

VERMONT AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
Air Quality & Climate Division

TECHNICAL SUPPORT DOCUMENT

FOR

PERMIT TO CONSTRUCT AND OPERATE

#AOP-19-030
PIN# SJ96-0053

3/23/2021

Ethan Allen Operations, Inc– Orleans, VT

Owner/Operator: Ethan Allen Operations, Inc.
27 Railroad Avenue
Orleans, Vermont 05860

Source: Wood Furniture Manufacturing Facility
Ethan Allen Operations, Inc. (Orleans Division)
27 Railroad Avenue
Orleans, Vermont 05860

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This Technical Support Document details the Agency of Natural Resources, Department of Environmental Conservation, Air Quality and Climate Division review for the Air Pollution Control Permit to Construct and is intended to provide additional technical information, discussion and clarification in support of the Permit. It is not intended to provide a comprehensive review of the Facility or permit process or duplicate the information contained in the Permit.

1.0 INTRODUCTION

Ethan Allen, Incorporated (hereinafter “Permittee”) owns and operates the wood furniture manufacturing and finishing facility (also referred to herein as “Facility”) at Railroad Avenue in the town of Orleans, Vermont. The Facility currently operates under the confines of an existing amended Air Pollution Control Permit to Construct and Operate (#AOP-04-004) issued by the Vermont Agency of Natural Resources, Department of Environmental Conservation, Air Quality and Climate Division on May 11, 2015.

Administrative Milestones

Table 1-1: Administrative Summary	
Administrative Item	Result or Date
Date Application Received:	01/13/2020
Date Administratively Complete:	01/13/2020
Date & Location Receipt of Application Noticed:	01/13/2020 <i>Environmental Notice Bulletin</i>
Date Technically Complete:	12/13/2020
Date Draft Decision:	12/13/2020
Date & Location Draft Decision/Comment Period Noticed:	12/13/2020 Environmental Notice Bulletin / EPA Central Data Exchange (CDX)
Date & Location Public Meeting Noticed:	None Requested
Date & Location of Public Meeting:	None Requested
Deadline for Public Comments:	01/22/2021
Date Proposed Decision:	03/23/2021
Classification of Source Under §5-401:	§5-401(4): Wood Products Industries, (6)(a) [Fossil fuel burning equipment greater than 10 million BTUs per hour], (9) [Surface finishing operations, including application of paints, lacquers, solvents, and related materials]
Classification of Application:	Subchapter X Major Source
New Source Review Designation of Source:	Major Stationary Source
Facility SIC Code(s) / NAICS Code(s):	2511 / 337122
Facility SIC Code Description(s) / NAICS Code Descriptions(s):	Wood Household Furniture, Except Upholstered / Nonupholstered Wood Household Furniture Manufacturing

The allowable emissions for the Facility are summarized below:

Table 1-2: Estimated Air Contaminant Emissions (tons/year)¹						
PM / PM₁₀ / PM_{2.5}	SO₂²	NO_x	CO	VOC	Total HAPs³	CO₂e⁴
432/73/38	11.4	<100	274.9	314	<10/25	148,952

¹ PM/PM₁₀/PM_{2.5} - particulate matter, particulate matter of 10 micrometers in size or smaller and particulate matter of 2.5 micrometers in size or smaller, respectively (unless otherwise specified, all PM is assumed to be PM₁₀ and PM_{2.5}); SO₂ - sulfur dioxide; NO_x - oxides of nitrogen measured as NO₂ equivalent; CO - carbon monoxide; VOCs - volatile organic compounds; HAPs - hazardous air pollutants as defined in §112 of the federal Clean Air Act.

² Commencing July 1, 2018 the allowed sulfur content of distillate and residual fuel oils will decrease to 0.0015% and 0.5% by weight respectively, further decreasing Facility allowed SO₂ emissions from fuel oil combustion unless otherwise already restricted by the permit herein.

³ For purposes of designation the Facility as a major or minor source of federal hazardous air pollutants (HAPs), the emissions of individual HAPs from the Facility are each <10 tpy and emissions of total HAPs combined are <25 tpy. Actual total combined HAPs from the Facility are estimated at <1 tpy

⁴ CO₂e 'at the stack' – includes emissions from biogenic sources. See section 3.3 for details. This is not a facility limit.

2.0 FACILITY DESCRIPTION AND LOCATION

2.1 Facility Locations and Surrounding Area

The Permittee owns and operates the wood furniture manufacturing and finishing facility located off Railroad Avenue in the town of Orleans, Vermont. The area surrounding the Facility is primarily mixed commercial, residential, and industrial.

2.2 Facility Description

The Facility was originally constructed in the late 1800's and covers approximately thirty-three (33) acres in the town of Orleans. The manufacturing area consists of several buildings which total 690,000 square feet of area. The site includes a storage area, a machining building, and finishing building. The Facility operations are listed under the Standard Industrial Classification (“SIC”) Code 2551, Wood Household Furniture, Except Upholstered.

Kiln dried lumber is received from suppliers and other Ethan Allen facilities and is maintained at approximately eight (8) percent moisture content. Lumber is conveyed to a Rough Mill and gluing operations, which converts the rough, dried lumber into dimensional lumber of various sizes. The Rough Mill includes cutting the rough lumber to length/width/thickness by rip-sawing, surface planing, and rough-sanding. Wood waste from the Rough Mill operations, such as imperfections in the wood and end-cuts, are belt-conveyed to a wood hog to reduce the size of the waste to 2-3" chunks. Wood shavings, saw dust and sander dust are pneumatically conveyed to a cyclone and fabric filter for collection and eventual use as fuel for the boilers.

Exiting the Rough Mill, blanks are then forwarded to a Finish Mill where they are machined to length or shaped. The blanks may be lengthened by gluing the edges of blanks together. Glued pieces are cured under pressure or via radio frequency curing. The operating permit application identifies the following glue-line operations at the Facility: one (1) electronic glue line in the Rough Mill, six (6) glue wheels in the Rough Mill, two (2) glue lines in the Assembly Department, and one (1) glue line in the Lamination Department.

The resulting pieces are further machined and sanded to form individual furniture

components. These components are then assembled into furniture. Wood waste and dust generated by these activities is collected via fabric filter collectors.

Protective and/or decorative coatings are then applied to the assembled furniture. Coatings, such as stains, topcoats, etc. are applied to assembled wood items in spray booths using high volume, low pressure spray guns. Ethan Allen operates a total of thirty-one spray booths at the Facility. Three (3) steam heated drying ovens and a flash off tunnel are employed as part of the finishing activities to speed the drying time of coated furniture. The spray guns and spray booths are periodically cleaned using solvent based cleaning products.

Shipping and warehouse activities include finished product inventory control and material handling operations to move furniture inventory. Finished product is later shipped from the warehouse to distribution centers for sale.

There are a total of three (3) main boilers at the Facility which burn wood. The three (3) main boilers have heat input ratings of 27.8, 34, and 34 million British Thermal Units per hour, respectively. The Facility is also equipped with small distillate oil (a.k.a., No. 2 fuel oil) boiler rated at 2.7 MMBTU/hr of heat input. It is served by a 275 gallon above ground storage tank.

Air contaminants produced at the site include: combustion contaminants, wood dust, and volatile organic compounds from the use of glues, stains, paints, solvents, and coatings. The regulated sources of air contaminant emissions at the Facility are listed in Table 2-1. Refer to Table 2-2 for information on air pollution control equipment used at the facility.

Table 2-1: Equipment Specifications			
Equipment/Make/Model	capacity/size MMBTU/hr (hp)	fuel type	date of manufacture (installation)
Wickes Boiler with a multicyclone, no reinjection	27.8 / 4369	Wet Wood	1965
Riley #233 Boiler with a multicyclone, no reinjection	34.0 / 2670 35.0 / 2670	Dry Wood	1965
Riley #234 Boiler with a multicyclone, no reinjection	34.0 / 2670	Dry Wood	1965
Bryan Boiler	2.7	No. 2 Fuel Oil	1973
Fire Pump, Peerless Pump Division, F.M.C. Corporation Model 8AF25B	255 bhp @ 1750 rpm, 2000 gpm. Fire pump operates on diesel only.	ULSD	1973
Kohler Model 14RESA Standby generator. S/N: 3043962	23.6 bhp @ 3600 rpm	Propane	2012

¹ MMBTU/hr - Million British Thermal Units per hour maximum rated heat input. bhp – brake horsepower rated output as specified by the manufacturer. Gpm – gallons per minute of pumped water. kW – kilowatt electrical output. ULSD –

Ultra-low sulfur diesel.

Table 2-2: Equipment Specifications - Wood Waste Handling Operations	
Equipment/Make/Model ²	Date of Installation
Unit E Rough Mill: Carter Day #999, Model 232 RF10 <ul style="list-style-type: none"> • Air/cloth ratio of 10:1, Number of bags 232 • Cloth Area = 2960 ft² • ACFM of 30,000, hours of operation 8760 	1987
Unit Da Boiler Room: American Von Tongeren (AVT), Model 100S <ul style="list-style-type: none"> • Air/cloth ratio of 18:1, Number of bags 1008 • Cloth Area = 333 ft² • ACFM of 6,000, hours of operation 8760 	≈ 1973
Unit Db Boiler Room: American Von Tongeren (AVT), Model 100S <ul style="list-style-type: none"> • Air/cloth ratio of 18:1, Number of bags 1008 • Cloth Area = 333 ft² • ACFM of 6,000, hours of operation 8760 	≈1973
Unit #1 Finish Mill/Sanding: MAC #1403, Model 144MCF494 <ul style="list-style-type: none"> • Air/cloth ratio of 7.5:1, Number of bags 494 • Cloth Area = 7163 ft² • ACFM of 54,000, hours of operation 3840 	2000
Unit #2 Finish Mill/Sanding: MAC #1404, Model 144MCF494 <ul style="list-style-type: none"> • Air/cloth ratio of 7.5:1, Number of bags 494 • Cloth Area = 7163 ft²ACFM of 54,000, hours of operation 3840 	2000
Unit #3 Finish Mill/Sanding MAC #1405, Model 144MCF494 <ul style="list-style-type: none"> • Air/cloth ratio of 8.4:1, Number of bags 494 • Cloth Area = 7163 ft² • ACFM of 60,000, hours of operation 3840 	2000
Unit #4 Rough Mill: MAC 1442, Model 144MCF361 <ul style="list-style-type: none"> • Air/cloth ratio of 9.6:1, Number of bags 361 • Cloth Area = 5202 ft² • ACFM of 50,000, hours of operation 3840 	2002
Unit #5 Finish Mill: MAC 1440, Model 144MCF494 <ul style="list-style-type: none"> • Air/cloth ratio of 7:1, Number of bags 494 • Cloth Area = 7118 ft² • ACFM of 50,000, hours of operation 3840 	2002
Chip Feed Cyclone CS <ul style="list-style-type: none"> • Handles green wood woodchips, emissions need not be quantified 	1993
Cyclone RS (Vents to AVT Dust Collector) <ul style="list-style-type: none"> • Closed loop, emissions need not be quantified 	1993
Cyclone FS (Vents to AVT Dust Collector) <ul style="list-style-type: none"> • Closed loop, emissions need not be quantified 	1993
Saw Dust Unloading Systems for silo	2008
Miscellaneous Operations	
Thirty-one (31) spray booths	Various
Glue lines, cold and hot press (wood glues- PVA or Aliphatic) includes Glue Panel Dept	Various

and Assembly.	
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2.3 Description of Compliance Monitoring Devices

This Facility is not equipped with devices to continuously monitor the emission of air contaminants to the ambient air.

2.4 Proposed Modifications to Facility

The Permittee has not proposed to modify the Facility. There have been minor changes to the venting of wood dust collections systems, and the removal of the No. 4 fuel burning capability of the Riley #233 Boiler.

2.5 Proposed Limitations

The Facility presently operates under the limitations imposed by a Permit to Construct. Ethan Allen proposes to maintain these limitations. Below are summarized the limitations that affect the calculation of allowable emissions for the Facility as contained in the existing Permit to Construct.

- (1) Ethan Allen is approved to use the Pre-Catalyzed Sealer #1421C00376 and Pre-Catalyzed Lacquer #1431C0098, or equivalent coatings if approved in writing by the Agency. The free formaldehyde content of the coatings shall not exceed 0.01% by weight, as applied.
- (2) Annual usage of the pre-catalyzed sealer and pre-catalyzed lacquer shall not exceed a combined 55,000 gallons per year.
- (3) Ethan Allen shall not discharge the exhausts from the MAC fabric filter collectors to the ambient air in excess of 3,840 production hours per year each.
- (4) Emissions of particulate matter from the Wickes and two Riley wood-fired boilers each shall not exceed 0.20 grains per dry standard cubic foot corrected to 12% CO₂.
- (5) Emissions of PM from each of the MAC fabric filters shall at no time exceed limitations listed below.

Particulate Matter Emission Limitations		
Unit	Emission Limitations	
	Gr/dscf¹	lbs/hour²
Unit E Rough Mill: Carter Day #999, Model 232 RF10	0.06	15.4
Unit Da: American Von Tongeren (AVT), Model 100S	0.06	3.1
Unit Db: American Von Tongeren (AVT), Model 100S	0.06	3.1
Unit #1 Finish Mill/Sanding: MAC #1403, Model	0.020	9.3

Particulate Matter Emission Limitations		
Unit	Emission Limitations	
	Gr/dscf ¹	lbs/hour ²
144MCF494		
Unit #2 Finish Mill/Sanding: MAC #1404, Model 144MCF494	0.020	9.3
Unit #3 Finish Mill/Sanding: MAC #1405, Model 144MCF494	0.020	10.3
Unit #4 Rough Mill: MAC 1442, Model 144MCF361	0.010	4.3
Unit #5 Finish Mill: MAC 1440, Model 144MCF494	0.010	4.3

¹ gr/dscf equals grains of pollutant emitted per dry standard cubic foot of undiluted exhaust gas.

² lbs/hour equals pounds of pollutant emitted per hour.

- (6) The annual fuel consumption in the Facility for all fuel oil burning equipment shall not exceed a combined 155,000 gallons per year based upon any rolling twelve (12) consecutive calendar month period. [10 V.S.A. §§556(c) and 556a(d)]
- (7) Hazardous Air Pollutants: Emission of federally regulated hazardous air pollutants (HAPs) from the Facility shall not equal or exceed ten (10) tons per year of any single HAP or twenty-five (25) tons per year of all HAPs combined per year based on any rolling twelve (12) consecutive calendar month period. [40 CFR Part 63]
- (8) Nitrogen Oxides [Boilers]: In order to maintain emissions of nitrogen oxides (NOx) below the one hundred (100) tons per year threshold of §5-251(3), the Permittee shall not burn fuel in all boilers combined located at its Facility in quantities greater than the following limit during any rolling twelve (12) consecutive calendar month period:

$$0.02 * X + 1.94 * Y + 7.45 * Z < 200,000 \text{ lbs.}$$

where:

X = quantity of No.2 fuel oil burned in units of gallons;

Y = quantity of wet wood fuel burned in units of tons (as fired, including moisture);

Z = quantity of dry wood fuel burned in units of tons (as fired, including moisture).

The NOx emission rates of 1.94 lbs per ton of wet wood and 7.45 lbs per ton of dry wood in the above formula is based on AP-42 factors. Oil: 0.020 lbs NOx/gal from §1.3 table 1.3-1 (boilers <100MM) ver. 9/98. Wet wood: 0.22 lbs NOx/MMBTU from §1.6 table 1.6-2 ver. 9/03 and an assumed heat value of 4,400 btu/lb for 48.89% moisture "wet" wood. Dry wood: 0.49 lbs NOx/MMBTU from §1.6 table

1.6-2 ver. 9/03 and an assumed heat value of 7,600 btu/lb for 8.4% moisture “dry” wood.

The NOx emission rates of 1.94 lbs per ton of wet wood and 7.45 lbs per ton of dry wood in the above formula is subject to change by the Agency to reflect current emission standards for heat input values of 4,500 Btu/lb for 40% moisture content for "wet" wood and 8000 Btu/lb for 12% moisture content for "dry" wood.

[10 V.S.A. §§556(c) and 556a(d)] [§5-251(3) of the Regulations]

3.0 QUANTIFICATION OF POLLUTANTS

The quantification of emissions from a stationary source is necessary in order to establish the regulatory review process necessary for the operating permit application and to determine applicability with various air pollution control requirements. These determinations are normally based upon allowable emissions. Allowable emission is defined as the emission rate calculated using the maximum rated capacity of the source and, if applicable, either: (a) the applicable emission standard contained in the *Regulations*, if any, or (b) the emission rate or design, operational or equipment standard specified in any order or agreement issued under the *Regulations* that is state and federally enforceable. An applicant may impose in its application an emission rate or design, or an operational or equipment limitation which may be incorporated in the Permit to restrict operation to a lower level. Such limitations may include fuel restrictions or production limits.

3.1 Estimating Potential Emission of Criteria Pollutants from the Existing Stationary Source

Table 3-1: Wood Fired Boilers - Estimated Emissions Wickes 27.8 MMBtu/hr, Riley #233 34 MMBtu/hr, Riley #234 34 MMBtu/hr				
Total Fuel input for Boilers: 908,929 MMBtu/yr wet wood.				
Pollutant	Emission Factor			Allowable Emissions (tons per year)
	Factor	Units ^{1,2,2}	Source	
SO ₂	0.025	lb/MMBtu	AP-42, Wood Residue Combustion in Boilers, Table 1.6-2 (9/03)	11.36
NO _x	0.22 wet	lb/MMBtu	AP-42, Wood Residue Combustion in Boilers, Table 1.6-2 (9/03)	99.98
PM	0.20 (0.443)	grain/dscf (lb/MMBtu)	§5-231(3)(b)(ii)	201.37
PM-10	0.074	lb/MMBtu	AP-42, Wood Residue Combustion in Boilers, Table 1.6-1 (9/03)	33.63
PM-2.5	0.065	lb/MMBtu	AP-42, Wood Residue Combustion in Boilers, Table 1.6-1 (9/03)	29.54
CO	0.6	lb/MMbtu	AP-42, Wood Residue Combustion in Boilers, Table 1.6-2 (9/03)	274.88
VOC	0.017	lb/MMBtu	AP-42, Wood Residue Combustion in Boilers, Table 1.6-3 (9/03)	7.73

Table 3-1: Wood Fired Boilers - Estimated Emissions Wickes 27.8 MMBtu/hr, Riley #233 34 MMBtu/hr, Riley #234 34 MMBtu/hr				
Total Fuel input for Boilers: 908,929 MMBtu/yr wet wood.				
Pollutant	Emission Factor			Allowable Emissions (tons per year)
	Factor	Units ^{1,2,2}	Source	
HAPs	0.0387	lb/MMBtu	AP-42, Wood Residue Combustion in Boilers, Tables 1.6-3 and 1.6-4 (9/03)	17.56

¹ lb/MMBtu: pounds of pollutant emitted per million British Thermal Units of energy input to the boiler.

² grain/dscf: grains of particulate matter per dry cubic foot of exhaust gas at standard temperature (60oF) and pressure (1 atm). Note that there are 7000 grains in 1 pound.

Table 3-2: Bryan Oil Fired Boiler - Estimated Emissions 2.7 MMBtu/hr				
Total Fuel input: 169,000 gallons/yr No.2 Fuel Oil				
Unrestricted: 2.7 MMBtu/hr x 8,760 hr/yr = 23,652 MMBtu/year				
Pollutant	Emission Factor			Allowable Emissions (tons per year)
	Factor	Units ²	Source	
SO ₂	142S ¹	lb/1000 gal	AP-42, Fuel Oil Combustion, Table 1.3-1 (9/98)	0.02
NO _x	20		AP-42, Fuel Oil Combustion, Tables 1.3-1 and 1.3-2 (9/98)	1.69
PM	3.3		AP-42, Fuel Oil Combustion, Tables 1.3-1 and 1.3-2 (9/98)	0.28
CO	5		AP-42, Fuel Oil Combustion, Table 1.3-1 (9/98)	0.42
VOC	0.34		AP-42, Fuel Oil Combustion, Table 1.3-3 (9/98)	0.03
HAPs	0.062		AP-42, Fuel Oil Combustion, Tables 1.3-8 to 1.3-10 (9/98)	0.01

¹ S represents the weight % of sulfur in the oil. For example if the fuel is 0.0015% sulfur, then S=0.0015

² lb/1000 gal: pounds of pollutant emitted per 1000 gallons of fuel input to the boiler.

Table 3-3: Estimated Particulate Matter Emissions – Dust Collection Systems					
Equipment/Source	Emission Factor (gr/dscf) ¹	Source of Emission Factor	Maximum Flow Rate (dscfm)	Allowable Operating Hours	Emission Rate (ton/yr) ²
Unit E Rough Mill: Carter Day #999	0.06	§5-231(1)(b)	23,400	8,760	52.71
Unit Da Boiler Room: American Von Tongeren (AVT)	0.06	§5-231(1)(b)	4,680	8,760	10.54
Unit Db Boiler Room: American Von Tongeren (AVT)	0.06	§5-231(1)(b)	4,680	8,760	10.54
Unit #1 Finish Mill/Sanding: MAC #1403	0.02	AOP-04-004	42,120	3,840	13.86
Unit #2 Finish Mill/Sanding: MAC #1404	0.02	AOP-04-004	42,120	3,840	13.86

Table 3-3: Estimated Particulate Matter Emissions – Dust Collection Systems					
Equipment/Source	Emission Factor (gr/dscf) ¹	Source of Emission Factor	Maximum Flow Rate (dscfm)	Allowable Operating Hours	Emission Rate (ton/yr)²
Unit #3 Finish Mill/Sanding: MAC #1405	0.02	AOP-04-004	46,800	3,840	15.40
Unit #4 Rough Mill: MAC #1442	0.01	AOP-04-004	39,000	3,840	6.42
Unit #5 Finish Mill: MAC #1440	0.01	AOP-04-004	39,000	3,840	6.42
Total Process Emissions					129.76

¹ gr/dscf: grains of particulate matter per dry standard cubic feet of exhaust gas.

² (30,000 acfm)*(1-19% H2O)*(460+60)/(460+80) = 23,400 dscfm.

(23,400 dscfm)*(0.06 gr/dscf)*(8760 hr/yr)*(1 lb/7000 gr)*(1 ton/2000 lb) = 52.71 ton/yr

Table 3-4: Estimated Emissions – VOC from Coatings						
Product	2014 Emissions (tons)	2015 Emissions (tons)	2016 Emissions (tons)	2017 Emissions (tons)	2018 Emissions (tons)	Max Emission Rate (ton/yr) ¹
Toner	28.7	31.8	33.2	34.4	38.4	38.4
Washcoats	11.4	7.7	3.2	3.0	3.5	11.4
Glaze	7.4	8.7	8.8	7.6	8.7	8.8
Stains	12.8	13.4	14.0	12.1	12.9	14.0
Paint	52.3	42.2	41.0	7.4	7.3	52.3
Sealers	19.4	21.0	22.2	21.3	26.6	26.6
Lacquers	32.2	34.4	31.6	28.6	33.1	34.4
Thinners	31.6	38.4	38.7	38.6	44.0	44.0
Total Process Emissions	195.7	197.7	192.9	153.1	174.7	230.0

¹ Max emission rate is the maximum reported emissions for each product for the reporting years 2014-2018.

Table 3-5: Summary of Allowable Air Contaminant Emissions by Source (tons/year)						
Source	PM / PM₁₀ / PM_{2.5}	SO₂	NO_x	CO	VOC	Total HAPs
Max Boiler Emissions	201.37/33.63/29.54	11.36	99.98	274.88	7.73	17.57
Dust Collectors	129.76/22.06/7.79	-	-	-	-	-
Coatings	-	-	-	-	230.00	5.17
Estimated Facility Emissions	331.1/55.7/37.3	11.36	99.98	274.88	237.7	22.7
Allowable Facility Emissions	432/56/38	11.4	<100	274.9	314	<10/25

As summarized in Table 3-5 above:

- The Facility has allowable emissions of all air contaminants in the aggregate of ten (10) or more tons per year: the Facility is therefore subject to Subchapter X of the Regulations and is designated as a Subchapter X Major Source.
- The Facility has allowable emissions of contaminants which would classify the source as a “Major Source”. However, the Permittee has not proposed any modifications to the Facility and therefore is not subject to the new source review requirements of §5-502 of the *Regulations*.
- The Facility has allowable emissions of contaminants which would classify the source as a "Title V Subject Source" and therefore is subject to the federal operating permit requirements of 40 C.F.R. Part 70 or 71.

3.2 Estimating Actual Emissions of Hazardous Air Contaminants from the Existing Stationary Source

The following table(s) summarizes the estimated actual emissions of HACs:

Based on the facility’s annual registration information for the reporting years 2014 through 2018, the following table summarizes the estimated actual emission rate of HACs from the facility. To be conservative, for each HAC emitted, the year with the highest emission rate was used in this evaluation.

Table 3-6 Quantification of HAC Emissions from Coatings					
Hazardous Air Contaminant	CAS #	Toxic Category	Emission Rate (lb/8-hrs)¹	Averaging Time (hrs)	Action Level (lb/8-hrs)
2-butoxyethanol	111-76-2	1	4.87	8760	107.9
ethyl benzene	100-41-4	1	0.177	8760	8.3
naphthalene	91-20-3	1	0.00913	8760	0.0249
1,2-propanediol	57-55-6	2	2.56	8760	5.81

Table 3-6 Quantification of HAC Emissions from Coatings					
Hazardous Air Contaminant	CAS #	Toxic Category	Emission Rate (lb/8-hrs)¹	Averaging Time (hrs)	Action Level (lb/8-hrs)
1-methoxy-2-propanol	107-98-2	2	0.569	8760	165
acetone	67-64-1	2	64.0	8760	26.1
ammonia	7664-41-7	2	0.0356	8760	8.3
cumene	98-82-8	2	0.0384	8760	33.2
dibutyl phthalate	84-74-2	2	0.102	8760	0.247
dipropylene glycol methyl ether	34590-94-8	2	0.744	8760	120
ethyl acetate	141-78-6	2	1.48	8760	95.0
ethyl alcohol	64-17-5	2	47.6	8760	37.2
ethylene glycol	107-21-1	2	0.00822	8760	33.2
isobutyl acetate	110-19-0	2	23.3	8760	1.38
isobutyl alcohol	78-83-1	2	15.6	8760	8.72
isopropyl alcohol	67-63-0	2	16.4	8760	184
kerosene	8008-20-6	2	3.22	8760	7.09
methyl alcohol	67-56-1	2	0.356	8760	96.8
methyl amyl ketone	110-43-0	2	30.3	8760	30.2
methyl ethyl ketone	78-93-3	2	2.74	8760	415
methyl isoamyl ketone	110-12-3	2	0.786	8760	4.61
methyl isobutyl ketone	108-10-1	2	0.00274	8760	249
n-butyl acetate	123-86-4	2	68.7	8760	35.2
n-butyl alcohol	71-36-3	2	0.00274	8760	14.4
n-propyl acetate	109-60-4	2	0.0228	8760	9.50
silica, crystalline	14808-60-7	2	0.195	8760	0.00996
stoddard solvent	8052-41-3	2	2.55	8760	346
t-butyl acetate	540-88-5	2	13.2	8760	11.7
t-butyl alcohol	75-65-0	2	0.00183	8760	12.6
toluene	108-88-3	2	5.17	8760	24.9
triethylamine	121-44-8	2	0.00822	8760	0.581
VM & P Naphtha	8032-32-4	2	17.9	8760	9.41
xylene	1330-20-7	2	0.836	8760	8.3
2-(2-butoxyethoxy)-ethanol	112-34-5	3	0.0138	24	1.11
2,6-dimethyl-2-heptanone	108-83-8	3	2.18	24	1.80
2-ethyl hexanol	104-76-7	3	0.00197	24	1.9
butyl propasol	5131-66-8	3	2.33	24	1.9
dimethylethanolamine	108-01-0	3	0.00197	24	1.9
heptane	142-82-5	3	0.00197	24	364
isobutyl ester isobutyric acid	97-85-8	3	3.89	24	1.9
texanol	25265-77-4	3	0.0118	24	1.9
isopropyl acetate	108-21-4	3	0.00197	24	17.2
methoxyethoxyethanol	111-77-3	3	0.00789	24	1.9
titanium dioxide	13463-67-7	3	0.469	24	0.309

¹ For category 3 contaminants, emission rate is based on either the actual hours of operation or 2,000 hours/year of operation. For category 1 & 2 contaminants, the emission rate is based on 8,760 hours/year.

Table 3-8 HAC Emissions above Action Level					
Hazardous Air Contaminant	CAS #	Toxic Category	Source	Emission Rate (lb/8-hrs)¹	Action Level (lb/8-hrs)
acetone	67-64-1	2	Coatings	6.40E+01	2.61E+01
ethyl alcohol	64-17-5	2	Coatings	4.76E+01	3.72E+01
isobutyl acetate	110-19-0	2	Coatings	2.33E+01	1.38E+00
isobutyl alcohol	78-83-1	2	Coatings	1.56E+01	8.72E+00
methyl amyl ketone	110-43-0	2	Coatings	3.03E+01	3.02E+01
n-butyl acetate	123-86-4	2	Coatings	6.87E+01	3.52E+01
silica, crystalline	14808-60-7	2	Coatings	1.95E-01	9.96E-03
t-butyl acetate	540-88-5	2	Coatings	1.32E+01	1.17E+01
VM & P Naphtha	8032-32-4	2	Coatings	1.79E+01	9.41E+00
2,6-dimethyl-2-heptanone	108-83-8	3	Coatings	2.18E+00	1.80E+00
butyl propasol	5131-66-8	3	Coatings	2.33E+00	1.90E+00
isobutyl ester isobutyric acid	97-85-8	3	Coatings	3.89E+00	1.90E+00
titanium dioxide	13463-67-7	3	Coatings	4.69E-01	3.09E-01

3.3 – Estimating Potential Green House Gas Emissions

Table 3-7: Global Warming Potential		
CO₂	CH₄	N₂O
1.0	25.0	292.0

Table 3-8: Annual Greenhouse Gas Emissions			
Fuel Type	CO₂ (lb)	CH₄ (lb)	N₂O(lb)
Wood	130,669,138	98,207.6	12,889.7
No. 2 Fuel Oil	3,801,452	154.2	30.8

Table 3-9: CO₂ Equivalent	
Total CO₂ Emissions – Equivalent (Fossil CO₂e + Biogenic CH₄ & N₂O)	5,013.7 tons/yr
All CO₂e emissions at stack (Fossil CO₂e + Biogenic CO₂e)	148,952.2 tons/yr

4.0 DISCUSSION OF SELECT APPLICABLE AND NON-APPLICABLE REQUIREMENTS

The Agency will assess compliance with these regulations during any inspections of the Facility. The inspections will include confirmation of the proper operation and maintenance of equipment and air pollution control devices, visual observations of emission points, and review of any records required by the Permit.

4.1 Vermont Air Pollution Control Regulations and Statutes

§5-201 and §5-202 - Open Burning Prohibited and Permissible Opening Burning

This emission standard, which regulates the open burning of materials, applies to the entire Facility. Open burning of materials is prohibited except in conformance with the requirements of this section

Based on information provided by the Permittee, open burning is not typically conducted at the Facility. During future inspections of the Facility, the Agency will verify if there has been open burning activity at the Facility and if these activities are in compliance with this requirement.

§5-211(1) - Prohibition of Visible Air Contaminants - Installations constructed prior to April 30, 1970

These emission standards apply to the Riley Boiler #234.

§5-211(2) - Prohibition of Visible Air Contaminants - Installations constructed subsequent to April 30, 1970

This emission standard applies to the Wickes Boiler and Riley Boiler #233 and all other installations at the Facility. The Wickes boiler was modified in 1985 to add wood burning capability and the Riley boiler was modified in 2002 to add oil firing capability, which has since been removed. The Riley boiler is currently only permitted to burn wood.

§5-221(1) - Prohibition of Potentially Polluting Materials in Fuel; Sulfur Limitation in Fuel

This prohibition applies to all stationary fuel burning equipment used on-site. Based on the application submittal, the applicant is expected to comply with this regulation based on the use of distillate oil. Distillate oil, by its official fuel specification definition, complies with this requirement.

§5-231(1)(b) - Prohibition of Particulate Matter; Industrial Process Emissions

This emission standard applies to all wood waste collection systems and boiler multicyclones.

The estimated permit allowable particulate emissions from the wood waste collection systems is presented in Table 3-3, which are equal to or less than the regulatory standard of 0.06 grains per dry standard cubic foot (gr/dscf). Therefore the applicant is expected to comply with the respective particulate matter emission limit of this section.

§5-231(3) - Prohibition of Particulate Matter; Combustion Contaminants

Based on the application submitted and information available to the Agency, this Facility

currently has applicable fuel burning equipment subject to this regulation. The allowable particulate emissions from the subject equipment is shown in Table 4-1.

- (i) 0.5 pounds per hour per million BTU's of *heat input* in combustion installations where the *heat input* is 10 million BTU's or less per hour.
- (ii) For combustion installations where the *heat input* is greater than 10 million BTU's per hour, but where the *heat input* is equal to or less than 250 million BTU's per hour, the applicable limit is determined by using the following formula:

$$E_{PM} = 10^{[-0.47039(\log_{10} HI) + 0.16936]}$$

where:

- E_{PM} - is the *particulate matter emission* limit, expressed to the nearest hundredth pound per hour per million BTU's; and
- HI - is the *heat input* in millions of BTU's per hour.

For the Wickes boiler when firing oil:

$$E_{PM} = 10^{[-0.47039(\log_{10} 27.8) + 0.16936]}$$

$$E_{PM} = 0.31 \text{ lb/MMBtu}$$

Table 4-1: Equipment Subject to §5-231(3)			
Equipment	Rating (MMBtu/hr)	Emission Standard, (lb/MMBtu)	Allowable Emissions, (lb/hr)
Wickes Boiler	27.8	0.31	8.59
Riley #233 Boiler	34	0.28	9.56
Riley #234 Boiler	34	0.28	9.56
Bryan Boiler	2.7	0.5	1.35

§5-231(4) - Prohibition of Particulate Matter; Fugitive Particulate Matter

This section requires the use of fugitive PM control equipment on all process operations and the application of reasonable precautions to prevent PM from becoming airborne during the handling, transportation, and storage of materials, or use of roads. This requirement applies to the entire Facility, and the Facility is therefore expected to comply with the fugitive emission limitations of this section.

§5-241(1) & (2) - Prohibition of Nuisance and Odor

This requirement applies to the entire Facility and prohibits the discharge of air contaminants that would be a nuisance to the public or the discharge of objectionable odors beyond the property-line of the Facility.

Based on the application submittal and information available to the Agency, the Facility currently is in compliance with this regulation. The Agency will verify compliance with this requirement in the future during any inspections of the Facility. Additionally, the Agency investigates complaints that it receives in order to determine whether or not there is a violation of this requirement.

§5-251 - Control of Nitrogen Oxide Emissions

Based on the application submittal and information available to the Agency, this Facility currently has no applicable fuel burning equipment subject to this regulation, nor does the Facility have allowable emissions of NOx in excess of 100 tons per year. Permit conditions limit the allowable emissions of NOx to less than 100 tons per year.

§5-252 - Control of Sulfur Dioxide Emissions

Based on the application submittal and information available to the Agency, this Facility currently has no applicable fuel burning equipment subject to this regulation.

§5-253.1 – 5-253.20 - Control of Volatile Organic Compounds

Based on the application submittal and information available to the Agency, this Facility currently has no applicable operations subject to this regulation.

§5-253.16 – Wood Furniture Manufacturing

This regulation combines the federal MACT requirements of 40 CFR Part JJ and the Control Techniques Guideline for Wood Furniture Manufacturing. The rule was adopted on August 14, 2003 and became effective on March 1, 2004. The Facility emissions of VOCs in excess of twenty-five (25) tons per year and is therefore subject to this Regulation. Compliance with this Regulation will be assessed during inspections of the Facility and verifying compliance with conditions 19 through 30 of the Permit.

§5-261 - Control of Hazardous Air Contaminants

See Section 7.0 below.

§5-402 – Written Reports When Required

This section gives the Agency authority to require the Facility to submit reports summarizing records required to be maintained by the Agency. The Agency will assess compliance with this regulation in the future during any inspections of the Facility.

§5-403 – Circumvention

This section prohibits the dilution or concealment of an air discharge in order to avoid air pollution control requirements. The Agency will assess compliance with this regulation in the future during any inspections of the Facility.

§5-404 – Methods for Sampling and Testing of Sources

This section allows the Agency to require testing of air emissions from the Facility and to specify the methods of testing. Based on the application submittal and information available to the Agency, the Facility currently is in compliance with this regulation. The Agency will assess compliance with this regulation in the future during any required testing or inspections of the Facility.

Subchapter VIII – Registration of Air Contaminant Source.

This Subchapter requires the owner or operator of a stationary source register with the Agency if the source produces five (5) tons per year or greater of actual emissions during the preceding calendar year. The owner or operator of a source is required to submit information regarding their operations and pay a fee based upon the quantity of emissions they produce and the fuels that they use at the source.

The Permittee is currently in compliance and has been registering its emissions with the Agency annually on those years when its total emissions exceed 5 tons per year.

4.2 Federal Air Pollution Control Regulations and the Clean Air Act

Section 111 of the Clean Air Act - New Source Performance Standards (NSPS). NSPSs are promulgated under Title 40 of the Code of Federal Regulations ("40 C.F.R.") Part 60. The NSPSs that were reviewed for applicability and the applicable NSPSs are summarized in the following table.

Table 4-2 Applicable Requirements from Section 111 of the Clean Air Act New Source Performance Standards (NSPSs)
<p>40 CFR Part 60, Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. Applies to new spark ignition engines installed after June 12, 2006.</p> <p><i>Vermont has authority of this regulation for Title V permits. Subpart JJJJ applies to the propane-fueled Kohler standby generator at the Facility.</i></p>
<p>40 CFR Part 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial- Institutional Steam Boiler Units: §60.42c Standards for sulfur dioxide; §60.43c Standards for particulate matter; §60.48c Reporting and recordkeeping requirements. Applicable to all boilers 10 MMBTU per hour or greater manufactured or modified after June 9, 1989. Units larger than 30 MMBTU per hour installed after February 27, 2005 are subject to additional particulate matter requirements.</p> <p><i>Vermont has authority of this Regulation for Title V permits. Subpart Dc does not apply to the boilers at the Facility because they are only permitted to burn wood fuel. The Riley boiler #233 is no longer permitted to burn No. 4 fuel oil</i></p>

Section 112 of the Clean Air Act - National Emission Standards for Hazardous Air Pollutants (NESHAPs). NESHAPs are promulgated under 40 C.F.R. Part 61 and Part 63. Total HAP emissions are estimated to be less than 1 ton per year, so the Facility would be classified as an area source of HAPs. The applicable NESHAPs are summarized in the following table.

Table 4-3 Applicable Requirements from Section 112 of the Clean Air Act National Emission Standards for Hazardous Air Pollutants (NESHAPs)
<p>40 CFR Part 63, Subpart JJ - National Emission Standards for Wood Furniture Manufacturing Operations: §63.802 Emission limits; §63.803 Work practice Standards; §63.806 Recordkeeping requirements; §63.807 Reporting requirements. Applicable to all facilities engaged in the manufacture of wood furniture and that were major HAP sources on the final compliance date specified in Subpart JJ.</p> <p><i>The Facility has an enforceable HAP emission limit of 10/25 tons/year and is now an area source for HAPs. This Facility is no longer subject to the requirements of 40 CFR Part 63, Subpart JJ.</i></p>

Table 4-3 Applicable Requirements from Section 112 of the Clean Air Act National Emission Standards for Hazardous Air Pollutants (NESHAPs)
<p>40 CFR Part 63, Subpart JJJJJJ - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial and Institutional Boilers. Applies to new and existing fuel oil and solid fuel fired boilers located at area sources (major sources are subject to Subpart DDDDD). Natural gas or propane fired boilers are not subject. This gas exemption allows use of backup fuel during gas curtailments and up to 48 hours of elective use. Oil fired hot water boilers less than 1.6 MMBTU/hr are not subject. The rule requires a tune-up for each boiler once every two years except boilers with oxygen trim and oil boilers less than 5 MMBTU/hr must conduct tune-ups every five years. New boilers greater than 10 MMBTU/hr are subject to PM emission limits. Boilers that commenced construction on or before June 4, 2010 are considered an existing source.</p> <p><i>Subpart JJJJJJ applies to the all boilers at the Facility. Permittee submitted initial notification September 13, 2011, and Notification of compliance status on June 26, 2014. Since the Facility is not a major source of HAPs, the Facility is not subject to Subpart DDDDD.</i></p>
<p>40 CFR Part 63, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines. Applies to <u>new</u> engines that commenced construction (installed) on or after June 12, 2006 at area sources of HAPs. Requires such engines to comply with NSPS Subpart IIII or JJJJ, as applicable. Also applies to <u>existing</u> engines that commenced construction (installed) prior to June 12, 2006 at area sources of HAPs. By May 3, 2013 requires engines equal and greater than 300 bhp to meet CO emission standards which may necessitate catalytic controls, must install crankcase ventilation system, and requires ULSD fuel. Engines <300 bhp need only meet maintenance requirements including changing oil & filter and, inspecting and replacing if necessary, air filter, hoses and belts. <u>Does not apply to existing emergency units at an area source residential/commercial/institutional facilities unless they are enrolled in demand response programs.</u> Subject emergency units are subject to maintenance requirements, must install an elapsed hour meter and must use ULSD commencing January 1, 2015 if used for DR.</p> <p><i>Vermont has authority of this regulation for Title V permits. Subpart ZZZZ applies to the emergency fire pump engine at this Facility requiring compliance with the maintenance requirements only.</i></p>

Clean Air Act §§114(a)(3), 502(b), and 504(a)-(c); 40 CFR Part 70 §§70.6(a)(3)(i)(B) and 70.6(c)(1); and 40 CFR Part 64 - Compliance Assurance Monitoring.

A Title V facility must comply with enhanced monitoring and compliance assurance monitoring requirements for any emission unit with uncontrolled emissions in excess of the Title V major source threshold and which is subject to an emission standard and which is equipped with an emission control device.

The woodworking operations used in the processing of kiln-dried wood at the Facility are considered to be pollutant specific emission units (PSEU). These operations have their PM emissions controlled by either fabric filters and/or cyclones, and are subject to PM emission limits.

If it is determined that any of these PSEUs also have pre-control potential to emit (PTE) emissions that exceed 100 tons/yr, then they are subject to the CAM requirements of Part 64. This review evaluates the potential pre-control emission of PM₁₀ and PM_{2.5} to see if they are greater than 100 tons/year.

The Facility has several potentially affected operational areas; the Agency considers each of the main dust collectors servicing these operational areas as a separate PSEU:

MAC#1, MAC#2, MAC#3, MAC#4, MAC#5 and CD.

There are several methods that could be used to estimate the pre-control PTE. If the actual outlet emissions are known, then the control device's efficiency could be used to calculate the inlet loading (potential emissions). The outlet emissions are divided by (1 – control efficiency/100). However, for high efficiency control devices, such as a fabric filter, this method can result in huge errors in calculating the pre-control PTE (Barrett Parker, EPA, OAQPS).

Because the wood waste being generated by the various wood working machines at the Facility result in mainly coarse wood waste material, of which most is large enough to not represent airborne PM, it is difficult to estimate the PM emission rate. AP-42 does not have established emission factors for these types of emission sources. The North Carolina Department of Air Quality has established data that provides estimates of the % of PM_{2.5}, PM₁₀, and PM₁₀₀ (very coarse PM) from the several different wood working tools. Table 4-4 summarizes this data.

Table 4-4: Percentage of PM fractions in Wood Waste			
Equipment	PM_{2.5}	PM₁₀	PM₁₀₀ (<100 μm)
Planing	0	0	0
Shaving/chipping	0	0	0.56%
Rough sawing	0.7%	1.89%	18%
Fine sawing	0.14%	0.37%	31%
Milling	0	0	10%
Molding	0	0	5.2%
Sanding (coarse and fine)	8.81%	23.8%	76%

Based on the annual registration data supplied by the Permittee for reporting years 2016, 2017, and 2018, estimates have been made for the pre-control PTE, for each of the dust collectors listed above, for PM₁₀ and PM_{2.5}. This data is summarized in Table 4-5:

Table 4-5: Estimated Actual Pre-control PM₁₀ & PM_{2.5} Emissions						
Equipment ID	Wood Waste 3-yr avg. (ton/yr)	Wood working description	% PM₁₀	Pre-control emissions of PM₁₀ (ton/yr)	% PM_{2.5}	Pre-control emissions of PM_{2.5} (ton/yr)
MAC # 1 (1403)	33.4	Sanding	23.8%	7.95	8.81%	2.94
MAC # 2 (1404)	83.4	Sanding	23.8%	19.85	8.81%	7.35
MAC # 3 (1405)	22.1	Fine Sawing	0.37%	0.08	0.14%	0.03
	125.0	Shavings	0%	0.0	0%	0.0
	171.8	Hog	0%	0.0	0%	0.0
		TOTAL		0.08	TOTAL	0.03
MAC # 4 (1440)	15.1	½ sanding	23.8%	3.59	8.81%	1.33
	55.8	½ rough sawing	1.89%	1.05	0.7%	0.39
	316.0	½ milling (hog)	0%	0.0		0.0
		TOTAL		4.65	TOTAL	1.72
MAC # 5 (1442)	22.1	Fine Sawing	0.37%	0.08	0.14%	0.03
	125.0	Shavings	0%	0.0	0%	0.0

			TOTAL	0.08	TOTAL	0.03
CD (999)	15.1	½ Sanding	23.8%	3.59	8.81%	1.33
	55.8	½ Rough Sawing	1.89%	1.05	0.7%	0.39
	316	½ Milling (hog)	0%	0.0	0%	0.0
	909	Purchased fuel	0%	0.0	0%	0.0
	0.0	Planing	0%	0.0	0%	0.0
				TOTAL	4.65	TOTAL

The operational data in 2016 – 2018 does not represent the ‘potential to emit,’ since the operation did not run 8,760 hours/year. The estimates in Table 4-5 were scaled up to potential operating hours shown in Table 4-6 to establish the pre-control PTE. The Permittee has proposed to reduce the permitted operating time for several dust collectors to less than 8,760 hours/year. The pre-control PTE data is summarized in Table 4-7.

Table 4-6: Dust Collector Restrictions					
Equipment ID	2016 Operating Hours	2017 Operating Hours	2018 Operating Hours	3-year Average Operating Hours	Allowable Operating Hours
MAC # 1 (1403)	952	795	1945	1231	3840
MAC # 2 (1404)	856	1108	1198	1054	3840
MAC # 3 (1405)	856	1108	888	951	3840
MAC # 4 (1440)	840	1115	1279	1078	3840
MAC # 5 (1442)	840	1111	936	962	3840
CD (999)	1944	1950	1945	1946	8760

Table 4-7: Estimated <u>Potential</u> Pre-control PM ₁₀ & PM _{2.5} Emissions						
Equipment ID	Wood Waste scaled to PTE. (ton/yr)	Wood working description	% PM ₁₀	Pre-control emissions of PM ₁₀ (ton/yr)	% PM _{2.5}	Pre-control emissions of PM _{2.5} (ton/yr)
MAC # 1 (1403)	104.2	Sanding	23.8%	24.8	8.81%	9.18
MAC # 2 (1404)	303.9	Sanding	23.8%	72.3	8.81%	26.77
MAC # 3 (1405)	89.9	Fine Sawing	0.37%	0.3	0.14%	0.1
	504.9	Shavings	0%	0.0	0%	0.0
	694.0	Hog	0%	0.0	0%	0.0
			TOTAL	0.3	TOTAL	0.1
MAC # 4	53.8	½ sanding	23.8%	12.8	8.81%	4.7
	198.8	½ rough sawing	1.89%	3.8	0.7%	1.4
	1125.8	½ milling	0%	0.0		0.0

		(hog)				
			TOTAL	16.6	TOTAL	6.1
MAC # 5 (1440)	88.2	Fine Sawing	0.37%	0.3	0.14%	0.1
	498.8	Shavings	0%	0.0	0%	0.0
			TOTAL	0.3	TOTAL	0.1
CD (999)	68.0	½ Sanding	23.8%	16.2	8.81%	6.0
	251.1	½ Rough Sawing	1.89%	4.8	0.7%	1.8
	1,422.2	½ Milling (hog)	0%	0.0	0%	0.0
	4,091.2	Purchased fuel	0%	0.0	0%	0.0
	0.0	Planing	0%	0.0	0%	0.0
			TOTAL		20.9	TOTAL

As shown in Table 4-7, none of the dust collection systems are projected to have uncontrolled emissions of PM10 or PM2.5 above 100 tons per year. Therefore the facility is not subject to the CAM requirements.

5.0 CONTROL TECHNOLOGY REVIEW FOR MAJOR SOURCES AND MAJOR MODIFICATIONS

The Facility is not undergoing changes subject to new source review, therefore this section is not applicable.

6.0 AMBIENT AIR QUALITY IMPACT EVALUATION

The Facility is not undergoing changes subject to new source review; therefore this section is not applicable.

7.0 HAZARDOUS AIR CONTAMINANTS

The emissions of hazardous air contaminants (“HACs”) are regulated under to §5-261 of the Regulations. The Owner/Operator of a source must quantify its emissions of HACs regulated by this rule. Any Facility whose emission rate of a HAC exceeds its respective Action Level (“AL”) is subject to the rule for the HAC, and the Owner/Operator must then demonstrate that the emissions of the HAC are minimized to the greatest extent practicable by achieving the Hazardous Most Stringent Emission Rate (“HMSE”) for that HAC. If the emission rate of any HAC after achieving HMSE is still estimated to exceed its action level after achieving HMSE, an air quality impact evaluation may be required to further assess the ambient impacts for compliance with the Hazardous Ambient Air Standard (“HAAS”) or Stationary Source Hazardous Air Impact Standard (“SSHAIS”).

The emission of hazardous air pollutants (“HAPs”) may also be regulated separately under to §112 of the Federal Clean Air Act.

This facility has a permit condition limiting the emissions of HAPs to 10 ton/year of any single HAP and 25 tons/year of all HAPS combined, therefore the facility is not subject to the federal HAP standards.

As shown in Section 3, the facility is expected to exceed the action level of Crystalline silica (14808-60-7), Methyl Amyl Ketone (110-43-0), Isobutyl acetate (110-19-0), n-butyl acetate (123-

86-4), isobutyl alcohol (78-83-1), Ethyl Alcohol (64-17-5), Acetone (67-64-1), 1-butoxy-2-propanol (synonym butyl propanol) (5131-66-8), Titanium Dioxide (13463-67-7), Isobutyl Ester Isobutyric Acid (97-85-8), T-butyl acetate (540-88-5), VM & P naphtha (8032-32-4), 2,6-dimethyl-2-heptanone (108-83-8), and is therefore subject to §5-261.

7.1 HMSER Selection

If the emission of any HAC from all regulated sources at the Facility is estimated to exceed its AL, then the Facility is subject to the rule and the emissions must be reduced to achieve HMSER for that HAC.

Based on 2018 registration data:

Use of HVLP spray to minimize over spray and use of over spray filters with a minimum ninety-five (95) percent collection efficiency. Crystalline silica emissions shall not exceed 30 lbs/yr

- (1) continued coating reformulations to reduce more toxic HACs and HAPs with less toxic compounds;
- (2) continued reformulation of coating containing Category 1 HACs with acetone or other low toxicity and low or no VOC compounds where feasible;
- (3) use of high solids "hot spray" coatings where feasible;
- (4) use of the UV flat-line roll-coat finishing system where feasible;
- (5) continue to comply with §5-253.16 of the Regulations,
- (6) individual HAC caps, in pounds per year (see permit condition (38) below).

If the emission rate of any HAC after achieving HMSER is still expected to exceed its AL, the Agency may require an air quality impact evaluation to further assess the ambient impacts for compliance with the HAAS or SSHAIS.

7.2 Air Quality Impact Evaluation

If the emission of any HAC from all regulated sources at the Facility is estimated to exceed its AL, then the Facility is subject to the rule and the emissions must be reduced to achieve HMSER for that HAC.

The Agency has reviewed several factors relating to this Facility, including, but not limited to those listed in §5-261(3)(a)-(c) of the *Regulations* and the level of emissions and emission reduction measures typical for this category of emission source. Based on this review, the Agency is not requiring the Facility to conduct an air quality impact evaluation pursuant to §5-261(3) of the *Regulations* at this time.

8.0 REASONABLY AVAILABLE CONTROL TECHNOLOGY

At this time, the Agency has not established a Reasonably Available Control Technology ("RACT") requirement applicable to this Facility. Therefore, the source is currently in compliance with this requirement. The Agency will notify the source if any applicable RACT requirement applies to this Facility in the future. If such RACT should apply to the source in the future, the Agency will ensure that the source complies with such requirement at that time.

**APPENDIX A
Facility Location**



APPENDIX B Process Flow Diagram

