PO no PC

Abrasive Blasting Equipment with Integral Dust Collector

Legal Owner or Operator: SIERRACIN/SYLMAR CORP
12780 SAN FERNANDO RD.
SYLMAR, CA 91342

ID: 149814

Equipment Location: 12780-82 SAN FERNANDO RD, SYLMAR, CA 91342

Equipment Description:
A/N 533643
Title V Permit Revision (non RECLAIM)

SECTION D

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
Process 3: ABRASIVE BLASTING					
ABRASIVE BLASTING ROOM, WITH SELF-CONTAINED ABRASIVE BLAST CLEANING MACHINE, ALUMINUM OXIDE, PAULI SYSTEMS, VR2-E, 5 LBS CAP, 0.375 IN NOZZLE, WIDTH: 7 FT 7 IN; LENGTH: 9 FT 7 IN; HEIGHT: 8 FT.WITH	D33			**PM**: (9) [**RULE 1140, 2-1-1980;** *RULE 1140, 8-2-1985;* **RULE 405, 2-7-1986**]	B59.1, ~~C1.8, C1.9, D28.1, D323.1~~, D323.2, H23.9
DUST COLLECTOR, PAULI SYSTEMS, WITH CYCLONE SEPARATOR, INTEGRAL, 9 BAGS, EACH 4 IN DIA. X 21 IN H. WITH FABRIC FILTER A/N: ~~462122~~ 558474	C70			**PM**: (9) **RULE 404, 2-7-1986**]	A63.14, D322.2, D381.1, E102.1, H23.10, K67.4

History

The company operates a Title V non RECLAIM facility that manufacture military/commercial aircraft canopies and windows made of clear acrylic materials. Protective transparent films are flow coated on to clear acrylic substrates inside clean rooms with dedicated flow coater(s) in each room. Coated parts are cured by air dried, portable IR-lamp curing bank(s), portable UV-robotic curing system(s), or by a UV curing conveyor. The abrasive blasting

equipment is used for cleaning small bushings, identification plates for aircraft canopies and windows.

The abrasive blasting room operating under device D33 was originally permitted to the previous owner (ID No. 20690) under A/N 298860. The unit consisted of an abrasive blasting nozzle and an abrasive media pot. The unit was not equipped with air pollution control equipment to control PM emissions from the blasting operation. As a result, the permit was issued with limitation on the amount of abrasive media that can be used in the equipment. In addition, since compliance with rules 404 Particulate Matter-Concentration and 405-Solid Particulate Matter-Weight is difficult to achieve without a PM control system, a permit condition was imposed requiring the applicant to source test the equipment once every five years to demonstrate compliance with rules 404-Particulate Matter-Concentration and 405-Soilid Particulate Matter-Weight.

The applicant has since modified the operation by using a closed cycle abrasive blasting cleaner with integral control system. During a field evaluation conducted on 8-22-2013, I verified that the abrasive blasting unit is equipped with a cyclone separator and filters and are integral to the blasting equipment. The actual changes to the equipment can be summarized as follows:

	Make	*Model*	*Capacity*	*Serial No.*
Permitted Equipment	*Dry Honer Co.*	*JR-S-E* *JR-SPN*	*3 gallons* *3 gallons*	*C711018* *unknown*
Current Equipment	*Pauli Systems Inc.*	*VR2-E*	*5 pounds*	*720657*

A review of District compliance records indicates that there are no complaints filed against the company in the last two years. However, the facility was issued a Notice to Comply requiring the applicant to register a charbroiler and a chiller as required under District Rule 222. In addition, a Notice of Violation was issued to the facility for not testing the abrasive blasting room within one year as specified in permit conditions. Both notices were issued on June 25, 2013. The applicant has since complied with the notices and is currently operating in compliance.

Process Description

The abrasive blasting equipment is primarily used to create letters and graphics on acrylic aircraft canopies as part of identification required by the FAA. The surface areas to be blasted

for each batch is very small, less than one square foot total. In addition the equipment is also used for cleaning small bushings. The PM emissions are negligible with zero visible emissions observed during each the sand blasting operation.

The abrasive blasting equipment which houses the abrasive media pot, the cyclone separator, and dust collector is located outside the blasting room. The abrasive blasting nozzle is housed in a nozzle/vacuum assembly and operated inside the room. The unit operates by placing the gun body firmly down on the work surface and moving the gun body slowly along the surface area of the work piece. The assembly itself is round and is contained by a nylon brush which prevents any of the abrasive media and debris from leaving the assembly with the help of the vacuum return line. While blasting, the media and debris are exhausted through the vacuum line contained within the gun assembly, to the cyclone separator and dust collector before venting to the atmosphere. The trapped dust and debris is removed by shaking the dust bags, allowing waste material to fall into the dust drawer located directly below the bags. The waste material is periodically discarded by emptying the dust drawer.

Emission Estimate

The blasting equipment is used at a maximum of once per week and only for less than a couple of hours each time. Since Pauli system is an enclosed system with integral dust collection system, negligible PM emissions are expected. During my field evaluation on 8-22-13, I did not observe any visible emissions.

Abrasive (Aluminum Oxide) Density, lbs/cu. ft.	: 250 lbs/ft^3 (Applicant Data)
Abrasive (Sand) Density, lbs/cu. ft.	: 99 lbs/ft^3
Abrasive Emission Factor	: 0.01 lb/lb
No. of nozzles	: 1
Internal Dia. Of the nozzle	: 3/8″
Sand Flow Rate (Permit Proc. Handbook)	: 477 lb/hr @ 3/8″ Nozzle Dia and 60 psi
Filter Area Ft^2	: 8.24 Ft^2
Filter Cleaning method	: Manual
HEPA Filter Efficiency	: 99%
Blower exhaust flow rate	: 196 cfm
Use Factor	: Dry 100% (i.e. 1)
Given	: PM10 = 50% of PM (Assumed)

$$\text{Flow Rate-(FR)} = \frac{\text{FR (sand) x id (Al Oxide) x density (Al Oxide)}}{\text{Id (Sand) x density (Sand)}}$$

$$FR = \frac{477 \times 0.375 \times 250}{0.375 \times 99}$$

FR = 1204.5 lb/hr

Max.=Avg. Uncontrolled PM emissions (R1)

PM Emission factor (EF) = 0.01

PM = FR x EF x Use Factor = 1204.5 Lbs/hr x 0.01 lb/lb x 1(100%) = 12.05 lbs/hr

Controlled PM emissions (R2)

12.05 lb/hr x (1-0.99) = 0.12 lb/hr

Max.=Avg. Uncontrolled PM10 emissions (R1)

0.5 X PM = 0.5 X 12.05 = 6.03 lbs/hr.

Controlled PM10 emissions (R2)

6.03 X (1-0.99) = 0.06 lbs/hr x 2 hrs/day = 0.12 lb/day x 1 days/week x 52 weeks/yr = 6.26 lb/year

30-day Ave.
0.06 lbs/hr x 2 hrs/day = 0.12 lb/day x 1 day/wk x 4 wk/30 day/month = 0.016 lb/day

Previous emissions (A/N 298860) = 1 lb/day

Exhaust Air Particulate Emission Concentration (PC)

= R2 / Blower CFM x 7,000 grain/lb / 60 min/hr
= 0.12 / 196 CFM x 7000 /60 = 0.07 grain/cfm

8. Air-to-cloth ratio (A/C)

A/C = Blower CFM / Filter Area = 196/8.24 = 24:1

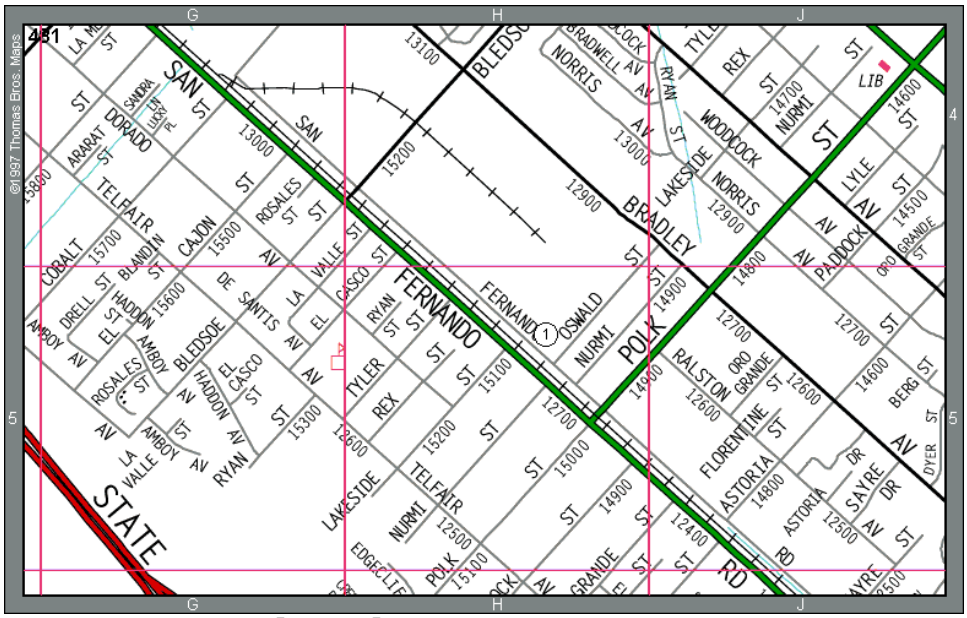
Baghouse Guideline Review:

	Recommended	Actual	Compliance
A/C Ratio@	6:1 Max@	24:1	Yes*
Bag Shaker	Auto	Manual	Yes
Access Door	Yes	Yes	Yes
Closed Container	Yes	Yes	Yes

*Since the loading to the dust collector is low, the air to cloth ratio of 24:1 is acceptable. In addition, the dust collector is subject to visible emissions inspection and annual inspection of the filter bags as specified by conditions D323.2 and D381.2, which will ensure the replacement of damaged bags.

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, 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).

	Maximum Daily Controlled Emissions					
	ROG	NO_x	PM_{10}	SO_2	CO	Pb
Total Increase (lb/dy)	0	0	0	0	0	0
MAX MDC Limit (lb/dy)	**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. Therefore, a public notice will not be required.

Rule 212(g): This section requires a public notice for all new or modified sources that have equipment emission increases exceeding any of the daily maximums as specified by Rule 212(g).

The following summarizes the limit and MDC:

	Maximum Daily Controlled (MDC) Emissions					
	ROG	NO_x	PM_{10}	SO_2	CO	Pb
Maximum Per equipment	0	0	0	0	0	0
MAX MDC Limit (lb/dy)	**30**	**40**	**30**	**60**	**220**	**3**
Compliance Status	Yes	Yes	Yes	Yes	Yes	yes

No public notice is required since the MDC is not more than the limits.

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 404: Compliance with this rule is expected with 0.07 grains/scf particulate concentration as the rule allows 0.195 grains/scf PM concentration for an exhaust flow rate of 196 cfm.

Rule 405: For a process weight of 1208 lb/hr, the rule allows PM emissions of approx. 2.8 lb/hr. Since the emissions from the operation are below the allowable limits, compliance with this rule is expected

Rule 1140: The abrasive blasting enclosure is totally enclosed and vented to the integral APC. This arrangement provides adequate control to minimize visible emissions. Therefore, compliance with this rule is expected.

Rule 1155: Visible emission is not expected from the equipment. During my field evaluation on 8-22-13, I did not observe any visible emissions. Therefore, the equipment is expected to be in

compliance with Rule 1155(d)(1). The equipment is exempted from the rest of Rule 1155 requirements pursuant to Rule 1155(g)(1) since its total filter surface areas is less than 100 square feet.

Rule 1303(a): The integral dust collection system is considered BACT for this operation.

Rule 1303(b)(1): Further air quality modeling analysis will not be needed since negligible PM_{10} emissions are expected from this project.

Rule 1303(b)(2): The modification of the abrasive blasting operation will result in reduction in PM10 emissions and as a result external emission offsets will not be needed.

Rule 1401: TAC emission increases are not expected from this project. Compliance with this rule is expected.

Regulation XXX Evaluation

Rule 3000(b) (4) defines a “minor permit revision” as any Title V permit revision does not result in an increase in emissions of a pollutant subject to Regulation XIII - New Source Review or a hazardous air pollutant.

To determine if a project is considered as a “minor permit revision” for non-RECLAIM pollutants or HAPs, emission increases for non-RECLAIM pollutants or HAPs resulting from all permit revisions that are made after the issuance of the renewal Title V permit shall be accumulated and compared to the above threshold levels. This proposed project is the 3rd permit revision to the renewal Title V permit issued to this facility on 6-7-11. The following table summarizes the cumulative emission increases resulting from all permit revisions since the renewal Title V permit was issued:

	HAP	VOC	NOx	PM10	SOx	CO
Current Revision—Modifying D33	0	0	0	0	0	0
Previous Revisions	0	0	0	0	0	0
Cumulative Total	0	0	0	0	0	0
Maximum Daily	30	30	40	30	60	220

The operation of confined abrasive blasting equipment are usually vented to an air pollution control equipment baghouse to reduce PM emissions to the atmosphere. The venting to a baghouse is in order to demonstrate compliance with Rules 401, 404, 405, and 1140. However, since the abrasive blasting room at Sierracin/Sylmar was not vented to a baghouse, the District imposed periodic monitoring conditions D28.1 and D323.1. Periodic monitoring condition D28.1, required the operator to conduct testing for particulate matter once every five years to demonstrate compliance with Rules 404 and 405. Additionally, condition D323.1 required the monitoring for visible emissions on weekly basis.

The operator has since modified the operation of the abrasive blasting room by using an abrasive blasting machine within the room and venting it to an integral air pollution control equipment dust collector. The venting of the blasting operation to the dust collector will make the equipment subject to different periodic monitoring requirements under the District's Periodic Monitoring Guidelines. The periodic monitoring requirements for the controlled operation are annual monitoring for visible emissions for the blasting operation, annual inspection of the filters, discharge dust collected by the dust collector into closed container, and annual visible emission inspection from the dust collector (since dust collector is less than 500 sq.ft. of filter area). Therefore, since the proposed changes are not a relaxation to the monitoring requirements, but rather a different monitoring requirement for different category of equipment, this revision will be considered as a "minor permit revision".

Recommendation

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a "minor 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 permit conditions:

CONDITIONS:

B59.1 The operator shall only use the following material(s) in this device :

~~Dry abrasives~~ Aluminum oxide as abrasive media

~~C1.8 The operator shall limit the throughput to no more than 195 lb(s) in any one day.~~

~~For the purpose of this condition, throughput shall be defined as abrasive usage.~~

~~C1.9 The operator shall limit the throughput to no more than 65 lb(s)/hr.~~

~~For the purpose of this condition, throughput shall be defined as abrasive usage.~~

~~D28.1 The operator shall conduct source test(s) in accordance with the following specifications:~~

~~The test shall be conducted to determine the solid PM emissions at the outlet.~~
~~The test shall be conducted to determine the PM emissions using District method 5.1 measured over a 60 minute averaging time period.~~
~~The test shall be conducted to demonstrate compliance with Rules 404 and 405.~~
~~The test shall be conducted within one year of the issuance of the Title V Permit.~~
~~Source test shall be conducted when this equipment is operating with air pressure to the nozzle at 75 psig.~~

D323.~~1~~ 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 ~~weekly~~ annual basis, at least, unless the equipment did not operate during the entire ~~weekly~~ annual period. The routine ~~weekly~~ 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:

1). Take corrective action(s) that eliminates 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 Emission 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 emission observation records by operator or a certified smoke reader.

H23.9 This equipment is subject to the applicable requirements of the following rules or regulations:

CONTAMINANT	RULE	RULE/SUBPART
PM	DISTRICT RULE	1140

Dust Collector:

A63.14 The operator shall limit emissions from this equipment as follows:

CONTAMINANT	EMISSIONS LIMIT
VISIBLE EMISSIONS	LESS THAN OR EQUAL TO 0 PERCENT OPACITY

D322.2 The operator shall perform annual inspection of the equipment and filter media for leaks, broken or torn filter media, and improperly installed filter media.

D381.1 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 unless the equipment did not operate during the entire annual period. If any visible emissions (not including condensed water vapor) are detected, the operator shall take corrective action(s) that eliminates 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; and

3). Date and time visible emission was abated.

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

H23.10 This equipment is subject to the applicable requirements of the following rules or regulations:

CONTAMINANT	RULE	RULE/SUBPART
VISIBLE EMISSIONS	DISTRICT RULE	1155

K67.4 The operator shall keep records, in a manner approved by the district, for the following parameter(s) or item(s):

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

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

The date, time and results of the inspection