations as specified in Specific Condition NO. 1.
 - D. Pressure drop across fabric filters (daily) for EUG5 sources maintained at least 0.2"wc for 12-hr average.
 - E. Secondary transformer/rectifier voltage at least 30 kilovolts of the WESPs on the dryer exhaust gas stream (24-hour average).
 - F. RTO firebox temperature on the dryer exhaust gas stream (3-hour average).
 - G. Fuel flow rate for all fuels that are fed to the heat sources (monthly).
 - H. Operating hours for sources permitted for less than 8,760 hours per year, as specified in S.C. #2 (EU-FP1, EU-EG1, EU-EG2, and EU-AMU1-18).
 - I. Biofilter temperature (24-hr average).
9. The permittee shall amend the Title V operating permit application within 180 days of the issuance of this permit.
10. The following records shall be maintained on-site to verify insignificant activities.
[OAC 252:100-43]
- A. Fuel dispensing to vehicles: throughput (monthly and 12-month rolling totals, for gasoline and for diesel)
 - B. Vapor pressures and capacities of all storage tanks with less than or equal to 10,000 gallons capacity that store volatile organic liquids with a true vapor pressure less than or equal to 1.0 psia at maximum storage temperature.
11. The permittee shall be authorized to use MUPF resin or other resins that will not cause emission increases or result in emissions of new regulated pollutant. The following records shall be maintained on-site. All such records shall be made available to regulatory personnel upon request. These records shall be maintained for a period of at least five years after the time they are made. Such records may include but are not limited to the following:
- a. Usage of resins and catalyst by type and volume (monthly and 12-month rolling total).
 - b. Material Safety Data Sheets (MSDS) or other documentation from the manufacturer including technical data sheets, product data sheets, or similar correspondence which documents the VOC content and HAP content of each coating used.
12. Per Table 7 to Part 63 NESHAP, Subpart DDDD, process unit equipped with a biofilter shall conduct a repeat performance test using the applicable method(s) specified in Table 4 to this subpart within 2 years following the previous performance test and within 180

days after each replacement of any portion of the biofilter bed media with a different type of media or each replacement of more than 50 percent (by volume) of the biofilter bed media with the same type of media.

13. The Permit Shield (Standard Conditions, Section VI) is extended to the following requirements that have been determined to be inapplicable to this facility.

[OAC 252:100-8-6(d)(2)]

- A. OAC 252:100-11 Alternative Emissions Reduction
- B. OAC 252:100-15 Mobile Sources
- C. OAC 252:100-23 Cotton Gins
- D. OAC 252:100-24 Grain Elevators
- E. OAC 252:100-39 Non-attainment Areas
- F. OAC 252:100-47 Landfills
- G. 40 CFR Part 61 NESHAP
- H. 40 CFR Part 60 NSPS Subpart Kb.
- I. 40 CFR Parts 72, 73, 74, 75 & 76 Acid Rain

J.M. Huber Corporation
Huber Engineered Woods Division
Attn: Mr. Mike Kenna
1000 J.T. Tucker Road
Broken Bow, OK 74728

SUBJECT: Construction Permit No. 2003-099-C (M-3) (PSD)
Huber Engineered Woods, Broken Bow
Broken Bow, McCurtain County, Oklahoma
Permit Writer: Jian Yue

Dear Mr. Kenna:

Air Quality Division has completed the initial review of your permit application referenced above. This application has been determined to be a **Tier II**. In accordance with 27A O.S. § 2-14-301 & 302 and OAC 252:4-7-13(c) the application and enclosed draft permit are now ready for public review. The requirements for public review include the following steps which you must accomplish:

1. Publish at least one legal notice (one day) of “Notice of Tier II Draft Permit” in at least one newspaper of general circulation within the county where the facility is located. (Instructions enclosed)
2. Provide for public review (for a period of 30 days following the date of the newspaper announcement) a copy of this draft permit and a copy of the application at a convenient location (preferably a public location) within the county of the facility.
3. Send to AQD a copy of the proof of publication notice from Item #1 above together with any additional comments or requested changes which you may have on the draft permit.

Thank you for your cooperation. If you have any questions, please refer to the permit number above and contact me at (405) 702-4100 or the permit writer, Jian Yue, at (405) 702-4205.

Sincerely,

Phillip Fielder, P.E., Permits and Engineering Group Manager
AIR QUALITY DIVISION
Enclosures

Arkansas Dept. of Pollution Control and Ecology
P.O. Box 8913
Little Rock, AR 72219-8913

SUBJECT: Construction Permit No. 2003-099-C (M-3) (PSD)
Huber Engineered Woods, Broken Bow
Broken Bow, McCurtain County, Oklahoma
Permit Writer: Jian Yue

Dear Sir / Madame:

The subject facility has requested a construction permit. Air Quality Division has completed the initial review of the application and prepared a draft permit for public review. Since this facility is within 50 miles of the Oklahoma - Arkansas border, a copy of the proposed permit will be provided to you upon request. Information on all permit and a copy of this draft permit are available for review by the public in the Air Quality Section of DEQ Web Page: <http://www.deq.state.ok.us>.

Thank you for your cooperation. If you have any questions, please refer to the permit number above and contact me or the permit writer at (405) 702-4100.

Sincerely,

Phillip Fielder, P.E., Permits and Engineering Group Manager
AIR QUALITY DIVISION

Texas Commission on Environmental Quality
Operating Permits Division (MC 163)
P.O. Box 13087
Austin, TX 78711-3087

SUBJECT: Construction Permit No. 2003-099-C (M-3) (PSD)
Huber Engineered Woods, Broken Bow
Broken Bow, McCurtain County, Oklahoma
Permit Writer: Jian Yue

Dear Sir / Madame:

The subject facility has requested a construction permit. Air Quality Division has completed the initial review of the application and prepared a draft permit for public review. Since this facility is within 50 miles of the Oklahoma - Texas border, a copy of the proposed permit will be provided to you upon request. Information on all permit and a copy of this draft permit are available for review by the public in the Air Quality Section of DEQ Web Page: <http://www.deq.state.ok.us>.

Thank you for your cooperation. If you have any questions, please refer to the permit number above and contact me or the permit writer at (405) 702-4100.

Sincerely,

Phillip Fielder, P.E., Permits and Engineering Group Manager
AIR QUALITY DIVISION

J.M. Huber Corporation
Huber Engineered Woods Division
Attn: Mr. Mike Kenna
1000 J.T. Tucker Road
Broken Bow, OK 74728

SUBJECT: Construction Permit No. 2003-099-C (M-3) (PSD)
Huber Engineered Woods, Broken Bow
Broken Bow, McCurtain County, Oklahoma
Permit Writer: Jian Yue

Dear Mr. Kenna:

Enclosed is the permit authorizing modification of the referenced facility. Please note that this permit is issued subject to the certain standards and specific conditions, which are attached. These conditions must be carefully followed since they define the limits of the permit and will be confirmed by periodic inspections.

Also note that you are required to annually submit an emissions inventory for this facility. An emissions inventory must be completed on approved AQD forms and submitted (hardcopy or electronically) by April 1st of every year. Any questions concerning the form or submittal process should be referred to the Emissions Inventory Staff at 405-702-4100.

Thank you for your cooperation. If you have any questions, please refer to the permit number above and contact the permit writer at (405) 702-4100.

Sincerely,

Jian Yue, P.E.
Engineering Section
AIR QUALITY DIVISION



PERMIT

AIR QUALITY DIVISION
STATE OF OKLAHOMA
DEPARTMENT OF ENVIRONMENTAL QUALITY
707 NORTH ROBINSON, SUITE 4100
P.O. BOX 1677
OKLAHOMA CITY, OKLAHOMA 73101-1677

Permit No. 2003-99-C (M-3) (PSD)

Huber Engineered Woods, LLC

having complied with the requirements of the law, is hereby granted permission to **make modifications as listed in the memorandum and specifications at the Broken Bow Facility at Broken Bow, McCurtain County, Oklahoma, Subject to standard conditions dated July 21, 2009 and specific conditions, both attached.**

In the absence of construction commencement, this permit shall expire 18 months from the issuance date, except as authorized under Section VIII of the Standard Conditions.

Division Director, Air Quality Division

Date