

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING and COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 15	PAGE 1
	APPL. NO. Below	DATE 04-24-15
	PROCESSED BY R. Loof	CHECKED BY

Rohr, Inc.
8200 Arlington Ave.
Riverside, CA 92503
ID no.: 800113

Title V Permit Revision Application:
A/N 573192

PERMIT TO CONSTRUCT

EQUIPMENT DESCRIPTION:

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions	Conditions
Process 20: LASER CUTTING					
CUTTER, PRODUCTION LASER, APT #3, FOUR BEAMS, 1,000 WATTS MAXIMUM Reference:A/N: 573142	D295	C297		PM: RULE 405	B59.12, C1.24, D323.1, E57.1, E147.1, E193.2
CUTTER, PRODUCTION LASER, APT #4, FOUR BEAMS, 1,000 WATTS MAXIMUM Reference:A/N: 573143	D296	C297		PM: RULE 405	B59.12, C1.24, D323.1, E57.1, E147.1, E193.2
DUST COLLECTOR, FUMEX, FSC2, THREE STAGE FILTER, WITH TWO 220 SQFT FILTERS, ONE 58 POUND CARBON/ALUMINA ADSORBER. AND ONE HEPA FILTER, WITH A 3.0-HP BLOWER Reference:A/N: 573140	C297	D295 D296		PM: RULE 404	A63.21, C6.19, D322.4, D381.2, E102.1, E153.5, E175.6, E193.2, E193.5, H23.14, K67.1
CUTTER, PRODUCTION LASER, SBS #2, SINGLE BEAM, 220 WATTS MAXIMUM Reference:A/N: 573191	D298	C299		PM: RULE 405	B59.12, C1.20, D323.1, E57.1, E147.1, E193.2
DUST COLLECTOR, FUMEX, FA5, THREE STAGE FILTER, WITH ONE 95 SQFT PLEATED FILTER, ONE 25 POUND CARBON/ALUMINA ADSORBER, AND A HEPA FILTER, AND 0.75-HP BLOWER Reference:A/N: 573145	C299	D298		PM: RULE 404	A63.21, C6.19, D322.4, D381.2, E102.1, E153.6, E175.6, E193.2, E193.6, H23.14, K67.1

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Laser Cutter

Conditions:

B59.12 The operator shall not use the following material's in this device:

Materials containing any toxic air containants (TAC) listed in Table 1 of Rule 1401 except methyl ethyl ketone, with an effective date of September 10, 2010, or earlier.

C1.20 The operator shall limit the material processed to no more than 15 lb(s) in any one calendar month.

For the purposes of this condition, material processed shall be defined as the total weight of material being cut by the laser.

For the purpose of this condition, material processed shall be defined as resin impregnated carbon fiber, resin impregnated fiberglass, epoxy film adhesive, and peel ply material.

To comply with this condition, the operator shall maintain records of the type of material used, total length, width and thickness of the material being cut.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

C1.24 The operator shall limit the material processed to no more than 30 lb(s) in any one calendar month.

For the purposes of this condition, material processed shall be defined as the total weight of material being cut by the laser.

For the purpose of this condition, material processed shall be defined as resin impregnated carbon fiber, resin impregnated fiberglass, epoxy film adhesive, and peel ply material.

To comply with this condition, the operator shall maintain records of the type of material used, total length, width and thickness of the material being cut.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

D323.1 The operator shall conduct an inspection for visible emissions from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions, whenever visible emissions are observed, and on an annual basis, at least, unless the equipment did not operate during the entire annual period. The routine annual inspection shall be conducted while the equipment is in operation and during daylight hours.

if any visible emissions (not including condensed water vapor) are detected that last more than three minutes in any one hour, the operator shall verify and certify within 24 hours that the equipment causing the emission and any associated air pollution control equipment are operating normally according to their design and standard procedures and under the same conditions under which compliance was achieved in the past, and either;

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- 1) Take corrective action(s) that eliminate the visible emissions within 24 hours and report the visible emissions as a potential deviation in accordance with the reporting requirements in Section K of this permit; or
- 2) Have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures in the CARB manual "Visible Emissions Evaluation", within three business days and report any deviations to AQMD.

The operator shall keep the records in accordance with the recordkeeping requirements in Section K of this permit and the following records;

- 1) Stack or emission point identification
- 2) Description of any corrective actions taken to abate visible emissions
- 3) Date and time visible emission was abated, and
- 4) All visible emissions observation records by operator or a certified smoke reader.

E57.1 The operator shall vent this equipment to an air pollution control device which is in full use and which has been issued a permit to construct/operate by the Executive Officer whenever it is in operation.

E147.1 The operator shall only conduct the processing of resin impregnated carbon fiber, resin impregnated fiberglass, epoxy film adhesive, and peel ply material in this equipment.

E193.2 The operator shall construct this equipment according to the following requirements;

This permit shall expire if the construction of this equipment is not complete within one year from the date of the issuance of this permit unless an extension of time has been approved in writing by a District representative.

The operator shall notify a District representative when construction has been completed.

Dust Collector

Conditions:

A63.21 The operator shall limit emissions from this equipment as follows:

Contaminant	Emission limit
Visible emissions	Less than or equal to 0 percent opacity

[RULE 1155, 12-4-2009]

C6.19 The operator shall use this equipment in such a manner that the differential pressure being monitored, as indicated below, does not exceed 6.0 inches water column.

To comply with this condition, the operator shall install and maintain a(n) differential pressure gauge to accurately indicate the differential pressure across the filter media.

The operator shall determine and record the parameter being monitored once every 7 days.

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D322.4 The operator shall perform a monthly inspection of the equipment and filter media for leaks, broken or torn filter media, and improperly installed filter media.

D381.2 The operator shall conduct an inspection for visible emissions from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions, whenever visible emissions are observed, and on an annual basis, at least, unless the equipment did not operate during the entire annual period. The routine annual inspection shall be conducted while the equipment is in operation and during daylight hours. If any visible emissions (not including condensed water vapor) are detected, the operator shall take corrective action(s) that eliminate the visible emissions within 24 hours and report the visible emissions as a potential deviation in accordance with the reporting requirements in Section K of this permit.

The operator shall keep the records in accordance with the recordkeeping requirements in Section K of this permit and the following records;

- 1) Stack or emission point identification
- 2) Description of any corrective actions taken to abate visible emissions
- 3) Date and time visible emission was abated, and

E102.1 The operator shall discharge dust collected in this equipment only into closed containers.

C297

E193.5 The operator shall restrict the operation of this equipment as follows:

The operator shall replace the carbon filter after 39 pounds of material is cut

Records shall be maintained to demonstrate compliance with the amount of materials cut and the carbon filter replacement

C299

E193.6 The operator shall restrict the operation of this equipment as follows:

The operator shall replace the carbon filter after 17 pounds of material is cut

Records shall be maintained to demonstrate compliance with the amount of materials cut and the carbon filter replacement

E175.6 The operator shall not use this equipment unless all exhaust air passes through the following:

A HEPA filter that is individually DOP tested with 0.3 micron particulates and certified to have an efficiency of not less than 99.97%.

E193.2 The operator shall construct this equipment according to the following requirements;

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This permit shall expire if the construction of this equipment is not complete within one year from the date of the issuance of this permit unless an extension of time has been approved in writing by a District representative.

The operator shall notify a District representative when construction has been completed.

H23.14 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
PM	District Rule	1155

K67.1 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s);

The name of the person performing the inspection and/or maintenance of the filter media

The date, time and results of the inspection.

The date, time and description of any maintenance or repairs resulting from the inspection.

BACKGROUND:

Rohr submitted application nos. 573192 (Title V revision), 573140 (Four beam laser Dust collector), 573142(APT No.3 four beam laser cutter), 573143(APT No.4 four beam laser cutter), 573145(Single Beam laser dust collector) and 573191(SBS No.2 single beam laser cutter) on March 10, 2015 for permits to construct. The laser cutters are used to perforate engine housings for sound proofing. The laser cutters are vented to dust collectors that are equipped with an organic absorption media consisting of carbon and alumina.

Rohr is a RECLAIM/Title V facility. A Title V renewal permit was issued to this facility on July 6, 2010. Rohr has proposed to revise their Title V permit by adding two four beam laser cutters, a single beam laser cutter, and two fumex dust collectors used to vent the cutters. This permit revision is considered a “de minimis significant permit revision” to the Title V permit, as described in the Regulation XXX evaluation.

Rohr had been issued a Notice to Comply, NC E25484, on 12/17/2014 to require them to file the RECLAIM Quarterly NOx emission reports in a timely manner and not to report emissions that are not covered under RECLAIM. The facility had complied with the requirements of the NC by the follow-up inspection on 1/21/2015. There are no other Notices to Comply, Notices of Violation or Complaints issued against this facility over the past two years as of April 24, 2015.

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PROCESS DESCRIPTION:

Rohr manufactures aerospace components for commercial and military aircraft. They perform metal and composite material processing, structural bonding and assembly operations. Manufacturing processes conducted at this location include composite bonding, resin curing, core stabilizing, primer and topcoat spray painting, roller coating, degreasing, solvent cleaning, metal surface preparation, abrasive blasting and tooling preparation.

The laser cutting equipment is used to perforate engine housings to dampen noise. The aircraft parts are made up of resin impregnated carbon fibers, resin impregnated fiberglass, epoxy film adhesive and peel ply epoxy resin film. These materials are molded, cured and perforated using the laser cutters.

EMISSIONS CALCULATIONS:

Data from a Source Test conducted on July 11, 2012 is used to calculate the emissions from the two four beam and one single beam laser. The test determined the PM, TGMO and toxic emission from D253(single beam laser) and D260(four beam laser) and C264, a three stage filter. During the test the PM collection system had some problems with the PM trap becoming overloaded. The inlet capture was cut short to 200 minutes but the outlet continued for the full 240 minutes.

To calculate the emissions in pounds emitted per hole cut, the number of holes cut during the test was averaged for the 240 minutes. The hole cuto rate of 19.463 holes cut per minute was used to determine the number of holes made during the 200 minute inlet PM collection test.

The mass removed was based on a 0.043 inch diameter hole and a 0.071 inch thickness of material. The applicant supplied the densities of each layer of laminant material. Permit condition C1.20 compliance log list the material densities.

The number of hole generated during the 200 minute test was:

$$19.463 \text{ holes/minute} \times (200 \text{ minute}) = 3,892.5 \text{ holes cut during the PM inlet test}$$

Total mass per hole:

$$\text{Hole diameter} = 0.043 \text{ in, Area} = 1.4522\text{E-}3 \text{ in}^2$$

$$\text{Material cut} = \text{Area} \times \text{thickness} \times \text{material density}$$

Material Used	Thickness (in)	Vol. (in ³ /hole)	Material Density (lb/in ³)	Material Cut weight (lbs)
Prepreg Carbon	0.065	9.439E-05	0.058	5.4748E-6
Prepreg Glass	0.002	2.904E-06	0.075	2.178E-07
Epoxy Film Adhev	0.002	2.904E-06	2.778E-06	8.0684E-12
Peel Ply	0.002	2.904E-06	6.667E-07	1.934E-12
			Total lb/hole	5.6926E-06
		@3,893 holes	Theoretical mass	0.0222 lbs

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Source Test Data:

3,893 holes cut during the inlet PM test
200 minute test time

Inlet PM

$$0.01288 \text{ lbs/hr}(200 \text{ min.})/(60\text{min/hr})= 0.04293 \text{ lbs PM collected during test}$$

Inlet TGNMO

$$0.00402 \text{ lbs/hr}(200\text{min.})/(60 \text{ min/hr}) = 0.0134 \text{ lbs TGNMO collected during test}$$

Total weight collected: 0.04293 lbs PM + 0.0134 lbs TGNMO = 0.05633 lbs collected

$$(0.0429 \text{ lbs PM})/(0.05633 \text{ lbs tot})(100) = 76.2\%$$

$$(0.0134 \text{ lbs TGNMO})/(0.05633 \text{ lbs tot})(100) = 23.8\%$$

Total Mass per hole emission factor:

$$0.05633 \text{ lbs}/3,893 \text{ holes} = 1.44696\text{E-}05 \text{ lbs total/hole}$$

76.2% PM

23.8 % TGNMO

Operating Schedule: 20 hours/day, 6 days/week, 50 weeks/year

Laser Cutter: Application No. 573142 & 573143

Source /test July 10, 11 & 12, 2012 generated 15,301 holes over three 240 minute intervals for a 5 hole per second system.

$$(15,301 \text{ holes})/(240 \text{ minutes})/(60 \text{ minutes/hr})=3,825 \text{ holes/hr}$$

Each new laser is capable of 4 holes per second.

$$3,825 \text{ holes/hr}(4\text{holes}/5\text{holes}) = 3,060 \text{ holes/hr.}$$

PM10 Emissions: Each Laser

Source Test indicated a 98% removal efficiency

$$R1 = 3,060 \text{ holes/hr}(1.44696\text{E-}05 \text{ lbs Total/hole})(0.762) = 0.0337 \text{ lb PM10/hr}$$

$$= 0.674 \text{ lb PM10/day}$$

$$R2 = 0.0337 \text{ lbs PM10}(1-0.98) = 0.00067 \text{ lb PM10/hr}$$

$$= 0.0134 \text{ lb PM10/day}$$

VOC Emissions: Each Laser

Source Test indicated a 57.7% removal efficiency

$$R1 = 3,060 \text{ holes/hr}(1.44696\text{E-}05 \text{ lbs Total/hole})(0.238) = 0.01054 \text{ lb VOC/hr}$$

$$= 0.211 \text{ lb VOC/day}$$

$$R2 = 0.010544 \text{ lbs PM10}(1-0.577) = 0.00446 \text{ lb VOC/hr}$$

$$= 0.0892 \text{ lb VOC/day}$$

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Laser Cutter: Application No. 573191

Laser is capable of one hole per second.

$$3,825 \text{ holes/hr} (1 \text{ hole}/5 \text{ holes}) = 765 \text{ holes/hr.}$$

PM10 Emissions:

Source Test indicated a 98% removal efficiency

$$R1 = 765 \text{ holes/hr} (1.44696E-05 \text{ lbs Total/hole}) (0.762) = 0.00843 \text{ lb PM10/hr}$$

$$= 0.169 \text{ lb PM10/day}$$

$$R2 = 0.00843 \text{ lbs PM10} (1 - 0.98) = 0.00017 \text{ lb PM10/hr}$$

$$= 0.0034 \text{ lb PM10/day}$$

VOC Emissions:

Source Test indicated a 57.7% removal efficiency

$$R1 = 765 \text{ holes/hr} (1.44696E-05 \text{ lbs Total/hole}) (0.238) = 0.00263 \text{ lb VOC/hr}$$

$$= 0.0526 \text{ lb VOC/day}$$

$$R2 = 0.00263 \text{ lbs PM10} (1 - 0.577) = 0.00111 \text{ lb VOC/hr}$$

$$= 0.0222 \text{ lb VOC/day}$$

Project Total:

Total PM10 = 0.0302 lb/day

Total VOC = 0.2 lb/day

RISK ASSESSMENT

The source test conducted on July 10-12, 2012 speciated toxic contaminants. The test generated inlet and outlet emissions for contaminants that were below detection limits. The contaminants used for this risk assessment were those listed above the detection limits for the inlet concentrations even though the outlet emissions were below detection. When both inlet and outlet were below detection, that emissions data was not usable and not included in the risk. The highest emission rate for all three runs for the controlled exhaust emissions are listed below.

The exhaust volume during the source test was between 75.5 acfm to 78.0 acfm. The proposed Fumex FA5 has an exhaust capacity of 210 cfm to 385 cfm. The proposed FSC2 has an exhaust capacity of 930 cfm. Since the source test values are based on parts per billion (ppb) and significantly lower air volumes, the toxic emissions will be ratioed according to the maximum exhaust volumes and number of beams. The adjusted value will be listed in the adjusted toxic emission column.

Conditions C1.20 and C1.24 limit the material cut to 15 pounds and 30 pounds per month. Based on the theoretical mass per hole and a 30 day average per month and a 20 hour per day operating schedule, the 15 pounds and 30 pounds per month are equivalent to the following holes per hour:

$$(15 \text{ lbs Material/month}) / (5.692E-06 \text{ lbs material/hole}) / (30 \text{ day ave/month}) / (20 \text{ hours/day}) = 4,392 \text{ holes/hr}$$

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$(30 \text{ lbs Material/month}) / (5.692\text{E-}06 \text{ lbs material/hole}) / (30\text{day ave/month}) / 20\text{hours/day} = 8,784\text{holes/hr}$

The test data was based on a 3,825 holes/hour. The monthly material cut limit would increase the estimated toxic emission by the following factors:

15 lbs Mat./month
 $4,392 \text{ hole} / (3,825 \text{ holes}) = 1.15$

30 lbs Mat./month
 $8,784 \text{ holes} / (3825 \text{ holes}) = 2.30$

The outlet emissions listed below will be adjusted for the increase ventilation potential and the monthly material cut limitation for the new FA5 venting a single beam as follows:

FA5 Adjustment:
Outlet emissions adjustment = Volume increase)(Material limit)(# of beams)
 $= (385\text{cfm}/76.4\text{cfm})(1.15)(1\text{beam}/5\text{beam})$
 $= 1.16$

The outlet emissions listed below will be adjusted for the increase ventilation potential and the monthly material cut limitation for the new FSC2 venting a single four beam as follows:

FSC2 Adjustment:
Outlet emissions adjustment = Volume increase)(Material limit)(# of beams)
 $= (930\text{cfm}/76.4\text{cfm})(2.30)(4\text{beam}/5\text{beam})$
 $= 22.40$

July 2012 source test Speciated outlet Emission:

Contaminant	CAS#	Outlet emissions (lbs/hr)	Adjusted FA5 Toxic Emissions (lbs/hr)	Adjusted FCS2 Toxic Emissions (lbs/hr)(each laser)
1,3 Butadiene	106-99-0	9.48E-07	1.10E-06	2.12E-05
Bromomethane	74-83-9	3.95E-06	4.58E-06	8.85E-05
Isopropyl Alcohol	67-63-0	2.96E-06	3.43E-06	6.63E-05
Methylene Chloride	75-09-2	1.87E-04	2.17E-04	4.19E-03
Carbon Disulfide	75-15-0	3.59E-06	4.16E-06	8.04E-05
n-Hexane	110-54-3	4.33E-05	5.02E-05	9.70E-04
Benzene	74-32-1	1.45E-06	1.68E-06	3.25E-05
Toulene	108-88-3	1.11E-06	1.29E-06	2.49E-05

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Ethylbenzene	100-41-4	1.51E-06	1.75E-06	3.38E-05
m+p Xylene	1330-20-7	2.68E-06	3.11E-06	6.00E-05
Styrene	100-42-5	1.26E-06	1.46E-06	2.82E-05
Acrylonitrile	107-13-1	1.34E-06	1.55E-06	3.00E-05
Propene	115-07-1	6.22E-06	7.22E-06	1.39E-04
2-Butanone	78-93-3	5.84E-05	6.77E-05	1.31E-03
methanol	67-56-1	1.91E-04	2.22E-04	4.28E-03
PAH*	1150&1151	6.38E-09	7.40E-09	1.43E-07
Hydrogen Cyanide*	74-90-8	1.57E-05	1.82E-05	3.52E-04

*The emissions rate for these compounds are calculated below and adjusted.

PAH(carcinogenic) & HCN (uncontrolled)
240 minute/run

Run	Run #1	Run#2	Run#3	Average
# holes	4893	4671	5737	5,100
Holes/hr	1223.3	1167.8	1434.3	1,275

Total

PAH (lbs/hr)	6.47E-09	6.57E-09	6.11E-09	6.38E-09
HCN (lbs/hr)	1.76E-05	1.41E-05	1.54E-05	1.57E-05

Laser Cutter Risk:

Risk screening was performed using the Risk Assessment spread sheets in the appendix. Nearest residential 131 meters and nearest commercial is 78 meters with the adjusted toxic emission listed above.

Application no. 573191 SBS#2 single beam laser:

The estimated toxic emissions from this device demonstrated passage of Tier 1 with the following results:

Cancer/Chronic ASI	Acute ASI
6.68E-01	8.64E-05
Passed	Passed

Application no. 573142 APT#3 & 573143 APT#4 four beam lasers:

The estimated toxic emissions from each device demonstrated passage of Tier 2 with the following results:

MICR Residential	Commercial
3.3E-07	1.59E-07
Passed	Passed

The hazard index was less than one for each targeted organ

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Carbon Filter Change-Out:

Total Mass per hole emission factor:

$$0.05633 \text{ lbs}/3,893 \text{ holes} = 1.44696\text{E-}05 \text{ lbs total/hole}$$

$$76.2\% \text{ PM}$$

$$23.8\% \text{ TGNMO}$$

A/N: 573140, C297, Model FSC2

58 lbs carbon

Assume 20% retentivity

11.6 lbs TOG capacity

$$(11.6 \text{ lbs TOG})/[(1.44696\text{E-}05 \text{ lbs total/hole})(0.238 \text{ lbs TOG/lbs total})]$$

$$= 3.3684\text{E+}06 \text{ holes})(1.44696\text{E-}05\text{lbs total/hole})$$

$$= 48.73 \text{ lbs total composite burned before saturation of carbon bed}$$

20% margin

$$= 48.73 \text{ lbs total}(1-0.20)$$

$$= 39 \text{ lbs total}$$

C297 will be conditioned to replace the carbon module for every 39 pounds of material cut

A/N: 573145, C299, Model FA5

25 lbs carbon

Assume 20% retentivity

5.0 lbs TOG capacity

$$(5.0 \text{ lbs TOG})/[(1.44696\text{E-}05 \text{ lbs total/hole})(0.238 \text{ lbs TOG/lbs total})]$$

$$= 1.4519\text{E+}06 \text{ holes})(1.44696\text{E-}05\text{lbs total/hole})$$

$$= 21.01 \text{ lbs total composite burned before saturation of carbon bed}$$

20% margin

$$= 21.01 \text{ lbs total}(1-0.20)$$

$$= 17 \text{ lbs total}$$

C299 will be conditioned to replace the carbon module for every 17 pounds of material cut

RULE ANALYSIS

Rule 212 (c)(1): This section requires a public notice for all new or modified permit units that emit air contaminants located within 1,000 feet from the outer boundary of a school. The facility is not located within 1,000 feet of the outer boundary of a school.

Rule 212(c)(3):This section requires a public notice for all new or modified permit units with increases in emissions of toxic air contaminants listed in Table I of Rule 1401 resulting in a cancer risk equal or greater than one in a million. The proposed addition of the new laser cutters with PM10 and VOC control systems will result in a increase in toxic emissions. However, the increase pass the Tier two Risk assessment with no increased MICR in excess of one in a million and the chronic/acute health hazard risk from this project will remian below 1.0.

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Rule 212(g): This section requires a public notice for all new or modified sources that result in emission increases exceeding any of the daily maximums as specified by Rule 212(g). The proposed addition of the new laser cutters will not result in an emission increase exceeding the daily maximums.

	Maximum Daily Emissions					
	ROG	NO_x	PM₁₀	SO₂	CO	Pb
Emission increase	0.2	0	0.03	0	0	0
MAX Limit (lb/day)	30	40	30	60	220	3
Compliance Status	Yes	Yes	Yes	Yes	Yes	Yes

Rules 401 & 402: Particulate emissions from the laser cutters are being vented to an air pollution control system consisting of a prefilter, a panel filter, and a hepa filter for particulate emission control and a carbon adsorber for any VOC emission control. With the proper operation and maintenance, compliance with this rule is expected.

Rule 404: A/n573145 FA5, The flow rate from the multi-stage filtration control equipment is specified at 385 cfm. Particulate emissions are 1.7E-04 lbs PM10/hr.

$$1.7E-04 \text{ lbs/hr}(\text{hr}/60\text{min})(7000\text{gr}/\text{lb})/(385\text{ft}^3/\text{min}) = 5.15E-05 \text{ gr}/\text{ft}^3$$

Rule 404 specifies that the particulate emission concentration for air flow rates of less than 883 cfm shall not exceed 0.196 grains/cf. The emissions from the multi-stage filtration unit are less than this limit.

A/n573140 FSC2, The flow rate from the multi-stage filtration control equipment is specified at 930 cfm. Particulate emissions are 6.7E-04 lbs PM10/hr per laser.

$$6.7E-04 \text{ lbs/hr}(2 \text{ lasers})(\text{hr}/60\text{min})(7000\text{gr}/\text{lb})/(930\text{ft}^3/\text{min}) = 1.68E-04 \text{ gr}/\text{ft}^3$$

Rule 404 specifies that the particulate emission concentration for air flow rates of less than 1059 cfm shall not exceed 0.183 grains/cf. The emissions from the multi-stage filtration unit are less than this limit.

Compliance with this rule is expected.

Rule 405: The particulate emissions from the laser cutter are less than the limits specified in this rule of 0.99 lbs/hr. Compliance with this rule is expected.

Rule 1155: The emissions from the laser cutter will be vented to an air pollution control system consisting of a dust collector and HEPA filter. The dust collector is tier 1. Permit

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conditions require the operator to install and operate a pressure gauge with a pressure drop limit; monitor and record the pressure drop across the filters on a weekly basis; and inspect the filters on a monthly basis for leaks, broken or torn filter media, and improperly installed filter media. Therefore, the operation of the air pollution control equipment with the above specified conditions will ensure compliance with the Rule.

Rule 1303(a): PM emissions from the laser cutters are vented to a dust collector and HEPA filters, VOC emissions are controlled by a carbon filter which satisfies BACT requirements.

Rule 1303(b)(1): Laser cutter hourly PM10 emissions are well below 0.41 lb/hr. Modeling is not required.

Rule 1303(b)(2): Emission offsets are not required since the total PM10 and VOC emissions associated with this project are less than 0.42 lbs/day.

Rule 1303(b)(4): The facility is expected to be in full compliance with all applicable rules and regulations of the District.

Rule 1401: Toxics: Rule 1401 contains the following requirements:

- 1) *(d)(1) MICR and Cancer Burden* - The cumulative increase in MICR which is the sum of the calculated MICR values for all toxic air contaminants emitted from the new, relocated or modified permit unit will not result in any of the following:
 - (A) an increased MICR greater than one in one million (1.0×10^{-6}) at any receptor location, if the permit unit is constructed without T-BACT;
 - (B) an increased MICR greater than ten in one million (1.0×10^{-5}) at any receptor location, if the permit unit is constructed with T-BACT;
 - (C) a cancer burden greater than 0.5.
- 2) *(d)(2) Chronic Hazard Index* - The cumulative increase in total chronic HI for any target organ system due to total emissions from the new, relocated or modified permit unit will not exceed 1.0 at any receptor location.
- 3) *(d)(3) Acute Hazard Index* - The cumulative increase in total acute HI for any target organ system due to total emissions from the new, relocated or modified permit unit will not exceed 1.0 at any receptor location.

According to the information that were submitted with these applications, Rohr, Inc. will be using material that contains toxic air contaminants (TAC) identified in Table 1 of Rule 1401.

The laser cutter will be conditioned such that it will not be permitted to use any material containing any toxic air contaminants listed under Rule 1401 as amended Sept 10, 2010 except methyl ethyl ketone.

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Risk screening was performed using the Risk Assessment spread sheets.
Application no. 573191 SBS#2 single beam laser:

The estimated toxic emissions from this device demonstrated passage of Tier 1 with the following results:

Cancer/Chronic ASI	Acute ASI
6.68E-01	8.64E-05
Passed	Passed

Application no. 573142 APT#3 & 573143 APT#4 four beam lasers:

The estimated toxic emissions from each device demonstrated passage of Tier 2 with the following results:

MICR Residential	Commercial
3.3E-07	1.59E-07
Passed	Passed

The hazard index was less than one for each targeted organ

REGULATION XXX

The proposed project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants and hazardous air pollutants, and a “minor permit revision” for RECLAIM pollutants to the Title V permit issued to this facility.

Rule 3000(b)(6) defines a “de minimis significant permit revision” as any Title V permit revision where the cumulative emission increases of non-RECLAIM pollutants or hazardous air pollutants (HAP) from these permit revisions during the term of the permit are not greater than any of the following emission threshold levels:

Air Contaminant	Daily Maximum (lb/day)
HAP	30
VOC	30
NOx	40
PM10	30
SOx	60
CO	220

To determine if a project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants or HAPs, emission increases for non-RECLAIM pollutants or HAPs resulting from all permit

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revisions that are made after the issuance of the Title V renewal permit shall be accumulated and compared to the above threshold levels. This proposed project is the 10th permit revision to the Title V renewal permit issued to this facility on July 6, 2010.

Revision	HAP	VOC	NO _x *	PM ₁₀	SO _x	CO
Previous Permit Revision Total	0	4	12	0	0	9
10th Permit Revision; Addition of laser cutters (D295, D296 & D298), Dust collectors (C297 & C299)	0	0	0	0	0	0
Cumulative Total	0	4	12	0	0	9
Maximum Daily	30	30	40*	30	60	220

* RECLAIM pollutant, not subject to emission accumulation requirements

Since the cumulative emission increases resulting from all permit revisions are not greater than any of the emission threshold levels, this proposed project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants or HAPs.

RECLAIM Pollutants

Rule 3000(b)(12)(A)(v) defines a “minor permit revision” as any Title V permit revision that does not result in an emission increase of RECLAIM pollutants over the facility starting Allocation plus nontradeable Allocations, or higher Allocation amount which has previously undergone a significant permit revision process.

Since NO_x is a RECLAIM pollutant for this facility, a separate analysis shall be made to determine if the proposed permit revision is considered a “minor permit revision” for RECLAIM pollutants. The proposed installation of the laser cutters and associated air pollution control systems will not result in an increase in NO_x emissions. As a result, this proposed project is considered as a “minor permit revision” for RECLAIM pollutants.

RECOMMENDATION

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants and hazardous air pollutants, and a “minor permit revision” for RECLAIM pollutants, it is exempt from the public participation requirements under Rule 3006 (b). A proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not raise any objections within the review period, a revised Title V permit with conditions (as specified in the sample facility permit) will be issued to this facility.