



NON-TITLE V
TECHNICAL SUPPORT DOCUMENT

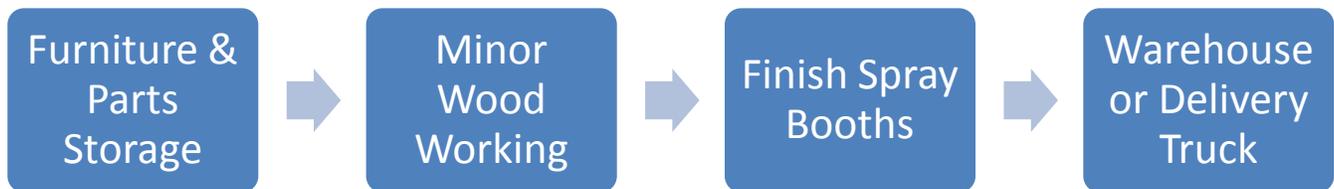
PERMIT NUMBER: 060060
BUSINESS NAME: AF Lorts Manufacturing Company, Inc.
SOURCE TYPE: Wood furniture manufacturing
PERMIT ENGINEER: Henry Krautter

App. ID(s):	410711
Revision(s):	2.0.0.0
Revision Type(s):	Renewal
Date Prepared:	03/09/2016

BACT: Yes **MACT:** No **NSPS:** No **SYNTH MINOR:** Yes **AIRS:** Yes
DUST PLAN REQUIRED: No **DUST PLAN RECEIVED:** No **1 hr**
O&M PLAN REQUIRED: No **O&M PLAN RECEIVED:** No **2 hrs**
PORTABLE SOURCE: No **SITE VISIT:** Yes

PROCESS DESCRIPTION:

The facility coats wood furniture. AF Lorts does not manufacture the furniture, but assembles the parts and then may do minor wood working. The furniture is then coated with a Hi or Low Solid Stain and then a Topcoat & Sealer is applied. The coatings are sprayed on in a spray booth with requirements for the spray gun stated in Permit Condition 5. Strippable booth coatings are used inside the paint spray booths to keep the booths clean from buildup of paint. The coatings are air dried.



The facility exceeded the Volatile Organic Compound (VOC) Best Available Control Technology (BACT) levels in its original application. In a top down BACT analysis, detailed in AF Lort's 2006 application, a thermal oxidizer would be the highest level of control, but the cost would be excessive. The next choice in the BACT analysis was the use of low VOC coatings. Maricopa County accepts the BACT levels California uses in its BACT determinations. In order to comply with BACT AF Lorts agreed to use coatings that meet the San Diego APCD Rule 67.11, Revised May 13, 2013: Wood Coating Operations coatings levels. The VOC emissions from AF Lorts operations are controlled using coatings meeting the San Diego VOC limits. Particulate emissions are controlled by exhaust filters for the spray booths meeting the requirements in Permit Condition 4.c.

PERMIT HISTORY:

Date Received	Revision Number	Description
09/05/2007	0.0.0.0	Submitted application for new permit for furniture manufacturing.
10/07/2009	0.1.0.0	Non-minor modification.
11/19/2009	0.1.1.0	Minor mod.
08/17/2011	1.0.0.0	Permit renewal.
01/28/2016	2.0.0.0	Permit renewal.

PURPOSE FOR APPLICATION:

This is for a permit renewal. There are no requested changes to the current permit.

A. APPLICABLE COUNTY REGULATIONS:

- Rule 100: General Provisions and Definitions
- Rule 200: Permit Requirements
- Rule 220: Non-Title V Permit Provisions
- Rule 100: General Provisions and Definitions
- Rule 200: Permit Requirements
- Rule 220: Non-Title V Permit Provisions
- Rule 241: Permits for New Sources & Modifications to Existing Sources
- Rule 280: Fees Table A subject to BACT
- Rule 300: Visible Emissions
- Rule 315: Spray Coating Operations
- Rule 320: Odors and Gaseous Air Contaminants
- Rule 331: Solvent Cleaning
- Rule 342: Coating Wood Furniture and Fixtures

B. APPLICABLE FEDERAL REGULATIONS:

The site is not subject to 40 CFR 63 Subpart JJ: National Air Emissions Standards for Wood Furniture Manufacturing as it does not emit hazardous air pollutants over 10 tons for any single HAP or 25 tons for total HAPs.

C. AIR POLLUTION CONTROL EQUIPMENT/EMISSION CONTROL SYSTEM(s):

There are no emissions control systems used at this facility other than spray booths with filters. All operations are then vented to the ambient air. No O&M Plan is needed for the paint booths.

D. EMISSIONS:

There have been no changes to the facility, since the permit renewal in 2011, and there has been no change in the emission limits with this renewal. The daily and monthly emission limits were removed, because they are no longer applicable due to changes to the County rules. The source is and will need to continue monthly calculations to comply with the 12 month rolling total.

The VOC limits of coatings in the current permit are from the original permit issuance BACT analysis and are stricter than the County and SIP limits; therefore, those VOC limits were kept.

Facility Emission Limits

Pollutant	Twelve Month Rolling Total Emission Limits (tons per year)
VOLATILE ORGANIC COMPOUNDS (VOC)	90.0
SINGLE HAP	1.0
TOTAL HAPs	2.0
PARTICULATE MATTER <10 MICRON DIAM. (PM ₁₀)	6.0
PARTICULATE MATTER <2.5 MICRON DIAM. (PM _{2.5})	6.0
TOTAL SUSPENDED PARTICULATE (TSP=PM ₁₀)	6.0

VOC Limits of Coatings

Type of Coating	VOC Limit
Topcoat	1.37 (lbs VOC/lb solids)
Sealer	1.39 (lbs VOC/lb solids)
Strippable Booth Coating	0.05 (lbs VOC/lb solids)
Low Solids Stain (less than 1.0 lb solids/gallon)	2.9 (lbs VOC/gallon)
High Solids Stain (greater than 1.0 lb solids/gallon)	2.9 (lbs VOC/lb solids)

E. HAP EMISSION IMPACTS:

Aerscreen Dispersion modeling was performed for the following hazardous air pollutant which exceeded the de minimis levels found in Rule 372:

Formaldehyde

Emission Rate = 2 lb/yr / 8760 hr/yr = 0.0002 lb/hr

The modeling results are found below and detailed modeling results are found in the Appendix. The modeling results for formaldehyde do not exceed the chronic or ambient levels found in County Rule 372.

HAP	12 Month Rolling Total (lbs)	Rule 372 De Minimis (lb/yr)	Exceeds Rule 372 De Minimis Level
Cumene	0	2,583	No
Methyl Isobutyl Ketone (MIBK)	0	19,388	No
Ethyl Benzene	118	6,442	No
Formaldehyde	2	0.90	YES
Glycol Ethers	4	19	No
Methanol	55	25,830	No
Naphthalene	0	0.35	No
Toluene	510	146,766	No
Xylene	561	644	No

HAP	SCREEN3 Modeling Acute Emission Level (µg/m ³)	SCREEN3 Modeling Chronic Emission Level (µg/m ³)	MCAQD Acute Emission Level (µg/m ³)	MCAQD Chronic Emission Level (µg/m ³)
Formaldehyde	3.9E-02	3.9E-03	1.7E+04	1.46E-01

F. PERFORMANCE TESTING:

Performance testing is not required.

APPENDIX:



Lorts Emissions
March 2016.xlsx



AF Lorts HAP
modeling.asz

AF Lorts 12 month Rolling Total Emissions March 2016:

Month/ Year	VOCs (Lbs)	Rolling Total VOCs (Lbs)	Toluene (Lbs)	Rolling Total Toluene (Lbs)	Methanol (Lbs)	Rolling Total Methanol (Lbs)	Xylene (Lbs)	Rolling Total Xylene (Lbs)	Naphthalene (Lbs)	Rolling Total Naphthalene (Lbs)	Cumene (lbs)	Cumene Rolling Total (lbs)	MIBK (Lbs)	Rolling Total MIBK (Lbs)	Ethyl Benzene (Lbs)	Rolling Total Ethyl Benzene (Lbs)	Formal-dehyde (Lbs)	Rolling Total Formal-dehyde (Lbs)	Reportable Glycol Ethers (Lbs)	Rolling Total Reportable Glycol Ethers (Lbs)	Total VHAPs (Lbs)	Rolling Total VHAPs (Lbs)
Jan-15	2,682	33026	39	376	0	12	3	48	0	0	0	0	0	0	1	12	1	1	4	8	48	457
Feb-15	1,973	33952	18	358	0	10	3	45	0	0	0	0	0	0	1	12	0	1	0	8	22	434
Mar-15	665	31687	7	347	0	10	0	45	0	0	0	0	0	0	0	12	0	1	0	7	7	422
Apr-15	2,823	31209	49	362	6	16	4	44	0	0	0	0	0	0	1	12	0	1	1	8	61	443
May-15	3,134	31071	35	366	0	15	5	46	0	0	0	0	0	0	1	12	0	1	2	10	43	450
Jun-15	2,973	31507	35	378	0	14	3	46	0	0	0	0	0	0	1	12	0	1	0	10	39	461
Jul-15	4,149	33157	60	421	1	15	6	48	0	0	0	0	0	0	1	12	0	1	0	10	68	507
Aug-15	4,287	33915	48	415	10	18	133	176	0	0	0	0	0	0	26	37	1	2	0	10	218	658
Sep-15	4,388	34740	77	467	33	51	132	306	0	0	0	0	0	0	32	69	1	2	0	10	275	906
Oct-15	3,430	35279	47	469	0	50	51	355	0	0	0	0	0	0	11	79	0	2	0	10	109	966
Nov-15	2,146	35111	36	475	0	50	45	398	0	0	0	0	0	0	9	87	0	2	0	10	90	1023
Dec-15	2,407	35057	36	487	0	50	41	426	0	0	0	0	0	0	8	92	0	2	0	7	85	1065
Jan-16	2,910	35285	54	502	4	54	63	486	0	0	0	0	0	0	13	104	0	2	0	3	134	1151
Feb-16	3,301	36613	26	510	1	55	78	561	0	0	0	0	0	0	15	118	0	2	1	4	121	1250

MODELING:

TITLE: FORMALDEHYDE

***** STACK PARAMETERS *****

SOURCE EMISSION RATE: 0.252E-04 g/s 0.200E-03 lb/hr
 STACK HEIGHT: 9.14 meters 30.00 feet
 STACK INNER DIAMETER: 1.219 meters 48.00 inches
 PLUME EXIT TEMPERATURE: Ambient
 PLUME EXIT VELOCITY: 30.480 m/s 100.00 ft/s
 STACK AIR FLOW RATE: 75398 ACFM
 RURAL OR URBAN: RURAL
 INITIAL PROBE DISTANCE = 325. meters 1066. feet

***** BUILDING DOWNWASH PARAMETERS *****

NO BUILDING DOWNWASH HAS BEEN REQUESTED FOR THIS ANALYSIS
 ***** PROBE ANALYSIS *****

25 meter receptor spacing: 30. meters - 325. meters

Zo	ROUGHNESS	1-HR CONC	DIST	TEMPORAL
SECTOR	LENGTH	(ug/m3)	(m)	PERIOD
1*	0.300	0.3669E-01	50.0	SPR

* = worst case flow sector

***** MAKEMET METEOROLOGY PARAMETERS *****

MIN/MAX TEMPERATURE: 270.9 / 316.5 (K)
 MINIMUM WIND SPEED: 0.5 m/s
 ANEMOMETER HEIGHT: 10.000 meters
 SURFACE CHARACTERISTICS INPUT: AERMET SEASONAL TABLES
 DOMINANT SURFACE PROFILE: Desert Shrubland
 DOMINANT CLIMATE TYPE: Dry Conditions
 DOMINANT SEASON: Spring
 ALBEDO: 0.30
 BOWEN RATIO: 5.00
 ROUGHNESS LENGTH: 0.300 (meters)
 METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM IMPACT

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF	WS
10	02	28	28	01	-0.56	0.105	-9.000	0.020	-999.	79.	175.2	0.300	5.00	0.30	1.00	
					HT	REF	TA	HT								
					10.0	270.9	2.0									

ESTIMATED FINAL PLUME HEIGHT (non-downwash): 125.1 meters
 METEOROLOGY CONDITIONS USED TO PREDICT AMBIENT BOUNDARY IMPACT

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF	WS
10	01	01	28	12	5.07	0.070	0.100	0.020	7.	42.	-5.6	0.150	10.00	0.45	0.50	
					HT	REF	TA	HT								
					10.0	270.9	2.0									

ESTIMATED FINAL PLUME HEIGHT (non-downwash): 234.5 meters

***** AERSCREEN AUTOMATED DISTANCES *****
 OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE

MAXIMUM

MAXIMUM

DIST (m)	1-HR CONC (ug/m3)	DIST (m)	1-HR CONC (ug/m3)
30.48	0.2638E-01	200.00	0.1888E-01
50.00	0.3669E-01	225.00	0.1700E-01
75.00	0.3660E-01	250.00	0.1534E-01
100.00	0.3007E-01	275.00	0.1429E-01
125.00	0.2606E-01	300.00	0.1400E-01
150.00	0.2318E-01	325.00	0.1361E-01
175.00	0.2096E-01		

***** AERSCREEN MAXIMUM IMPACT SUMMARY *****

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
FLAT TERRAIN	0.3908E-01	0.3908E-01	0.3518E-01	0.2345E-01	0.3908E-02
DISTANCE FROM SOURCE		60.00 meters			
IMPACT AT THE AMBIENT BOUNDARY	0.2638E-01	0.2638E-01	0.2374E-01	0.1583E-01	0.2638E-02
DISTANCE FROM SOURCE		30.48 meters			



NON-TITLE V COMPLETENESS DETERMINATION CHECKLIST

Items 1-15 Front page: Items 1 to 15 (14 for Renewals) must be completed.

Notes to engineer:

- *For renewal applications the source must either answer 'No' to questions 2-5 or submit an application for a permit modification.*
- *Item 8: Many applicants do not know the SIC code or NAICS code for their industry. For a new application the code can be obtained by doing an on-line search. <http://www.osha.gov/pls/imis/sicsearch.html>*
- *Items 5, 7 and 14: These may be the same for many applicants.*

Complete: Incomplete:

Item 16: A simple site diagram has been included, preferably on a standard size paper. Detailed blueprints or construction drawings are not required.

Complete: Incomplete: N/A:

Item 17: A simple process flow diagram on a standard size paper is preferred. A process flow diagram may not be needed for some small businesses.

Complete: Incomplete: N/A:

Item 18: An O&M plan is required only for a control device. An O&M plan is not required for a spray booth. Instead of including the O&M plan with the application, an applicant may submit it after receiving the permit.

Complete: Incomplete: N/A:

Item 19: A dust control plan, if required, must accompany the permit application. The plan will be reviewed and approved by the dust compliance group.

Complete: Incomplete: N/A:

Item 20: The applicant needs to complete only those sections of the permit application that are applicable.

Complete: Incomplete: N/A:

Notes to engineer:

- *Concerning Section Z: Many applicants will not be able to perform these engineering calculations. We will accept the permit application with a blank Section Z.*

Instructions for completing Sections A, B, C, D, E-1, E-2, F, G, H, I, J, K-1, K-2, K-3, K-4, L, M, X-1, X-2, Y and Z of the permit application are included at the beginning of each section and are self-explanatory.

In general, a material safety data sheet (MSDS) is required for each chemical used, stored or processed at the facility. Exceptions are for very common materials, such as gasoline, diesel, acetone, etc.

Business name: AF Lorts Manufacturing Company, Inc

Permit number: 060060

Completeness review completed.

Application determined to be: Complete: Incomplete:

Permit Engineer: Henry Krautter Date: 3/9/2016