TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT NUMBER 42868
AMERICAN WOODMARK CORPORATION

I. INTRODUCTION

This Title V renewal permit for Permit No. 1001540 is issued to American Woodmark Corporation (AWC), the Permittee, for operation of wood cabinet manufacturing facility in Kingman, Mohave County, Arizona.

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

B. Attainment Classification

The facility is located in an attainment area for all criteria pollutants.

C. Learning Sites Evaluation

There are no schools within 2 miles of the facility.

D. Background Information

The AWC Kingman facility previously operated as a minor source under Air Quality Class II Permit No. 1000969. The facility was issued a Title V permit (permit No. 1001540) on June 26, 2002, at the Kingman Plant for the expanded coating operations. Subsequently, following permit revisions to Permit No. 1001540 were issued:

- Class I minor revision No. 28507 was issued on September 10, 2003, for consolidation of Lines 2 and 4 operations, thereby eliminating line 2, and limiting the operating hours of the test booth to 876 hours per year.

- Class I minor revision No. 31651was issued on August 27, 2004, for modification of Finishing Line 4 to add more equipment and for conversion of the regenerative catalytic oxidizer, RTO-1, to a regenerative thermal oxidizer.

- Class I significant revision No. 34435 was issued on November 3, 2006, for specifying the minimum operating temperature for the regenerative thermal oxidizer (RTO) necessary to achieve 95% destruction of volatile organic compounds, for addition of new equipment to Lines 3 and 4, and for assigning new equipment numbers to the equipment.

II. FACILITY DESCRIPTION

A. Process Description

The wood kitchen and bath cabinet manufacturing facility is located in Kingman, Mohave County. Pre-fabricated unfinished parts are shipped to the AWC Kingman facility where these parts undergo a series of finishing steps, are assembled, and shipped to customers.

In finishing operations, various finishing materials are applied to unfinished wooden pieces to provide protective coating and to impart desired appearance. The finishing materials primarily consist of volatile organic compounds (VOCs) and volatile hazardous air pollutants (VHAPs), carrying either a pigment, which provides color, or a polymer, which provides a protective coating to the unfinished wooden pieces.

The finishing operations comprise of three finishing lines:

1. Finishing Line 1 - Main Line;
2. Finishing Line 3 - Expedite Line – for low volume manual spray operations
3. Finishing Line 4 – Hybrid line – for application of specialty finishes.

In general, each finishing line involves a series of process steps including some or all of the following:

1. Sanding and cleaning,
2. Coating application (application of stain, toner, sealer, and topcoat in automatic spray booths or roll coaters)
3. Drying (curing ovens)

Following coating operations, finished parts are assembled into complete cabinets and shipped to customers.

B. Air Pollution Control

The VOC and HAP emissions from finishing lines are controlled by:

1. Use of high transfer efficiency coating application equipment (e.g., High Volume-Low Pressure (HVLP) spray guns)
2. Use of low-Hazardous Air Pollutant (HAP) coatings
3. Dry filters or water wash systems to control overspray from the spray booths
4. Use of capture system and regenerative thermal oxidizer (RTO) to control VOC emissions from Finishing Lines 1 and 4.

In addition, the facility utilizes three baghouse dust collection systems for capture and control of particulate matter generated by woodworking and sanding/cleaning operations.

III. COMPLIANCE HISTORY

There have been six on-site facility inspections for the facility. Based on these inspections and file reviews, two cases were initiated in August 2003 and May 2004, respectively.

A. Case Number 26889: Based on a file review completed on June 24, 2003 (Inspection ID 39083), a Notice of Violation was issued on September 2, 2003, for following permit violations:

1. Failure to have the continuous static pressure monitoring device installed in Finishing

Lines 1 & 4 until April 1, 2003, as required under Permit No. 1001540.

2. Failure to log any functional inspection of the regenerative thermal oxidizer from the startup in October 2002 until April 2003.

3. Failure to submit a complete CAM plan within 180 days of permit issuance.

American Woodmark fully documented compliance with these conditions on April 16, 2004, and the NOV was closed on the same day.

B. Case Number 30686: Based on a file review completed on May 19, 2004 (Inspection ID 49212), a Notice of Opportunity to Correct was issued to American Woodmark on May 28, 2004, as the Permittee failed to submit the semi-annual compliance certification by the May 15, 2004, due date. The Permittee fully documented compliance with these conditions on June 10, 2004, and the case was closed on July 19, 2004.

IV. EMISSIONS

The material balance calculations for controlled Finishing Lines 1 & 4, based on 90% capture efficiency and 95% control efficiency, indicate VOC emissions of 148.06 tons/year. Emissions from uncontrolled Finishing Line 3 are estimated to be 43.37 tons per year. VOC emissions from other sources (solvent cleaning, manual glazing, test spray booth, pump house and gas-fired equipment) are estimated to be 13.96 tons per year. Basis of Finishing Lines Emission calculations is as follows:

1. The entire VOC content of the finishing materials and solvents as applied at the facility is assumed to be released upon use.

2. VOC emission calculations are based on the following assumptions: Operating hours: 16 hrs per day; operating days: 260 days per year; operating hours per year: 4160; booth uptime: 80% for automated Lines 1 and 4 and 100% for manual line 3; active automated spray time: 65%, VOC capture efficiency: 90%; RTO destruction efficiency: 95%; and overall VOC control efficiency of 85.5%. For uncontrolled finishing line 3, available spray operation time is reduced by an additional 35% due manual loading/unloading of work pieces. For controlled finishing lines 1 and 4, VOC capture efficiency is taken as 90% and RTO destruction efficiency is taken as 95%, resulting in overall VOC control efficiency of 85.5%.

3. A maximum of 5% of the VOC usage in Finishing Lines 1 and 4 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).

The Permittee is subject to a 226.6 ton per year (tpy) VOC emission limit from the finishing lines (Lines 1and 4: 167.0 tpy, Line 3: 59.6 tpy). VOC emissions from other sources like pumping, cleaning, and natural gas fired equipment, are estimated to be less than 15.0 tons/year. Thus the facility-wide potential-to-emit (PTE) is expected be less than 241 tons per year (below the PSD major source threshold of 250 tons per year (tpy)). All other regulated air pollutant emission rates from the proposed facility are below major source thresholds based on unrestricted potential-to-emit (PTE).

Facility-wide emissions (after controls) are summarized in the following table.

Table-1

Source	ID	NO_x	SO_x	CO	PM_{10}	VOC	HAP
		tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr
Line 1							
Controlled emissions	RTO-1	0.00	0.00	0.00	0.00	103.20	52.12
M28c Oven Exhaust	EXH1	0.00	0.00	0.00	0.00	1.24	0.66
M35c Oven Exhaust	EXH2	0.00	0.00	0.00	0.00	1.24	0.66
M42c Oven Exhaust	EXH3	0.00	0.00	0.00	0.00	1.24	0.66
M52c Oven Exhaust	EXH4	0.00	0.00	0.00	0.00	1.24	0.66
Total Line 1		**0.00**	**0.00**	**0.00**	**0.00**	**108.14**	**54.77**
Line 3							
Spray Booth E1.2	EXH7	0.00	0.00	0.00	0.00	10.84	6.63
Oven E1.4	EXH8	0.00	0.00	0.00	0.00	10.84	6.63
Spray Booth E2.6	EXH9	0.00	0.00	0.00	0.00	10.84	6.63
Oven E2.7	EXH10	0.00	0.00	0.00	0.00	10.84	6.63
Total Line 3		**0.00**	**0.00**	**0.00**	**0.00**	**43.37**	**26.53**
Line 4							
Controlled emissions	RTO-1	0.00	0.00	0.00	0.00	38.42	10.17
Oven H43c Oven Exhaust	EXH12	0.00	0.00	0.00	0.00	0.64	0.30
Oven H50c Oven Exhaust	EXH14	0.00	0.00	0.00	0.00	0.64	0.30
UV Cure Ovens H15, H18	EXH15	0.00	0.00	0.00	0.00	0.22	0.00
Total Line 4		**0.00**	**0.00**	**0.00**	**0.00**	**39.92**	**10.76**
Other emissions							
Solvent Cleaning	Fugitive	0.00	0.00	0.00	0.00	9.84	6.43
Manual Glazing	Fugitive	0.00	0.00	0.00	0.00	0.61	0.03
Test Spray Booth	EXH11	0.00	0.00	0.00	0.00	2.79	2.63
Pump Room Exhaust	EXH13	0.00	0.00	0.00	0.00	0.10	0.05
Co-Ray-Vac heating system	Fugitive	1.11	0.01	0.93	0.08	0.06	0.00
Boilers (gas fired)	PB-1,2,3	5.91	0.04	4.97	0.45	0.33	0.00
Oxidizer	RTO-1	4.38	0.03	3.68	0.33	0.24	0.00
Facility-wide Total		**11.40**	**0.07**	**9.58**	**0.86**	**205.38***	**101.19**

The break-up of major HAPs emissions is as follows:
Toluene: 52.82 tons/yr
Xylenes: 17.13 tons/yr
Methanol: 21.27 tons/yr
*VOC emission are limited to 167.0 tons per year from the lines 1and 4 and 59.6 tpy from line 3.

V. APPLICABLE REGULATIONS

The following table summarizes the ADEQ findings with respect to applicable requirements to emission units:

Table-2

Unit ID	Control Equipment	Applicable Regulations	Verification
Finishing Lines	Capture System and Regenerative thermal oxidizer	A.A.C. R18-2-727, 40 CFR 60 Subpart JJ	A.A.C. R18-2-727 ia applicable to all painting operations. The facility is also subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 60 Subpart JJ as the quantities of finishing materials and HAPs used exceed the exemption limits.
Wood Working Operations	Baghouses	A.A.C. R18-2-702, A.A.C. R18-2-730	The wood working operation like drilling, panel cleaning are subject to A.A.C. R18-2-730.
Process Boilers and Co-Ray-Vac Heating System	N/A	A.A.C. R18-2-724	These natural gas-fired industrial equipment are subject to A.A.C. R18-2-724 standards.
Fugitive dust sources	Water and other reasonable precautions	A.A.C. R18-2, Article 6, A.A.C. R18-2-702	These are applicable to fugitive dust sources at the facility.
Mobile sources	Water Sprays/Water Truck for dust control	A.A.C. R18-2, Article 8	This Article is applicable to off-road mobile sources, which either move while emitting air pollutants or are frequently moved during the course of their utilization.
Other periodic activities	N/A	A.A.C. R18-2-730 A.A.C. R18-2-1101.A.8	This section deals with activities such as sandblasting, demolition/renovation asbestos control, and gaseous or odorous materials handling.

VI. PREVIOUS PERMITS AND PERMIT CONDITIONS

A. PREVIOUS PERMITS

Table 3: PREVIOUS PERMITS

Permit #	Issue Date	Application Basis
1001540	June 27, 2002	Title V Operating Permit
28507	September 10, 2003	Minor Permit Revision
31651	August 27, 2004	Minor Permit Revision
34435	November 3, 2006	Significant Permit Revision

B. PREVIOUS PERMIT CONDITIONS

1. Operating Permit No. 1001540

Table-4

Condition # in permit nos. 1001540	Determination				Comments
	Delete	Kept	Revise	Streamline	
Attachment A			x		This Attachment has been revised and most recent Attachment "A" is used for this permit.
Attachment B					
Section I	x				This SIP requirement for installation permit is no longer necessary and, hence, deleted.
Section II	x				This Section identifying emission points is deleted. This information is included in the equipment list.
Condition III.A.1		x			This facility-wide VOC emission limitation is deleted. VOC emission limitations have been given only for 3 finishing lines and are covered under Conditions II.D.1.a and b.
Condition III.A.2		x			This Condition for fuel limitation for equipment fired by natural gas is relocated as condition III.B.
Conditions III.B.1 and III.B.2		x			These air pollution control requirements for Finishing Lines 1 and 4 are relocated as Condition II.D.2.a.
Conditions III.B.3		x			This requirement for damper operation for Finishing Lines 1 and 4 is relocated as Condition II.D.2.c.
Conditions III.B.4		x			This requirement for VOC capture system efficiency is relocated as Condition II.D.2.d.
Conditions III.B.5		x			This requirement for regenerative thermal oxidizer efficiency is relocated as Condition II.D.2.e.
Condition III.C.1		x			This monitoring requirement for static pressure at spray booths and RTO inlet is relocated as CAM monitoring approach requirement as Condition II.D.4.b.i(1).
Condition III.C.2		x			This monitoring requirement for static pressure at spray booths and RTO inlet is relocated as CAM indictor requirement as Condition II.D.4.a.i.
Condition III.C.3					The condition for maintaining negative pressure is covered under Condition II.D.4.c.1(i).

Condition # in permit nos. 1001540	Determination				Comments
	Delete	Kept	Revise	Streamline	
Condition III.C.4		x			This monitoring requirement for static pressure at spray booths and RTO inlet is relocated as CAM excursion under Condition II.D.4.c.i.(1)
Condition III.C.5		x			Monitoring/recording requirement and condition for excursion determination for RTO inlet static pressure are relocated under II.D.4.b.i.(3) and II.D.4.c.i.(2).
Condition III.C.6		x			Monitoring/recording requirement and condition for excursion determination for static pressure at spray booths are relocated under II.D.4.b.i.(2) and II.D.4.c.i.(1).
Condition III.C.7 and Condition III.C.14		x			The requirements for response to static pressure excursions and RTO temperature excursion are relocated under Condition I.B.2.
Condition III.C.8		x			Monitoring/recording requirements for exhaust damper position are relocated under Condition II.D.3.j.i.
Condition III.C.9		x			The Condition for requirement of functional inspection of exhaust dampers is relocated under Condition II.D.3.j.ii.
Condition III.C.10		x			The requirement of corrective action for damper incorrect positioning is relocated under Condition II.D.3.j.iii.
Condition III.C.11		x			The requirement of operation and maintenance of RTO temperature is relocated under Condition II.D.4.b.ii.
Conditions III.C.12 and 13		x			The Conditions for RTO temperature requirement and excursion are relocated under Condition II.D.4.c.ii.
Condition III.C.15		x			The Condition for requirement of functional inspection of RTO is relocated under Condition II.C.3.k.i.
Condition III.C.16		x			The Condition for inspection and maintenance requirements for RTO is relocated under Condition II.C.3.k.ii.
Condition III.C.17		x			The Condition for correction of any abnormal operation of the RTO or combustion chamber temperature monitoring system is relocated under Condition II.D.3.k.iii.
Condition III.C.18	x				The Condition for recording of operating hours of finishing lines and RTO is deleted as this is not necessary.
Condition III.C.19	x				The record-keeping requirement for VOC and VHAP content for each finishing material is deleted as this is covered under Section II.E.

Condition # in permit nos. 1001540	Determination				Comments
	Delete	Kept	Revise	Streamline	
ConditionsIII.C.20 and 21		x			The requirements of daily and monthly accounting of all finishing materials, along with VOC and VHAP contents, are relocated under Condition II.D.3.d.
Condition III.C.22		x			The requirement of daily and monthly accounting of all waste material disposed off, along with VOC content, is relocated under Condition II.D.3.e.
Condition III.C.23	x				The calculation for monthly calculation of usage of VOC for each line is not necessary, and, hence deleted.
Condition III.C.24 and 25		x			The Conditions for emission limitations for finishing lines are relocated as Conditions II.D.1.a and b.
Condition III.C.26		x			The Condition for monthly calculations of VOC emissions from each line is relocated as Condition II.D.3.f.
Condition III.C.27		x			The record-keeping requirement for total facility-wide VOC emissions is relocated as II.D.3.g.
Condition III.C.28			x		This notification requirement for exceedance of monthly facility-wide VOC emissions of 20.1 tons is revised to VOC emissions of 18.9 tons from 3 finishing lines. Emissions from other sources (either estimated or based on AP-42) are expected to be independent of usage and will be less than 15 tons/year. This is relocated as Condition II.D.3.h.
Condition III.C.29	x				The requirement for excess emissions reporting is deleted as it is covered under Attachment "A".
Condition III.C.30		x			The requirement of inclusion of monthly and 12-monthly emissions in the semi-annual compliance certification is relocated as Condition II.D.3.i
Condition III.C.31	x				The requirement for submittal of CAM plan within 1 month of issuance of previous permit is deleted as this was complied with.
Condition III.C.32	x				The record keeping requirement for compliance records is deleted as it is covered under Attachment "A".
Condition III.D.1	x				The Condition for initial compliance test for destruction efficiency is already complied, and, hence deleted.
Condition III.D.2		x			This Condition for initial performance test is retained for performance testing required under the permit and is relocated as Condition II.D.5.c.

Condition # in permit nos. 1001540	Determination				Comments
	Delete	Kept	Revise	Streamline	
Condition III.D.3, 4 and 5		x			The testing procedures for capture efficiency and control efficiency are retained under Condition II.D.5.d, e and f.
Condition III.D.6			x		The periodic testing requirements are streamlined. For RTO control efficiency, it is changed to annual from bi-annual. The periodic testing for capture efficiency is changed to once in 2 years. However, if the emissions are more than 80% of emission limits, this will be required annually. These are relocated under Conditions II.D.5.a and b.
Conditions IV.A.1.a and b, V.B.1.a		x			These emission limitation standards for finishing lines are relocated under Condition II.d.1.c.
Condition IV.A.1.c			x		The opacity limit for finishing operations is changed to 20% as required in current rules, and is relocated under Condition II.C.1.
Condition IV.A.2.a		x			The air pollution control requirement for enclosure and filters/wash system is relocated under Condition II.D.2.b.
Condition IV.A.3.a		x			The requirement for daily inspection of filters and water wash system is relocated under Condition II.D.3.a.
Condition IV.A.3.b		x			The requirement for weekly inspection of spray booth stacks is relocated under Condition II.D.3.b.
Condition IV.A.3.c		x			The record keeping requirement for spray booth inspections is relocated under Condition II.D.3.c.
Condition IV.B.1.b	x				This SIP provision for emission limitation is deleted as R9-3-527.C is no longer an applicable requirement.
Conditions IV.B.1.c and d		x			The conditions defining photochemically reactive solvent are relocated as Condition II.D.1.e and f.
Condition IV.B.1.e, f and g	x				Since A.A.C. R18-2-727 requirements are applicable for finishing operations, the requirements applicable to unclassified sources are deleted.
Section IV.C		x			The Conditions for NESHAPs requirements under 40 CFR 63, Subpart JJ are relocated under Section II.E. Initial compliance requirements under IV.C.4.c are deleted as these are no longer applicable.
Condition V.A.1			x		The emissions standards under A.A.C R18-2-724 for fuel burning are equipment are not applicable to RTO. Hence reference to RTO-1 is deleted and the Condition is relocated as Condition III.C.1.a.

Condition # in permit nos. 1001540	Determination				Comments
	Delete	Kept	Revise	Streamline	
Condition V.A.2		x			The Condition for opacity standard for fuel burning equipment is relocated as Condition III.C.1.c.
Condition V.B		x			The Condition for fuel limitation is relocated as Condition III.B.
Condition V.C		x			The monitoring, reporting and recordkeeping requirements for fuel burning are equipment are relocated under Condition III.C.2.
Conditions VI.A.1. a, b and c		x			The conditions for particulate matter emission standards for wood working operations are relocated as Conditions IV.B.1.a, b and c.
Condition VI.A.1.d			x		The opacity limit for wood working operations is changed to 20% as required in current rules, and is relocated under Condition IV.C.1.
Condition VI.A.2		x			The air pollution control requirement for wood working operations is relocated under Condition IV.C.2.
Conditions VI.A.3.a, b, c and d		x			The monitoring, reporting and recordkeeping requirements for wood working operations are relocated as Condition IV.C.3.a, b, c and d.
Conditions VI.A.3.f, g and h	x				The recordkeeping requirement for number of pieces processed is deleted.
Section VII		x			This Section for Non-point source requirement is renamed as "Fugitive Dust Requirements" and relocated as Section V.
Condition II.D.2.c		x			The NOx CEMS quality control requirements have been relocated under Condition II.D.3.a.ii.

2. Minor Permit Revision No. 28507

Condition # in permit nos. 28507	Determination				Comments
	Delete	Kept	Revise	Streamline	
Attachment B, Section II			x		Through this revision, lines 2 and 4 are consolidated into line 4, and some spray booths replaced with new ones. Thus, Section II was revised to reflect these changes.
Condition III.C.24			x		The Condition for determination of excursion for lines 1 and 4 is changed from VOC usage limit of 947 tpy to VOC emissions limit of 151.6 tpy.
Condition III.C.25			x		The Condition for determination of excursion for line 3 is changed from VOC usage limit of 99.5 tpy to VOC emissions limit of 59.6 tpy.

Condition # in permit nos. 28507	Determination				Comments
	Delete	Kept	Revise	Streamline	
Attachment "C"			x		Calculation procedure for emission calculations is revised to include test booth emission calculations and deletion of line 2 emission calculations as line 2 merged into line 4.
Attachment "D"			x		The equipment list is updated to reflect the changes/addition of equipment in the finishing lines.

3. Minor Permit Revision No. 31651

Condition # in permit nos. 31651	Determination				Comments
	Delete	Kept	Revise	Streamline	
Attachment B, Section II			x		This Section is revised to reflect the changes in equipment list.
Condition II.B.1			x		The air pollution control requirement is revised to reflect changes in the equipment list.
Condition III.C.12			x		The Condition specifying the base operating temperature for RTO is revised to change the minimum temperature requirement from 800 deg F to 1400 deg F.
Condition III.C.18.b			x		This recordkeeping requirement is revised to delete reference to line 2 as this line was merged with line 4 under revision 28507.
Condition III.C.24			x		The Condition for determination of excursion for VOC emissions from lines 1 and 4 is revised to increase the VOC limit from 151.6 tpy to 167.0 tpy.
Condition III.C.31			x		The condition for submittal of CAM plan is revised, and requires the Permittee to submit revised CAM plan within 30 days of initial performance test.
Condition III.D.1			x		This Condition requires performance test on new RTO within 3 months of commencing operation.
Attachment "D"			x		The equipment list is updated to reflect the changes/additions of equipment in the finishing lines.

4. Significant Permit Revision No. 34435

Condition # in permit nos. 34435	Determination				Comments
	Delete	Kept	Revise	Streamline	
Condition III.C.12			x		The Condition specifying the operating temperature for RTO is revised to change the minimum temperature requirement from 1400 deg F to 1425 deg F based on performance test for 95% destruction.
Attachment "D"			x		The equipment list is updated to reflect the changes/additions of equipment in the finishing lines.

VII. AIR POLLUTION CONTROL REQUIREMENTS

A. Finishing Lines

1. The Permittee is required to operate and maintain a VOC capture system and a regenerative thermal oxidizer (RTO-1) to capture and control VOC emissions from the following finishing operation emission units in Finishing Lines 1 and 4. The VOC capture system and RTO-1 must be operated at all times when VOC containing materials are being processed in the controlled finishing lines.

   Finishing Line 1:

Automatic Spray Booths:	M4a, M4b, M13a, M13b, M16a, M16b, M26a, M26b, M33a, M33b, M40a, M40b, M50a and M50b
Stain Wiping Machines:	M5a, M5b, M17a and M17b
Curing Ovens:	M7, M14, M21, M28a, M28b, M35a, M35b, M42a, M42b, M52a and M52b

   Finishing Line 4:

Automatic Spray Booths:	H29a, H29b, H41a, H41b, H48a and H48b
Reverse Roll Coater:	H31 and H33
Stain Wiping Machines:	H30a
Wiping Conveyor:	H32a, H32b, H34a and H34b
Curing Oven:	H36, H43a, H43b, H50a and H50b.

2. Each controlled finishing line emission unit bypass damper must be maintained in a closed position such that exhaust gases are routed to the regenerative thermal oxidizer (RTO-1) during all times that VOC containing materials/products are being processed in that emission unit or the upstream VOC module spray booth.

3. The VOC capture system shall be operated to achieve a minimum capture efficiency of 90 percent by weight for Finishing Lines 1 and 4.

4. The regenerative thermal oxidizer (RTO-1) shall be operated to achieve a minimum VOC destruction efficiency of 95 percent by weight.

5. Each spray booth must be equipped with an enclosure and dry filter or water wash system to contain no less than 96 percent of the overspray.

B. Woodworking Operations

The Permittee is required to continuously operate the baghouses BH-1, BH-2 and BH-3 in accordance with manufacturer's specifications and consistent with good air pollution control practice for the control of particulate matter emissions from the woodworking operations.

VIII. MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

A. Finishing Operations

1. Volatile Organic Compounds

   a. The Permittee is required to perform a daily inspection to verify the integrity and particle loading of the spray booth dry filters, and proper operation of the water wash system.The Permittee is also required perform a weekly inspection of the spray booths to monitor overspray. If overspray discharge is detected, corrective action must be taken no later than 4 hours following the discovery.

   b. The Permittee is required to maintain daily and monthly accounting of all finishing materials purchased and used in finishing operations as well as all VOC containing waste materials disposed off, along with a breakdown of finishing material along with VOC and volatile organic hazardous air pollutant (VHAP) content for each finishing material (including coatings, thinners, contact adhesives, and strippable spray booth coatings) as applied in each finishing line.

   c. The Permittee is required to use the monthly usage records, VOC capture efficiency & regenerative thermal oxidizer destruction efficiency for lines 1 and 4 based on the most recent performance test to calculate total monthly VOC emissions for each finishing line.

   d. The Permittee is required to record the individual month and twelve-month rolling total VOC emissions from all finishing lines each month.

   e. The Permittee must notify the Director in writing if VOC emissions from finishing lines 1, 3 and 4 exceed 18.9 tons in any calendar month, with an explanation of how the Permittee intends to maintain compliance with the emission limit of 226 tons/year.

2. Bypass Damper Operation

   a. The Permittee is required to observe and record the position of the directional indicator of each VOC collection system bypass damper at least once per operating day for Lines 1and 4 and at the commencement of each VOC module operation. The Permittee is required to take corrective action within four hours of any observation indicating a bypass damper in the "open" position during respective VOC module operation.

   b. The Permittee is required to perform an annual functional inspection of each VOC collection system bypass damper for the criteria listed below. The Permittee must maintain a log of all bypass damper functional inspections on site readily available for inspection.

3. Regenerative Thermal Oxidizer (RTO) Inspection

a. The Permittee is required to perform a functional inspection of the RTO, including observation of the combustion chamber temperature monitoring system output and verification of normal operation of the RTO and all blowers and dampers in accordance with the manufacturer's specifications. Each functional inspection must be recorded in a log.

b. The Permittee is required to perform an annual inspection and maintenance of the RTO burner. A record of each annual RTO burner inspection and all RTO maintenance must be maintained on site readily available for inspection.

c. The Permittee must take corrective action following the discovery of any abnormal operation of the regenerative thermal oxidizer or combustion chamber temperature monitoring system as expeditiously as practicable but no later than 24 hours following detection of abnormal operation.

B. Fuel Burning Equipment

The Permittee is required to conduct a monthly survey of visible emissions emanating from the stacks of all the boilers and co-ray-vac system. If the opacity of the emissions observed appears to exceed 15%, the observer must conduct a certified EPA Reference Method 9 observation. If the observation results in a Method 9 opacity reading in excess of 15%, the Permittee is required to report this to ADEQ as excess emission and initiate appropriate corrective action to reduce the opacity below 15%. The Permittee is required to keep records of the initial survey, any EPA Reference Method 9 observations performed, and corrective action performed.

C. Woodworking Operations

1. The Permittee is required to conduct a monthly survey of visible emissions emanating from baghouses BH-1 and BH-2. If the opacity of the emissions observed appears to exceed 20%, the observer must conduct a certified EPA Reference Method 9 observation. If the observation results in a Method 9 opacity reading in excess of 20%, the Permittee must report this to ADEQ as excess emission and initiate appropriate corrective action to reduce the opacity below 20%. The Permittee is required to keep records of the initial survey, any EPA Reference Method 9 observations performed, and corrective action performed.

2. The Permittee is required to perform a quarterly inspection of all bags in the woodworking baghouse dust control systems, BH-1, BH-2 and BH-3. All defective bags must be replaced as soon as practicable.

IX. COMPLIANCE ASSURANCE MONITORING (CAM) (40 CFR 64)

Finishing lines 1 and 4 capture and control system is subject to CAM requirements as described in the following Table.

CAM Plan for Capture and Control System

	Indicator 1	Indicator 2	Indicator 3
Indicator and its measurement approach	Static pressure on each spray booth in lines 1 and 4	Static pressure at RTO inlet	RTO temperature
Indicator Range	Pressure at each location shall be maintained negative at all times.	Pressure at RTO inlet shall be –3.5 MM water column.	The temperature at RTO shall be maintained greater than 1425 deg F.
QA/QC practices and criteria	Operate and maintain pressure indicators as per manufacturer's specifications.	Operate and maintain pressure indicators as per manufacturer's specifications.	Operate and maintain the temperature indicator as per manufacturer's specifications.
Monitoring Frequency	The static pressure on each spray booth in lines 1 and 4 shall be recorded at least once per line operating day.	The static pressure at RTO inlet shall be continuously recorded on a digital recorder.	The RTO temperature shall be continuously recorded on a digital recorder.
Excursion Range	Each static pressure reading outside the specified range shall be a excursion.	Each period longer than 15 consecutive minutes during which the static pressure is above –3.5 inches water column shall be an excursion.	Each period longer than 15 consecutive minutes during which the RTO temperature is less than 1425 deg F shall be an excursion.
Data Collection Procedure	Recorded by operators on log sheets.	Continuous recording	Continuous recording

X. PERFORMANCE TESTING

A. The Permittee is required to perform an annual compliance test for the destruction efficiency of the Finishing Line 1 and 4 VOC control system in accordance with the procedures and U.S. EPA test methods in 40 CFR 63 Subpart JJ.

B. The Permittee is required to perform VOC control system capture efficiency tests in the first and fourth year of the permit term in accordance with the procedures and U.S. EPA test methods in 40 CFR 63 Subpart JJ. This test will be performed concurrent with the VOC control system destruction efficiency test required. If at any time, the 12-month rolling total of VOC emission rate for Finishing Lines 1 and 4 exceeds 80 percent of the VOC emission limit, the Permittee must perform the test for the capture efficiency of finishing lines 1 and 4 VOC control system annually for the rest of the permit term

C. During each performance test, the Permittee is required to record the readings from each VOC module enclosure static pressure monitoring system and the RTO inlet pressure.

D. The Permittee is required to submit a written report on the results of each required performance test within 30 days following completion of the test.

XI. LIST OF ABBREVIATIONS

A.A.C. ..... Arizona Administrative Code
ADEQ ..... Arizona Department of Environmental Quality

AQD ..... Air Quality Division
Btu/ft^3 ..... British Thermal Units per Cubic Foot
CO ..... Carbon Monoxide
CO_2 ..... Carbon Dioxide
g ..... Grams
HAP ..... Hazardous Air Pollutant
hp ..... Horsepower
hr ..... Hour
IC ..... Internal Combustion
lb ..... Pound
m ..... Meter
MMBtu ..... Million British Thermal Units
NO_x ..... Nitrogen Oxide
NO_2 ..... Nitrogen Dioxide
PM ..... Particulate Matter
PM_{10} ..... Particulate Matter Nominally less than 10 Micrometers
PTE ..... Potential-to-Emit
SO_2 ..... Sulfur Dioxide
TPY ..... Tons per Year
USEPA ..... United States Environmental Protection Agency
VOC ..... Volatile Organic Compound
yr ..... year

TECHNICAL REVIEW AND EVALUATION OF APPLICATION FOR AIR QUALITY PERMIT NUMBER 42868 AMERICAN WOODMARK CORPORATION

I. INTRODUCTION

This Title V renewal permit for Permit No. 1001540 is issued to American Woodmark Corporation (AWC), the Permittee, for operation of wood cabinet manufacturing facility in Kingman, Mohave County, Arizona.

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

B. Attainment Classification

The facility is located in an attainment area for all criteria pollutants.

C. Learning Sites Evaluation

There are no schools within 2 miles of the facility.

D. Background Information

The AWC Kingman facility previously operated as a minor source under Air Quality Class II Permit No. 1000969. The facility was issued a Title V permit (permit No. 1001540) on June 26, 2002, at the Kingman Plant for the expanded coating operations. Subsequently, following permit revisions to Permit No. 1001540 were issued:

- Class I minor revision No. 28507 was issued on September 10, 2003, for consolidation of Lines 2 and 4 operations, thereby eliminating line 2, and limiting the operating hours of the test booth to 876 hours per year.

- Class I minor revision No. 31651was issued on August 27, 2004, for modification of Finishing Line 4 to add more equipment and for conversion of the regenerative catalytic oxidizer, RTO-1, to a regenerative thermal oxidizer.

- Class I significant revision No. 34435 was issued on November 3, 2006, for specifying the minimum operating temperature for the regenerative thermal oxidizer (RTO) necessary to achieve 95% destruction of volatile organic compounds, for addition of new equipment to Lines 3 and 4, and for assigning new equipment numbers to the equipment.

II. FACILITY DESCRIPTION

A. Process Description

The wood kitchen and bath cabinet manufacturing facility is located in Kingman, Mohave County. Pre-fabricated unfinished parts are shipped to the AWC Kingman facility where these parts undergo a series of finishing steps, are assembled, and shipped to customers.

In finishing operations, various finishing materials are applied to unfinished wooden pieces to provide protective coating and to impart desired appearance. The finishing materials primarily consist of volatile organic compounds (VOCs) and volatile hazardous air pollutants (VHAPs), carrying either a pigment, which provides color, or a polymer, which provides a protective coating to the unfinished wooden pieces.

The finishing operations comprise of three finishing lines:

1. Finishing Line 1 - Main Line;
2. Finishing Line 3 - Expedite Line – for low volume manual spray operations
3. Finishing Line 4 – Hybrid line – for application of specialty finishes.

In general, each finishing line involves a series of process steps including some or all of the following:

1. Sanding and cleaning,
2. Coating application (application of stain, toner, sealer, and topcoat in automatic spray booths or roll coaters)
3. Drying (curing ovens)

Following coating operations, finished parts are assembled into complete cabinets and shipped to customers.

B. Air Pollution Control

The VOC and HAP emissions from finishing lines are controlled by:

1. Use of high transfer efficiency coating application equipment (e.g., High Volume-Low Pressure (HVLP) spray guns)
2. Use of low-Hazardous Air Pollutant (HAP) coatings
3. Dry filters or water wash systems to control overspray from the spray booths
4. Use of capture system and regenerative thermal oxidizer (RTO) to control VOC emissions from Finishing Lines 1 and 4.

In addition, the facility utilizes three baghouse dust collection systems for capture and control of particulate matter generated by woodworking and sanding/cleaning operations.

III. COMPLIANCE HISTORY

There have been six on-site facility inspections for the facility. Based on these inspections and file reviews, two cases were initiated in August 2003 and May 2004, respectively.

A. Case Number 26889: Based on a file review completed on June 24, 2003 (Inspection ID 39083), a Notice of Violation was issued on September 2, 2003, for following permit violations:

1. Failure to have the continuous static pressure monitoring device installed in Finishing

Lines 1 & 4 until April 1, 2003, as required under Permit No. 1001540.

2. Failure to log any functional inspection of the regenerative thermal oxidizer from the startup in October 2002 until April 2003.

3. Failure to submit a complete CAM plan within 180 days of permit issuance.

American Woodmark fully documented compliance with these conditions on April 16, 2004, and the NOV was closed on the same day.

B. Case Number 30686: Based on a file review completed on May 19, 2004 (Inspection ID 49212), a Notice of Opportunity to Correct was issued to American Woodmark on May 28, 2004, as the Permittee failed to submit the semi-annual compliance certification by the May 15, 2004, due date. The Permittee fully documented compliance with these conditions on June 10, 2004, and the case was closed on July 19, 2004.

IV. EMISSIONS

The material balance calculations for controlled Finishing Lines 1 & 4, based on 90% capture efficiency and 95% control efficiency, indicate VOC emissions of 148.06 tons/year. Emissions from uncontrolled Finishing Line 3 are estimated to be 43.37 tons per year. VOC emissions from other sources (solvent cleaning, manual glazing, test spray booth, pump house and gas-fired equipment) are estimated to be 13.96 tons per year. Basis of Finishing Lines Emission calculations is as follows:

1. The entire VOC content of the finishing materials and solvents as applied at the facility is assumed to be released upon use.

2. VOC emission calculations are based on the following assumptions: Operating hours: 16 hrs per day; operating days: 260 days per year; operating hours per year: 4160; booth uptime: 80% for automated Lines 1 and 4 and 100% for manual line 3; active automated spray time: 65%, VOC capture efficiency: 90%; RTO destruction efficiency: 95%; and overall VOC control efficiency of 85.5%. For uncontrolled finishing line 3, available spray operation time is reduced by an additional 35% due manual loading/unloading of work pieces. For controlled finishing lines 1 and 4, VOC capture efficiency is taken as 90% and RTO destruction efficiency is taken as 95%, resulting in overall VOC control efficiency of 85.5%.

3. A maximum of 5% of the VOC usage in Finishing Lines 1 and 4 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).

The Permittee is subject to a 226.6 ton per year (tpy) VOC emission limit from the finishing lines (Lines 1and 4: 167.0 tpy, Line 3: 59.6 tpy). VOC emissions from other sources like pumping, cleaning, and natural gas fired equipment, are estimated to be less than 15.0 tons/year. Thus the facility-wide potential-to-emit (PTE) is expected be less than 241 tons per year (below the PSD major source threshold of 250 tons per year (tpy)). All other regulated air pollutant emission rates from the proposed facility are below major source thresholds based on unrestricted potential-to-emit (PTE).

Facility-wide emissions (after controls) are summarized in the following table.

Table-1

Source	ID	NO_x	SO_x	CO	PM_{10}	VOC	HAP
		tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr
Line 1							
Controlled emissions	RTO-1	0.00	0.00	0.00	0.00	103.20	52.12
M28c Oven Exhaust	EXH1	0.00	0.00	0.00	0.00	1.24	0.66
M35c Oven Exhaust	EXH2	0.00	0.00	0.00	0.00	1.24	0.66
M42c Oven Exhaust	EXH3	0.00	0.00	0.00	0.00	1.24	0.66
M52c Oven Exhaust	EXH4	0.00	0.00	0.00	0.00	1.24	0.66
Total Line 1		**0.00**	**0.00**	**0.00**	**0.00**	**108.14**	**54.77**
Line 3							
Spray Booth E1.2	EXH7	0.00	0.00	0.00	0.00	10.84	6.63
Oven E1.4	EXH8	0.00	0.00	0.00	0.00	10.84	6.63
Spray Booth E2.6	EXH9	0.00	0.00	0.00	0.00	10.84	6.63
Oven E2.7	EXH10	0.00	0.00	0.00	0.00	10.84	6.63
Total Line 3		**0.00**	**0.00**	**0.00**	**0.00**	**43.37**	**26.53**
Line 4							
Controlled emissions	RTO-1	0.00	0.00	0.00	0.00	38.42	10.17
Oven H43c Oven Exhaust	EXH12	0.00	0.00	0.00	0.00	0.64	0.30
Oven H50c Oven Exhaust	EXH14	0.00	0.00	0.00	0.00	0.64	0.30
UV Cure Ovens H15, H18	EXH15	0.00	0.00	0.00	0.00	0.22	0.00
Total Line 4		**0.00**	**0.00**	**0.00**	**0.00**	**39.92**	**10.76**
Other emissions							
Solvent Cleaning	Fugitive	0.00	0.00	0.00	0.00	9.84	6.43
Manual Glazing	Fugitive	0.00	0.00	0.00	0.00	0.61	0.03
Test Spray Booth	EXH11	0.00	0.00	0.00	0.00	2.79	2.63
Pump Room Exhaust	EXH13	0.00	0.00	0.00	0.00	0.10	0.05
Co-Ray-Vac heating system	Fugitive	1.11	0.01	0.93	0.08	0.06	0.00
Boilers (gas fired)	PB-1,2,3	5.91	0.04	4.97	0.45	0.33	0.00
Oxidizer	RTO-1	4.38	0.03	3.68	0.33	0.24	0.00
Facility-wide Total		**11.40**	**0.07**	**9.58**	**0.86**	**205.38***	**101.19**

The break-up of major HAPs emissions is as follows:
Toluene: 52.82 tons/yr
Xylenes: 17.13 tons/yr
Methanol: 21.27 tons/yr
*VOC emission are limited to 167.0 tons per year from the lines 1and 4 and 59.6 tpy from line 3.