

**MISSOURI**  
DEPARTMENT OF  
NATURAL RESOURCES

**MISSOURI AIR CONSERVATION COMMISSION**

**PERMIT TO CONSTRUCT**

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **032018-011**

Project Number: 2017-04-031  
Installation Number: 009-0073

Parent Company: WinTech

Parent Company Address: P.O. Box 480, Monett, MO 65708

Installation Name: WinTech- Monett

Installation Address: 201 N. Industrial Drive, Monett, MO 65708

Location Information: Barry County, S32, T26N, R27W

Application for Authority to Construct was made for:

The installation of a powder coating operation, cure oven, burn off oven, and material cutting and sealing operation for producing commercial door and window products at a new facility. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

  
Prepared by  
Jordan Hull  
New Source Review Unit

  
Director or Designee  
Department of Natural Resources

**MAR 21 2018**

Effective Date

**STANDARD CONDITIONS:**

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Enforcement and Compliance Section of the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Enforcement and Compliance Section of the Department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department's regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit using the contact information below.

Contact Information:  
Missouri Department of Natural Resources  
Air Pollution Control Program  
P.O. Box 176  
Jefferson City, MO 65102-0176  
(573) 751-4817

The regional office information can be found at the following website:  
<http://dnr.mo.gov/regions/>

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

*The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."*

WinTech- Monett  
Barry County, S32, T26N, R27W

1. VOC and HAPs Emission Limitations
  - A. WinTech shall emit less than 40.0 tons of VOCs in any consecutive 12-month period from the entire installation. This includes EP-01a, 01b, EP-02, EP-03, and EP-05 (see Table 1 for details).
  - B. WinTech shall emit less than the SMAL given in Appendix A for each individual HAP and 25.0 tons of combined HAPs in any consecutive 12-month period from the entire installation. This includes EP-01a, 01b, EP-02, EP-03, and EP-05 (see Table 1 for details).
  - C. Attachment A, Attachment B and Attachment C, and Appendix B or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 1.A, and 1.B.
2. PM<sub>2.5</sub> Emission Limitation
  - A. WinTech shall emit less than 10.0 tons of PM<sub>2.5</sub> in any consecutive 12-month period from the entire installation. This includes EP-01a, 01b, EP-02, EP-03, EP-04, and EP-06 (see Table 1 for details).
  - B. Attachment D or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 2.A.
3. Capture Device Requirement – Spray Booths (EP-01a, 01b)
  - A. WinTech shall capture emissions from the spray applied surface coating operations with booths and exhaust fan(s).
  - B. WinTech shall operate the surface coating booth's exhaust fan(s) at all times when surface coating is applied.
  - C. WinTech shall maintain an operating and maintenance log for the spray booths and exhaust systems which shall include the following:
    - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
4. Control Device Requirement – Fabric Filters
    - A. The spray booths (EP-01a, 01b) shall be equipped with a fabric filter.
    - B. The spray booths fabric filters shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that the Department of Natural Resources' employees may easily observe them. The pressure drop shall be measured and recorded at least once every 24 hours. 24-hour periods when spray applied surface coating is non-operational shall be recorded. The pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
    - C. The fabric filters shall be operated and maintained in accordance with the manufacturer's specifications.
    - D. Replacement fabric filters shall be kept on hand at all times. The replacement filters shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance). The replacement filter material type and weight shall meet or exceed the specifications of the existing filter. The air to cloth ratio or air to filter ratio shall not be increased when filter replacement is performed.
    - E. WinTech shall maintain a copy of the fabric filter manufacturer's performance warranty on site.
    - F. WinTech shall maintain an operating and maintenance log for the fabric filters which shall include the following:
      - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
      - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
      - 3) Dates of all above schedules, incidents, activities, and actions.
  5. Operational Requirements for the Burn-off Oven
    - A. WinTech shall burn exclusively natural gas in the burn-off oven (EP-03).
    - B. WinTech shall only burn off surface coatings from hooks and racks for to burn off excess overspray.

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- C. WinTech shall use a direct-flame afterburner to control emissions from the burn-off oven. The afterburner shall be operated at a temperature of at least 1,400 degrees with more than a one-half (1/2) second residence time to ensure a minimum combustion efficiency of 99.9%.
  - D. The burn-off oven shall be equipped with a temperature recording device which is able to monitor, display, and record the temperature in the second combustion chamber to an accuracy of plus or minus two percent (2%). The temperature shall be recorded once during each burn cycle.
6. Control Device Requirement –Dust Collectors
- A. WinTech shall control emissions from wood cutting, metal cutting, vinyl sawing, and vinyl milling using negative pressure (suction) dust collector(s). The dust collectors shall be switched on while materials are being cut, milled, or sawed. The maximum distance between the hood inlet and the emissions source shall not exceed 1.5 times the diameter of the dust collector inlet exhaust duct.
  - B. Once every 24-hours, personnel shall record whether or not sawdust and metal fragments were visually entering the dust collector bag filter as well as the time and date of the observation. 24-hour periods when the dust collector is non-operational shall be recorded.
  - C. The dust collectors shall be operated and maintained in accordance with the manufacturer's specifications.
  - D. Replacement dust collector filters shall be kept on hand at all times. The replacement filters shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance). The replacement filter material type and weight shall meet or exceed the specifications of the existing filter. The air to cloth ratio or air to filter ratio shall not be increased when filter replacement is performed.
  - E. WinTech shall maintain a copy of the dust collector manufacturer's performance warranty on site.
  - F. WinTech shall maintain an operating and maintenance log for the dust collectors which shall include the following:
    - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
    - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
    - 3) Dates of all above schedules, incidents, activities, and actions.

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

7. Operational Requirement – Solvents/cleaning solutions
  - A. WinTech shall keep all solvents, paints, and cleaning solutions in sealed containers whenever the materials are not in use. WinTech shall provide and maintain suitable, easily read, permanent markings on all solvent, paint, and cleaning solution containers used with this equipment.
  
8. Use of Alternative Coatings in Spray Booths (EU-01a,01b)
  - A. WinTech shall maintain a list of new alternative materials used in the paint that were not previously included in the permit application.
  
  - B. When considering using an alternative material in the new paint booth that is different than a material listed in the Application for Authority to Construct, WinTech shall use the material's SDS sheet to determine the VOC, HAPs, and particulate concentrations within the material using the highest concentrations listed. Compounds within the material listed on the SDS shall be compared to those compounds listed in Appendix A in order to identify potential HAPs. WinTech shall then use the highest VOC, HAP, and particulate concentrations listed on the material's SDS sheet to calculate and track emissions from using the new material in accordance with Special Condition 1 and Special Condition 2.
  
9. Record Keeping and Reporting Requirements
  - A. WinTech shall maintain all records required by this permit for not less than five years and shall make them available to any Missouri Department of Natural Resources' personnel upon request. These records shall include SDS for all materials used.
  
  - B. WinTech shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE  
SECTION (5) REVIEW

Project Number: 2017-04-031  
Installation ID Number: 009-0073  
Permit Number: 032018-011

Installation Address:  
WinTech- Monett  
201 N. Industrial Drive  
Monett, MO 65708

Parent Company:  
WinTech  
P.O. Box 480  
Monett, MO 65708

Barry County, S32, T26N, R27W

REVIEW SUMMARY

- WinTech- Monett has applied for authority to construct a powder coating operation, cure oven, burn-off oven, materials cutting, and sealing operations for producing commercial door and window products.
- The application was deemed complete on May 2, 2017.
- HAP emissions are expected from the proposed equipment. HAPs of concern from this process are generated from the spraying powder coats, the application of sealants, and the use of solvents. (See *Project Description* for full list of HAPs)
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the NESHAPs apply to this installation. The MACT standard, 40 CFR Part 63, HHHHHH, *National Emission Standards for Hazardous Air Pollutants: Miscellaneous Coating Manufacturing* does not apply to EP-01 powder coating.
- A spray booth and spray booth filter system is being used to control the PM, PM<sub>10</sub>, PM<sub>2.5</sub> emissions from powder coating. Suction dust collectors are being used to control particulate from metal, wood, and PVC sawing/cutting.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of VOC, HAPs, and PM<sub>2.5</sub> are conditioned below de minimis levels.
- This installation is located in Barry County, an attainment area for all criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.

- Ambient air quality modeling was not performed since potential emissions of the application are conditioned below de minimis levels. All other pollutants are indirectly limited.
- Emissions testing is not required for the equipment as a part of this permit. Testing may be required as part of other state, federal or applicable rules.
- No Operating Permit is required for this installation because conditioned potential emissions of all pollutants are less than de minimis.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

WinTech, located in Monett, Missouri is a new commercial doors and windows manufacturing facility. With the issuance of this permit, the installation will be conditioned as a de minimis source.

No permits have been issued to WinTech- Monett from the Air Pollution Control Program.

### PROJECT DESCRIPTION

WinTech has applied to install powder coat spray booths for coating metal parts in the manufacturing of doors and windows. Two powder coating booths will be used along with their fabric filters (95%) to control emissions from the powder coating operations. The booths will be constructed on-site. The facility will also be installing a 3.0 MMBtu/ hr paint drying oven and a 0.875 MMBtu/hr burn off oven for paint racks (both natural gas fueled). WinTech will perform metal, wood, vinyl (PVC), and annealed glass cutting and fabrication in order to assemble and package door and window products. Cutting and fabrication will be controlled by negative pressure (suction) dust collectors with filters. Sealants may be applied to doors and windows and some sealants will emit VOC and HAPs. All materials will enter and leave the facility on an unpaved driveway approximately 165 feet long. VOC, total HAPs, individual HAPs, and PM<sub>2.5</sub> emissions are conditioned below de minimis installation wide. HAPs are additionally conditioned below the individual SMAL installation wide for each pollutant. MACT XXXXXX does not apply to the facility because the facility's SIC, 3442, is not listed within the MACT. MACT HHHHHH does not apply to the facility because the facility will only be performing powder coating.

While HAPs contained within powder coats exist in low concentrations, the ones identified were brown pigments with chromium (III) (SMAL 5.0 tpy) and antimony compounds (SMAL 5.0 tpy). The two cleaning solutions provided with the application are S-0138 Solvent Blend which contains Acetone (exempt from being considered as a



VOC), and DIBASIC ESTER which is 100% VOC with no HAPs (density of 9.12 lb/gallon). Door and window products could be constructed from metal, vinyl, and glass which may use Pecora 896-FC silicone type sealant which contains xylene (SMAL 10.0 tpy) and Toluene (SMAL 10.0 tpy). Certain brown powder coats contain Chromium-Antimony Titanate Buff Rutile pigments. Of the pigment, the concentrations of chromium (III) and antimony are 8% and 15%, respectively. There may be other HAPs present in the coatings, cleaning solutions, and sealants provided with the application or new HAPs contained in materials used in the future. If HAPs exceed the individual SMAL, 10 tpy limit, or 0.5 lbs/hour emission rate, seek approval from the Air Pollution Control Program New Source Review Unit before using this material. The company may use alternative coatings as long as coating usage complies with Special Condition 8.

When door and window products are finished and ready for shipping, they are loaded on pallets and hauled within semi-trucks over a 165 foot unpaved drive way. In order to prepare pallets for shipping the door and window products, wood supports for packaging are cut and fabricated using a table saw. Emissions are collected using a suction dust collector. The wood supports are then interwoven between finished products as they are palletized. All doors and windows produced at the facility are constructed from vinyl or metal. Metal and vinyl pieces are cut with a saw and then fabricated with punched holes or drilled before assembly. The process of sawing and perforating the metal and vinyl will be controlled with suction dust collectors.

Among window products, WinTech produces thermal windows using Elastocast 70215T and Elastocast 70230R resin (both produced by BASF, combined to create a diisocyanate sealant). The Elastocast material is applied to glass which is thermally insulating. Elastocast 70215T contains Diphenylmethane-4,4'-diisocyanate (MDI, HAP with SMAL of 0.1 tpy, 50% concentration). Elastocast 70230R was not identified to contain HAPs. Among door products, Wintech produces insulated doors using AutoFroth 9300A Isocyanate and AutoFroth 92-B-0705 Resin (both produced by BASF, combined to create a diisocyanate sealant). AutoFroth 9300A Isocyanate also contains 50% MDI. Essentially the Elastocast components and AutoFroth components behave similarly: an 'A' side compound containing MDI is combined with a 'B' side resin compound which react and form a solid sealant.

MDI emissions will be small since MDI is a solid compound and will be applied by a handheld extruder directly to the widow and/or door (i.e. MDI compounds won't be sprayed or atomized). MDI emissions were calculated using the spreadsheet "MDI / PMDI Calculator" provided by the Center for the Polyurethanes Industry – American Chemistry Council. The emission rate for doors, similar in magnitude to window production, was 0.000494 lbs/year (based upon a mixing temperature of 85 °F, MDI content of 70% weight, average 2.5 ft<sup>3</sup> of foam used in each door, 50 doors per day). Taking 0.000494 lbs/year and dividing by 18250 windows and/or doors per year (equivalent to 50 doors per day multiplied by 365), the emission factor for MDI was developed (2.71E-8 lbs MDI per door or window). While all Elastocast and AutoFroth products contain some VOC (between 13%-22% of total weight), it was assumed that, the quick reaction times of 'A' side and 'B' side compounds and the nature of

polyurethane (reaction product of MDI and polyol; hardened internally porous product), trackable quantities of VOC emissions will not be able to escape the window and door products while they reside on WinTech's property. Essentially the resins may contain VOC components including propylene carbonate, tris(2-chloro-1-methylethyl)phosphate, cyclohexyldimethylamine, and N, N'N"-tris(dimethylamino-propyl)-hexahydrotriazine, diethylene glycol, and triethylenediamine which are a part of the product and act as flame retardants, surfactants, catalysts, pigments, or blowing agents for creating a porous internal structure in the hardened polyurethane. Essentially any remaining VOC is captured in the 'bubbles' within the material though some off gassing may be possible over time. The VOC content of Elastocast 70215T, Elastocast 70230R, AutoFroth 9300A, and AutoFroth 92-B-0705 are 13%, 17%, 13%, and 22%, respectively (polyol was not counted as VOC since it will completely react with MDI). For a full list of emission units at the facility see Table 1 and 2 below.

Table 1: Installation Emission Points

Emission Points	Emissions Point Description	Potential Criteria Pollutants	Control Device	Permit Status <sup>1</sup>
EP-01a, 01b	Powder Coating Booths (2)	PM/PM <sub>10</sub> /PM <sub>2.5</sub> , VOC, HAPs	Spray Booths and Fabric Filters	New
EP-02	3.0 MMBtu/ hr Paint oven (Natural Gas Fueled)	PM/PM <sub>10</sub> /PM <sub>2.5</sub> , SO <sub>x</sub> , NO <sub>x</sub> , CO, VOC, HAPs	N/C	New
EP-03	0.875 MMBtu/hr Burn-off Oven for Paint Racks (Natural Gas Fueled)	PM/PM <sub>10</sub> /PM <sub>2.5</sub> , SO <sub>x</sub> , NO <sub>x</sub> , CO, VOC, HAPs	After Burner on Burn-off Oven	New
EP-04	Wood/Metal/Plastic/Glass Cutting & Milling:  <i>Metal and vinyl drill presses (12 total)</i> <i>Metal and vinyl mills (16 total)</i> <i>Bridgeport tooling mill/drill (2 total)</i> <i>Metal and glass sanders (5 total)</i> <i>Metal, vinyl, and wood saws (25 total)</i> <i>Metal Grinders (4 total)</i> <i>Metal Lathe/Drills (1 total)</i>	PM/PM <sub>10</sub> /PM <sub>2.5</sub>	Suction Dust Collectors	New
EP-05	Sealant Usage and Cleaning Solvents	MDI, VOC, HAPs	N/C	New
EP-06	Haul Road	PM/PM <sub>10</sub> /PM <sub>2.5</sub>	None (unpaved)	New

N/C = No Control Device is Associated with the Emission Unit

<sup>1</sup>All installation wide emission points were considered as a part of this project for permitting and potential to emit purposes

## EMISSIONS/CONTROLS EVALUATION

The emission factors used for roads and natural gas combustion were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 1.4 *Natural Gas Combustion* (July, 1998) and Section 13.2.2 *Unpaved Roads*

(November, 2006). All spray gun emissions will arise from the spray booths. Since the spray booths will be enclosed on four sides with a roof and have an airflow/exhaust system, a default 100% capture efficiency was assumed. WinTech will use an electrostatic spray gun for all surface coating. According to the EPA document entitled, Sources and Control of Volatile Organic Air Pollutants, APTI Course 482, Third Edition (November 2002) airless spray coating of large flat surfaces can achieve 75% transfer efficiency. The spray booth is equipped with filters and was therefore assigned a default 95% PM/PM<sub>10</sub>/PM<sub>2.5</sub> control efficiency. Multiplying the 25% overspray emissions by the remaining 5% filter emissions yields a 1.25 % of total weight sprayed emission rate (i.e. for every 100 lbs of solid coat sprayed, 1.25 lbs of PM/PM<sub>10</sub>/PM<sub>2.5</sub> will be emitted). These efficiencies have been added to the particulate tracking sheet in Attachment D.

The products produced by the facility, commercial doors and windows, will be hauled from the facility by semi-trucks. When door and window products are finished they are palletized and placed on semi-trucks trailers which weigh roughly 24.5 tons unloaded. An average pallet will weigh around 500 lbs. Typically less than a dozen pallets are loaded into a truck at a time, though for calculations, the area of a full sized semi-truck trailer can accommodate around 24 pallets. On an average day, 15 semi-trucks will pick up product from the facility. This yields a daily haul rate of 90 tons per day of palletized doors and windows. Assuming roughly 90 tons of material must also enter the facility each day, the hourly haul rate delivering raw materials and removing finished products are 3.75 tph for receiving and shipping (7.5 tph total). The semi-trucks will haul over an existing unpaved driveway no longer than 165 feet. PM<sub>2.5</sub> haul road emissions were calculated and found to be about 0.046 tpy. Since emissions are relatively small compared to the 10 tpy PM<sub>2.5</sub> limit, maximum monthly haul road emissions were hard coded into Attachment D as a constant monthly value.

Windows will also be fitted with metal and extruded polyvinyl chloride (PVC) pieces. Wood cutting, metal cutting, and metal drilling/perforating, vinyl milling, and vinyl sawing will each be controlled by separate suction dust collectors. Essentially the suction dust collector uses an electric motor to run a fan which pulls air into the dust collector unit. Air that travels into the unit will then cross over a filter where particulate is captured. Generally the air intake will be right next to the cutting operation, though some suction dust collectors will have tubing or a hose attached which allows the intake to stretch closer to the particulate source. Currently WinTech uses several Grizzly Dust Collector units for collecting cutting, sawing, and milling particulate emissions, though they are not required to specifically use Grizzly units. They may use any manufacturer so long as the unit behaves similarly (i.e. uses negative pressure suction force to pull air borne particulate through a filter.) The facility may also control multiple operations with the same dust collector or they may use a single dust collector for sawing, cutting, milling, etc. (See Special Condition 4.B)

Suction dust collector capture efficiency was given a default 70% based upon compliance with special condition 6 (suction force will capture particulate, but since cutting/fabricating is not fully enclosed, some particulate will not be captured). The filter efficiency was assumed to have 90% filter efficiency for all particulate (the filter was

given a slightly lower control efficiency because it was designed to primarily handle larger particulate). Therefore overall control efficiency was calculated to be 63% for PM/PM<sub>10</sub>/PM<sub>2.5</sub> (i.e. 37% of PM/PM<sub>10</sub>/PM<sub>2.5</sub> will not be captured). Wood cutting emission factors were derived from EPA Memorandum entitled, "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country." This document provides a PM emission factor but assumes the PM<sub>10</sub> emission factor and PM<sub>2.5</sub> emission factor will be 50% and 25% of the total particulate, respectively. For a more realistic particulate distribution, the CEIDARs particulate distribution was applied to the Memorandum's PM emission factor. Combining the Memorandum PM emission factor and the CEIDARs particle distribution yields emission factors for PM, PM<sub>10</sub>, and PM<sub>2.5</sub> of 0.350 lb/ton, 0.140 lb/ton, and 0.099 lb/ton, respectively. Emission factors for wood cutting were used for metal cutting/perforating and vinyl milling as well.

The following table provides an emissions summary for this project. There are no existing potential emission sources permitted at this facility. Potential emissions of the application represent the potential of the entire installation, assuming continuous operation (8760 hours per year).

Table 2: Emissions Summary (tpy)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions	Potential Emissions of the Project	New Installation Conditioned Potential
PM	25.0	N/A	N/A	13.96	13.96
PM <sub>10</sub>	15.0	N/A	N/A	11.24	11.24
PM <sub>2.5</sub>	10.0	N/A	N/A	<10.0	<10.0
SOx	40.0	N/A	N/A	0.01	0.01
NOx	40.0	N/A	N/A	1.66	1.66
VOC	40.0	N/A	N/A	<40.0	<40.0
CO	100.0	N/A	N/A	1.40	1.40
Combined HAPs	25.0	N/A	N/A	<25.0	<25.0
Toluene	10.0/SMAL	N/A	N/A	<SMAL	<SMAL
Xylene	10.0/SMAL	N/A	N/A	<SMAL	<SMAL

N/A = Not Applicable; N/D = Not Determined

<sup>1</sup>While Toluene and Xylene were listed as the largest individual HAPs, other HAPs may be present.

### PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are conditioned below de minimis levels.

## APPLICABLE REQUIREMENTS

WinTech- Monett shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

## GENERAL REQUIREMENTS

- *Start-Up, Shutdown, and Malfunction Conditions*, 10 CSR 10-6.050
- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
  - Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

## STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, it is recommended that this permit be granted with special conditions.

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated April 13, 2017, received April 17, 2017, designating WinTech as the owner and operator of the installation.

## Other Relied Upon Documents

- The Engineering ToolBox summary of pine (kiln dried) lumber boards which suggests average density of pressure treated lumber is approximately 30 lbs/ft<sup>3</sup>.

- [http://www.engineeringtoolbox.com/green-kiln-dried-pressure-treated-lumber-weights-d\\_1860.html](http://www.engineeringtoolbox.com/green-kiln-dried-pressure-treated-lumber-weights-d_1860.html)
- American Chemistry Council – Center for the Polyurathanes Industry, “MDI / PMDI Calculator”.
- EPA Memorandum from Region 10 entitled, “Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country” (May 08, 2014) which provides emission factors for woodcutting.
- E-mail Communications between WinTech and the Missouri Air Pollution Control Program. This includes supplemental data submitted along with the e-mails.

## Attachment A- HAP Compliance Worksheet

WinTech- Monett  
 Barry County, S32, T26N, R27W  
 Project Number: 2017-04-031  
 Installation ID Number: 009-0073  
 Permit Number: **032018-011**

This sheet covers the period from \_\_\_\_\_ to \_\_\_\_\_  
 (month, year) (month, year)

Column 1	Column 2 (a)	Column 3	Column 4	Column 5
Material Used (name, type)	Amount of material used (include units)	Density of material used (lbs/gal)	VOC content (%)	VOC emissions (tons)
Total monthly VOC emissions from Natural Gas Combustion (tons):				0.007
(b) Total VOC emissions calculated for this month (tons):				
(c) 12-month VOC emissions total from previous month's worksheet (tons):				
(d) Monthly VOC emissions total from previous year's worksheet (tons):				
(e) Current 12 month total of VOC emissions (tons): [(b)+(c)-(d)]				

Instructions:

- (a) Choose appropriate VOC calculation method for units reported:
  1. If usage is in tons: [Column 2] x [Column 4] = [Column 5]
  2. If usage is in pounds: [Column 2] x [Column 4] x [0.0005] = [Column 5]
  3. If usage is in gallons: [Column 2] x [Column 3] x [Column 4] x [0.0005] = [Column 5]
- (b) Summation of Column 5.
- (c) 12-month VOC emissions total from previous month's worksheet (tons).
- (d) Monthly VOC emissions total from previous year's worksheet (tons).
- (e) Calculate the new 12 month VOC emissions total. **A total of less than 40.0 tons per year indicates compliance.**

Include the startup, shutdown, and malfunction emissions as reported to the Air Pollution Control Program's Compliance/Enforcement Section according to the provisions of 10 CSR 10-6.050

## Attachment B - HAP Compliance Worksheet

WinTech-Monett

Barry County, S32, T26N, R27W

Project Number: 2017-04-031

Installation ID Number: 009-0073

Permit Number: **032018-011**

This sheet covers the month of \_\_\_\_\_ in the year \_\_\_\_\_

Column 1	Column 2 (a)	Column 3	Column 4	Column 5
Material Used (name, HAP CAS #)	Amount of material used (include units)	Density of material used (lbs/gal)	HAP content (%)	HAP emissions (tons)
Total monthly HAP emissions from Natural Gas Combustion (tons):				0.003
(b) Total amount of doors and windows produced using MDI compounds: Total monthly MDI emissions from applying sealant (tons):				
(c) Total HAP emissions calculated for this month (tons):				
(d) 12-month HAP emissions total from previous month's worksheet (tons):				
(e) Monthly HAP emissions total from previous year's worksheet (tons):				
(f) Current 12 month total of HAP emissions (tons): [(c)+(d)-(e)]				

**Instructions:**

(a) Choose appropriate HAP calculation method for units reported:

1. If usage is in tons: [Column 2] x [Column 4] = [Column 5]
2. If usage is in pounds: [Column 2] x [Column 4] x [0.0005] = [Column 5]
3. If usage is in gallons: [Column 2] x [Column 3] x [Column 4] x [0.0005] = [Column 5]

For HAPs bound within powder coating use the following calculation methods:

1. If usage is in tons: [Column 2] x [Column 4] x [0.0125] = [Column 5]
2. If usage is in pounds: [Column 2] x [Column 4] x [0.0125] x [0.0005] = [Column 5]

(Note 1: The [0.0125] factor above accounts for the 100% capture, and 95% filter efficiency, and 25% overspray such that 1.25% of solid particulate will escape the booth as emissions.)

(b) Currently WinTech is not limited in the amount of doors and windows they can make. Therefore monthly MDI emissions are calculated as the sum of windows/doors produced with MDI compounds multiplied by 1.35E-11 tons MDI (equivalent to 2.71E-08 lbs MDI per door/window divided by 2000 lbs/ton)

(c) Summation of Column 5.

(d) 12-month HAP emissions total from previous month's worksheet (tons).

(e) Monthly HAP emissions total from previous year's worksheet (tons).

(f) Calculate the new 12 month HAP emissions total. **A total of less than 25.0 tons indicates compliance.** Include the startup, shutdown, and malfunction emissions as reported to the Air Pollution Control Program's Compliance/Enforcement Section according to the provisions of 10 CSR 10-6.050



## Attachment C – Individual HAP Compliance Worksheet

WinTech-Monett  
 Barry County, S32, T26N, R27W  
 Project Number: 2017-04-031  
 Installation ID Number: 009-0073  
 Permit Number: **032018-011**

HAP name: \_\_\_\_\_ CAS #: \_\_\_\_\_  
 This sheet covers the month of \_\_\_\_\_ in the year \_\_\_\_\_

Column 1 (a)	Column 2 (b)
List materials from Attachment B which emit this specific HAP (name, type)	HAP emissions from Attachment B (tons) [Column 5]
(c1) Total monthly natural gas HAP contribution (tons; see Note 1 below):	
(c) Total individual HAP emissions calculated for this month (tons):	
(d) 12-month HAP emissions total from previous month's worksheet (tons):	
(e) Monthly HAP emissions total from previous year's worksheet (tons):	
(f) Current 12 month total of HAP emissions (tons): [(b)+(c)-(d)]	
(g) List the SMAL for the individual HAP found in Appendix A (tons per year)	

**Instructions:**  
 (a) Individually list each material that emits this specific HAP.  
 (b) Record the amount of each individual HAP emissions already calculated for Attachment B in Column 5 (tons).  
 (c) Summation of Column 2 (tons)  
 (d) Monthly HAP emissions total from previous month's worksheet (tons).  
 (e) Monthly HAP emissions total from previous year's worksheet (tons).  
 (f) Calculate the new 12 month HAP emissions total. **A total of less than the individual SMAL indicates compliance. See Appendix A for a full list of SMAL.** Include the startup, shutdown, and malfunction emissions as reported to the Air Pollution Control Program's Compliance/Enforcement Section according to the provisions of 10 CSR 10-6.050.

**Note 1:** While natural gas releases a multitude of individual HAPs, none of them were found to be above the SMAL or above 10 tpy individually. However, natural gas also releases many other individual HAPs such as Toluene which is a pollutant also found in some materials used at the facility. In row (c1), record the monthly emissions value from Appendix B corresponding to the individual HAP being tracked. If the individual HAP is found nowhere in the facility except as a combustion product of natural gas, then you do not need to include the pollutant on a separate individual HAP tracking sheet since all natural gas pollutants are below their respective SMALs. If the pollutant being tracked above is not present as a natural gas combustion product, the value for row (c1) is zero combustion. In addition, as a part of this permit, all natural gas HAPs were evaluated over an 8760 hour basis and none were found to exceed individual SMAL

## Attachment D – PM<sub>2.5</sub> Compliance Worksheet

WinTech- Monett

Barry County, S32, T26N, R27W

Project Number: 2017-04-031

Installation ID Number: 009,0073

Permit Number: 032018-011

This sheet covers the period from \_\_\_\_\_ to \_\_\_\_\_  
 (month, year) (month, year)

Column 1	Column 2 (a)	Column 3	Column 4	Column 5
Material Used (name, type)	Amount of material used (include units, lbs or gallons)	Density of material used (lbs/gal)	Solid content (%) (Use largest % listed if range)	PM <sub>2.5</sub> emissions (tons)
(a-4) Total Monthly PM <sub>2.5</sub> emissions from Vinyl Cutting (tons):				
(a-5) Total Monthly PM <sub>2.5</sub> emissions from Metal Cutting (tons):				
(a-6) Total Monthly PM <sub>2.5</sub> emissions from Wood Cutting (tons):				
(a-7) Total Monthly PM <sub>2.5</sub> emissions from Glass Sanding (tons):				
Total Monthly PM <sub>2.5</sub> emissions from Haul Roads (tons):				0.0093
Total Monthly PM <sub>2.5</sub> emissions from Natural Gas Combustion (tons):				0.0041
(b) Total PM <sub>2.5</sub> emissions calculated for this month (tons):				
(c) 12-month PM <sub>2.5</sub> emissions total from previous month's worksheet (tons):				
(d) Monthly PM <sub>2.5</sub> emissions total from previous year's worksheet (tons):				
(e) Current 12 month total of PM <sub>2.5</sub> emissions (tons): [(b)+(c)-(d)]				

**Instructions:**

(a) Choose appropriate PM<sub>2.5</sub> calculation method for units reported:

- 1) If usage is in tons: [Column 2] x [Column 4] x [0.0125] = [Column 5]
- 2) If usage is in pounds: [Column 2] x [Column 4] x [0.0125] x [0.0005] = [Column 5]
- 3) If usage is in gallons: [Column 2] x [Column 3] x [0.0125] x [0.0005] = [Column 5]
- 4) (row a-4) vinyl cutting emissions: [total length of vinyl cut in ft] x [0.005965 ft<sup>2</sup>] x [97 lb/ft<sup>3</sup> vinyl density] x [0.0005] x [0.099 lbs/ton] x [0.37] x [0.0005] = [Column 5].
- 5) (row a-5) metal cutting emissions: [total length of metal cut in ft] x [0.004007 ft<sup>2</sup>] x [density of metal (170 lbs/ft<sup>3</sup> for Aluminum, 500 lbs/ft<sup>3</sup> for Steel)] x [0.0005] x [0.099 lbs/ton] x [0.37] x [0.0005] = [Column 5].
- 6) (row a-6) wood cutting emissions: [total volume of wood cut in ft<sup>3</sup>] x [30 lbs/ft<sup>3</sup>] x [0.0005] x [0.099 lb/ton] x [0.37] x [0.0005] = [Column 5]
- 7) (row a-7) For annealed glass sanding only: [area glass sanded (ft<sup>2</sup>)] x [glass height (ft)] x [156 (lb/ft<sup>3</sup> - density of soda lime float glass)] x [0.0005] x [0.099 lbs/ton] x [0.37] x [0.0005] = [Column 5]

(b) Summation of Column 5.

(c) 12-month PM<sub>2.5</sub> emissions total from previous month's worksheet (tons).

(d) Monthly PM<sub>2.5</sub> emissions total from previous year's worksheet (tons).

(e) Calculate the new 12 month PM<sub>2.5</sub> emissions total. **A total of less than 10.0 tons per year indicates compliance.**

Include the startup, shutdown, and malfunction emissions as reported to the Air Pollution Control Program's

Compliance/Enforcement Section according to the provisions of 10 CSR 10-6.050

**Note 1:** The [0.0125] factor above accounts for the 100% capture, and 95% filter efficiency, and 25% overspray such that 1.25% of solid particulate will escape the booth as emissions.

**Note 2:** The [(a)4)] 0.00596 ft<sup>2</sup> and the [(a)5)] 0.004007 ft<sup>2</sup> listed above are the largest cross sectional area for each type of material.

## APPENDIX A

### Abbreviations and Acronyms

<b>%</b> .....	percent	<b>Mgal</b> .....	1,000 gallons
<b>°F</b> .....	degrees Fahrenheit	<b>MW</b> .....	megawatt
<b>acfm</b> .....	actual cubic feet per minute	<b>MHDR</b> .....	maximum hourly design rate
<b>BACT</b> .....	Best Available Control Technology	<b>MMBtu</b> ....	Million British thermal units
<b>BMPs</b> .....	Best Management Practices	<b>MMCF</b> ....	million cubic feet
<b>Btu</b> .....	British thermal unit	<b>MSDS</b> .....	Material Safety Data Sheet
<b>CAM</b> .....	Compliance Assurance Monitoring	<b>NAAQS</b> ....	National Ambient Air Quality Standards
<b>CAS</b> .....	Chemical Abstracts Service	<b>NESHAPs</b>	National Emissions Standards for Hazardous Air Pollutants
<b>CEMS</b> .....	Continuous Emission Monitor System	<b>NO<sub>x</sub></b> .....	nitrogen oxides
<b>CFR</b> .....	Code of Federal Regulations	<b>NSPS</b> .....	New Source Performance Standards
<b>CO</b> .....	carbon monoxide	<b>NSR</b> .....	New Source Review
<b>CO<sub>2</sub></b> .....	carbon dioxide	<b>PM</b> .....	particulate matter
<b>CO<sub>2e</sub></b> .....	carbon dioxide equivalent	<b>PM<sub>2.5</sub></b> .....	particulate matter less than 2.5 microns in aerodynamic diameter
<b>COMS</b> .....	Continuous Opacity Monitoring System	<b>PM<sub>10</sub></b> .....	particulate matter less than 10 microns in aerodynamic diameter
<b>CSR</b> .....	Code of State Regulations	<b>ppm</b> .....	parts per million
<b>dscf</b> .....	dry standard cubic feet	<b>PSD</b> .....	Prevention of Significant Deterioration
<b>EIQ</b> .....	Emission Inventory Questionnaire	<b>PTE</b> .....	potential to emit
<b>EP</b> .....	Emission Point	<b>RACT</b> .....	Reasonable Available Control Technology
<b>EPA</b> .....	Environmental Protection Agency	<b>RAL</b> .....	Risk Assessment Level
<b>EU</b> .....	Emission Unit	<b>SCC</b> .....	Source Classification Code
<b>fps</b> .....	feet per second	<b>scfm</b> .....	standard cubic feet per minute
<b>ft</b> .....	feet	<b>SDS</b> .....	Safety Data Sheet
<b>GACT</b> .....	Generally Available Control Technology	<b>SIC</b> .....	Standard Industrial Classification
<b>GHG</b> .....	Greenhouse Gas	<b>SIP</b> .....	State Implementation Plan
<b>gpm</b> .....	gallons per minute	<b>SMAL</b> .....	Screening Model Action Levels
<b>gr</b> .....	grains	<b>SO<sub>x</sub></b> .....	sulfur oxides
<b>GWP</b> .....	Global Warming Potential	<b>SO<sub>2</sub></b> .....	sulfur dioxide
<b>HAP</b> .....	Hazardous Air Pollutant	<b>tph</b> .....	tons per hour
<b>hr</b> .....	hour	<b>tpy</b> .....	tons per year
<b>hp</b> .....	horsepower	<b>VMT</b> .....	vehicle miles traveled
<b>lb</b> .....	pound	<b>VOC</b> .....	Volatile Organic Compound
<b>lbs/hr</b> .....	pounds per hour		
<b>MACT</b> .....	Maximum Achievable Control Technology		
<b>µg/m<sup>3</sup></b> .....	micrograms per cubic meter		
<b>m/s</b> .....	meters per second		

## Appendix B- Air Pollution Control Program Table of Hazardous Air Pollutants and Screening Model Action Levels

Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM	Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM
ACETALDEHYDE	75-07-0	9		Y	N	CHLOROMETHYL METHYL ETHER	107-30-2	0.1		Y	N
ACETAMIDE	60-35-5	1		Y	N	CHLOROPRENE	126-99-8	1		Y	N
ACETONITRILE	75-05-8	4		Y	N	CHROMIUM (VI) COMPOUNDS		0.002	L	N	Y
ACETOPHENONE	98-86-2	1		Y	N	CHROMIUM COMPOUNDS		5	L	N	Y
ACETYLAMINOFLUORINE, [2-]	53-96-3	0.005	V	Y	Y	CHRYSENE	218-01-9	0.01	V	Y	N
ACROLEIN	107-02-8	0.04		Y	N	COBALT COMPOUNDS		0.1	M	N	Y
ACRYLAMIDE	79-06-1	0.02		Y	N	COKE OVEN EMISSIONS	8007-45-2	0.03	N	Y	N
ACRYLIC ACID	79-10-7	0.6		Y	N	CRESOL, [META-]	108-39-4	1	B	Y	N
ACRYLONITRILE	107-13-1	0.3		Y	N	CRESOL, [ORTHO-]	95-48-7	1	B	Y	N
ALLYL CHLORIDE	107-05-1	1		Y	N	CRESOL, [PARA-]	106-44-5	1	B	Y	N
AMINOBIIPHENYL, [4-]	92-67-1	1	V	Y	N	CRESOLS (MIXED ISOMERS)	1319-77-3	1	B	Y	N
ANILINE	62-53-3	1		Y	N	CUMENE	98-82-8	10		Y	N
ANISIDINE, [ORTHO-]	90-04-0	1		Y	N	CYANIDE COMPOUNDS		0.1	O	Y	N
ANTHRACENE	120-12-7	0.01	V	Y	N	DDE	72-55-9	0.01	V	Y	Y
ANTIMONY COMPOUNDS		5	H	N	Y	DI(2-ETHYLHEXYL) PHTHALATE, (DEHP)	117-81-7	5		Y	N
ANTIMONY PENTAFLUORIDE	7783-70-2	0.1	H	N	Y	DIAMINOTOLUENE, [2,4-]	95-80-7	0.02		Y	N
ANTIMONY POTASSIUM TARTRATE	28300-74-5	1	H	N	Y	DIAZOMETHANE	334-88-3	1		Y	N
ANTIMONY TRIOXIDE	1309-64-4	1	H	N	Y	DIBENZ(A,H)ANTHRACENE	53-70-3	0.01	V	Y	N
ANTIMONY TRISULFIDE	1345-04-6	0.1	H	N	Y	DIOXINS/FURANS		6E-07	D,V	Y	N
ARSENIC COMPOUNDS		0.005	I	N	Y	DIBENZOFURAN	132-64-9	5	V	Y	N
ASBESTOS	1332-21-4	0	A	N	Y	DIBROMO-3-CHLOROPROPANE, [1,2-]	96-12-8	0.01		Y	N
BENZ(A)ANTHRACENE	56-55-3	0.01	V	Y	N	DIBROMOETHANE, [1,2-]	106-93-4	0.1		Y	N
BENZENE	71-43-2	2		Y	N	DIBUTYL PHTHALATE	84-74-2	10		Y	Y
BENZIDINE	92-87-5	0.0003	V	Y	N	DICHLOROBENZENE, [1,4-]	106-46-7	3		Y	N
BENZO(A)PYRENE	50-32-8	0.01	V	Y	N	DICHLOROBENZIDINE, [3,3-]	91-94-1	0.2	V	Y	Y
BENZO(B)FLUORANTHENE	205-99-2	0.01	V	Y	N	DICHLOROETHANE, [1,1-]	75-34-3	1		Y	N
BENZO(K)FLUORANTHENE	207-08-9	0.01	V	Y	N	DICHLOROETHANE, [1,2-]	107-06-2	0.8		Y	N
BENZOTRICHLORIDE	98-07-7	0.006		Y	N	DICHLOROETHYLENE, [1,1-]	75-35-4	0.4		Y	N
BENZYL CHLORIDE	100-44-7	0.1		Y	N	DICHLOROMETHANE	75-09-2	10		N	N
BERYLLIUM COMPOUNDS		0.008	J	N	Y	DICHLOROPHENOXY ACETIC ACID, [2,4-]	94-75-7	10	C	Y	Y
BERYLLIUM SALTS		2E-05	J	N	Y	DICHLOROPROPANE, [1,2-]	78-87-5	1		Y	N
BIPHENYL, [1,1-]	92-52-4	10	V	Y	N	DICHLOROPROPENE, [1,3-]	542-75-6	1		Y	N
BIS(CHLOROETHYL)ETHER	111-44-4	0.06		Y	N	DICHLOROVOS	62-73-7	0.2		Y	N
BIS(CHLOROMETHYL)ETHER	542-88-1	0.0003		Y	N	DIETHANOLAMINE	111-42-2	5		Y	N
BROMOFORM	75-25-2	10		Y	N	DIETHYL SULFATE	64-67-5	1		Y	N
BROMOMETHANE	74-83-9	10		Y	N	DIETHYLENE GLYCOL MONOBUTYL ETHER	112-34-5	5	P	Y	N
BUTADIENE, [1,3-]	106-99-0	0.07		Y	N	DIMETHOXYBENZIDINE, [3,3-]	119-90-4	0.1	V	Y	Y
BUTOXYETHANOL ACETATE, [2-]	112-07-2	5	P	Y	N	DIMETHYL BENZIDINE, [3,3-]	119-93-7	0.008	V	Y	Y
BUTYLENE OXIDE, [1,2-]	106-88-7	1		Y	N	DIMETHYL CARBAMOYL CHLORIDE	79-44-7	0.02		Y	N
CADMIUM COMPOUNDS		0.01	K	N	Y	DIMETHYL FORMAMIDE	68-12-2	1		Y	N
CALCIUM CYANAMIDE	156-62-7	10		Y	Y	DIMETHYL HYDRAZINE, [1,1-]	57-14-7	0.008		Y	N
CAPROLACTAM (Delisted)	105-60-2					DIMETHYL PHTHALATE	131-11-3	10		Y	N
CAPTAN	133-06-2	10		Y	Y	DIMETHYL SULFATE	77-78-1	0.1		Y	N
CARBARYL	63-25-2	10	V	Y	Y	DIMETHYLAMINOAZOBENZENE, [4-]	60-11-7	1		Y	N
CARBON DISULFIDE	75-15-0	1		Y	N	DIMETHYLANILINE, [N-N-]	121-69-7	1		Y	N
CARBON TETRACHLORIDE	56-23-5	1		Y	N	DINITRO-O-CRESOL, [4,6-] (Note 6)	534-52-1	0.1	E	Y	Y
CARBONYL SULFIDE	463-58-1	5		Y	N	DINITROPHENOL, [2,4-]	51-28-5	1		Y	N
CATECHOL	120-80-9	5		Y	N	DINITROTOLUENE, [2,4-]	121-14-2	0.02		Y	N
CHLORAMBEN	133-90-4	1		Y	Y	DIOXANE, [1,4-]	123-91-1	6		Y	N
CHLORDANE	57-74-9	0.01		Y	Y	DIPHENYLHYDRAZINE, [1,2-]	122-66-7	0.09	V	Y	Y
CHLORINE	7782-50-5	0.1		N	N	DIPHENYLMETHANE DIISOCYANATE, [4,4-]	101-68-8	0.1	V	Y	N
CHLOROACETIC ACID	79-11-8	0.1		Y	N	EPICHLOROHYDRIN	106-89-8	2		Y	N
CHLOROACETOPHENONE, [2-]	532-27-4	0.06		Y	N	ETHOXYETHANOL, [2-]	110-80-5	10	P	Y	N
CHLOROBENZENE	106-90-7	10		Y	N	ETHOXYETHYL ACETATE, [2-]	111-15-9	5	P	Y	N
CHLOROBENZILATE	510-15-6	0.4	V	Y	Y	ETHYL ACRYLATE	140-88-5	1		Y	N
CHLOROFORM	67-66-3	0.9		Y	N	ETHYL BENZENE	100-41-4	10		Y	N

## Appendix B- Air Pollution Control Program Table of Hazardous Air Pollutants and Screening Model Action Levels

Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM	Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM
ETHYL CHLORIDE	75-00-3	10		Y	N	NITROBENZENE	98-95-3	1		Y	N
ETHYLENE GLYCOL	107-21-1	10		Y	N	NITROBIPHENYL, [4-]	92-93-3	1	V	Y	N
ETHYLENE GLYCOL MONOBUTYL ETHER (Delisted)	111-76-2					NITROPHENOL, [4-]	100-02-7	5		Y	N
ETHYLENE GLYCOL MONOHEXYL ETHER	112-25-4	5	P	Y	N	NITROPROPANE, [2-]	79-46-9	1		Y	N
ETHYLENE IMINE [AZIRIDINE]	151-56-4	0.003		Y	N	NITROSODIMETHYLAMINE, [N-]	62-75-9	0.001		Y	N
ETHYLENE OXIDE	75-21-8	0.1		Y	N	NITROSOMORPHOLINE, [N-]	59-89-2	1		Y	N
ETHYLENE THIOUREA	96-45-7	0.6		Y	Y	NITROSO-N-METHYLUREA, [N-]	684-93-5	0.0002		Y	N
FORMALDEHYDE	50-00-0	2		Y	N	OCTACHLORONAPHTHALENE	2234-13-1	0.01	V	Y	N
GLYCOL ETHER (ETHYLENE GLYCOL ETHERS)		5	P	Y	N	PARATHION	56-38-2	0.1		Y	Y
GLYCOL ETHER (DIETHYLENE GLYCOL ETHERS)		5	P	Y	N	PCB [POLYCHLORINATED BIPHENYLS]	1336-36-3	0.009	X	Y	Y
HEPTACHLOR	76-44-8	0.02		Y	N	PENTACHLORONITROBENZENE	82-68-8	0.3		Y	N
HEXACHLOROBENZENE	118-74-1	0.01		Y	N	PENTACHLOROPHENOL	87-86-5	0.7		Y	N
HEXACHLOROBUTADIENE	87-68-3	0.9		Y	N	PHENOL	108-95-2	0.1		Y	N
HEXACHLOROCYCLOHEXANE, [ALPHA-]	319-84-6	0.01	F	Y	N	PHENYLENEDIAMINE, [PARA-]	106-50-3	10		Y	N
HEXACHLOROCYCLOHEXANE, [BETA-]	319-85-7	0.01	F	Y	N	PHOSGENE	75-44-5	0.1		Y	N
HEXACHLOROCYCLOHEXANE, [DELTA-]	319-86-8	0.01	F	Y	N	PHOSPHINE	7803-51-2	5		N	N
HEXACHLOROCYCLOHEXANE, [TECHNICAL]	608-73-1	0.01	F	Y	N	PHOSPHOROUS (YELLOW OR WHITE)	7723-14-0	0.1		N	N
HEXACHLOROCYCLOPENTADIENE	77-47-4	0.1		Y	N	PHTHALIC ANHYDRIDE	85-44-9	5		Y	N
HEXACHLOROETHANE	67-72-1	5		Y	N	POLYCYLIC ORGANIC MATTER		0.01	V	Y	N
HEXAMETHYLENE, 1,6-DIISOCYANATE	822-06-0	0.02		Y	N	PROPANE SULTONE, [1,3-]	1120-71-4	0.03		Y	Y
HEXAMETHYLPHOSPHORAMIDE	680-31-9	0.01		Y	N	PROPIOLACTONE, [BETA-]	57-57-8	0.1		Y	N
HEXANE, [N-]	110-54-3	10		Y	N	PROPIONALDEHYDE	123-38-6	5		Y	N
HYDRAZINE	302-01-2	0.004		N	N	PROPOXUR [BAYGON]	114-26-1	10		Y	Y
HYDROGEN CHLORIDE	7647-01-0	10		N	N	PROPYLENE OXIDE	75-56-9	5		Y	N
HYDROGEN FLUORIDE	7664-39-3	0.1		N	N	PROPYLENEIMINE, [1,2-]	75-55-8	0.003		Y	N
HYDROQUINONE	123-31-9	1		Y	N	QUINOLINE	91-22-5	0.006		Y	N
INDENO(1,2,3CD)PYRENE	193-39-5	0.01	V	Y	N	QUINONE	106-51-4	5		Y	N
ISOPHORONE	78-59-1	10		Y	N	RADIONUCLIDES		Note 1	Y	N	Y
LEAD COMPOUNDS		0.01	Q	N	Y	SELENIUM COMPOUNDS		0.1	W	N	Y
LINDANE [GAMMA-HEXACHLOROCYCLOHEXANE]	58-89-9	0.01	F	Y	N	STYRENE	100-42-5	1		Y	N
MALEIC ANHYDRIDE	108-31-6	1		Y	N	STYRENE OXIDE	96-09-3	1		Y	N
MANGANESE COMPOUNDS		0.8	R	N	Y	TETRACHLORODIBENZO-P-DIOXIN, [2,3,7,8]	1746-01-6	6E-07	D,V	Y	Y
MERCURY COMPOUNDS		0.01	S	N	N	TETRACHLOROETHANE, [1,1,2,2-]	79-34-5	0.3		Y	N
METHANOL	67-56-1	10		Y	N	TETRACHLOROETHYLENE	127-18-4	10		N	N
METHOXYCHLOR	72-43-5	10	V	Y	Y	TITANIUM TETRACHLORIDE	7550-45-0	0.1		N	N
METHOXYETHANOL, [2-]	109-86-4	10	P	Y	N	TOLUENE	108-88-3	10		Y	N
METHYL CHLORIDE	74-87-3	10		Y	N	TOLUENE DIISOCYANATE, [2,4-]	584-84-9	0.1		Y	N
METHYL ETHYL KETONE (Delisted)	78-93-3					TOLUIDINE, [ORTHO-]	95-53-4	4		Y	N
METHYL HYDRAZINE	60-34-4	0.06		Y	N	TOXAPHENE	8001-35-2	0.01		Y	N
METHYL IODIDE	74-88-4	1		Y	N	TRICHLOROBENZENE, [1,2,4-]	120-82-1	10		Y	N
METHYL ISOBUTYL KETONE	108-10-1	10		Y	N	TRICHLOROETHANE, [1,1,1-]	71-55-6	10		N	N
METHYL ISOCYANATE	624-83-9	0.1		Y	N	TRICHLOROETHANE, [1,1,2-]	79-00-5	1		Y	N
METHYL METHACRYLATE	80-62-6	10		Y	N	TRICHLOROETHYLENE	79-01-6	10		Y	N
METHYL TERT-BUTYL ETHER	1634-04-4	10		Y	N	TRICHLOROPHENOL, [2,4,5-]	95-95-4	1		Y	N
METHYLCYCLOPENTADIENYL MANGANESE	12108-13-3	0.1	R	N	Y	TRICHLOROPHENOL, [2,4,6-]	88-06-2	6		Y	N
METHYLENE BIS(2-CHLOROANILINE), [4,4-]	101-14-4	0.2	V	Y	Y	TRIETHYLAMINE	121-44-8	10		Y	N
METHYLENEDIANILINE, [4,4-]	101-77-9	1	V	Y	N	TRIFLURALIN	1582-09-8	9		Y	Y
METHYLNAPHTHALENE, [2-]	91-57-6	0.01	V	Y	N	TRIMETHYLPENTANE, [2,2,4-]	540-84-1	5		Y	N
MINERAL FIBERS		0	T	N	Y	URETHANE [ETHYL CARBAMATE]	51-79-6	0.8		Y	N
NAPHTHALENE	91-20-3	10	V	Y	N	VINYL ACETATE	108-05-4	1		Y	N
NAPHTHYLAMINE, [ALPHA-]	134-32-7	0.01	V	Y	N	VINYL BROMIDE	593-60-2	0.6		Y	N
NAPHTHYLAMINE, [BETA-]	91-59-8	0.01	V	Y	N	VINYL CHLORIDE	75-01-4	0.2		Y	N
NICKEL CARBONYL	13463-39-3	0.1	U	N	Y	XYLENE, [META-]	108-38-3	10	G	Y	N
NICKEL COMPOUNDS		1	U	N	Y	XYLENES (MIXED ISOMERS)	1330-20-7	10	G	Y	N
NICKEL REFINERY DUST		0.08	U	N	Y						
NICKEL SUBSULFIDE	12035-72-2	0.04	U	N	Y						

**Appendix B- Air Pollution Control Program  
Table of Hazardous Air Pollutants and Screening Model Action Levels**

Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM	Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM
----------	-------	-----------------	-------------	-----	----	----------	-------	-----------------	-------------	-----	----

Legend	
Group ID	
A	Asbestos
B	Cresols/Cresylic Acid (isomers and mixtures)
C	2,4 - D, Salts and Esters
D	Dibenzofurans, Dibenzodioxins
E	4, 6 Dinitro-o-cresol, and Salts
F	Lindane (all isomers)
G	Xylenes (all isomers and mixtures)
H	Antimony Compounds
I	Arsenic Compounds
J	Beryllium Compounds
K	Cadmium Compounds
L	Chromium Compounds
M	Cobalt Compounds
N	Coke Oven Emissions
O	Cyanide Compounds
P	Glycol Ethers
Q	Lead Compounds (except elemental Lead)
R	Manganese Compounds
S	Mercury Compounds
T	Fine Mineral Fibers
U	Nickel Compounds
V	Polycyclic Organic Matter
W	Selenium Compounds
X	Polychlorinated Biphenyls (Aroclors)
Y	Radionuclides
Notes	The SMAL for radionuclides is defined as the effective dose equivalent to 0.3 millirems per year for 7 years exposure associated with a cancer risk of 1 in 1 million

## APPENDIX B – Natural Gas Emissions (3.9 MMBtu/hr)

HAPs	lbs/hour	Monthly Emissions	Yearly Emissions	HAPs	lbs/hour	Monthly Emissions	Yearly Emissions
POM aggregate group	2.65E-06	9.68154E-07	0.00001	Indeno(1,2,3-cd)pyrene	6.84E-09	0.00000	2.49596E-09
2-Methylnaphthalene	9.12E-08	3.32794E-08	0.00000	Naphthalene	2.32E-06	0.00001	8.45852E-07
3-Methylchloranthrene	6.84E-09	2.49596E-09	0.00000	Pentane	9.88E-03	0.04326	0.00360527
7,12-Dimethylbenzanthracene	6.08E-08	2.21863E-08	0.00000	Phenanathrene	6.46E-08	0.00000	2.35729E-08
Acenaphthene	6.84E-09	2.49596E-09	0.00000	Propane	6.08E-03	0.02662	0.002218627
Acenaphthylene	6.84E-09	2.49596E-09	0.00000	Pyrene	1.90E-08	0.00000	6.93321E-09
Anthracene	9.12E-09	3.32794E-09	0.00000	Toluene	1.29E-05	0.00006	4.71458E-06
Benzanthracene	6.84E-09	2.49596E-09	0.00000	Arsenic	7.60E-07	0.00000	2.77328E-07
Benzene	7.98E-06	2.91195E-06	0.00003	Barium	1.67E-05	0.00007	6.10123E-06
Benzo(a)pyrene	4.56E-09	1.66397E-09	0.00000	Beryllium	4.56E-08	0.00000	1.66397E-08
Benzo(b)fluoranthene	6.84E-09	2.49596E-09	0.00000	Cadmium	4.18E-06	0.00002	1.52531E-06
Benzo(g,h,i)perylene	4.56E-09	1.66397E-09	0.00000	Chromium	5.32E-06	0.00002	1.9413E-06
Benzo(k)fluoranthene	6.84E-09	2.49596E-09	0.00000	Cobalt	3.19E-07	0.00000	1.16478E-07
Butane	7.98E-03	0.002911949	0.03494	Copper	3.23E-06	0.00001	1.17865E-06
Chrysene	6.84E-09	2.49596E-09	0.00000	Manganese	1.44E-06	0.00001	5.26924E-07
Dibenzo(a,h)anthracene	4.56E-09	1.66397E-09	0.00000	Mercury	9.88E-07	0.00000	3.60527E-07
Dichlorobenzene	4.56E-06	1.66397E-06	0.00002	Molybdenum	4.18E-06	0.00002	1.52531E-06
Ethane	1.18E-02	0.004298591	0.05158	Nickel	7.98E-06	0.00003	2.91195E-06
Fluoranthene	1.14E-08	4.15993E-09	0.00000	Selenium	9.12E-08	0.00000	3.32794E-08
Fluorene	1.06E-08	3.8826E-09	0.00000	Vanadium	8.74E-06	0.00004	3.18928E-06
Formaldehyde	2.85E-04	0.000103998	0.00125	Zinc	1.10E-04	0.00048	4.02126E-05
Hexane	0.0068	0.002495956	0.02995				

Note: This sheet will suffice for monthly and 12-month rolling total emissions tracking to document that all natural gas combustion HAPs are below the SMAL unless one of the above pollutants is emitted by a separate emission point (such as, but not limited to, sealant emissions). If an above pollutant is emitted elsewhere at the facility, add the corresponding Monthly Emissions listed above to the appropriate individual HAPs tracking sheet on Attachment C. Monthly and yearly emissions for pollutants derived on Attachments A through D supersede monthly and yearly emissions listed on the table above.

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions	Potential Emissions of the Project	New Installation Conditioned Potential
PM	25.0	N/A	N/A	13.96	13.96
PM <sub>10</sub>	15.0	N/A	N/A	11.24	11.24
PM <sub>2.5</sub>	10.0	N/A	N/A	< 10.0	< 10.0
SO <sub>x</sub>	40.0	N/A	N/A	0.01	0.01
NO <sub>x</sub>	40.0	N/A	N/A	1.66	1.66
VOC	40.0	N/A	N/A	< 40.0	< 40.0
CO	100.0	N/A	N/A	1.40	1.40
Combined HAPs	25.0	N/A	N/A	< 25.0	< 25.0
Individual HAPs	10.0/SMAL	N/A	N/A	< SMAL	< SMAL

Wood Cutting Emission Factor

1 lb PM/PM<sub>2.5</sub>/PM<sub>10</sub> per ton wood

Metal Cutting Emission Factor

0.1 lb PM/PM<sub>2.5</sub>/PM<sub>10</sub> per ton metal

Overall Dust Collector Capture Efficiency

37.0% %

Controlled Wood Cutting

0.370 lbs/ton

Controlled Metal Cutting

0.037 lbs/ton

Total tons of Wood Potentially Cut

54054.1 tpy

Total tons of Metal Potentially Cut

540540.5 tpy



0.01053848

Emission Unit	Description	Installation's Designation	MHDR (MMBtu/hr input)	Combined MHDR (MMBtu/hr Input)	MHDR (MMcft/hr)	Pollutant	CAS	HAP?	Emission Factor (lb / mmcf)	Emission Factor Source (SCC)	Available Pollutant (lb/hr)	Control Device	PTE (lb/hr)	PTE (tpy)
			3.9	3.88	0.004	PM filterable			1.9		0.0072	none	0.0072	0.03162
						PM10			7.6		0.0289	none	0.0289	0.12846
						PM2.5			7.6		0.0289	none	0.0289	0.12846
						SOx			0.6		0.0023	none	0.0023	0.00998
						NOx			100		0.3799	none	0.3799	1.66397
						VOC			5.5		0.0209	none	0.0209	0.09152
						CO			84		0.3191	none	0.3191	1.39774
						Combined HAPs			1.888		0.0072	none	0.0072	0.03142
						POM aggregate group			6.98E-04		2.65E-06	none	2.65E-06	0.00001
						2-Methylnaphthalene	91-57-6	y	2.40E-05		9.118E-08	none	9.12E-08	0.00000
						3-Methylchloranthrene	56-49-5	y	1.80E-06		6.838E-09	none	6.84E-09	0.00000
						7,12-Dimethylbenzanthracene	57-97-6	y	1.60E-05		6.078E-08	none	6.08E-08	0.00000
						Acenaphthylene	83-32-9	y	1.80E-06		6.838E-09	none	6.84E-09	0.00000
						Acenaphthylene	203-96-8	y	1.80E-06		6.838E-09	none	6.84E-09	0.00000
						Anthracene	120-12-7	y	2.40E-06		9.118E-09	none	9.12E-09	0.00000
						Benanthracene	56-55-3	y	1.80E-06		6.838E-09	none	6.84E-09	0.00000
						Benzene	71-43-2	y	2.10E-03		7.978E-06	none	7.98E-06	0.00003
						Benzo(a)pyrene	50-32-8	y	1.20E-06		4.559E-09	none	4.56E-09	0.00000
						Benzo(b)fluoranthene	205-99-2	y	1.80E-06		6.838E-09	none	6.84E-09	0.00000
						Benzo(g,h,i)perylene	191-24-2	y	1.20E-06		4.559E-09	none	4.56E-09	0.00000
						Benzo(k)fluoranthene	205-82-3	y	1.80E-06		6.838E-09	none	6.84E-09	0.00000
						Butane	106-97-8		2.10E+00		7.978E-03	none	7.98E-03	0.03494
						Chrysene	218-01-9	y	1.80E-06		6.838E-09	none	6.84E-09	0.00000
						Dibenz(a,h)anthracene	53-70-3	y	1.20E-06		4.559E-09	none	4.56E-09	0.00000
						Dichlorobenzene	25321-22-6	y	1.20E-03		4.559E-06	none	4.56E-06	0.00002
						Ethane	74-84-0		3.10E+00		1.178E-02	none	1.18E-02	0.05158
						Fluoranthene	206-44-0	y	3.00E-06		1.140E-08	none	1.14E-08	0.00000
						Fluorene	86-73-7	y	2.80E-06		1.064E-08	none	1.06E-08	0.00000
						Formaldehyde	50-00-0	y	7.50E-02		2.849E-04	none	2.85E-04	0.00125
						Hexane	110-54-3	y	1.80E+00		6.838E-03	none	0.0068	0.02995
						Indeno(1,2,3-cd)pyrene	193-39-5	y	1.80E-06		6.838E-09	none	6.84E-09	0.00000
						Naphthalene	91-20-3	y	6.10E-04		2.317E-06	none	2.32E-06	0.00001
						Pentane	109-86-0		2.60E+00		9.877E-03	none	9.88E-03	0.04326
						Phenanthrene	85-01-8	y	1.70E-05		6.458E-08	none	6.46E-08	0.00000
						Propane	74-98-6	y	1.60E+00		6.078E-03	none	6.08E-03	0.02682
						Pyrene	129-00-0	y	5.00E-06		1.900E-08	none	1.90E-08	0.00000
						Toluene	108-88-3	y	3.40E-03		1.292E-05	none	1.29E-05	0.00006
						Arsenic	7440-38-2	y	2.000E-04		7.598E-07	none	7.60E-07	0.00000
						Barium	7440-39-3		4.40E-03		1.672E-05	none	1.67E-05	0.00007
						Beryllium	7440-41-7	y	1.20E-05		4.559E-08	none	4.56E-08	0.00000
						Cadmium	7440-43-9	y	1.10E-03		4.178E-06	none	4.18E-06	0.00002
						Chromium	7440-47-3	y	1.40E-03		5.319E-06	none	5.32E-06	0.00002
						Cobalt	7440-48-4	y	8.40E-05		3.191E-07	none	3.19E-07	0.00000
						Copper	7440-50-8		8.50E-04		3.228E-06	none	3.23E-06	0.00001
						Manganese	7439-96-5	y	3.80E-04		1.444E-06	none	1.44E-06	0.00001
						Mercury	7439-97-6	y	2.60E-04		9.877E-07	none	9.88E-07	0.00000
						Molybdenum	7439-98-7		1.10E-03		4.179E-06	none	4.18E-06	0.00002
						Nickel	7440-02-0	y	2.10E-03		7.978E-06	none	7.98E-06	0.00003
						Selenium	7782-49-2	y	2.40E-05		9.118E-08	none	9.12E-08	0.00000
						Vanadium	7440-62-2		2.30E-03		8.739E-06	none	8.74E-06	0.00004
						Zinc	7440-66-6		2.90E-02		1.102E-04	none	1.10E-04	0.00048
						CO2			120,000		455.8824	none	455.882	1996.76471
						Methane			2.3		0.0087	none	0.0087	0.03827
						N2O			2.2		0.0084	none	0.0084	0.03661
						GHG (mass)								1996.83958
						GHG (CO2e)								2008.63048

Natural Gas HHV (Btu/cf)  
1,020

100yr GWP 40 CFR 98 Table A-1, Jan 1 2014	
CO2	1
CH4	25
N2O	298

Natural gas HHV of 1,020 Btu/cf cited from AP-42 Section 1.4, July 1998.  
Dichlorobenzene group CAS 25321-22-6 conservatively assumed as 100% 1,4-dichlorobenzene CAS 106-48-7.  
HAPs updated per "Air Pollution Control Program Table of Hazardous Air Pollutants, Screening Model Action Levels, and Risk Assessment Levels" Revision 10, 5/3/2012

Activity	MHDR		Truck Types			type	We*	Wf*
	(tons/hr)	(trips/hr)	truck	truck	truck			
window product shipping	3.8	1.000	100%				24.5	28.25
Raw material drop	3.8	1.000	100%				24.5	28.25
title	0.000						0	0
title	0.000						0	0
title	0.000						0	0
title	0.000						0	0
title	0.000						0	0
title	0.000						0	0

Truck Type	We (tons)	Wf (tons)
truck	24.5	28.25
truck	24.5	28.25
truck	4	5
type		

truck type row must sum to 100% per each activity

- 1=empty
- 2=full
- 3=both

Road Segment ID	HR1	HR2	3	4	5	6	7	8	9	10	11	12	13	14
D one way (feet)	185	185												
D one way (miles)	0.031	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
window product shipping	1	2												
Raw material drop off	2	1												
title														
title														
title														
title														
title														

Activities

W	HR1	HR2	3	4	5	6	7	8	9	10	11	12	13	14
Window product shipping	12.250	14.125	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Raw material drop	14.125	12.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
W	28.38	28.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Paved

W

E(PM2.5) (lbs/VMT):	0.28631	0.28631	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
E(PM10) (lbs/VMT):	2.86306	2.86306	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
E(PM30) (lbs/VMT):	10.06829	10.06829	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Eext(PM2.5) (lbs/VMT):	0.20394	0.20394	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Eext(PM10) (lbs/VMT):	2.03944	2.03944	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Eext(PM30) (lbs/VMT):	7.17194	7.17194	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Window product shipping	0.03125	0.03125	0	0	0	0	0	0	0	0	0	0	0	0
Raw material drop	0.03125	0.03125	0	0	0	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MHDR	0.0625	0.0625	0	0	0	0	0	0	0	0	0	0	0	0

MHDR

PTE PM2.5 (lb/hr)	0.017894	0.017894	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM10 (lb/hr)	0.178941	0.178941	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM30 (lb/hr)	0.628288	0.628288	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM2.5 (lb/hr) w/ rain	0.012747	0.012747	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM10 (lb/hr) w/ rain	0.127485	0.127485	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM30 (lb/hr) w/ rain	0.448246	0.448246	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM2.5 (tons/yr)	0.078376	0.078376	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM10 (tons/yr)	0.783763	0.783763	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM30 (tons/yr)	2.756196	2.756196	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM2.5 (tons/yr) w/ rain	0.05583	0.05583	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM10 (tons/yr) w/ rain	0.558297	0.558297	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM30 (tons/yr) w/ rain	1.963317	1.963317	0	0	0	0	0	0	0	0	0	0	0	0

PTE (lb/hr)

PTE (tons/yr)

	PM	PM10	PM2.5
Window product shipping	0.448246	0.127485	0.012747
Raw material drop	0.448246	0.127485	0.012747
title	0	0	0
title	0	0	0
title	0	0	0
title	0	0	0
title	0	0	0
title	0	0	0
title	0	0	0
Sum PTE (lb/hr)	0.896492	0.25493	0.025493
Sum PTE (Tons/yr)	3.828635	1.118593	0.111859

Totals

Haul Road BMP's	Control Efficiency %		
	PM	PM10	PM2.5
No. Control	0	0	0

Haul Road ID No.:	HR1	HR2	3	4	5	6	7	8	9	10	11	12	13	14
W (tons)	26.38	26.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sL (g/m <sup>2</sup> )	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
P:	105	105	105	105	105	105	105	105	105	105	105	105	105	105
N:	365	365	365	365	365	365	365	365	365	365	365	365	365	365

Haul Roads - Max Hourly VMT Rate and Emission Factor Calculations														
E(PM <sub>2.5</sub> )(lbs/VMT):	0.0166	0.0166	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E(PM <sub>10</sub> )(lbs/VMT):	0.0676	0.0676	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E(PM <sub>30</sub> )(lbs/VMT):	0.3378	0.3378	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Eext(PM <sub>2.5</sub> )(lbs/VMT):	0.0154	0.0154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Eext(PM <sub>10</sub> )(lbs/VMT):	0.0627	0.0627	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Eext(PM <sub>30</sub> )(lbs/VMT):	0.3135	0.3135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

E = k(sL)<sup>0.91</sup> \* (W)<sup>1.02</sup> where:

E = particulate emission factor (having units matching the units of k)

k = particle size multiplier for particle size range and units of interest

sL = road surface silt loading (grams per square meter) (g/m<sup>2</sup>)

W = average weight (tons) of the vehicles traveling the road

Table 13.2.1-1 PARTICLE SIZE MULTIPLIERS FOR PAVED ROAD EQUATION

Size Range (µm)	k
PM2.5	0.00054
PM10	0.0022
PM15	0.0027
PM30	0.011

Eext = [k(sL)<sup>0.91</sup> \* (W)<sup>1.02</sup>](1-P/(4N)) where:

k, sL, W and S are as defined above and

Eext = annual average emission factor in the same units as k

P = number of "wet" days with at least 0.01 inch of precipitation during the averaging period

N = number of days in the averaging period (365 for annual)

The equations retain the quality rating of A (D for PM2.5), if applied within the range of source conditions that were

Silt loading:

0.03-400 g/m<sup>2</sup>

0.04-570 grains/square foot (ft<sup>2</sup>)

Mean vehicle weight:

1.8-38 megagrams (Mg)

2.0-42 tons

Mean vehicle speed:

1-88 kilometers per hour (kph)

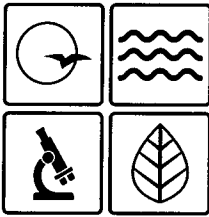
1-55 miles per hour (mph)

The upper 95% confidence levels of equation 1 for PM10 is best described with equations using an exponent of 1.14

E95% = k(sL)<sup>1.14</sup> \* (W)<sup>1.19</sup>

E95%(PM<sub>2.5</sub>)(lbs/VMT): 0.0296 0.0296 0.0000 0.0000 0.0000 0.0000

E95%(PM<sub>10</sub>)(lbs/VMT): 0.1205 0.1205 0.0000 0.0000 0.0000 0.0000



Missouri Department of dnr.mo.gov

# NATURAL RESOURCES

Eric R. Greitens, Governor

Carol S. Comer, Director

**MAR 21 2018**

Mr. Ken Witt  
EHS Manager  
WinTech- Monett  
201 N. Industrial Drive  
Monett, MO 65708

RE: New Source Review Permit - Project Number: 2017-04-031

Dear Mr. Witt:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application and your operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: <http://dnr.mo.gov/regions/>. The online CAV request can be found at <http://dnr.mo.gov/cav/compliance.htm>.

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission, whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: [www.oa.mo.gov/ahc](http://www.oa.mo.gov/ahc).



Recycled paper

Mr. Ken Witt  
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If you have any questions regarding this permit, please do not hesitate to contact Jordan Hull, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM



Susan Heckenkamp  
New Source Review Unit Chief

SH;jhj

Enclosures

c: Southwest Regional Office  
PAMS File: 2017-04-031

Permit Number: 032018-011