

**TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT NUMBER 1001540
AMERICAN WOODMARK CORPORATION**

I. INTRODUCTION

This operating permit is issued to American Woodmark Corporation (AWC) , the Permittee, for construction and operation of an expanded wood cabinet manufacturing facility, located at 4475 Mohave Airport Drive in Kingman, Mohave County, Arizona. The AWC Kingman facility previously operated as a minor source under Air Quality Class II Permit No. 100969. This Class I construction and operation permit is issued in response to AWC's July 23, 2001, permit application for the expansion of coating operations at the Kingman Plant and significant revision of the source's air permit.

A. Company Information

Facility Name: American Woodmark Corporation
Mailing Address: 4475 Mohave Airport Drive
Kingman, Arizona 86401
Facility Address: 4475 Mohave Airport Drive
Kingman, Arizona 86401
Responsible Official: Thomas J. McLarty, Plant Manager

B. Attainment Classification (Source 40 CFR §83.303)

The air quality control region in which the subject facility is located either is unclassified or is classified as being in attainment of the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants: particulate matter less than 10 microns (PM-10), nitrogen oxides (NO_x), sulfur dioxide (SO₂), carbon monoxide (CO), lead (Pb) and ozone (O₃).

II. PROCESS DESCRIPTION

The proposed AWC Kingman facility is a wood kitchen and bath cabinet manufacturing facility. Manufacturing operations will occur in an approximately 150,000 square foot structure containing four finishing lines used for surface preparation and coating of pre-fabricated cabinet parts. Pre-fabricated unfinished parts will be shipped to the AWC Kingman facility where these parts will undergo a series of finishing steps and then be assembled and shipped to customers. The expanded AWC Kingman facility production capacity will be 857 cabinets per hour and 1,560,000 cabinets per year.

Four finishing lines will comprise the expanded AWC Kingman facility operations: Finishing Line 1 - Main Single Pass Line; Finishing Line 2 - Pigment Application Line; Finishing Line 3 - Expedite Line; and Finishing Line 4 - Special Glazing Line. In general, each finishing line will involve a series of process steps including some or all of the following: 1) sanding and cleaning [automatic machine sanding/cleaning or manual], 2) coating application [i.e., stain, toner, sealer, and topcoat application in automatic spray booths or roll coaters], and 3) drying [curing ovens]. Following coating operations, finished parts will be assembled into complete cabinets and shipped to customers.

Pollution prevention and control measures and equipment to be utilized by AWC at the expanded Kingman facility include the use of three baghouse dust collection systems for capture and control of particulate matter generated by woodworking and sanding/cleaning operations, the use of high transfer efficiency coating application equipment (e.g., High Volume-Low Pressure (HVL) spray guns], the use of low-Hazardous Air Pollutant (HAP) coatings, dry filters or water wash systems to control overspray from the spray booths, and a regenerative thermal oxidizer (RTO) to control volatile organic compound (VOC) emissions from Finishing Lines 1 and 4.

III. EMISSIONS

A. Emissions

1. Criteria Pollutant and VOC Emissions - Table III-1 presents a summary of the potential hourly and annual criteria pollutant and VOC emissions from the American Woodmark facility.

Table III-1. Emissions Summary

Emission Point	Name	Potential Emissions (lb/hr / tpy)					
		VOC	PM	PM ₁₀	SO ₂	NO _x	CO
EXH - 1	Vertical Oven Cool Zone (1.28c)	0.585 / 1.521					
EXH - 2	Vertical Oven Cool Zone (1.31c)	0.585 / 1.521					
EXH - 3	Vertical Oven Cool Zone (1.36c)	0.585 / 1.521					
EXH - 4	Vertical Oven Cool Zone (1.41c)	0.585 / 1.521					
EXH - 5	Spray System 2.12	7.675 / 19.955	0.084 / .219	0.084 / .219			
EXH - 6	Oven 2.13 (a, b, c)	7.675 / 19.955					
EXH - 7	Manual Spray Booth (3.10)	5.729 / 14.895	0.272 / 0.707	0.272 / 0.707			
EXH - 8	Oven Enclosure (3.11)	5.729 / 14.895					
EXH - 9	Tunnel Oven (3.12)	5.729 / 14.895					
EXH - 10	Oven (3.13)	5.279 / 14.895					
EXH - 11	Oven (4.13c)	0.151 / 0.392					
EXH - 12	Oven (4.15c)	0.151 / 0.392					
EXH - 13	Pump Room Vent	1.4 / 3.65					
RTO - 1	Thermal Oxidizer	50.23 / 130.71 (RTO controls exhaust from Lines 1 & 4.)	1.48 / 2.60	1.48 / 2.60	0.008 / 0.035	1.32 / 5.80	1.11 / 4.87

Emission Point	Name	Potential Emissions (lb/hr / tpy)					
		VOC	PM	PM ₁₀	SO ₂	NO _x	CO
PB - 1	Package Boiler - 1	0.024 / 0.106	0.034 / 0.147	0.034 / 0.147	0.003 / 0.012	0.441 / 1.932	0.371 / 1.623
PB - 2	Package Boiler - 2	0.024 / 0.106	0.034 / 0.147	0.034 / 0.147	0.003 / 0.012	0.441 / 1.932	0.371 / 1.623
PB - 3	Package Boiler - 3	0.024 / 0.106	0.034 / 0.147	0.034 / 0.147	0.003 / 0.012	0.441 / 1.932	0.371 / 1.623
CRV - 1	Co-Ray-Vac - 1	.014 / 0.06	0.019 / 0.083	0.019 / 0.083	0.0015 / 0.0065	0.25 / 1.10	0.21 / 0.92
BH - 1	Torit/ Donaldson (Model 24FM)		0.045 / 0.195	0.045 / 0.195			
BH - 2	Torit/ Donaldson (Model HPT-64)		0.045 / 0.195	0.045 / 0.195			
TOTALS		92.62 / 241.1	2.05 / 4.44	2.05 / 4.44	0.016 / 0.07	2.55 / 11.18	2.14 / 9.39

B. HAP Emissions

Total potential to emit, considering controls, for Federally-listed hazardous air pollutant (HAP) emissions from the American Woodmark facility finishing operations were calculated to be 46.5 lb/hr and 121 tons/year. HAP emissions are controlled for lines 1 and 4 by a Regenerative Thermal Oxidizer (RTO-1). The HAPs emitted (controlled basis) in largest quantity have individual potential facility-wide emission rates as follows:

1. Toluene: 13.36 lb/hr and 34.75 tons/yr
2. Methyl ethyl ketone: 11.74 lb/hr and 30.52 tons/yr
3. Xylenes: 7.71 lb/hr and 20.05 tons/yr
4. Methanol: 7.24 lb/hr and 18.84 tons/yr

C. Emissions Calculations and Basis

1. Machining/woodworking Operations: PM/PM₁₀ Emissions

The facility will conduct wood machining and shaping operations (e.g. drilling). PM/PM₁₀ emissions from machining/woodworking operations will be collected and controlled via two (2) existing dust collection systems equipped with baghouses (BH-1 and BH-2). The design control efficiency of the collection/control system, based on manufacturer specification for outlet concentration, is approximately 99.9%. The maximum allowable particulate emissions from the two baghouses (based on existing facility permit #1000969) is 0.39 tons per year combined. The emissions of PM/PM₁₀ are reported in the permit application Emission Source forms under BH – 1 and BH – 2, and are unchanged.

- a. Assumptions and References:

- (1) Baghouses (2 identical units) operate 8,760 hours per year.

- (2) PTE calculations are based on maximum vendor supplied exhaust PM concentration and design flow rates, as calculated by ADEQ in the support for Permit No. 1000969.
- (3) Dust collection system rated gas flow rate is 10,000 actual cubic feet per minute (acfm) per baghouse.
- (4) All PM is assumed to be less than 10 microns aerodynamic particle size diameter (i.e., PM = PM₁₀).

2. Finishing Operations: PM/PM₁₀ Emissions

Emissions of PM₁₀ associated with overspray of coating solids will occur from the spray booths only. Overspray particulate emissions from finishing lines 1 and 4 will be captured and controlled through the dry filters and water-wash systems integrated in to each of the spray booths. For these lines the booth exhaust streams will be routed to the Regenerative Thermal Oxidizer (RTO-1). No credit is taken in the emission calculation for possible abatement of spray-generated PM/PM₁₀ by the RTO. Controlled PM₁₀ emissions from lines 1 and 4 have been quantified and included in Table A-4 of the permit application, and total 2.2 TPY and 0.88 lb/hr.

Emissions of PM₁₀ due to overspray from coating operations in finishing lines 2 and 3 (EXH - 5 and EXH – 7) will be captured and controlled through dry filters and /or water-wash systems integrated into each of the spray booth modules. After this treatment, these exhaust points vent directly to atmosphere. Controlled PM₁₀ emissions from lines 2 and 3 have been quantified and included in Table A-4 of the permit application, and total 0.93 TPY and 0.36 lb/hr.

Emission rates of PM₁₀ from the booths are based on solids content in the coatings applied, application transfer efficiency, and dry filter control efficiency. HVLP spray gun technology, or airless/air assisted spray guns, will be employed on lines 1, 2 and 4 resulting in improved transfer efficiency (at least 45%). A lower transfer efficiency of 25% was assumed for the line 3 Air Spray technology. Dry filter specifications provided in the American Woodmark permit application indicate a minimum of 96% capture and control efficiency for the spray booth enclosures and the filter systems.

Between application of certain finishing coats, dry part surfaces may be lightly sanded to improve finish. Particulate emissions resulting from the sanding and cleaning operations for lines 1, 2, and 4 will be captured and vented to a baghouse (BH – 3). This baghouse exhausts to the building housing the finishing lines. Therefore, this closed loop system will not emit particulate matter to the atmosphere and the emission source is considered insignificant. Vendor information regarding the dry filters, water-wash systems and BH – 3 are included in appendix E of the application.

a. Assumptions and References:

- (1) Particulate matter emissions for lines 1, 2, and 4 are calculated

- based on a HVLP spray gun transfer efficiency of 45%.
- (2) Particulate emissions from spray coating operations are controlled by filters and water-wash systems treating the exhaust air from the booth enclosures. Total control and capture efficiency is at least 96%. This value is consistent with vendor specifications contained in the permit application.
 - (3) No emissions reduction credit was taken for treated particulate exhaust streams routed to the RTO.
 - (4) Particulate emissions from spray coating operating in line 3 are controlled by filters and/or wash-wash systems treating the exhaust air from the booth enclosures. Total control and capture efficiency is at least 96%, for similar equipment as specified for lines 1, 2, and 4.
 - (5) Particulate matter emissions for line 3 are calculated based on an Air Spray transfer efficiency of 25%. Vendor information was provided in the permit application to support this data.
 - (6) Assume that all emitted particulate from this source is PM₁₀.
- b. Calculation of annual potential PM₁₀ emissions from finishing operations due to overspray:

Example: Finishing Line 1 – Oak Frost 1st Stain:

$$\begin{aligned}
 \text{Pounds PM/PM}_{10} \text{ emitted / yr} &= (\text{Estimated annual coating usage} \times \text{pounds solids/gal coating}) \times (100 - 45) \% \times (100 - 96)\% \\
 &= (20,282 \text{ gal/yr} \times 8.40 \text{ lb solid/gal coating}) \times 0.55 \times 0.04 \\
 &= 896.9 \text{ lb PM/PM}_{10}/\text{yr}
 \end{aligned}$$

- c) Calculation of hourly PM₁₀ emissions from finishing operations due to overspray:

Example: Finishing Line 1, all materials:

$$\begin{aligned}
 \text{Pounds PM}_{10} \text{ emitted / hr} &= (\text{Est. annual PTE, lb/yr}) / 5,200 \text{ hr/yr} \\
 &= 4,235.5 \text{ lb/yr} / 5200 \text{ hr/yr} \\
 &= 0.815 \text{ lb PM}_{10}/\text{hr}
 \end{aligned}$$

Similar calculations are made for each of the coating materials used in the finishing line. The quantities emitted for each coating material are then added together to result in the total PM₁₀ emitted from each finishing line. These results are provided in Table A.4 of the application.

3. Finishing Operations: VOC and HAP Emissions

The use of VOC-containing finishing materials results in release of VOC from the finishing operations. VOC and speciated organic compound emissions from the finishing operations were quantified for each finishing line emission unit/module using mass balance and capture/control efficiency factors where applicable. The calculations are based on material balance, using projected material usage and material safety data sheet (MSDS) composition data from the coating vendor for the

facility (Akzo, or equivalent). Material balance is the preferred emissions estimation approach for coating operations per EPA guidance, and is appropriate for this application. Several key assumptions used in the calculations are identified below. Results of these calculations is provided in Table A.2 of the application.

a. Assumptions and References:

- (1) The entire VOC content of the finishing materials and solvents as applied at the facility is assumed to be released upon use.
- (2) Assumptions listed in the VOC Emissions calculations include operating schedule constraints, limitations on process parameters, and control equipment capture and destruction efficiency. The operating schedule constraints are given in the application as follows: Operating hours of 20 hrs per day; operating days of 260 days per year; operating hours per year of 5200; booth uptime of 80%; active automated spray time of 65%, VOC capture efficiency of 90%; RTO destruction efficiency of 95%; and overall VOC control efficiency of 85.5%.
- (3) For the manually loaded finish line 3, an additional constraint is that manually loading/unloading of work pieces will subtract an additional 35% from the available spray operation time.
- (4) For the purpose of estimating the maximum potential to emit for VOC, the “worst case” VOC content and maximum annual use of proposed coating materials. This method allows the Permittee to substitute comparable coating materials which will generally have VOC content less than the “worst case” coating material.
- (5) A maximum of 5% of the VOC usage on a given finish line is assumed to be emitted from the cool zone portion of the ovens (EXH-1, EXH-2, EXH-3, EXH-4, EXH-11 and EXH-12). This is expected to be a conservative assumption, as actual VOC available for evaporation at the cool zones will be less. This VOC emission will be uncontrolled.
- (6) Several types of coating materials are used in more than one finishing line. The relative percentages of the split usage used in the emission calculations are representative of expected normal production, but may change depending on production requirements.
- (7) Performance test data from a sister AWC facility with similar equipment is provided in Appendix A of the application to support the assumed VOC capture efficiency of 90%, and RTO destruction efficiency of 95%.
- (8) Capture and control device efficiency must be demonstrated by performance test for compliance with the facility-wide VOC emission limit. Also, if selected as the compliance option for 40 CFR 63 Subpart JJ (Wood furniture manufacturing MACT) the capture/control system must meet NESHAP requirements for contribution to total VHAP control. For the preliminary calculations contained in the American Woodmark permit application, total capture/destruction efficiency for HAPs is conservatively estimated at 85.5 percent.

b. Individual Finishing Line VOC Usage and Emissions:

The four finishing lines serve different purposes at the AWC Kingman facility, and have different material usage patterns. Line 1 is designed to prepare and coat the surface of pre-fabricated cabinet components through an integrated system of automated sanding and coating equipment. This line involves cleaning, application of stains and/or topcoats, wiping and drying of the pieces. Line 2 is designed to apply only pigmented coating to prefabricated cabinet components. Line 3 is a manually loaded spray-oven dry line designed for low-volume coating operations to allow expediting "single piece" production through the process. Line 4 is a special glazing line used for the application of specialty finishes. Each line, with the exception of line 3, features one or more continuous belts to convey parts through the finishing sequence. After each spray or wiping step, the continuous belt is cleaned by passing through a belt cleaner which contains a reservoir of cleaning solution.

As a starting point for the finishing operation mass balance calculation, the expected maximum potential finishing material VOC usage rate was calculated for each finishing line. The resulting estimates are shown in Table A.2 of the application. The procedure to obtain these estimates is as follows.

First, the maximum design input rate of material for each spray booth and belt cleaner was determined based on the either spray gun or cleaner capacity. For example, on line 1 the maximum spray rate for an HVLP spray gun in use for a solid hour would be 16 gallons/hr. The maximum potential emission rate of VOC per hour is the product of this design input rate, and a high end estimate of VOC per gallon of the range of materials to be used. The maximum potential is then reduced by application of design and operational constraints listed in (a)(2) above, to obtain the uncontrolled emission rates. For lines 1 and 4, the control factor for the RTO is also applied to obtain the controlled emission rates.

c. Calculation of maximum potential, uncontrolled, and controlled VOC emissions from finishing operations:

Example: Uncontrolled emissions - Finishing Line 1, spray booth 1:

$$\begin{aligned} \text{Potential to emit (hourly)} &= \text{Design rate (gal/hr)} \times \text{Max. VOC lb/gal} \\ &= 16.0 \text{ gal/hr} \times 6.78 \text{ lb VOC/gal} \\ &= 108.48 \text{ lb/hr} \end{aligned}$$

$$\begin{aligned} \text{Potential to emit (annual)} &= \text{Hourly PTE} \times 8,760 \text{ hr/yr} \\ &= 108.48 \text{ lb/hr} \times 8,760 \text{ hr/yr} / 2000 \text{ lb/ton} \\ &= 475.14 \text{ ton/yr} \end{aligned}$$

$$\begin{aligned} \text{Uncontrolled emissions (annual)} &= \text{Annual PTE} \times (5200 \text{ hr} / 8760 \text{ hr}) \\ &\quad \times 80\% \text{ booth uptime} \\ &\quad \times 65\% \text{ spray gun utilization} \end{aligned}$$

$$\begin{aligned}
&= 475.14 \text{ tpy} \times (5200/8760) \times 0.80 \times 0.65 \\
&= 146.7 \text{ ton/yr}
\end{aligned}$$

Example: Controlled emissions – Finishing line 1, spray booth 1:

$$\begin{aligned}
\text{Controlled emissions (annual)} &= \text{Uncontrolled (tpy)} \times (1 - 0.855) \\
&= 146.7 \text{ tpy} \times (1 - 0.855) \\
&= 21.27 \text{ tpy}
\end{aligned}$$

This same calculation is performed for each spray booth and belt cleaner unit along each of the finishing lines. The total emission rates per line are the sum of the individual booths and belt cleaners, as shown in Table A.2. For line 2, the emissions are emitted uncontrolled. For line 3, with manually loaded booths, there is an additional constraint on usage in that 35% of the possible spray gun time is spent by the operator loading and removing parts.

Hourly emission rates reported in the Emission Source forms are derived for each emission point, as described in the section (e) below.

d. Pump Room Emissions

The Pump Room is the location where essentially all of the coating materials are transferred from vendor-supplied containers or totes to bulk tanks, drums, or pressurized vessels for pumping to the spray booths. Containers are closed during pumped transfer from the supply containers to the spray booth supply containers. In some instances, the pump transfer from 5-gallon coating containers into pressurized delivery containers may be accomplished on the finishing room floor. Work practices are implemented to minimize evaporation during transfer. Estimated emissions resulting from transfer operations, in the Pump Room or elsewhere, are 0.1% of the total VOC content of material used at the facility. Estimates of total VOC from this source are shown in Table III-1 herein and Table A.2 of the permit application.

e. Apportioning VOC Emissions to Individual Stacks/Vents:

The Emission Source forms in the AWC application identify various emission points for the controlled and uncontrolled VOC emissions. The total emissions per line are defined by the usage calculations per line, as described in section (c) above. As installed at AWC, each finishing line is an integrated system with VOC pick up points are arranged along the entire enclosure. Estimated VOC emissions on the forms are derived using the following assumptions:

EXH-1 through EXH-4, Vertical Oven Cool Zones for line 1-

Total cool zone annual emissions equal 5% of the controlled emission rate for line 1, and divided equally among the four cool zone vents:

$$\text{Emissions (tpy)} = 0.05 \times 121.65 \text{ tpy} / 4 \text{ stacks} = 1.521 \text{ tpy}$$

EXH-5 and EXH-6, Line 2 Spray Booth and Curing Oven-
Emissions are uncontrolled, total VOC annual emissions are divided equally among the two vents:

$$\text{Emissions (tpy)} = 39.91 \text{ tpy} / 2 \text{ stacks} = 19.955 \text{ tpy}$$

EXH-7 through EXH-10, Spray Booths (2) and Ovens (2) for line 3-
Emissions are uncontrolled, total VOC annual emissions are divided equally among the four vents:

$$\text{Emissions (tpy)} = 59.58 \text{ tpy} / 4 \text{ stacks} = 14.895 \text{ tpy}$$

EXH-11 and EXH-12, Line 4 Curing Ovens –
Total curing oven emissions are conservatively equal to 5% of controlled emissions from line 4, and are divided equally among the two vents:

$$\text{Emissions (tpy)} = 0.05 \times 15.66 \text{ tpy} / 2 \text{ stacks} = 0.392 \text{ tpy}$$

For each emission point, the estimated hourly emissions are the annual total prorated over the operating hours of the lines.

$$\text{Hourly emission rates} = \text{Annual emission rates} / 5200 \text{ hours/yr}$$

f. HAP and AAAQG Compound Emissions:

Estimation of HAP and Arizona Ambient Air Quality Guideline (AAAQG) compound emissions requires more detailed examination of the individual product formulations. The maximum hourly production rate assumed for the usage is 857 cabinets per hour, and annual production rate of 1,560,000 cabinets per year. A product usage profile was scaled from knowledge of the product mix applicable to the American Woodmark facility in operation in Indiana. Actual product usage and mix may vary depending on the orders processed at the Kingman facility, and can be expected to be below these levels. This product mix and the resulting annual usage of each coating appear in Table A.4 of the permit application.

The material use values for each line were converted to AAAQG chemical or HAP emission estimates. This was obtained from the product of the material use and the mass percentage of HAP or AAAQG constituents, as given in MSDS or certified material data sheets:

Example: Oak Frost 1st Stain for line 1 – ethyl benzene

$$\begin{aligned} \text{“Ethyl Benzene” (lb/yr)} &= \text{“Est. Annual Usage” (gal/yr)} \\ &\quad \times \text{“Density” (lb/gal)} \\ &\quad \times \text{Constituent \% / 100 (from MSDS)} \\ &= 20,282 \text{ gal/yr} \times 8.4 \text{ lb/gal} \times 2.6\% / 100 \\ &= 4429.6 \text{ lb/yr (uncontrolled)} \end{aligned}$$

Other VOC, HAP, or AAAQG constituents that are present in a given coating material have mass percentages obtained from the appropriate MSDS, and shown in the columns in Table A.3(a) in the application. The emission rates represent total uncontrolled releases from cleaners, toners, stains, reducer, sealer, topcoat, and miscellaneous related materials. The total constituent usage from each product containing a given compound is added to derive the total uncontrolled HAP/AAAQG emissions for each line as presented in Table A.3 of the permit application.

Controlled emissions of HAP and AAAQG compounds on annual and hourly basis were determined using the same factors described previously for VOC; 85.5 % total capture/destruction efficiency and 5200 hours/yr booth operation. For lines having uncontrolled curing or cooling oven zones, the HAP and AAAQG constituent emissions from these emission points are 5% of the controlled rates. The emissions are divided equally among the number of such uncontrolled points.

Example: Oak Frost 1st Stain for line 1 – ethyl benzene

$$\begin{aligned}
 \text{“Ethyl Benzene” (lb/yr) , “Total lb/hr Controlled” (lb/yr)} & \\
 &= \text{“Total lbs/yr”} / 5,200 \text{ hr/yr} \\
 &x \text{ Control efficiency (1-0.855)} \\
 &= 31,888 \text{ lb/yr} / 5200 \text{ hr/yr} x (1-0.855) \\
 &= 0.889 \text{ lb/hr (controlled)}
 \end{aligned}$$

$$\begin{aligned}
 \text{“Ethyl Benzene” (lb/yr) , “5% to Uncontrolled lb/hr”} & \\
 &= \text{“Total lbs/yr”} / 5,200 \text{ hr/yr} x 5\% \\
 &= 31,888 \text{ lb/yr} / 5200 \text{ hr/yr} x 0.05 \\
 &= 0.307 \text{ lb/hr (uncontrolled)}
 \end{aligned}$$

$$\begin{aligned}
 \text{“lb/hr to Ex. 1, 2, 3, & 4”} = \text{“5% to Uncontrolled lb/hr”} / 4 \text{ stacks} \\
 &= 0.307 \text{ lb/hr} / 4 \\
 &= 0.077 \text{ lb/hr}
 \end{aligned}$$

g. Calculation of Controlled Emissions:

The emissions of VOC from the RTO are the controlled aggregate emissions of multiple process emission units:

Line 1 spray booths (7) – 1.13 a/b, 1.20 a/b, 1.22 a/b, 1.27 a/b, 1.30 a/b, 1.35 a/b, 1.40 a/b.

Line 1 stain wiping machines (2) – 1.14/1.15, 1.23/1.24.

Line 1 curing ovens (7) – 1.16, 1.21, 1.25, 1.28 a/b, 1.31 a/b, 1.36 a/b, 1.41 a/b.

Line 4 spray booths (2) – 1.10 a/b, 4.15 a/b.

Line 4 reverse roll coater (1) – 4.11

Line 4 wiping conveyor (1) – 4.12

Line 4 curing ovens (2) – 4.13 a, 4.16 a/b.

Controlled emissions from the RTO consist of VOC, HAP, and AAAQG compound constituents from the above emission units (calculated using the mass balance approach presented above) multiplied by the overall control factor $[1 - (\text{capture efficiency} * \text{control efficiency})]$. The overall control efficiency used in the calculations is of 85.5% (90% capture efficiency and 95% RTO destruction efficiency)

The assumptions of VOC capture and control efficiency are supported by source testing at a sister AWC facility with similar equipment. Excerpts from the emission test report for this facility are provided in Appendix B of the permit application. These values are conservative and reasonable for the preliminary compliance assurance with the facility-wide VOC emission limit. The candidate RTO vendor (MEGTEC Systems) specification indicates at least 95% VOC destruction efficiency. This performance will need to be verified by efficiency testing using US EPA Reference Methods.

4. Fuel Burning Equipment Emissions

Fuel combustion units at the American Woodmark - Kingman facility include the following equipment:

- (1) PB-1, PB-2, and PB-3: Package boilers (4.5 MMBtu/hr, natural gas-fired);
- (2) CRV-1: Co-Ray-Vac heating system (2.54 MMBtu/hr, natural gas-fired); and
- (3) RTO-1: Regenerative Thermal Oxidizer (13.5 MMBtu/hr supplemental fuel heat input, natural gas-fired).

a. Assumptions and References:

- (1) All fuel burning equipment are limited to firing natural gas fuel by permit condition. Natural gas is the proposed fuel and the basis for the emission calculations and PTE estimates.
- (2) Potential hourly emissions are based on rated heat input capacity (MMBtu/hr) and EPA AP-42 emission factors for natural gas combustion in commercial boilers (AP-42 Chapter 1.4, 7/98).
- (3) Potential annual emissions are based on 8760 hr/yr operation at rated heat input capacity.
- (4) For the RTO, potential annual fuel burning emissions are based on the nominal heat input capacity and 8760 hr/yr. This is reasonable and conservative because the RTO uses the design burner rating for warm-up. During operation, the VOC content will contribute to the fuel input, but no credit is taken in reducing the natural gas consumption in the emission estimates.

b. Calculation of hourly potential combustion emissions from fuel burning equipment:

Fuel burning unit PTE calculations are based on the following established emission factor approach:

$[\text{Unit rated heat input capacity (MMBtu/hr)}] * [\text{pollutant emission factor (lb/MMBtu)}] = \text{Hourly PTE (lb/hr)}$

Emission factors used for natural gas heat input:

PM₁₀: 7.60 lb/MMscf
SO₂: 0.60 lb/MMscf
CO: 84.0 lb/MMscf
NO_x: 100.0 lb/MMscf
VOC: 5.50 lb/MMscf

Reference: EPA AP-42 Chapter 1.4, Tables 1.4-1 and 1.4-2. 7/98.

Example Calculation - Potential hourly RTO NO_x emissions:

(13.5 MMBtu/hr rated heat input capacity)
x (1/1,020 Btu/scf)
x 100 .0 lb NO_x/MMscf = 1.32 lb NO_x/hr

- c. Calculation of annual potential combustion emissions from fuel burning equipment:

Annual fuel burning unit PTE calculations are based on the following equation:

$(\text{Hourly PTE}) * (8760 \text{ hr/yr}) * (1 \text{ ton}/2000 \text{ lb}) = \text{Annual PTE (tpy)}$

Example Calculation - Potential annual RTO NO_x emissions:

(13.5 MMBtu/hr nominal heat input capacity)
x (8760 hr/yr) * (1 ton/2000 lb)
= 5.797 ton NO_x/yr

IV. APPLICABLE REGULATIONS

A. Verification and Summary of Applicable Regulations

The Permittee identified all air quality regulations that apply to the American Woodmark Kingman facility and individual units and equipment in the Class I permit application. The Department has reviewed the Applicants' analysis and has verified regulatory applicability or non-applicability to the proposed source. Table IV-1 details the Department's regulatory applicability conclusions.

B. Other Requirements

Pursuant to the Arizona Ambient Air Quality Guidelines under the Air Toxics Control Policy (Permits Policy #0000.0006), ADEQ requires that new and modified sources undergo a review of air toxics emissions to determine whether controls are needed to limit the risks associated with those emissions. The Arizona Ambient Air Quality Guidelines (AAAQG's) are ambient concentration thresholds established for numerous toxic air contaminants. The Applicant performed a review of air toxics emissions to demonstrate that the AAAQG's

would not be exceeded for 20 air toxics expected to be emitted from the facility. Section VII of this document describes the American Woodmark air toxics review, including a detailed discussion of the dispersion modeling methodology and results

Table IV-1. Summary of Applicable Regulations

Citation	Summary of Applicable Requirement	Method to Demonstrate Compliance
State of Arizona Requirements (Arizona Administrative Code [AAC], Title 18, Chapter 2)		
Article 3	<i>Permits and Permit Revisions.</i> Requirements are generally applicable to American Woodmark. Specific applicable, or non-applicable regulations are identified below.	
R18-2-301, 302	Definitions and Classes of Permits. Paragraphs relating to the American Woodmark facility or Class I permitting for such sources are applicable.	
R18-2-303	Transition from Installation and Operating to Unitary Permitting. Not Applicable.	
R18-2-304 (A), (B), and (C)	Permit Application Processing. Applicable with exception of (C)(2) and (C)(3)	Refer to American Woodmark permit application.
R18-2-304 (E)	Permit Application Processing. Elements of a complete application.	Refer to American Woodmark permit application. Listed elements as applicable have been submitted with the Class I application (August 2001) and supplemental information for the American Woodmark facility.
R18-2-305	Public Records; Confidentiality. Not Applicable. American Woodmark has not provided notice that material in its application shall be treated as confidential.	
R18-2-306	Permit Contents. Generally applicable, with the exception of (A)(6), (A)(13), and (C).	ADEQ obligation.
R18-2-306.01	Permits Containing Voluntarily Accepted Emission Limitations. The American Woodmark permit contains a voluntary 241 tpy facility-wide VOC emission limitation. Compliance with this limitation will ensure that the source is minor with respect to PSD and not subject to permitting requirements under Article 4.	Daily emission calculations based on VOC-containing material balances and VOC capture and control system performance and monitoring (i.e., continuous RTO combustion chamber temperature monitoring, enclosure static pressure, and related functional parameter monitoring)..
R18-2-306.02	Establishment of an Emissions Cap. Generally applicable with exception of paragraph (B).	A VOC emissions cap is adopted in the American Woodmark permit. Compliance will be tracked by 12-month rolling cumulative emissions. Material balance calculation procedures, monitoring, recordkeeping, and reporting as described in the permit ensure that the facility-wide VOC emission limit is quantifiable and enforceable as a practical matter.
R18-2-307	Permit Review by EPA and Affected States. Applicable.	
R18-2-308	Emission Standards and Limitations. All applicable requirements shall be listed in the issued American Woodmark permit.	ADEQ obligation.
R18-2-309	Compliance Plan; Certification. Generally applicable, with exception of paragraphs referring to a Compliance Plan or schedule for existing operations, or requirements for which the source is not currently in compliance.	American Woodmark has provided in its application indication of the applicable and non-applicable requirements, and the methods used to achieve compliance. The currently permitted Class II AWC operation does not require the preparation of a Compliance Plan or schedule.

Citation	Summary of Applicable Requirement	Method to Demonstrate Compliance
R18-2-310	Excess Emissions reporting. Generally applicable to VOC capture and control systems.	The facility shall submit excess emissions notifications within 24 hours of learning of the occurrence by fax or phone. A detailed written notification shall follow with 72 hours and shall include the information outlined in the permit text.
R18-2-311	Test Methods and Procedures. Generally applicable with exception of paragraph (C).	For new finishing line equipment and related VOC capture and control systems, the facility shall follow designated test methods, as required under this section.
R18-2-312 (A)	Performance Tests. Test requirements are applicable, with the schedule for VOC capture/control system performance testing based on the 60 and 180 day deadlines related in this rule to “capability to operate at maximum production rate on a sustained basis”.	American Woodmark shall conduct testing for VOC capture and control efficiency, to verify compliance with control technology specifications. Testing may be arranged to coincide with related tests to demonstrate compliance with certain requirements under 40 CFR 63, Subpart JJ.
R18-2-312 (B), (C), (E),(F)	Test Procedures. Testing shall be conducted according to methods in the Arizona Testing Manual, and at representative normal full production capacity conditions.	American Woodmark shall specify an appropriate test methodology in a Test Plan that will be submitted prior to scheduling the test date.
R18-2-312 (D)	Test Notification. The operator will notify ADEQ not less than 14 calendar days prior notice of a Performance Test.	More extensive notification procedures/periods are required for tests performed for compliance with federal requirements, which should be performed concurrent with permit compliance tests. The ADEQ will be simultaneously notified of such tests.
R18-2-313	Existing Source Emission Monitoring. Not Applicable. Sources subject to the rule not present.	
R18-2-314	Quality Assurance. Applicable	Quality Assurance plan to be included in Test Plan submitted under R18-2-311.
R18-2-315	Posting of Permit. Applicable	Permit to be available for inspection. Certificate of issuance to be posted.
R18-2-316	Notice of Building Permit Agencies. Applicable.	American Woodmark shall facilitate review of plans and specifications.
R18-2-317	Facility Changes Allowed Without a Permit Revision – Class I. Generally applicable, as appropriate for the American Woodmark facility.	American Woodmark shall follow specified procedures regarding changes not requiring a Permit Revision.
R18-2-317.01, 317.02 and 318.01	Facility Changes Allowed Without a Permit Revision – Class II. Not applicable, facility is no longer a Class II source.	
R18-2-318 and 319	Administrative and Minor Permit Revisions. Applicable on the occasion American Woodmark seeks to modify its permit.	American Woodmark shall follow specified procedures regarding changes requiring an Administrative or Minor Permit Revision. Certain changes related to the VOC emissions and controls may trigger applicability of Article 4.
R18-2-320	Significant Permit Revisions. Applicable on the occasion American Woodmark seeks to modify its permit.	American Woodmark shall follow specified procedures regarding changes requiring an Significant Revision, however, certain changes related to the VOC emissions and controls may trigger applicability of Article 4.
R-18-2-321	Permit Reopenings. Not applicable at this time.	

Citation	Summary of Applicable Requirement	Method to Demonstrate Compliance
R18-2-322, 323, and 324	Permit Renewal. Permit Transfers. Portable Sources. Not applicable at this time.	
R18-2-325	Permit Shields. Applicable.	The American Woodmark permit identifies all applicable requirements.
18-2-326	Fees Related to Individual Permits. Applicable.	American Woodmark shall calculate and remit annually, or upon occasion of a permit modification or other action, appropriate fees as described in this section.
R18-2-327	Submit Annual Emission Inventory Questionnaire	Facility-wide requirement – Provide annual emission inventory reports in accordance with the form and schedule determined by ADEQ.
Article 4	<i>Permit Requirements for New Major Sources and Major Modifications to Existing Major Sources.</i> Not Applicable. Emissions are below Major Source thresholds as defined for Article 4 applicability.	A voluntary emission limitation has been adopted by the American Woodmark facility to maintain annual VOC emissions below the defined Major Source emission rate, and thereby avoiding PSD permitting requirements. For other regulated pollutants, maximum Potential to Emit rates are below thresholds for applicability of Article 4.
Article 5	<i>General Permits.</i> Not Applicable. The modification involves a source category that is not covered by a General Permit.	
Article 6	<i>Emissions from Existing and New Nonpoint Sources.</i> Certain sections of Article 6 are generally applicable to activities during construction of the modified source, as noted below.	
R18-2-602	Open Burning. Open outdoor fires are prohibited except in very limited circumstances outlined in this rule.	The American Woodmark facility shall not conduct open burning of refuse or vegetation that may be removed during construction of the new source.
R18-2-604 (A)	Open Areas, Dry Washes or Riverbeds. Only this section is applicable. Construction activities will not be conducted without reasonable precautions to limit excessive amounts of particulate matter from becoming airborne.	American Woodmark shall ensure that reasonable measures, which may include site watering, use of gravel in traffic areas, and soil stabilization, will be used during construction of the new source.
R18-2-605	Roadways and Streets. Construction of roadways and transportation of materials shall not be conducted without reasonable precautions to limit excessive amounts of particulate matter from becoming airborne.	American Woodmark shall ensure that reasonable measures, which may include site watering, use of gravel in traffic areas, and soil stabilization, will be used during construction of the new source.
Article 7	<i>Existing Stationary Source Performance Standards.</i> As noted below, the requirements for specific sources categories are not applicable to the new American Woodmark facility, because the types of sources affected at not involved in the modification.	
R18-2-701 and 702	Definitions and General Provisions. Administrative requirements are generally applicable.	
R18-2-703	Standards of Performance for Existing Fossil-fuel Fired Steam Generators and General Fuel-burning Equipment. Not applicable – all fuel fired equipment is less than 73 MW capacity.	
R18-2-704 through 718	Standards of Performance for Existing Sources (Various categories). Not applicable – none of the source categories present at American Woodmark facility.	

Citation	Summary of Applicable Requirement	Method to Demonstrate Compliance
R18-2-719	Standards of Performance for Existing Stationary Machinery. Not applicable – no internal combustion engines or other rotating machinery to be used at the American Woodmark facility.	
R18-2-720 through 723	Standards of Performance for Existing Sources (Various categories). Not applicable – none of the source categories present at American Woodmark facility.	
R18-2-724	Standards of Performance for Fossil-fuel Fired Industrial and Commercial Equipment. Applicable to fossil fuel fired equipment having less than 73 MW capacity. American Woodmark natural gas fired combustion equipment includes package boilers (3), a co-ray-vac system and the thermal oxidizer.	
R18-2-724 (A)	Applicable – based on source type.	Definition covers the natural gas fired package boilers (3), the Co-Ray-Vac heating system and the RTO.
R18-2-724 (B)	Heat input definition. Total heat input for all fuels. Conduct compliance testing, if required, during operation at normal rated capacity.	Fuel input consists of natural gas only, as the facility is limited in the permit to burning natural gas in all fuel-fired equipment.
R18-2-724 (C), (D)	Particulate emission limit. Applicable.	Use of natural gas will allow compliance with calculated standard.
R18-2-724 (E)	Sulfur limit of 1.0 lb/MMBtu SO ₂ for low sulfur fuel. Not applicable, no fuel oil fired units permitted at the facility.	
R18-2-724(G) and (H)	Sulfur limitations for high-sulfur oil fuel or coal. Not applicable. High sulfur fuel or coal will not be used.	
R18-2-724 (I)	Operate continuous monitoring systems for opacity. Not applicable. A control device is not used to control opacity.	
R18-2-724 (J)	Excess emission reporting for visible emissions. Applicable.	Use of natural gas will prevent excess opacity emissions during normal operations.
R18-2-724(K)	Test Methods and Procedures. Applicable for pollutants requiring an emissions test.	If a test is required, American Woodmark shall specify appropriate test methodology in a Test Plan that will be submitted prior to scheduling the test date.
R18-2-725 and 726	Standards of Performance for Dry Cleaning and Sandblasting. Not applicable, source types not present.	
R18-2-727 (A)	Standards of Performance for Spray Painting Operations. Applicable for spray booths.	American Woodmark will use enclosed spray booths design to contain no less than 96% of the overspray (fraction of coating solids not transferred to the work piece). The booths are also equipped with controls, in the form of filter panels or equivalent, to reduce particulate emissions.
R18-2-727 (B) through (D)	Standards of Performance for Spray Painting Operations. Not Applicable. Facility does not apply architectural coatings to products, such coatings only used for facility maintenance and are deemed insignificant.	

Citation	Summary of Applicable Requirement	Method to Demonstrate Compliance
R18-2-730 (A) through (C)	Standards for Unclassified Sources. Pollutant emission rate standards. Applicable to wood working operations venting to the atmosphere.	Particulate control systems (baghouses) for wood working operations will be designed to achieve compliance with particulate emission standards. American Woodmark will demonstrate compliance, if necessary, by Reference Methods described in the Test Plan for initial compliance test under R18-2-311 and R18-2-312. Other Sections – N/A, Source not present.
R18-2-730 (D), (F), (G)	Standards for Unclassified Sources. Avoidance of air pollution. Applicable to fuel-burning equipment and surface coating operations as sources of particulate or gaseous emissions.	Use of natural gas will minimize impact on air pollution from fuel burning equipment. Use of VOC control technology and compliant VOC and VHAP coatings will reduce minimize impact on air quality due to coating operations. Arrangement and height of stacks has been evaluated by dispersion modeling to demonstrate acceptable impact on air quality by comparison with AAAQG levels.
R18-2-730 (E), (H) through (N)	Standards for Unclassified Sources. Not applicable. Specific source type or pollutant not present at American Woodmark facility.	
R18-2-731 and 732	Standards of Performance for Municipal and Hospital Incinerators. Not Applicable. Source type not present.	
Article 8	<i>Emissions from Mobile Sources.</i> Applicable. Limits opacity from site/roadway cleaning machinery to 40 %.	
Article 9	<i>New Source Performance Standards.</i> Not applicable. No affected source categories are present at the facility.	
Article 10	<i>Motor Vehicles: Inspections and Maintenance.</i> Not Applicable.	
Article 11	<i>Federal Emission Standards for Hazardous Air Pollutants.</i> Applicable. Subparts A (General Provisions) and JJ (Wood Furniture Manufacturing Operations) of 40 CFR 63 are incorporated by reference (See Federal Requirements for detailed listing of requirements). When used in 40 CFR Part 63, “Administrator” shall mean the Director of the ADEQ.	See Federal requirements.
Federal Requirements		
40 CFR Part 63 (NESHAP) Subpart A	<i>National Emission Standards for Hazardous Air Pollutants - General Provisions.</i> Applicable to American Woodmark as identified in the applicable subpart (40 CFR 63 Subpart JJ, NESHAP for Wood Furniture Manufacturing Operations - Table 1). Specific Requirements of 40 CFR 63 Subpart A applicable to American Woodmark are identified in the American Woodmark permit and below.	
§ 63.1	<i>Applicability.</i> Applicable to American Woodmark except for 63.1 (b)(1), (c)(1), and (c)(2). Subpart JJ specifies applicability.	American Woodmark is subject to the new source requirements under 40 CFR 63 Subpart JJ, as a Major Source of certain HAPs. These requirements are identified in the American Woodmark permit.

Citation	Summary of Applicable Requirement	Method to Demonstrate Compliance
§ 63.2	<i>Definitions.</i> Applicable to American Woodmark. Additional items are defined in 63.801(a) of Subpart JJ. Where overlap occurs, Subpart JJ takes precedence.	
§ 63.3	<i>Units and Abbreviations.</i> Other units defined in 63.801(b) of Subpart JJ.	
§ 63.4	<i>Prohibited Activities and Circumvention.</i> Applicable to American Woodmark.	
§ 63.5	<i>Construction and Reconstruction.</i> Specifies preconstruction review requirements. Applicable to American Woodmark, which constitutes a newly constructed source subject to the new source requirements of 40 CFR 63 Subpart JJ.	In accordance with 40 CFR 63.5(b)(3), American Woodmark requires written approval in advance from the Director prior to commencing construction on the Kingman facility. The permit application and approval requirements of 40 CFR 63.5(d) and (e) apply. The American Woodmark Class I permit application constitutes the application for approval of construction.
§ 63.6	<i>Compliance with Standards and Maintenance Requirements.</i> Specifies operation and maintenance requirements related to periods of startup, shutdown, and malfunction. Applicable to American Woodmark except for 63.6 (b)(4), (c)(2), (f)(1), and (i)(4)(ii) . If American Woodmark selects the compliance options provided at 40 CFR 63.804(d)(1) or (d)(2) [compliant coatings or averaging], then the emission standards apply at all times, including periods of startup, shutdown, and malfunction.	In accordance with 40 CFR 63.6 (b)(2), American Woodmark shall comply with 40 CFR 63 Subpart JJ upon startup. American Woodmark shall meet the general operation and maintenance requirements in 40 CFR 63.6 (e)(1) - (2). If American Woodmark elects to use the control device (RTO) for compliance with 40 CFR 63 Subpart JJ, the Permittee shall develop a startup, shutdown, and malfunction plan pursuant to 40 CFR 63.6 (e)(3).
§ 63.7	<i>Performance Testing Requirements.</i> Includes notification, recordkeeping, reporting, and quality assurance program requirements for the testing. Applicable to American Woodmark for NESHAP purposes only if the source elects to use a control device to comply with the rule.	American Woodmark shall comply with the performance testing requirements of 40 CFR 63.7 as applicable for NESHAP purposes <u>and</u> for testing requirements related to the voluntary 241 tpy facility-wide VOC emission limit, as identified in the permit.
§ 63.8	<i>Monitoring Requirements.</i> Specifies continuous monitoring system requirements, including operation, maintenance, and quality control measures and performance evaluation procedures, notification and reporting or results. Applicable to American Woodmark for NESHAP purposes only if the source elects to use a control device to comply with the rule.	If the control device (RTO) is used to comply with 40 CFR 63 Subpart JJ, American Woodmark shall meet the monitoring requirements in 40 CFR 63.8 as well as those specified in Subpart JJ and the American Woodmark permit.

Citation	Summary of Applicable Requirement	Method to Demonstrate Compliance
§ 63.9	<i>Notification Requirements.</i> Specifies requirements for initial notifications, notification of performance tests, continuous monitoring system performance evaluations, and source compliance status. Applicable to American Woodmark except for 63.9 (f). 63.9 (e), (g), and (h)(2)(ii) apply only if American Woodmark elects to use the control device (RTO) for NESHAP compliance.	In accordance with 40 CFR 63.9(a)(4)(ii), all notifications required under the NESHAP shall be submitted to the permitting authority (ADEQ) and the Regional Office of the EPA. In accordance with 63.9(b)(4) American Woodmark shall submit the following initial notifications: 1. Notification of intent to construct a new major affected source (included in American Woodmark permit application); 2. Notification of the date when construction commenced; 3. Notification of the anticipated date of startup of the source; and 4. Notification of the actual date of startup of the source. Subsequent notification requirements include: (e) Notification of performance test (h) Notification of compliance status
§ 63.10	<i>Recordkeeping and Reporting Requirements.</i> Specifies startup, shutdown, malfunction and maintenance records, continuous monitoring system records, excess emission reports, monitoring system performance reports, and startup, shutdown and malfunction reports. Applicable to American Woodmark except for 63.10 (d)(3).	American Woodmark shall comply with the following NESHAP recordkeeping and reporting requirements: 63.10(b): General recordkeeping requirements; 63.10(c): Continuous monitoring system (RTO combustion chamber temperature) recordkeeping requirements; 63.10(d): General reporting requirements; and 63.10(e): Continuous monitoring system (RTO combustion chamber temperature) reporting requirements.
§ 63.11	<i>Control Device Requirements.</i> Not applicable to American Woodmark.	
§ 63.12 – 15	<i>State Authority and Delegations; Addresses of State and EPA Regional Offices; Incorporation by Reference; and Availability of Information and Confidentiality.</i> Applicable to American Woodmark.	
40 CFR Part 63 Subpart JJ	<i>NESHAP for Wood Furniture Manufacturing Operations.</i> Applicable to major sources of HAP meeting the applicability criteria of 40 CFR 63.800. American Woodmark is subject to the new source requirements in 40 CFR 63 Subpart JJ.	
§ 63.800	<i>Applicability.</i> Specifies Subpart JJ applicability. American Woodmark constitutes a new affected source.	
§ 63.801	<i>Definitions.</i>	

Citation	Summary of Applicable Requirement	Method to Demonstrate Compliance
§ 63.802	<p><i>Emission Limits.</i></p> <p><u>Finishing Operations:</u></p> <p>(a) Achieve a weighted average VHAP content across all coatings (maximum 0.8 kg VHAP/kg solids [lb VHAP/lb solids], as applied);</p> <p>(b) Use compliant finishing materials [maximum kg VHAP/kg solids (lb VHAP/lb solids), as applied]:</p> <ul style="list-style-type: none"> - stains: 1.0 - washcoats, sealers, topcoats, basecoats, enamels: 0.8 - thinners (maximum % HAP allowable): 10; or <p>(c) As an alternative, use a control device; or</p> <p>(d) Use any combination of (a), (b), and (c).</p> <p><u>Cleaning Operations:</u></p> <p>Strippable spray booth material [maximum VOC content, kg VOC/kg solids (lb VOC/lb solids)]: 0.8</p> <p><u>Contact Adhesives:</u></p> <p>(a) Use compliant contact adhesives [maximum kg VHAP/kg solids (lb VHAP/lb solids), as applied]: 0.2</p>	<p>American Woodmark shall comply with the NESHAP using one of the approved methods contained in 40 CFR 63.802.</p>

Citation	Summary of Applicable Requirement	Method to Demonstrate Compliance
§ 63.803	<p><i>Work Practice Standards.</i></p> <p><u>Finishing Operations:</u></p> <ul style="list-style-type: none"> - Transfer equipment leaks: Develop written inspection and maintenance plan to address and prevent leaks. The plan must identify a minimum inspection frequency of one per month. - Storage containers, including mixing equipment: When such containers are used for HAP or HAP-containing materials, keep covered when not in use. - Application equipment: No use of air spray guns. - Finishing materials: Demonstrate that usage of HAPs of potential concern has not increased except as allowed by standard; document in the formulation assessment plan. <p><u>Cleaning Operations.</u></p> <ul style="list-style-type: none"> - Gun/line cleaning: Collect cleaning solvent into a closed container. Cover all containers associated with cleaning when not in use. - Spray booth cleaning: Do not use solvents except as allowed by the rule. - Washoff/general cleaning: Do not use chemicals that are listed in Table 4 of the rule in concentrations subject to MSDS reporting, as required by OSHA. Keep washoff tank covered when not in use. Minimize dripping by tilting and/or rotating part to drain as much solvent as possible and allowing sufficient dry time. Maintain a log of the quantity and type of solvent used for washoff and cleaning, as well as the quantity of waste solvent shipped off-site and the fate of this waste (recycling or disposal). Maintain a log of the number of pieces washed off and the reason for the wash off. <p><u>Miscellaneous</u></p> <ul style="list-style-type: none"> - Operator training: All operators shall be trained on proper application, cleanup, and equipment use. The training program shall be written and retained on-site. - Implementation plan: Develop a plan to implement these work practice standards and maintain on-site. <p>The work practice standards apply to both existing and new major sources.</p>	American Woodmark shall comply with the NESHAP work practice standards as provided in 40 CFR 63.803 and the permit.
§ 63.804	<p><i>Compliance Procedures and Monitoring Requirements.</i> Specifies initial and continuous compliance demonstration procedures and monitoring requirements for each of the available emission limitation compliance options in 63.802. Detailed requirements and procedures applicable to American Woodmark are contained in the permit.</p>	American Woodmark shall meet NESHAP compliance and monitoring procedures as identified in 40 CFR 63.804 and the permit.

Citation	Summary of Applicable Requirement	Method to Demonstrate Compliance
§ 63.805	<i>Performance Test Methods.</i> Specifies test methods and procedures for determining VHAP content and solids content of coatings and for determining capture and control efficiency of sources using a control device for compliance. Detailed requirements and procedures applicable to American Woodmark are contained in the permit.	American Woodmark shall meet NESHAP performance test requirements as identified in 40 CFR 63.805 and the permit.
§ 63.806	<i>Recordkeeping Requirements.</i> Specifies recordkeeping requirements including certified product data sheets, VHAP content of each finishing material, averaging calculation (if applicable), calculations demonstrating overall control efficiency (if applicable), work practice implementation plan, etc. Detailed recordkeeping requirements applicable to American Woodmark are contained in the permit.	American Woodmark shall meet NESHAP recordkeeping requirements as identified in 40 CFR 63.806 and the permit.
§ 63.807	<i>Reporting Requirements.</i> Specifies reporting requirements including initial reports, compliance status reports, and semiannual reports. Detailed reporting requirements applicable to American Woodmark are contained in the permit.	American Woodmark shall meet NESHAP reporting requirements as identified in 40 CFR 63.807 and the permit.
§ 63.808	<i>Delegation of Authority.</i>	
40 CFR Part 64 (CAM)	Requires the development and implementation of a Compliance Assurance Monitoring (CAM) plan for sources meeting certain control and PTE criteria. Applicable to finishing operation VOC capture and control systems [Uncontrolled VOC emissions exceed 100 tpy and add-on control system is used to achieve compliance with voluntary facility-wide PSD-minor VOC emission limitation].	The American Woodmark permit application included a VOC CAM plan for compliance with the PSD-minor facility-wide VOC emission limitation. CAM provisions for the finishing operation VOC capture and control systems are included in the American Woodmark permit.
40 CFR Part 68	<i>Chemical Accident Prevention Provisions.</i> Identified by applicant as non-applicable. However, may become applicable if toxic/flammable materials stored above threshold quantities. Permit condition incorporated in Section XI of Attachment A in the permit.	
40 CFR Part 70 (Title V)	Incorporated in A.A.C. Title 18 Article 3. See permitting requirements under Article 3 above.	See Article 3 under State requirements above.
40 CFR Part 82	40 CFR part 82 codifies regulations pursuant to Title VI of the Federal Clean Air Act. Subpart F of this part, Recycling and Emissions Reduction, is potentially applicable to the subject facility. The applicable requirements associated with this regulation are detailed below. Permit conditions are incorporated in Section XXII of Attachment A in American Woodmark permit.	American Woodmark shall comply with 40 CFR Part 82 Subpart F requirements as applicable to the service, maintenance, repair, and disposal of appliances containing Class I and Class II refrigerants.
§82.156	<i>Required Practices.</i> Sets forth procedures to be followed when opening appliances containing Class I or Class II ozone depleting substances. These requirements are incorporated into the permit. (This section also establishes leak repair requirements for commercial and industrial refrigeration units utilizing Class I or Class II substances, but the American Woodmark facility includes no such units.)	

Citation	Summary of Applicable Requirement	Method to Demonstrate Compliance
§82.158	<i>Standards for Recycling and Recovery Equipment.</i> Establishes requirements for the design and use of equipment used to recover or recycle refrigerant from appliances utilizing Class I or Class II substances. These requirements are incorporated into the permit	
§82.161	<i>Technician Certification.</i> Establishes requirements for persons who perform maintenance, service or repair on appliances utilizing Class I or Class II substances. These requirements are incorporated into the permit.	
§82.166	<i>Reporting and Recordkeeping Requirements.</i> Establishes recordkeeping and reporting requirements related to the disposal of appliances utilizing Class I or Class II substances. These requirements are incorporated into the permit. (This section also establishes requirements relating to the leak repair requirements under §82.156 for commercial and industrial refrigeration units utilizing Class I or Class II substances, but the American Woodmark facility includes no such units.)	

V. EMISSION LIMITATIONS/STANDARDS, AIR POLLUTION CONTROLS, MONITORING, RECORDKEEPING & REPORTING AND SOURCE TESTING

This section documents the emission limitations/Standards, monitoring, recordkeeping, and reporting provisions and required source testing contained in the American Woodmark permit. The organization follows that of the draft American Woodmark permit. Where appropriate, regulatory and technical bases are provided to support permit conditions.

A. Facility-wide Requirements

1. VOC Emission Limits/Standards

The Permittee proposed in its application a 241 ton per year (tpy) facility-wide VOC emission limit to restrict the potential-to-emit (PTE) below the PSD major source threshold of 250 tons per year (tpy) in accordance with A.A.C. R18-2-306.01: Permits Containing Voluntarily Accepted Emission Limitations and Standards and 306.02: Establishment of an Emissions Cap. All other regulated air pollutant emission rates from the proposed facility are below major source thresholds based on unrestricted potential-to-emit (PTE) [see Section III: Emissions].

The following facility-wide VOC emissions limits/standards are contained in the permit:

- a. VOC emission limit: 241 tpy (*Material Permit Condition*).
- b. Spray coating application method: HVLP, air assisted airless spray guns (other methods with equivalent or greater transfer efficiency may employed with prior approval from the Director).
- c. Fuel use restriction: natural gas in all fuel burning equipment.

In accordance with A.A.C. R18-2-306.01(B), "All voluntarily accepted emissions limitations, controls, or other requirements will be permanent, quantifiable and otherwise enforceable as a practical matter." Pursuant to R18-2-306.02(A), "An applicant may...request an emission cap for a particular pollutant expressed in tons per year as determined on a 12-month rolling average, or any shorter averaging time necessary to enforce any applicable requirement..." R18-2-306.02(C) also requires that such emission caps be enforceable as a practical matter, meaning:

- a. The permit conditions are permanent and quantifiable;
- b. The permit includes a legally enforceable obligation to comply;
- c. The limits impose an objective and quantifiable operational or production limit or require the use of in-place air pollution control equipment;
- d. The permit limits have short-term averaging times consistent with the averaging times of the applicable requirement;
- e. The permit conditions are enforceable and are independent of any other applicable limitations; and
- f. The permit conditions for monitoring, recordkeeping, and reporting requirements are sufficient to comply with R18-2-306(A)(3), (4), and (5).

Basis for 241 tpy facility-wide VOC emission limit:

The proposed 241 tpy facility-wide VOC emission limit was calculated based on total uncontrolled VOC emissions of 1079 tpy and the estimated finishing line VOC capture/control system total removal efficiency (TRE = capture efficiency * destruction efficiency). See "Air Pollution Control Requirements" below for a more detailed discussion of control system performance and requirements.

The total uncontrolled potential VOC emission rate of 1079 tpy was estimated using material balance based on the maximum finishing line production rate and representative coating material usage. Finishing line VOC emissions represent the vast majority of facility-wide VOC emissions, with fuel combustion emissions contributing a small fraction (less than 1 tpy). The natural gas fuel restriction will ensure that fuel burning VOC emissions remain minor and readily quantifiable for compliance purposes.

The total controlled potential VOC emission rate of 241 tpy represents the uncontrolled material balance derived VOC PTE and the estimated VOC TRE for exhaust points from controlled finishing lines 1 and 4 (RTO-1), along with the uncontrolled finishing line exhaust points for Lines 2 and 3. The capture and control efficiencies, 90% and 95%, respectively, used in the material balance calculations are conservative. The candidate RTO vendor guaranteed VOC destruction efficiency documented in the permit application is in excess of 95%.

Section III of this TSD contains detailed documentation of the uncontrolled and controlled material balance emission calculations and results. Detailed emission calculation procedures are also included in Attachment C of the permit: Mass Balance VOC Emission Calculation Procedures. This will ensure that the emissions calculation procedures, critical assumptions, control parameters, etc. used for compliance demonstration are consistently applied and verifiable by ADEQ compliance staff.

Averaging Period:

Long term averaging periods are appropriate for annual emission limitations such as the proposed 241 tpy facility-wide VOC emission cap. As stated above, this limit is a major PSD source status avoidance limit, based on an annual (ton per year) applicability threshold of 250 tpy VOC. The U.S. EPA has provided policy and guidance supporting the use of long term averages where consistent with applicable limit averaging times and where the subject processes and emission mechanisms are variable.¹ Compliance with the 241 tpy VOC limit is determined on a 12-month rolling block total basis, providing for practical enforceability. 12-month rolling averages for annual emission limitations are also supported by U.S. EPA guidance (see Footnote 1) and by A.A.C. R18-2-306.02(C)(2).

¹ See EPA Memoranda: 1) *Use of Long Term Rolling Averages to Limit Potential to Emit*. Memo from John B. Rasnic, Director, SSCD, OAQPS to David Kee, Director, Air and Radiation Division, EPA Region V. February 24, 1992; 2) *Approaches to Creating Federally Enforceable Emissions Limits*. Memo from John S. Seitz, Director, OAQPS to Regional Directors. November 3, 1993; and 3) *Guidance on Limiting Potential to Emit in New Source Permitting*. Memo from Terrell E. Hunt, Associate Enforcement Counsel, Air Enforcement Division, OEMC and John S. Seitz, Director, SSCD OAQPS to Regional EPA Directors, NSR Contacts, OCG, and AQMD Staff. June 13, 1989.

In summary, the proposed 241 tpy facility-wide VOC emission limit (compliance determined on a 12-month rolling block average) and associated monitoring, testing, recordkeeping, and reporting requirements (documented below) meet the stated regulatory requirements for voluntary emission limitations and facility-wide emission caps with long-term averaging times. The limit is technically accurate, permanent, quantifiable, and enforceable as a practical matter. The limit, averaging time, and monitoring, recordkeeping, and reporting requirements are also generally consistent with numerous representative furniture manufacturing facility Title V and minor NSR permits that were reviewed under this Task Assignment. State permits that were reviewed included examples from Georgia, Indiana, Florida, and Ohio.

2. Air Pollution Control Requirements

The Applicant proposed finishing line VOC capture and control systems to ensure that the facility-wide PTE will not exceed the PSD major source threshold for VOC of 250 tpy based on the estimated maximum production rate and representative coating material usage. The finishing line VOC control systems are a necessary component of the synthetic minor PSD limitation, and accordingly the control requirements are made enforceable by specific permit conditions.

The following facility-wide VOC air pollution control requirements are contained in the permit:

- a. Install, operate and maintain a VOC capture system and RTO control device on finishing operation emission units:

Finishing Line 1

Automatic Spray Booths: 1.13a, 1.13b, 1.20a, 1.20b, 1.22a, 1.22b, 1.27a, 1.27b, 1.30a, 1.30b, 1.35a, 1.35b, 1.40a and 1.40b;

Stain Wiping Machines: 1.14, 1.15, 1.23, and 1.24;

Curing Ovens: 1.16, 1.21, 1.25, 1.28a, 1.28b, 1.31a, 1.31b, 1.36a, 1.36b, 1.41a, and 1.41b.

Finishing Line 4

Automatic Spray Booths: 4.10a, 4.10b, 4.15a, 4.15b

Reverse Roll Coater: 4.11

Wiping Conveyor: 4.12

Curing Ovens: 4.13a, 4.16a, and 4.16b.

- b. Operate the VOC capture and control system at all times VOC containing materials are being processed in the controlled finishing lines. (*Material Permit Condition*)
- c. Bypass dampers shall be maintained in a closed position such that exhaust gases are routed to the RTO during all times that VOC containing materials/products are being processed in that emission unit or the upstream VOC module spray booth.
- d. The VOC capture/collection system shall be designed and operated to achieve a minimum capture efficiency of 90% for Finishing Lines 1 and 4. (*Material Permit Condition*)

- e. The RTO shall be designed and operated to a minimum VOC destruction efficiency of 95%. (*Material Permit Condition*)

Documentation of VOC control system capture and destruction efficiencies:

Capture efficiency -

The applicant estimated the minimum capture efficiency to be 90% of total uncontrolled VOC from the proposed controlled emission points. Although this efficiency is not directly supported by enclosure design or vendor guarantee data, it represents a reasonable and conservative estimate and was demonstrated by testing at a similar American Woodmark manufacturing facility. (See Appendix A of American Woodmark permit application). A 90% capture efficiency is representative of capture efficiencies achieved in practice based on representative furniture manufacturing facility Title V and minor NSR permits that were reviewed under this Task Assignment. Therefore, it is reasonable to assume that at least 90% capture efficiency can be achieved with the state-of-the-art American Woodmark installation.

Verification of VOC control system capture efficiency through source testing is also required in the permit (see Section V.A.4: "Source Testing," below)

RTO destruction efficiency -

Appendix E of the American Woodmark permit application contains RTO vendor specification data (MEGTEC Systems). The RTO VOC destruction performance guarantee is at least 95 percent at 60,000 scfm, as determined by EPA Method 25A. Critical RTO design parameters include:

Design flow: 60,000 scfm (wet)

Combustion chamber design temperature: 800 degrees F

The permit contains a requirement for the RTO to be designed and operated to achieve 95% VOC destruction efficiency, which is equivalent to the vendor guarantee (95%) prior to performance testing. The RTO design flow is consistent with the engineering design of the controlled finishing line modules, as presented in the permit application. Combustion chamber temperature is designated as a compliance indicator for the purpose of compliance assurance monitoring (CAM) [see Section V.A.3: "Monitoring, Recordkeeping, and Reporting," below].

3. Monitoring, Recordkeeping, and Reporting

a. Monitoring

The Permittee is subject to CAM requirements for the facility-wide PSD avoidance VOC emission limit of 241 tpy. In accordance with 40 CFR 64.6, CAM permit conditions must specify, at a minimum, the following:

1) The approved monitoring approach including:

- The indicator(s) to be monitored;
- The means or device to be used to measure the indicator(s); and
- The performance requirements established to satisfy 64.3(b).

- 2) The means by which the Permittee will define an exceedance or excursion for the purpose of responding to and reporting exceedances or excursions under 40 CFR 64.7 and 64.8;
 - The level at which the excursion/exceedance is deemed to occur, including appropriate averaging period;
 - Specific value or condition at which an excursion shall occur or procedures used to establish value or condition (with appropriate notice procedures for establishment/reestablishment of value).
- 3) The obligation to conduct monitoring and fulfill other obligations in 40 CFR 64.7 - 64.9.
- 4) If appropriate, minimum data availability requirements.

CAM Plan Details

Emission Unit

Description:

Finishing Line 1

Automatic Spray Booths: 1.13a, 1.13b, 1.20a, 1.20b, 1.22a, 1.22b, 1.27a, 1.27b, 1.30a, 1.30b, 1.35a, 1.35b, 1.40a and 1.40b;
 Stain Wiping Machines: 1.14, 1.15, 1.23, and 1.24;
 Curing Ovens: 1.16, 1.21, 1.25, 1.28a, 1.28b, 1.31a, 1.31b, 1.36a, 1.36b, 1.41a, and 1.41b;

Finishing Line 4

Automatic Spray Booths: 4.10a, 4.10b, 4.15a, 4.15b
 Reverse Roll Coater: 4.11
 Wiping Conveyor: 4.12
 Curing Ovens: 4.13a, 4.16a, and 4.16b.

Identification: Regenerative Thermal Oxidizer
 Stack Designation: Emission Point RTO-1

Applicable Regulation

Voluntary facility-wide VOC emission limit: 241 tpy. PSD avoidance.

Control Technology

Regenerative thermal oxidizer (RTO)

Monitoring Approach

- Monitoring/tracking of coating material usage and VOC content; calculation of uncontrolled and controlled VOC emissions using material balance procedure
- Finishing line enclosure capture efficiency monitoring - continuous monitoring of the static pressure of each controlled spray booth enclosure, or at the common exhaust duct at the inlet to the regenerative thermal oxidizer, or an equivalent approved location. Static pressure at each VOC capture system monitoring location shall be maintained at a negative reading (i.e., less than ambient pressure). Value/range to be determined by performance testing.
- RTO destruction efficiency monitoring - continuous temperature monitoring system on the regenerative thermal oxidizer (RTO-1). Minimum temperature value/range to be determined by performance testing.
- RTO performance work practice procedures - daily functional inspection and

annual inspection/burner maintenance

- Booth bypass damper indicator daily position inspection, annual functional inspection

Indicators, Ranges & Performance Criteria:

Indicator 1: Total finishing operation VOC usage

Indicator Range:

The permit contains a condition limiting total combined Finishing Line 1 and Finishing Line 4 VOC usage to less than 947 tpy, calculated as a monthly rolling 12-month total. For Finishing Lines 2 and 3, a second condition limits VOC usage to less than 99.5 tons per year, calculated as a monthly rolling 12-month total. Based on the applicant-provided VOC emission profile from the finishing lines, maximum coating material usage and production rates, and assuming representative coating materials, 947 tpy VOC usage from Lines 1 and 4 and 99.5 tons per year of VOC usage from Lines 2 and 3 results in overall facility VOC emissions of 241 tons per year. Usage rates above these thresholds may result in exceedance of the facility-wide VOC emission limitation. These indicator conditions require the Permittee to verify compliance with the facility-wide VOC emission limit within 10 business days of a finding indicating VOC usage above the listed rates.

The applicant must conduct a daily accounting of all finishing materials used in finishing operations, record corresponding VOC content data, and quantify total VOC usage by material and finish line during each operating day. The VOC accounting must contain a finishing line breakdown sufficient to allow quantification of uncontrolled and controlled VOC emissions using the mass balance procedures contained in Attachment C to the permit. Monthly calculations of total VOC usage and emissions must be performed and recorded (monthly and 12-month rolling totals).

In combination with the other required indicator monitoring, total VOC usage provides a meaningful indicator of compliance with the facility-wide VOC limit. The VOC process input limitation, based on material specification and usage inventory data, was deemed to be a necessary CAM permit condition to meet practical enforceability criteria for the facility-wide VOC emission limit.

An alternate indicator value may be established or reestablished per the provisions of 40 CFR 64.6(2) after the initial verification test and if appropriate, after subsequent periodic performance tests. Changes to CAM indicator values and/or ranges may be accomplished through minor permit revision procedures in accordance with A.A.C. R18-2-319.

An excursion is defined as a 12-month rolling cumulative VOC usage in excess of 947 tpy (or other reestablished indicator value determined by source test) from Lines 1 and 4, and 12-month rolling cumulative 99.5 tpy from Lines 2 and 3. Excursions trigger compliance verification via prescribed material balance procedures and reporting requirements.

Performance Criteria:

The permit requires that coating material and solvent VOC content be determined in accordance with 40 CFR Part 63 Subpart JJ: NESHAP for Wood Furniture Manufacturing Operations. Mass balance emission calculation procedures, including the definition of VOC usage, are also specified in Attachment C to the permit.

Indicator 2: Spray booth enclosure and thermal oxidizer static/differential pressure

Indicator Range:

The permit contains the requirement to continuously monitor spray booth enclosure static pressure or differential pressure, on controlled finishing lines, maintaining a negative static or differential pressure reading (i.e., pressure within enclosure below atmospheric pressure). The pressure readings must be observed and recorded once per controlled finishing line operating day.

The permit also requires continuous monitoring of the static pressure/differential pressure at the inlet of the regenerative thermal oxidizer.

The indicator value and range shall be established or reestablished per the provisions of 40 CFR 64.6(2) after the initial performance test and if appropriate, after subsequent periodic performance tests. Changes to CAM indicator values and/or ranges may be accomplished through minor permit revision procedures in accordance with A.A.C. R18-2-319.

VOC capture system enclosure static or differential pressure monitoring represents a reliable and appropriate indicator of capture efficiency. The actual capture efficiency of each controlled finishing line unit and corresponding minimum static or differential pressure indicator ranges will be determined/verified through performance testing in accordance with Condition III.D.2 in Attachment B to the permit (see Section V.A.4: "Source Testing," below).

An excursion is defined as each static/differential pressure reading that falls below the minimum negative static/differential pressure for the regenerative thermal oxidizer lasting for 15 consecutive minutes. Excursions trigger inspection, corrective action, and reporting requirements.

Performance Criteria:

Performance criteria for the VOC capture system static/differential pressure monitors have not been submitted by the applicant at the time this TSD was prepared. It is the obligation of the Permittee to update the CAM plan with appropriate performance criteria as soon as possible but no later than 180 days from the issuance of the final permit.

Indicator 3: RTO combustion chamber temperature

Indicator Range:

The permit contains the requirement to continuously monitor RTO combustion chamber temperature. The minimum value of this indicator parameter is 800 degrees F, which represents the RTO vendor design as identified in the Applicant's CAM Plan. The permit requires that RTO combustion chamber temperature be recorded

continuously on a circular chart or other permanent record.

Oxidizer combustion chamber temperature monitoring meets presumptive CAM approval criteria as it is the required monitoring parameter for thermal oxidation control systems under 40 CFR 63 Subpart JJ (NESHAP for Wood Furniture Manufacturing Operations) and is consistent with EPA CAM guidance for VOC coating sources.²

An alternate indicator value/range may be established or reestablished per the provisions of 40 CFR 64.6(2) after the initial performance test and if appropriate, after subsequent periodic performance tests. Changes to CAM indicator values and/or ranges may be accomplished through minor permit revision procedures in accordance with A.A.C. R18-2-319.

An excursion is defined as each period longer than 15-minutes during which the RTO combustion chamber temperature falls below the minimum temperature of 800 degrees F (or reestablished indicator value/range determined by performance test). Excursions trigger inspection, corrective action, and reporting requirements.

Performance Criteria:

Preliminary performance criteria for the RTO combustion chamber temperature monitoring system are listed in Table 2 of the Applicants CAM plan. It is the obligation of the Permittee to update the CAM plan with updated performance criteria, if applicable, as soon as possible, but no later than 180 days from the issuance of the final permit.

Indicator 4: RTO daily inspection parameters: vibration, blower operation, monitoring parameters

Indicator Range:

The permit contains the requirement the work practice requirement to perform a functional inspection of the RTO at least once per controlled finishing line operating day. The functional inspection includes observation of the combustion chamber temperature monitoring system output and verification of normal operation of all blowers and dampers, including the position of the bypass damper indicators.

An excursion is defined as an abnormal condition, or an outside of normal range parameter reading, for any parameter included in the monitoring or functional inspection of the VOC control system. Excursions trigger corrective action, record keeping, and reporting requirements.

Performance Criteria:

Not applicable

Indicator 5: VOC capture system bypass damper daily position inspection and annual functional inspection

²See: Technical Guidance Document: Compliance Assurance Monitoring - Revised Draft. August 1998. U.S EPA OAQPS. MRI Project No. 4701-05.

Indicator Range:

The permit contains the requirement to observe and record the position of the directional indicator of each VOC collection system bypass damper at least once per controlled finishing line operating day and at the commencement of each VOC module operation. An annual functional inspection of each bypass damper, including the function and range of motion of each damper, the condition of the damper closure seal, and the integrity of the indicator is also required.

An excursion is defined as any observation indicating a bypass damper in the “open” position during respective VOC module operation. Excursions trigger inspection, corrective action, recordkeeping, and reporting requirements.

Performance Criteria:

Not applicable

b. Recordkeeping and Reporting

The permit contains extensive recordkeeping and reporting requirements associated with quantifying and documenting facility-wide VOC emissions for compliance with the 241 tpy cap. Compliance with the 12-month rolling total VOC limit will be readily verifiable through inspections and through required reporting mechanisms. In addition, notification and compliance plan requirements are triggered each time facility-wide VOC emissions exceed the mathematical monthly average for the all finishing operations (i.e., $[241 \text{ tpy VOC usage} / 12 \text{ months per year}] = 20.1 \text{ tons/month emissions}$).

A summary of facility-wide VOC emission limit recordkeeping and reporting, by category, and the technical justification for each requirement is provided below:

- (1) VOC capture/control system recordkeeping and reporting
 - (a) Maintain a log of VOC capture system enclosure static pressure readings.
 - (b) Maintain a permanent record of the RTO combustion chamber temperature monitoring system output (e.g., circular chart).
 - (c) Maintain a log of operating time for each controlled emission unit for Finishing Lines 1 and 4 and uncontrolled emission unit for Finishing Lines 2 and 3, each spray booth static pressure monitoring system, the RTO inlet static pressure monitoring system, and the RTO temperature monitoring system.
 - (d) Maintain a log of required RTO functional inspections and burner maintenance.
 - (e) Maintain a log of required capture system bypass damper observations and annual inspections.
 - (f) Report all excursions and permit deviations in accordance with Semiannual Compliance Certification procedures and Permit Deviations Reporting in Sections VII and XII of Attachment A to the permit.

- (2) Material balance and VOC emission calculation recordkeeping and reporting
- (a) Maintain a record of VOC and HAP content of each finishing material per 40 CFR 63 Subpart JJ requirements [40 CFR 63.806(b)].
 - (b) Maintain daily and monthly records of all VOC containing waste materials disposed as well as corresponding VOC content data.
 - (c) Calculate and record individual month and 12-month rolling total VOC usage each month by finishing line (Attachment C procedures).
 - (d) Calculate and record individual month and 12-month rolling total finishing operation VOC emissions each month for Finishing Lines 1 and 4 combined and Finishing Lines 2 and 3 combined. (from daily inventory data - Attachment C procedures).
 - (e) Calculate and record individual month and 12-month rolling total facility-wide VOC emissions each month (Attachment C procedures).
 - (f) Maintain a record of all VOC usage and emission calculation supporting documentation (e.g., MSDS, purchase orders, invoices, certified product specification sheets, etc.).
 - (g) Notify the Director in writing if calculated VOC emissions exceed 20.1 tons in any calendar month. This indicator represents the annual emission cap, divided by 12 months/yr.
 - (h) Notify the Director in writing if the VOC portion of material usage on lines 1 and 4 combined exceeds 947 tons in any 12 consecutive month period. This indicator represents the anticipated annual usage calculated in the AWC application for controlled finishing lines that corresponds to the annual emission cap.
 - (i) Notify the Director in writing if the VOC portion of material usage on lines 2 and 3 combined exceeds 99.5 tons in any 12 consecutive month period. This indicator represents the anticipated annual usage calculated in the AWC application for uncontrolled finishing lines that corresponds to the annual emission cap.
 - (j) Notify the Director in writing if VOC emissions exceed 241 tons during any consecutive 12-month period. Each such occurrence constitutes an exceedance.
 - (k) Report all excursions, permit deviations, and excess emissions in accordance with Semiannual Compliance Certification procedures, Permit Deviations Reporting, and Excess Emissions Reporting in VII and XII of Attachment A to the permit.
 - (l) Include each individual month and 12-month rolling total VOC emissions in the reporting period in the semiannual

compliance report required by Condition VII of Attachment A to the permit.

- (m) Maintain all compliance records, calculations, and supporting documentation in accordance with Condition XIII of Attachment A to the permit (period of at least 5 years, unchangeable format, etc.)

3) Summary and Technical Justification -

The permit contains recordkeeping and reporting conditions necessary to validate CAM indicator monitoring, finishing operation VOC usage, and mass balance based emission calculations used to demonstrate compliance with the 241 tpy facility-wide VOC emission cap. All records used to determine compliance are required to be maintained on site and available for inspection. Excursion, permit deviation, and excess emissions reporting is required consistent with Conditions VII and XII of the permit General Conditions (Attachment A). Additional reporting requirements are triggered proactively when calculated monthly facility-wide VOC emissions exceed the straight monthly average of the annual cap. This will ensure that the source notifies ADEQ and identifies a compliance strategy when operations approach the compliance threshold on a short-term basis.

4. Source Testing

a. Initial Performance Test

The permit requires the Permittee to perform an initial performance test to demonstrate compliance with the minimum VOC capture efficiency and regenerative thermal oxidizer VOC Destruction efficiency. This test is required to be performed within 60 days of the date that Finishing Lines 1 and 4 have achieved maximum production rates on a sustained basis, but no later than 180 days after initial startup. The initial performance test shall also serve to confirm or establish monitoring indicator values and ranges contained in the Permittee's approved CAM plan.

Justification -

A.A.C. R-18-2-312, Performance Tests, requires that sources required to conduct performance test(s) do so "within 60 days after a source...has achieved the capability to operate at its maximum production rate on a sustained basis but no later than 180 days after initial start-up."

b. Periodic Test Requirements

The permit requires that periodic compliance tests be performed every two years (following the initial performance test) to verify the VOC control system destruction efficiency. The two year period was selected because it represents a reasonable interval, considering example State wood furniture manufacturing permits reviewed in the development of this permit.

The permit requires VOC control system capture efficiency testing at a minimum interval of 4 years (concurrent with every other required

destruction efficiency test). The permit also contains a capture efficiency testing trigger mechanism based on total facility-wide VOC emissions (70% of allowable, or 169 tons per year). If, at any time following the initial compliance test, total facility-wide VOC emissions exceed the 70% threshold, calculated as required by the permit under the Conditions in III.C of Attachment B, the source is required to perform capture efficiency testing every two years, on the same interval and schedule required for destruction efficiency testing.

The additional 2-year time interval between VOC control system capture efficiency testing was approved based on the design of the AWC controlled finishing lines and capture systems, and the margin afforded by the 70% of allowable emissions threshold. Proposed Finishing Lines 1 & 4 are designed, manufactured, and installed with an integral VOC capture system. The design is the same as the system installed at the AWC sister facility in Gas City, IN. Capture efficiency test results for the Gas City plant provided by the applicant document an efficiency of 94%, vs. the 90% requirement contained in the proposed Kingman plant permit.

Based on the above, it is reasonable to assume that given the design of the state-of-the-art controlled finishing lines proposed by AWC, and the required static pressure and bypass monitoring requirements contained in the permit, the VOC control system capture efficiency will be relatively constant (as demonstrated by the most recent performance test). Therefore, if potential emissions do not exceed 70% of the allowable facility-wide VOC emission cap (169 out of 241 tpy) a four-year time interval for this costly and burdensome test is reasonable. Mathematically, assuming the same production distribution as used in determining facility-wide PTE, the threshold trigger allows approximately a 13% capture efficiency safety margin (i.e., if the PTE is 169 tpy, the compliant capture efficiency could be as low as 78% vs. the required 90%). Once the source exceeds 70% of the allowable VOC emission rate, periodic capture efficiency testing must be conducted every two years, on the same schedule as and concurrent with destruction efficiency.

c. Test Program Elements

Test program minimum elements are specified in the permit. These were substantially taken from NESHAP Subpart A performance test requirements (see NESHAP General Provisions: 40 CFR 63.7). The requirements include:

- Site specific test plan
- Agency notifications
- Appropriate testing facilities
- Three test runs of not less than 1 hour for each test condition
- Alternate test methods subject to approval from the Director

d. Test Methods

The initial performance test required to document finishing operation VOC capture and control efficiency and validate the mass balance procedures used to calculate controlled emissions references the initial compliance demonstration test methods and procedures contained in NESHAP Subpart JJ (40 CFR 63.805). Additionally, Methods 204 through 204F in 40 CFR Part 51 Appendix M: “Permanent or Temporary Total Enclosure (PTE) for Determining Capture Efficiency” and associated methods are specified in the permit. The total set of test methods contained in the permit is as follows:

40 CFR 60 Appendix A:

- Method 18 – VOC
- Method 1 or 1A - Sample and Velocity Traverses
- Method 2, 2A, 2C, or 2D - Velocity and Volumetric Flow Rates
- Method 3 - Molecular Weight of Exhaust Gas
- Method 4 - Stack Gas Moisture

40 CFR 51 Appendix M:

- Method 204 - Permanent or Temporary Total Enclosure (TTE) for Determining Capture Efficiency
- Method 204A - VOCs in Liquid Input Stream
- Method 204B - VOCs in Captured Stream
- Method 204C - VOCs in Captured Stream (Dilution Technique)
- Method 204D - Fugitive VOCs from Temporary Total Enclosure
- Method 204E - Fugitive VOCs from Building Enclosure
- Method 204F - VOCs in Liquid Input Stream (Distillation)

These test methods represent current and appropriate methods/procedures for documenting compliance with the facility-wide VOC emission cap and the mass balance calculation procedures. Specific test methods and procedures to be employed must be identified in the required site specific test plan and approved in advance by ADEQ. Through this mechanism, alternate methods or deviations from the accepted EPA methods listed above may be approved.

B. Finishing Operations

1. Particulate Matter and Opacity

a. Limits/Standards

A.A.C. R18-2-727 requires that all coating operations be conducted in enclosed spray booths designed to control 96% of overspray. A condition incorporating this requirement is contained in the permit.

b. Air Pollution Control Requirements

A.A.C. R18-2-727 requires that all coating operations be conducted in

enclosed spray booths designed to control 96% of overspray. The permit contains a condition requiring that all finishing line spray coating booths be enclosed and employ dry filter or water wash particulate matter control systems achieving at a minimum 96% control of overspray (*Material Permit Condition*). The permit also requires that the dry filter or water wash control systems be operated, maintained and replaced in accordance with manufacturer specifications.

c. Monitoring, Recordkeeping, and Reporting

Daily inspections of the dry filter and water wash systems controlling spray coating operations are required in the permit. These inspection requirements include the placement, integrity, and particle loading of the dry filter controls and proper operation of the water wash control systems. Weekly inspections of the spray booth exhaust stacks to monitor overspray are also required. The detection of overspray during inspection triggers a corrective action requirement. The Permittee is required to maintain a log record of spray booth control system inspections, filter replacements, and any required corrective actions on site and available for inspection.

d. Source Testing

No source testing requirements are specified for particulate matter emissions from finishing operations. Based on the nature of the process and the required controls and associated maintenance and inspection provisions, compliance with the particulate matter standards is readily demonstrable without source testing.

2. Volatile Organic Matter

a. Limits/Standards

A.A.C. R18-2-727 requires that all coating operations be conducted in enclosed spray booths designed to control 96% of overspray. This condition is applicable to both VOC and particulate matter emissions, and is thus repeated in the permit in both sections. Also based on Rule 727, the permit contains the general requirement to conduct all spray painting operation in a manner to minimize organic solvent emissions.

Arizona SIP Provision R9-3-527.C requires that the sources not dispose by evaporation of more than 1.5 gallons of photochemically reactive solvent in any one day. This requirement is not contained in the A.A.C. but is applicable to the proposed source. Therefore, it was incorporated into the permit along with the definition of photochemically reactive solvent (A.A.C. R-18-2-727(B) and (C)). However, the definition of dispose was stated to not include unavoidable evaporation or spillage losses from the finishing operations.

Several general limitations from A.A.C. R-18-2-730 (D), (F), and (G) are applicable to VOC emission from the finishing operations and were

incorporated into the permit. These include a requirement not to allow gaseous or odorous emissions in quantities as to cause air pollution, work practice standards for transporting and using solvents and organic compounds, and a general provision stating that the Director may require the installation of abatement equipment if air pollution is discharged to an adjoining property.

b. Air Pollution Control Requirements

The air pollution controls systems required for the facility-wide VOC emission limit and NESHAP Subpart JJ are deemed sufficient to also satisfy the general finishing operation VOC limitations contained in this section of the permit. No additional requirements are specified.

c. Monitoring, Recordkeeping, and Reporting

The monitoring, recordkeeping, and reporting requirements associated with the facility-wide VOC emission limit and NESHAP Subpart JJ are deemed sufficient to also satisfy the general finishing operation VOC limitations contained in this section of the permit. No additional requirements are specified.

d. Source Testing

The source testing requirements associated with the facility-wide VOC emission limit and NESHAP Subpart JJ are deemed sufficient to also satisfy the general finishing operation VOC limitations contained in this section of the permit. No additional requirements are specified.

3. Hazardous Air Pollutants

a. Limits/Standards

The requirements of 40 CFR 63 Subpart A, NESHAP General Provisions, as applicable the facility are incorporated by reference in the permit.

The emission limitation requirements of 40 CFR Part 63 Subpart JJ - Wood Furniture Manufacturing Operations for new sources are detailed under Section IV.C.2 of Attachment B to the permit. Four compliance options for Volatile Organic HAP (VHAP) limitation, as provided in 40 CFR 63.802 are listed:

- (1) Use of compliant coatings
- (2) Use of compliant coatings by weighted average
- (3) Use of a control device, or
- (4) Combination of 1, 2, and 3

The Permittee has not yet selected which VHAP limitation compliance option will be utilized. The permit provides the flexibility for the Permittee to select any of the NESHAP VHAP limitation compliance options. The

Permittee must notify the ADEQ and EPA of the selected compliance option through the initial performance test notification and/or compliance status reports required under 40 CFR 63.9 of Subpart A.

b. Work Practice Standards

The work practice requirements of 40 CFR Part 63 Subpart JJ - Wood Furniture Manufacturing Operations are detailed under Section IV.C.3 of Attachment B to the permit (See Table IV-1 of this document and the Conditions under IV.C.3 of Attachment B to the permit).

c. Compliance Procedures and Monitoring Requirements

The compliance procedure and monitoring requirements of 40 CFR Part 63 Subpart JJ - Wood Furniture Manufacturing Operations for new sources are detailed under Section IV.C.4 of Attachment B to the permit. (See Table IV-1 of this document and the Conditions under IV.C.4 of Attachment B to the permit). Again, the permit provides flexibility by incorporating all compliance and monitoring provisions from the NESHAP. The specific applicable conditions will depend on the VHAP limitation compliance option selected by the Permittee.

d. Performance Test Methods

The performance test method requirements of 40 CFR Part 63 Subpart JJ - Wood Furniture Manufacturing Operations for new sources are detailed under Section IV.C.5 of Attachment B to the permit. (See Table IV-1 of this document and the Conditions under IV.C.5 of Attachment B to the permit).

e. Recordkeeping and Reporting Requirements

The recordkeeping and reporting requirements of 40 CFR Part 63 Subpart JJ - Wood Furniture Manufacturing Operations are detailed under Sections IV.C.6 and IV.C.7 of Attachment B to the permit. (See Table IV-1 of this document and the Conditions under IV.C.6 and IV.C.7 of Attachment B to the permit).

C. Fuel Burning Equipment

1. Particulate Matter and Opacity Limits/Standards

The three package boilers (PB-1, PB-2, and PB-3), Co-Ray-Vac heater (CRV-1), and RTO (RTO-1) are subject to a particulate matter emission standard in A.A.C. R18-2-724. The general heat input equation based particulate matter emission limitations contained in A.A.C. R18-2-724 (B) and (C) applies to the existing and proposed facility fuel burning equipment. Use of natural gas fuel should allow compliance with this standard to be continuously achieved.

Opacity of any plume or effluent from any fuel burning equipment is limited to 15% as measured by EPA Method 9, in accordance with A.A.C. R18-2-724(J).

2. Fuel Use Limitation

The facility shall only burn natural gas fuel in facility fuel burning equipment. The emission rates represented in the AWC application correctly apply US EPA document AP-42 emission factors to estimate maximum hourly and annual potential emissions for these sources. See Table A.5 in the permit application.

3. Monitoring, Recordkeeping, and Reporting

Pursuant to A.A.C. R18-2-724(J), for the purposes excess emissions reporting, the Permittee must report all 6-minute periods in which the opacity of any fuel-burning equipment emission point plume or effluent exceeds 15%. The permit contains this requirement and identifies the subject emission points (PB-1, PB-2, PB-3, CRV-1, and RTO-1). This will be accomplished by the observer recording results of a 6-minute Method 9 test, along with the date, location, time of observation and name of the observer.

If the six-minute opacity of the plume exceeds the applicable opacity standard, the observer shall adjust or repair the controls or equipment to reduce opacity to below the standard and report the excess opacity emissions to ADEQ.

The proposed monitoring and record keeping meets applicable periodic monitoring/record keeping criteria for the source/control category. No specific reporting is required, unless an exceedance of the applicable opacity standard is documented.

4. Source Testing

The permit specifies that EPA Reference Method 9 (40 CFR 60 Appendix A) shall be used to measure opacity to demonstrate compliance with applicable requirements.

No source emission testing requirements for PM or gaseous emissions from the fuel burning equipment are contained in the permit. Given the size of the equipment involved, and the required use of natural gas fuel, the required periodic monitoring and recordkeeping are adequate to ensure compliance with the applicable opacity and PM emission limitations.

D. Machining/Woodworking Operations

1. Particulate Matter and Opacity Limits/Standards

The finishing operation dust collection and baghouse control system (BH-3) shall be vented indoors, within the finishing line building enclosure.

The general process weight equation based particulate matter emission limitations contained in A.A.C. R18-2-730(A) apply to the proposed facility machining/woodworking operations. All particulate emissions generated by the

machining/woodworking processes are routed to a dust collection and particulate matter control system (BH-1 and BH-2). The vendor specified control efficiency for the baghouse is 99.9% by weight, which equates to 0.045 lb/hr total PM/PM₁₀ emissions per baghouse, or 0.9 lb/hr and 0.39 ton/yr total PM/PM₁₀ emissions from the machining/woodworking operations at design flow rates.

Opacity from each baghouse exhaust is limited to 40% as measured by EPA Method 9.

Based on the machining/woodworking operation dust collection and particulate control system, which is required by material permit condition, compliance with the specified PM and opacity limitations is readily demonstrable.

2. Air Pollution Control Requirements

The permit contains a material permit condition requiring particulate matter emissions from machining/woodworking operations to be vented a baghouse dust control system for control. The permit also specifies that the collection/control system be continuously operated and maintained in accordance with manufacturer's specifications in consistent with good air pollution control practice. These air pollution control requirements will ensure compliance with applicable particulate matter and opacity limitations/standards.

3. Monitoring, Recordkeeping, and Reporting

The permit requires a certified Method 9 observer to conduct quarterly visual surveys of emissions from all process sources covered by this section when they are in operation. If the observer, during the visual survey does not see any plume from any source, the observer shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation. If the observer sees a plume from any source, then the observer shall take a six-minute Method 9 observation of the plume. If the six-minute opacity of the plume is less than the applicable opacity standard, the observer shall record the results along with the date, location, time of observation and name of the observer. If the six-minute opacity of the plume exceeds the applicable opacity standard, the observer shall adjust or repair the controls or equipment to reduce opacity to below the standard and report the excess opacity emissions to ADEQ.

The Permittee shall conduct quarterly inspections of all bags in the baghouse dust control system when the system is venting to the atmosphere. The permit requires that all bags found to be defective be replaced as soon and practicable and that a log be maintained of baghouse operation, maintenance, and inspections.

The Permittee is required to maintain records of the number of pieces of wood and engineered wood which are processed, and the number of cabinets which are built.

The monitoring and record keeping meets applicable periodic monitoring/record keeping criteria for the source/control category. No specific reporting is required, unless an exceedance of the applicable opacity standard is documented.

4. Source Testing

No source testing requirements for PM emissions from the machining/woodworking operations are contained in the permit. Given the required pollution control system and controlled potential emissions, the required periodic monitoring and recordkeeping are adequate to ensure compliance with the applicable opacity and PM emission limitations.

E. Non-Point Sources

Generally applicable requirements from A.A.C. R18-2 Article 6: Emissions from Existing and New Non-point Sources, are included in the permit. These conditions include: General limitation of opacity to 40% (as measured by Reference Method 9) from non-point sources; requirement for reasonable precautions to be taken during construction activities and material transportation to limit airborne dust; and specification of “reasonable precautions.”

VI. PROJECT IMPACT ANALYSIS

The AWC Kingman facility is not subject to the Prevention of Significant Deterioration (PSD) regulations, but is a Class I major source pursuant to the Arizona Administrative Code, Title 18, Chapter 2 (A.A.C. R18-2). Because the proposed facility expansion will have a potential to emit hazardous air pollutants (HAPs), it is subject to the Arizona Ambient Air Quality Guidelines (AAAQGs). Accordingly, the applicant was required to demonstrate that ambient air quality impacts of each individual HAP emitted from the proposed source is below the established guideline levels.

A. Emissions

18 HAPs listed in the AAAQG will be emitted from the proposed expanded AWC facility; these are listed in Table VI-1 below.

Table VI- 1. Emission Rates

HAP	CAS	Emission Rate (grams/sec)
Butyl Alcohol	71-36-3	2.262E-01
2-Butoxyethanol	111-76-2	5.431E-02
Butyl Acetate	123-86-4	1.915E-01
Cumene		6.125E-04
Ethyl Alcohol	64-17-5	2.452E-01
Ethyl Benzene	100-41-4	2.258E-01
Formaldehyde	50-00-0	1.804E-03
2-Heptanone		4.145E-04
Isobutyl Acetate	110-19-0	8.410E-02
Isobutanol	78-83-1	6.483E-02
Isopropanol	67-63-0	4.033E-02
Methanol	67-56-1	9.133E-01
Methyl Ethyl Ketone (2-Butanone)	78-93-3	1.517E+00
Methyl Isobutyl Ketone	108-10-1	3.489E-01
Propyl Acetate	109-60-4	3.197E-03

Toluene	108-88-6	1.684E+00
1,2,4-Trimethylbenzene	95-63-6	2.634E-02
Xylene	13330-20-7	9.714E-01

These HAPs will be emitted from 13 individual roof top exhaust vents and a regenerative thermal oxidizer. The roof top vents are located 44 feet above ground, but only 10 feet above the building roof. Hence, the effluent will be subject to building downwash effects.

B. Location

The AWC facility is located on the northwest side of Kingman Arizona at an elevation of 3420 feet above sea level. The surrounding terrain varies in elevation up to 1800 feet above the plant base elevation. Hence, simple and complex terrain must be accounted for in the modeling.

C. Modeling Methodology and Meteorology

Ambient air impacts were simulated using EPA’s SCREEN3 dispersion model. SCREEN3 is simplified model which simulates downwind impacts from a single emission source under worst-case meteorological conditions. It can also account for building downwash as well as flat, simple, and complex terrain. Ambient impacts from multiple sources can be conservatively estimated by adding the maximum impact from each individual source modeled.

SCREEN3 was operated for flat terrain, simple terrain and complex terrain. The automated receptor distances for the flat terrain runs ranged from the closest point on the fenceline to 10 km from the source. The selected distances and associated elevations for the complex terrain runs were identified using the topographic map. Analysis of the surrounding topography provided the shortest distance from the source to each 100-foot increase in elevation. Stack temperatures and flows were estimated from manufacturer’s data. Building downwash was accounted for using the algorithms contained within SCREEN3 and the AWC building dimensions: height is 10.4 meters, width is 77 meters and length is 168 meters.

Impacts of individual HAPs were modeled using a unit emission rate of 1 gram per second (g/s) and adjusted during model-postprocessing using a ratio technique. For each stack, the emission rate of individual HAPs were quantified in units of g/s. The maximum model-predicted concentration based upon the unit emission rate was multiplied by the individual HAP emission rate to obtain maximum HAP impacts from each stack. Impacts from individual stacks were analyzed separately and added during model post-processing to quantify total impacts.

SCREEN3 predicts maximum 1-hour impacts. These values were converted to other averaging periods by multiplying by the appropriate conversion factors: 24-hour is 0.4 and annual is 0.08.

D. Results

Table VI- 2 presents the model-predicted impacts on ambient air. Three averaging periods are presented: 1-hour, 24-hour, and annual. For each averaging period, the maximum model-

predicted impact is presented and compared with the applicable AAAQG. The expanded AWC Kingman facility is not predicted to exceed any of the AAAQGs. The maximum fraction of any AAAQG occurs for formaldehyde, at half the annual AAAQG.

E. Conclusions

The applicant successfully demonstrated compliance with all applicable ambient air quality guidelines.

Table VI-2. Model-Predicted Ambient Impacts

Pollutant	CAS No.	1-hour Averages			24-hour Averages			Annual Averages		
		Max. Conc. ug/m ³	Standard ug/m ³	Ratio	Max. Conc. ug/m ³	Standard ug/m ³	Ratio	Max. Conc. ug/m ³	Standard ug/m ³	Ratio
Butyl Alcohol	71-36-3	73.14	3800	0.019	29.26	2400	0.012	5.852	NA	NA
2-Butoxyethanol	111-76-2	14.81	none	NA	5.92	900	0.007	1.185	NA	NA
Butyl Acetate	123-86-4	95.35	none	NA	38.14	5300	0.007	7.628	NA	NA
Cumene		0.30	none	NA	0.12	none	NA	0.024	NA	NA
Ethyl Alcohol	64-17-5	122.09	none	NA	48.84	14000	0.003	9.767	NA	NA
Ethyl Benzene	100-41-4	66.52	4500	0.015	26.61	3500	0.008	5.322	NA	NA
Formaldehyde	50-00-0	0.52	20	NA	0.21	12	NA	0.042	0.08	0.523
2-Heptanone		0.21	none	NA	0.08	3500	0.000	0.017	NA	NA
Isobutyl Acetate	110-19-0	41.87	none	NA	16.75	5300	0.003	3.349	NA	NA
Isobutanol	78-83-1	32.28	1900	0.017	12.91	1200	0.011	2.582	NA	NA
Isopropanol	67-63-0	20.08	none	NA	8.03	7400	NA	1.606	NA	NA
Methanol	67-56-1	303.73	2600	0.117	121.49	2100	0.058	24.299	NA	NA
Methyl Ethyl Ketone [2-	78-93-3	403.50	7400	0.055	161.40	4700	0.034	32.282	NA	NA
Methyl Isobutyl	108-10-1	96.17	none	NA	38.47	none	NA	7.694	NA	NA
Propyl Acetate	109-60-4	1.59	8800	0.000	0.64	6700	0.000	0.127	NA	NA
Toluene	108-88-6	454.49	4700	0.097	181.80	3000	0.061	36.361	NA	NA
Trimethylbenzene	95-63-6	9.56	none	NA	3.82	1422	0.003	0.765	NA	NA
Xylene	1330-20-7	289.37	5500	0.053	115.75	3500	0.033	23.152	NA	NA

VII. INSIGNIFICANT ACTIVITIES

Table VII.1 below presents a list of insignificant activities as identified by the Permittee in its application. It is the Permittee's responsibility to determine or verify insignificance for each proposed activity/equipment piece to be installed. If an activity is found not to qualify as insignificant, appropriate notification and permitting procedures must be followed.

No.	POTENTIAL EMISSION POINTS CLASSIFIED AS "INSIGNIFICANT ACTIVITIES" PURSUANT TO A.A.C. R18-2-101.57
1	Landscaping, building maintenance, or janitorial activities (A.A.C. R18-2-101(57)(a))
2	Hand-held or manually-operated equipment used for cutting, drilling, sanding, or sawing (A.A.C. R18-2-101(57)(f))
3	Finishing Line VOC capture system bypass vents (see Section II of Attachment B of the AWC Permit)
4	One (1) 80 gallon domestic natural gas-fired heater