



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Engineering and Compliance Office

APPLICATION PROCESSING AND CALCULATIONS

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De Minimis Significant Title V Permit Revision
 RECLAIM Permit Revision
 Permit to Construct (Section H)
 Laser Cutter and Control Equipment

Legal Owner
 or Operator: ROHR, INC.
 8200 ARLINGTON AVE
 RIVERSIDE, CA 92503

ID: 800113

Equipment
 Location: 8200 ARLINGTON AVE, RIVERSIDE, CA 92503

Equipment Description:

A/N: 496101 Title V/RECLAIM Permit Revision

| Equipment | ID No. | Connected To | Source Type/ Monitoring Unit | Emissions * And Requirements | Conditions |
|--|--------|--------------|---------------------------------|---------------------------------|--|
| Process 20: Laser Cutting | | | | | |
| CUTTER, R & D PROTOTYPE, LASER, MODEL NO. YLP-1/100/20, 220 WATTS MAXIMUM A/N: 496102 | D248 | C249 | | PM: RULE 405 | B59.1, C1.20, D323.1, E57.1, E147.1, E193.2 |
| DUST COLLECTOR, FUMEX, FA1, WITH ONE POLYESTER PREFILTER, ONE MERV 11 PANEL FILTER, ONE HEPA, & ONE 5 POUND ADSORBER (CARBON AND ALUMINUM IMPREGNATED POTASSIUM PERMANGANATE) A/N: 496103 | C249 | D248 | | PM: RULE 404 | C6.19, D29.1, D90.2, D322.4, D381.2, E102.1, E193.2, K67.1 |

History

The company manufactures commercial and military aircraft components. There are no records of Notice of Violations or Citizen Complaints filed against this facility during the last two years. However, the company was issued a Notice to Comply on September 19, 2008 requiring the applicant to submit the semi-annual monitoring and the APEP reports. The applicant submitted the reports by the due



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dates and is currently operating in compliance with the rules and regulations.

In this project, the company is proposing to add a new laser cutting machine and an associated air pollution control equipment consisting of a pre filter, panel filter, HEPA filter, and an adsorbent containing five pound of blended activated carbon and activated alumina impregnated with potassium permanganate. Negligible emissions are expected from the proposed equipment since the proposed setup will only be a prototype of future full-scale production equipment, which will be added to the facility once all needed tests are completed. Therefore, this project is considered a De Minimis Significant permit revision to the RECLAIM/Title V facility permit.

Process Description

The above laser cutting equipment is a prototype and will be used to conduct preliminary testing and collecting necessary data for building much larger size equipment to be used for a full production in the future.

A permit to construct, instead of a permit to operate, is being proposed so that the company will have the opportunity to conduct source testing to determine PM, VOC, and TAC emissions (if any) from the laser cutting operation.

The proposed laser cutter D248 will be used to cut precision 0.043"-diameter holes at depth from 0.03" to 0.08" on a substrate that is made from resin impregnated carbon fiber materials known as prepreg Hexcel Hexply 8552. Each substrate is a 12" X 12" test panel. The company is proposing to process a maximum of ten test panels per day.

Emissions from the laser cutting operation will be vented to a multi-stage air pollution control system, Fumex FA1 (see C249 description), which includes pre filter, a panel filter and a HEPA filter for particulate emission control and a carbon adsorber for VOC emission control. The adsorbing filter contains five pounds of blended activated carbon with activated aluminum impregnated with potassium permanganate.

Both laser cutter and control unit are located inside an enclosed room. The treated air from C249 is returned to workplace inside the enclosed room (not vented outside).

The following is the proposed operating schedule:

| | Hr/dy | dy/wk | wk/yr |
|---------|-------|-------|-------|
| Normal | 11 | 5 | 35 |
| Maximum | 24 | 7 | 52 |



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Emission Calculations

There will be a total of 5,184 holes to be cut per panel by the laser machine. The maximum cut depth is 0.08" and the maximum cut diameter is 0.043".

Volume per hole

$$= (0.043/2)^2 * \pi * 0.08 \text{ inch}^3/\text{hole} = 0.000116176 \text{ inch}^3/\text{hole}$$

Total Volume

$$= 5,184 \times 0.000116176 \text{ inch}^3 = 0.602256883 \text{ inch}^3$$

$$= 0.602256883/231 \text{ gal} = 0.002607173 \text{ gal}$$

Total Mass of Materials Removed per Day:

$$= 10/\text{day} \times 13.4 \text{ lb/gal} \times 0.002607173 \text{ gal} = 0.35 \text{ lb/day}$$

For a worst case scenario, 99% of removed materials are PM10 and 1% of removed materials are VOC (based on Hexply 852 prepreg MSDS). Therefore, the following data have been entered for AEIS and NSR:

AEIS=NSR

$$\text{PM10 (MHU)} = 0.35(99\%)/24 \text{ lb/hr} = 0.014 \text{ lb/hr}$$

$$\text{PM10 (MHC)} = 0.014 (1-99.75\%) \text{ lb/hr} = 0.000035 \text{ lb/hr}$$

$$\text{ROG (MHU)} = 0.35(1\%)/24 \text{ lb/hr} = 0.00014 \text{ lb/hr}$$

$$\text{ROG (MHC)} = 0.00014 \text{ lb/hr}$$



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Rule Evaluation

Rule 212(c)(1): This section requires a public notice for all new or modified permit units that may emit air contaminants located within 1,000 feet from the outer boundary of a school.

Since no school is located within 1,000 ft from the proposed equipment, a public notice will not be required.

Rule 212(c)(2): This section requires a public notice for all new or modified facilities that have on-site emission increases exceeding any of the daily maximums as specified by Rule 212(g).

| | Controlled Emissions (lb/dy) | | | | | |
|-------------------|------------------------------|-----------------------|------------------------|-----------------------|-----------|-----------|
| | <u>ROG</u> | <u>NO_x</u> | <u>PM₁₀</u> | <u>SO₂</u> | <u>CO</u> | <u>Pb</u> |
| | 0 | 0 | 0 | 0 | 0 | 0 |
| MAX Limit | 30 | 40 | 30 | 60 | 220 | 3 |
| Compliance Status | Yes | Yes | Yes | Yes | Yes | yes |

The above table summarizes the emission limits and increases. Since emission increases are less than the limits, a public notice will not be required.

Rule 212(c)(3): There will be no increases in TACs. Thus, a public notice will not be required.

Rule 401: Visible emissions are not expected with the proper operation of the equipment.

Rule 402: Nuisance is not expected with the proper operation of the equipment.

Rule 1303(a): The emissions from the laser cutter will vented to an air pollution control system consisting of a pre filter, a panel filter and a HEPA filter for particulate emission control and a carbon adsorber for VOC emission control which satisfies BACT requirements.

Rule 1303(b)(1)& 2005: In order to be exempted from modeling requirement, the calculated value indicated below must be less than limits:



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| Rating (BTU/hr) | NO _x (lb/hr) Limit | CO (lb/hr) Limit | PM ₁₀ (lb/hr) Limit | NO _x (lb/hr) Calculated (RULE 2005) | CO (lb/hr) Calculated (RULE 1303) | PM ₁₀ (lb/hr) Calculated (RULE 1303) |
|--------------------|-------------------------------------|------------------------|--------------------------------------|---|--|--|
| Non combustion | 0.068 | 3.7 | 0.41 | 0 | 0 | 0 |
| <2 | 0.2 | 11.0 | 1.2 | | | |
| >2 <5 | 0.31 | 17.1 | 1.9 | | | |
| >5 <10 | 0.47 | 25.9 | 2.8 | | | |
| >10 <20 | 0.86 | 47.3 | 5.2 | | | |
| >20 <30 | 1.26 | 69.3 | 7.6 | | | |
| >30 <=40 | 1.31 | 72.1 | 7.9 | | | |

Further air quality modeling analysis for PM₁₀ will not be needed since the PM₁₀ calculated value is less than the screening limit.

Rule 1303(b)(2): The following summarizes the estimated emission increases from this project:

| Controlled Emissions (lb/dy) | | | | | | |
|------------------------------|-----|-----------------|------------------|-----------------|----|----|
| | ROG | NO _x | PM ₁₀ | SO ₂ | CO | Pb |
| | 0 | 0 | 0 | 0 | 0 | 0 |

Since the emission increase from the proposed equipment is negligible, no offsets will be required.

Rule 1401: Compliance is expected. TAC emissions are not expected from the proposed equipment. A source test condition is being imposed on this permit requiring the applicant to conduct a speciated analysis for organic compounds using GC/MS to substantiate the above.



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Regulation XXX Evaluation

The proposed project is considered as a "De Minimis significant permit revision" to the Title V renewal permit issued to this facility on 5-9-05. 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 (lbs/day) |
|------------------|-------------------------|
| HAP | 30 |
| VOC | 30 |
| NO _x | 40 |
| PM ₁₀ | 30 |
| SO _x | 60 |
| CO | 220 |

Rule 3003(j) specifies that a proposed permit for the Title V renewal permit shall be submitted to EPA for review. To determine if a project qualifies for a "De Minimis significant permit revision", emission increases resulting from all permit revisions that are made after the renewal date of 5-9-05 shall be accumulated and compared to the above threshold levels. The cumulative emission increases resulting from the proposed permit revision are summarized as follows:

Previous permit revisions (1st to 5th)

6th Revision, Adding Laser Cutter and Control Equipment

Cumulative Total

Maximum Daily Thresholds (lbs per day)

| HAP | VOC | NO _x * | PM ₁₀ | SO _x | CO |
|-----|-----|-------------------|------------------|-----------------|----|
| 0 | 4 | 12 | 0 | 0 | 9 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 4 | 12 | 0 | 0 | 9 |
| 30 | 30 | 40 | 30 | 60 | 22 |

*RECLAIM pollutant (Rohr Inc. is in NOx RECLAIM program)

Since NO_x is a RECLAIM pollutant for this facility, an analysis must be made to ensure that the proposed permit revision is not considered a "significant permit revision". Rule 3000(b)(28)(D) defines a "significant permit revision" as any modification at a RECLAIM facility that results in an emission increase of RECLAIM pollutants over the facility's starting allocation plus the non-tradable allocations. With no increase of NO_x emissions from the proposed permit revision, the total NO_x emissions from this facility is expected to be less than the starting allocation plus the non-tradable allocations. As a result, the proposed permit revision is not considered as a "significant permit revision".



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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", 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 have any objections within the review period, a revised Title V permit will be issued to this facility with the following proposed permit conditions:

Device D248:

Conditions: B59.10
C1.20
D323.1
E57.1
E147.1
E193.2

Device C249:

Conditions: C6.19
D29.1
D90.2
D322.4
D381.2
E102.1
E193.2
K67.1

Please see the attached Section H of the facility permit for condition wordings.