



OCT 11 2012

Jaime Rodrigues  
Deuel Vocational Institute  
P O Box 400  
Tracy, CA 95378-0400

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Project Number: N-11122501**

Dear Mr. Rodrigues:

Enclosed for your review and comment is the District's analysis of Deuel Vocational Institute's application for an Authority to Construct for the modification to an existing wood products coating operation and the permitting of a motor vehicle and mobile equipment coating operation, located at 23500 Kasson Road, Tracy.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Fred Cruz of Permit Services at (209) 557-6456.

Sincerely,

David Warner  
Director of Permit Services

DW:FJC/st

Enclosures

**Seyed Sadredin**  
Executive Director/Air Pollution Control Officer

**Northern Region**  
4800 Enterprise Way  
Modesto, CA 95356-8718  
Tel: (209) 557-6400 FAX: (209) 557-6475

**Central Region (Main Office)**  
1990 E. Gettysburg Avenue  
Fresno, CA 93726-0244  
Tel: (559) 230-6000 FAX: (559) 230-6061

**Southern Region**  
34946 Flyover Court  
Bakersfield, CA 93308-9725  
Tel: 661-392-5500 FAX: 661-392-5585



OCT 11 2012

Gerardo C. Rios (AIR 3)  
Chief, Permits Office  
Air Division  
U.S. E.P.A. - Region IX  
75 Hawthorne Street  
San Francisco, CA 94105

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Project Number: N-11122501**

Dear Mr. Rios:

Enclosed for your review and comment is the District's analysis of Deuel Vocational Institute's application for an Authority to Construct for modification to an existing wood products coating operation and the permitting of a motor vehicle and mobile equipment coating operation, located at 23500 Kasson Road, Tracy.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

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**San Joaquin Valley**  
AIR POLLUTION CONTROL DISTRICT



**HEALTHY AIR LIVING™**

OCT 11 2012

Mike Tollstrup, Chief  
Project Assessment Branch  
Stationary Source Division  
California Air Resources Board  
PO Box 2815  
Sacramento, CA 95812-2815

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Project Number: N-11122501**

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of Deuel Vocational Institute's application for an Authority to Construct for the modification to an existing wood products coating operation and the permitting of a motor vehicle and mobile equipment coating operation, located at 23500 Kasson Road, Tracy.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Fred Cruz of Permit Services at (209) 557-6456.

Sincerely,

David Warner  
Director of Permit Services

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Enclosure

**Seyed Sadredin**  
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Stockton Record  
Stockton Record

**NOTICE OF PRELIMINARY DECISION  
FOR THE PROPOSED ISSUANCE OF  
AUTHORITIES TO CONSTRUCT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authorities to Construct to Deuel Vocational Institute for modifications to an existing wood products coating operation and the permitting of a motor vehicle and mobile equipment coating operation, located at 23500 Kasson Road, Tracy.

The analysis of the regulatory basis for this proposed action, Project #N-11122501, is available for public inspection at [http://www.valleyair.org/notices/public\\_notices\\_idx.htm](http://www.valleyair.org/notices/public_notices_idx.htm) and the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 4800 ENTERPRISE WAY, MODESTO, CA 95356.**

**AUTHORITY TO CONSTRUCT  
APPLICATION REVIEW**

Motor Vehicle and Mobile Equipment Coating Operation  
Wood Products Coating Operation

Facility Name: Deuel Vocational Institution Date: October 8, 2012  
Mailing Address: P O Box 400 Engineer: Fred Cruz  
Tracy, CA 95378-0400 Lead Engineer: Mark Schonhoff  
Contact Person: Jaime Rodriguez  
Telephone: (209) 835-4141 ext 5854  
FAX: (209) 830-3903  
Email: Jaime.rodriquez1@CDCR.CA.GOV  
Application Nos: N-283-33-1 and N-283-40-0  
Project No: N-1122501  
Deemed Complete: August 22, 2012

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**I. PROPOSAL**

Deuel Vocational Institution submitted Authority to Construct (ATC) applications to modify an existing wood products coating operation (N-283-33) to establish a combined annual VOC emissions limit and to permit an existing motor vehicle and mobile equipment coating operation with dry filters. Per the applicant, the spray booth used for the motor vehicle coating operation (N-283-40) was previously permitted, but the permit was deleted.

The applicant proposes to modify permit unit N-283-33-0 to limit the VOC emissions from permit units N-283-33 and N-283-40 to a combined annual limit of 14,235 lbs. Per the applicant, there are no additions, changes or modifications proposed for the existing wood products coating operation (N-283-33).

**II. APPLICABLE RULES**

Rule 2201 New and Modified Stationary Source Review (4/21/2011)

Rule 4101 Visible Emissions (2/17/2005)

Rule 4102 Public Nuisance (12/17/1992)

Rule 4606 Wood Products Coating (10/16/2008)

Rule 4612 Motor Vehicle and Mobile Equipment Refinishing Operations - Phase 2  
(9/20/2007)

CH&SC 41700 California Health & Safety Code (HRA Screening)

CH&SC 42301.6 California Health & Safety Code (School Notice)

Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)

California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387:  
CEQA Guidelines

### III. PROJECT LOCATION

This facility is located at 23500 Kasson Road, Tracy, California.

The district verified that this facility is not located within 1,000 feet of the outer boundary of any K-12 school. Therefore, pursuant to California Health and Safety Code 42301.6, School Notice is not required.

### IV. PROCESS DESCRIPTION

The applicant stated that the wood products coating operation and the motor vehicle coating operation are used as part of the facility's vocational training programs. Per the applicant, the coating operations will use coatings compliant with District Rule 4606, Wood Products Coating Operations (N-283-33) and Rule 4612, Motor Vehicle Coating Operations (N-283-40).

The equipment will operate 2-3 hours per day, 5 days per week and 50 weeks per year (applicant).

### V. EQUIPMENT LISTING

#### **Pre-Project Equipment Description:**

N-283-33-0: WOOD PARTS AND PRODUCTS COATING OPERATION WITH A SPRAY TECH OPEN-FACE SPRAY BOOTH.

#### **Post Project Equipment Description:**

N-283-33-1: WOOD PARTS AND PRODUCTS COATING OPERATION WITH A SPRAY TECH OPEN-FACE SPRAY BOOTH.

N-283-40-0: MOTOR VEHICLE AND MOBILE EQUIPMENT COATING OPERATION SERVED BY AN ENCLOSED PAINT SPRAY BOOTH WITH DRY EXHAUST FILTERS AND HVLP SPRAY GUNS.

Paint spray booth:	
Manufacturer:	Air Filtration Company, Inc. (AFC)
Model:	ASLC 2612
Airflow:	30,000 cfm
Application equipment:	HVLP spray guns
Dry filters:	2 each 48" (width) x 96" (height) x 1.0" (thickness)
Blower motor:	5.0 hp motor

### VI. EMISSION CONTROL TECHNOLOGY EVALUATION

These coating operations will use low-VOC coatings for the control of VOC emissions. Dry filters and HVLP spray application equipment will be used to control of PM<sub>10</sub> emissions.

## VII. CALCULATIONS

### A. Assumptions

#### **N-283-33-1:**

The applicant has not proposed any additions, changes or modifications to the wood products coating operation. The applicant is not proposing any changes to the current permit conditions or daily emission limits.

#### **N-283-40-0:**

- Per District Policy (GEAR-12b) VOC emissions are limited to 54.7 lb/day.
- HVLP gun transfer efficiency (TE) is 75% (per STAPPA/ALAPCO Vol. 2, pg. 14-7, 5/30/91).
- Dry exhaust filter removal efficiency (RE) is 95% (based on current industry removal efficiency standards and Iowa Department of Natural Resources/Air Quality).
- For emissions calculations purposes the facility is assumed to operate 24 hr/day and 365 days/yr (District's assumption to conservatively estimate emissions).

### B. Emission Factors:

#### **N-283-33-1:**

VOC: 39.0 lb/day  
PM10: 7.8 lb/day

#### **N-283-40-0:**

- PM<sub>10</sub> emission factor (EF) for color coating (worst case) is 5.5 lb/gal, assuming all particulate matter (PM) emissions are PM<sub>10</sub> (STAPPA/ALAPCO Vol. 2, pg. 14-4, 5/30/1991).
- Worst case color coating VOC content is 2.1 lb/gal as applied (District Rule 4612 limit for clear coat).
- PM<sub>10</sub> EF for primer (worst case) is 3.0 lb/gal, assuming all PM emissions are PM<sub>10</sub> (STAPPA/ALAPCO Vol. 2, pg. 14-4, 5/30/1991).
- The application of all coatings will occur in the paint booth.
- Average primer VOC content is 2.1 lb/gal (District Rule 4612 limit).

### C. Calculations:

#### 1. Pre-Project Potential to Emit (PE1)

##### N-283-33-0:

PE<sub>1</sub> emissions are based on the current permit limits and emission calculations from project N-1061649, unless otherwise noted.

VOC: 39 lb-VOC/day x 365 days/yr = 14,235 lb-VOP/yr  
PM10: 7.8 lb-PM10/day x 365 days/yr = 2,847 lb-PM10/yr

N-283-40-0:

This motor vehicle and mobile equipment coating operation was previously permitted and the facility canceled the Permit to Operate. This coating operation will be considered as a new emissions unit for this project. Therefore, pre-project emissions will equal zero for each pollutant.

## 2. Post-Project Potential to Emit (PE2)

### a. Daily PE2 (lb/day)

N-283-33-1:

PE2 emissions will equal PE1 emissions since the applicant is not proposing any change to the daily emissions.

VOC: 39.0 lb-VOC/day  
PM10: 7.8 lb-PM10/day

N-283-40-0:

Emissions from the coating operation (PE2<sub>Painting</sub>):

Daily VOC emissions for painting are set to 54.7 lb/day, per District Policy GEAR-12.

PE2<sub>Painting</sub> VOC (lb/day) = VOC limit (lb/day)

PE2<sub>Painting</sub> VOC = 54.7 lb-VOC/day

Then the daily color coating usage is determined:

Daily Paint Usage (gal/day) = PE2<sub>Painting</sub> (lb-VOC/day) ÷ Color Coating VOC Content (lb-VOC/gal)

Daily Paint Usage = 54.7 lb-VOC/day ÷ 2.1 lb-VOC/gal  
= 26.0 gal/day

Next the daily PM<sub>10</sub> emissions from painting are determined:

PE2<sub>Painting</sub> PM<sub>10</sub> (lb/day) = Daily Paint Usage (gal/day) x Color Coating PM<sub>10</sub> Content (lb-PM<sub>10</sub>/gal) x (1 – HVLP Transfer Efficiency) x (1 – Dry Filter Control Efficiency)

PE2<sub>Painting</sub> PM<sub>10</sub> = 26.0 gal/day x 5.5 lb-PM<sub>10</sub>/gal x (1 – 0.75) x (1 – 0.95)  
= **1.8 lb-PM<sub>10</sub>/day**

Daily PE<sub>2</sub>: VOC = 54.7 lb/day  
PM<sub>10</sub> = 1.8 lb/day



**b. Annual PE2 (lb/yr)**

N-283-33-1

VOC: 14,235 lb-VOC/yr (combined annual VOC limit with permit unit N-283-33-1)

PM10: 2,847 lb-PM10/yr

N-283-40-0:

The annual post-project Potential to Emit (PE2) is determined by using the daily PE2 previously calculated and assuming a worst-case operation schedule of 365 day/year for this coating operation.

$PE2_{\text{Annual PM10}} = 1.8 \text{ lb-PM}_{10}/\text{day} \times 365 \text{ day/yr} = 657 \text{ lb-PM}_{10}/\text{yr}$

$PE2_{\text{Annual VOC}} = 14,235 \text{ lb-VOC/yr (combined annual VOC limit with permit unit N-283-33-1)}$

**3. Pre-Project Stationary Source Potential to Emit (SSPE1)**

Pursuant to Section 4.9 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site. Emission calculations are from projects N-1121727 and N-1122504, unless otherwise noted.

<b>SSPE1</b>					
Permit Number	Pollutants (lb/yr)				
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
N-283-1-3	4,299	1,224	2,426	40,316	1,667
N-283-2-2	4,299	1,224	2,426	40,316	1,667
N-283-3-2	4,321	1,221	4,246	39,402	849
N-283-5-0	0	0	2,263	0	14,600
N-283-6-3	3,942	112	446	3,311	548
N-283-8-0	0	0	0	0	0
N-283-10-0	220	0	16	48	18
N-283-14-0	128	0	9	28	10
N-283-15-1	37	0	3	8	3
N-283-16-1	37	0	3	8	3
N-283-17-3	0	0	0	0	1,135
N-283-23-0	1,329	1	14	314	7
N-283-24-0	0	0	5,322	0	0
N-283-28-0	37	0	3	8	3
N-283-31-0	390	0	4	35	5
N-283-32-0 *	0	0	0	0	0
N-283-33-0	0	0	2,847	0	14,235
N-283-35-0	646	1	9	76	11
N-283-39-0**	103	0	6	86	6
N-283-41-0	207	0	8	62	23
<b>SSPE1</b>	<b>19,995</b>	<b>3,783</b>	<b>20,051</b>	<b>124,018</b>	<b>34,790</b>
Major Source Threshold Level	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	Yes

\*Permit units -6 and -32 have a combined emissions limit from these powder coating operations. Emissions will be included under permit unit N-283-6.

\*\*Per the applicant, the emergency engine covered by this ATC will be installed instead of the emergency engine covered by ATC N-283-34-0. The state of California did not fund the installation of the emergency engine covered by ATC N-283-34-0 in 2008. Therefore ATC N-283-34-0 will not be implemented into a Permit to Operate.

#### **4. Post Project Stationary Source Potential to Emit (SSPE2)**

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

<b>SSPE2</b>					
Permit Number	Pollutants (lb/yr)				
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
N-283-1-3	4,299	1,224	2,426	40,316	1,667
N-283-2-2	4,299	1,224	2,426	40,316	1,667
N-283-3-2	4,321	1,221	4,246	39,402	849
N-283-5-0	0	0	2,263	0	14,600
N-283-6-3	3,942	112	446	3,311	548
N-283-8-0	0	0	0	0	0
N-283-10-0	220	0	16	48	18
N-283-14-0	128	0	9	28	10
N-283-15-1	37	0	3	8	3
N-283-16-1	37	0	3	8	3
N-283-17-3	0	0	0	0	1,135
N-283-23-0	1,329	1	14	314	7
N-283-24-0	0	0	5,322	0	0
N-283-28-0	37	0	3	8	3
N-283-31-0	390	0	4	35	5
N-283-32-0 *	0	0	0	0	0
<b>N-283-33-1</b>	<b>0</b>	<b>0</b>	<b>2,847</b>	<b>0</b>	<b>14,235</b>
N-283-35-0	646	1	9	76	11
N-283-39-0	103	0	6	86	6
<b>N-283-40-0</b>	<b>0</b>	<b>0</b>	<b>657</b>	<b>0</b>	<b>0**</b>
N-283-41-0	207	0	8	62	23
<b>SSPE2</b>	<b>19,995</b>	<b>3,783</b>	<b>20,708</b>	<b>124,018</b>	<b>34,790</b>
Major Source Threshold Level	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	Yes
Offset Threshold Level	20,000	54,750	29,200	200,000	20,000
Offset Triggered?	No	No	No	No	Yes

\*Permit units -6 and -32 have a combined emissions limit from these powder coating operations. Emissions will be included under permit unit N-283-6.

\*\*VOC emissions from permit units N-283-33-1 and N-283-40-0 will be limited to a combined annual limit of 14,235 lbs.

## 5. Major Source Determination

Pursuant to District Rule 2201, Section 3.23, a major source is a source with an SSPE2 equal to or exceeding one or more of the thresholds shown in the table below. However, pursuant to Section 3.23.2 of District Rule 2201, the quantity of ERC's that have been banked onsite for actual emission reductions (AER's) are not added to the SSPE2 for major source determination purposes. This facility does not have any banked ERC's for onsite AER's. Therefore:

	NO <sub>x</sub> (lb/year)	CO (lb/year)	VOC (lb/year)	PM <sub>10</sub> (lb/year)	SO <sub>x</sub> (lb/year)
Pre-Project SSPE (SSPE1)	19,995	124,018	34,790	20,051	3,783
Post Project SSPE (SSPE2)	19,995	124,018	34,790	20,708	3,783
Major Source Threshold	20,000	200,000	20,000	140,000	140,000
Major Source?	No	No	Yes	No	No

This source is an existing Major Source for VOC emissions and will remain a Major Source for VOC emissions. There is no change in the other pollutants (VOC, SO<sub>x</sub> and CO) from this project. There will be an increase in PM<sub>10</sub> emissions and the post project SSPE for PM<sub>10</sub> emissions will remain below the Major Source threshold.

## 6. **Baseline Emissions (BE)**

Per District Rule 2201, Section 3.7, the baseline emissions, for a given pollutant, shall be equal to the pre-project potential to emit for:

- Any emission unit located at a non-major source,
- Any highly utilized emission unit, located at a major source,
- Any fully-offset emission unit, located at a major source,
- Any clean emission unit located at a major source, or
- The historical actual emissions (HAE) for emission units not covered by the categories listed above.

As shown above, this facility is a Major Source for VOC emissions.

### a. **BE VOC**

As shown in Section VII.C.5 above, the facility is a major source for VOC emissions.

Pursuant to Rule 2201, a Clean Emissions Unit is defined as an emissions unit that is “equipped with an emissions control technology with a minimum control efficiency of at least 95% or is equipped with emission control technology that meets the requirements for achieved-in-practice BACT as accepted by the APCO during the five years immediately prior to the submission of the complete application. Below is a list of the permit conditions from permit unit N-283-33-0 that verifies that this permit unit meets the District’s BACT Guideline 4.4.1 for the “Achieved-in-Practice” control technology requirements.

Permit No.	Achieved-in-Practice Control Technology	Permit Conditions
N-283-33-0	Use of HVLP, or equivalent application equipment and the use of coatings compliant with District Rule 4606	#8, #9, #10 & #11

This emissions unit, N-283-33 (wood products coating operation) meets the District's achieved-in-practice BACT requirements for BACT Guideline 4.4.1. Therefore, BE will equal PE for this permit unit.

N-283-33-1:  
BE = PE1 = 14,235 lb-VOC/yr

N-283-40-0:  
BE = PE1 = 0 lb-VOC/yr (new emissions unit)

**7. SB 288 Major Modification:**

The purpose of Major Modification calculations is to determine the following:

- A. If Best Available Control Technology (BACT) is triggered for a new or modified emission unit that results in a Major Modification (District Rule 2201, Section 4.1.3); and
- B. If a public notification is triggered (District Rule 2201, Section 5.4.1).

Since this facility is a major source for VOC, the project's PE2 is compared to the SB 288 Major Modification Thresholds in the following table in order to determine if the SB 288 Major Modification calculation is required.

SB 288 Major Modification Thresholds			
Pollutant	Project PE <sub>2</sub> (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
VOC	14,235	50,000	No

Since none of the SB 288 Major Modification Thresholds are surpassed with this project, this project does not constitute an SB 288 Major Modification.

**8. Federal Major Modification:**

District Rule 2201 states that a Federal Major Modification is the same as a "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

The determination of Federal Major Modification is based on a two-step test. For the first step, only the emission *increases* are counted. Emission decreases may not cancel out the increases for this determination.

### Step 1

For existing emissions units, the increase in emissions is calculated as follows.

$$\text{Emission Increase} = \text{PAE} - \text{BAE} - \text{UBC}$$

Where: PAE = Projected Actual Emissions, and  
BAE = Baseline Actual Emissions  
UBC = Unused baseline capacity

If there is no increase in design capacity or potential to emit, the PAE is equal to the annual emission rate at which the unit is projected to emit in any one year, selected by the operator, within 5 years after the unit resumes normal operation. The applicant did not provide a detailed PAE, so PAE is equal to the PE2 for each permit unit.

N-283-33-1:

$$\text{Emission Increase} = \text{PAE} - \text{BAE} - \text{UBC}$$

Where: PAE = Projected Actual Emissions, and  
BAE = Baseline Actual Emissions<sup>1</sup>  
UBC = Unused baseline capacity

$$\begin{aligned} \text{Emission Increase} &= \text{PE2} - \text{BAE} - \text{UBC} \text{ (In this case, PAE will equal PE2, for} \\ &\text{worst-case analysis.)} \\ &= (14,235 - 24 - 14,211) \text{ lb-VOC/yr} \\ &= 0 \text{ lb-VOC/yr} \end{aligned}$$

N-283-40-0:

For new emissions units, the increase in emissions is equal to the PE2 for each new unit included in this project.

$$\begin{aligned} \text{Emission Increase} &= \text{PE2} - \text{BAE} - \text{UBC} \\ &= 14,235 \text{ lb-VOC/yr} - 0 - 0 \end{aligned}$$

The project's combined emission increases are calculated above and are compared to the Federal Major Modification Thresholds in the following table. As proposed by the applicant, the combined annual VOC emissions from permit units N-283-33-1 and N-283-40-0 will be limited to 14,235 lb-VOC. Therefore, the worst-case increase in annual emissions would equal 14,235 lb-VOC.

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<sup>1</sup> Based on the facility's Emission Inventory Reports for 2009, 2010 and 2011 actual VOC emissions equaled: 0 lb/yr, 15.1 lb/yr and 32.0 lb/yr, respectively. Average annual VOC emissions equal 24 lb/yr for the facility's Baseline Actual Emissions. ATC N-283-33-0 was converted into a PTO on June 9, 2009. See Appendix B for Annual Emission Inventory reports.

Federal Major Modification Thresholds for Emission Increases			
Pollutant	Total Emissions Increases (lb/yr)	Thresholds (lb/yr)	Federal Major Modification?
VOC*	14,235	0	Yes

\*If there is any emission increases in NO<sub>x</sub> or VOC, this project is a Federal Major Modification and no further analysis is required.

Since there will be an increase in VOC emissions from this project, the project will trigger a Federal Major Modification.

### 9. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS database emissions profile screen. Detailed QNEC calculations are included in Appendix C.

## VIII. COMPLIANCE

### Rule 2201 - New and Modified Stationary Source Review Rule

#### A. BACT:

##### 1. Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. BACT is required for the following actions:

- a. Any new emissions unit with a potential to emit exceeding two pounds in any one day.
- b. The relocation of an existing emissions unit from one stationary source to another with a potential to emit exceeding two pounds in any one day.
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an Adjusted Increase in Permitted Emissions (AIPE) exceeding two pounds in any one day.
- d. Major modifications.

\* If the post project Stationary Source Potential to Emit (SSPE2) for Carbon Monoxide is less than 200,000 pounds per year, BACT is not required for Carbon Monoxide.

N-283-33-1 and N-283-40-0:

As discussed in Section VII.C.7 above, this project does constitute a Federal Major Modification for VOC emissions. Therefore, BACT is required for all VOC emitting units for this project. BACT for PM<sub>10</sub> emissions for emissions unit N-283-33-1 is not required for Federal Major Modification purposes since the facility is not a Major Source for PM<sub>10</sub> emissions.

N-283-40-0:

The applicant is proposing to install a new coating operation (N-283-40), so PE calculations are required for PM10 emissions. As calculated on page 4 of this

document, PE for PM10 emissions from the paint spray booth is not greater than 2.0 lbs and BACT is not triggered for PM10 emissions.

**2. BACT Analysis:**

Per District Policy APR 1305, Section IX, “A top-down BACT analysis shall be performed as a part of the Application Review for each application subject to the BACT requirements pursuant to the District’s NSR Rule for source categories or classes covered in the BACT Clearinghouse, relevant information under each of the following steps may be simply cited from the Clearinghouse without further analysis.”

**N-283-33-1:**

Pursuant to the BACT guideline 4.4.1, 4<sup>th</sup> quarter 1996, and the Top-Down BACT analysis, both of which appear in Appendix D of this report, BACT is satisfied with:

- The use of HVLP spray guns, or equivalent application equipment, and the use of compliant with District Rule 4606.

**N-283-33-1:**

Pursuant to the BACT guideline 4.2.1, 1<sup>st</sup> quarter 2010, BACT is satisfied with:

- The use of HVLP spray guns, coatings, cleaning materials and solvents compliant with District Rule 4612.

The applicant’s proposal meets the District’s BACT requirements for each emissions unit. See Appendix D for BACT Top-down analysis.

**B. Offsets**

**1. Offset Applicability**

Offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals to or exceeds the offset threshold levels in Table 4-1, Rule 2201.

The SSPE2 is compared to the offset thresholds in the following table.

<b>Offset Determination (lb/year)</b>					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE2	19,995	3,783	20,708	124,018	34,790
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	No	No	No	No	Yes



## 2. Quantity of Offsets Required

As seen above, the facility is an existing Major Source for NO<sub>x</sub> and VOC and the SSPE2 is greater than the offset thresholds for these two pollutants. There are no NO<sub>x</sub> emissions from this project. Therefore, offset calculations for VOC emissions will be required for this project.

The quantity of offsets in pounds per year for VOC is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

Offsets Required (lb/year) =  $(\Sigma[PE2 - BE] + ICCE) \times DOR$ , for all new or modified emissions units in the project,

Where,

PE2 = Post Project Potential to Emit, (lb/year)

BE = Baseline Emissions, (lb/year)

ICCE = Increase in Cargo Carrier Emissions, (lb/year)

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE will equal PE1 for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, Located at a Major Source.

Otherwise, BE = HAE

As calculated in Section VII.C.6 above, the BE from these units are equal to the PE1 since each unit is a Clean Emissions Unit (see pages 8 and 9 of this document for Clean Emissions Unit determination).

There are two emission units associated with this project and there are no increases in cargo carrier emissions. Therefore, offsets can be determined as follows:

Offsets Required (lb/year) =  $([PE2 - BE] + ICCE) \times DOR$

PE2 (VOC) = 14,235 lb/year

BE (VOC) = 14,235 lb/year

ICCE = 0 lb/year

Offsets required (lb/year) =  $([14,235 - 14,235] + 0) \times DOR$   
= 0 lb VOC/year

As demonstrated in the calculation above, the amount of offsets is zero. Therefore, offsets will not be required for this project.

**C. Public Notification**

Public noticing is required for:

- a. New Major Source,
- b. Major Modifications,
- c. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- d. Any project which results in the offset thresholds being surpassed, and/or
- e. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

**a. New Major Source**

This is an existing facility and New Major Source public noticing is not applicable. Therefore, public noticing is not required for New Major Source purposes.

**b. Major Modification**

As previously demonstrated, this project does constitute a Federal Major Modification. Therefore, public noticing for Federal Major Modification purposes is required.

**c. PE > 100 lb/day**

Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. The PE for VOC and PM10 emissions from the motor vehicle coating operation do not exceed the 100 lb/day threshold. Therefore, public noticing is not required for this project for Potential to Emit exceeding the 100 lb/day limit.

**d. Offset Threshold**

Public notification is required if the Pre-Project Stationary Source Potential to Emit (SSPE1) is increased from a level below the offset threshold to a level exceeding the emissions offset threshold for any pollutant. The SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

<b>Offset Thresholds</b>				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO <sub>x</sub>	19,995	19,995	20,000 lb/year	No
SO <sub>x</sub>	3,783	3,783	54,750 lb/year	No
PM <sub>10</sub>	20,051	20,708	29,200 lb/year	No
CO	124,018	124,018	200,000 lb/year	No
VOC	34,790	34,790	20,000 lb/year	No

As detailed above, VOC emissions are greater than the offset thresholds. For this project; there is no increase in VOC emissions and public noticing is not required for offset purposes.

**e. SSIPE > 20,000 lb/year**

An SSIPE exceeding 20,000 pounds per year for any one pollutant triggers public notice, where  $SSIPE = SSPE2 - SSPE1$ . The SSIPE will not exceed 20,000 lb/year for any criteria pollutant as a result of this project. Therefore, public noticing will not be required for SSIPE exceeding 20,000 lb/year.

$$SSIPE \text{ (for any one pollutant)} = SSPE2 - SSPE1$$

Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)
NOx	19,995	19,995	0
CO	124,018	124,018	0
VOC	34,790	34,790	0
PM <sub>10</sub>	20,708	20,051	657
SOx	3,783	3,783	0

**Public Notice Action**

As discussed above, public notice will be required for this project since it is a Federal Major Modification.

**D. Daily Emission Limits (DELs)**

Rule 2201, §3.17 requires one or more permit conditions to restrict a unit's maximum daily emissions to a level at or below the emissions associated with the maximum design capacity be included on the Authority to Construct (ATC). DELs will include:

**N-283-33-1:**

- PM<sub>10</sub> emissions shall not exceed 7.8 lbs. in any one day.  $PM_{10} \text{ emissions (lb-PM}_{10}/\text{day)} = \text{Coating usage (gal/day)} \times \text{Solids content (lb-PM}_{10}/\text{gal)} \times 0.0125$ .
- VOC emissions shall not exceed 39.0 lbs in any one day.  $VOC \text{ emissions (lb-VOC/day)} = \text{Coating usage (gal/day)} \times \text{as-applied VOC content (lb-VOC/gal)}$ .

**N-283-40-0:**

- PM<sub>10</sub> emissions shall not exceed 1.8 lbs. in any one day.  $PM_{10} \text{ emissions (lb-PM}_{10}/\text{day)} = \text{Coating usage (gal/day)} \times \text{Solids content (lb-PM}_{10}/\text{gal)} \times 0.0125$ .
- VOC emissions shall not exceed 54.7 lbs in any one day.  $VOC \text{ emissions (lb-VOC/day)} = \text{Coating usage (gal/day)} \times \text{as-applied VOC content (lb-VOC/gal)}$ .

**E. Compliance Assurance**

Compliance is enforced by the following requirements.

**1. Source Testing**

Pursuant to District Policy APR 1705, source testing for these coating operations are not required to demonstrate compliance with Rule 2201.

**2. Monitoring**

Monitoring requirements are not required for these coating operations.

**3. Record Keeping**

The permittee shall maintain records of the amount of coating used on a daily basis for each coating operation. Records shall be kept for a minimum of five years and shall be made available to District personnel upon request.

**4. Reporting**

Reporting requirements are not necessary for Rule 2201 compliance.

**F. Ambient Air Quality Analysis (AAQA)**

An AAQA shall be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis.

An AAQA is required by Section 4.14.1 of District Rule 2201. There will be an increase in only VOC, PM10 and PM2.5 emissions. There is no standard for VOCs so an analysis was performed for PM10 and PM2.5 emissions. Refer to Appendix E of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO<sub>x</sub>, CO, and SO<sub>x</sub>. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO<sub>x</sub>, CO, or SO<sub>x</sub>.

The proposed location is in an attainment area for PM<sub>10</sub>. The increase in the ambient PM<sub>10</sub> concentration due to the proposed equipment is shown on the table titled Calculated Contribution. The levels of significance, from 40 CFR Part 51.165 (b)(2), are shown on the table titled Significance Levels.

<b>Significance Levels</b>					
Pollutant	Significance Levels (µg/m <sup>3</sup> ) - 40 CFR Part 51.165 (b)(2)				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
PM <sub>10</sub>	1.0	5	N/A	N/A	N/A

<b>Calculated Contribution</b>					
Pollutant	Calculated Contributions (µg/m <sup>3</sup> )				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
PM <sub>10</sub>	Pass <sup>1</sup>	Pass <sup>1</sup>	N/A	N/A	N/A
PM <sub>2.5</sub>	Pass <sup>1</sup>	Pass <sup>1</sup>	N/A	N/A	N/A

\*Results were taken from the attached PSD spreadsheet for the motor vehicle coating operation.

<sup>1</sup>The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

As shown, the calculated contribution of PM<sub>2.5</sub> or PM<sub>10</sub> will not exceed the EPA significance level. This project is not expected to cause or make worse a violation of an air quality standard. The following permit conditions will be included on ATC permit N-283-40-0.

- The exhaust stack height shall measure at least 26 feet from the ground.
- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rules 2201 and 4102]

### **G. Alternate Siting Analysis**

The current project occurs at an existing facility. The applicant proposes to modify an existing wood products coating operation and to install a motor vehicle and mobile equipment coating operation.

Since the project involves two coating operations at the same location, the existing site will result in the least possible impact from the project. Alternative sites would involve the relocation and/or construction of various support structures on a much greater scale and would therefore result in a much greater impact.

### **Rule 2520: Federally Mandated Operating Permits**

This facility is an existing Major Source for VOC and NOx emissions. However, the facility has not received their Title V permit. Therefore, no action is required at this time.

### **Rule 4101: Visible Emissions**

Section 5.0 requires that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour, which is as dark or darker than Ringelmann 1 or 20% opacity.

### **Rule 4102: Nuisance**

Section 4.0 prohibits discharge of air contaminants, which could cause injury, detriment, nuisance, or annoyance to the public. Public nuisance conditions are not expected as a result of this operation provided the equipment is well maintained.

### **CH&SC 41700: California Health & Safety Code**

Pursuant to District's Risk Management Policy APR 1905 (3/2/01), for any sources with increases in toxic air emissions, the health risks resulting from such projects must be evaluated. The health risk evaluation process begins with prioritization using CAPCOA Facility Prioritization Guidelines. If the project cumulative prioritization score increase is equal to or less than one, no further assessment will be required. The prioritization and health risk evaluation are cumulative for all new and modified units at the stationary source.

Toxic emissions from the project were calculated after reviewing MSDS sheets for the proposed coatings to determine the speciation of Hazardous Air Pollutants (HAPs). In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905-1, March 2, 2001), risks from the proposed project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEART's database. The prioritization score for the proposed project was greater than 1.0 (see RMR Summary Table below). Therefore, a refined Health Risk Assessment was required and performed for the project. AERMOD was used with point source parameters outlined below and the meteorological data from the Stockton area to determine maximum dispersion factors at the nearest residential and business receptors. The dispersion factors were input into the HARP model to calculate the Chronic and Acute Hazard Indices and the Carcinogenic Risk. See RMR Summary attached in Appendix F.

<b>RMR Summary</b>			
<b>Categories</b>	<b>Motor Vehicles &amp; Mobile Equipment Coating Operation (Unit 40-0)</b>	<b>Project Totals</b>	<b>Facility Totals</b>
<b>Prioritization Score</b>	0.01	0.01	>1
<b>Acute Hazard Index</b>	0.13	0.13	0.13
<b>Chronic Hazard Index</b>	0.00	0.00	0.00
<b>Maximum Individual Cancer Risk</b>	<b>1.00E-07</b>	1.00E-07	7.39E-06
<b>T-BACT Required?</b>	<b>No</b>		
<b>Special Permit Conditions?</b>	<b>Yes</b>		

The acute and chronic indices are below 1.0; and the maximum individual cancer risk associated with the project is 1.00E-07, which is less than the 1 in a million threshold. In accordance with the District's Risk Management Policy, the project is approved **without** Toxic Best Available Control Technology (T-BACT).

To ensure that human health risks will not exceed District allowable levels; the following permit conditions will be included on the ATC permit.

1. {369} No coatings, solvents, or additives containing chromium compounds shall be used. [District Rule 4102]
2. {1984} No coatings, solvents, or additives containing lead compounds shall be used. [District Rule 4102]
3. No coatings, solvents, or additives containing cadmium compounds shall be used. [District Rule 4102]
4. No coatings, solvents, or additives containing nickel compounds shall be used. [District Rule 4102]
5. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

**District Rule 4606 Wood Products Coating Operations**

This rule is applicable to operations that apply coatings to wood products, including furniture, cabinets, flat wood paneling, and custom replica furniture. Additionally, this rule applies to organic solvent cleaning, and the storage and disposal of all solvents and waste solvent materials associated with such coating operations. The proposed coating operation is subject to the requirements of this rule. The following tables demonstrate that the proposed coating operation will comply with the applicable District Rule 4606 requirements.

District Rule 4606 Requirements	Method of Compliance																								
<p>Section 5.1 states that an operator shall not apply any coating to a wood product that has a VOC content, as applied, that exceeds the applicable limits specified in Tables 1 or 2.</p> <table border="1" data-bbox="175 761 886 1187"> <caption>Table 1 VOC Content Limits for Wood Product Coating Operation</caption> <thead> <tr> <th>Coating Category</th> <th>lb- VOC/gallon of coating, excluding water and exempt compounds, as applied</th> </tr> </thead> <tbody> <tr><td>Clear Topcoat</td><td>2.3</td></tr> <tr><td>Filler</td><td>2.3</td></tr> <tr><td>High-Solids Stain</td><td>2.0</td></tr> <tr><td>Ink</td><td>4.2</td></tr> <tr><td>Mold-Seal Coating</td><td>6.3</td></tr> <tr><td>Multi-Colored Coating</td><td>2.3</td></tr> <tr><td>Pigmented Coating</td><td>2.3</td></tr> <tr><td>Sanding Sealer</td><td>2.3</td></tr> </tbody> </table> <table border="1" data-bbox="175 1219 886 1427"> <caption>Table 2 VOC Content Limits for Wood Product Coating Operation</caption> <thead> <tr> <th>Coating Category</th> <th>lb-VOC/gallon of material, as applied</th> </tr> </thead> <tbody> <tr><td>Low-Solids Stain</td><td>1.0</td></tr> <tr><td>Stripper</td><td>2.9</td></tr> </tbody> </table>	Coating Category	lb- VOC/gallon of coating, excluding water and exempt compounds, as applied	Clear Topcoat	2.3	Filler	2.3	High-Solids Stain	2.0	Ink	4.2	Mold-Seal Coating	6.3	Multi-Colored Coating	2.3	Pigmented Coating	2.3	Sanding Sealer	2.3	Coating Category	lb-VOC/gallon of material, as applied	Low-Solids Stain	1.0	Stripper	2.9	<p>The applicant has proposed to use a lacquer, a lacquer under coater, a conversion varnish and a latex satin coating. Per the MSDS, the VOC content for each proposed coating is less than the 2.3 lb-VOC/gal limit listed in Rule 4606. Therefore, compliance with the VOC content limit of District Rule 4606 is expected.</p> <p>The following conditions will be included on the permit:</p> <ul style="list-style-type: none"> <li>The coating VOC content of the coatings as applied, excluding water and exempt compounds, used for wood products, shall not exceed any of the following limits: clear topcoat 275 g/l (2.3 lb/gallon), filler 275 g/l (2.3 lb/gallon), high-solids stains 240 g/l (2.0 lb/gallon), ink 500 g/l (4.2 lb/gallon), mold-seal coating 750 g/l (6.3 lb/gallon), multi-colored coating 275 g/l (2.3 lb/gallon), pigmented coating 275 g/l (2.3 lb/gallon), sanding sealer 275 g/l (2.3 lb/gallon). [District Rules 2201 and 4606]</li> <li>The material VOC content of the coating as applied and used for wood products shall not exceed any of the following limits: low-solid stain 120 g/l (1.0 lb/gallon) and stripper 350 g/l (2.9 lb/gallon). [District Rules 2201 and 4606]</li> </ul>
Coating Category	lb- VOC/gallon of coating, excluding water and exempt compounds, as applied																								
Clear Topcoat	2.3																								
Filler	2.3																								
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Multi-Colored Coating	2.3																								
Pigmented Coating	2.3																								
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Coating Category	lb-VOC/gallon of material, as applied																								
Low-Solids Stain	1.0																								
Stripper	2.9																								
<p>Section 5.5 states that an operator shall not apply coatings to wood products unless the coating is applied using one of the following methods:</p> <ol style="list-style-type: none"> <li>1. Electrostatic Application;</li> <li>2. High-Volume, Low Pressure (HVLP) Spray;</li> <li>3. Hand Roller</li> <li>4. Flow Coat</li> <li>5. Roll Coater</li> <li>6. Dip Brush</li> <li>7. Paint Brush</li> <li>8. Detailing or Touch-up guns</li> </ol>	<p>The applicant is proposing the use of HVLP Spray equipment. The following condition will be included on the permit:</p> <ul style="list-style-type: none"> <li>Only HVLP, electrostatic, brush, dip, flow, or roll coating application equipment shall be used, and the application equipment shall be operated in accordance with the manufacturer's recommendations. [District Rules 2201 and 4606]</li> </ul>																								

<p>Section 5.5.2.1 states that High-Volume, Low-Pressure (HVLP) spray equipment shall be operated in accordance with manufacturer's recommendations.</p> <p>Section 5.5.2.2 states that for HVLP spray guns manufactured prior to January 1, 1996, the end user shall demonstrate that the gun meets HVLP spray equipment standards. Satisfactory proof will be either in the form of manufacturer's published technical material or by a demonstration using a certified air pressure tip gauge, measuring the air atomizing pressure dynamically at the center of the air cap and at the air horns.</p>	<p>The following condition will be included on the permit:</p> <ul style="list-style-type: none"> <li>• <i>The permittee shall demonstrate that HVLP guns manufactured prior to 1/1/96 operate between 0.1 and 10 psig air atomizing pressure, by manufacturer's published technical material or by use of a certified air pressure tip gauge. [District Rule 4606]</i></li> </ul>
<p>Sections 5.7 and 6.4 list organic solvent cleaning requirements.</p>	<p>District Rule 4606's definition of organic solvent references the District Rule 4663 definition, which defines solvent as:</p> <p><i>"any liquid containing a volatile organic compound or combination of volatile organic compounds, which is used as a diluent, thinner, dissolver, viscosity reducer, cleaning agent, or for other similar uses. These liquids are principally derived from petroleum and include petroleum distillates, chlorinated hydrocarbons, chlorofluorocarbons, ketones, and alcohols".</i></p> <p>The applicant is proposing to utilize acetone for cleaning operations. Acetone is an exempt compound per District Rule 1020; thus it is not a VOC. Since acetone does not contain VOC's by District definition, it is not an organic solvent as defined in District Rule 4663. The following condition will be included on the permit:</p> <ul style="list-style-type: none"> <li>• <i>VOC content of solvents used shall not exceed any of the following limits: product cleaning during manufacturing process or surface preparation for coating application: 25 g/l (0.21 lb/gal), repair and maintenance cleaning: 25 g/l (0.21 lb/gal), and cleaning of coating application equipment: 25 g/l (0.21 lb/gal). [District Rule 4606]</i></li> </ul>
<p>Section 5.8 lists the organic solvent disposal and storage requirements.</p>	<p>The following condition will be included on the permit:</p> <ul style="list-style-type: none"> <li>• <i>{4221} An operator shall store or dispose of fresh or spent solvents, waste solvent cleaning material such as cloth, paper, etc., coating, adhesives, catalysts, and thinners in closed, non-absorbent and non-leaking containers. The containers shall remain closed at all times except when depositing or removing the contents of the containers or when the container is empty. [District Rule 4606]</i></li> </ul>



<p>Section 6.1 states that the records specified in Sections 6.1 through 6.4 must be kept on site for a period of five years, and made available on-site during normal business hours to the APCO, ARB, or EPA, or must be submitted to the APCO, ARB, or EPA upon request.</p>	<p>The following condition will be included on the permit:</p> <ul style="list-style-type: none"> <li>All records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rules 2201 and 4606]</li> </ul>
<p>Section 6.2.1 states that the operator must maintain a list of coatings, inks, adhesives, and solvents in use which provides all of the data necessary to evaluate compliance, including the following information:</p> <ol style="list-style-type: none"> <li>Identify coatings, catalysts, reducers, inks, adhesives, and solvents.</li> <li>Manufacturer's recommended mix ratio of components.</li> <li>VOC content of coatings, as applied.</li> <li>VOC content of solvents.</li> <li>VOC content of inks, as applied.</li> <li>VOC content of adhesives, as applied.</li> <li>Maintain daily records on an a daily basis that provide the following information, as applicable:             <ol style="list-style-type: none"> <li>coating and mix ratio of components in the coating used.</li> <li>quantity of each coating applied.</li> <li>identification of coating category.</li> <li>Identification and quantity of each ink used.</li> <li>Identification and quantity of each adhesive used.</li> <li>Type and amount of solvent used for cleanup and surface preparation.</li> </ol> </li> </ol>	<p>This operation does not use solvents, inks, or adhesives. The following condition will be included on the permit to address the applicable recordkeeping requirements:</p> <ul style="list-style-type: none"> <li>The permittee shall maintain daily records of the following: quantity and type of coatings, catalysts, reducers and solvents used, mix ratios (by volume) of components added to each coating, VOC content of solvents and coatings, as applied. [District Rules 2201 and 4606]</li> </ul>

This operation is expected to comply with all VOC limit, application, control, evaporative loss minimization, administrative, and record keeping requirements of this rule.

**Rule 4612 Motor Vehicle and Mobile Equipment Coating Operations Phase II**

The purpose of this rule is to limit volatile organic compound (VOC) emissions from coatings associated with the coatings of motor vehicles, mobile equipment, and associated parts and components. It also limits the VOC emissions from the organic solvent cleaning, storage, and disposal associated with such operations.

District Rule 4612 Requirements	Method of Compliance
<p>Section 5.1 states that no person shall apply to any motor vehicle, mobile equipment, or associated parts and components, any coating with a VOC regulatory content, as calculated pursuant to Section 3.45.1, in excess of an applicable limit in Table I (listed below), except as provided in Section 5.3.</p>	<p>The applicant has proposed coatings used at the facility that will meet the VOC content requirements of this rule. The following condition will be listed on the ATC to ensure compliance:</p> <ul style="list-style-type: none"> <li>The VOC Regulatory content of coatings, as applied shall not exceed any of the following limits: adhesion promoter 540 g/l (4.5 lb/gal), clear coating 250 g/l (2.1 lb/gal), color coating 420 g/l (3.5 lb/gal), multi-color coating 680 g/l (5.7 lb/gal), pretreatment</li> </ul>

Rule 4612 Emission Limits (Table 1)	
Coating Category	VOC Regulatory Limit, as applied, in grams/liter (pounds per gallon)
	Effective after 1/1/2010
Adhesion Promoter	540 (4.5)
Clear Coating <sup>(1)</sup>	250 (2.1)
Color Coating <sup>(1)</sup>	420 (3.5)
Multi-Color Coating	680 (5.7)
Pretreatment Coating	660 (5.5)
Primer <sup>(1)</sup>	250 (2.1)
Primer Sealer	250 (2.1)
Single-Stage Coating	340 (2.8)
Temporary Protective Coating	60 (0.5)
Truck Bed Liner Coating	310 (2.6)
Underbody Coating	430 (3.6)
Uniform Finish Coating	540 (4.5)
Any other coating type	250 (2.1)

(1) Coatings proposed by the applicant.

coating 660 g/l (5.5 lb/gal), primer 250 g/l (2.1 lb/gal), primer sealer 250 g/l (2.1 lb/gal), single-stage coating 340 g/l (2.8 lb/gal), temporary protective coating 60 g/l (0.5 lb/gal), truck bed liner coating 310 g/l (2.6 lb/gal), underbody coating 430 g/l (3.6 lb/gal), uniform finish coating 540 g/l (4.5 lb/gal), and any other coating type 250 g/l (2.1 lb/gal). The VOC Regulatory content for coatings shall be defined as the VOC in grams per liter of coating (or pounds per gallon of coating), excluding water and exempt compounds. [District Rules 2201 and 4612]

Section 5.7, Coating Application Methods, states that except for underbody coatings, graphic arts operations, truck bed liner coatings, or any coating use of less than one fluid ounce, no person shall apply any coating to any motor vehicle, mobile equipment, or associated parts or components unless of one of the following application methods is used:

1. Brush, dip or roller.
2. Electrostatic spray.
3. High-volume Low-pressure (HVLP) spray equipment.

The applicant has proposed to use HVLP spray guns. The applicant will also be subject to the requirements of Sections 5.7.3.1 and 5.7.3.2. The following permit conditions will appear on the ATC permit:

- {4237} Only high-volume low-pressure (HVLP) spray equipment, electrostatic, bush, dip, or roll coating application equipment, or other application equipment approved by the District in writing, shall be used. All application equipment shall be operated in accordance with the manufacturer's recommendations. [District Rules 2201 and 4612]
- {4238} If an HVLP spray gun is used, the operator must demonstrate that the spray gun operates between 0.1 and 10 pounds per square inch, gauge, (psig) air atomizing pressure, measured dynamically at the center of the air cap and at the air horns. For a gun permanently labeled HVLP by the manufacturer, a satisfactory demonstration shall either be in the form of manufacturer's published technical information or by a

	<p>demonstration of the operation of the gun using an air pressure tip gauge from the manufacturer of the gun. For a gun not permanently labeled HVLP by the manufacturer, a satisfactory demonstration shall be based on manufacturer's published technical material and by a demonstration of the operation of the gun using an air pressure tip gauge from the manufacturer of the gun. [District Rule 4612]</p>
<p>Sections 6.3 and 6.4 lists the record keeping requirements for motor vehicle and mobile equipment coating operations.</p>	<p>The following permit conditions will appear on the ATC permit:</p> <ul style="list-style-type: none"> <li>• {4242} The permittee shall maintain and have available at all times the following: a current list of all coatings used that includes the material name and manufacturer, application method, coating type and mix ratio specific to the coating, and the VOC Actual for Coatings and VOC Regulatory for Coatings as applied; current manufacturer specification sheets, material safety data sheets (MSDS), technical data sheets, or air quality data sheets, which list the VOC Actual for Coatings and VOC Regulatory for Coatings of each ready-to-spray coating and automotive coating components; and purchase records identifying the coating type, name, and volume of coatings bought. [District Rule 4612]</li> <li>• {4243} The permittee shall keep the following records for each solvent used for cleaning activities: the quantity of solvent used; a copy of the manufacturer's product data or material safety data sheet (MSDS); the solvent's name and manufacturer, the VOC content of the solvent in grams/liter or pounds/gallon, and the mix ratio and VOC content of the batch when the solvent is a mixture of different materials blended by the permittee. [District Rule 4612]</li> <li>• These records shall be retained on-site for a minimum of five years and made available for District inspection upon request. [District Rule 4612]</li> </ul>

**California Health & Safety Code 42301.6 (School Notice)**

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required. See area site map.

### **California Environmental Quality Act (CEQA)**

The California Environmental Quality Act (CEQA) requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The San Joaquin Valley Unified Air Pollution Control District (District) adopted its *Environmental Review Guidelines* (ERG) in 2001.

The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or significantly reduced.
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15031 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

On December 17, 2009, the District's Governing Board adopted the first comprehensive regional policy and guidance on addressing and mitigating GHG emission impacts caused by industrial, commercial, and residential development in the San Joaquin Valley. The adopted District policy – *Addressing GHG Emission Impacts for Stationary Source Projects under CEQA When Serving as the Lead Agency* applies to projects for which the District has discretionary approval authority over the project and serves as the lead agency for CEQA purposes. The policy relies on the use of performance based standards, otherwise known as Best Performance Standards (BPS) to assess significance of project specific greenhouse gas emissions on global climate change during the environmental review process, as required by CEQA.

The District's engineering evaluation (this document) demonstrates that the project would not result in an increase in project specific greenhouse gas emissions. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

**IX. RECOMMENDATIONS**

Compliance with all applicable prohibitory rules and regulations is expected. Issue Authority to Construct permits N-283-33-1 and N-283-40-0 subject to the permit conditions on the attached Authority to Construct permits.

**X. BILLING INFORMATION**

<b>Permit Numbers</b>	<b>Fee Schedule</b>	<b>Fee Description</b>	<b>Previous Fee Schedule</b>
N-283-33-1	3020-01-A	3.0 hp	Same
N-283-40-0	3020-01-A	5.0 hp	None

**APPENDICES**

- Appendix A: Draft Authority to Construct (ATCs) N-283-33-1 and N-283-40-0*
- Appendix B: Facility's Annual Emissions Inventory Reports (2009 – 2011)*
- Appendix C: Quarterly Net Change in Emissions*
- Appendix D: BACT Top-down analysis and BACT Guidelines 4.2.1 & 4.4.1*
- Appendix E: AAQA Analysis*
- Appendix F: RMR Summary*
- Appendix G: Natural gas costs*

# ***APPENDIX A***

DRAFT AUTHORITY TO CONSTRUCT PERMITS

N-283-331 and N-283-40-0

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT

PERMIT NO: N-283-33-1

LEGAL OWNER OR OPERATOR: DEUEL VOCATIONAL INSTITUTE  
MAILING ADDRESS: PO BOX 400  
TRACY, CA 95378

LOCATION: 23500 KASSON RD  
TRACY, CA 95378

**EQUIPMENT DESCRIPTION:**

MODIFICATION TO ESTABLISH A COMBINED ANNUAL VOC EMISSIONS LIMIT OF 14,235 LBS WITH PERMIT UNIT N-283-40-0. WOOD PARTS AND PRODUCTS COATING OPERATION WITH A SPRAY TECH OPEN-FACE SPRAY BOOTH.

**CONDITIONS**

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
3. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
4. {271} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
5. The exhaust fan shall be turned on prior to the start of wood products coating operations. [District Rule 2201]
6. PM10 emissions shall not exceed 7.8 pounds per day. [District Rule 2201]
7. VOC emissions shall not exceed 39.0 pounds per day. [District Rule 2201]
8. Combined VOC emissions from permit units N-283-33 and N-283-40 shall not exceed 14,235 lbs during any one rolling 12-month period. [District Rule 2201]
9. {3244} VOC content of coatings as applied, excluding water and exempt compounds, used for wood product, shall not exceed any of the following limits: clear topcoat 275 g/l (2.3 lb/gallon), filler 275 g/l (2.3 lb/gallon), high-solids stains 240 g/l (2.0 lb/gallon), ink 500 g/l (4.2 lb/gallon), mold-seal coating 750 g/l (6.3 lb/gallon), multi-colored coating 275 g/l (2.3 lb/gallon), pigmented coating 275 g/l (2.3 lb/gallon), sanding sealer 275 g/l (2.3 lb/gallon). [District Rule 4606]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

DAVID WARNER, Director of Permit Services

N-283-33-1 Oct 4 2012 9:42AM CRUZF Joint Inspection NDT Required

10. {3245} VOC content of materials for wood products, as applied, shall not exceed any of the following limits: low-solids stain 120 g/l (1.0 lb/gallon), stripper 350 g/l (2.9 lb/gallon). [District Rule 4606]
11. {1812} VOC content of strippable booth coating shall not exceed 450 g/l (3.8 lb/gallon) as applied, excluding water and exempt compounds. [District Rule 4606]
12. {1813} Only HVLP, electrostatic, brush, dip, flow, or roll coating application equipment shall be used, and the application equipment shall be operated in accordance with the manufacturer's recommendations. [District Rule 4606]
13. {1814} Permittee shall demonstrate that HVLP guns manufactured prior to 1/1/96 operate between 0.1 and 10 psig air atomizing pressure, by manufacturer's published technical material or by use of a certified air pressure tip gauge. [District Rule 4606]
14. {4220} VOC content of solvents used shall not exceed any of the following limits: product cleaning during manufacturing process or surface preparation for coating application: 25 g/l (0.21 lb/gal), repair and maintenance cleaning: 25 g/l (0.21 lb/gal), and cleaning of coating application equipment: 25 g/l (0.21 lb/gal). [District Rule 4606]
15. {4221} An operator shall store or dispose of fresh or spent solvents, waste solvent cleaning material such as cloth, paper, etc, coating, adhesives, catalysts, and thinners in closed, non-absorbent and non-leaking containers. The containers shall remain closed at all times except when depositing or removing the contents of the containers or when the container is empty. [District Rule 4606]
16. {1827} Permittee shall maintain daily records of the following: quantity and type of coatings and solvents used, mix ratios (by volume) of components added to each coating, volume of coatings applied, VOC content of each coating as applied, and VOC content of each solvent or stripper. [District Rule 4606]
17. {1896} Permittee shall keep the following records for solvent cleaning activities: manufacturers product data sheet or MSDS of solvents used, VOC content of solvents in g/l or lb/gal, and the type of cleaning activity for which each solvent is used. [District Rule 4606]
18. The permittee shall maintain daily records of the PM10 and VOC emissions from this coating operation. [District Rule 2201]
19. The permittee shall maintain records of the combined VOC emissions from permit units N-283-33 and N-283-40, on a rolling 12-month basis. These records shall be updated at least monthly. [District Rule 2201]
20. Records shall be retained on-site for a minimum of five years and made available for District inspection upon request. [District Rules 2201 and 4606]

DRAFT



San Joaquin Valley  
Air Pollution Control District

## AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: N-283-40-0

LEGAL OWNER OR OPERATOR: DEUEL VOCATIONAL INSTITUTE  
MAILING ADDRESS: PO BOX 400  
TRACY, CA 95378

LOCATION: 23500 KASSON RD  
TRACY, CA 95378

**EQUIPMENT DESCRIPTION:**

MOTOR VEHICLE AND MOBILE EQUIPMENT COATING OPERATION SERVED BY AN ENCLOSED PAINT SPRAY BOOTH WITH DRY EXHAUST FILTERS AND HVLP SPRAY GUNS.

### CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
3. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
4. {4441} Booth shall be equipped with dry filters achieving a PM10 capture efficiency of at least 95% by weight. [District Rule 2201]
5. {271} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
6. VOC emissions from this coating operation shall not exceed 54.7 pounds in any one day. [District Rule 2201]
7. {4446} Particulate matter (PM10) emission rate (including painting and priming) shall not exceed 3.6 lb/day. [District Rule 2201]
8. Combined VOC emissions from permit units N-283-33 and N-283-40 shall not exceed 14,235 lbs during any one 12-month rolling period. [District Rule 2201]
9. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rules 2201 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCD

DAVID WARNER, Director of Permit Services

N-283-40-0: Out 4 25 12 8 59AM - CRUIZF - Joint Inspection: NOT Required

10. The exhaust stack shall measure at least 26 feet from ground level. [District Rule 2201]
11. {369} No coatings, solvents, or additives containing chromium compounds shall be used. [District Rule 4102]
12. {1984} No coatings, solvents, or additives containing lead compounds shall be used. [District Rule 4102]
13. No coatings, solvents, or additives containing cadmium compounds shall be used. [District Rule 4102]
14. No coatings, solvents, or additives containing nickel compounds shall be used. [District Rule 4102]
15. The application of coatings shall be conducted in booth with filters in place, fan(s) operating, and doors closed. [District Rule 2201]
16. {4237} Only high-volume low-pressure (HVLP) spray equipment, electrostatic, brush, dip, or roll coating application equipment, or other application equipment approved by the District in writing, shall be used. All application equipment shall be operated in accordance with the manufacturer's recommendations. [District Rules 2201 and 4612]
17. {4238} If an HVLP spray gun is used, the operator must demonstrate that the spray gun operates between 0.1 and 10 pounds per square inch, gauge, (psig) air atomizing pressure, measured dynamically at the center of the air cap and at the air horns. For a gun permanently labeled HVLP by the manufacturer, a satisfactory demonstration shall either be in the form of manufacturer's published technical information or by a demonstration of the operation of the gun using an air pressure tip gauge from the manufacturer of the gun. For a gun not permanently labeled HVLP by the manufacturer, a satisfactory demonstration shall be based on manufacturer's published technical material and by a demonstration of the operation of the gun using an air pressure tip gauge from the manufacturer of the gun. [District Rule 4612]
18. {4241} All fresh or spent solvents, waste solvent cleaning materials such as cloth, paper, etc., coatings, adhesives, catalysts, and thinners shall be stored in closed, non-absorbent and non-leaking containers. The containers shall remain closed at all times except when depositing or removing the contents of the containers or when the container is empty. [District Rule 4612]
19. {4239} For solvent cleaning operations other than for bug and tar removal, the permittee shall not use solvents that have VOC content greater than 25 g/l (0.21 lb/gal) of cleaning material. [District Rule 4612]
20. {4240} For bug and tar removal, the permittee shall not use any material other than bug and tar remover regulated under the Consumer Products Regulation (California Code of Regulations Section 94507 et seq.). [District Rule 4612]
21. The VOC Regulatory content of coatings, as applied shall not exceed any of the following limits: adhesion promoter 540 g/l (4.5 lb/gal), clear coating 250 g/l (2.1 lb/gal), color coating 420 g/l (3.5 lb/gal), multi-color coating 680 g/l (5.7 lb/gal), pretreatment coating 660 g/l (5.5 lb/gal), primer 250 g/l (2.1 lb/gal), primer sealer 250 g/l (2.1 lb/gal), single-stage coating 340 g/l (2.8 lb/gal), temporary protective coating 60 g/l (0.5 lb/gal), truck bed lining coating 310 g/l (2.6 lb/gal), underbody coating 430 g/l (3.6 lb/gal), uniform finish coating 540 g/l (4.5 lb/gal), and any other coating type 250 g/l (2.1 lb/gal). The VOC Regulatory content for coatings shall be defined as the VOC in grams per liter of coating (or pounds per gallon of coating), excluding water and exempt compounds. [District Rules 2201 and 4612]
22. {4242} The permittee shall maintain and have available at all times the following: a current list of all coatings used that includes the material name and manufacturer, application method, coating type and mix ratio specific to the coating, and the VOC Actual for Coatings and VOC Regulatory for Coatings as applied; current manufacturer specification sheets, material safety data sheets (MSDS), technical data sheets, or air quality data sheets, which list the VOC Actual for Coatings and VOC Regulatory for Coatings of each ready-to-spray coating and automotive coating components; and purchase records identifying the coating type, name, and volume of coatings bought. [District Rule 4612]
23. The permittee shall maintain records that include: (a) Date; (b) Description of the item(s) coated; (c) Amount of each coating and solvent used (in gallons); and (d) Amount of VOC and PM10 emitted, in pounds per day, from this coating operation. [District Rule 2201]
24. The permittee shall maintain records of the combined VOC emissions from permit units N-283-33 and N-283-40, on a rolling 12-month basis. These records shall be updated at least monthly. [District Rule 2201]
25. Records shall be retained on-site for a minimum of five years and made available for District inspection upon request. [District Rules 2201 and 4606]

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## **APPENDIX B**

Facility's Annual Emission Inventory Reports  
(2009 – 2011)

42401 Sulfur Dioxide 2.12E-01 0.00E+00 0.00E+00 District - Permit (0.0015% S)

2011 EMISSIONS INVENTORY

**Device: 31**      **Device Name: 840 HP Diesel Fired Emergency IC Engine**

**Process: 1**      **Process Description: 840 HP Diesel-Fired Emergency IC Engine - Testing**

**Process Rate: 5.00E-01**      **Units: THOUSANDS OF GALLONS**

CAS	Pollutant	Emission Factor	Yearly Emissions	Hourly Emissions	Memo	1/2 App Deg
42101	Carbon Monoxide	1.58E+01	3.95E-03	3.52E-04	District Permit (0.38 g/hp-hr)	
42603	Oxides of Nitrogen	1.75E+02	4.38E-02	3.90E-03	District Permit (4.217 g/hp-hr)	
85101	Particulate Matter 10	1.91E+00	4.78E-04	4.25E-05	District Permit (0.046 g/hp-hr)	
16113	Reactive Organic Gas	2.16E+00	5.40E-04	4.81E-05	District Permit (0.052 g/hp-hr)	
42401	Sulfur Dioxide	2.12E-01	5.30E-05	4.72E-06	CARB Emission Factor (0.0015% S)	
124389	Carbon dioxide	2.24E+04	5.07E+00	4.52E-01	GHG: CARB GHG Reg. App A, Tbl 4. Distillate Fuel Oil (#1, 2 & 4)	
74828	Methane	9.17E-01	2.08E-04	1.85E-05	GHG: CARB GHG Reg. App A, Tbl 6. Distillate	
10024972	Nitrous oxide	1.83E-01	4.16E-05	3.71E-06	GHG: CARB GHG Reg. App A, Tbl 6. Distillate	
9901	Diesel engine exhaust, parti	1.91E+00	9.55E-01	8.51E-02	Fugitive Toxics: Diesel Engine Particulate Matter	50

**Device: 32**      **Device Name: Powder Coating Operation**

**Process: 1**      **Process Description: Metal & Wood Coating - Powder Paint**

**Process Rate: 0.00E+00**      **Units: TONS COATING MIX APPLIED**

CAS	Pollutant	Emission Factor	Yearly Emissions	Hourly Emissions	Memo	1/2 App Deg
85101	Particulate Matter 10	5.72E+00	0.00E+00	0.00E+00	District Permit (0.00286 lb/lb)	
16113	Reactive Organic Gas	2.00E+01	0.00E+00	0.00E+00	District Permit (0.01 lb/lb)	

**Device: 33**      **Device Name: Wood Parts Coating**

Note: Toxic emissions are reported in pounds, criteria emissions in tons, and greenhouse gas emissions in metric tons.

**Process: 1**      **Process Description: Metal & Wood Coating - Stains**

2011 EMISSIONS INVENTORY

**Process Rate: 0.00E+00**

**Units: GALLONS COATING**

CAS	Pollutant	Emission Factor	Yearly Emissions	Hourly Emissions	Memo	1/2 App Deg
16113	Reactive Organic Gas	7.30E-01	0.00E+00	0.00E+00	Applicant - 0.73 lb/gal	

**Process: 2**      **Process Description: Metal & Wood Coating - Laquers**

**Process Rate: 0.00E+00**

**Units: GALLONS COATING**

CAS	Pollutant	Emission Factor	Yearly Emissions	Hourly Emissions	Memo	1/2 App Deg
16113	Reactive Organic Gas	3.70E-01	0.00E+00	0.00E+00	Applicant - 0.37 lb/gal	

**Process: 3.**      **Process Description: Metal & Wood Coating - Sealers**

**Process Rate: 0.00E+00**

**Units: GALLONS COATING**

CAS	Pollutant	Emission Factor	Yearly Emissions	Hourly Emissions	Memo	1/2 App Deg
16113	Reactive Organic Gas	3.00E-01	0.00E+00	0.00E+00	Applicant - 0.30 lb/gal	

Note: Toxic emissions are reported in pounds, criteria emissions in tons, and greenhouse gas emissions in metric tons.

Wednesday, April 11, 2012

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124389	Carbon dioxide	2.24E+04	9.02E-01	4.52E-01	GHG: CARB GHG Reg. App A, Tbl 4. Distillate Fuel Oil (#1, 2 & 4)	
74828	Methane	9.17E-01	3.70E-05	1.85E-05	GHG: CARB GHG Reg. App A, Tbl 6. Distillate	
10024972	Nitrous oxide	1.83E-01	7.41E-06	3.71E-06	GHG: CARB GHG Reg. App A, Tbl 6. Distillate	
9901	Diesel engine exhaust, parti	1.91E+00	1.70E-01	8.51E-02	Fugitive Toxics: Diesel Engine Particulate Matter	50

**Device: 32      Device Name: Powder Coating Operation**

**Process: 1      Process Description: Metal & Wood Coating - Powder Paint**

**Process Rate: 4.00E-02      Units: TONS COATING MIX APPLIED**

CAS	Pollutant	Emission Factor	Yearly Emissions	Hourly Emissions	Memo	1/2 App Deg
85101	Particulate Matter 10	5.72E+00	1.14E-04	0.00E+00	District Permit (0.00286 lb/lb)	
16113	Reactive Organic Gas	2.00E+01	4.00E-04	0.00E+00	District Permit (0.01 lb/lb)	

**Device: 33      Device Name: Wood Parts Coating**

**Process: 1      Process Description: Metal & Wood Coating - Stains**

**Process Rate: 6.5      Units: GALLONS COATING**

CAS	Pollutant	Emission Factor	Yearly Emissions	Hourly Emissions	Memo	1/2 App Deg
16113	Reactive Organic Gas	7.30E-01	2.37E-03	1.46E-06	Applicant - 0.73 lb/gal	

**Process: 2      Process Description: Metal & Wood Coating - Laquers**

**Process Rate: 17.2      Units: GALLONS COATING**

CAS	Pollutant	Emission Factor	Yearly Emissions	Hourly Emissions	Memo	1/2 App Deg
16113	Reactive Organic Gas	3.70E-01	3.18E-03	1.85E-06	Applicant - 0.37 lb/gal	

Note: Toxic emissions are reported in pounds, criteria emissions in tons, and greenhouse gas emissions in metric tons.

**Process: 3**      **Process Description: Metal & Wood Coating - Sealers**

**Process Rate: 13.3**      **Units: GALLONS COATING**

CAS	Pollutant	Emission Factor	Yearly Emissions	Hourly Emissions	Memo	1/2 App Deg
16113	Reactive Organic Gas	3.00E-01	2.00E-03	1.20E-06	Applicant - 0.30 lb/gal	

Note: Toxic emissions are reported in pounds, criteria emissions in tons, and greenhouse gas emissions in metric tons.

**Device: 33      Device Name: Wood Parts Coating**

**Process: 1      Process Description: Metal & Wood Coating - Stains**

**Process Rate: 15.1      Units: GALLONS COATING**

CAS	Pollutant	Emission Factor	Yearly Emissions	Hourly Emissions	Memo	1/2 App Deg
16113	Reactive Organic Gas	7.30E-01	5.51E-03	3.28E-06	Applicant - 0.73 lb/gal	

**Process: 2      Process Description: Metal & Wood Coating - Laquers**

**Process Rate: 34.2      Units: GALLONS COATING**

CAS	Pollutant	Emission Factor	Yearly Emissions	Hourly Emissions	Memo	1/2 App Deg
16113	Reactive Organic Gas	3.70E-01	6.33E-03	3.81E-06	Applicant - 0.37 lb/gal	

**Process: 3      Process Description: Metal & Wood Coating - Sealers**

**Process Rate: 27.6      Units: GALLONS COATING**

CAS	Pollutant	Emission Factor	Yearly Emissions	Hourly Emissions	Memo	1/2 App Deg
16113	Reactive Organic Gas	3.00E-01	4.14E-03	2.49E-06	Applicant - 0.30 lb/gal	

Note: Toxic emissions are reported in pounds, criteria emissions in tons, and greenhouse gas emissions in metric tons.



# APPENDIX C

## Quarterly Net Emissions Change (QNEC) Calculations

The QNEC is calculated solely for emissions that are entered in the District's PAS database emissions profile.

N-283-33-1:

$$\Delta PE_{PM_{10}} = 2,847 \text{ lb-PM}_{10}/\text{year} - 2,847 \text{ lb-PM}_{10}/\text{year} = 0 \text{ lb/year}$$

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
PM <sub>10</sub>	0	0	0	0

$$\Delta PE_{VOC} = 14,235 \text{ lb-VOC}/\text{year} - 14,235 \text{ lb-VOC}/\text{year} = 0 \text{ lb/year}$$

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
VOC	0	0	0	0

N-283-40-0:

$$\Delta PE_{PM_{10}} = 657 \text{ lb-PM}_{10}/\text{year} - 0 \text{ lb-PM}_{10}/\text{year} = 657 \text{ lb/year}$$

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
PM <sub>10</sub>	164	164	164	165

$$\Delta PE_{VOC} = 14,256 \text{ lb-VOC}/\text{year} - 14,235 \text{ lb-VOC}/\text{year} = 0 \text{ lb/year}$$

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
VOC	0	0	0	0

San Joaquin Valley  
Unified Air Pollution Control District

**Best Available Control Technology (BACT) Guideline 4.2.1\***

Last Update 3/23/2010

**Automotive Spray Painting Operation, < 5.0 MMBtu/hr\*\***

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
NOx	Natural gas or LPG fired burner		
PM10	Spray Booth with Exhaust Filters; 95% control efficiency		Other compliant coating methods as stated in Rule 4612
VOC	HVLP spray guns, coatings, cleaning materials, and solvents compliant with District Rule 4612	VOC capture and control system	Other compliant coating methods as stated in Rule 4612

\*\* This Determination is also applicable to automotive spray painting operations without a heat source

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

**\*This is a Summary Page for this Class of Source**

San Joaquin Valley  
Unified Air Pollution Control District

**Best Available Control Technology (BACT) Guideline 4.4.1\***

Last Update 10/16/1996

**Wood Products Coating Operation -  
Non-Continuous Batch Coating**

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
PM10	Enclosed spray booth with exhaust filters and HVLP or equivalent application equipment		
VOC	Utilizing HVLP or equivalent application equipment and using coatings compliant with District Rule 4606	<ol style="list-style-type: none"> <li>1. 100% capture efficiency (closed-face booth) with thermal/catalytic incineration, and using coatings with a VOC content (less water and exempt compounds) of 4.6 lb/gal for clear topcoats, 5.0 lb/gal for high-solids coatings, 4.6 lb/gal for sanding sealers, 2.2 lb/gal for water based pigmented primers and 2.4 lb/gal for water based pigmented topcoats</li> <li>2. 100% capture efficiency (closed-face booth) with carbon adsorption, and using coatings with a VOC content (less water and exempt compounds) of 4.6 lb/gal for clear topcoats, 5.0 lb/gal for high-solids coatings, 4.6 lb/gal for sanding sealers, 2.2 lb/gal for water based pigmented primers and 2.4 lb/gal for water based pigmented topcoats</li> <li>3. Utilizing HVLP or equivalent application equipment and coatings with a VOC content (less water and exempt compounds) of 4.6 lb/gal for clear topcoats, 3.2 lb/gal for high-solids coatings, 4.6 lb/gal for sanding sealers, 0.68 lb/gal for water based pigmented primers, and 1.62 lb/gal for water based pigmented topcoats</li> </ol>	

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

**\*This is a Summary Page for this Class of Source**

# APPENDIX D

## Top Down BACT Analysis and BACT Guidelines 4.2.1 and 4.4.1

### Top Down BACT Analysis for VOC Emissions:

Both emission units, the wood products coating operation and the motor vehicle coating operation, trigger BACT for VOC emissions. A cost effectiveness analysis will be performed assuming that there is one control device used for the two emission units with an airflow of 30,000 cfm from the wood products coating operation booth.

#### Step 1 - Identify All Possible Control Technologies

The SJVAPCD BACT Clearinghouse guideline 4.2.1, 1<sup>st</sup> quarter 2010, identifies the achieved in practice and technologically feasible BACT control technologies for motor vehicle and mobile equipment coating operations for VOC emissions as follows:

- 1) Use of HVLP spray guns, coatings, cleaning materials and solvents compliant with District Rule 4612 - achieved in practice.
- 2) VOC capture and control system - technologically feasible.

The SJVAPCD BACT Clearinghouse guideline 4.4.1, 4th quarter 1996, identifies the achieved in practice and technologically feasible BACT control technologies for wood products coating operation, non-continuous batch coating operations, for VOC emissions as follows:

- 1) Use of HVLP, or equivalent application equipment, and use of coatings compliant with District Rule 4606 - achieved in practice.
- 2) VOC capture and control system - technologically feasible.

#### Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

#### Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. VOC capture and control system: 98% control for thermal oxidizer and 95% for catalytic oxidizer – technologically feasible.
2. HVLP spray guns, coatings compliant with District rules - achieved in practice.

#### Step 4 - Cost Effectiveness Analysis - VOC capture and control systems

A cost-effective analysis will be performed for the control technologies specified above, since none of the control technologies have been eliminated. As shown in this document the uncontrolled VOC emissions from this coating operation is limited to 14,235 lb-VOC/yr. <sup>1</sup>

For the 1<sup>st</sup> most effective VOC capture and control option:

(1) Use of a thermal/catalytic incinerator:

The cost of a thermal incineration unit is estimated using the calculations from Chapter 11 of Air Pollution Control - A Design Approach by C. David Cooper and F.C. Alley.

##### Capital Cost:

Thermal Oxidizer:

The purchase price for a packaged thermal incinerator is based on the following formula:

$$P(\$) = aQ_{50}^b$$

Where  $Q_{50}$  = flue gas flow rate (scfm)  
a,b = regression parameters from Table 11.5

For a thermal incinerator, the average heat exchanger efficiency is 50%. At this efficiency,  $a = 4,920$  and  $b = 0.389$ .

$$P = (4,920) \times 30,000^{0.389} = \$271,372$$

##### Total Capital Investment:

The total capital investment is equal to 1.25 times the purchase cost. The sales tax and freight charges total 8% of the base equipment cost.

$$\text{Therefore, TCI (2010 dollars)} = \$271,372 \times (1.25) \times (1.08) = \$366,352$$

Pursuant to the District's BACT Policy section X, (Revised 11/9/1999), the annual cost of installing and maintaining the thermal oxidizer will be calculated as follows. The installation cost will be spread over the expected life of the thermal oxidizer which is estimated at 10 years and using the capital recovery equation (Equation 1). A 10% interest rate is assumed in this equation and the assumption will be made that the equipment has no salvage value at the end of the ten-year cycle.

$$\text{Equation 1: } A = [P \times i \times (i + 1)^n] + [(i+1)^n - 1]$$

Where:

A = Annual Cost

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<sup>1</sup> For this project the worst-case for VOC emissions from the coatings applied within this spray booth will be set to the combined annual VOC emissions limit of 14,235 lbs. See pages 5 and 6 of this document

P = Present Value  
 i = Interest Rate (10%)  
 n = Equipment (10 years)  
 $A = [\$366,352 \times 0.1 \times (1.1)^{10}] \div [(1.1)^{10} - 1] = \$59,622/\text{yr (TCI)}$

The cost of a thermal incineration unit is estimated using the calculations from Chapter 6 of *Estimating Costs of Air Pollution Control* by William M. Vatauvuk. Thermal incineration works by venting the air around the emission source, which contains the harmful VOCs, through an incinerator (heater). The heater raises the temperature of the vented air to a minimum 1400°F, destroying the entrained VOCs.

Per the applicant, this motor vehicle coating operation will be served by a paint spray booth with an exhaust flow rate of 30,000 scfm.

Fuel cost:

Thermal destruction occurs at 1400 to 1600°F.<sup>2</sup> Most thermal destruction operation will utilize a heat exchanger, which serves to reduce the auxiliary heat requirement. The minimal amount of heat required to raise the temperature of air from 77°F to 1400°F is calculated by the following equation:

$$Q = n \times C_p \times \Delta T \times \text{HEF}$$

Where Q = heat required (Btu/min)  
 n = air flow rate (scf/min)  
 Cp = specific heat capacity of air is 0.0192 Btu/scf-°F<sup>3</sup>  
 ΔT = temperature difference between the inlet and outlet, temperature required for thermal destruction to occur.  
 HEF = heat exchanger efficiency, (assume it is 50%<sup>4</sup>).

$$Q = \frac{30,000 \text{ scf}}{\text{min}} \times \frac{0.0192 \text{ Btu}}{\text{scf} \cdot \text{F}} \times (1400 - 77) \text{ F} \times 0.5 = 381,024 \frac{\text{Btu}}{\text{min}}$$

Therefore, natural gas usage for this control device is 381,024 Btu/min.

However, a certain amount of heat will come from the VOC being combusted in the incinerator; this amount of heat will be subtracted from the heat input required to operate the incinerator. The heating value of the VOC mixtures will be based on the heating value of ethyl benzene since this compound was used in RMR for this project. The heating value is 17,600 Btu/lb and this value will be utilized in the calculation below:<sup>5</sup>

VOC heat content = Uncontrolled VOC lb/year × heating value of methane Btu/lb

<sup>2</sup> Thermal destruction occurs in the range of 1400 to 1600°F (per *Estimating Costs of Air Pollution Control*, by William M. Vatauvuk, Chapter 6, page 144).

<sup>3</sup> By linear interpolation, the mean Cp is calculated to be 0.0192 Btu/scf-°F (per *Estimating Costs of Air Pollution Control*, by William M. Vatauvuk, Ch. 6, and Pg.148).

<sup>4</sup> Assume this is a two-pass configuration heat exchanger, and the heat exchanger efficiency is 50% (per *Estimating Costs of Air Pollution Control*, by William M. Vatauvuk, Ch6, and Pg. 147).

<sup>5</sup> Heating value of ethyl benzene is 40.938 MJ/kg. 1 MJ = 947.8 Btu [40.938 MJ/kg × 947.8 Btu/MJ] ÷ 2.2046 lb/kg = 17,600 Btu/lb

$$= 14,235 \text{ lb-VOC/year} \times 17,600 \text{ Btu/lb}$$

$$= 250,536,000 \text{ Btu/yr}$$

$$\text{Actual natural gas required} = [(381,024 \text{ Btu/min} \times 120,000 \text{ min/yr}^6) - 250,536,000 \text{ Btu/yr}]$$

$$\times \text{MMBtu}/10^6 \text{ Btu}$$

$$= 45,472 \text{ MMBtu/yr}$$

$$\text{Natural Gas Cost} = 45,472 \text{ MMBtu/yr} \times \$8.86/\text{MMBtu}^7 = \$402,882/\text{yr}$$

For thermal/catalytic incinerator with overall VOC control efficiency 98%, the amount of VOC emissions controlled is calculated as follow:

$$\text{Controlled VOC emissions} = 14,235 \text{ lb-VOC/yr} \times 1 \text{ tons-VOC}/2,000 \text{ lb-VOC} \times 0.98$$

$$= 6.98 \text{ ton-VOC/yr}$$

Cost of VOC reduction is calculated as follow:

$$\text{Cost of VOC reduction} = (\text{Capital Cost} + \text{Total annual cost}) \div \text{controlled VOC emissions}$$

$$= (\$59,622 + \$402,882)/\text{yr} \div 6.98 \text{ ton-VOC/yr}$$

$$= \$66,261/\text{ton-VOC}$$

The calculated cost of VOC reduction exceeds the VOC cost effective threshold of \$17,500/ton (per District Final Staff Report – Update to Rule 2201 Best Available Control Technology (BACT) Cost Effectiveness Thresholds, effective on 5/16/2008). Therefore, this control technology of utilize a thermal incinerator is deemed not cost effective and will be removed from consideration at this time.

For Catalytic Incinerator:

*Total Capital Cost:*

Capital cost is based on EPA’s published document EPA/452/B-02-001 and is referenced to determine the equipment cost (EC) of a catalytic incinerator. The equations, tables or page numbers referenced below are from EPA document EPA/452/B-02-001.

$$\text{EC} = 1215 Q^{0.5575} \text{ (equation 2.36, page 2-38 for an assumed energy recovery of 50\%)}$$

Where, Q = flow rate, scfm

The air flow for this catalytic oxidizer is 30,000 scfm to compensate the air flow from the existing booth.

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<sup>6</sup> Operating schedule proposed by the applicant, (8 hr/day, 5 day/wk., and 50 wk./yr).  
<sup>7</sup> The natural gas price used is based on the national average of the commercial natural gas price from May 2011 to June 2012 as published by the U.S. Energy Information Administration/Natural Gas Monthly report, see Appendix E.

Thus, EC is calculated as follows:

$$\begin{aligned} \text{EC} &= 1215 (30,000 \text{ scfm})^{0.5575} \\ &= \$380,690 \end{aligned}$$

The purchase equipment cost (PEC) includes the equipment cost (EC), plus instrumentation cost (0.1 x EC), sales tax (0.08 x EC), and freight charges (0.05 x EC).

$$\text{EC} = \$380,690$$

Instrumentation cost:	(0.10 x EC) = 0.10 x \$380,690 = \$38,069	
Sales tax:	(0.08 x EC) = 0.08 x \$380,690 = \$30,455	
Freight charges:	(0.05 x EC) = 0.05 x \$380,690 = \$19,035	
	Total:	\$87,559

Total purchase equipment cost (PEC) will equal: \$380,690 + \$87,559 = \$468,249

Direct installation costs:	(0.30 x PEC) = 0.30 x \$468,249 = \$140,475
Indirect installation costs:	(0.31 x PEC) = 0.31 x \$468,249 = \$145,157

Total capital cost will equal: \$468,249 + \$140,475 + \$145,157 = \$753,881

The total capital cost should be annualized over 10 year assuming 10% interest unless a better data is justified. Therefore, the annualized cost of installing a catalytic incinerator would be calculated using following equation:

$$A = (P) \left[ \frac{(i)(1+i)^n}{(1+i)^n - 1} \right]$$

Where:

A: Equivalent annual capital cost of the control equipment

P: Present value of the control equipment

i: Interest rate (District policy is to use 10%)

n: Equipment life (District policy is to use 10 years)

$$A = (\$753,881) \left[ \frac{(0.1)(1+0.1)^{10}}{(1+0.1)^{10} - 1} \right] = \frac{\$122,691}{\text{yr}} \quad (\text{TCC})$$

Fuel cost:

The operation of the catalytic incinerator is very similar to the thermal incinerator, and the major difference is, the combustion temperature in the catalytic incinerators is limited to 600°F due to the presence of catalyst. The minimal amount of heat required to raise the temperature of air from 77°F to 600°F is calculated by the following equation:

$$Q = n \times C_p \times \Delta T \times \text{HEF}$$



$$Q = \frac{30,000 \text{ scf}}{\text{min}} \times \frac{0.0192 \text{ Btu}}{\text{scf} \cdot F} \times (600 - 77)F \times 0.5 = 150,624 \frac{\text{Btu}}{\text{min}}$$

Therefore, the natural gas usage for this control device is 150,624 Btu/min.

$$\begin{aligned} \text{Actual natural gas required} &= [(150,624 \text{ Btu/min} \times 120,000 \text{ min/yr}) - 250,536,000 \text{ Btu/yr}] \\ &\times \text{MMBtu}/10^6 \text{ Btu} = 17,824 \text{ MMBtu/yr} \end{aligned}$$

$$\text{Natural Gas Cost} = 17,824 \text{ MMBtu/yr} \times \$8.86/\text{MMBtu} = \$157,921/\text{yr}$$

Cost of VOC reduction is calculated as follow:

$$\begin{aligned} &= (\text{Total capital cost} + \text{annual cost}) \div \text{controlled VOC emissions} \\ &= (\$122,691 + \$157,921)/\text{yr} \div 6.98 \text{ ton-VOC/yr} \\ &= \$40,202/\text{ton-VOC} \end{aligned}$$

Since the calculated cost of VOC reduction exceeds the VOC cost effective threshold of \$17,500/ton (per District Final Staff Report – Update to Rule 2201 Best Available Control Technology (BACT) Cost Effectiveness Thresholds, effective on 5/16/2008). Therefore, this control technology to use a catalytic incinerator to control VOC emissions is not cost effective and will be removed from consideration at this time.

(2) Utilize the carbon adsorption system:

Carbon adsorption occurs when VOC laden air is blown through a carbon unit and the VOCs are adsorbed onto the surface of the activated carbon.

Two main areas of cost are the cost of the device itself, replacement of the saturated carbon, and the on-going operating cost of the carbon adsorption system. The size of the vessel needed for a typical metal parts and products coating facility, the carbon requirement must be determined.

Since carbon can adsorb 20% of its weight in VOCs and the control efficiency of carbon adsorption is assumed to be 95%, the total amount of carbon required per year can be calculated as follows:

$$\text{VOCs controlled} = 14,235 \text{ lb-VOC/yr} \times 0.95 \times 1 \text{ ton}/2,000 \text{ lb} = 6.76 \text{ ton-VOC/yr}$$

$$\begin{aligned} \text{Carbon required} &= 14,235 \text{ lb-VOC/yr} \times 0.95 \times 1 \text{ lb-Carbon}/0.2 \text{ lb-VOC} \\ &= 67,616 \text{ lb-Carbon/yr} \end{aligned}$$

The assumption is that a small business would purchase a single vessel with an annual carbon replacement instead of paying for frequent carbon replacement and regeneration costs. For this system assume a 68,000 lb system.

The cost of a carbon adsorption system sized for a typical enclosed motor vehicle and mobile equipment spray booth is estimated using the calculations from Chapter 12 of Air Pollution Control - A Design Approach by C. David Cooper and F.C. Alley.

### Capital Cost:

The purchase price for a carbon-steel package absorber, complete with fan, instrumentation and piping can be estimated from the following equation:

$$PEC (\$) = 50,000 + 0.277M_c^{1.200}$$

Where PEC = Purchase price in 1977 dollars  
 $M_c$  = mass of carbon in the system

$$PEC = 50,000 + (0.277)(68,000)^{1.200} \\ = 50,000 + (174,378)$$

$$PEC = \$224,378$$

### Total Capital Investment:

The total capital investment is equal to 1.25 times the purchase cost. The sales tax and freight charges total 8% of the base equipment cost.

Therefore,

$$TCI = (\$224,378) \times (1.25) \times (1.08) = \$302,910$$

Pursuant to the District's BACT Policy section X, (Revised 11/9/99), the annual cost of installing and maintaining the carbon adsorption will be calculated as follows. The installed cost will be spread over the expected life of the carbon adsorption system which is estimated at 10 years and using the capital recovery equation (Equation 1). A 10% interest rate is assumed in this equation and the assumption will be made that the equipment has no salvage value at the end of the ten-year cycle.

Where:

- A: Equivalent annual capital cost of the control equipment
- P: Present value of the control equipment
- I: Interest rate (District policy is to use 10%)
- n: Equipment life (District policy is to use 10 years)

$$A = (\$302,910) \left[ \frac{(0.1)(1+0.1)^{10}}{(1+0.1)^{10} - 1} \right] = \frac{\$49,297}{\text{yr}}$$

### Operating Cost (Annualized Equipment Cost and Carbon Replacement Cost):

Assuming a 2009 price for carbon of \$1.26/lb\*

\*Note: The cost estimate for bulk activated carbon was provided to the District by Siemens Water Technology Corp. on 2/10/2009.

$$\text{Cost of carbon} = 68,000 \text{ lb-carbon/yr} \times \$1.26/\text{lb} = \$85,680/\text{yr}$$

$$\text{Annualized cost of equipment} = \$49,297/\text{yr}$$

Total annual cost = (\$49,297 + \$85,680)/yr = **\$134,977/yr**

Controlled Cost per ton of emissions:

As shown above, the amount of reduction from a carbon adsorption system equals 6.76 tons.

Cost/ton of emissions (\$/ton) = \$134,977 \$/yr ÷ 6.76 ton-VOC/yr  
= \$19,967

Since the calculated cost of VOC reduction exceeds the VOC cost effective threshold of \$17,500/ton (per District Final Staff Report – Update to Rule 2201 Best Available Control Technology (BACT) Cost Effectiveness Thresholds, effective on 5/16/2008). Therefore, this control technology of utilize a carbon adsorption system is deemed not cost effective and will be removed from consideration at this time.

Since the applicant proposed to use the achieved in practice control option listed above, a cost effective analysis for this control option is not required.

**Step 5: Select BACT**

The most cost effectiveness not eliminated in steps 2 and 4 above is the use of HVLP spray guns, coatings, cleaning materials and solvents compliant with District Rule 4612. Therefore, the applicant's proposal meets the BACT requirements for this class and category of source.

# **APPENDIX E**

AAQA Analysis

**San Joaquin Valley Air Pollution Control District  
Risk Management Review  
AAQA ONLY**

To: Fred Cruz – Permit Services

From: Cheryl Lawler – Technical Services

Date: September 13, 2012

Facility Name: Deuel Vocational Institution

Location: 23500 Kasson Road, Tracy

Application Nos: N-283-33-1 & 40-0

Project No: N-1122501

**A. RMR SUMMARY**

<b>RMR Summary</b>			
<b>Categories</b>	<b>Auto Coating Operation (Unit 40-0)</b>	<b>Project Totals</b>	<b>Facility Totals</b>
<b>Prioritization Score</b>	N/A*	N/A	N/A
<b>Acute Hazard Index</b>	N/A	N/A	N/A
<b>Chronic Hazard Index</b>	N/A	N/A	N/A
<b>Maximum Individual Cancer Risk</b>	N/A	N/A	N/A
<b>T-BACT Required?</b>	<b>No</b>		
<b>Special Permit Conditions?</b>	<b>Yes</b>		

\*A Risk Management Review was not required for this unit, because one has already been performed and is still valid. Only an Ambient Air Quality Analysis (AAQA) was required. See Page Two of this memo for AAQA results.

**Proposed Permit Conditions**

To ensure that human health risks will not exceed District allowable levels; the following permit conditions must be included for:

**Unit 40-0**

1. The exhaust stack height shall measure at least 26 feet from the ground.
2. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102] N

**B. RMR REPORT**

**I. Project Description**

Technical Services received a request on August 28, 2012, to perform an Ambient Air Quality Analysis (AAQA) only for an auto coating operation. A Risk Management Review (RMR) was not required, because one has already been performed and is still valid for this unit.

Unit 33-1 was also included as part of this AAQA request. However, because currently permitted VOC and PM10 limits for this unit are not changing, and no coating products or usage rates are changing, an AAQA for this unit was not required or performed.

**II. Analysis**

The following parameters were used for the Ambient Air Quality Analysis:

Analysis Parameters			
Source Type	Point	Closest Receptor (m)	1207
Stack Height (m)	7.92	Closest Receptor Type	Residence
Inside Diameter (m)	0.86	Project Location Type	Rural
Gas Exit Temperature (K)	294	Stack Gas Velocity (m/s)	24.17

Technical Services performed AAQA modeling for the criteria pollutants PM10 and PM2.5. The emission rates used for criteria pollutant modeling were 0.15 lb/hr of PM10, and 0.15 lb/hr of PM2.5.

The results from the Criteria Pollutant Modeling are as follows:

**Criteria Pollutant Modeling Results\***

Values are in  $\mu\text{g}/\text{m}^3$

Auto Coating Operation	1 Hour	3 Hours	8 Hours	24 Hours	Annual
PM <sub>10</sub>	X	X	X	Pass <sup>1</sup>	Pass
PM <sub>2.5</sub>	X	X	X	Pass <sup>1</sup>	Pass <sup>1</sup>

\*Results were taken from the attached PSD spreadsheet.

<sup>1</sup>The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

**III. Conclusion**

The criteria modeling runs indicate the emissions from the proposed equipment will not cause or significantly contribute to a violation of a State or National AAQS.

To ensure that human health risks will not exceed District allowable levels; the permit conditions listed on Page 1 of this report must be included for the proposed unit.

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

**Attachments:**

AAQA Request Form  
RMR Final Memo & Attachments (dated 8-16-12)

Project Related Emails  
AAQA Summary Report

# **APPENDIX F**

## RMR Summary

# San Joaquin Valley Air Pollution Control District Risk Management Review

To: Fred Cruz – Permit Services  
 From: Cheryl Lawler – Technical Services  
 Date: August 16, 2012  
 Facility Name: Deuel Vocational Institution  
 Location: 23500 Kasson Road, Tracy  
 Application No: N-283-40-0  
 Project No: N-1122501

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## A. RMR SUMMARY

<b>RMR Summary</b>			
<b>Categories</b>	<b>Motor Vehicles &amp; Mobile Equipment Coating Operation (Unit 40-0)</b>	<b>Project Totals</b>	<b>Facility Totals</b>
<b>Prioritization Score</b>	0.01	0.01	>1
<b>Acute Hazard Index</b>	0.13	0.13	0.13
<b>Chronic Hazard Index</b>	0.00	0.00	0.00
<b>Maximum Individual Cancer Risk</b>	<b>1.00E-07</b>	1.00E-07	7.39E-06
<b>T-BACT Required?</b>	<b>No</b>		
<b>Special Permit Conditions?</b>	<b>Yes</b>		

### Proposed Permit Conditions

To ensure that human health risks will not exceed District allowable levels; the following permit conditions must be included for:

#### Unit 40-0

1. {369} No coatings, solvents, or additives containing chromium compounds shall be used. [District Rule 4102]
2. {1984} No coatings, solvents, or additives containing lead compounds shall be used. [District Rule 4102]
3. No coatings, solvents, or additives containing cadmium compounds shall be used. [District Rule 4102]
4. No coatings, solvents, or additives containing nickel compounds shall be used. [District Rule 4102]
5. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102] N



**I. Project Description**

Technical Services received a request on August 13, 2012, to perform a Risk Management Review for a motor vehicles and mobile equipment coating operation.

**II. Analysis**

Toxic emissions from the project were calculated after reviewing MSDS sheets for the proposed coatings to determine the speciation of Hazardous Air Pollutants (HAPs). In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905-1, March 2, 2001), risks from the proposed project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEART's database. The prioritization score for the proposed project was less than 1.0 (see RMR Summary Table); however, the facility's cumulative prioritization scores totaled to greater than 1.0. Therefore, a refined Health Risk Assessment was required and performed for the project. AERMOD was used with point source parameters outlined below and concatenated 5-year meteorological data from Tracy to determine maximum dispersion factors at the nearest residential and business receptors. The dispersion factors were input into the HARP model to calculate the Chronic and Acute Hazard Indices and the Carcinogenic Risk.

The following parameters were used for the review:

Analysis Parameters			
Source Type	Point	Closest Receptor (m)	1067
Stack Height (m)	6.1	Type of Receptor	Residence
Stack Diameter (m)	0.86	Location Type	Rural
Stack Gas Temperature (K)	294	Stack Gas Velocity (m/sec)	24.17

**III. Conclusion**

The acute and chronic indices are below 1.0; and the maximum individual cancer risk associated with the project is **1.00E-07**, which is less than the 1 in a million threshold. In accordance with the District's Risk Management Policy, the project is approved **without** Toxic Best Available Control Technology (T-BACT).

To ensure that human health risks will not exceed District allowable levels; the permit conditions listed on Page 1 of this report must be included for this proposed project.

**NOTE: This prioritization is based on products whose MSDS sheets show the absence of lead, cadmium, nickel, and chromates. If lead, cadmium, nickel, or chromates are present in any of the coatings used at this operation, this HRA is invalid.**

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

**Attachments:**

- RMR Request Form with MSDS
- HAPs Speciation Worksheets
- Prioritization
- Risk Results
- Facility Summary

# **APPENDIX G**

Natural gas costs

Table 21. Average price of natural gas sold to commercial consumers, by State, 2010-2012  
(dollars per thousand cubic feet)

State	2012 5-Month YTD	2011 5-Month YTD	2010 5-Month YTD	2012			
				May	April	March	February
Alabama	12.53	12.03	13.59	13.49	13.25	12.57	12.16
Alaska	7.73	8.96	8.78	7.29	7.54	7.65	7.94
Arizona	9.93	9.94	10.79	9.67	9.68	10.00	10.37
Arkansas	NA	8.38	8.58	NA	8.44	8.86	8.59
California	NA	8.25	8.47	6.08	6.44	7.43	NA
Colorado	7.25	7.73	7.69	8.29	7.11	7.15	7.38
Connecticut	NA	NA	9.50	8.70	NA	7.50	7.36
Delaware	13.16	12.84	12.17	14.40	13.77	13.18	12.86
District of Columbia	11.56	12.44	12.92	11.53	11.44	11.72	11.24
Florida	10.37	11.32	10.97	10.41	10.28	10.22	10.73
Georgia	9.34	9.96	10.94	10.14	10.49	9.46	9.05
Hawaii	47.87	44.16	34.95	45.75	49.37	51.72	49.01
Idaho	7.66	8.40	8.18	7.65	7.72	7.60	7.54
Illinois	7.20	7.51	8.66	10.37	7.65	7.79	6.51
Indiana	8.07	8.12	7.64	9.49	7.86	9.96	7.65
Iowa	NA	7.48	7.83	NA	NA	NA	6.81
Kansas	8.38	8.62	9.55	11.04	10.20	8.17	8.27
Kentucky	8.38	8.29	8.29	9.38	8.86	9.44	8.22
Louisiana	NA	9.30	10.15	NA	7.76	9.25	9.02
Maine	11.89	12.26	12.20	10.54	11.77	11.73	12.51
Maryland	10.35	9.91	10.17	10.87	11.11	11.19	9.73
Massachusetts	NA	12.41	12.62	NA	NA	11.08	10.90
Michigan	8.34	9.10	9.26	8.57	7.93	8.53	8.31
Minnesota	6.31	7.52	7.94	5.45	5.54	6.70	6.42
Mississippi	NA	7.71	9.43	6.49	NA	8.16	7.87
Missouri	9.21	10.14	9.63	11.14	11.09	9.19	8.72
Montana	7.95	8.46	8.45	7.74	7.99	7.90	7.86
Nebraska	6.13	6.51	7.27	5.33	6.20	6.02	6.20
Nevada	7.60	8.24	10.10	8.11	7.74	7.62	7.58
New Hampshire	12.41	12.65	12.71	11.70	13.67	12.55	12.21
New Jersey	8.03	9.69	10.44	6.71	7.01	7.92	8.12
New Mexico	6.01	7.00	7.66	6.13	6.05	5.83	5.95
New York	8.29	9.66	11.46	7.05	7.98	9.09	8.08
North Carolina	NA	9.45	10.50	NA	NA	NA	8.23
North Dakota	6.08	6.81	7.17	5.46	5.46	6.03	6.02
Ohio	NA	8.75	9.39	NA	7.01	6.79	6.89
Oklahoma	7.92	7.86	8.86	12.69	10.72	7.72	7.07
Oregon	9.51	NA	10.11	9.40	8.96	9.29	9.72
Pennsylvania	10.33	10.35	10.70	11.47	10.15	10.36	10.28
Rhode Island	12.79	13.07	14.45	14.30	13.96	12.60	12.44
South Carolina	8.60	9.82	10.82	8.02	8.18	8.73	8.57
South Dakota	NA	6.84	7.47	NA	NA	NA	6.29
Tennessee	8.25	8.46	9.20	8.66	8.66	7.97	7.98
Texas	NA	7.12	8.47	6.34	NA	NA	NA
Utah	6.89	7.25	6.59	6.70	7.24	7.16	6.92
Vermont	12.20	11.36	11.51	12.14	12.14	12.18	12.14
Virginia	8.83	9.57	9.94	8.43	8.32	8.86	8.68
Washington	10.05	10.25	10.33	10.45	10.24	9.96	9.99
West Virginia	9.52	9.46	10.34	10.87	9.78	9.54	9.29
Wisconsin	NA	8.17	8.87	NA	7.63	8.09	7.55
Wyoming	6.68	6.96	6.89	5.79	6.10	6.29	6.44
<b>Total</b>	<b>8.18</b>	<b>8.82</b>	<b>9.65</b>	<b>8.09</b>	<b>8.10</b>	<b>8.46</b>	<b>7.97</b>

See footnotes at end of table.

Table 21. Average price of natural gas sold to commercial consumers, by State, 2010-2012  
(dollars per thousand cubic feet) – continued

State	2012						2011
	January	Total	December	November	October	September	August
Alabama	12.19	12.31	12.07	12.65	13.01	13.23	13.36
Alaska	7.91	8.76	8.55	8.52	8.73	8.72	8.50
Arizona	9.79	9.99	9.54	9.95	10.27	10.48	10.42
Arkansas	8.45	8.90	8.36	8.97	10.91	11.12	11.45
California	7.84	8.23	7.92	7.58	8.00	8.28	9.05
Colorado	6.99	7.78	7.00	7.64	8.08	9.34	9.57
Connecticut	7.65	NA	8.33	8.42	9.36	9.44	9.16
Delaware	12.82	NA	12.64	12.52	14.69	14.65	NA
District of Columbia	11.83	NA	NA	NA	11.82	12.97	12.76
Florida	10.22	10.95	10.17	10.47	10.39	10.47	10.49
Georgia	8.55	10.35	8.72	9.73	11.05	12.53	12.86
Hawaii	43.59	45.58	44.75	45.07	48.34	45.31	45.20
Idaho	7.76	8.20	7.84	7.85	7.76	8.28	8.32
Illinois	6.92	8.12	7.54	8.21	9.42	11.30	12.61
Indiana	7.51	7.98	7.26	6.98	7.29	8.38	10.07
Iowa	6.99	7.58	7.22	7.62	7.15	8.25	9.23
Kansas	7.76	9.08	8.18	9.29	11.27	12.84	13.13
Kentucky	7.74	8.70	8.36	8.84	9.35	10.62	11.08
Louisiana	NA	9.32	9.09	9.07	9.13	9.27	9.52
Maine	11.92	NA	11.05	NA	8.75	10.32	10.54
Maryland	10.05	10.31	10.34	10.31	10.84	12.12	11.93
Massachusetts	12.05	11.86	11.18	11.48	9.77	10.21	10.73
Michigan	8.35	9.13	8.39	8.62	9.26	10.50	11.41
Minnesota	6.53	7.37	6.70	6.77	6.79	7.47	8.71
Mississippi	7.14	NA	NA	NA	NA	7.40	7.38
Missouri	8.71	10.42	9.10	10.79	11.47	12.49	13.33
Montana	8.14	NA	8.10	8.45	9.47	9.83	NA
Nebraska	6.35	6.61	6.55	6.58	6.77	7.17	7.40
Nevada	7.35	8.05	7.39	7.69	8.06	8.11	8.07
New Hampshire	12.15	12.68	12.22	12.57	12.62	14.37	13.83
New Jersey	8.80	9.54	8.76	9.11	8.61	9.61	10.36
New Mexico	6.14	7.27	6.85	7.66	8.13	8.55	8.94
New York	8.56	9.37	9.23	9.19	9.05	8.65	8.58
North Carolina	8.95	9.57	9.60	9.77	9.35	9.86	9.43
North Dakota	6.56	6.93	6.60	6.80	6.93	7.70	8.52
Ohio	7.16	8.55	7.50	7.73	8.42	9.01	9.31
Oklahoma	7.36	NA	7.50	10.70	15.21	15.98	17.11
Oregon	9.84	NA	9.32	9.48	9.99	10.53	10.49
Pennsylvania	10.19	10.41	9.83	10.12	10.17	11.39	11.98
Rhode Island	12.44	NA	12.02	12.81	14.44	17.07	17.99
South Carolina	9.02	9.65	9.32	9.78	9.07	8.84	9.43
South Dakota	6.55	6.98	6.82	6.98	7.09	7.80	8.62
Tennessee	8.38	8.88	8.89	9.28	9.31	10.12	10.62
Texas	7.11	7.24	6.53	6.81	7.48	8.57	8.09
Utah	6.57	7.06	6.55	6.58	7.08	7.25	7.31
Vermont	12.34	11.90	12.60	12.72	13.11	13.81	13.99
Virginia	9.25	NA	NA	9.20	9.61	10.43	10.21
Washington	9.89	10.35	9.58	10.07	10.70	11.58	11.63
West Virginia	9.37	9.65	9.44	9.57	9.69	10.33	11.47
Wisconsin	7.53	8.04	7.79	8.10	6.94	7.61	8.25
Wyoming	7.83	7.19	7.06	7.43	7.67	8.44	8.84
<b>Total</b>	<b>8.23</b>	<b>8.86</b>	<b>8.28</b>	<b>8.60</b>	<b>8.89</b>	<b>9.55</b>	<b>9.90</b>

See footnotes at end of table.