



JUL 03 2018

Dag Reckhorn
Faraday & Future, Inc.
PO Box 11262
Carson, CA 90749

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: C-9248
Project Number: C-1180142

Dear Mr. Reckhorn:

Enclosed for your review and comment is the District's analysis of Faraday & Future, Inc.'s application for an Authority to Construct for the installation of a new electric vehicle manufacturing and assembly facility consisting of various coating operations, adhesive application operations, and other ancillary support equipment, located at 10701 Idaho Avenue, Hanford, CA.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. After addressing all comments made during the 30-day public notice and 45-day EPA notice comment periods, the District intends to issue the Authority to Construct. Please submit your written comments on this project within the 30-day public comment period, as specified in the enclosed public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Dustin Brown of Permit Services at (559) 230-5932.

Sincerely,



Arnaud Marjollet
Director of Permit Services

AM:ddb

Enclosures

cc: Tung Le, CARB (w/ enclosure) via email
cc: Gerardo C. Rios, EPA (w/ enclosure) via email
cc: Stephanie Harris, Faraday & Future, Inc. (w/enclosure) via email

Sayed Sadredin
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San Joaquin Valley Air Pollution Control District

Authority to Construct Application Review

Installation of Phase II of a New Electric Vehicle Manufacturing and Assembly Plant

Facility Name:	Faraday & Future, Inc.	Date:	July 3, 2018
Mailing Address:	PO Box 11262 Carson, CA 90749	Engineer:	Dustin Brown
Contact Person:	Stephanie Harris	Lead Engineer:	Jerry Sandhu
Telephone:	(424) 295-2647		
E-Mail:	Stephanie.Harris@ff.com		
Application #s:	C-9248-5-0 through '-12-0		
Project #:	C-1180142		
Deemed Complete:	June 18, 2018		

I. Proposal

Faraday & Future, Inc. (herein referred to as FF, Inc.) has requested eight Authority to Construct (ATC) permits for the installation of the equipment associated with phase II of a new electric vehicle manufacturing and assembly plant. The proposed equipment associated with this project is as follows:

- Motor vehicle body assembly operation (body-in-white (BIW)) consisting of adhesive and sealant application equipment and metal inspection stations.
- Original Equipment Manufacturer (OEM) motor vehicle assembly dip coating line (E-Coat) consisting of six dip tanks, electrodeposition application equipment, and a permit exempt curing oven with two 2.5 MMBtu/hr natural gas-fired burners served by one 5.2 MMBtu/hr regenerative thermal oxidizer (RTO). RTO to be shared with the main paint line.
- E-Coat paint wet sanding operation consisting of one pull-through booth with dry exhaust filters, hand-held wet sanding tools, and one 1.808 MMBtu/hr natural gas-fired booth heater; and two sealing decks with sealant application equipment.
- OEM motor vehicle assembly main paint line consisting of a prep booth, a downdraft paint spray booth with dry exhaust filters, robotic electrostatic application equipment and five permit exempt 1.5 MMBtu/hr natural gas-fired curing ovens all served by a 5.2 MMBtu/hr natural gas fired RTO. The RTO also controls the emissions from the curing oven serving the e-coat operation.
- Final repair OEM motor vehicle assembly coating operation consisting of a paint spray booth with dry exhaust filters, HVLP application equipment, and one 1.50 MMBtu/hr natural gas-fired booth heater.
- Paint sanding and polish operation consisting of three enclosed booths, each with dry exhaust filters, hand-held vacuum sanding units served by a central vacuum system and wet filtration system, and three 1.808 MMBtu/hr natural gas-fired booth heaters (one for each booth).

- Plastic parts sanding and polishing operation consisting of two enclosed booths, each with dry exhaust filters, hand-held vacuum sanding units served by a central vacuum system and wet filtration system, and two 1.808 MMBtu/hr natural gas-fired booth heaters (one for each booth).
- 762 bhp diesel-fired emergency internal combustion (IC) engine powering an electrical generator.

In addition, in accordance with District Policy APR 1040, *Flexibility in Equipment Descriptions in ATCs*, for the six sanding booth heaters, the clearcoat and plastic part sanding operation wet filtration system, and the emergency IC engine referenced above, FF, Inc. has requested approval for the installation of the specific equipment referenced in this project, or equivalent equipment. Therefore, options for the installation of equivalent equipment will be included as a part of this project.

II. Applicable Rules

Rule 2020	Exemptions (12/18/14)
Rule 2201	New and Modified Stationary Source Review Rule (2/18/16)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4602	Motor Vehicle Assembly Coatings (9/17/09)
Rule 4653	Adhesives and Sealants (9/16/10)
Rule 4663	Organic Solvent Cleaning, Storage, and Disposal (9/20/07)
Rule 4701	Internal Combustion Engines – Phase 1 (8/21/03)
Rule 4702	Internal Combustion Engines – Phase 2 (11/14/13)
Rule 4801	Sulfur Compounds (12/17/92)
CH&SC 41700	Health Risk Assessment
CH&SC 42301.6	School Notice
Title 13 California Code of Regulations (CCR), Section 2423 – Exhaust Emission Standards and Test Procedures, Off-Road Compression-Ignition Engines and Equipment	
Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines	
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

The facility is located at 10701 Idaho Avenue in Hanford, CA. The equipment will not be located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

FF, Inc. is proposing to install a new electric vehicle manufacturing and assembly plant at this location. The equipment associated with this facility was processed in two phases. The first phase, which was processed under project C-1172714, consisted of all of the equipment necessary to manufacture and assemble prototype vehicles. The second phase, which is being permitted under this current project, consists of the equipment associated with their full-scale automobile production manufacturing and assembly operations.

Body Assembly Operation:

Body in white (BIW) is the department where vehicle bodies are assembled to form a *body in white*, or an un-painted vehicle body. [REDACTED]

Main Body

Vehicle body subassemblies and subcomponents are joined together using various techniques, such as (but not limited to) [REDACTED], adhesive and sealer bonding. [REDACTED]

[REDACTED] After the main body line assembly is complete, the body is dismantled and transferred to the hang-on line in the closures department where closures sub-assemblies are installed onto the main body.

Full Body Closures

Stamped pieces are joined by [REDACTED] the use of adhesives. Adhesives are applied using robotic and manual non-atomizing application methods. [REDACTED]

Metal Finish Inspection

[REDACTED] parts will be visually inspected [REDACTED]

[REDACTED], a defect highlighter will be applied [REDACTED]

Sealers are also applied [REDACTED]
[REDACTED] Sealers will be also be applied utilizing robotic and manual non-atomizing application methods.

Dip Coating Operation:

Once the vehicle bodies have been assembled, they will then go through a dip pretreatment and electrodeposition coating (E-Coat) operation. [REDACTED]
[REDACTED]

- I [REDACTED]
- I [REDACTED]
- I [REDACTED]
- I [REDACTED]
- I [REDACTED]
- I [REDACTED]
- I [REDACTED]
- I [REDACTED]
- I [REDACTED]
- I [REDACTED]
- I [REDACTED]

-

I

E-Coat Paint Sanding and Sealing Operation:

After the e-coated body has been inspected and sanded, it is moved to the sealer decks.

Main Paint Line:

The main paint line is a tunnel consisting of various stations, booths, and ovens.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Final Repair Coating Operation:

Final repair coating is the application of small amounts of paint materials [REDACTED]

[REDACTED]

Paint Sanding and Polishing Operation:

After each coating layer is applied, baked, and cooled, the vehicle body is ready for sanding and/or polishing. [REDACTED]

[REDACTED]

Plastic Parts Paint Sanding and Polishing Operation:

Parts of the proposed vehicle bodies will be made of plastic parts [REDACTED]

After each coating layer is applied, baked, and cooled, the skid for plastic parts is moved for sanding and polishing activities. [REDACTED]

Facility Surface Cleaning:

[REDACTED] Therefore, FF, Inc. has proposed to use solvent throughout the facility. [REDACTED]

Emergency IC Engine:

The emergency standby engine will power an electrical generator that will provide power to the facility due to a loss of power from the main electricity supplier. Other than emergency standby operation, the engine may be operated up to 50 hours per year for maintenance and testing purposes.

V. Equipment Listing

C-9248-5-0: MOTOR VEHICLE BODY ASSEMBLY OPERATION (BODY IN WHITE (BIW))
CONSISTING OF MANUAL AND ROBOTIC NON-ATOMIZING ADHESIVE AND
SEALANT APPLICATION EQUIPMENT

C-9248-6-0: MOTOR VEHICLE ASSEMBLY DIP COATING LINE (E-COAT) CONSISTING OF SIX DIP TANKS, ONE FINAL RINSE STATION, ELECTRODEPOSITION APPLICATION EQUIPMENT, ASSOCIATED ENCLOSED PROCESS TANKS, METERING AND DOSING EQUIPMENT AND A PERMIT EXEMPT CURING OVEN WITH TWO NATURAL GAS-FIRED BURNERS (CLOSED INDIRECT FIRED HEAT TRANSFER SYSTEMS, EQUAL TO OR LESS THAN 5 MMBTU/HR) SERVED BY ONE 5.2 MMBTU/HR REGENERATIVE THERMAL OXIDIZER (RTO SHARED WITH PERMIT C-9248-8)



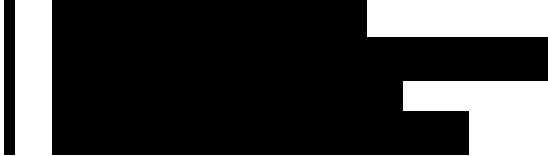
C-9248-7-0: E-COAT PAINT SANDING AND SEALING OPERATION CONSISTING OF WET SANDING UNIT(S), ONE PULL-THROUGH OPEN-END BOOTH WITH DRY EXHAUST FILTERS AND A 1.808 MMBTU/HR, OR EQUIVALENT, NATURAL GAS-FIRED BOOTH HEATER, AND TWO SEALING DECKS WITH NON-ATOMIZING APPLICATION EQUIPMENT



C-9248-8-0: MOTOR VEHICLE ASSEMBLY COATING OPERATION (MAIN PAINT LINE) CONSISTING OF ONE PREP BOOTH, ONE DOWNDRAFT PAINT SPRAY ZONE WITH DRY EXHAUST FILTERS AND ROBOTIC ELECTROSTATIC APPLICATION EQUIPMENT, FIVE PERMIT EXEMPT NATURAL GAS-FIRED CURING OVENS (CLOSED INDIRECT FIRED HEAT TRANSFER SYSTEMS, EACH LESS THAN 5 MMBTU/HR), ONE TRANSFER ZONE AND ONE COOLING STATION. PAINT SPRAY ZONE, CURING OVENS, AND TRANSFER ZONE ALL SERVED BY A 5.2 MMBTU/HR NATURAL GAS-FIRED REGENERATIVE THERMAL OXIDIZER (RTO SHARED WITH PERMIT C-9248-6)



C-9248-9-0: FINAL REPAIR MOTOR VEHICLE COATING OPERATION CONSISTING OF A PAINT SPRAY BOOTH WITH DRY EXHAUST FILTERS, HVLP APPLICATION EQUIPMENT, AND ONE 1.50 MMBTU/HR, OR EQUIVALENT, NATURAL GAS-FIRED BOOTH HEATER



C-9248-10-0: PAINT SANDING AND POLISHING OPERATION CONSISTING OF VACUUM SANDERS SERVED BY A EUROVAC, OR EQUIVALENT, HIGH VOLUME WET FILTRATION COLLECTION SYSTEM AND THREE ENCLOSED BOOTHS, EACH WITH DRY EXHAUST FILTERS AND ONE 1.808 MMBTU/HR, OR EQUIVALENT, NATURAL GAS-FIRED BOOTH HEATER



C-9248-11-0: PLASTIC PARTS PAINT SANDING AND POLISHING OPERATION CONSISTING OF VACUUM SANDERS SERVED BY A EUROVAC, OR EQUIVALENT, HIGH VOLUME WET FILTRATION COLLECTION SYSTEM AND TWO ENCLOSED BOOTHS, EACH WITH DRY EXHAUST FILTERS AND ONE 1.808 MMBTU/HR, OR EQUIVALENT, NATURAL GAS-FIRED BOOTH HEATER



C-9248-12-0: 762 BHP (INTERMITTENT) PERKINS MODEL 2506C-E15TAG3 TIER 2 CERTIFIED, OR EQUIVALENT, DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

For the sanding booth heater under ATC C-9248-7-0, the paint/sanding booth heaters under ATCs C-9248-9-0, '-10-0, and '-11-0, the central vacuum wet filtration system under ATCs C-9248-10-0 and '-11-0, and the emergency IC engine under ATC C-9248-12-0, the applicant has requested approval for the installation of the sanding booth heaters, central vacuum wet filtration system, and engine listed above, or equivalent sanding booth heaters, central vacuum wet filtration system, and/or engine. Therefore, in accordance with District Policy APR 1040, the following conditions will be included on each of these ATCs:

C-9248-7-0 (E-Coat Paint Sanding Operation – Booth Heater)

- The permittee shall obtain APCO approval for the use of any equivalent sanding booth heater not specifically approved by this Authority to Construct. Approval of an equivalent sanding booth heater shall only be made after the APCO's determination that the submitted design and performance data for the proposed sanding booth heater is equivalent to the approved sanding booth heater. [District Rule 2201]
- The permittee's request for approval of an equivalent sanding booth heater shall include the following information: sanding booth heater manufacturer and model number, maximum heat input rating, and manufacturer's guaranteed NO_x emission rate/concentration. [District Rule 2201]
- No emission factor and no emissions shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]
- The permittee's request for approval of an equivalent sanding booth heater shall be submitted to the District at least 90 days prior to the planned installation date. The permittee shall also notify the District at least 30 days prior to the actual installation of the District approved equivalent sanding booth heater. [District Rule 2201]

C-9248-9-0 (Final Repair Coating Operation – Booth Heater):

- The permittee shall obtain APCO approval for the use of any equivalent paint booth heater not specifically approved by this Authority to Construct. Approval of an equivalent paint booth heater shall only be made after the APCO's determination that the submitted design and performance data for the proposed paint booth heater is equivalent to the approved paint booth heater. [District Rule 2201]
- The permittee's request for approval of an equivalent paint booth heater shall include the following information: paint booth heater manufacturer and model number, maximum heat input rating, and manufacturer's guaranteed NO_x emission rate/concentration. [District Rule 2201]

- No emission factor and no emissions shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]
- The permittee's request for approval of an equivalent paint booth heater shall be submitted to the District at least 90 days prior to the planned installation date. The permittee shall also notify the District at least 30 days prior to the actual installation of the District approved equivalent paint booth heater. [District Rule 2201]

C-9248-10-0 and '-11-0 (Sanding Operations – Wet Filtration System and/or Booth Heaters, Five Total):

- The permittee shall obtain APCO approval for the use of any equivalent wet filtration system and/or sanding booth heater not specifically approved by this Authority to Construct. Approval of an equivalent wet filtration system and/or sanding booth heater shall only be made after the APCO's determination that the submitted design and performance data for the proposed wet filtration system and/or sanding booth heater is equivalent to the approved wet filtration system and/or sanding booth heater. [District Rule 2201]
- The permittee's request for approval of an equivalent wet filtration system and/or sanding booth heater shall include the following information, as applicable: wet filtration system manufacturer and model number, manufacturer's guaranteed PM₁₀ control efficiency, sanding booth heater manufacturer and model number, maximum heat input rating, and manufacturer's guaranteed NO_x emission rate/concentration. [District Rule 2201]
- No emission factor and no emissions shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, or throughput may be authorized for any alternate equipment. [District Rule 2201]
- The permittee's request for approval of an equivalent wet filtration system and/or sanding booth heater shall be submitted to the District at least 90 days prior to the planned installation date. The permittee shall also notify the District at least 30 days prior to the actual installation of the District approved equivalent wet filtration system and/or sanding booth heater. [District Rule 2201]

C-9248-12-0 (Emergency IC Engine):

- The permittee shall obtain APCO approval for the use of any equivalent IC engine not specifically approved by this Authority to Construct. Approval of an equivalent IC engine shall only be made after the APCO's determination that the submitted design and performance data for the proposed IC engine is equivalent to the approved IC engine. [District Rule 2201]

- The permittee's request for approval of an equivalent IC engine shall include the following information: IC engine manufacturer and model number, maximum horsepower rating, and manufacturer's guaranteed emission rates. [District Rule 2201]
- No emission factor and no emissions shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]
- The permittee's request for approval of an equivalent IC engine shall be submitted to the District at least 90 days prior to the planned installation date. The permittee shall also notify the District at least 30 days prior to the actual installation of the District approved equivalent IC engine. [District Rule 2201]

VI. Emission Control Technology Evaluation

C-9248-5-0 (Body Assembly Operation):

The adhesives and sealants used in the body assembly operation will be applied with manual or robotic non-air-atomizing application methods [REDACTED]

[REDACTED] This non-air-atomizing adhesive and sealant application operation only generates VOC emissions. The applicant will be required to use adhesive, sealants, and solvents that comply with the VOC content limits as specified in Rule 4653.

In addition, pursuant to information provided from the adhesive and sealant manufacturers, the VOCs contained within these materials will not be released to the atmosphere upon application. Instead, the VOCs will be released once the materials are heated in the e-coat curing oven. As discussed in the Rule 2020 Compliance section of this document below, the curing oven is exempt from permit requirements. However, all of the exhaust air from the e-coat curing oven operated is vented through the thermal oxidizer. The thermal oxidizer is expected to control the VOC emissions with a minimum efficiency of 95%.

C-9248-6-0 (E-Coat Operation):

The solvents and coatings used by this operation will be dip applied to the bare vehicle bodies using non-air-atomizing electrodeposition application methods. This non-air-atomizing application method only results in the potential generation of VOC emissions from this operation. The applicant will be required to use coatings and solvents that comply with the requirements of Rule 4602. The dip tank operation will not be served by any additional control devices.

Once all of the e-coat has been applied, the vehicle bodies will be placed in a natural gas-fired permit exempt curing oven. The exhaust air from the curing oven will be vented to the thermal oxidizer listed on permit C-9248-8-0. As discussed below, the thermal oxidizer should control the VOC emissions released during the curing process by at least 95%.

C-9248-7-0 (E-Coat Wet Sanding and Sealing Operation):

Sanding Operation:

PM₁₀ is the only pollutant expected to be emitted by the paint sanding operation. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Sanding Booth Heater:

The sanding booth heater will be fired on PUC-quality natural gas. Based on information provided from the manufacturer, the NO_x emissions from the booth heater should not exceed 30 ppm @ 3% O₂.

Sealing Operation:

The sealer used on the e-coated vehicle bodies will be applied with robotic and/or manual non-air-atomizing application methods. This non-air-atomizing sealer application operation only generates VOC emissions. The applicant will be required to use sealer that complies with the VOC content limits and application methods as specified in District Rule 4653.

In addition, based on information provided by [REDACTED] the manufacturer of the sealer FF, Inc. is proposing to use as a part of this operation, the VOC emissions from the application of their sealer products are not released to the atmosphere until they are heated in one of the curing ovens in the main paint line under C-9248-8. FF, Inc. is proposing to route all of the emissions from the curing ovens that will be operated at this facility through the RTO. As discussed above, the RTO is expected to have a minimum VOC control efficiency of 95%. Therefore, it is expected that the VOC emissions from the application of sealer will also be controlled by at least 95%.

C-9248-8-0 (Motor Vehicle Assembly Main Coating Line):



The downdraft paint spray zone, transfer zone, and each oven are served by the RTO.

Based on information provided by the main paint line designed and manufacturer, it is expected that 100% of the VOC emissions will be captured by the air seal system. All the emission points between the first and final air seal are exhausted to the RTO. The manufacturer of the RTO has guarantee that it is capable of achieving a 98% VOC control efficiency. However, since this is a brand new facility and operation and source testing will be required, FF, Inc. has request to build a factor of safety in to the expected control efficiency of the RTO. FF, Inc. has requested to utilize a minimum VOC control efficiency of 95% for the RTO. Therefore, it is expected that all of the VOC emissions from the main paint line will be controlled by at least 95%.

C-9248-9-0 (Final Repair Coating Operation):

For this coating operation, the applicant has proposed to use a paint spray booth with a dry exhaust filter system for PM₁₀ emission control, and HVLP spray equipment for PM₁₀ and VOC emission control. The paint spray booth with a dry exhaust filter system will control PM₁₀ emissions by filtering air from inside the paint booth before it is exhausted to the atmosphere. The HVLP spray equipment will control PM₁₀ and VOC emissions by having more paint

transferred to the desired surfaces than traditional painting equipment. The applicant will also be required to use coatings and solvents that comply with the VOC content limits as specified in District Rule 4602.

In addition, the booth will be equipped with a heater that will be fired solely on PUC-quality natural gas. The manufacturer of the booth heater burner has guaranteed a NO_x emission rate of 30 ppmv @ 3% O₂.

C-9248-10-0 (Paint Sanding and Polishing Operation):

Sanding Operation:

PM₁₀ is the only pollutant expected to be emitted by the paint sanding operation. The paint sanding operation will be performed with hand held sanding units that are attached to a central vacuum system that will pull air directly from each sanding unit as it is being used. The vacuum system will be served by a Eurovac wet mix dust collector. Wet mix dust collectors remove explosive dust by driving the particulate deep into the water via a venturi. Dust then passes through a set of baffles (entrapping the dust in the water) which then settles to the bottom of the collector. The manufacturer states that this wet filter system can have a control efficiency of greater than 99.99% for particulate matter of eight microns (PM₈) and larger in size.

In addition to the central vacuum system serving each sander, the entire sanding operation will take place inside one of three fully enclosed custom-made booths that are made up of solid walls on two sides and plastic curtains on the other two sides. These custom booths are equipped with an exhaust system served by dry filters. The dry filter system of each custom-made booth is expected to have a PM₁₀ control efficiency of 95%.

At the time of this evaluation, it is uncertain how much of the paint sanding PM₁₀ emissions are captured by the vacuum system serving the sanding units versus how much is released in to the custom booths and captured through the booths filtered exhaust system. Each booth exhaust filter system has a lower PM₁₀ control efficiency than the vacuum system filters. Therefore, as a conservative estimate, a PM₁₀ control efficiency of 95% will be used for all of the emissions generated by the paint sanding operation, regardless of which filter system the dust is filtered through.

Sanding Booth Heaters:

Each sanding booth heater will be fired on PUC-quality natural gas. Based on information provided from the manufacturer, the NO_x emissions from the booth heaters should not exceed 30 ppm @ 3% O₂.

Polishing Operation:

The polish used on the final coated vehicle bodies will be applied with manual non-air-atomizing application methods. This non-air-atomizing polish application operation only generates VOC emissions. The applicant will be required to use polish that complies with the VOC content limits and application methods as specified in District Rule 4602. The polish application operation will not be served by any additional control devices.

C-9248-11-0 (Plastic Parts Paint Sanding and Polishing Operation):

Sanding Operation:

PM₁₀ is the only pollutant expected to be emitted from the plastic parts paint sanding operation. The plastic parts paint sanding operation will utilize the exact same process and controls as the paint sanding operations performed under unit C-9248-10-0 above. Sanding operations will be performed using hand held sanding units served by central vacuum and wet filtration system.

In addition to the central vacuum system serving each sander, the entire sanding operation will take place inside one of two fully enclosed custom-made booths that are made up of solid walls on two sides and plastic curtains on the other two sides. These custom booths are equipped with a central exhaust system served by dry filters.

Therefore, it will be expected that the PM₁₀ control efficiency for the plastic parts paint sanding operation will also be a minimum of 95%.

Sanding Booth Heaters:

Each sanding booth heater will be fired on PUC-quality natural gas. Based on information provided from the manufacturer, the NO_x emissions from the booth heaters should not exceed 30 ppm @ 3% O₂.

Polishing Operation:

The polish used on the final coated vehicle bodies will be applied with manual non-air-atomizing application methods. This non-air-atomizing polish application operation only generates VOC emissions. The applicant will be required to use polish that complies with the VOC content limits and application methods as specified in District Rule 4602. The polish application operation will not be served by any additional control devices.

C-9248-12-0 (Emergency IC Engine):

The applicant has proposed to install a Tier 2 certified IC engine that is fired on very low-sulfur diesel fuel.

The proposed engine complies with the Stationary Diesel ATCM (17 CCR §93115.6); therefore, the engine meets the latest emissions standards for diesel particulate matter, hydrocarbons, nitrogen oxides, and carbon monoxide (see Appendix J for a copy of the certified emissions for the proposed engine).

The use of very low-sulfur diesel fuel (0.0015% by weight sulfur maximum) reduces SO_x emissions by over 99% from standard diesel fuel.

VII. General Calculations

A. Assumptions

General Facility-Wide Assumptions:

- To streamline emission calculations, PM_{2.5} emissions are assumed to be equal to PM₁₀ emissions (District practice).
- Unless otherwise noted, the typical operating schedule of this facility is expected to be [REDACTED] (proposed by the applicant).
- All sanding and paint booth heaters will be fired solely on PUC-regulated natural gas (proposed by the applicant).
- Natural Gas Heating Value: 1,000 Btu/scf (District Practice)
- F-Factor for Natural Gas: 8,578 dscf/MMBtu corrected to 60°F (40 CFR 60, Appendix B)
- For each of the operations being permitted in this project, except for the emergency IC engine (C-9248-12), FF, Inc. has proposed to use pre-saturated solvent wipes and/or 16 ounce liquid aerosol solvents in case the need arises to clean surfaces prior to performing the work associated with each of these specific processes. The materials that will be utilized for surface cleaning will be as follows:

Solvent	VOC Content, as applied		Source
<u>Wipes:</u>			
[REDACTED]	3.871 (g-VOC/wipe)	0.0085 (lb-VOC/wipe)	Product Manufacturer
<u>Aerosols:</u>			
[REDACTED]	854 (g-VOC/L)	7.18 (lb-VOC/gal)	Safety Data Sheet
[REDACTED]	501 (g-VOC/L)	4.21 (lb-VOC/gal)	Safety Data Sheet
[REDACTED]	605 (g-VOC/L)	5.08 (lb-VOC/gal)	Safety Data Sheet

C-9248-5-0 (Body Assembly Operation):

Body Assembly:

- VOC is the only pollutant emitted by this operation.
- All adhesives and sealants will be applied with non-atomizing manual or robotic application equipment. Therefore, no PM₁₀ emissions are expected from this operation (proposed by the applicant).
- The non-atomizing application methods will have a transfer efficiency of 100% (District practice).
- VOC emissions from the application of the sealers will not be released to the atmosphere until they are heated in the curing oven (manufacturer of sealer and anti-flutter materials proposed as a part of this operation).

- The materials that will be utilized for each sub-process for this body assembly operation will be as follows:

Main Body Assembly:

Material	Type	Usage Rates		VOC Content, as applied		Source
		(gal/day)	(gal/yr)	(g/l)	(lb/gal)	
██████████	Adhesive	200	73,000	1.2	0.01	Safety Data Sheet
██████████	Sealant	17	6,205	2.0	0.0169	Safety Data Sheet

Full Body Closures:

Material	Type	Usage Rates		VOC Content, as applied		Source
		(gal/day)	(gal/yr)	(g/l)	(lb/gal)	
██████████	Adhesive	11.7	4,271	2.4	0.02	Safety Data Sheet
██████████	Adhesive	25	9,125	1.2	0.01	Safety Data Sheet
██████████	Anti-Flutter	5.8	2,117	8.4	0.07	Safety Data Sheet

Metal Finish Inspection and Repair:

Material	Type	Usage Rates		VOC Content, as applied		Source
		(gal/day)	(gal/yr)	(g/l)	(lb/gal)	
██████████	Defect Detection Oil	1.5	547.5	139.76	1.17	Safety Data Sheet

Surface Cleaning:

- VOC is the only pollutant emitted by this surface cleaning operation.
- The VOC emissions from the use of solvents shall not exceed 2.0 lb/day (proposed by the applicant).

C-9248-6-0 (E-Coat Operation):

Dip Coating Operation:

- VOC is the only pollutant emitted by this coating operation.
- There are no VOC emissions from dip tanks #1, #2, and #4 (proposed by the applicant).
- The burners in the E-Coat curing oven are exempt from permits (see Rule 2020 Section).
- All pre-cleaning and e-coat dip tanks are uncontrolled (proposed by the applicant).
- The e-coat application method has a transfer efficiency (TE) of 100% (per AP-42, Table 4.2.2.8-2, 1/95).
- All solvents in the coatings are VOCs.
- The maximum daily throughput of vehicles is [REDACTED] vehicles/day (proposed by the applicant).
- The maximum annual throughput of vehicles is [REDACTED] vehicle/year (proposed by the applicant).
- The surface area of each vehicle is [REDACTED] (proposed by the applicant).
- The VOC containing materials that will be utilized in this operation are as follows:

Material	Type	Daily Usage (gal/day)	Annual Usage (gal/yr)	Density (lb/gal)	Solvent Content (%)	Source
[REDACTED]	Pre-Treatment	1.9	594	8.345	1.8*	TDS
[REDACTED]	E-Coat	50	15,625	8.89	2.7	TDS
[REDACTED]	E-Coat	4.48	1,400	13.5	0.1	TDS

* Percentage VOC in coating.

Surface Cleaning:

- VOC is the only pollutant emitted by this surface cleaning operation.
- The VOC emissions from the use of solvents shall not exceed 2.0 lb/day (proposed by the applicant).

C-9248-7-0 (E-Coat Paint Sanding and Sealing Operation):

Sanding Operation:

- PM₁₀ is the only pollutant emitted by this paint sanding operation.
- The exhaust system will not capture any of the PM₁₀ emissions generated from the e-coat paint sanding operation in the proposed open-face booth and there will not be any PM₁₀ emission control assessed to this operation (worst-case assumption, proposed by the applicant).

Sealing Operation:

- VOC is the only pollutant emitted by this operation.
- All sealants will be applied with non-atomizing manual or robotic application equipment. Therefore, no PM₁₀ emissions are expected from this operation (proposed by the applicant).
- The non-atomizing application methods will have a transfer efficiency of 100% (District practice).
- VOC emissions from the application of the sealers will not be released to the atmosphere until they are heated in the curing oven (manufacturer of proposed sealer to be applied as a part of this operation).
- The materials that will be utilized for this body assembly operation will be as follows:

Material	Type	Usage Rates		VOC Content, as applied		Source
		(gal/day)	(gal/yr)	(g/l)	(lb/gal)	
██████████	Sealant	78.6	24,000	35.9	0.3	Safety Data Sheet

Surface Cleaning:

- VOC is the only pollutant emitted by this surface cleaning operation.
- The VOC emissions from the use of solvents shall not exceed 2.0 lb/day (proposed by the applicant).

C-9248-8-0 (Motor Vehicle Assembly Main Coating Line):

Prep Booth Sanding Operation:

- PM₁₀ is the only pollutant emitted by this paint sanding operation.
- The exhaust system will not capture any of the PM₁₀ emissions generated from the prep station paint sanding operation and there will not be any PM₁₀ emission control assessed to this operation (worst-case assumption, proposed by the applicant).

Coating Operation:

- All coatings will be applied inside of the paint booth with the fans and paint line air curtains operating (proposed by the applicant).
- Automatic electrostatic application equipment transfer efficiency (TE) is 90% (conservative estimate based on manufacturer specifications and the transfer efficiencies listed in the Code of Federal Regulations, Title 40, Part 60, Subpart MM).
- Spray booth dry exhaust filter removal efficiency (RE) is 95% for PM₁₀ emissions (March 26, 2006 Memorandum to EPA, 'Review of Spray Booth Filter Information for the Area Source Motor Vehicle and Mobile Equipment Refinishing National Emission Standards for Hazardous Air Pollutants (NESHAP)').

Surface Cleaning:

- VOC is the only pollutant emitted by this surface cleaning operation.
- The VOC emissions from the use of solvents shall not exceed 2.0 lb/day (proposed by the applicant).

C-9248-9-0 (Final Repair Coating Operation):

Coating Operation:

- All coatings will be applied inside of the paint booth with the doors closed and the fans operating (proposed by the applicant).
- 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% for PM₁₀ emissions (March 26, 2006 Memorandum to EPA, 'Review of Spray Booth Filter Information for the Area Source Motor Vehicle and Mobile Equipment Refinishing National Emission Standards for Hazardous Air Pollutants (NESHAP)').

Surface Cleaning:

- VOC is the only pollutant emitted by this surface cleaning operation.
- The VOC emissions from the use of solvents shall not exceed 2.0 lb/day (proposed by the applicant).

C-9248-10-0 (Paint Sanding and Polishing Operation):

Sanding:

- PM₁₀ is the only pollutant emitted by this paint sanding operation.
- Between the vacuum system serving each individual hand-held sanding unit and the custom-made booths, the exhaust system will capture 100% of the PM₁₀ emissions generated from the paint sanding operation (proposed by the applicant). The wet filter system serving the hand-held sanding units and/or the booth dry filter exhaust system will control the captured PM₁₀ emissions by at least 95% (manufacturer guarantee, proposed by the applicant).

Polishing:

- VOC is the only pollutant emitted from the application of polish.
- The polish utilized by this operation will be as follows:

Polish	Usage Rates		VOC Content, as applied		Source
	(gal/day)	(gal/yr)	(g/l)	(lb/gal)	
	2.30	720	208.6	1.74	Manufacturer's Data

Surface Cleaning:

- VOC is the only pollutant emitted by this surface cleaning operation.
- The VOC emissions from the use of solvents shall not exceed 2.0 lb/day (proposed by the applicant).

C-9248-11-0 (Plastic Parts Paint Sanding and Polishing Operation):

Sanding:

- PM₁₀ is the only pollutant emitted by this paint sanding operation.
- Between the vacuum system serving each individual hand-held sanding unit and the custom-made booths, the exhaust system will capture 100% of the PM₁₀ emissions generated from the paint sanding operation (proposed by the applicant). The wet filter system serving the hand-held sanding units and/or the booth dry filter exhaust system will control the captured PM₁₀ emissions by at least 95% (manufacturer guarantee, proposed by the applicant).

Polishing:

- VOC is the only pollutant emitted from the application of polish.
- The polish utilized by this operation will be as follows:

Polish	Usage Rates		VOC Content, as applied		Source
	(gal/day)	(gal/yr)	(g/l)	(lb/gal)	
	2.30	720	208.6	1.74	Manufacturer's Data

Surface Cleaning:

- VOC is the only pollutant emitted by this surface cleaning operation.
- The VOC emissions from the use of solvents shall not exceed 2.0 lb/day (proposed by the applicant).

C-9248-12-0 (Emergency IC Engine):

- Emergency operating schedule: 24 hours/day
- Non-emergency operating schedule: 50 hours/year
- Density of diesel fuel: 7.1 lb/gal
- EPA f-factor (adjusted to 60 °F): 9,051 dscf/MMBtu
- Fuel heating value: 137,000 Btu/gal
- BHP to Btu/hr conversion: 2,542.5 Btu/bhp-hr
- Thermal efficiency of engine: commonly ≈ 35%
- PM₁₀ fraction of diesel exhaust: 0.96 (CARB, 1988)
- Conversion factor: 1.34 bhp/kW

B. Emission Factors

C-9248-5-0 (Body Assembly Operation):

This operation generates VOC emissions from the application of adhesives and sealants. The VOC emissions generated will be based on the proposed material usage rates and VOC contents of the materials from the safety data sheets. Therefore, specific VOC emission factors are not necessary and will not be listed for this body assembly operation.

C-9248-6-0 (E-Coat Operation):

The e-coat operation consists of two separate processes that have the potential to emit VOC: the application process using the dip tanks, and 2) the coating curing process performed in the curing oven.

E-Coat Application (Dip Tanks):

The VOC emissions from the e-coat application process are a product of the amount of solvent in each of the coatings. Using the densities of the coatings applied to the automobiles in this operation and the percentage of each coating that is a solvent, the VOC emission factor can be determined. The EFs for all VOC containing coatings applied in the e-coat dip-tanks are calculated using the following equation and are summarized in the following table:

E-Coat Application EF (lb-VOC/gal) = (coating density) x (% solvent)

Material	Tank	Density (lb/gal)	Solvent Content (%)	EF (lb-VOC/gal)
	Dip Tank #3	8.345	1.8*	0.15
	Dip Tank #5 & #6	8.89	2.7	0.24
	Dip Tank #5 & #6	13.5	0.1	0.0135

* Percentage VOC in coating.

E-Coat Curing (Curing Oven):

The VOC emissions from the e-coat curing process are a by-product of the reaction process that takes place during the curing/crosslinking of the e-coat in the curing oven and are independent from the VOC emissions from the evaporation of solvents in the coatings. Based on information provided by the facility's e-coat supplier, the maximum VOC emissions generated from the curing process is 2.92 grams-VOC/m² of coated surface. The uncontrolled EF for the curing of e-coat in the curing oven is calculated below:

$$\begin{aligned} \text{Uncontrolled E-Coat Curing EF} &= \text{[Redacted]} \\ &= 0.69 \text{ lb-VOC/vehicle} \end{aligned}$$

C-9248-7-0 (E-Coat Paint Sanding and Sealing Operation):

Pursuant to a study performed by the facility, the estimated maximum amount of paint removed by sanding from each vehicle that is e-coated is as follows:

E-Coat Paint Removed by Sanding = 0.014569 lb/vehicle

As a conservative estimate, a factor of safety of 100% will be added to the amount of material removed from each vehicle. Therefore, the maximum amount of paint removed by sanding will be as follows:

Maximum Amount of Paint Removed by Sanding = 0.014569 lb/vehicle x 2

Maximum Amount of Paint Removed by Sanding = 0.029198 lb/vehicle

Assuming all of the paint removed by sanding is emitted as PM₁₀, the uncontrolled PM₁₀ emission factor will be as follows:

Uncontrolled PM₁₀ EF = 0.029198 lb-PM₁₀/vehicle

As discussed above, the paint sanding operations are performed with hand held wet sanding units inside of an open-face booth with dry exhaust filters. As this time, it has not been determined how much of the sanding emissions will be captured versus how much will escape the booth uncontrolled. As a conservative estimate, it will be assumed that all of the sanding emissions escape the booth uncontrolled. Therefore, the PM₁₀ emission factor from the E-Coat paint sanding operation will be as follows:

E-Coat Paint Sanding PM₁₀ EF = 0.029198 lb-PM₁₀/vehicle

C-9248-8-0 (Motor Vehicle Assembly Main Coating Line):

Prep Booth Sanding Operation:

Pursuant to a study performed by the facility, the estimated maximum amount of paint removed by sanding from each vehicle that is coated is as follows:

Prep Booth Paint Removed by Sanding = 0.038321 lb/vehicle

The amount of paint removed by sanding in the prep booth was estimated using a worst-case solids content coating of 10.53 lb/gal. Based on the material listings in Appendix B, none of the proposed coatings to be used by this facility has a solids content as high as 10.53 lb/gal. Therefore, it will be assumed that the emission factor listed above already is a conservative estimate of the emissions expected from the prep booth sanding operation. Thus, an additional factor of safety will not be added to the emission factor.

Assuming all of the paint removed by sanding is emitted as PM₁₀, the uncontrolled PM₁₀ emission factor from the prep booth sanding operation will be as follows:

Uncontrolled PM₁₀ EF = 0.038321 lb-PM₁₀/vehicle

As discussed above, the paint sanding operation is performed with hand held sanding units inside of an open-face booth. As a conservative estimate, it will be assumed that all of the sanding emissions escape the booth uncontrolled. Therefore, the PM₁₀ emission factor from the prep booth paint sanding operation will be as follows:

Prep Booth Paint Sanding PM₁₀ EF = 0.038321 lb-PM₁₀/vehicle

Coating Operation:

This operation generates VOC and PM₁₀ emissions from the application of materials and solvents. The VOC and PM₁₀ emissions from the materials used as a part of this coating operation will be determined using the VOC and solids contents as referenced in the material listing included in Appendix B, the transfer efficiency of electrostatic application equipment, and the control efficiencies of the RTO and spray booth dry exhaust filters. Therefore, specific emission factors are not necessary and will not be listed for this body assembly operation.

C-9248-9-0 (Final Repair Coating Operation):

Coating Operation:

This operation generates VOC and PM₁₀ emissions from the application of materials and solvents. The emissions from the materials used as a part of this coating operation will be determined using the VOC and solids contents as referenced in the material listing included in Appendix B. Therefore, specific VOC and PM₁₀ emission factors will not be listed for the coating operation.

Natural Gas-Fired Booth Heater:

Pollutant	Post-Project Emission Factors (EF2)			Source
NO _x	N/A	0.036 lb-NO _x /MMBtu	30 ppmvd NO _x (@ 3%O ₂)	Manufacturer's Data
SO _x	N/A	0.00285 lb-SO _x /MMBtu	N/A	District Policy APR 1720
PM ₁₀	7.6 lb-PM ₁₀ /MMscf	0.0076 lb-PM ₁₀ /MMBtu	N/A	AP-42 (07/98) Table 1.4-2
CO	N/A	0.20 lb-CO/MMBtu	N/A	Manufacturer's Data
VOC	5.5 lb-VOC/MMscf	0.0055 lb-VOC/MMBtu	N/A	AP-42 (07/98) Table 1.4-2

C-9248-10-0 (Paint Sanding and Polishing Operation):

Sanding Operation:

Pursuant to a study performed by the facility, the estimated maximum amount of paint removed by sanding from each vehicle that is coated is as follows:

Paint Removed by Sanding = 0.097391 lb/vehicle

As a conservative estimate, a factor of safety of 100% will be added to the amount of material removed from each vehicle. Therefore, the maximum amount of paint removed by sanding will be as follows:

Maximum Amount of Paint Removed by Sanding = 0.097391 lb/vehicle x 2

Maximum Amount of Paint Removed by Sanding = 0.194782 lb/vehicle

Assuming all of the paint removed by sanding is emitted as PM₁₀, the uncontrolled PM₁₀ emission factor will be as follows:

Uncontrolled PM₁₀ EF = 0.194782 lb-PM₁₀/vehicle

As discussed above, the paint sanding operations are performed with hand held sanders served by a central vacuum system inside of an enclosed booth. The central vacuum system filters and booth filters are assumed to have a minimum PM₁₀ control efficiency of 95%. Therefore, the controlled PM₁₀ emission factor from the paint sanding operation is as follows:

Controlled PM₁₀ EF = Uncontrolled PM₁₀ EF x (1 – Control Efficiency)

Controlled PM₁₀ EF = 0.194782 lb-PM₁₀/vehicle x (1 – 0.95)

Controlled PM₁₀ EF = 0.00974 lb-PM₁₀/vehicle

Polishing Operation:

The emissions from the materials used as a part of this polishing operation will be determined using the VOC content referenced in the assumptions section above. Therefore, specific emission factors will not be listed for the coating operation.

Natural Gas-Fired Booth Heaters (Three Total):

Pollutant	Post-Project Emission Factors (EF2)			Source
NO _x	N/A	0.036 lb-NO _x /MMBtu	30 ppmvd NO _x (@ 3%O ₂)	Manufacturer's Data
SO _x	N/A	0.00285 lb-SO _x /MMBtu	N/A	District Policy APR 1720
PM ₁₀	7.6 lb-PM ₁₀ /MMscf	0.0076 lb-PM ₁₀ /MMBtu	N/A	AP-42 (07/98) Table 1.4-2
CO	N/A	0.20 lb-CO/MMBtu	N/A	Manufacturer's Data
VOC	5.5 lb-VOC/MMscf	0.0055 lb-VOC/MMBtu	N/A	AP-42 (07/98) Table 1.4-2

C-9248-11-0 (Plastic Parts Sanding Operation):

Pursuant to a study performed by the facility, the estimated maximum amount of paint removed by sanding one entire vehicle that is coated is as follows:

Paint Removed by Sanding = 0.097391 lb/vehicle

Plastic parts do not make up an entire vehicle. Since plastic parts do not make up the entire vehicle, this operation is not expected to sand entire vehicles. Therefore, the value for the amount of paint removed by the plastic part sanding operation is expected to be considerably lower than the 0.097391 lb/vehicle value referenced above. However, even though the amount of material expected to be removed from plastic part sanding is lower than that of a full vehicle body, as a conservative estimate, FF Inc. has requested to use the value of paint removed from an entire vehicle for this operation.

In addition, as an ultra conservative estimate, a factor of safety of 100% will be added to the value of amount of material removed from each vehicle. Therefore, the maximum amount of paint removed by sanding each vehicle will be as follows:

Maximum Amount of Paint Removed by Sanding = 0.097391 lb/vehicle x 2

Maximum Amount of Paint Removed by Sanding = 0.194782 lb/vehicle

Assuming all of the paint removed by sanding is emitted as PM₁₀, the uncontrolled PM₁₀ emission factor will be as follows:

Uncontrolled PM₁₀ EF = 0.194782 lb-PM₁₀/vehicle

As discussed above, the paint sanding operations are performed with hand held sanders served by a central vacuum system inside of an enclosed booth. The central vacuum system filters and booth filters are assumed to have a minimum PM₁₀ control efficiency of 95%. Therefore, the controlled PM₁₀ emission factor from the paint sanding operation is as follows:

Controlled PM₁₀ EF = Uncontrolled PM₁₀ EF x (1 – Control Efficiency)
Controlled PM₁₀ EF = 0.194782 lb-PM₁₀/vehicle x (1 – 0.95)

Controlled PM₁₀ EF = 0.00974 lb-PM₁₀/vehicle

Polishing Operation:

The emissions from the materials used as a part of this polishing operation will be determined using the VOC content referenced in the assumptions section above. Therefore, specific emission factors will not be listed for the coating operation.

Natural Gas-Fired Booth Heaters (Two Total):

Pollutant	Post-Project Emission Factors (EF2)			Source
NO _x	N/A	0.036 lb-NO _x /MMBtu	30 ppmvd NO _x (@ 3%O ₂)	Manufacturer's Data
SO _x	N/A	0.00285 lb-SO _x /MMBtu	N/A	District Policy APR 1720
PM ₁₀	7.6 lb-PM ₁₀ /MMscf	0.0076 lb-PM ₁₀ /MMBtu	N/A	AP-42 (07/98) Table 1.4-2
CO	N/A	0.20 lb-CO/MMBtu	N/A	Manufacturer's Data
VOC	5.5 lb-VOC/MMscf	0.0055 lb-VOC/MMBtu	N/A	AP-42 (07/98) Table 1.4-2

C-9248-12-0 (Emergency IC Engine):

For the new diesel-fired IC engine, the emissions factors for NO_x, CO, VOC, and PM₁₀ are provided by the applicant and are guaranteed by the engine manufacturer. The SO_x emission factor is calculated using the sulfur content in the diesel fuel (0.0015% sulfur).

The engine has certified NO_x + VOC emissions of 3.73 g/bhp-hr. It will be assumed the NO_x + VOC emission factor is split 95% NO_x and 5% VOC (per the Carl Moyer program).

Diesel-fired IC Engine Emission Factors		
Pollutant	g/hp-hr	Source
NO _x	3.54	Engine Manufacturer
SO _x	0.0051	Mass Balance Equation Below
PM ₁₀	0.05	Engine Manufacturer
CO	1.06	Engine Manufacturer
VOC	0.19	Engine Manufacturer

Mass Balance Equation for SO_x:

$$0.0015\% S \times \frac{7.1 \text{ lb} - \text{fuel}}{\text{gal} - \text{fuel}} \times \frac{2 \text{ lb} - \text{SO}_2}{\text{lb} - S} \times \frac{\text{gal} - \text{fuel}}{137,000 \text{ Btu}} \times \frac{\text{hp} - \text{input}}{0.35 \text{ hp} - \text{output}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp} - \text{hr}} \times \frac{453.6 \text{ g}}{\text{lb}}$$

$$= 0.0051 \frac{\text{g} - \text{SO}_x}{\text{bhp} - \text{hr}}$$

C. Calculations

1. Pre-Project Potential to Emit (PE1)

All of the units in this project are new emissions units. Therefore, the PE1 from each unit equals zero for all pollutants.

2. Post-Project Potential to Emit (PE2)

C-9248-5-0 (Body Assembly Operation):

Body Assembly:

As discussed above, the body assembly operation occurs in two sub processes, main body assembly and full body closures. Each process uses adhesives and/or sealants to assembly the vehicle components. The emissions from the adhesives can be calculated using the usage rates specified above and the as applied VOC content of the sealer.

$$\text{VOC PE}_{\text{Adhesives}} = \text{Usage Rate (gal/day or gal/year)} \times \text{VOC Content (lb/gal)}$$

As shown above, the VOCs contained within the sealers proposed to be used by this operation will not be released until the assembled vehicle bodies are placed in the curing oven. The exhaust air from the curing oven is routed through the RTO. Therefore, the emission from the application of the sealer can be determined using the usage rates specified above, the as applied VOC content of the sealer, and the control efficiency of the RTO.

$$\text{VOC PE}_{\text{Sealants}} = \text{Usage Rate (gal/day or gal/year)} \times \text{VOC Content (lb/gal)} \times (1 - \text{Control Efficiency}_{\text{RTO}})$$

Main Body Assembly:

VOC PE2 Calculations						
Material	Usage (gal/day)	Usage (gal/year)	VOC Content, as applied (lb/gal)	RTO Control Eff. (%)	Daily VOC PE (lb/day)	Annual VOC PE (lb/year)
[REDACTED]	200	73,000	0.01	0	2.0	730
[REDACTED]	17	6,205	0.0139	95	0.0	4
Total:					2.0	734

Full Body Closures:

VOC PE2 Calculations						
Material	Usage (gal/day)	Usage (gal/year)	VOC Content, as applied (lb/gal)	RTO Control Eff. (%)	Daily VOC PE (lb/day)	Annual VOC PE (lb/year)
[REDACTED]	11.7	4,271	0.02	0	0.2	85
[REDACTED]	25.0	9,125	0.01	0	0.3	91
[REDACTED]	5.8	2,117	0.07	95	0.0	7
Total:					0.5	183

Metal Finish Inspection and Repair:

VOC PE2 Calculations					
Material	Usage (gal/day)	Usage (gal/year)	VOC Content, as applied (lb/gal)	Daily VOC PE (lb/day)	Annual VOC PE (lb/year)
[REDACTED]	1.5	548	1.17	1.8	641
Total:				1.8	641

Surface Cleaning:

The applicant has proposed to limit the combined VOC emissions from the solvent wipes used for surface cleaning to 2.0 lb/day. Using a worst case operating schedule of 365 days per year, the PE2 for this operation will be as follows:

Daily VOC PE2 = 2.0 lb/day

Annual VOC PE2 = Daily PE2 x 365 days/year

Annual VOC PE2 = 2.0 lb/day x 365 days/year

Annual VOC PE2 = 730 lb/year

Total PE2 for Body Assembly Operation:

Total Daily PE2					
Pollutant	PE2 _{Main Body} (lb/day)	PE2 _{Full Body Closures} (lb/day)	PE2 _{Metal Inspection} (lb/day)	PE2 _{Surface Cleaning} (lb/day)	PE2 _{Total} (lb/day)
VOC	2.0	0.5	1.8	2.0	6.3

Total Annual PE2					
Pollutant	PE2 _{Main Body} (lb/year)	PE2 _{Full Body Closures} (lb/year)	PE2 _{Metal Inspection} (lb/year)	PE2 _{Surface Cleaning} (lb/year)	PE2 _{Total} (lb/year)
VOC	734	183	641	730	2,288

C-9248-6-0 (E-Coat Operation):

The E-Coat operation consists of emissions from the application process (performed in dip tanks), and the curing process (performed in a curing oven served by an RTO). The PE for each of the processes are calculate as follows:

E-Coat Application (Dip Tanks):

The PE for the coating application process is calculated using the EF calculated in Section VII.B and the coating usage rates proposed by the facility.

Daily PE Coating Application/Dip Tanks				
Dip Tank	Material	EF (lb-VOC/gal)	Daily Usage (gal/day)	PE (lb-VOC/day)
#3		0.15	1.99333	0.3
#5 and #6		0.24	50	12.0
#5 and #6		0.0135	4.667	0.1
Total				12.4

Annual PE Coating Application/Dip Tanks				
Dip Tank	Material	EF (lb-VOC/gal)	Annual Usage (gal/year)	PE (lb-VOC/year)
#3		0.15	594	89
#5 and #6		0.24	15,625	3,750
#5 and #6		0.0135	1,400	19
Total				3,858

E-Coat Curing (Curing Oven):

The PE for the e-coat curing process is calculated using the EF calculated in Section VII.B, the vehicle production rate proposed by the facility, and the control efficiency of the proposed RTO.

$$\text{Daily PE (VOC)} = \text{[REDACTED]} \\ = 1.1 \text{ lb-VOC/day}$$

$$\text{Annual PE (VOC)} = \text{[REDACTED]} \\ = 345 \text{ lb-VOC/year}$$

Surface Cleaning:

The applicant has proposed to limit the combined VOC emissions from the solvent wipes used for surface cleaning to 2.0 lb/day. Using a worst-case operating schedule of 365 days per year, the PE2 for this operation will be as follows:

$$\text{Daily VOC PE2} = 2.0 \text{ lb/day}$$

$$\text{Annual VOC PE2} = \text{Daily PE2} \times 365 \text{ days/year}$$

$$\text{Annual VOC PE2} = 2.0 \text{ lb/day} \times 365 \text{ days/year}$$

$$\text{Annual VOC PE2} = 730 \text{ lb/year}$$

Total PE2 for E-Coat Operation:

Total Daily PE2				
Pollutant	PE2 _{Application} (lb/day)	PE2 _{Curing} (lb/day)	PE2 _{Surface Cleaning} (lb/day)	PE2 _{Total} (lb/day)
VOC	12.4	1.1	2.0	15.5

Total Annual PE2				
Pollutant	PE2 _{Application} (lb/year)	PE2 _{Curing} (lb/year)	PE2 _{Surface Cleaning} (lb/year)	PE2 _{Total} (lb/year)
VOC	3,858	345	730	4,933

C-9248-7-0 (E-Coat Sanding and Sealing Operation):

Sanding Operation:

The applicant has proposed a maximum vehicle production rate of [REDACTED] sanded per day. Therefore, the daily PE2 can be calculated using the throughput rate and the controlled EF listed above. The annual PE2 will be calculated using a worst-case annual operating schedule of 365 days per year.

$$\text{Daily PE2} = \text{Throughput (vehicles/day)} \times \text{Controlled EF (lb-PM}_{10}\text{/vehicle)}$$

$$\text{Daily PE2} = [\text{REDACTED}]$$

$$\text{Daily PE2} = 1.2 \text{ lb-PM}_{10}\text{/day}$$

$$\text{Annual PE2} = \text{Throughput (vehicles/day)} \times \text{Controlled EF (lb-PM}_{10}\text{/vehicle)} \times 365 \text{ days/yr}$$

$$\text{Annual PE2} = [\text{REDACTED}]$$

$$\text{Annual PE2} = 447 \text{ lb-PM}_{10}\text{/year}$$

Sanding Booth Heater:

The PE2 values from the booth heater can be calculated using the emission factors listed above, the maximum burner rating and a worst-case operating schedule of 24 hours per day and 365 days per year.

$$\text{Daily PE2} = \text{EF (lb/MMBtu)} \times \text{Burner Rating (MMBtu/hr)} \times \text{Operation (hr/day)}$$

$$\text{Annual PE2} = \text{EF (lb/MMBtu)} \times \text{Burner Rating (MMBtu/hr)} \times \text{Operation (hr/day)} \times 365 \text{ days/year}$$

Natural Gas-Fired Heater PE2, per Booth						
Pollutant	EF (lb/MMBtu)	Heater Rating (MMBtu/hr)	Daily Operation (hr/day)	Annual Operation (day/year)	Daily PE2 (lb/day)	Annual PE2 (lb/year)
NO _x	0.036	1.808	24	365	1.6	570
SO _x	0.00285				0.1	45
PM ₁₀	0.0076				0.3	120
CO	0.20				8.7	3,168
VOC	0.0055				0.2	87

Sealing Operation:

As shown above, the VOCs contained within the sealers proposed to be used by this operation will be released once the product is heated in the curing oven. The exhaust air from the curing oven is routed through the RTO. Therefore, the emission from the application of the sealer can be determined using the usage rates specified above, the as applied VOC content of the sealer, and the control efficiency of the RTO.

Daily VOC PE2 = Usage Rate (gal/day) x VOC Content (lb-VOC/gal) x (1 – CE)

Daily VOC PE2 = 78.6 (gal/day) x 0.3 lb-VOC/gal x (1 – 0.95)

Daily VOC PE2 = 1.2 lb-VOC/day

Annual VOC PE2 = Usage Rate (gal/year) x VOC Content (lb-VOC/gal) x (1 – CE)

Annual VOC PE2 = 24,000 (gal/year) x 0.3 lb-VOC/gal x (1 – 0.95)

Annual VOC PE2 = 360 lb-VOC/year

Surface Cleaning:

The applicant has proposed to limit the combined VOC emissions from the solvent wipes used for surface cleaning to 2.0 lb/day. Using a worst-case operating schedule of 365 days per year, the PE2 for this operation will be as follows:

Daily VOC PE2 = 2.0 lb/day

Annual VOC PE2 = Daily PE2 x 365 days/year

Annual VOC PE2 = 2.0 lb/day x 365 days/year

Annual VOC PE2 = 730 lb/year

Total PE2 for E-Coat Paint Sanding and Sealing Operation:

Total Daily PE2					
Pollutant	PE2 _{Sanding} (lb/day)	PE2 _{Sealing} (lb/day)	PE2 _{Heater} (lb/day)	PE2 _{Surface Cleaning} (lb/day)	PE2 _{Total} (lb/day)
NO _x	0	0	1.6	0	3.2
SO _x	0	0	0.1	0	0.2
PM ₁₀	1.2	0	0.3	0	1.0
CO	0	0	8.7	0	17.4
VOC	0	1.2	0.2	2.0	3.4

Total Annual PE2					
Pollutant	PE2 _{Sanding} (lb/year)	PE2 _{Sealing} (lb/year)	PE2 _{Heater} (lb/year)	PE2 _{Surface Cleaning} (lb/year)	PE2 _{Total} (lb/year)
NO _x	0	0	570	0	570
SO _x	0	0	45	0	45
PM ₁₀	447	0	120	0	567
CO	0	0	3,168	0	3,168
VOC	0	360	87	730	1,177

C-9248-8-0 (Motor Vehicle Assembly Main Coating Line):

Prep Booth Sanding Operation:

The applicant has proposed a maximum vehicle production rate of [REDACTED] sanded per day. Therefore, the daily PE2 can be calculated using the throughput rate and the controlled EF listed above. The annual PE2 will be calculated using a worst-case annual operating schedule of 365 days per year.

Daily PE2 = Throughput (vehicles/day) x Controlled EF (lb-PM₁₀/vehicle)

Daily PE2 = [REDACTED]

Daily PE2 = 1.6 lb-PM₁₀/day

Annual PE2 = Throughput (vehicles/day) x Controlled EF (lb-PM₁₀/vehicle) x 365 days/yr

Annual PE2 = [REDACTED]

Annual PE2 = 587 lb-PM₁₀/year

Main Coating Line:

VOC PE2 Calculations:

The list of materials proposed to be used for the main paint line is included in Appendix B. FF, Inc. has proposed to calculate the VOC emissions from each category by using the total usage rate for each material category, multiplied by the highest as applied VOC content for materials in that category. The total VOC emissions from the main paint line will be the sum of the VOC emissions from each material category. As shown above, the main paint line is controlled by the RTO and it is expected that 100% of the VOC emissions generated by the paint line are captured and routed to the RTO. Therefore, the main paint line emissions will be determined as follows:

VOC PE2 = Usage Rate (gal/day or gal/year) x Worst-Case VOC Content, as applied (lb/gal) x (1 – Control Efficiency_{RTO})

VOC PE2 Calculations						
Category	Usage (gal/day)	Usage (gal/year)	Worst-Case VOC Content, as applied (lb/gal)	RTO Control Eff. (%)	Daily VOC PE (lb/day)	Annual VOC PE (lb/year)
Adhesion Promoters - Gray	7.34	2,292	6.20	95	2.3	711
Adhesion Promoters - White	7.34	2,292	5.7	95	2.1	653
Basecoats/ Topcoats	67.47	21,084	1.80	95	6.1	1,898
Metallic Basecoats	67.47	633	1.60	95	5.4	51
Clearcoats A	123.84	19,931	4.70	95	29.1	4,684
Clearcoats B	35.9	5,778	8.50	95	15.3	2,456
Primers	31.22	9,756	4.0	95	6.2	1,951
Monocoats	3.7	1,157	3.77	95	0.7	218
████████ Solvent	8	2,500	0.37	95	0.1	46
Purge Solvent	8	2,500	7.15	95	2.9	894
Total:					70.2	13,562

PM₁₀ PE2 Calculations:

FF, Inc. has proposed to calculate the PM₁₀ emissions from each category by using the total usage rate for each material category, multiplied by the highest solids content, by weight, for any material in that category. The total PM₁₀ emissions from the main paint line will be the sum of the PM₁₀ emissions from each material category. As shown above, the materials from the main paint line are applied with electrostatic application equipment and the application booth is served by dry exhaust filters. Therefore, the main paint line emissions will be determined as follows:

$$\text{PM}_{10} \text{ PE2} = \text{Usage Rate (gal/day or gal/year)} \times \text{Worst-Case Solids Content, by weight (lb/gal)} \times (1 - \text{Transfer Efficiency}_{\text{Electrostatic}}) \times (1 - \text{Control Efficiency}_{\text{Dry Filters}})$$

PM₁₀ PE2 Calculations							
Category	Usage (gal/day)	Usage (gal/year)	Worst Case Solids Content, by weight (lb/gal)	HVLP Gun Transfer Eff. (%)	Dry Filter Removal Eff. (%)	Daily PM₁₀ PE (lb/day)	Annual PM₁₀ PE (lb/year)
Adhesion Promoters - Gray	7.34	2,292	2.21	90	95	0.1	25
Adhesion Promoters - White	7.34	2,292	2.39	90	95	0.1	27
Basecoats/ Topcoats	67.47	21,084	4.55	90	95	1.5	480
Metallic Basecoats	67.47	633	1.51	90	95	0.5	5
Clearcoats A	123.84	19,931	4.79	90	95	3.0	477
Clearcoats B	35.9	5,778	7.71	90	95	1.4	223
Primers	31.22	9,756	7.59	90	95	1.2	370
Monocoats	3.7	1,157	5.16	90	95	0.1	30
Total:						7.9	1,637

Thermal Oxidizer (Natural Gas Combustion):

The PE2 values from the combustion of natural gas in the RTO burner can be calculated using the emission factors listed above, the maximum burner rating and a worst-case operating schedule of 24 hours per day and 365 days per year.

Daily PE2 = EF (lb/MMBtu) x Burner Rating (MMBtu/hr) x Operation (hr/day)

Annual PE2 = EF (lb/MMBtu) x Burner Rating (MMBtu/hr) x Operation (hr/day) x 365 days/year

Natural Gas-Fired Booth Heater PE2						
Pollutant	EF (lb/MMBtu)	Heater Rating (MMBtu/hr)	Daily Operation (hr/day)	Annual Operation (day/year)	Daily PE2 (lb/day)	Annual PE2 (lb/year)
NO _x	0.036	5.20	24	365	4.5	1,640
SO _x	0.00285				0.4	130
PM ₁₀	0.0076				0.9	346
CO	0.2956				36.9	13,465
VOC	0.0055				0.7	251

Surface Cleaning:

The applicant has proposed to limit the combined VOC emissions from the solvent wipes used for surface cleaning to 2.0 lb/day. Using a worst-case operating schedule of 365 days per year, the PE2 for this operation will be as follows:

Daily VOC PE2 = 2.0 lb/day

Annual VOC PE2 = Daily PE2 x 365 days/year

Annual VOC PE2 = 2.0 lb/day x 365 days/year

Annual VOC PE2 = 730 lb/year

Total PE2 for Paint Line:

Total Daily PE2					
Pollutant	PE2 _{Sanding} (lb/day)	PE2 _{Coating} (lb/day)	PE2 _{RTO} (lb/day)	PE2 _{Surface Cleaning} (lb/day)	PE2 _{Total} (lb/day)
NO _x	0	0	4.5	0	4.5
SO _x	0	0	0.4	0	0.4
PM ₁₀	1.6	7.9	0.9	0	10.4
CO	0	0	36.9	0	36.9
VOC	0	70.2	0.7	2.0	72.9

Total Annual PE2					
Pollutant	PE2 _{Sanding} (lb/year)	PE2 _{Coating} (lb/year)	PE2 _{RTO} (lb/year)	PE2 _{Surface Cleaning} (lb/year)	PE2 _{Total} (lb/year)
NO _x	0	0	1,640	0	1,640
SO _x	0	0	130	0	130
PM ₁₀	587	1,637	346	0	2,570
CO	0	0	13,465	0	13,465
VOC	0	13,562	251	730	14,543

C-9248-9-0 (Final Repair Coating Operation):

Coating Operation:

VOC PE2 Calculations:

The applicant has proposed to limit the VOC emissions from this coating operation to 30 lb/day and 2,000 lb/year. Therefore, the VOC PE2 values will be as follows:

Daily VOC PE2_{Coating} = 30.0 lb/day

Annual VOC PE2_{Coating} = 2,000 lb/year

PM₁₀ PE2 Calculations:

The PM₁₀ emissions from the coating operation will be determined by first back calculating the maximum amount of coatings used. As a conservative estimate, the maximum daily coating usage will be determined using the lowest as applied VOC content of any coating from the material listing in Appendix B. For this project, a worst-case VOC content of 1.2 lb/gal will be used. Therefore, the maximum coating usage rates will be determined as follows:

Maximum Coating Usage = VOC PE2 Coating (lb/day or lb/yr) / VOC Content (lb/gal)

Maximum Daily Coating Usage (gal/day) = 30.0 lb/day / 1.2 lb-VOC/gal

Maximum Annual Coating Usage (gal/year) = 2,000 lb/yr / 1.2 lb-VOC/gal

Maximum Daily Coating Usage (gal/day) = 25 gal/day

Maximum Annual Coating Usage (gal/yr) = 1,667 gal/yr

Next, the PM₁₀ emissions from the coating operation can be determined using the coating usage rates determined above, the maximum coating solids content, the HVLP spray gun transfer efficiency and the dry filter PM₁₀ control efficiency. As a conservative estimate, the maximum coating solids content used will be the coating with the highest solids content from the material listing in Appendix B. For this project, a worst-case solids content of 7.59 lb/gal will be used. Therefore, the maximum PM₁₀ emission rates from the coating operation will be determined as follows:

PM₁₀ PE2 = Coating Usage (gal/day or gal/yr) x Maximum Solids Content (lb/gal) x (1 – HVLP Transfer Efficiency) x (1 – Dry Filter Control Efficiency)

Daily PM₁₀ PE2 = 25 gal/day x 7.59 lb-PM₁₀/gal x (1 – 75%) x (1 – 95%)

Daily PM₁₀ PE2 = 2.4 lb-PM₁₀/day

Annual PM₁₀ PE2 = 1,667 gal/day x 7.59 lb-PM₁₀/gal x (1 – 75%) x (1 – 95%)

Annual PM₁₀ PE2 = 158 lb-PM₁₀/yr

Surface Cleaning:

The applicant has proposed to limit the combined VOC emissions from the solvent wipes and aerosol solvents used to 2.0 lb/day. Using a worst-case operating schedule of 365 days per year, the PE2 for this operation will be as follows:

Daily VOC PE2 = 2.0 lb/day

Annual VOC PE2 = Daily PE2 x 365 days/year

Annual VOC PE2 = 2.0 lb/day x 365 days/year

Annual VOC PE2 = 730 lb/year

Booth Heater:

The PE2 values from the combustion of natural gas in the booth heater can be calculated using the emission factors listed above, the maximum burner rating and a worst-case operating schedule of 24 hours per day and 365 days per year.

Daily PE2 = EF (lb/MMBtu) x Burner Rating (MMBtu/hr) x Operation (hr/day)

Annual PE2 = EF (lb/MMBtu) x Burner Rating (MMBtu/hr) x Operation (hr/day) x 365 days/year

Natural Gas-Fired Booth Heater PE2						
Pollutant	EF (lb/MMBtu)	Heater Rating (MMBtu/hr)	Daily Operation (hr/day)	Annual Operation (day/year)	Daily PE2 (lb/day)	Annual PE2 (lb/year)
NO _x	0.036	1.50	24	365	1.3	473
SO _x	0.00285				0.1	37
PM ₁₀	0.0076				0.3	100
CO	0.20				7.2	2,628
VOC	0.0055				0.2	72

Total PE2 for Final Repair Coating Operation:

Total Daily PE2				
Pollutant	PE2 _{Coating} (lb/day)	PE2 _{Surface Cleaning} (lb/day)	PE2 _{Booth Heater} (lb/day)	PE2 _{Total} (lb/day)
NO _x	0	0	1.3	1.3
SO _x	0	0	0.1	0.1
PM ₁₀	2.4	0	0.3	2.7
CO	0	0	7.2	7.2
VOC	30.0	2.0	0.2	32.2

Total Annual PE2				
Pollutant	PE2 _{Coating} (lb/year)	PE2 _{Surface Cleaning} (lb/year)	PE2 _{Booth Heater} (lb/year)	PE2 _{Total} (lb/year)
NO _x	0	0	473	473
SO _x	0	0	37	37
PM ₁₀	158	0	100	258
CO	0	0	2,628	2,628
VOC	2,000	730	72	2,802

C-9248-10-0 (Paint Sanding and Polishing Operation):

Sanding Operation:

The applicant has proposed a maximum vehicle production rate of [REDACTED] sanded per day. Therefore, the daily PE2 can be calculated using the throughput rate and the controlled EF listed above. The annual PE2 will be calculated using a worst-case annual operating schedule of 365 days per year.

Daily PE2 = Throughput (vehicles/day) x Controlled EF (lb-PM₁₀/vehicle)

Daily PE2 = [REDACTED]

Daily PE2 = 0.4 lb-PM₁₀/day

Annual PE2 = Throughput (vehicles/day) x Controlled EF (lb-PM₁₀/vehicle) x 365 days/yr

Annual PE2 = [REDACTED]

Annual PE2 = 149 lb-PM₁₀/year

Polishing Operation

The VOC emissions from the polishing operation can be determined using the VOC content of the polish and the usage rates proposed by the applicant.

Daily VOC PE2 = VOC Content, as applied (lb-VOC/gal) x Usage Rate (gal/day)

Daily VOC PE2 = 1.74 (lb-VOC/gal) x 2.30 (gal/day)

Daily VOC PE2 = 4.0 lb-VOC/day

Annual VOC PE2 = VOC Content, as applied (lb-VOC/gal) x Usage Rate (gal/day)

Annual VOC PE2 = 1.74 (lb-VOC/gal) x 720 (gal/year)

Annual VOC PE2 = 1,253 lb-VOC/day

Sanding Booth Heaters (Three Booths):

The PE2 values from the combustion of natural gas in the booth heater can be calculated using the emission factors listed above, the maximum burner rating and a worst-case operating schedule of 24 hours per day and 365 days per year.

Daily PE2 = EF (lb/MMBtu) x Burner Rating (MMBtu/hr) x Operation (hr/day)

Annual PE2 = EF (lb/MMBtu) x Burner Rating (MMBtu/hr) x Operation (hr/day) x 365 days/year

Natural Gas-Fired Heater PE2, per Booth						
Pollutant	EF (lb/MMBtu)	Heater Rating (MMBtu/hr)	Daily Operation (hr/day)	Annual Operation (day/year)	Daily PE2 (lb/day)	Annual PE2 (lb/year)
NO _x	0.036	1.808	24	365	1.6	570
SO _x	0.00285				0.1	45
PM ₁₀	0.0076				0.3	120
CO	0.20				8.7	3,168
VOC	0.0055				0.2	87

Surface Cleaning:

The applicant has proposed to limit the combined VOC emissions from the solvent wipes and aerosol solvents used for surface cleaning to 2.0 lb/day. Using a worst-case operating schedule of 365 days per year, the PE2 for this operation will be as follows:

Daily VOC PE2 = 2.0 lb/day

Annual VOC PE2 = Daily PE2 x 365 days/year

Annual VOC PE2 = 2.0 lb/day x 365 days/year

Annual VOC PE2 = 730 lb/year

Total PE2 for Paint Sanding and Polishing Operation:

Total Daily PE2							
Pollutant	PE2 _{Sanding} (lb/day)	PE2 _{Polish} (lb/day)	PE2 _{Surface Cleaning} (lb/day)	PE2 _{Heater #1} (lb/day)	PE2 _{Heater #2} (lb/day)	PE2 _{Heater #3} (lb/day)	PE2 _{Total} (lb/day)
NO _x	0	0	0	1.6	1.6	1.6	3.2
SO _x	0	0	0	0.1	0.1	0.1	0.2
PM ₁₀	0.4	0	0	0.3	0.3	0.3	1.0
CO	0	0	0	8.7	8.7	8.7	17.4
VOC	0	4.0	2.0	0.2	0.2	0.2	6.4

Total Annual PE2							
Pollutant	PE2 _{Sanding} (lb/year)	PE2 _{Polish} (lb/year)	PE2 _{Surface Cleaning} (lb/year)	PE2 _{Heater #1} (lb/year)	PE2 _{Heater #2} (lb/year)	PE2 _{Heater #3} (lb/year)	PE2 _{Total} (lb/year)
NO _x	0	0	0	570	570	570	1,710
SO _x	0	0	0	45	45	45	135
PM ₁₀	149	0	0	120	120	120	509
CO	0	0	0	3,168	3,168	3,168	9,504
VOC	0	1,253	730	87	87	87	2,244

C-9248-11-0 (Plastic Parts Paint Sanding and Polishing Operation):

Sanding Operation:

The applicant has proposed a maximum vehicle production rate of [REDACTED] sanded per day. Therefore, the daily PE2 can be calculated using the throughput rate and the controlled EF listed above. The annual PE2 will be calculated using a worst-case annual operating schedule of 365 days per year.

Daily PE2 = Throughput (vehicles/day) x Controlled EF (lb-PM₁₀/vehicle)

Daily PE2 = [REDACTED]

Daily PE2 = 0.4 lb-PM₁₀/day

Annual PE2 = Throughput (vehicles/day) x Controlled EF (lb-PM₁₀/vehicle) x 365 days/yr

Annual PE2 = [REDACTED]

Annual PE2 = 149 lb-PM₁₀/year

Polishing Operation

The VOC emissions from the polishing operation can be determined using the VOC content of the polish and the usage rates proposed by the applicant.

Daily VOC PE2 = VOC Content, as applied (lb-VOC/gal) x Usage Rate (gal/day)

Daily VOC PE2 = 1.74 (lb-VOC/gal) x 2.30 (gal/day)

Daily VOC PE2 = 4.0 lb-VOC/day

Annual VOC PE2 = VOC Content, as applied (lb-VOC/gal) x Usage Rate (gal/day)

Annual VOC PE2 = 1.74 (lb-VOC/gal) x 720 (gal/year)

Annual VOC PE2 = 1,253 lb-VOC/day

Sanding Booth Heaters (Two Booths):

The PE2 values from the combustion of natural gas in the booth heaters can be calculated using the emission factors listed above, the maximum burner rating and a worst-case operating schedule of 24 hours per day and 365 days per year.

Daily PE2 = EF (lb/MMBtu) x Burner Rating (MMBtu/hr) x Operation (hr/day)

Annual PE2 = EF (lb/MMBtu) x Burner Rating (MMBtu/hr) x Operation (hr/day) x 365 days/year

Natural Gas-Fired Heater PE2, per Booth						
Pollutant	EF (lb/MMBtu)	Heater Rating (MMBtu/hr)	Daily Operation (hr/day)	Annual Operation (day/year)	Daily PE2 (lb/day)	Annual PE2 (lb/year)
NO _x	0.036	1.808	24	365	1.6	570
SO _x	0.00285				0.1	45
PM ₁₀	0.0076				0.3	120
CO	0.20				8.7	3,168
VOC	0.0055				0.2	87

Surface Cleaning:

The applicant has proposed to limit the combined VOC emissions from the solvent wipes and aerosol solvents used for surface cleaning to 2.0 lb/day. Using a worst-case operating schedule of 365 days per year, the PE2 for this operation will be as follows:

Daily VOC PE2 = 2.0 lb/day

Annual VOC PE2 = Daily PE2 x 365 days/year

Annual VOC PE2 = 2.0 lb/day x 365 days/year

Annual VOC PE2 = 730 lb/year

Total PE2 for Plastic Parts Paint Sanding Operation:

Total Daily PE2						
Pollutant	PE2 _{Sanding} (lb/day)	PE2 _{Polish} (lb/day)	PE2 _{Surface Cleaning} (lb/day)	PE2 _{Heater #1} (lb/day)	PE2 _{Heater #2} (lb/day)	PE2 _{Total} (lb/day)
NO _x	0	0	0	1.6	1.6	3.2
SO _x	0	0	0	0.1	0.1	0.2
PM ₁₀	0.4	0	0	0.3	0.3	1.0
CO	0	0	0	8.7	8.7	17.4
VOC	0	4.0	2.0	0.2	0.2	6.4

Total Annual PE2						
Pollutant	PE2 _{Sanding} (lb/year)	PE2 _{Polish} (lb/year)	PE2 _{Surface Cleaning} (lb/year)	PE2 _{Heater #1} (lb/year)	PE2 _{Heater #2} (lb/year)	PE2 _{Total} (lb/year)
NO _x	0	0	0	570	570	1,140
SO _x	0	0	0	45	45	90
PM ₁₀	149	0	0	120	120	389
CO	0	0	0	3,168	3,168	6,336
VOC	0	1,253	730	87	87	2,157

C-9248-12-0 (Emergency IC Engine):

The daily and annual PE2 for this emergency IC engine are calculated as follows:

$$\text{PE2 (lb-pollutant/day or year)} = \text{EF (g-pollutant/bhp-hr)} \times \text{Rating (bhp)} \\ \times \text{Operation (hr/day or hr/year)} / 453.6 \text{ g/lb}$$

Daily and Annual PE2						
Pollutant	Emission Factor (g/bhp-hr)	Power Rating (bhp)	Operation Limit (hr/day)	Operation Limit (hr/year)	PE2 (lb/day)	PE2 (lb/year)
NO _x	3.54	762	24	50	142.7	297
SO _x	0.0051				0.2	0
PM ₁₀	0.05				2.0	4
CO	1.06				42.7	89
VOC	0.19				7.7	16

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

Pursuant to District Rule 2201, the SSPE1 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 (AER) that have occurred at the source, and which have not been used on-site.

The SSPE1 values listed in the table below for units C-9248-1-0, '-2-0, '-3-0, and '-4-0 were taken from the engineering evaluation performed under project C-1172714 (finalized May 4, 2018). The SSPE1 values listed in the table below for unit C-9248-14-0 were taken from the engineering evaluation performed under project C-1182094 (finalized June 14, 2018).

SSPE1 (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
C-9248-1-0	1,151	91	404	8,728	2,906
C-9248-2-0	0	0	0	0	3,930
C-9248-3-0	0	0	149	0	730
C-9248-4-0	148	0	8	95	8
C-9248-14-0	46	0	0	2	0
SSPE1	1,345	91	561	8,825	7,574

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

Pursuant to District Rule 2201, the SSPE2 is the PE from all units with valid ATCs or PTOs at the Stationary Source and the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.

SSPE2 (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE1	1,345	91	561	8,825	7,574
C-9248-5-0	0	0	0	0	2,288
C-9248-6-0	0	0	0	0	4,933
C-9248-7-0	570	45	567	3,168	1,177
C-9248-8-0	1,640	130	2,570	13,465	14,543
C-9248-9-0	473	37	258	2,628	2,802
C-9248-10-0	1,710	135	509	9,504	2,244
C-9248-11-0	1,140	90	389	6,336	2,157
C-9248-12-0	297	0	4	89	16
SSPE2	7,175	528	4,858	44,015	37,734

5. Major Source Determination

Rule 2201 Major Source Determination:

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status the following shall not be included:

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

Rule 2201 Major Source Determination (lb/year)						
	NO_x	SO_x	PM₁₀	PM_{2.5}*	CO	VOC
SSPE1	1,345	91	561	561	8,825	7,574
SSPE2	7,175	528	4,858	4,858	44,015	37,734
Major Source Threshold	20,000	140,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No	Yes

*Note: PM_{2.5} assumed to be equal to PM₁₀

As seen in the table above, the facility is not an existing Major Source and is not becoming a Major Source as a result of this project.

Rule 2410 Major Source Determination:

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(iii). Therefore, the PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

PSD Major Source Determination (tons/year)						
	NO₂	VOC	SO₂	CO	PM	PM₁₀
Estimated Facility PE before Project Increase	0.6	3.8	0	4.4	0.3	0.3
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ? (Y/N)	N	N	N	N	N	N

As shown above, the facility is not an existing PSD major source for any regulated NSR pollutant expected to be emitted at this facility.

6. Baseline Emissions (BE)

The BE calculation (in lb/year) is performed pollutant-by-pollutant for each unit within the project to calculate the QNEC, and if applicable, to determine the amount of offsets required.

Pursuant to District Rule 2201, BE = 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 = Historic Actual Emissions (HAE), calculated pursuant to District Rule 2201.

Since all of the units in this project are new emissions units, BE = PE1 = 0 for all pollutants.

7. SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 as "any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."

This facility is not an existing Major Source for any pollutant. Therefore, this project cannot trigger an SB 288 major modification and no further discussion is required.

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.

This facility is not an existing Major Source for any pollutant. Therefore, this project cannot trigger a Federal Major Modification and no further discussion is required.

9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment. The pollutants which must be addressed in the PSD applicability determination for sources located in the SJV and which are emitted in this project are: (See 52.21 (b) (23) definition of significant)

- NO₂ (as a primary pollutant)
- SO₂ (as a primary pollutant)
- CO
- PM
- PM₁₀

I. Project Emissions Increase - New Major Source Determination

The post-project potentials to emit from all new and modified units are compared to the PSD major source thresholds to determine if the project constitutes a new major source subject to PSD requirements.

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). The PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

PSD Major Source Determination: Potential to Emit (tons/year)						
	NO₂	VOC	SO₂	CO	PM	PM₁₀
Total PE from New and Modified Units	2.9	15.1	0.2	17.6	2.1	2.1
PSD Major Source threshold	250	250	250	250	250	250
New PSD Major Source?	N	N	N	N	N	N

As shown in the table above, the potential to emit for the project, by itself, does not exceed any PSD major source threshold. Therefore Rule 2410 is not applicable and no further analysis is required.

10. Quarterly Net Emissions Change (QNEC)

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

VIII. Compliance Determination

Rule 2020 Exemptions

This rule specifies emissions units that are not required to obtain an ATC or PTO. Section 6.0 lists the specific equipment that is not required to obtain an ATC or PTO.

Section 6.1.1 states that steam generators, steam superheaters, water boilers, water heaters, steam cleaners, and closed indirect fired heat transfer systems that have a maximum input heat rating of 5,000,000 Btu per hour (gross) or less and is equipped to be fired exclusively with:

- 6.1.1.1 Natural gas containing no more than five (5) percent by weight hydrocarbons heavier than butane and no more than 1.0 grain of total sulfur per 100 standard cubic feet of gas; or
- 6.1.1.2 Liquefied petroleum gas containing no more than two (2) percent by volume hydrocarbons heavier than butane and no more than 15 grains of total sulfur per 100 standard cubic feet of gas; or
- 6.1.1.3 Any combination of gases specified in Sections 6.1.1.1 and 6.1.1.2.
- 6.1.1.4 The percent by weight hydrocarbons content heavier than butane shall be determined by using the latest version of ASTM E-260 (Standard Practice for Packed Column Gas Chromatography).
- 6.1.1.5 The gas sulfur content shall be determined by using the latest version of ASTM D-1072 (Standard Test Method for Total Sulfur in Fuel Gases by Combustion and Barium Chloride Titration), ASTM D-3246 (Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry), ASTM D-6228 (Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection), or ASTM

D5504 (Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence).

E-Coat Operation and Main Paint Line Curing Ovens:

FF, Inc. is proposing to utilize a 5 MMBtu/hr natural gas-fired curing oven with two 2.5 MMBtu/hr burners along with the E-Coat operation. In addition, for the main paint line, FF, Inc. is proposing to utilize five 1.5 MMBtu/hr curing ovens. The coating process is very critical in producing a high quality finish for manufactured vehicles. Therefore, FF, Inc. does not want any exhaust gases or particulate matter from the combustion of natural gas in the burners being exhaust directly in to the oven and potentially sticking in the painted vehicle bodies. For this reason, all of the burners associated with these ovens are indirect fired burners. Meaning the products of combustion from the burners do not come in to contact with the vehicle bodies and coatings being curing in the oven.

The burners are in an enclosed box at the end of each oven. In addition, a heat exchanger will transfer the heated air to the air inside of the oven that will cure the coatings. The burners will be fired on PUC- natural gas, which in accordance with District Policy APR 1720, will have a sulfur content of no more than 1.0 grains per 100 standard cubic feet. Therefore, these curing ovens can be considered closed indirect fired heat transfer systems. In accordance with Rule 2020, Section 6.1.1, these curing ovens are not required to obtain an ATC or PTO.

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per 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 per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined by the rule.

*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

a. New emissions units – PE > 2 lb/day

C-9248-5-0 (Body Assembly Operation):

Body Assembly – Main Body Assembly:

As seen in Section VII.C.2 above, the applicant is proposing to install a new main body assembly operation with a PE equal to 2.0 lb/day for VOC emissions. Therefore, BACT is not triggered.

Body Assembly – Full Body Closures:

As seen in Section VII.C.2 above, the applicant is proposing to install a new full body closures operation with a PE less than 2.0 lb/day for VOC emissions. Therefore, BACT is not triggered.

Body Assembly – Metal Finish Inspection and Repair:

As seen in Section VII.C.2 above, the applicant is proposing to install a new metal finish inspection and repair operation with a PE less than 2.0 lb/day for VOC emissions. Therefore, BACT is not triggered.

Surface Cleaning:

As seen in Section VII.C.2 above, the applicant is proposing to install a new solvent surface cleaning operation as a part of this motor vehicle body assembly operation with a PE equal to 2.0 lb/day for VOC emissions. Therefore, BACT is not triggered for the surface cleaning operation.

C-9248-6-0 (E-Coat Operation):

Electrodeposition Coating Operation:

As seen in Section VII.C.2 above, the applicant is proposing to install an automotive electrodeposition dip coating operation with a PE greater than 2.0 lb/day for VOC emissions. Therefore, BACT is triggered for VOC emissions.

Surface Cleaning:

As seen in Section VII.C.2 above, the applicant is proposing to install a new solvent surface cleaning operation as a part of this motor vehicle assembly electrodeposition dip coating operation with a PE equal to 2.0 lb/day for VOC emissions. Therefore, BACT is not triggered for the surface cleaning operation.

C-9248-7-0 (E-Coat Wet Sanding and Sealing Operation):

Sanding Operation:

As seen in Section VII.C.2 above, the applicant is proposing to install a new paint sanding operation with a PE of less than 2.0 lb/day for PM₁₀ emissions. Therefore, BACT is not triggered.

Sanding Booth Heater:

As seen in Section VII.C.2 above, the applicant is proposing to install a new natural gas-fired paint booth heater with a PE of greater than 2.0 lb/day for CO emissions and less than 2.0 lb/day for NO_x, SO_x, PM₁₀, and VOC emissions. However, the SSPE2 for the facility CO emissions is not greater than 200,000 lb/year. Therefore, BACT is not triggered for the sanding booth heater.

Sealing Operation:

As seen in Section VII.C.2 above, the applicant is proposing to install a new sealing operation as a part of their OEM motor vehicle assembly operations with a PE less than 2.0 lb/day for VOC emissions. Therefore, BACT is not triggered.

Surface Cleaning:

As seen in Section VII.C.2 above, the applicant is proposing to install a new solvent surface cleaning operation as a part of this motor vehicle assembly coating operation with a PE equal to 2.0 lb/day for VOC emissions. Therefore, BACT is not triggered for the surface cleaning operation.

C-9248-8-0 (Motor Vehicle Assembly Main Coating Line):

Prep-Booth Sanding Station:

As seen in Section VII.C.2 above, the applicant is proposing to install a new paint sanding operation with a PE of less than 2.0 lb/day for PM₁₀ emissions. Therefore, BACT is not triggered.

Coating Operation:

As seen in Section VII.C.2 above, the applicant is proposing to install a new motor vehicle assembly main coating line as a part of their OEM vehicle assembly operations with a PE greater than 2.0 lb/day for VOC and PM₁₀ emissions. Therefore, BACT is triggered for VOC and PM₁₀ emissions.

Surface Cleaning:

As seen in Section VII.C.2 above, the applicant is proposing to install a new solvent surface cleaning operation as a part of this motor vehicle assembly coating operation with a PE equal to 2.0 lb/day for VOC emissions. Therefore, BACT is not triggered for the surface cleaning operation.

C-9248-9-0 (Final Repair Coating Operation):

Coating Operation:

As seen in Section VII.C.2 above, the applicant is proposing to install a new final repair coating operation as a part of their OEM motor vehicle assembly operations with a PE greater than 2.0 lb/day for VOC and PM₁₀ emissions. Therefore, BACT is triggered for VOC and PM₁₀ emissions.

Surface Cleaning:

As seen in Section VII.C.2 above, the applicant is proposing to install a new solvent surface cleaning operation as a part of this motor vehicle assembly coating operation with a PE equal to 2.0 lb/day for VOC emissions. Therefore, BACT is not triggered for the surface cleaning operation.

Booth Heater:

As seen in Section VII.C.2 above, the applicant is proposing to install a new natural gas-fired paint booth heater with a PE of greater than 2.0 lb/day for CO emissions and less than 2.0 lb/day for NO_x, SO_x, PM₁₀, and VOC emissions. However, the SSPE2 for the facility CO emissions is not greater than 200,000 lb/year. Therefore, BACT is not triggered for the paint booth heater.

C-9248-10-0 (Paint Sanding and Polishing Operation):

Sanding Operation:

As seen in Section VII.C.2 above, the applicant is proposing to install a new paint sanding operation with a PE of less than 2.0 lb/day for PM₁₀ emissions. Therefore, BACT is not triggered.

Polishing Operation:

As seen in Section VII.C.2 above, the applicant is proposing to install a new polish application operation as a part of their OEM motor vehicle assembly operations with a PE greater than 2.0 lb/day for VOC emissions. Therefore, BACT is triggered for VOC emissions.

Surface Cleaning:

As seen in Section VII.C.2 above, the applicant is proposing to install a new solvent surface cleaning operation as a part of this paint sanding operation with a PE equal to 2.0 lb/day for VOC emissions. Therefore, BACT is not triggered for the surface cleaning operation.

Booth Heaters (Three Total, One for each Booth):

As seen in Section VII.C.2 above, the applicant is proposing to install a new natural gas-fired paint booth heater with a PE of greater than 2.0 lb/day for CO emissions and less than 2.0 lb/day for NO_x, SO_x, PM₁₀, and VOC emissions. However, the SSPE2 for the facility CO emissions is not greater than 200,000 lb/year. Therefore, BACT is not triggered for the booth heaters.

C-9248-11-0 (Plastic Parts Paint Sanding Operation):

Sanding Operation:

As seen in Section VII.C.2 above, the applicant is proposing to install a new plastic parts paint sanding operation with a PE of less than 2.0 lb/day for PM₁₀ emissions. Therefore, BACT is not triggered.

Surface Cleaning:

As seen in Section VII.C.2 above, the applicant is proposing to install a new solvent surface cleaning operation as a part of this paint sanding operation with a PE equal to 2.0 lb/day for VOC emissions. Therefore, BACT is not triggered for the surface cleaning operation.

Booth Heaters (Two Total, One for each Booth):

As seen in Section VII.C.2 above, the applicant is proposing to install a new natural gas-fired paint booth heater with a PE of greater than 2.0 lb/day for CO emissions and less than 2.0 lb/day for NO_x, SO_x, PM₁₀, and VOC emissions. However, the SSPE2 for the facility CO emissions is not greater than 200,000 lb/year. Therefore, BACT is not triggered for the paint booth heater.

C-9248-12-0 (Emergency IC Engine):

As seen in Section VII.C.2 above, the applicant is proposing to install a new emergency diesel-fired emergency IC engine with a PE greater than 2.0 lb/day for NO_x, CO emissions and VOC emissions. Therefore, BACT is triggered for NO_x and VOC emissions. However, BACT is not triggered for CO emissions since the SSPE2 for the facility CO emissions is not greater than 200,000 lb/year.

b. Relocation of emissions units – PE > 2 lb/day

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another. Therefore, BACT is not triggered for any pollutant.

c. Modification of emissions units – AIPE > 2 lb/day

As discussed in Section I above, there are no modified emissions units associated in this project. Therefore, BACT is not triggered for any pollutant.

d. SB 288/Federal Major Modification

As discussed in Sections VII.C.7 and VII.C.8 above, this project does not constitute an SB 288 and/or Federal Major Modification for any pollutant. Therefore, BACT is not triggered for any pollutant.

2. BACT Guideline

C-9248-6-0 (E-Coat Operation):

Dip Coating Operation:

The District's 2nd quarter 2018 BACT Clearinghouse was surveyed to determine if an existing BACT guideline was applicable for this class and category of operation. BACT Guidelines 4.2.1 through 4.2.10 all apply to various types of motor vehicle coating operations; however, they do not cover the use of coatings applied by an original equipment manufacturer (OEM) during electrodeposition dip coating operations. Therefore, pursuant to the District's BACT policy, a Top-Down BACT analysis will be performed for inclusion of a **new determination** in the District's BACT Clearinghouse (see new BACT determination performed for this operation in Appendix D).

C-9248-8-0 (Motor Vehicle Assembly Main Coating Line):

The District's 2nd quarter 2018 BACT Clearinghouse was surveyed to determine if an existing BACT guideline was applicable for this class and category of operation. BACT Guidelines 4.2.1 through 4.2.10 all apply to various types of motor vehicle coating operations; however, they do not cover the use of coatings applied by an original equipment manufacturer (OEM) during full-scale operations at motor vehicle manufacturing and assembly plants. Therefore, pursuant to the District's BACT policy, a Top-Down BACT analysis will be performed for inclusion of a **new determination** in the District's BACT Clearinghouse (see new BACT determination performed for this operation in Appendix E).

C-9248-9-0 (Final Repair Coating Operation):

BACT Guideline 4.2.12 applies to small-scale motor vehicle assembly (OEM) coating operations with less than 2,000 pounds of VOC emissions per year. FF, Inc. is proposing to install a new final repair motor vehicle assembly (OEM) coating operation with VOC

emissions of 2,000 lb/year. Therefore, BACT Guideline 4.2.12 is applicable to this new polish application operation (BACT Guideline 4.2.12 included in Appendix F).

C-9248-10-0 and -11-0 (Paint Polishing Operations):

BACT Guideline 4.2.12 applies to small-scale motor vehicle assembly (OEM) coating operations with less than 2,000 pounds of VOC emissions per year. FF, Inc. is proposing to install a new paint polish application operation with VOC emissions of 1,253 lb/year. As discussed in the Rule 4602 section below, polish meets the definition of a coating. Therefore, BACT Guideline 4.2.12 is applicable to this new polish application operation (BACT Guideline 4.2.12 included in Appendix F).

C-9248-12-0 (Emergency IC Engine):

BACT Guideline 3.1.1 applies to the diesel-fired emergency IC engines. FF, Inc. is proposing to install a new diesel-fired emergency IC engine. Therefore, BACT Guideline 3.1.1 is applicable to this new emergency engine (BACT Guideline 3.1.1 included in Appendix G).

3. Top-Down 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.”

C-9248-6-0 (E-Coat Operation):

Pursuant to the attached Top-Down BACT Analysis (see Appendix D), BACT is satisfied with the following:

VOC: The use of coatings with a VOC content of 0.084 kg of VOC per liter of coating solids applied (0.7 pound per gallon of coating solids applied)

As demonstrated in the Subpart MM and District Rule 4602 discussions below, FF, Inc. is proposing to install a new electrodeposition coating operation that will use coatings that comply with a VOC content limit of 0.084 kg of VOC per liter of coating solids applied (0.7 pounds per gallon of coating solids applied). Therefore, the coating operation meets the BACT requirements for this class and category of operation and no further discussion is required. The following conditions will be included on the permit as a mechanism to ensure compliance with the BACT requirements:

- The VOC emission limit from all coatings applied by this electrodeposition prime coat operation, based on the amount of solids deposited on components coated, shall not exceed 0.084 kilograms of VOC per liter of deposited solids (0.7 lb of VOC per gallon of deposited solids), on a daily weighted average basis. [District Rules 2201 and 4602, and 40 CFR 60.392]

- The VOC emission limits from all coatings applied by this electrodeposition coating operation (e-coat), based on the amount of solids deposited on components coated, shall be determined using the following equation: $N = G * [1 - (F * E)]$. Where N = VOC emissions (lb/gal of deposited solids); G is the total amount of uncontrolled VOC emissions generated by the e-coat operation = [(VOC content of each coating, as applied (lb/gal) x Usage (gal)) + VOC emissions generated by curing of coatings in oven] / [Solids content of each coating applied, by volume (lb/gal) x Usage (gal)]; F is the fraction of total VOC which is emitted by the e-coat operation that is controlled by the RTO = sum of the uncontrolled VOC emissions from the e-coat operation entering the RTO / sum of uncontrolled VOC emissions from all e-coat operations at the facility; and E = the destruction efficiency of the RTO, as measured during the most recent source test. [District Rules 2201 and 4602, and 40 CFR 60.393]

C-9248-8-0 (Motor Vehicle Assembly Main Coating Line):

Pursuant to the attached Top-Down BACT Analysis (see Appendix E), BACT is satisfied with the following:

- VOC: Capture and control system with an overall control efficiency of 95%
PM₁₀: The use of an spray booth served by exhaust filters with a 95% control efficiency

As demonstrated in the District Rule 4602 discussion below, FF, Inc. is proposing to install a new vehicle assembly coating operation that will use coatings that will use a capture and control system with an overall efficiency of 95% and the paint spray zone will be served by an enclosed paint spray booth with dry exhaust filters. Therefore, the coating operation meets the BACT requirements for this class and category of operation and no further discussion is required. The following conditions will be included on the permit as a mechanism to ensure compliance with the with the BACT requirements:

- The overall VOC capture and control efficiency of the air seal system and regenerative thermal oxidizer (RTO) serving all of the emission generating equipment associated with this motor vehicle assembly coating operation (paint spray zone, tunnel, exempt curing ovens, and inspection stations) shall be maintained at a minimum of 95%. [District Rules 2201 and 4602, and 40 CFR 60.392]

C-9248-9-0 (Final Repair Coating Operation):

Pursuant to the attached Top-Down BACT Analysis (see Appendix F), BACT is satisfied with the following:

- VOC: The use of coatings that comply with the VOC limits in with District Rule 4602
PM₁₀: The use of an enclosed spray booth served by exhaust filters with a 95% control efficiency

As demonstrated in the District Rule 4602 discussion below, FF, Inc. is proposing to install a new final repair motor vehicle assembly coating operation that will use coatings that comply with Rule 4602 and will be served by an enclosed paint spray booth with dry exhaust filters. Therefore, the coating operation meets the BACT requirements for this class and category of operation and no further discussion is required. The following conditions will be included on the permit as a mechanism to ensure compliance with the with the BACT requirements:

- The VOC content of all coatings applied by this final repair operation shall not exceed 4.8 lb-VOC/gallon, less water and exempt solvents. For the purposes of demonstrating compliance with the VOC emission limit specified in this condition, the use of adhesion promoters shall not be included in the determination. [District Rules 2201 and 4602]

C-9248-10-0 and '-11-0 (Paint Polishing Operations):

Pursuant to the attached Top-Down BACT Analysis (see Appendix F), BACT is satisfied with the following:

VOC: The use of coatings that comply with the VOC limits in with District Rule 4602

As demonstrated in the District Rule 4602 discussion below, FF, Inc. is proposing to install a new final repair motor vehicle assembly coating operation that will use coatings that comply with Rule 4602 and will be served by an enclosed paint spray booth with dry exhaust filters. Therefore, the coating operation meets the BACT requirements for this class and category of operation and no further discussion is required. The following conditions will be included on the permit as a mechanism to ensure compliance with the with the BACT requirements:

- Except for the coatings applied by the electrodeposition coating operation (e-coat), the VOC emission limits from all other coatings applied by this facility shall not exceed the following: primer-surfacer operations/guide coats - 1.40 kilograms of VOC per liter of deposited solids (11.68 lb of VOC per gallon of deposited solids) on a daily weighted average basis; and topcoat operations - 1.44 kilograms of VOC per liter of deposited solids (12.0 pounds of VOC per gallon of deposited solids on a daily weighted average basis. For the purposes of demonstrating compliance with the VOC emission limits specified in this condition, polish shall be considered a coating and the use of adhesion promoters shall not be included in the determination. [District Rules 2201 and 4602, and 40 CFR 60.392]

- Except for the coatings applied by the electrodeposition coating operation (e-coat), compliance with the VOC emission limits from all other coatings applied by this facility, based on the amount of solids deposited on components coated, shall be determined using the following equation: $N = G * [1 - (F * E)]$. Where N = VOC emissions (lb/gal of applied solids); $G = \{[\text{VOC content of each coating, as applied (lb/gal)} \times \text{Usage (gal)}] / [\text{Solids content of each coating applied, by volume (lb/gal)} \times \text{Usage (gal)} \times \text{Transfer Efficiency of Application Equipment Used}]\}$; F (fraction of total VOC which is emitted by the facility that is controlled by the RTO) = sum of the uncontrolled VOC emissions from the main paint line entering the RTO / sum of uncontrolled VOC emissions from all coating operations at the facility; and E = the destruction efficiency of the RTO, as measured during the most recent source test. Compliance with the lb-VOC/gal of applied solids emission limits specified in this permit shall be determined for both primer-surfacers/guide coats and topcoats separately. [District Rules 2201 and 4602, and 40 CFR 60.393]

C-9248-12-0 (Emergency IC Engine):

Pursuant to the attached top-down BACT Analysis (see Appendix G) of this document, BACT is satisfied with the following:

NO_x: Latest Available Tier Certification level for applicable horsepower*
VOC: Latest Available Tier Certification level for applicable horsepower*

*Note: The certification requirements for emergency engines are as follows: $50 \leq \text{bhp} < 75$ – Tier 4I; $75 \leq \text{bhp} < 750$ – Tier 3; ≥ 750 bhp – Tier 2.

The applicant has proposed the installation of a 762 bhp Tier 2 certified emergency diesel-fired IC engine. Therefore, the proposed engine meets the BACT requirements for NO_x and VOC.

The following condition will be included on the ATC as a mechanism to ensure compliance with the BACT requirements for this emergency engine.

- Emissions from this IC engine shall not exceed any of the following limits: 3.54 g-NO_x/bhp-hr, 1.06 g-CO/bhp-hr, or 0.19 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]

B. Offsets

1. Offset Applicability

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

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

Offset Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE2	7,175	528	4,858	44,015	37,734
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 SSPE2 is greater than the offset thresholds for VOC emissions only. Therefore, offset calculations 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 less than the offset threshold levels before implementing the project being evaluated.

$$\text{Offsets Required (lb/year)} = [(\text{SSPE2} - \text{ROT} + \text{ICCE}) \times \text{DOR}]$$

Where,

SSPE2 = Post-Project Stationary Source Potential to Emit
 ROT = Respective Offset Threshold, for the respective pollutant
 ICCE = Increase in Cargo Carrier Emissions
 DOR = Distance Offset Ratio, determined pursuant to Section 4.8

Emergency equipment that is used exclusively as emergency standby equipment for electrical power generation or any other emergency equipment as approved by the APCO that does not operate more than 200 hours per year of non-emergency purposes and is not used pursuant to voluntary arrangements with a power supplier to curtail power, is exempt from providing emission offsets. Therefore, permit unit C-9248-12-0 will be exempt from providing offsets and the emissions associated with this permit unit contributing to the SSPE2 should be removed prior to calculating actual offset amounts.

$$\text{Offsets Required (lb/year)} = [(\text{SSPE2} - \text{Emergency Equipment} - \text{ROT} + \text{ICCE}) \times \text{DOR}]$$

SSPE2 (VOC) = 37,734 lb/year
 C-9248-12-0 (VOC) = 16 lb/year
 Offset threshold (VOC) = 20,000 lb/year
 ICCE = 0 lb/year

In accordance with Rule 2201, Section 4.8.1, the DOR for VOC offsets for projects that are new Major Sources shall be 1.5:1. As shown in Section VII.C.8, this project constitutes a new Major Source for VOC emissions. Therefore, the DOR will be 1.5:1 and the total amount of VOC ERCs that need to be withdrawn for this project is:

$$\begin{aligned}\text{Offsets Required (lb/year)} &= [(37,734 - 16 - 20,000 + 0) \times 1.5] \\ &= 17,718 \times 1.5 \\ &= 26,577 \text{ lb-VOC/year}\end{aligned}$$

Calculating the appropriate quarterly emissions to be offset is as follows:

$$\begin{aligned}\text{Quarterly offsets required (lb/qtr)} &= (26,577 \text{ lb-VOC/year}) \div (4 \text{ quarters/year}) \\ &= 6,644.25 \text{ lb/qtr}\end{aligned}$$

As shown in the table above, the quarterly amount of offsets required for this project, when evenly distributed to each quarter, results in fractional pounds of offsets being required each quarter. Since offsets are required to be withdrawn as whole pounds, the quarterly amounts of offsets need to be adjusted to ensure the quarterly values sum to the total annual amount of offsets required.

To adjust the quarterly amount of offsets required, the fractional amount of offsets required in each quarter will be summed and redistributed to each quarter based on the number of days in each quarter. The redistribution is based on Quarter 1 having 90 days, Quarter 2 having 91 days, and Quarters 3 and 4 having 92 days.

Therefore the appropriate quarterly emissions to be offset for each tank are as follows:

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>	<u>Total Annual</u>
6,644	6,644	6,644	6,645	26,577

The applicant has stated that the facility plans to use ERC certificate S-4745-1 to offset the increases in VOC emissions associated with this project. The above certificate has available quarterly VOC credits as follows:

	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
ERC #S-4745-1	498,467	440,690	465,137	469,896

As seen above, the facility has sufficient credits to fully offset the quarterly VOC emissions increases associated with this project.

Proposed Rule 2201 Offset Conditions:

- Prior to operating any piece of equipment authorized by Authority to Construct permits C-9248-5-0, '-6-0, '-7-0, '-8-0, '-9-0, '-10-0, or C-9248-11-0, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter – 6,644 lb, 2nd quarter – 6,644 lb, 3rd quarter – 6,644 lb, and 4th quarter – 6,645 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16). [District Rule 2201]
- ERC Certificate Number S-4745-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

C. Public Notification

1. Applicability

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Any project which results in the offset thresholds being surpassed,
- d. Any project with an SSPE of greater than 20,000 lb/year for any pollutant, and/or
- e. Any project which results in a Title V significant permit modification

a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications

New Major Sources are new facilities, which are also Major Sources. As shown in Section VII.C.5 above, the SSPE2 is greater than the Major Source threshold for VOC emissions. Therefore, public noticing is required for this project for new Major Source purposes because this facility is becoming a new Major Source.

b. PE > 100 lb/day

Applications which include a new emissions unit with a PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. As seen in Section VII.C.2 above, FF, Inc. is proposing to install a new diesel-fired emergency standby IC engine which has daily emissions greater than 100 lb/day for NO_x emissions. Therefore, public noticing for PE > 100 lb/day purposes is required.

c. Offset Threshold

The SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	1,299	7,175	20,000 lb/year	No
SO _x	91	528	54,750 lb/year	No
PM ₁₀	561	4,858	29,200 lb/year	No
CO	8,823	44,015	200,000 lb/year	No
VOC	7,574	37,734	20,000 lb/year	Yes

As detailed above, there were no thresholds surpassed with this project; therefore, public noticing is not required for offset purposes.

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

SSIPE Public Notice Thresholds					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	7,175	1,345	5,830	20,000 lb/year	No
SO _x	528	91	437	20,000 lb/year	No
PM ₁₀	4,858	561	4,297	20,000 lb/year	No
CO	44,015	8,825	35,190	20,000 lb/year	Yes
VOC	37,734	7,574	30,160	20,000 lb/year	Yes

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore, public noticing for SSIPE purposes is not required.

e. Title V Significant Permit Modification

This facility does not currently have a Title V operating permit. Therefore, this change cannot be considered a Title V Significant Modification and public noticing is not required.

2. Public Notice Action

As discussed above, public noticing is required for this project for new Major Source, NO_x emissions in excess of 100 lb/day, the VOC emission offset threshold being surpassed, and the SSIPE exceeding 20,000 lb/year for CO and VOC emissions. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATCs for this equipment.

D. Daily Emission Limits (DELs)

DELs and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. The DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT. The following conditions will be included on each identified permit to ensure compliance with the DEL requirements of Rule 2201:

C-9248-5-0 (Body Assembly Operation):

- The volatile organic compound (VOC) emissions from the body assembly operations and its associated sub-processes shall not exceed any of the following limits: 1) Main Body Assembly Operation - 2.0 lb/day; 2) Body Closures – 0.5 lb/day; or 3) Metal Finish Inspection and Repair – 1.8 lb/day. [District Rule 2201]
- VOC emissions from the cleaning of any surfaces associated with the body assembly operation with solvent wipes shall not exceed 2.0 lb/day. [District Rule 2201]
- The VOC emissions from the use of adhesive and sealant materials associated with this body assembly operation shall be determined as follows: 1) Adhesive VOC emissions = [VOC content, as applied (lb/gallon) x Usage (gallons)]; 2) Sealant VOC emissions = [VOC content, as applied (lb/gallon) x Usage (gallons)] x 0.05; and 3) Total VOC emissions shall be the sum of all adhesives and sealants used. [District Rule 2201]
- The VOC emissions from the use of solvent materials associated with this body assembly operation shall be determined as follows: 1) VOC emissions from each solvent wipe used = VOC content (lb/sheet) x Usage (sheets); and 2) Total VOC emissions shall be the sum of all solvent wipes used. [District Rule 2201]

C-9248-6-0 (E-Coat Operation):

- The volatile organic compound (VOC) emissions from all coating activities performed by this electrodeposition coating (e-coat) operation, at the dip tanks shall not exceed either of the following limits: 12.4 lb/day or 3,858 lb/year. [District Rules 2201 and 4102]

- The VOC emissions from all curing activities performed by this e-coat operation shall not exceed either of the following limits: 1.1 lb/day or 345 lb/year. [District Rules 2201 and 4102]
- The VOC emissions from the cleaning of any surfaces associated with this final repair coating operation with solvent wipes and aerosol solvents shall not exceed 2.0 lb/day. [District Rule 2201]
- The VOC emissions from all coating activities performed by this e-coat operation shall be calculated as follows: VOC emissions = production (vehicles/day) x 0.386⁽⁰⁾ lb-VOC/vehicle. [District Rule 2201]
- The VOC emissions from all curing activities performed by this e-coat operation shall be calculated as follows: VOC emissions = [production (vehicles/day) x 0.69 (lb-VOC/vehicle)] x 0.05. [District Rule 2201]
- The VOC emissions from the use of solvent materials associated with surface cleaning activities shall be determined as follows: 1) VOC emissions from aerosol solvents = VOC content, as applied (lb/gallon) x usage (gallons); 2) VOC emissions from each solvent wipe used = VOC content (lb/sheet) x Usage (sheets); and 3) total VOC emissions shall be the sum of VOC emissions from all liquid aerosol solvents and/or solvent wipes used. [District Rule 2201]

C-9248-7-0 (E-Coat Wet Sanding and Sealing Operation):

- All sanding shall be conducted in booth with filters in place and fan(s) operating. [District Rule 2201]
- Volatile organic compound (VOC) emissions from the sealing operation shall not exceed either of the following limits: 1.2 lb/day or 360 lb/year. [District Rule 2201]
- VOC emissions from the cleaning of any surfaces associated with the e-coat paint sanding and sealing operation with solvent wipes shall not exceed 2.0 lb/day. [District Rule 2201]
- The PM₁₀ emission rate from the paint sanding operation shall not exceed 1.2 lb/day. [District Rule 2201]
- The booth heater shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4801]
- Emissions from the booth heater shall not exceed any of the following limits: 0.036 lb-NO_x/MMBtu (equivalent to 30 ppmv @ 3% O₂), 0.00285 lb-SO_x/MMBtu, 0.0076 lb-PM₁₀/MMBtu, 0.20 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rule 2201]

⁽⁰⁾ Emission factor calculated using the annual emission rate for coating activities associated with the e-coat operation and the proposed vehicle throughput.

- The VOC emissions from the use of sealing materials associated with this operation shall be determined as follows: 1) VOC emissions = [VOC content, as applied (lb/gallon) x Usage (gallons)] x 0.05; and 2) Total VOC emissions shall be the sum of all sealants used. [District Rule 2201]
- The VOC emissions from the use of solvent materials associated with this operation shall be determined as follows: 1) VOC emissions from each solvent wipe used = VOC content (lb/sheet) x Usage (sheets); and 2) Total VOC emissions shall be the sum of all solvent wipes used. [District Rule 2201]
- The PM₁₀ emissions from the paint sanding operation shall be calculated as follows: PM₁₀ emissions = production (vehicles sanded/day) x 0.029138. [District Rule 2201]

C-9248-8-0 (Motor Vehicle Assembly Main Coating Line):

- The PM₁₀ emission rate from the prep booth paint sanding operation shall not exceed 1.6 lb/day. [District Rule 2201]
- The overall VOC capture and control efficiency of the air seal system and regenerative thermal oxidizer (RTO) serving all of the emission generating equipment associated with this motor vehicle assembly coating operation (paint spray zone, tunnel, exempt curing ovens, and inspection stations) shall be maintained at a minimum of 95%. [District Rules 2201 and 4602, and 40 CFR 60.392]
- The VOC emissions from all coating activities performed by this coating operation shall not exceed either of the following limits: 70.2 lb/day or 13,562 lb/year. [District Rules 2201 and 4102]
- The particulate matter (PM₁₀) emission rates from all coating activities performed by this coating operation shall not exceed either of the following limits: 7.9 lb/day or 1,637 lb/year. [District Rule 2201]
- The volatile organic compound (VOC) emissions from the cleaning of any surfaces associated with this coating operation with solvent wipes and aerosol solvents shall not exceed 2.0 lb/day. [District Rule 2201]
- The RTO shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4801]
- Emissions from the combustion of natural gas in the RTO shall not exceed any of the following limits: 0.036 lb-NO_x/MMBtu (equivalent to 30 ppmv @ 3% O₂), 0.00285 lb-SO_x/MMBtu, 0.0076 lb-PM₁₀/MMBtu, 0.2956 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu.

- The VOC emissions from all coating activities performed by this coating operation shall be determined as follows: 1) VOC emissions from each coating, primer, and/or liquid solvent applied shall be calculated as follows: VOC emissions = [VOC content (lb/gal), as applied x Usage (gal)] x 0.05; and 2) total VOC emissions shall be the sum of the VOC emissions from all coatings, primers, and/or liquid solvents used. [District Rule 2201]
- The PM₁₀ emissions from the prep booth paint sanding operation shall be calculated as follows: PM₁₀ emissions = production (vehicles sanded/day) x 0.038321. [District Rule 2201]
- PM₁₀ emissions from each coating and/or primer applied shall be calculated as follows: PM₁₀ emissions = coating and/or primer density (lb/gallon) x coating and/or primer solids content (%) x usage (gallons/day) x 0.005⁽¹⁾. The total PM₁₀ emissions shall be the sum of the PM₁₀ emissions from all coating and/or primers applied. [District Rule 2201]
- The VOC emissions from the use of solvent materials associated with surface cleaning activities shall be determined as follows: 1) VOC emissions from aerosol solvents = VOC content, as applied (lb/gallon) x usage (gallons); 2) VOC emissions from each solvent wipe used = VOC content (lb/sheet) x Usage (sheets); and 3) total VOC emissions shall be the sum of VOC emissions from all liquid aerosol solvents and/or solvent wipes used. [District Rule 2201]

C-9248-9-0 (Final Repair Coating Operation):

- All coating shall be conducted in booth with filters in place, fan(s) operating, and doors closed. [District Rule 2201]
- The VOC emissions from all coating activities performed by this final repair coating operation shall not exceed either of the following limits: 30.0 lb/day or 2,000 lb/year. [District Rules 2201 and 4102]
- The volatile organic compound (VOC) emissions from the cleaning of any surfaces associated with this final repair coating operation with solvent wipes and aerosol solvents shall not exceed 2.0 lb/day. [District Rule 2201]
- The particulate matter (PM₁₀) emission rates from all coating activities performed by this final repair coating operation shall not exceed either of the following limits: 2.4 lb/day or 158 lb/year. [District Rule 2201]
- The booth heater shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4801]

⁽¹⁾ Calculation factor used to determine emission rates by combining the HVLP gun transfer efficiency and the control efficiency of the paint booth dry exhaust filters: Factor = (1 – TE) * (1 – CE) => (1 – 0.90) * (1 – 0.95) = 0.005.

- Emissions from the booth heater shall not exceed any of the following limits: 0.036 lb-NO_x/MMBtu (equivalent to 30 ppmv @ 3% O₂), 0.00285 lb-SO_x/MMBtu, 0.0076 lb-PM₁₀/MMBtu, 0.20 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rule 2201]
- The VOC emissions from all coating activities performed by this final repair coating operation shall be determined as follows: 1) VOC emissions from each coating, primer, and/or liquid solvent applied shall be calculated as follows: VOC emissions = VOC content (lb/gal), as applied x Usage (gal); and 2) Total VOC emissions shall be the sum of the VOC emissions from all coatings, primers, and/or liquid solvents. [District Rule 2201]
- The VOC emissions from the use of solvent materials associated with surface cleaning activities shall be determined as follows: 1) VOC emissions from aerosol solvents = VOC content, as applied (lb/gallon) x usage (gallons); 2) VOC emissions from each solvent wipe used = VOC content (lb/sheet) x Usage (sheets); and 3) total VOC emissions shall be the sum of VOC emissions from all liquid aerosol solvents and/or solvent wipes used. [District Rule 2201]
- PM₁₀ emissions from each coating and/or primer applied shall be calculated as follows: PM₁₀ emissions = coating and/or primer density (lb/gallon) x coating and/or primer solids content (%) x usage (gallons/day) x 0.0125⁽²⁾. The total PM₁₀ emissions shall be the sum of the PM₁₀ emissions from all coating and/or primers applied. [District Rule 2201]

C-9248-10-0 (Paint Sanding and Polishing Operation):

- All sanding shall be conducted in booth with filters in place, fan(s) operating, and curtains closed. [District Rule 2201]
- The wet filtration system and the sanding booth exhaust filtration system shall achieve a minimum overall particulate matter (PM₁₀) capture and control efficiency of 95% [District Rule 2201]
- Volatile organic compound (VOC) emissions from the polishing operation shall not exceed either of the following limits: 4.0 lb/day or 1,253 lb/year. [District Rule 2201]
- VOC emissions from the cleaning of any surfaces associated with the paint sanding operation with solvent wipes and/or aerosol solvents shall not exceed 2.0 lb/day. [District Rule 2201]
- The PM₁₀ emission rate from this paint sanding operation shall not exceed 0.4 lb/day. [District Rule 2201]

⁽²⁾ Calculation factor used to determine emission rates by combining the HVLP gun transfer efficiency and the control efficiency of the paint booth dry exhaust filters: Factor = (1 – TE) * (1 – CE) => (1 – 0.25) * (1 – 0.95) = 0.0125.

- Each booth heater shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4801]
- Emissions from each booth heater shall not exceed any of the following limits: 0.036 lb-NO_x/MMBtu (equivalent to 30 ppmv @ 3% O₂), 0.00285 lb-SO_x/MMBtu, 0.0076 lb-PM₁₀/MMBtu, 0.20 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rule 2201]
- The VOC emissions from the use of polish materials associated with this operation shall be determined as follows: 1) VOC emissions = VOC content, as applied (lb/gallon) x Usage (gallons); and 2) Total VOC emissions shall be the sum of all polishes used. [District Rule 2201]
- The VOC emissions from the use of solvent materials associated with surface cleaning activities supporting this operation shall be determined as follows: 1) VOC emissions from aerosol solvents = VOC content, as applied (lb/gallon) x usage (gallons); 2) VOC emissions from each solvent wipe used = VOC content (lb/sheet) x Usage (sheets); and 3) total VOC emissions shall be the sum of VOC emissions from all liquid aerosol solvents and/or solvent wipes used. [District Rule 2201]
- The PM₁₀ emissions from the paint sanding operation shall be calculated as follows: PM₁₀ emissions = production (vehicles sanded/day) x 0.00974. [District Rule 2201]

C-9248-11-0 (Plastic Parts Paint Sanding Operation):

- All sanding shall be conducted in booth with filters in place, fan(s) operating, and curtains closed. [District Rule 2201]
- The wet filtration system and the sanding booth exhaust filtration system shall achieve a minimum overall particulate matter (PM₁₀) capture and control efficiency of 95% [District Rule 2201]
- Volatile organic compound (VOC) emissions from the polishing operation shall not exceed either of the following limits: 4.0 lb/day or 1,253 lb/year. [District Rule 2201]
- VOC emissions from the cleaning of any surfaces associated with the paint sanding operation with solvent wipes and aerosol solvents shall not exceed 2.0 lb/day. [District Rule 2201]
- The PM₁₀ emission rate from this plastic parts paint sanding operation shall not exceed 0.4 lb/day. [District Rule 2201]
- Each booth heater shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4801]
- Emissions from each booth heater shall not exceed any of the following limits: 0.036 lb-NO_x/MMBtu (equivalent to 30 ppmv @ 3% O₂), 0.00285 lb-SO_x/MMBtu, 0.0076 lb-PM₁₀/MMBtu, 0.20 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rule 2201]

- The VOC emissions from the use of polish materials associated with this operation shall be determined as follows: 1) VOC emissions = VOC content, as applied (lb/gallon) x Usage (gallons); and 2) Total VOC emissions shall be the sum of all polishes used. [District Rule 2201]
- The VOC emissions from the use of solvent materials associated with this operation shall be determined as follows: 1) VOC emissions from aerosol solvents = VOC content, as applied (lb/gallon) x usage (gallons); 2) VOC emissions from each solvent wipe used = VOC content (lb/sheet) x Usage (sheets); and 3) total VOC emissions shall be the sum of VOC emissions from all liquid aerosol solvents and/or solvent wipes used. [District Rule 2201]
- The PM₁₀ emissions from the paint sanding operation shall be calculated as follows: PM₁₀ emissions = production (vehicles sanded/day) x 0.00974. [District Rule 2201]

C-9248-12-0 (Emergency IC Engine):

- Emissions from this IC engine shall not exceed any of the following limits: 3.54 g-NO_x/bhp-hr, 1.06 g-CO/bhp-hr, or 0.19 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- Emissions from this IC engine shall not exceed 0.05 g-PM₁₀/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102 and 17 CCR 93115]
- Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

E. Compliance Assurance

1. Source Testing

C-9248-5-0, '-6-0, '-7-0, '-9-0, '-10-0, '-11-0, and '-12-0:

Pursuant to District Policy APR 1705, source testing is not required to demonstrate compliance with Rule 2201 for the operations and emission levels proposed by the applicant as a part of this project.

C-9248-8-0 (Motor Vehicle Assembly Main Coating Line):

Per District Policy APR 1705, Source Testing, Section II - Step 4, units equipped with an afterburner, thermal incinerator, or catalytic incinerator for controlling VOCs must be tested upon initial start-up and annually thereafter. As discussed above, FF, Inc. is proposing to control the VOC emissions from the main paint line and the e-coat curing oven with a regenerative thermal incinerator to control VOC emissions. Therefore, initial source testing within 90 days of equipment startup and annual source testing will be

required for this operation. The following conditions will be listed on permit C-9248-8-0 as a mechanism to ensure compliance:

- Source testing to measure the VOC control efficiency of the RTO shall be conducted within 90 days of initial startup and at least once every 12 months thereafter. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]
- The control efficiency of the RTO shall be determined using EPA Test Methods 2, 2A, or 2D for measuring flow rates and EPA Test Methods 25, 25A, or 25B for measuring total gaseous organic concentrations at the inlet and outlet of the control device(s). EPA Method 18 or ARB Method 422 shall be used to determine the emissions of exempt compounds. [District Rules 2201 and 4602, and 40 CFR 60.396]
- Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081 and 40 CFR 60.395]
- The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

2. Monitoring

C-9248-5-0, '-6-0, '-7-0, '-9-0, '-10-0, '-11-0, and '-12-0:

No monitoring is required for any of these operations to demonstrate compliance with Rule 2201.

C-9248-8-0 (Motor Vehicle Assembly Main Coating Line):

As discussed above, FF, Inc. is proposing to utilize an RTO to control the VOC emissions from the main paint line and the e-coat curing oven. The manufacturer of the RTO has guaranteed a control efficiency of at least 95% for VOC emissions. Pursuant to information provided by the applicant for this project, the typical operating temperature of the RTO will be at or above 1,400 °F. The RTO will also be equipped with a continuous temperature monitor and recorder. The following conditions will be listed on permit C-9248-8-0 as a mechanism to ensure compliance:

- The RTO and associated ventilation system shall be in use and controlling VOCs whenever any equipment associated with the main paint line or the e-coat curing oven is in operation. [District Rule 2201]
- The RTO shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]
- The combustion zone of the RTO shall be maintained at a temperature of at least 1,400 °F. [District Rule 2201 and 40 CFR 60.394]

- The RTO shall be equipped with a continuous temperature monitoring and recording device installed in the firebox, in operation at all times. [District Rule 2201 and 40 CFR 60.394]

In addition, FF, Inc. will be required to demonstrate that their proposed air seal and ventilation systems serving the main paint line are achieving 100% capture efficiency. As discussed below, the proposed facility is not a Major HAP Source and is not subject to the requirements of 40 CFR 63, Subpart IIII, National Emission Standards for Hazardous Air Pollutants: Surface Coating of Automobiles and Light-Duty Trucks. However, since this subpart does address requirements that apply to this identical class and category of source, the capture efficiency requirements will be used for the purposes of this operation.

Section 63.3165 specifies requirements for determining the emission capture system efficiency. For the purposes of this subpart, a spray booth air seal is not considered a natural draft opening (NDO) in a permanent total enclosure (PTE) provided an operator can demonstrate that the direction of air movement across the interface between the spray booth air seal and the spray booth is into the spray booth. An operator may use lightweight strips of fabric or paper, or smoke tubes to make such demonstrations as of showing that your capture system is a PTE.

Section 63.3165(a) states that you may assume the capture system efficiency is 100 percent if both of the conditions in paragraph (a)(1) and (2) of this section are met:

Section 63.165(a)(1) states that the capture system meets the criteria in Method 204 of appendix M to 40 CFR Part 51 for a PTE and directs all of the exhaust gases from the enclosure to an add-on control device. Appendix M to 40 CFR Part 51, Section 6 States that the criteria for a PTE is as follows:

- 6.1 Same as sections 5.1 and 5.3 through 5.5.
 - 5.1 Any NDO shall be at least four equivalent opening diameters from each VOC emitting point unless otherwise specified by the Administrator.
 - 5.3 The total area of all NDO's shall not exceed 5 percent of the surface area of the enclosures four walls, floor, and ceiling.
 - 5.4 The average facial velocity (FV) of air through all NDO's shall be at least 3,600 m/hr (200 fpm). The direction of air flow through all NDO's shall be into the enclosure.
 - 5.5 All access doors and windows whose area are not included in section 5.3 and are not included in the calculation in section 5.4 shall be closed during routine operation of the process.

As discussed above, air seals are not considered NDO's for the purpose of this capture efficiency demonstration. Therefore, the requirements of sections 5.1, 5.3 and 5.4 are satisfied. FF, Inc. is proposing to have all doors and windows to the main paint line closed (except for the air seal openings) during normal operation. Therefore, the requirements of this section are expected to be satisfied.

Section 63.165(a)(2) states that all coatings and thinners used in the coating operation are applied within the capture system, and coating solvent flash-off and coating curing and drying occurs within the capture system. FF, Inc. is proposing to apply all coatings within the paint spray zone. In addition, all of the curing ovens and the flash off oven will also be within the capture system and routed to the RTO. Therefore, the proposed operation shall be in compliance with the requirements of this section.

Since the proposed operation satisfies Sections 63.165(a)(1) and (2), it can be determined that their proposed system will achieve 100% capture efficiency. The following conditions will be listed on permit C-9248-8-0 as a mechanism to ensure compliance:

- An initial demonstration of the VOC capture efficiency of the main paint line and associated air seal system vented to the RTO shall be conducted within 90 days of initial start-up. The initial demonstration of the VOC capture efficiency shall consist of a visual verification using smoke tubes that there is a continuous inward flow of air to the paint spray zone and transfer zone. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]
- Ongoing compliance with the VOC capture efficiency of the main paint line and associated air seal system vented to the RTO shall be verifiable at all times based on a visual inspection of lightweight strips of paper or fabric hung such that the direction of the airflow is indicated. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]
- The direction of airflow of that air seals at the spray zone entrance and exit shall be indicated by lightweight strips of fabric or paper and these strips must indicate, by visual inspection, that airflow is directed into the spray zone. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]
- The direction of airflow of the air seal before the exit of the transfer zone entering the cooling zone shall be indicated by lightweight strips of paper or fabric and these strips must indicate, by visual inspection, that airflow is directed into the transfer zone. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]
- The lightweight strips of paper or fabric required for the verification of direction of airflow shall be installed and spaced evenly around the air sealed openings to the spray zone and transfer zone, except where placement would cause interference with safety devices (e.g. light curtains). An adequate quantity shall be installed to demonstrate that the airflow is traveling into the spray zone and transfer zone across the entire area of each air-sealed openings. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]
- If a visual inspection of the lightweight strips of fabric or paper reveals that airflow is not directed into the spray zone and/or into the transfer zone, the permittee shall cease operation of all emission producing activities associated with the main paint line. Operation shall not recommence until the problem has been identified and corrected and visual inspections show that all airflow is going into the spray zone and/or transfer zone. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]

- Compliance with the 95% overall capture and control efficiency of the air seal system and the RTO shall be demonstrated at least once every 12 months using the following equation: $OCC = \{1 - [(CAP * (1 - CE)) + (1 - CAP)]\} * 100\%$; where OCC is the overall capture and control efficiency of the system; CAP is the VOC capture efficiency of the system, based on visual inspections of air seal systems; and CE is the VOC control efficiency the RTO, taken from the most recent source test performed by the facility for control efficiency. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. As discussed in the 40 CFR 60, Subpart MM and District Rule 4602 breakdowns below, facilities are allowed to demonstrate compliance with the VOC limits specified in the rule by taking their emission totals for an entire month, divided by the total days of operation in that month, to determine an average daily VOC emission rate.

In addition, FF, Inc. has indicated some of the materials used at the facility are utilized as part of multiple workstations. Therefore, it could be difficult to track the daily amounts of materials used for each specific operation or workstation. Due to this fact, the facility has requested that all of their records be allowed to be kept on a daily average basis, with monthly totals being divided by the number of days the unit operated in a given month. Since Subpart MM and Rule 4602 already allow a facility to demonstrate compliance with the VOC limits required by the rule on a daily average basis, the District will allow FF, Inc. to maintain all of their records on a daily average basis.

The following conditions will be listed on the permits as a mechanism to ensure ongoing compliance:

C-9248-5-0 (Body Assembly Operation):

- The permittee shall calculate and record the following: VOC emissions from the main body assembly operation (lb/day); VOC emissions from body closures (lb/day); VOC emissions from metal finish inspection and repair (lb/day); and VOC emissions from the surface cleaning operation (lb/day). Records shall be maintained on a monthly basis, with the ability to calculate daily averages based on the number of operating days in any given month. For each month, daily average records shall be updated by no later than the end of the following month. [District Rule 2201]
- The permittee shall maintain records of the following: quantity of adhesives used (gal); quantity of sealants used (gal); quantity of defect oil used, quantity of liquid solvent used (gal); quantity of solvent wipes used (sheets); and the number of days the body assembly operation was utilized during any given month. [District Rules 2201, 4602 and 4653]

- The permittee shall maintain and have available at all times a current list of coatings, adhesives, sealants, defect oils, and liquid solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter) and specific chemical constituents of coatings as applied; and the VOC content and specific chemical constituents of solvents used for surface preparation and cleanup. [District Rules 4602 and 4653]

C-9248-6-0 (E-Coat Operation):

- The permittee shall calculate and record the following: VOC emissions from all coating activities performed by this e-coat operation (lb/day); VOC emissions from curing activities performed by this e-coat operation (lb/day); VOC emissions from the surface cleaning operation (lb/day); and VOC emission limits from all coatings applied by the e-coat operation, based on the amount of solids applied on components coated (lb-VOC/gallon applied solids). Records shall be maintained on a monthly basis, with the ability to calculate daily averages based on the number of operating days in any given month. For each month, daily average records shall be updated by no later than the end of the following month. [District Rules 2201 and 4602, and 40 CFR 60.395]
- The permittee shall maintain records of the total annual VOC emissions from this e-coat operation (lb/year) and those records shall be updated at least once per month. [District Rule 2201]
- The permittee shall maintain records of the following: quantity of vehicles sanded, quantity of coatings used (gal); quantity of liquid solvents used (gal); quantity of aerosol solvents used (gal), quantity of solvent wipes used (sheets); and the number of days this e-coat line was in operation during any given month. [District Rules 2201, 4602, and 4663, and 40 CFR 60.395]
- The permittee shall maintain and have available at all times a current list of coatings and solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter); the VOC content of solvents used for surface preparation and cleanup, the solids content of each coating by weight; and the solids content of each coating, by volume. [District Rules 2201 and 4602, and 40 CFR 60.395]

C-9248-7-0 (E-Coat Wet Sanding and Sealing Operation):

- The permittee shall calculate and record the following: VOC emissions from the sealing operation (lb/day); VOC emissions from the surface cleaning operation (lb/day); and PM10 emissions from the e-coat paint sanding operation (lb/day). Records shall be maintained on a monthly basis, with the ability to calculate daily averages based on the number of operating days in any given month. For each month, daily average records shall be updated by no later than the end of the following month. [District Rule 2201]

- The permittee shall maintain records of the annual VOC emissions from the sealing operation (lb/year) and those records shall be updated at least once per month. [District Rule 2201]
- The permittee shall maintain records of the following: quantity of vehicles sanded; quantity of sealants used (gal); quantity of liquid solvent used (gal); quantity of solvent wipes used (sheets); and the number of days the sanding and sealant application operation was utilized during any given month. [District Rules 2201, 4602 and 4653]
- The permittee shall maintain and have available at all times a current list of coatings, adhesives, sealants, and liquid solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter) and specific chemical constituents of coatings as applied; and the VOC content and specific chemical constituents of solvents used for surface preparation and cleanup. [District Rules 4602 and 4653]

C-9248-8-0 (Motor Vehicle Assembly Main Coating Line):

- The permittee shall calculate and record the following: VOC emissions (lb/day) from all coating activities performed by this coating operation; VOC emissions (lb/day) from the surface cleaning operation; VOC emission limits from all coatings applied by the facility, based on the amount of solids applied on components coated (lb/gallon applied solids); and PM₁₀ emissions (lb/day) from this coating operation. Records shall be maintained on a monthly basis, with the ability to calculate daily averages based on the number of operating days in any given month. For each month, daily average records shall be updated by no later than the end of the following month. [District Rules 2201 and 4602, and 40 CFR 60.395]
- The permittee shall maintain records of the total annual VOC and PM₁₀ emissions from this coating operation and those records shall be updated at least once per month. [District Rule 2201]
- The permittee shall maintain records of the following: quantity of vehicles sanded; quantity of coatings used (gal); quantity of liquid solvents used (gal); quantity of aerosol solvents used (gal), quantity of solvent wipes used (sheets); and the number of days this final repair coating booth was in operation during any given month. [District Rules 2201, 4602, and 4663, and 40 CFR 60.395]
- The permittee shall maintain and have available at all times a current list of coatings and solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter); the VOC content of solvents used for surface preparation and cleanup, the solids content of each coating by weight; and the solids content of each coating, by volume. [District Rules 2201 and 4602, and 40 CFR 60.395]
- The permittee shall maintain continuous records of the thermal oxidizer combustion temperature. [District Rule 2201 and 40 CFR 60.395]

- The permittee shall maintain records of the capture efficiency of the air seal system serving the main paint line and the destruction efficiency of the RTO, as determined using the most recent source test results for these parameters, and a description of the method used to establish the fraction of VOC captured and sent to the control device for the facility. [40 CFR 60.392]

C-9248-9-0 (Final Repair Coating Operation):

- The permittee shall calculate and record the following: VOC emissions from all coating activities performed by this final repair coating operation (lb/day); VOC emissions from the surface cleaning operation (lb/day); VOC emission limits from all coatings applied by the facility, based on the amount of solids applied on components coated (lb-VOC/gallon applied solids); and PM₁₀ emissions from this final repair coating operation (lb/day). Records shall be maintained on a monthly basis, with the ability to calculate daily averages based on the number of operating days in any given month. For each month, daily average records shall be updated by no later than the end of the following month. [District Rules 2201 and 4602, and 40 CFR 60.395]
- The permittee shall maintain records of the total annual VOC and PM₁₀ emissions from this final repair coating operation (lb/year) and those records shall be updated at least once per month. [District Rule 2201]
- The permittee shall maintain records of the following: quantity of coatings used (gal); quantity of liquid solvents used (gal); quantity of aerosol solvents used (gal), quantity of solvent wipes used (sheets); and the number of days this final repair coating booth was in operation during any given month. [District Rules 2201, 4602, and 4663]
- The permittee shall maintain and have available at all times a current list of coatings and solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter); the VOC content of solvents used for surface preparation and cleanup, the solids content of each coating by weight; and the solids content of each coating, by volume. [District Rules 2201 and 4602, and 40 CFR 60.395]

C-9248-10-0 and '-11-0 (Paint Sanding and Polishing Operations):

- The permittee shall calculate and record the following: PM₁₀ emissions from the paint sanding operation (lb/day); VOC emissions from the polishing operation (lb/day); VOC emissions from the surface cleaning operation (lb/day); and VOC emission limits from all coatings applied by the facility, based on the amount of solids deposited on components coated (lb-VOC/gallon applied solids). Records shall be maintained on a monthly basis, with the ability to calculate daily averages based on the number of operating days in any given month. For each month, daily average records shall be updated by no later than the end of the following month. [District Rules 2201 and 4602, and 40 CFR 60.395]

- The permittee shall maintain records of the total annual VOC emissions from the polishing operation (lb/year) and those records shall be updated at least once per month. [District Rule 2201]
- The permittee shall maintain records of the following: quantity of vehicles sanded; quantity of polish used (gal), quantity of aerosol solvent used (gal); quantity of solvent wipes used (sheets); and the number of days this plastic parts paint sanding and polishing operation was utilized during any given month. [District Rules 2201, 4602, and 4663, and 40 CFR 60.395]
- The permittee shall maintain and have available at all times a current list of coatings in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter); the VOC content of solvents used for surface preparation and cleanup, the solids content of each coating by weight; and the solids content of each coating, by volume. [District Rules 2201 and 4602, and 40 CFR 60.395]

C-9248-12-0 (Emergency IC Engine):

- The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, emergency firefighting, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rules 2201 and 4702, and 17 CCR 93115]
- The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
- All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 2201 and 4702, and 17 CCR 93115]

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

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. Refer to Appendix H of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO_x, CO, and SO_x. The proposed project will not cause a violation of an air quality standard for NO_x, CO, or SO_x.

The proposed location is in a non-attainment area for the state's PM₁₀ as well as federal and state PM_{2.5} thresholds. As shown by the AAQA summary sheet the proposed project will not cause a violation of an air quality standard for PM₁₀ and PM_{2.5}.

The results of the Criteria Pollutant Modeling conducted for the AAQA are summarized in the following table:

	Background Site	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Clovis Villa (2016)	Pass	X	Pass	X	X
NO _x	Hanford-Irwin (2016)	Pass ¹	X	X	X	Pass
SO _x	Fresno – Garland (2016)	Pass	Pass	X	Pass	Pass
PM ₁₀	Hanford-Irwin (2016)	X	X	X	Pass ²	Pass ²
PM _{2.5}	Hanford-Irwin (2016)	X	X	X	Pass ³	Pass ³

¹The project was compared to the 1-hour NO₂ National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures.

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

³The court has vacated EPA's PM_{2.5} SILs. Until such time as new SIL values are approved, the District will use the corresponding PM₁₀ SILs for both PM₁₀ and PM_{2.5} analyses.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Federal Major Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Section VIII above, this facility is a new Major Source, therefore this requirement is applicable to this facility. FF, Inc.'s statewide compliance certification is included in Appendix I.

H. Alternate Siting Analysis

Section 4.15.1 of this Rule requires the owner of a new Major Source or a source undergoing a Federal Major Modification states that an owner must perform the following analysis:

Alternative siting: For those sources for which an analysis of alternative sites, sizes, and production processes is required under Section 173 of the Federal Clean Air Act, the applicant shall prepare an analysis functionally equivalent to the requirements of Division 13, Section 21000 et. seq. of the Public Resources Code.

Faraday & Future, Inc. is proposing to install an electric vehicle manufacturing operation located at 10701 Idaho Ave in Hanford, CA. The electric vehicles FF, Inc. plans to manufacture will have significantly reduced tail pipe emissions compared to a standard gasoline or diesel-powered vehicle. Faraday & Future, Inc. reviewed several sites prior to selecting the site at 10701 Idaho Avenue in Hanford, California. The site in Hanford was selected because it was zoned for industrial activities. The site was previously a Pirelli Tire manufacturing plant. The other properties identified by Faraday & Future, Inc. would have required significant improvements, conversions, and power-upgrades to be sufficient for the proposed electric vehicle manufacturing operations. Many of the available properties were warehouses that would have required significant changes or were locations that had residential areas and/or public schools nearby. The City of Hanford completed a site plan review for the proposed project at 10701 Idaho Ave., dated 5/2/2018, which states that the "site Plan Review is a ministerial action, therefore not subject to the California Environmental Quality Act (CEQA) (CEQA Guidelines 15268 and MC 17.70.070)." The reason why the project is exempt is stated as "section 15268 of the California Environmental Quality Act (CEQA) states that the projects that do not involve discretionary approvals, by ordinance or other law, are exempt from the requirements of CEQA. The use of an existing building for a permitted use does not require any discretionary permit to be issued by the City. Site Plan Review is a ministerial action in that it only reviews the project for consistency with existing ordinances and standards and involves no discretion."

Rule 2410 Prevention of Significant Deterioration

As shown in Section VII.C.9 above, this project does not result in a new PSD major source or PSD major modification. No further discussion is required.

Rule 2520 Federally Mandated Operating Permits

As discussed above, this facility is becoming a new Major Source as a result of this project. Pursuant to Rule 2520, the facility will have up to 12 months from the date of commencing operation of the equipment being proposed to be installed under this project to submit an initial Title V permit application. The following condition will be included on each of the ATCs issued in this project as a mechanism to ensure compliance with this requirement:

- Permittee shall submit an application to comply with SJVUAPCD District Rule 2520 - Federally Mandated Operating Permits within 12 months after commencing operation. [District Rule 2520]

Rule 4001 New Source Performance Standards (NSPS)

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60.

40 CFR Part 60 Subpart MM applies to each prime coat operation, each guide coat operation and each topcoat operation at an automobile or light-duty truck assembly plant. FF, Inc. is proposing to install a new prime coat electrodeposition coating operation (e-coat), a new motor vehicle assembly main paint line coating operation and a motor vehicle assembly final repair coating operation. Therefore, the requirements of Subpart MM apply to these proposed operations. In addition, Subpart MM is directly referenced in Section 4.0 of Rule 4001. Therefore, this subpart applies to the proposed coating operation and the District is delegated as an administrator to act on EPA's behalf to incorporate its requirements into the facility's permit.

In addition, the facility is proposing to install two new sanding and polishing operations. In accordance with the definitions of Rule 4602, the polish is considered a coating. Therefore, this subpart applies to the polishing operations performed in these booths as well. Lastly, the facility already received approval for a prototype coating operation under ATC C-9248-1-0 (project C-1172714). Subpart MM applies to all coating operations at an affected facility. Therefore, the prototype coating operation will be included in the calculations demonstrating compliance with Subpart MM requirements.

Section 60.392 - Standards for Volatiles Organic Compounds

Section 60.392 states that no owner or operator subject to the provisions of this subpart shall discharge or cause the discharge into the atmosphere from any affected facility VOC emissions in excess of the following limits:

Assembly Coating Process	VOC Emission Limit
1) Electrodeposition prime coat operations (including application area, spray/rinse stations, and curing oven)	a) When solids turnover ratio (R_t) > 0.16: 0.17 kg VOC/liter (1.42 lb/gal) coating solids applied
	b) When $0.040 < R_t < 0.160$: $0.084 \times 350^{0.160 - R_t}$ kg VOC/liter ($0.084 \times 350^{0.160 - R_t} \times 8.34$ lb/gal) coating solids applied
	c) When $R_t < 0.040$: No VOC emission limit
2) Non-electrodeposition prime coat operations	0.17 kg of VOC/liter of deposited solids (1.42 lb VOC/gal of deposited solids)
3) Guide Coat Operations ⁽³⁾ (including application	1.40 kg of VOC/liter of deposited solids (11.68 lb VOC/gal of deposited solids)

⁽³⁾ Guide coat operations are defined as a surface coating that is applied between the prime coat and topcoat operation on the components of automobile and light-duty truck bodies. Upon further review and discussing this definition further with FF, Inc., for the purposes of this project, guide coat will be considered the same coating layer as the primer-surfacer layer as defined in District Rule 4602.

area, flash off area, and oven)	
4) Topcoat operations (including application area, flash-off area, and oven)	1.47 kg of VOC/liter of deposited solids (12.27 lb VOC/gal of deposited solids)

C-9248-6-0 (E-Coat Operation):

The proposed electrodeposition coating (e-coat) operation will apply primer to the bare metal vehicle bodies. Therefore, this operation is subject to VOC limits in category 1) of the table shown above. As shown in Section 60.393 below, the turnover ratio for the proposed e-coat operation is 0.186. Therefore, this prime coat operation is subject to a VOC emission limit of 0.17 kg-VOC/liter of deposited solids. In addition, this operation is also subject to a BACT and Rule 4602 emission limit of 0.084 lg-VOC per liter of applied coating solids. Therefore, the following condition will be included on permit C-9248-6-0 as a mechanism to ensure compliance with the VOC emission limit requirements:

- The VOC emission limit from all coatings applied by this electrodeposition prime coat operation, based on the amount of solids deposited on components coated, shall not exceed 0.084 kilograms of VOC per liter of deposited solids (0.7 lb of VOC per gallon of deposited solids) on a daily weighted average basis. [District Rules 2201 and 4602, and 40 CFR 60.392]

C-9248-1-0, '-6-0, '-8-0, '-9-0, '-10-0, and '-11-0⁽⁴⁾ (Facility Coating Operations):

The existing prototype coating operation (unit C-9248-1-0, permitted under separate project C-1172714), the proposed main paint line (C-9248-8-0), the proposed final repair coating operation (C-9248-9-0, and the polishing operations (C-9248-10-0 and '-11-0) contribute to the facility remaining coating operations at this facility. Therefore, the sum of the coatings proposed to be used by these operations will be used to demonstrate compliance with the VOC limits of this subpart. These operations do not apply any coatings that meet the definition of a prime coat as defined in this subpart. They will only apply primer-surfacer (guide coats) and topcoats. As shown by the calculations in Appendix C, the facility is proposing to utilize coatings that comply with the VOC limits required by this subpart. The following condition will be included on the permit to assure continued compliance:

- Except for the coatings applied by the electrodeposition coating operation (e-coat), the VOC emission limits from all other coatings applied by this facility shall not exceed the following: primer-surfacer operations/guide coats - 1.40 kilograms of VOC per liter of deposited solids (11.68 lb of VOC per gallon of deposited solids) on a daily weighted average basis; and topcoat operations - 1.44 kilograms of VOC per liter of deposited solids (12.0 pounds of VOC per gallon of deposited solids) on a daily weighted

⁽⁴⁾ The polish applied under operations C-9248-10-0 and '-11-0 meets the definition of a coating, as defined in Rule 4602. Therefore, the polishing operations will be included in the facility coating operations that are subject to the requirements of Subpart MM.

average basis. For the purposes of demonstrating compliance with the VOC emission limits specified in this condition, the use of adhesion promoters shall not be included in the determination. [District Rules 2201 and 4602, and 40 CFR 60.392]

Section 60.393 – Performance Test and Compliance Provisions

Section 60.393(b) states that the owner or operator of an affected facility shall conduct an initial performance test and thereafter for each calendar month for each affected facility according to the procedures in this section.

Section 60.393 (c) states that the owner or operator shall use the following procedures for determining the monthly volume weighted average mass of VOC emitted per volume of applied coating solids. Section (c)(1) states that the owner or operator shall use the following procedures for each affected facility which does not use a capture system and a control device to comply with the applicable emission limits specified under Section 60.392. FF, Inc. is proposing to control the emissions from the paint line with a thermal incinerator. Since this facility will be utilizing a capture and control system, the requirements of Section (c)(1) are not applicable.

Section (c)(2) states that the owner or operator shall use the following procedures for each affected facility which uses a capture system and a control device that destroys VOC (e.g. incinerator) to comply with the applicable emission limit specified under Section 60.392. The facility is proposing to control the VOC emissions from the paint line with an RTO. Therefore, the requirements of this section are applicable.

Section 60.393(c)(2)(i) states that the owner or operator shall calculate the volume of weighted average mass of VOC per volume of applied coating solids (G) during each calendar month for each affected facility as described under Section 60.393(c)(1)(i).

Section 60.393(c)(1)(i) describes the procedures that an owner or operator shall use to calculate the volume weighted average mass of VOC per volume of applied coating solids for each calendar month for each affected facility. The owner or operator shall determine the composition of the coatings by formulation data supplied by the manufacturer of the coating or from data determined by an analysis of each coating, as received, by Method 24. The Administrator may require the owner or operator who uses formulation data supplied by the manufacturer of the coating to determine data used in the calculation of the VOC content of coatings by Method 24 or an equivalent or alternative method. The owner or operator shall determine from company records on a monthly basis the volume of coating consumed, as received, and the mass of solvent used for thinning purposes. The volume weighted average of the total mass of VOC per volume of coating solids used each calendar month will be determined by the following procedures.

- (A) Calculate the mass of VOC used in each calendar month for each affected facility by the following equation where “n” is the total number of coatings used and “m” is the total number of VOC solvents used:

$$M_o + M_d = \sum_{i=1}^n L_{ci} D_{ci} W_{oi} + \sum_{j=1}^m L_{dj} D_{dj}$$

Where: M_o = total mass of VOC in coatings as received (kilograms),
 M_d = total mass of VOC in dilution solvent (kilograms),
 L_{ci} = volume of each coating (i) consumed, as received (liters),
 D_{ci} = density of each coating (i) as received (kilograms per liter),
 W_{oi} = proportion of VOC by weight in each coating (i), as received
 L_{dj} = volume of each type VOC dilution solvent (j) added to the coatings, as received (liters),
 D_{dj} = density of each type VOC dilution solvent (j) added to the coatings, as received (kilograms per liter).

FF, Inc. is proposing to utilize all of the coatings, as supplied from the manufacturer. They are not proposing to add or mix in dilution solvent. Therefore, M_d , L_{dj} , and D_{dj} in the equation above will be set equal to zero for the purposes of this project. In addition, the manufacturer of each coating proposed to be used as a part of the prototype coating operation has provided the VOC content, by weight. Therefore, the D_{ci} and W_{oi} values will be combined in to one new value DW. Thus, the equation to calculate the total mass of VOC emitted for the coatings used will be as follows:

$$M_o = \sum (L_{ci} * DW)$$

- (B) Calculate the total volume of coating solids used in each calendar month for each affected facility by the following equation where “n” is the total number of coatings used:

$$L_s = \sum_{i=1}^n L_{ci} V_{si}$$

Where: L_s = volume of solids in coatings consumed (liters),
 L_{ci} = volume of each coating (i) consumed, as received (liters),
 V_{si} = proportion of solids by volume in each coating (i) as received.

- (C) Select the appropriate transfer efficiency (T) from the tables listed in Section 60.393 for each surface coating operation. The tables in Section 60.393 do not list a specific transfer efficiency for HVLP application equipment. However, Section 60.393 also states that if the owner or operator can justify to the Administrator’s satisfaction that other values for transfer efficiencies are appropriate, the Administrator will approve their use on a case-by-case basis.

As discussed above, FF, Inc. is proposing to apply all of the coatings associated with the prime coat operation with electrodeposition, the prototype coating and final repair coating operations with HVLP application equipment, and the main paint line with electrostatic application equipment. Per District practice, electrodeposition dip coating application equipment has been demonstrated to achieve a transfer efficiency of 100%, HVLP application equipment has been demonstrated to achieve a transfer efficiency of at least 75%, and electrostatic application has been demonstrated to achieve a transfer efficiency of at least 75%. Therefore, the following transfer efficiencies (T) will be used for the purposes of demonstrating compliance with the VOC limits of this subpart.

$$\begin{aligned} T_{\text{Electrodeposition}} &= 1.0 \\ T_{\text{Electrostatic}} &= 0.75 \\ T_{\text{HVLP}} &= 0.75 \end{aligned}$$

- (D) Calculate the volume weighted average mass of VOC per volume of applied coating solids (G) during each calendar month for each affected facility by the following equation:

$$G = \frac{M_o + M_d}{L_s T}$$

Where: M_o = total mass of VOC in coatings as received (kilograms),
 M_d = total mass of VOC in dilution solvent (kilograms),
 L_s = volume of solids in coatings consumed (liters),
 T = overall transfer efficiency

- (E) For each EDP prime coat operation, calculate the turnover ratio (R_T) using the equation listed in Section 60.393. As discussed above, the prime coat operations occur within two of the dip tanks in the e-coat operation. The turnover ratio of these tanks can be determined using the following equation:

$$R_T = \frac{L_s}{L_E}, \text{ truncated after 3 decimal places.}$$

Where: L_s = volume of solids in coatings consumed (liters),
 L_E = the total volume of the EDP system (liters),

The coating tanks of the e-coat system are 18,121 gallons each. Coating is applied and rinsed in stages 5 and 6 of the prime coat/e-coat operation. Therefore, the total volume of the tanks that contain any coating in them is 36,242 gallons. As shown by the calculations in Appendix C, the amount of solids applied by this operation is 6,734 gallons/year. Therefore, the turnover ratio for the prime coat/e-coat operation is as follows:

$$R_T = 6,734 \text{ gallons} / 36,242 \text{ gallons}$$

$$R_T = 0.186$$

Section 60.393(c)(2)(ii) states that the owner or operator shall calculate the volume of weighted average mass of VOC per volume of applied coating solids emitted after the control device, by the following equation: $N = G * [1 - (F * E)]$.

- (A) Determine the fraction (F) of total VOC which is emitted by an affected facility that enters the control device by using the following equation where “n” is the total number of stacks entering the control device and “p” is the total number of stacks not connected to the control device using the following equation:

$$F = \frac{\sum_{i=1}^n Q_{bi} C_{bi}}{\sum_{i=1}^n Q_{bi} C_{bi} + \sum_{k=1}^p Q_{fk} C_{fk}}$$

Where:

- Q_{bi} = volumetric flow rate of the effluent gas flowing through stack entering the control device (dry standard cubic meters per hour),
- C_{bi} = concentration of VOC (as carbon) in the effluent gas flowing through stack entering the control device (parts per million by volume),
- Q_{fk} = volumetric flow rate of the effluent gas flowing through exhaust stack not entering the control device (dry standard cubic meters per hour),
- C_{fk} = concentration of VOC (as carbon) in the effluent gas flowing through exhaust stack not entering the control device (parts per million by volume),

The maximum amount of VOC emissions from each of the proposed operations are shown in Appendix C and summarized in the table below. Therefore, the $Q * C$ values in the equation above are not needed and can be replaced with the mass emission rates from each operation. The main paint line under C-9248-8-0 and the e-coat curing oven are the only units at this facility that will be routed to the control device. None of the other coating operations are served by any control devices. The mass emission summary for all of the coating operations at this facility are summarized in the table below.

Prime Coat/E-Coat Operations:

Prime Coat/E-Coat Operations		
Permit	Mass VOC Emissions Entering Control Device [Q _{bi} * C _{bi}] (lb/year)	Mass VOC Emissions Not Entering Control Device [Q _{fk} * C _{fk}] (lb/year)
C-9248-6-0 _{Dip Tanks}	0	3,619
C-9248-6-0 _{Oven to RTO}	6,900	0
Total:	6,900	3,619

Therefore, F can be determined as follows:

$$F = \frac{6,900 \text{ lb-VOC/yr}}{6,900 \text{ lb-VOC/yr} + 3,619 \text{ lb-VOC/yr}}$$

$$F_{\text{Prime Coat/E-Coat}} = 0.656$$

Primer-Surfacer/Guide Coat Operations:

Primer-Surfacer/Guide Coat Operations		
Permit	Mass VOC Emissions Entering Control Device [Q _{bi} * C _{bi}] (lb/year)	Mass VOC Emissions Not Entering Control Device [Q _{fk} * C _{fk}] (lb/year)
C-9248-1-0	0	64
C-9248-8-0	39,024	0
C-9248-9-0	0	64
Total:	39,024	128

Therefore, F can be determined as follows:

$$F = \frac{39,024 \text{ lb-VOC/yr}}{39,024 \text{ lb-VOC/yr} + 128 \text{ lb-VOC/yr}}$$

$$F_{\text{Primer-Surfacer/Guide Coat}} = 0.998$$

Topcoat Operations:

Top Coat Operations		
Permit	Mass VOC Emissions Entering Control Device [Q _{bi} * C _{bi}] (lb/year)	Mass VOC Emissions Not Entering Control Device [Q _{fk} * C _{fk}] (lb/year)
C-9248-1-0	0	1,176
C-9248-8-0	149,710	0
C-9248-9-0	0	1,021
C-9248-10-0 (polish only)	0	1,253
C-9248-11-0 (polish only)	0	1,253
Total:	149,710	4,703

Therefore, F can be determined as follows:

$$F = \frac{149,710 \text{ lb-VOC/yr}}{149,710 \text{ lb-VOC/yr} + 4,703 \text{ lb-VOC/yr}}$$

$$F_{\text{Topcoat}} = 0.970$$

- (B) Determines the destruction efficiency (E) of the control device using values of the volumetric flow rate of the gas streams and the VOC content (as carbon) of each of the gas streams in and out of the device by the following equation where “n” is the total number of stacks entering the control device and “m” is the total number of stacks leaving the control device.

FF, Inc. has is proposing to install an RTO and the manufacturer guaranteed that it will have a 95% or greater control efficiency for VOC emissions. The RTO will be required to source test for control efficiency within 60 days of initial startup and at least once every year thereafter. Therefore, the value of E in the equation above will be set equal to 0.95.

$$E = 0.95$$

Section 60.393(c)(2)(iii) states that if the volume weighted average mass of VOC per volume of applied solids emitted after the control device (N) calculated on a calendar month basis is less than or equal to the applicable emission limit specified in Section 60.392, the affected facility is in compliance. Each monthly calculation is a performance test for the purposes of this subpart.

Using the VOC contents of the coatings, solids content of the coatings, and the usage rates proposed by the applicant, the (G) values for each operation were calculated and are included in Appendix C. Using the G values from Appendix C, the fraction (F) of total VOC which is emitted by an affected facility that enters the control device calculated above, and the estimated destruction efficiency as calculated above, the volume weighted average mass of VOC emissions per volume of applied coating solids (N) for each affected facility is as follows:

$$N = G * [1 - (F * E)]$$

Prime Coat/E-Coat Operations:

Prime Coat/E-Coat Operations						
Permit	Total Annual Mass of VOC (lb/year)	Annual Volume of Solids Deposited (lb/year)	G Emission Rate (lb VOC/Gal Applied Solids)	F	E	N (lb VOC/Gal Applied Solids After Control)
C-9248-6-0 (Dip Tanks)	3,619	6,734	-	-	-	-
C-9248-6-0 (Oven to RTO)	6,900	0	-	-	-	-
Total:	10,519	6,734	1.56	0.656	0.95	0.588

Primer-Surfacer/Guide Coat Operations:

Primer-Surfacer/Guide Coat Operations						
Permit	Total Annual Mass of VOC (lb/year)	Annual Volume of Solids Deposited (lb/year)	G Emission Rate (lb VOC/Gal Applied Solids)	F	E	N (lb VOC/Gal Applied Solids After Control)
C-9248-1-0	64	7	-	-	-	-
C-9248-8-0	39,024	5,137	-	-	-	-
C-9248-9-0	64	7	-	-	-	-
Total:	39,152	5,151	7.6	0.998	0.95	0.394

Topcoat Operations:

Topcoat Operations						
Permit	Total Annual Mass of VOC (lb/year)	Annual Volume of Solids Deposited (lb/year)	G Emission Rate (lb VOC/Gal Applied Solids)	F	E	N (lb VOC/Gal Applied Solids After Control)
C-9248-1-0	1,176	120	-	-	-	-
C-9248-8-0	149,710	17,597	-	-	-	-
C-9248-9-0	1,021	118	-	-	-	-
C-9248-10-0	1,253	72	-	-	-	-
C-9248-11-0	1,253	72	-	-	-	-
Total:	154,413	17,979	8.59	0.970	0.95	0.674

As shown in the tables above, the volume weighted average mass of VOC per volume of applied solids emitted after the control device (N) is less than or equal to the applicable emission limits specified in Section 60.392 for guide coats and topcoats. The following condition will be included on permits C-9248-6-0, '-8-0, '-9-0, '-10-0, and '-11-0 as a mechanism to ensure compliance:

C-9248-6-0 (Prime Coat Electrodeposition Operation):

As calculated above, the prime coat operation has a proposed turnover ratio of 0.186. Therefore, this operation is subject to a VOC limit of 0.17 kilograms of VOC per liter of applied coating solids (1.42 lb-VOC per gallon of applied coating solids). In addition, as discussed in the Rule 4602 discussion below, the prime coat electrodeposition operation is also subject to a Rule 4602 VOC emission limit of 0.081 kg VOC per liter of applied coating solids (0.7 lb-VOC per gallon of applied coating solids). Based on the compliance demonstration shown above, FF, Inc. is proposing to utilize coatings for this prime coat electrodeposition operation that have VOC emissions of 0.588 pounds of VOC per gallon of applied coating solids. Therefore, compliance with the requirements of the VOC emission limits of this subpart is expected and the following conditions will be included on the permit as a mechanism to ensure compliance:

- The VOC emission limits from all coatings applied by this electrodeposition coating operation (e-coat), based on the amount of solids deposited on components coated, shall be determined using the following equation: $N = G * [1 - (F * E)]$. Where N = VOC emissions (lb/gal of deposited solids); G is the total amount of uncontrolled VOC emissions generated by the e-coat operation = [(VOC content of each coating, as applied (lb/gal) x Usage (gal)) + VOC emissions generated by curing of coatings in oven] / [Solids content of each coating applied, by volume (lb/gal) x Usage (gal)]; F is the fraction of total VOC which is emitted by the e-coat operation that is controlled by the RTO = sum of the uncontrolled VOC emissions from the e-coat operation entering the RTO / sum of uncontrolled VOC emissions from all e-coat operations at the facility; and E = the destruction efficiency of the RTO, as measured during the most recent source test. [District Rules 2201 and 4602, and 40 CFR 60.393]

C-9248-8-0, '-9-0, '-10-0, and '-11-0 (Primer-Surfacer/Guide Coat and Topcoat Operations):

As shown above, the primer-surfacer/guide coat operation is subject to a VOC emission limit of 1.40 kilograms of VOC per liter of applied coating solids (11.68 lb-VOC per gallon of applied coating solids) and the topcoat operation is subject to a VOC emission limit of 1.47 kilograms of VOC per liter of applied coating solids (12.3 lb-VOC per gallon of applied coating solids). In addition, as discussed in the Rule 4602 discussion below, the topcoat operation is also subject to a Rule 4602 VOC emission limit of 1.44 kg VOC per liter of applied coating solids (12.0 lb-VOC per gallon of applied coating solids). Based on the compliance demonstration shown above, FF, Inc. is proposing to utilize coatings for their primer-surfacer/guide coat operations that have VOC emissions of 0.473 pounds of VOC per gallon of applied coating solids and topcoat operations that have VOC emissions of 0.813 pounds of VOC per gallon of applied coating solids. Therefore, compliance with the requirements of the VOC emission limits of this subpart is expected and the following conditions will be included on permits C-9248-8-0, '-9-0, '-10-0 and '-11-0 as a mechanism to ensure compliance:

- Except for the coatings applied by the electrodeposition coating operation (e-coat), compliance with the VOC emission limits from all other coatings applied by this facility, based on the amount of solids applied on components coated, shall be determined using the following equation: $N = G * [1 - (F * E)]$. Where N = VOC emissions (lb/gal of applied solids); $G = \{[\text{VOC content of each coating, as applied (lb/gal)} \times \text{Usage (gal)}] / [\text{Solids fraction of each coating applied, by volume (volume \%)} \times \text{Usage (gal)} \times \text{TE (\%)}]\}$; F (fraction of total VOC which is emitted by the facility that is controlled by the RTO) = sum of the uncontrolled VOC emissions from the main paint line entering the RTO / sum of uncontrolled VOC emissions from all coating operations at the facility; E = the destruction efficiency of the RTO, as measured during the most recent source test; and TE (transfer efficiency of application equipment used) = 75% for electrostatic, 75% for HVLP, and 100% for polishing buffers. Compliance with the lb-VOC/gal of applied solids emission limits specified in this permit shall be determined for both primer-surfacers/guide coats and topcoats separately. [District Rules 2201 and 4602, and 40 CFR 60.393]

Section 60.393(c)(3) specifies the procedures owners or operators should follow when a facility is demonstrating compliance with the use of a capture and control system that captures VOC (e.g. carbon adsorption). As discussed above, FF, Inc. is not proposing to use a VOC capture and recovery system for the proposed coating operations at this facility. Therefore, the requirements of this section are not applicable.

Section 60.394 – Monitoring of Emissions and Operations

Section 60.394 states that the owner or operator of an affected facility which uses an incinerator to comply with the emission limits specified under Section 60.392 shall install, calibrate, maintain, and operate temperature measurement devices as prescribed below:

- 1 Where thermal incineration is used, a temperature measurement device shall be installed in the firebox. Where catalytic incineration is used, a temperature measurement device shall be installed in the gas stream immediately before and after the catalyst bed.

- 2 Each temperature measurement device shall be installed, calibrated, and maintained according to accepted practice and the manufacturer's specifications. The device shall have an accuracy of the greater of +/- 5 percent of the temperature being measured expressed in degrees Celsius +/- 2.5 'C.
- 3 Each temperature measurement device shall be equipped with a recording device so that a permanent record is produced.

As discussed above, FF, Inc. is proposing to control the emissions form the main paint line with a thermal incinerator. The following conditions will be include on permit C-9248-8-0 to ensure continued compliance with this section:

- The RTO shall be operated at a temperature of no less than 1,400 degrees F. [District Rule 2201 and 40 CFR 60.394]
- The RTO shall be equipped with a continuous temperature monitoring and recording device installed in the firebox that is in operation at all times when the RTO is operating. [District Rule 2201 and 40 CFR 60.394]
- Each temperature measurement device shall be installed, calibrated, and maintained according to accepted practice and the manufacturer's specifications. [District Rule 2201 and 40 CFR 60.394]

Section 60.395 – Reporting and Recordkeeping Requirements

Section 60.395 states that each owner of an affected facility shall include the data outlined in paragraphs (a)(1) and (2) in the initial compliance report. Section (a)(1) states that the owner or operator shall report the volume of weighted average mass of VOC per volume of applied coating solids for each affected facility. Section (a)(2) specifies requirements for operators achieving compliance through the use of incineration. The following conditions will be included on permits C-9248-6-0, '-8-0, '-9-0, '-10-0 and '-11-0 as a mechanism to ensure compliance with the requirements of this section:

- The permittee shall calculate and record the following: VOC emissions (lb/day) from all coating activities performed by this coating operation; VOC emissions (lb/day) from the surface cleaning operation; VOC emission limits from all coatings applied by the facility, based on the amount of solids applied on components coated (lb/gallon applied solids); and PM₁₀ emissions (lb/day) from this coating operation. Records shall be maintained on a monthly basis, with the ability to calculate daily averages based on the number of operating days in any given month. For each month, daily average records shall be updated by no later than the end of the following month. [District Rules 2201 and 4602, and 40 CFR 60.395]

- The permittee shall maintain and have available at all times a current list of coatings and solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter); the VOC content of solvents used for surface preparation and cleanup, the solids content of each coating by weight; and the solids content of each coating, by volume. [District Rules 2201 and 4602, and 40 CFR 60.395]
- The permittee shall maintain records of the capture efficiency of the air seal system serving the main paint line and the destruction efficiency of the RTO, as determined using the most recent source test results for these parameters, and a description of the method used to establish the fraction of VOC captured and sent to the control device for the facility. [40 CFR 60.395]

Section 60.395(b) states that following the initial performance test, the owner or operator of an affected facility shall identify, record, and submit a written report to the Administrator every calendar quarter of each instance in which the volume-weighted average of the total mass of VOCs emitted to the atmosphere per volume of applied coating solids is greater than the limit specified under section 60.392. If no such instances have occurred during a particular quarter, a report stating this shall be submitted to the Administrator semiannually. Where compliance is achieved through the use of a capture system and control device, the volume-weighted average after the control device should be reported. FF, Inc. is proposing to use a thermal incinerator for the main paint line. Therefore, the following condition will be included on permit C-9248-1-0 to assure continued compliance with the requirements of this section:

- The owner or operator shall identify, record, and submit a written report at least once every calendar quarter for each instance in which the volume-weighted average of the total mass of VOCs emitted to the atmosphere per volume of applied coating solids exceeds the limits specified in this permit. The report is due on the 30th day following the end of the calendar quarter and shall include the following: time intervals; data and magnitude of excess emissions; nature and the cause of excess emissions (if known); and corrective actions taken and preventative measures adopted. If no exceedances occurred during a calendar quarter, a report stating this shall be submitted at least once every six months. [40 CFR 60.395]

Section 60.395(c) states that where compliance with the VOC limits under section 60.392 is achieved through the use of incineration, the owner or operator shall continuously record the incinerator combustion temperature during coating operations. FF, Inc. is proposing to control the emissions from the main paint line with an incinerator. Therefore, the requirement of this section is applicable. The following condition will be included on permit C-9248-8-0 as a mechanism to ensure ongoing compliance:

- The permittee shall maintain continuous records of the thermal oxidizer combustion temperature. [District Rule 2201 and 40 CFR 60.395]

Section 60.395(c)(1) states that for thermal incinerators, every three-hour period shall be reported during which the average temperature measured is more than 28 °C (82.4 °F) less than the average temperature during the most recent control device performance test at which the destruction efficiency was determined as specified under Section 60.393.

Section 60.395(c)(2) specifies requirements for catalytic incinerators. FF, Inc. is not proposing to use a catalytic incinerator. Therefore, the requirements of this section are not applicable.

Section 60.395(c)(3) specifies requirements for thermal incinerators and if no such periods described under Section 60.395(c)(1) occur, the owner or operator shall submit a negative report.

- The permittee shall maintain a report that documents every three-hour period in which the average temperature measured is more than 28 °C (82.4 °F) less than the average temperature during the most recent control device performance test at which the destruction efficiency was determined. If no such periods occur, the permittee shall submit a negative report. [40 CFR 60.395]

Section 60.395(d) specifies that the owner or operator using incineration to comply with the VOC limits under Section 60.392 shall notify the administrator 30 days in advance of any test by EPA Method 25. FF, Inc. is proposing to control the emissions from the main paint line with an incinerator. Therefore, the requirements of this section is applicable. The following condition will be included on permit C-9248-8-0 as a mechanism to ensure compliance:

- Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. [District Rule 1081 and 40 CFR 60.395]

Section 60.396 – Reference Methods and Procedures

Section 60.396(a)(1) specifies the reference test methods that shall be used to conduct performance tests. Manufacturer supplied VOC contents will be used to establish the VOC contents of all of the materials proposed to be used by the coating operations proposed by the FF, Inc.

Section 60.396(a)(2) specifies that EPA Method 25 or an equivalent method approved by the Administrator shall be used for the determination of the VOC concentration in the effluent gas entering and leaving the emission control device for each stack equipped with an emission control device and in the effluent gas leaving each stack not equipped with a control device. Section 60.396(c) states that for EPA Method 25, the sampling time for each of the three runs must be at least one hour. The following conditions will be included on permit C-9248-8-0 as a mechanism to ensure continued compliance with the testing requirements of this section:

- Source testing to measure the VOC control efficiency of the RTO shall be conducted within 90 days of initial startup and at least once every 12 months thereafter. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]
- Source testing to determine VOC control efficiency and mass emission rate of the RTO shall be conducted using EPA Method 25 or 25A, ARB Method 100, or any other alternative equivalent test method approved by the District and EPA. [District Rules 1081, 2201, and 40 CFR 60.396]
- For emissions source testing, the arithmetic average of three 60-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the testing cannot be used to demonstrate compliance with an application limit. [District Rules 1081 and 2201, and 40 CFR 60.396]

Section 60.397 - Modifications

Section 60.397 states what physical or operational changes are considered modifications of existing facility for the purposes of this subpart. FF, Inc. is proposing to install a new automobile assembly and coating facility. There are no modifications being performed for the purposes of this subpart and this section is not applicable.

Section 60.398 – Innovative Technology Waivers

Section 60.398 lists specific facilities that have obtained innovative technology waivers from the requirements of this subpart. FF, Inc. has not obtained, and is not proposing to receive, an innovative technology waiver. Therefore, the requirements of this section are not applicable.

Rule 4002 National Emission Standards for Hazardous Air Pollutants (NESHAPs)

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63.

The requirements of 40 CFR Part 63, Subpart IIII (National Emission Standards for Hazardous Air Pollutants: Surface Coating of Automobiles and Light-Duty Trucks) apply to source operations at a facility which applies topcoat to new automobiles or new light duty trucks, or their associated body parts, and that is a major source, is located as a major source, or is part of a major source of emissions of hazardous air pollutants (HAP) (as defined in 40 CFR 63.2 – Definitions).

As indicated by the health risk assessment modeling results, the PE for this facility is less than 10 tons per year for any individual HAP and 25 tons per year combined for all HAPs. Therefore, the facility is not a major HAP source and the requirements of this subpart do not apply to the proposed operations at this facility.

Rule 4101 Visible Emissions

Rule 4101 states 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 as, or darker than, Ringelmann 1 or 20% opacity. Therefore, the following condition will be included on each of the permits as a mechanism to ensure compliance:

- 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]

Rule 4102 Nuisance

Rule 4102 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 these operations, provided the equipment is well maintained. Therefore, compliance with this rule is expected. The following condition will be included on each permit as a mechanism to ensure compliance with the requirements of this rule:

- No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – *Risk Management Policy for Permitting New and Modified Sources* specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

A health risk assessment (HRA) is not required for a project with a total facility prioritization score of less than one. According to the Technical Services Memo for this project (Appendix H), the total facility prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project. The HRA summary for this project is shown below:

RMR Summary						
Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required ?	Special Permit Requirements?
Unit 5-0 (BIW)	N/A ¹	N/A ¹	N/A ¹	N/A ¹	No	No
Unit 6-0 (E-Coating)	0.02	0.00	0.00	N/A ¹	No	Yes
Unit 7-0 (E-Coat Sanding Op)	0.02	0.00	0.00	1.34E-08	No	Yes
Unit 8-0 (Auto Coating)	20.8	0.00	0.00	1.54E-06	Yes	Yes
Unit 9-0 (Autocoating Repair)	1.1	0.02	0.00	1.71E-07	No	Yes
Unit 10 (Paint Sand and Polish)	0.05	0.00	0.00	3.82E-08	No	Yes
Unit 11 (Plastics Sand and Polish)	0.03	0.00	0.00	4.95E-08	No	Yes
Unit 12 (Diesel IC Engine)	2.31	N/A ¹	0.00	1.48E-07	No	Yes
Project Totals	>1	0.03	0.00	1.98E-06		
Facility Totals	>1	0.3	0.04	2.36E-06		

¹Cancer risk, Acute and/or the Chronic Hazard Index was not calculated since there is no risk factor or the risk factor is so low that it has been determined to be insignificant for this type of unit.

Discussion of T-BACT

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is required for this project because the HRA indicates that the risk is above the District's thresholds for triggering T-BACT requirements.

For this project, T-BACT is triggered for VOC emissions from the coating operation under C-9248-8. T-BACT is satisfied with BACT for VOC emissions, which is the use of a VOC capture and control system with an efficiency of at least 95%. As demonstrated in the top down BACT analysis in Appendix E, FF, Inc. is proposing to control the emissions from the main paint line with a capture and control system achieving at least 95% overall control for VOC emissions. Therefore, compliance with the District's Risk Management Policy is expected.

District Policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices, or a cancer risk greater than the District's significance levels (i.e. acute and/or chronic indices greater than 1 and a cancer risk greater than 20 in a million). As outlined by the HRA Summary in Appendix H of this report, the emissions increases for this project was determined to be less than significant.

The following conditions will be included on permits C-9248-6-0, '-8-0, '-9-0, '-10-0 and '-11-0 as a mechanism to ensure compliance with the requirements of the HRA:

C-9248-6-0 (E Coat Operation):

- No coatings, solvents, or additives containing hexavalent chromium, cadmium, lead, or nickel shall be used. [District Rule 4102]

C-9248-8-0 (Main Paint Line):

- The RTO 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]
- No coatings, solvents, or additives containing hexavalent chromium, cadmium, lead, or nickel shall be used. [District Rule 4102]
- The volatile organic compound (VOC) emissions from all coating activities performed by this coating operation shall not exceed either of the following limits: 70.2 lb/day or 13,562 lb/year. [District Rules 2201 and 4102]
- The VOC emissions from the surface cleaning operation (i.e. cleaning of any surfaces associated with this coating operation with solvent wipes and aerosol solvents) shall not exceed 2.0 lb/day. [District Rule 2201]

C-9248-9-0 (Final Repair Coating Operation):

- The paint booth 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]
- No coatings, solvents, or additives containing hexavalent chromium, cadmium, lead, or nickel shall be used. [District Rule 4102]
- The volatile organic compound (VOC) emissions from all coating activities performed by this final repair coating operation shall not exceed either of the following limits: 30.0 lb/day or 2,000 lb/year. [District Rules 2201 and 4102]
- The VOC emissions from the surface cleaning operation (i.e. cleaning of any surfaces associated with this final repair coating operation with solvent wipes and aerosol solvents) shall not exceed 2.0 lb/day. [District Rules 2201 and 4102]

C-9248-10-0 (Paint Sanding Operation):

- Each sanding booth 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]

C-9248-11-0 (Plastic Parts Paint Sanding Operation):

- Each sanding booth 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]

C-9248-12-0 (Emergency IC Engine):

- The IC engine 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]
- Emissions from this IC engine shall not exceed 0.05 g-PM₁₀/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201, 4102, and 4702, and 17 CCR 93115]

Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

$$\text{PM Conc. (gr/scf)} = \frac{(\text{PM emission rate}) \times (7,000 \text{ gr/lb})}{(\text{Airflow rate}) \times (60 \text{ min/hr}) \times (24 \text{ hr/day})}$$

C-9248-7-0 (E-Coat Paint Sanding Operation):

PM₁₀ emission rate = 1.2 lb/day
Exhaust Gas Flow = 13,200 scfm

Assuming 100% of PM is PM₁₀, the PM concentration from this coating operation is as follows:

$$\begin{aligned} \text{PM Conc (gr/scf)} &= [(1.2 \text{ lb/day}) \times (7,000 \text{ gr/lb})] \div [(13,200 \text{ ft}^3/\text{min}) \times (60 \text{ min/hr}) \times (16 \text{ hr/day})] \\ \text{PM Conc} &= 0.00066 \text{ gr/scf} \end{aligned}$$

C-9248-8-0 (Motor Vehicle Assembly Main Coating Line):

All Processes are Routed through RTO:

PM₁₀ emission rate = 22.1 lb/day (sum exiting RTO stack)
Exhaust Gas Flow = 20,000 scfm

Assuming 100% of PM is PM₁₀, the PM concentration from this coating operation is as follows:

$$\begin{aligned}\text{PM Conc (gr/scf)} &= [(22.1 \text{ lb/day}) \times (7,000 \text{ gr/lb})] \div [(15,000 \text{ ft}^3/\text{min}) \times (60 \text{ min/hr}) \times (16 \text{ hr/day})] \\ \text{PM Conc} &= 0.0081 \text{ gr/scf}\end{aligned}$$

C-9248-9-0 (Final Repair Coating Operation):

$$\begin{aligned}\text{PM}_{10} \text{ emission rate} &= 2.4 \text{ lb/day} \\ \text{Exhaust Gas Flow} &= 15,000 \text{ scfm}\end{aligned}$$

Assuming 100% of PM is PM₁₀, the PM concentration from this coating operation is as follows:

$$\begin{aligned}\text{PM Conc (gr/scf)} &= [(2.4 \text{ lb/day}) \times (7,000 \text{ gr/lb})] \div [(15,000 \text{ ft}^3/\text{min}) \times (60 \text{ min/hr}) \times (16 \text{ hr/day})] \\ \text{PM Conc} &= 0.0012 \text{ gr/scf}\end{aligned}$$

C-9248-10-0 (Paint Sanding Operation):

$$\begin{aligned}\text{PM}_{10} \text{ emission rate} &= 0.4 \text{ lb/day} \\ \text{Exhaust Gas Flow} &= 13,200 \text{ scfm}\end{aligned}$$

Assuming 100% of PM is PM₁₀, the PM concentration from this coating operation is as follows:

$$\begin{aligned}\text{PM Conc (gr/scf)} &= [(0.4 \text{ lb/day}) \times (7,000 \text{ gr/lb})] \div [(13,200 \text{ ft}^3/\text{min}) \times (60 \text{ min/hr}) \times (16 \text{ hr/day})] \\ \text{PM Conc} &= 0.00022 \text{ gr/scf}\end{aligned}$$

C-9248-11-0 (Plastic Parts Paint Sanding Operation):

$$\text{PM Conc. (gr/scf)} = \frac{(\text{PM emission rate}) \times (7,000 \text{ gr/lb})}{(\text{Airflow rate}) \times (60 \text{ min/hr}) \times (24 \text{ hr/day})}$$

$$\begin{aligned}\text{PM}_{10} \text{ emission rate} &= 0.4 \text{ lb/day} \\ \text{Exhaust Gas Flow} &= 13,200 \text{ scfm}\end{aligned}$$

Assuming 100% of PM is PM₁₀, the PM concentration from this coating operation is as follows:

$$\begin{aligned}\text{PM Conc (gr/scf)} &= [(0.4 \text{ lb/day}) \times (7,000 \text{ gr/lb})] \div [(13,200 \text{ ft}^3/\text{min}) \times (60 \text{ min/hr}) \times (16 \text{ hr/day})] \\ \text{PM Conc} &= 0.00022 \text{ gr/scf}\end{aligned}$$

C-9248-12-0 (Emergency IC Engine):

$$0.05 \frac{g}{hp \cdot hr} \times \frac{1 hp \cdot hr}{2,542.5 Btu} \times \frac{10^6 Btu}{9,051 dscf} \times \frac{0.35 Btu_{out}}{1 Btu_{in}} \times \frac{15.43 grain}{g} = 0.012 \frac{grain}{dscf}$$

Since 0.012 grain/dscf is less than 0.1 grain/dscf, compliance with this rule is expected.

As shown above, each of these operations is expected to comply with the requirements of this rule. The following condition will be included on permits C-9248-1-0, '-3-0, and '-4-0 as a mechanism to ensure compliance:

- Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

Rule 4602 Motor Vehicle Assembly Coatings

The purpose of this rule is to limit the emissions of volatile organic compounds (VOCs) from motor vehicle assembly coating operations. This rule is applicable to any person who applies VOC-containing coatings to new automobiles, light-duty trucks, heavier vehicles, and other parts coated along with these bodies or body parts during the assembly process, and associated solvent cleaning activities.

FF, Inc. is proposing to install a new motor vehicle manufacturing and assembly facility that will consist of one new motor vehicle body assembly operation (C-9248-5-0), one dip-tank coating operation (C-9248-6-0), one main coating line (C-9248-8-0), one final repair and touch up coating operation (C-9248-9-0), and two paint polishing operations (C-9248-10-0 and '-11-0) that will all utilize motor vehicle assembly coatings. Therefore, the requirements of Rule 4602 apply to each of these proposed operations.

Section 4.1 states that the provisions of this rule shall not apply to materials supplied in containers with a net volume of 16 fluid ounces or less, or a net weight of one pound or less. As discussed above, FF, Inc. is proposing to use small amounts of aerosol solvents, if needed, to remove contaminants from surfaces prior to coating. They have only proposed to use aerosol solvents that are supplied in containers with a net volume of 16 fluid ounces or less. Therefore, the requirements of this rule will not apply to the proposed use of aerosol solvents.

In addition, as discussed in the breakdown for Rule 4663, *Organic Solvent Cleaning, Storage, and Disposal*, below, the requirements of that rule do not apply to a facility that uses less than 160 fluid ounces of solvent during any given day. FF, Inc. has proposed to use no more than 160 ounces of aerosol solvent in a given day.

The following condition will be included on permits C-9248-6-0, '-9-0, '-10-0, '-11-0⁽⁵⁾ as a mechanism to ensure compliance:

- The maximum amount of aerosol solvent used at this facility shall not exceed 160 fluid ounces during any given day. Aerosol solvents used shall be supplied to the facility in containers with a net volume of 16 fluid ounces or less, or a net weight of one pound or less. [District Rules 4602 and 4663]

⁽⁵⁾ As discussed in this document below, Rule 4653, Adhesives, does not contain any type of exemption for aerosol spray solvents or solvents supplied in small containers. Therefore, FF, Inc. will not be allowed to use any aerosol solvents that do not comply with the requirements specified in Rule 4653 for the glass installation adhesive application operation under permit C-9248-5-0 and '-7-0 and this condition will not be included on that permit.

As discussed below, FF, Inc. is proposing to comply with the solvent requirements of Rule 4602 for the main paint line with the use of a VOC capture and control system. Therefore, the following condition will be included on permit C-9248-8-0 as a mechanism to ensure compliance:

- The maximum amount of aerosol solvent used at this facility shall not exceed 160 fluid ounces during any given day. [District Rule 4663]

Section 5.1 states that an operator of a vehicle assembly operation shall use coatings with VOC contents that do not exceed the limits in Table 1 below.

Table 1 – VOC Emission Limits for Motor Vehicle Assembly Coatings	
Assembly Coating Process	VOC Emission Limit
Electrodeposition primer operations (including application area, spray/rinse stations, and curing oven)	a) When solids turnover ratio (R_t) > 0.16: 0.084 kg VOC/liter (0.7 lb/gal) coating solids applied
	b) When $0.040 < R_t < 0.160$: • $0.084 \times 350^{0.160 - R_t}$ kg VOC/liter ($0.084 \times 350^{0.160 - R_t} \times 8.34$ lb/gal) coating solids applied
	c) When $R_t < 0.040$: No VOC emission limit
Primer-surfacer operations (including application area, flash off area, and oven)	1.44 kg of VOC/liter of deposited solids (12.0 lb VOC/gal of deposited solids) on a daily weighted average basis as determined by following the procedures in the revised Automobile Topcoat Protocol
Topcoat operations (including application area, flash-off area, and oven)	1.44 kg of VOC/liter of deposited solids (12.0 lb VOC/gal of deposited solids) on a daily weighted average basis as determined by following the procedures in the revised Automobile Topcoat Protocol
Final repair operations	0.58 kg VOC/liter (4.8 lb VOC/gallon of coating) less water and less exempt solvents on a daily weighted average basis or as an occurrence weighted average
Combined primer-surfacer and topcoat operations	1.44 kg of VOC/liter of deposited solids (12.0 lb VOC/gal of deposited solids) on a daily weighted average basis as determined by following the procedures in the revised Automobile Topcoat Protocol

In addition, FF, Inc. will be coating some plastic components as a part of their coating operations at this facility. The first layer of coating applied to plastic components requires the use of adhesion promoters. Per Section 3.1, adhesion promoters are defined as a coating applied over both an existing non-sanded topcoat, and the coated area immediately adjacent to the non-sanded topcoat, to promote adhesion of a subsequent topcoat. No topcoat, primer, primer sealer, or primer-surfacer (guide coat) shall be classified as an adhesion promoter. Since adhesion promoters cannot be classified as a topcoat, primer, or primer-surfacer (guide coat), these materials will not be included in the calculations utilized to demonstrate ongoing compliance with the VOC emission requirements of Rule 4602 above.

C-9248-6-0 (E-Coat Operation):

This proposed operation only applies electrodeposition prime coats. As shown in the Subpart MM discussion above, the turnover ratio for this operation is 0.186. Therefore, all of the coatings applied by this coating operation are subject to a VOC emission limit of 0.084 kg of VOC/liter of deposited solids (0.7 lb-VOC/gal of deposited solids). As shown by the calculations in the subpart MM discussion above and in Appendix C, it is expected that with the coatings proposed to be used by FF, Inc., that the facility will be operating in compliance with the VOC limits required by Subpart MM and Rule 4602. The following condition will be included on permits C-9248-10-0 and '-11-0 as a mechanism to ensure compliance with the requirements of this section:

- The VOC emission limit from all coatings applied by this e-coat operation, based on the amount of solids deposited on components coated, shall not exceed 0.084 kilograms of VOC per liter of deposited solids (0.7 lb of VOC per gallon of deposited solids), on a daily weighted average basis. [District Rules 2201 and 4602, and 40 CFR 60.392]

C-9248-8-0 (Motor Vehicle Assembly Main Coating Line):

FF, Inc. is proposing to control all of the emission points from the main coating line with an RTO. In accordance with the requirements of Section 5.2 below, operators electing to comply with the requirements of this rule by using a control device are not subject to the VOC content limits required by Section 5.1. Therefore, the VOC content limits of this section are not applicable to this operation.

C-9248-9-0 (Final Repair Coating Operation):

The proposed coating operation will only be performing final repair coating operations. Therefore, all of the coatings applied by this coating operation are subject to a VOC emission limit of 4.8 lb VOC/gallon of coating, less water and exempt solvents on a daily weighted average basis or as an occurrence weighted average. As shown by the final repair coating operation material listing in Appendix B, it is expected that the coatings proposed to be used by FF, Inc. for this operation will be operating in compliance with the VOC limits required by Rule 4602. The following condition will be included on the permit C-9248-9-0 as a mechanism to ensure compliance with the requirements of this section.

- The VOC content of all coatings applied by this final repair operation shall not exceed 4.8 lb-VOC/gallon, less water and exempt solvents. For the purposes of demonstrating compliance with the VOC emission limit specified in this condition, the use of adhesion promoters shall not be included in the determination. [District Rules 2201 and 4602]

C-9248-10-0 and '-11-0 (Paint Polishing Operations):

These proposed operations only apply polish to paint. Section 3.21 of Rule 4602 defines coating as a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. The polish will be applied on to the final vehicle surface for decorative and protective purposes. Therefore, it will be considered to meet the definition of a coating in Rule 4602 and the application of polish will be subject to the requirements of the rule.

The proposed coating operations will only be performing the application of primer-surfacers and topcoats. Therefore, all of the coatings applied by this coating operation are subject to a VOC emission limit of 1.44 kg of VOC/liter of deposited solids (12.0 lb-VOC/gal of deposited solids). As described in the 40 CFR 60, Subpart MM discussion above, primer-surfacers are subject to a slightly more stringent limit of 1.40 kg of VOC/liter of deposited solids (11.68 lb-VOC/gal of deposited solids) and topcoats are subject to the same limit that is required by Rule 4602. As shown by the calculations in Appendix C, it is expected that with the coatings proposed to be used by FF, Inc., that the facility will be operating in compliance with the VOC limits required by Subpart MM and Rule 4602. The following condition will be included on permits C-9248-10-0 and '-11-0 as a mechanism to ensure compliance with the requirements of this section:

- Except for the coatings applied by the electrodeposition coating operation (e-coat), the VOC emission limits from all other coatings applied by this facility shall not exceed the following: primer-surfacer operations/guide coats - 1.40 kilograms of VOC per liter of deposited solids (11.68 lb of VOC per gallon of deposited solids) on a daily weighted average basis; and topcoat operations - 1.44 kilograms of VOC per liter of deposited solids (12.0 pounds of VOC per gallon of deposited solids on a daily weighted average basis. For the purposes of demonstrating compliance with the VOC emission limits specified in this condition, polish shall be considered a coating and the use of adhesion promoters shall not be included in the determination [District Rules 2201 and 4602, and 40 CFR 60.392]

As discussed above, in addition to being subject to the VOC limits in Rule 4602, the proposed coating operations are also subject to the VOC limits in 40 CFR 60, Subpart MM. Subpart MM includes detailed calculations of how a facility should be demonstrating compliance with VOC emission limits that are based on the volume of applied coating solids. Therefore, the calculation methodology described in the Subpart MM breakdown above will be utilized to demonstrate ongoing compliance with the VOC limits required by Rule 4602. The following conditions will be included on permits C-9248-6-0, '-9-0, '-10-0 and '-11-0 to assist the facility in demonstrating ongoing compliance with the VOC limits required by Rule 4602 on a daily average basis:

C-9248-6-0 (E-Coat Operation):

- The VOC emission limits from all coatings applied by this electrodeposition coating operation (e-coat), based on the amount of solids deposited on components coated, shall be determined using the following equation: $N = G * [1 - (F * E)]$. Where N = VOC emissions (lb/gal of deposited solids); G is the total amount of uncontrolled VOC emissions generated by the e-coat operation = [(VOC content of each coating, as applied (lb/gal) x Usage (gal)) + VOC emissions generated by curing of coatings in oven] / [Solids content of each coating applied, by volume (lb/gal) x Usage (gal)]; F is the fraction of total VOC which is emitted by the e-coat operation that is controlled by the RTO = sum of the uncontrolled VOC emissions from the e-coat operation entering the RTO / sum of uncontrolled VOC emissions from all e-coat operations at the facility; and E = the destruction efficiency of the RTO, as measured during the most recent source test. [District Rules 2201 and 4602, and 40 CFR 60.393]

C-9248-9-0, '-10-0, and '-11-0 (Coating Operations):

- Except for the coatings applied by the electrodeposition coating operation (e-coat), compliance with the VOC emission limits from all other coatings applied by this facility, based on the amount of solids applied on components coated, shall be determined using the following equation: $N = G * [1 - (F * E)]$. Where N = VOC emissions (lb/gal of applied solids); $G = \{[\text{VOC content of each coating, as applied (lb/gal) x Usage (gal)}] / [\text{Solids fraction of each coating applied, by volume (volume \%) x Usage (gal) x TE (\%)}]\}$; F (fraction of total VOC which is emitted by the facility that is controlled by the RTO) = sum of the uncontrolled VOC emissions from the main paint line entering the RTO / sum of uncontrolled VOC emissions from all coating operations at the facility; E = the destruction efficiency of the RTO, as measured during the most recent source test; and TE (transfer efficiency of application equipment used) = 75% for electrostatic, 75% for HVLP, and 100% for polishing buffers. Compliance with the lb-VOC/gal of applied solids emission limits specified in this permit shall be determined for both primer-surfacers/guide coats and topcoats separately. [District Rules 2201 and 4602, and 40 CFR 60.393]
- The permittee shall calculate and record the following: PM₁₀ emissions (lb/day) from the paint sanding operation; VOC emissions (lb/day) from the polishing operation; VOC emissions (lb/day) from the surface cleaning operation; and VOC emission limits from all coatings applied by the facility, based on the amount of solids deposited on components coated (lb/gallon applied solids). Records shall be maintained on a monthly basis, with the ability to calculate daily averages based on the number of operating days in any given month. For each month, daily average records shall be updated by no later than the end of the following month. [District Rules 2201 and 4602, and 40 CFR 60.395]

In addition, Section 5.1 states that an operator of a vehicle assembly operation shall use miscellaneous materials with VOC contents that do not exceed the limits in Table 2 below.

Table 2 – VOC Content Limits for Miscellaneous Materials Used at Motor Vehicle Assembly Coating Operations (grams of VOC per liter of coating, excluding water and exempt compounds, as applied)	
Material	VOC Emission Limit (gram-VOC/liter)
Glass Bonding Primer	900
Adhesive	250
Cavity Wax	650
Sealer	650
Deadener	650
Gasket/Gasket Sealing Material	200
Underbody Coating	650
Truck Interior Coating	650
Bedliner	200
Weatherstrip Adhesive	750
Lubricating Wax/Compound	700

C-9248-5-0 and '-7-0 (Body Assembly Operation and E-Coat Sealing Operation):

For the body installation operations, FF, Inc. has proposed to use adhesives with a VOC content of 250 grams/liter or less and sealants with a VOC content of 420 grams/liter or less. The following condition will be included on permits C-9248-5-0 and '-7-0 as a mechanism to ensure compliance with the requirements of this section:

C-9248-5-0:

- For all body assembly operations, the VOC content of materials applied, less water and exempt compounds, shall not exceed either of the following limits: adhesives - 250 g/l (2.09 lb/gal); or sealants - 420 g/l (3.50 lb/gal). [District Rules 2201, 4602, and 4653]

C-9248-7-0:

- The VOC content of all sealants applied by this operation shall not exceed 420 g/l (3.50 lb/gal), excluding water and exempt compounds. [District Rules 2201, 4602, and 4653]

Section 5.2 states that in lieu of complying with the requirements in Sections 5.1, 5.3, or 5.4 an operator may control emissions with an APCO-approved VOC emission control system. As discussed above, FF, Inc. is proposing to vent the emissions from this main paint line and all of its associated equipment to a thermal incinerator. Therefore, the requirements of this section will be applicable to the main paint line (C-9248-8-0).

- 5.2.1 The VOC emission control system shall be approved, in writing by the APCO.
- 5.2.2 The VOC emission control system shall achieve an overall capture and control efficiency of at least 90 percent by weight as calculated according to Section 5.2.3.
- 5.2.3 Use of a VOC emission control system shall result in VOC emissions equal to or less than the VOC emissions which would result from compliance with the applicable requirements of Section 5.1, 5.3, or 5.4.
- 5.2.4 The minimum required control efficiency of an emission control system at which an equivalent or greater level of VOC reduction will be achieved shall be calculated using the equation listed in the rule.

FF, Inc. is proposing to install and operate a VOC capture and control system that meets the requirements above for their main paint line. The following conditions will be included on permit C-9248-8-0 as a mechanism to ensure compliance:

- The air seal system, all associated ventilation systems, and the regenerative thermal oxidizer (RTO) shall be in use whenever any emission generating equipment associated with the main paint line or e-coat curing operation is in operation. [District Rules 2201 and 4602]
- The overall VOC capture and control efficiency of the air seal system and the RTO serving all of the emission generating equipment associated with this motor vehicle assembly coating operation (paint spray zone, curing ovens, and inspection stations) shall be maintained at a minimum of 95%. [District Rules 2201, 4602, and 40 CFR 60.392]

Section 5.3 requires that the operator shall apply coatings using one of the following methods:

- 5.3.1 Brush, dip, or roll coating; or
- 5.3.2 Electrostatic application; or
- 5.3.3 Electrodeposition; or
- 5.3.4 Flow coating; or
- 5.3.5 Continuous Coating; or
- 5.3.6 High-Volume Low-Pressure (HVLP) spray equipment operated in accordance with the manufacturer's recommendations.
 - 5.3.6.1 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.

- 5.3.6.2 A person shall not sell or offer for sale for use within the District any HVLP spray gun without a permanent marking denoting the maximum inlet air pressure in psig at which the gun will operate within the parameters specified in Section 3.0.
- 5.3.7 Any other coating application method which is demonstrated to the APCO to be capable of achieving at least 65 percent transfer efficiency. The transfer efficiency shall be determined in accordance with the SCAQMD method "Spray Equipment Transfer Efficiency Test Procedure for Equipment User," May 24, 1989, as contained in Section 6.5. Prior written approval from the APCO shall be obtained for each coating application method to be used pursuant to Section 5.3.7.
- 5.3.8 In lieu of compliance with Sections 5.3.1 through 5.3.7 an operator may control emissions from application equipment with a VOC emission control system that meets the requirements of Section 5.2.

C-9248-5-0 and '-7-0 (Body Assembly Operation and E-Coat Sealing Operation):

For these adhesive and sealant application operations, FF, Inc. is proposing to apply all of the adhesives and sealants using manual and robotic non-atomized application methods. The non-atomized application methods should result in a transfer efficiency of 100% of the adhesives to the bonding substrate. The following conditions will be included on permits C-9248-5-0 and '-7-0 as a mechanism to ensure compliance with the requirements of this section:

C-9248-5-0:

- All adhesive, sealant, and defect oil materials utilized by this operation shall only be applied using non-air-atomizing application equipment. [District Rules 2201, 4602, and 4653]

C-9248-7-0:

- All sealant materials utilized by this operation shall only be applied using non-air-atomizing application equipment. [District Rules 2201, 4602, and 4653]

C-9248-6-0 (E-Coat Coating Operation):

The coatings applied by the e-coat operation will only be performed with electrodeposition application equipment or by dip coating. These application methods comply with Sections 5.3.1 and 5.3.3. The following condition will be included on permit C-9248-6-0 as a mechanism to ensure compliance with the requirements of this section:

- Only electrodeposition or dip 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 4602]

C-9248-8-0 (Main Paint Line)

FF, Inc. is proposing to control the emissions from the main paint line with a VOC control system. Therefore, in accordance with the requirements of Section 5.3.8, the application method requirements of this section are not applicable.

C-9248-9-0 (Final Repair Coating Operation):

FF, Inc. is proposing to apply all coatings associated with the final repair coating operation with HVLP application equipment. This application method complies with Section 5.3.6 of Rule 4602. The following conditions will be included on permit C-9248-9-0 as a mechanism to ensure compliance with the requirements of these sections:

- 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 4602]
- 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 Rules 2201 and 4602]

Section 5.4 establishes requirements for organic solvent cleaning. Section 5.4.1 states that for solvent cleaning operations other than for bug and tar removal, the operator shall use solvents that have a VOC content equal to or less than 25 grams VOC per liter of cleaning material, as calculated using the equation listed in Section 3.0. Section 5.4.6 states that the requirements of Section 5.4.1 do not apply to an operator proposing to install a VOC emission control system. FF, Inc. is proposing to install a VOC emission control system for the main paint line under C-9248-8-0; therefore, the requirements of this section will not apply to the main paint line. The following condition will be included on permits C-9248-5-0, '-6-0, '-9-0, '-10-0, and '-11-0 as a mechanism to ensure compliance with the requirements of this section:

- When liquid organic solvent is used for cleaning operations, except for aerosol solvents described in this permit, the permittee shall not use solvents that have a VOC content greater than 25 g/l (0.21 lb/gal) of cleaning material. [District Rules 4602, 4653 and 4663]

Section 5.4.2 states that for bug and tar removal, a person 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.). FF, Inc. is proposing to coat vehicles as a part of a vehicle manufacturing and assembly facility. The vehicles have not been driven out on the open road prior to coating. Therefore, they do not have a need to remove bug or tar residue from the surfaces prior to coating and the requirements of this section do not apply.

Section 5.4.3 states that cleaning activities that use solvents shall be performed by one or more of the following methods:

- 5.4.3.1 Wipe cleaning; or
- 5.4.3.2 Application of solvent from hand-held spray bottles from which solvents are dispensed without a propellant-induced force; or
- 5.4.3.3 Non-atomized solvent flow method in which the cleaning solvent is collected in a container or a collection system which is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container; or
- 5.4.3.4 Solvent flushing method in which the cleaning solvent is discharged into a container that is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container. The discharged solvent from the equipment must be collected into containers without atomizing into the open air. The solvent may be flushed through the system by air or hydraulic pressure, or by pumping.

Section 5.4.6 states that the requirements of Section 5.4.3 do not apply to an operator proposing to install a VOC emission control system. FF, Inc. is proposing to install a VOC emission control system for the main paint line under C-9248-8-0; therefore, the requirements of this section will not apply to the main paint line. For all other operations that perform liquid organic solvent cleaning activities, FF, Inc. is proposing to comply with the requirements of this rule. The following condition will be included on permits C-9248-5-0, '-6-0, '-9-0, '-10-0, and '-11-0 as a mechanism to ensure compliance with these sections:

- Cleaning activities that use liquid organic solvents shall be performed by one or more of the following methods: wipe cleaning; application of solvent from hand-held spray bottles from which solvents are dispensed without a propellant-induced force; non-atomized solvent flow method in which the cleaning solvent is collected in a container or a collection system which is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container; or solvent flushing method in which the cleaning solvent is discharged into a container that is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container. The discharged solvent from the equipment must be collected into containers without atomizing into the open air. The solvent may be flushed through the system by air or hydraulic pressure, or by pumping. [District Rules 4602, 4653, and 4663]

Section 5.4.4 states that solvent shall not be atomized into the open air unless it is vented to an APCO-approved VOC emission control system that complies with Section 5.2. This provision shall not apply to the cleaning of nozzle tips of automated spray equipment systems, except for robotic systems, and cleaning with spray bottles or containers described in Section 5.4.3.2. In addition, the requirements of this rule do not apply to solvents that are supplied to the facility in containers with a net volume of 16 fluid ounces, or a net weight of one pound or less. FF, Inc. is proposing to install a VOC emission control system for the main paint line under C-9248-8-0; therefore, the requirements of this section will not apply to the main paint line. For all other operations that perform liquid organic solvent cleaning activities, FF, Inc. is proposing to comply with the requirements of this rule. The following conditions will be included on permits C-9248-5-0, '-6-0, '-9-0, '-10-0, and '-11-0 as a mechanism to ensure compliance with this section:

C-9248-5-0 and -7-0 (Body Assembly Operation and E-Coat Sealing Operation):

- Liquid solvents shall not be atomized into the open air unless it is vented to a VOC emission control system. This provision shall not apply to the cleaning of nozzle tips of automated spray equipment systems, except for robotic systems, and cleaning with spray bottles or containers described elsewhere in this permit. Aerosol solvents shall not be used as a part of this adhesive application operation. [District Rules 4602 and 4653]

C-9248-6-0, '-9-0, '-10-0 and '-11-0 (Coating Operations):

- Liquid solvents shall not be atomized into the open air unless it is an aerosol solvent, as described in this permit, or the solvent is vented to a VOC emission control system. This provision shall not apply to the cleaning of nozzle tips of automated spray equipment systems, except for robotic systems, and cleaning with spray bottles or containers described elsewhere in this permit. [District Rules 4602 and 4653]

Section 5.4.5 states an operator shall not use VOC-containing materials to clean spray equipment used for the application of coatings, adhesives, or ink, unless an enclosed system or equipment that is proven to be equally effective at controlling emissions is used for cleaning. If an enclosed system is used, it must totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing and draining procedures, and it must be used according to the manufacturer's recommendations and must be closed when not in use. FF, Inc. is proposing to install a VOC emission control system for the main paint line under C-9248-8-0; therefore, the requirements of this section will not apply to the main paint line. For all other operations that perform liquid organic solvent cleaning activities, FF, Inc. is proposing to comply with the requirements of this rule. The following conditions will be included on permits C-9248-5-0, '-6-0, '-9-0, '-10-0, and '-11-0 as a mechanism to ensure compliance with this section:

- The permittee shall not use VOC-containing materials to clean spray equipment used for the application of coatings or adhesives unless an enclosed system, or equipment proven to be equally effective at controlling emissions, is used for cleaning. If an enclosed system is used, it must totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing and draining procedures, and it must be used according to the manufacturer's recommendations and must be closed when not in use. [District Rules 4602 and 4653]

Section 5.4.6 states that in lieu of complying with Sections 5.4.1, or 5.4.3 through 5.4.5, an operator may control VOC emissions from solvent cleaning with an APCO-approved VOC emission control system for the solvent cleaning operation that meets the requirements of Section 5.2. FF, Inc. is proposing to vent the emissions from all of the coating and solvent cleaning operations associated with the main coating line under C-9248-8-0 to a VOC control system that meets the requirements of Section 5.2. Therefore, the requirements of this section apply to C-9248-8-0 and the requirements of Sections 5.4.1 and 5.4.3 through 5.4.5 do not apply to the main coating line. The following condition will be included on permit C-9248-8-0 as a mechanism to ensure ongoing compliance:

- Cleaning activities that use liquid organic solvents shall be performed inside of the main paint line air seal system with all emissions vented to the RTO. [District Rule 4602]

Section 5.5 states that the operator shall store or dispose of fresh or spent solvents, waste solvent cleaning materials such as cloth, paper, etc., coatings, 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. The following conditions will be included on permits C-9248-5-0, '-6-0, '-8-0, '-9-0, '-10-0, and '-11-0 as a mechanism to ensure compliance with this section:

- 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 Rules 4602, 4653, and 4663]

Section 6.0 establishes administrative requirements and states that records kept in accordance with this rule shall be retained on-site for a minimum of five (5) years and made available to the APCO, ARB, or EPA upon request. The following conditions will be included on permits C-9248-5-0, '-6-0, '-8-0, '-9-0, '-10-0, and '-11-0 as a mechanism to ensure compliance with this section:

- Records shall be retained on-site for a minimum of five (5) years and made available for District inspection upon request. [District Rules 1070, 4602, 4653, and 4663]

Section 6.1 states that the operator shall maintain records on a daily basis, and have available at all times, a current list of coatings in use which provides all of the coating data necessary to evaluate compliance.

Section 6.1.1 states that an operator shall maintain a current list of coatings and solvents in use which contains all of the coating data necessary to evaluate compliance, including the following information, as applicable:

- 6.1.1.1 mix ratio of components used,
- 6.1.1.2 VOC content and specific chemical constituents of coatings as applied, and
- 6.1.1.3 VOC content and specific chemical constituents of solvents used for surface preparation and cleanup.

In addition, Section 6.1.2 states that an operator shall maintain daily records which include the following information:

- 6.1.2.1 volume coating/solvent mix ratio,
- 6.1.2.2 VOC content (lb/gal or grams/liter) and, for dip coating operations, viscosity (cSt) of coating,
- 6.1.2.3 volume of each coating used (gallons), and
- 6.1.2.4 quantity of cleanup solvent used (gallons).

C-9248-5-0 and '-7-0 (Body Assembly Operation and E-Coat Sealing Operation):

The proposed operation will not consist of any dip coating operations. Therefore, the following conditions will be included on permits C-9248-5-0 and '-7-0 as a mechanism to ensure compliance with the requirements of this section:

C-9248-5-0:

- The permittee shall maintain records of the following: quantity of adhesives used (gal); quantity of sealants used (gal); quantity of defect oil used, quantity of liquid solvent used (gal); quantity of solvent wipes used (sheets); and the number of days the body assembly operation was utilized during any given month. [District Rules 2201, 4602 and 4653]
- The permittee shall maintain and have available at all times a current list of coatings, adhesives, sealants, defect oils, and liquid solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter) and specific chemical constituents of coatings as applied; and the VOC content and specific chemical constituents of solvents used for surface preparation and cleanup. [District Rules 4602 and 4653]

C-9248-7-0:

- The permittee shall maintain records of the following: quantity of vehicles sanded; quantity of sealants used (gal); quantity of liquid solvent used (gal); quantity of solvent wipes used (sheets); and the number of days the sanding and sealant application operation was utilized during any given month. [District Rules 2201, 4602 and 4653]

- The permittee shall maintain and have available at all times a current list of coatings, adhesives, sealants, and liquid solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter) and specific chemical constituents of coatings as applied; and the VOC content and specific chemical constituents of solvents used for surface preparation and cleanup. [District Rules 4602 and 4653]

C-9248-8-0, '-9-0, '-10-0, and '-11-0 (Coating Operations – Non Dip Application):

The proposed operations will not consist of any dip coating operations. Therefore, the following conditions will be included on permits C-9248-8-0, '-9-0, '-10-0 and '-11-0 as a mechanism to ensure compliance with the requirements of this section:

- The permittee shall maintain records of the following: quantity of coatings used (gallons); quantity of liquid solvents used (gallons); quantity of aerosol solvents used (gallons), quantity of solvent wipes used (sheets); and the number of days this coating booth was in operation during any given month. [District Rules 2201, 4602, and 4663]
- The permittee shall maintain and have available at all times a current list of coatings and solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter); the VOC content of solvents used for surface preparation and cleanup, the solids content of each coating by weight; and the solids content of each coating, by volume. [District Rules 2201 and 4602, and 40 CFR 60.395]. [District Rule 4602]

C-9248-6-0 (E-Coat Operation – Dip Application):

The proposed operations will not consist of any dip coating operations. Therefore, the following conditions will be included on permit C-9248-6-0 as a mechanism to ensure compliance with the requirements of this section:

- The permittee shall maintain records of the following: quantity of vehicles coated, quantity of coatings used (gal); quantity of liquid solvents used (gal); quantity of aerosol solvents used (gal), quantity of solvent wipes used (sheets); and the number of days this e-coat line was in operation during any given month. [District Rules 2201, 4602, and 4663, and 40 CFR 60.395]]
- The permittee shall maintain and have available at all times a current list of coatings and solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter); the VOC content of solvents used for surface preparation and cleanup, the solids content of each coating by weight; and the solids content of each coating, by volume. [District Rules 2201 and 4602, and 40 CFR 60.395]

Section 6.2 states that an operator using a VOC emission control system as a means of complying with the provisions in Section 5.2 shall maintain daily records of key system operating parameters which will demonstrate continuous operation and compliance of the emission control system during periods of emission producing activities. Key system operating parameters are those necessary to ensure compliance with the VOC limits. The parameters include, but are not limited to, temperatures, pressures, and flowrates. As discussed above, FF, Inc. is proposing to utilize a VOC emissions control device to comply with this rule for the main paint line (C-9248-8-0). Therefore, the following conditions will be included on permit C-9248-8-0 as a mechanism to ensure compliance with the requirements of this section:

- The air seal system, all associated ventilation systems, and the regenerative thermal oxidizer (RTO) shall be in use whenever any emission generating equipment associated with the main paint line or e-coat curing operation is in operation. [District Rules 2201 and 4602]
- The overall VOC capture and control efficiency of the air seal system and the RTO serving all of the emission generating equipment associated with this motor vehicle assembly coating operation (paint spray zone, curing ovens, and inspection stations) shall be maintained at a minimum of 95%. [District Rules 2201, 4602, and 40 CFR 60.392]
- The permittee shall maintain continuous records of the thermal oxidizer combustion temperature. [District Rule 2201 and 40 CFR 60.395]

Section 6.3 states that an operator shall develop and implement a work practice plan to minimize VOC emissions from cleaning and from purging of equipment associated with new motor vehicle assembly coating operations for which emission limits are required by this rule. The plan shall specify the practices and procedures to be used to ensure VOC emissions are minimized from the operations pursuant to Section 6.3.1 through 6.3.6.

- 6.3.1 Vehicle Body wiping;
- 6.3.2 Coating line purging;
- 6.3.3 Flushing of coating systems;
- 6.3.4 Cleaning of spray booth grates, walls, and equipment;
- 6.3.5 Cleaning external spray booth areas; and
- 6.3.6 Other housekeeping measures.
- 6.3.7 If an operator has a 2004 National Emission Standard for Hazardous Pollutants (NESHAP) (40 CFR, part 63, subpart IIII) work practice plan in place, instead of creating another work practice plan to address VOC emissions, the operator shall add to its NESHAP work practice plan procedures for minimizing non-hazardous air pollutants (HAP) VOC emissions.

FF, Inc. has proposed to develop and implement a work practice plan in accordance with the requirements of this section. In addition, as discussed above, this facility is not subject to the requirements of 40 CFR Part 63, Subpart IIII. The following conditions will be included on permits C-9248-5-0, '-6-0, '-7-0, '-8-0, '-9-0, '-10-0, and '-11-0 as a mechanism to ensure compliance with this section:

C-9248-5-0 and '-7-0 (Body Assembly Operation and E-Coat Sealing Operation):

C-9248-5-0:

- The permittee shall develop and implement a work practice plan to minimize VOC emissions from cleaning and purging of equipment. The plan shall specify practices and procedures utilized to ensure VOC emissions are minimized from the following operations: vehicle body wiping; adhesive/sealant line purging; flushing of adhesive/sealant systems; cleaning of adhesive/sealant application areas; and other housekeeping measures. [District Rule 4602]

C-9248-7-0:

- The permittee shall develop and implement a work practice plan to minimize VOC emissions from cleaning and purging of equipment. The plan shall specify practices and procedures utilized to ensure VOC emissions are minimized from the following operations: vehicle body wiping; sealant line purging; flushing of sealant systems; cleaning of sealant application areas; and other housekeeping measures. [District Rule 4602]

C-9248-6-0, '-8-0, '-9-0, '-10-0, and '-11-0 (Coating Operations):

- The permittee shall develop and implement a work practice plan to minimize VOC emissions from cleaning and purging of equipment. The plan shall specify practices and procedures utilized to ensure VOC emissions are minimized from the following operations: vehicle body wiping; coating line purging; flushing of coating systems; cleaning of spray booth grates, walls, and equipment, cleaning external spray booth areas; and other housekeeping measures. [District Rule 4602]

Rule 4653 Adhesives and Sealants

The purpose of this rule is to reduce emissions of volatile organic compounds (VOCs) from the application of adhesive products, sealant products, and associated solvent cleaning operations. This rule is applicable to any person who supplies, sells, offers for sale, or applies any adhesive product, sealant product, or associated solvent, used within the District.

FF, Inc. is proposing to install a new motor vehicle manufacturing and assembly facility that will consist of one new motor vehicle body assembly operation (C-9248-5-0 and one motor vehicle body sealing operation that will utilize adhesive and sealant products. Therefore, the requirements of Rule 4653 apply to each of these proposed operations.

Section 5.1.1 states that the VOC content of adhesive products used for specific applications shall not exceed the limits in Table 2, expressed as grams of VOC per liter of adhesive product, excluding water and exempt compounds. Table 2 contains the following specific limits that potentially apply to the adhesive materials used at this facility:

Applications	VOC Limits (grams/liter)
	Effective 1/1/2012
<i>Miscellaneous Adhesives:</i>	
Motor Vehicle Adhesive	250
Motor Vehicle Weatherstrip Adhesive	750
<i>Adhesive Primers:</i>	
Automotive Glass Primer	700

However, in accordance with the definitions of motor vehicle adhesives and automotive glass primer adhesives in Sections 3.19, 3.63, and 3.65, these specific requirements are only applicable to materials used at a facility that is not an automobile or light-duty truck assembly coating facility subject to District Rule 4602. FF, Inc. is proposing to install a new automobile manufacturing and assembly plant that will be subject to District Rule 4602. Therefore, the VOC content limits for these specific adhesive products are not applicable to the proposed operation.

Section 5.1.2 states that the VOC content of adhesive products, except as provided in Section 5.1.1, shall not exceed the limits listed in Table 3, expressed as grams of VOC per liter of adhesive product, excluding water and exempt compounds, or grams of VOC per liter of material for low-solids adhesive products, as applied. There are specific limits for adhesive products used on motor vehicles in Table 2 of Section 5.1.1. Therefore, the VOC requirements of Table 3 in Section 5.1.2 do not apply.

Section 5.1.3 states that the higher of the two limits from Table 3 applies to the bonding of two dissimilar substrates. As discussed above, the proposed operation is not subject to the requirements of Table 3, therefore, the requirements of this section do not apply.

Section 5.1.4 states the VOC content limits for sealants and sealant primers. Each of the operations proposed by FF, Inc. will utilize sealant products. Therefore, the requirements of this section do not apply.

Sealant	VOC Limits (grams/liter)
	Effective 1/1/2012
<i>Sealants</i>	
Architectural	250
Marine Deck	760
Non-membrane Roof	300
Roadway	250
Single-Ply Roof Membrane	450
Other Sealants	420
<i>Sealant Primers</i>	
Architectural Non Porous	250
Architectural Porous	775
Modified Bituminous	500
Marine Deck	760
Other Sealant Primers	750

For the body installation operations (C-9248-5-0) and the sealing operation (C-9248-7-0), FF, Inc. is only proposing to use sealants and is not proposing to use sealant primers. The sealants utilized by this operation do not fit in to one of the specific categories listed in the Table above. Thus, they will be subject to the “other sealants” category and must have a VOC content of 420 grams/liter or less. The highest VOC content of the sealants proposed to be used in these operations is 37 grams/liter. Therefore, compliance with the sealant VOC limits is expected and the following condition will be included on permits C-9248-5-0 and ‘-7-0 as a mechanism to ensure compliance with the requirements of this section:

C-9248-5-0 (Body Assembly Operation):

- For all body assembly operations, the VOC content of materials applied, less water and exempt compounds, shall not exceed either of the following limits: adhesives - 250 g/l (2.09 lb/gal); or sealants - 420 g/l (3.50 lb/gal). [District Rules 2201, 4602, and 4653]

C-9248-7-0 (E-Coat Sealing Operation):

- The VOC content of all sealants applied by this operation shall not exceed 420 g/l (3.50 lb/gal), excluding water and exempt compounds. [District Rules 2201, 4602, and 4653]

Section 5.2 states that an operator shall only use the following equipment to apply adhesives and sealants:

- 5.2.1 Electrostatic Application
- 5.2.2 Flow Coater
- 5.2.3 Roll Coater
- 5.2.4 Dip Coater
- 5.2.5 Hand Application Methods
- 5.2.6 Airless Spray
- 5.2.7 HVLP Spray
- 5.2.8 Any other application method that demonstrates to the satisfaction of the APCO and EPA, a coating transfer efficiency equivalent to or greater than the efficiency achieved by a HVLP spray gun as measured using a test method in Section 6.3.6
- 5.2.9 Air-atomized spray may only be used for the application of contact adhesives or specialty contact adhesives

FF, Inc. has proposed to use robotic and manual non-atomizing application methods to apply the adhesives and sealants that will be used in both of these operations. The following conditions will be included on permits C-9248-5-0 and '-7-0 as a mechanism to ensure compliance with the requirements of this section:

C-9248-5-0 (Body Assembly Operation):

- All adhesive, sealant, and defect oil materials utilized by this operation shall only be applied using non-air-atomizing application equipment. [District Rules 2201, 4602, and 4653]

C-9248-7-0 (E-Coat Sealing Operation):

- All sealant materials utilized by this operation shall only be applied using non-air-atomizing application equipment. [District Rules 2201, 4602, and 4653]

Section 5.2.10 states that in lieu of complying with the application adhesive application equipment requirements in Sections 5.2.1 through 5.2.9, an operator may control emissions with an APCO-approved VOC emission control system. FF, Inc. is not proposing to vent the emissions from these adhesive and sealant application operations to a VOC control system. Therefore, the requirements of this section do not apply.

Section 5.3 states that an operator shall implement the following work practices when participating in adhesive-related activities:

- 5.3.1 An operator shall store or dispose of adhesive products, sealant products, catalysts, thinners, fresh or spent solvents, and waste solvent materials such as cloth, paper, etc., in closed, non-absorbent and non-leaking containers. The containers shall remained closed at all times except when depositing or removing the contents of the containers or when the containers is empty. The containers used for disposal of adhesive materials, solvents, or any unused VOC containing materials shall be self-closing.

- 5.3.2 Ensure that mixing containers for used VOC-containing adhesive products and sealant products and process-related waste materials are kept closed at all times except when depositing or removing these materials.
- 5.3.3 Minimize spills of VOC-containing adhesive products, and sealant products, and process-related waste materials.
- 5.3.4 Convey VOC-containing adhesive products, sealant products, and process-related waste materials from one location to another in closed containers or pipes.

The following conditions will be included on permits C-9248-5-0 and '-7-0 as a mechanism to ensure compliance with the requirements of this section:

- The operator shall implement the following work practices for all adhesive-related activities: store or dispose of adhesive products, sealant products, catalysts, thinners, fresh or spent solvents, and waste solvent materials such as cloth, paper, etc., 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. The containers used for disposal of adhesive materials, solvents, or any unused VOC containing materials shall be self-closing; ensure that mixing containers for used VOC-containing adhesive products and sealant products and process-related waste materials are kept closed at all times except when depositing or removing these materials; minimize spills of VOC-containing adhesive products, and sealant products, and process-related waste materials; and convey VOC-containing adhesive products, sealant products, and process-related waste materials from one location to another in closed containers or pipes. [District Rule 4653]

Section 5.4 specifies the requirements for operators that elect to install a VOC emission control system in lieu of demonstrating compliance with the VOC limits required in Sections 5.1, 5.2 or 5.5. FF, Inc. is not proposing to vent the emissions from the proposed adhesive and sealant application operations to a VOC control system in lieu of demonstrating compliance with the VOC limits required by this rule. Therefore, the requirements of this section do not apply.

Section 5.5.1 states that an operator shall not use organic solvents for cleaning operations associated with adhesive products that exceed the VOC content limits specified in Table 6.

Type of Solvent Cleaning Operation	VOC Content Limit Grams of VOC/liter of material (lb/gal)
A. Product Cleaning During Manufacturing Process or Surface Preparation for Adhesive Application:	
1. General	25 (0.21)
2. Surface Preparation Prior to Rubber Vulcanization Process	850 (7.1)
B. Repair and Maintenance Cleaning	25 (0.21)
C. Cleaning of Adhesive Application Equipment	25 (0.21)

FF, Inc. is proposing to use solvents that comply with the VOC content limits above. In addition, they are not proposing to perform any rubber vulcanization processes. Therefore, the following condition will be included on permits C-9248-5-0 and '-7-0 as a mechanism to ensure compliance with this section.

- When liquid organic solvent is used for cleaning operations, the permittee shall not use solvents that have a VOC content greater than 25 g/l (0.21 lb/gal) of cleaning material. [District Rules 4602 and 4653]

Section 5.5.2 states that in lieu of complying with the requirements in Table 6 of Section 5.5.1 above, an operator may control VOC emissions from cleaning operations with an APCO-approved VOC emission control system that meets the requirements of Section 5.4. FF, Inc. is not proposing to vent the emissions from the proposed adhesive application operation to a VOC control system in lieu of demonstrating compliance with the solvent VOC limits required by the rule. Therefore, the requirements of this section do not apply.

Sections 5.5.3 and 5.5.4 through 5.5.7 specify requirements for solvent cleaning associated with adhesives used in rubber vulcanization processes (reference Table 6, Category A.2). The proposed solvents, adhesives, and sealants used as a part of the proposed operations do not involve rubber vulcanization processes. Therefore, the requirements of these sections do not apply.

Section 5.6 states that the operator shall implement the following work practices when participating in organic solvent cleaning activities:

- 5.6.1 Minimize spills of VOC-containing cleaning materials.
- 5.6.2 Convey VOC-containing cleaning materials from one location to another in closed containers or pipes.
- 5.6.3 Minimize VOC emissions from cleaning of application, storage, mixing, and conveying equipment by ensuring that equipment cleaning is performed without atomizing the cleaning solvent and all spent solvent is captured in closed containers.

- 5.6.4 An operator shall store or dispose of cleaning materials, fresh or spent solvents, and waste solvent materials such as cloth, paper, etc., 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. The containers used for disposal of adhesive materials, solvents, or any unused VOC containing materials shall be self-closing.

The following conditions will be included on permits C-9248-5-0 and '-7-0 as a mechanism to ensure compliance with this section:

- When participating in liquid organic solvent cleaning activities, the operator shall implement the following work practices: minimize spills of VOC-containing cleaning materials; convey VOC-containing cleaning materials from one location to another in closed containers or pipes; and minimize VOC emissions from cleaning of application, storage, mixing, and conveying equipment by ensuring that equipment cleaning is performed without atomizing the cleaning solvent and all spent solvent is captured in closed containers. [District Rule 4653]
- 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 Rules 4602 and 4653]

Section 5.7 states that except as provided in Section 4.3, no person shall supply, sell, or offer for sale any adhesive product or sealant product that does not meet the limits as specified in Section 5.1 or 5.4. FF, Inc. will only utilize adhesive products as a part of their vehicle manufacturing and assembly operation. Therefore, the prohibition of sale requirements of this section do not apply to their proposed operation.

Section 5.8 establishes sell-through requirements for adhesive and sealant products that were manufactured prior to January 1, 2011 and that exceed the VOC content limits listed in Section 5.1. The requirements of this section allow those specific adhesive and sealant products to be sold and utilized for no more than 24 months after January 1, 2011. More than 24 months has elapsed since that applicable compliance date passed, therefore, the requirements of this section are no longer applicable. All operators subject to the requirements of this rule should only be using adhesive and sealant products that meet the most stringent limits listed in Table 1 of Section 5.1. Therefore, the requirements of this section are no longer applicable and will not be applied to this proposed operation.

Section 5.9 establishes prohibition of specification requirements and states that no person shall solicit, require for use, or specify the application of any adhesive products or sealant products, if such use of application results in a violation of the provisions of this Rule. This prohibition shall apply to all written or oral contracts. FF, Inc. is proposing to utilize adhesives and solvents that comply with the requirements of this rule. Therefore, compliance with the requirements of this section is expected.

Section 6.1 establishes recordkeeping requirements for adhesive and sealant operations. Section 6.1.1 states that any person subject to Sections 5.1 or 5.5 shall maintain the following records:

- 6.1.1 Records of the VOC content, in grams VOC per liter, of all adhesive materials used and stored at the stationary source.
- 6.1.2 Records of the VOC content of all solvents used and stored at the stationary source.
- 6.1.3 Records of the VOC content, in grams VOC per liter, of all sealant materials used and stored at the stationary source.

FF, Inc. has proposed to maintain records in accordance with the requirements above. This operation does not use any sealant materials. Therefore, the following conditions will be included on permits C-9248-5-0 and '-7-0 as a mechanism to ensure compliance with the requirements of this section:

C-9248-5-0 (Body Assembly Operation):

- The permittee shall maintain and have available at all times a current list of coatings, adhesives, sealants, defect oils, and liquid solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter) and specific chemical constituents of coatings as applied; and the VOC content and specific chemical constituents of solvents used for surface preparation and cleanup. [District Rules 4602 and 4653]
- The permittee shall maintain records of the following: quantity of adhesives used (gal); quantity of sealants used (gal); quantity of defect oil used, quantity of liquid solvent used (gal); quantity of solvent wipes used (sheets); and the number of days the body assembly operation was utilized during any given month. [District Rules 2201, 4602 and 4653]

C-9248-7-0 (E-Coat Sealing Operation):

- The permittee shall maintain and have available at all times a current list of coatings, adhesives, sealants, and liquid solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter) and specific chemical constituents of coatings as applied; and the VOC content and specific chemical constituents of solvents used for surface preparation and cleanup. [District Rules 4602 and 4653]
- The permittee shall maintain records of the following: quantity of vehicles sanded; quantity of sealants used (gal); quantity of liquid solvent used (gal); quantity of solvent wipes used (sheets); and the number of days the sanding and sealant application operation was utilized during any given month. [District Rules 2201, 4602 and 4653]

Section 6.1.2 specifies the records required for an operator using a VOC emissions control device as a means of complying with this rule. As discussed above, FF, Inc. is not proposing to utilize a VOC emissions control device to comply with this rule. Therefore, the requirements of this section are not applicable.

Section 6.1.3 specifies the records required for operators who claim exemption under the prohibition of sale exemption pursuant to Sections 4.3 and 5.7. As stated above, FF, Inc. will only utilize adhesive products as a part of this proposed operation and are not looking to claim an exemption under Sections 4.3 and 5.7. Therefore, the requirements of this section are not applicable.

Section 6.1.4 states that an owner or operator subject to Section 5.5 shall also comply with the following recordkeeping requirements:

- 6.1.4.1 Keep a copy of the manufacturer's product data sheet or material safety data sheet of the solvents used for organic solvent cleaning activities.
- 6.1.4.2 Maintain a current list of solvents that are being used for organic solvent cleaning activities. The list shall include the following information:
 - 6.4.1.2.1 The name of the solvent and its manufacturer's name.
 - 6.4.1.2.2 The VOC content of the solvent expressed in grams/liter or lb/gallon.
 - 6.4.1.2.3 When the solvent is a mixture of different materials that are blended by the operator, the mix ratio of the batch would be recorded in order to determine compliance with the specified limits of VOC content and/or VOC composite partial pressure, as applied.
 - 6.4.1.2.4 The type of cleaning activity for each solvent that is being used in accordance with the applicable cleaning category specified in Table 3 of this rule.

The following condition will be included on permits C-9248-5-0 and '-7-0 as a mechanism to ensure compliance with this section.

- Permittee shall keep the following records for liquid organic solvent cleaning activities: quantity of liquid organic solvents used on a daily basis; manufacturers product data sheet or MSDS for solvents used; and maintain a current list of solvents that are being used for organic solvent cleaning activities that includes the name of the solvent and its manufacturer's name, the VOC content of the solvent expressed in grams per liter or pounds per gallon, when the solvent is a mixture of different materials that are blended by the operator, the mix ratio of the batch would be recorded in order to determine compliance with the specified limits of VOC content, as applied, and the type of cleaning activity for which each solvent is used. [District Rule 4653]

Section 6.1.5 states that records required by Section 6.1.1 and Section 6.1.4 shall be retained at the stationary source for a period of at least five years and be made available to the APCO, ARB, or EPA, and submit the records to the APCO, ARB, or EPA upon request. The following condition will be included on permits C-9248-5-0 and '-7-0 as a mechanism to ensure compliance with this section.

- Records shall be retained on-site for a minimum of five (5) years and made available for District inspection upon request. [District Rules 1070, 4602, and 4653]

Rule 4663 Organic Solvent Cleaning, Storage, and Disposal

The purpose of this rule is to limit the emissions of volatile organic compounds (VOCs) from organic solvent cleaning and from the storage and disposal of solvents and waste solvent materials. The provisions of this rule shall apply to any organic solvent cleaning performed outside a degreaser during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or in general work areas at stationary sources. The rule shall also apply to the storage and disposal of all solvents and waste solvent materials at stationary sources.

Pursuant to Section 3.36, solvent is defined as 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. Solutions, emulsions, and dispersions of water and soap, or water and detergent, that contain 25 grams of VOCs per liter or less, as used, are not considered to be organic solvents.

As described above, FF, Inc. will use a combination of liquid solvent, aerosol spray solvent, and pre-saturated solvent wipes as part of their vehicle assembly operations at this facility. The pre-saturated solvent wipes do not meet the definition of a liquid solvent in accordance with Section 3.36. Therefore, the requirements of this rule do not apply to the pre-saturated solvent wipes.

Section 4.3 states that the provisions of this rule shall not apply to any source operation that is subject to or specifically exempted by Rule 4653 (Adhesives and Sealants). The body assembly operation under C-9248-5-0 and the sealing station under C-9248-7-0 are subject to the requirements of Rule 4653. Therefore, the requirements of rule 4663 are not applicable to these two units C-9248-5-0 and '-7-0.

In addition, Section 4.8 states that cleaning with aerosol products shall not be subject to the VOC content limits of Table 1 and the work practices of Section 5.2.2 if 160 fluid ounces or less of non-compliant aerosol products are used per day, per facility. The use of such products shall comply with ARB regulations. FF, Inc. has proposed to use small amounts of aerosol adhesive products. They have agreed to limit their total facility usage of these aerosol solvent products to no more than 160 fluid ounces. Therefore, the VOC content limits of Table 1 and the work practices of Section 5.2.2 will not be applicable to the aerosol solvents. The following conditions will be included on permits C-9248-6-0, '-9-0, '-10-0 and '-11-0 as a mechanism to ensure compliance with this section:

- The maximum amount of aerosol solvent used at this facility shall not exceed 160 fluid ounces during any given day. Aerosol solvents used as a part of this operation shall be supplied to the facility in containers with a net volume of 16 fluid ounces or less, or a net weight of one pound or less. [District Rules 4602 and 4663]

FF, Inc. is proposing to capture and control the VOC emissions from the main paint with a VOC control device. Therefore, they are not subject to solvent requirements of Rule 4602 and can utilize solvents in containers larger than 16 ounces. The following condition will be included on permit C-9248-8-0 as a mechanism to ensure compliance:

- The maximum amount of aerosol solvent used at this facility shall not exceed 160 fluid ounces during any given day. [District Rule 4663]

Section 5.1 states that an operator shall not use organic solvents for cleaning operations that exceed the VOC content limits specified in Table 1.

Type of Solvent Cleaning Operation	VOC Content Limit Grams of VOC/liter of material (lb/gal)
A. Product Cleaning During Manufacturing Process or Surface Preparation for Adhesive Application:	
1. General	25 (0.21)
2. Electrical Apparatus Components and Electronic Components	100 (0.84)
3. Medical Devices and Pharmaceuticals	800 (6.7)
B. Repair and Maintenance Cleaning	
1. General	25 (0.21)
2. Electrical Apparatus Components and Electronic Components	100 (0.84)
3. Medical Devices and Pharmaceuticals	800 (6.7)
3.1 Tools, Equipment, and Machinery	600 (5.0)
3.2 General Work Surfaces	
C. Cleaning of Coating or Adhesive Application Equipment	25 (0.21)

FF, Inc. is proposing to use liquid organic solvents as a part of their coating process. Therefore, the requirements of this section only apply to the coating operations under C-9248-6-0, '-8-0, '-9-0, '-10-0, and '-11-0. However, the entire paint line operated under C-9248-8-0 will be routed through the RTO. Therefore, in accordance with the requirements of Section 5.3, unit C-9248-8-0 will not subject to the requirements of this section. In addition, this facility is not going to be manufacturing electrical apparatus and electronic components or medical devices. All other solvent categories are required to meet a VOC content limit of 25 g/l. The following condition will be included on permit C-9248-6-0, '-9-0, '-10-0 and '-11-0 as a mechanism to ensure compliance with this section.

- When liquid organic solvent is used for cleaning operations, except for aerosol solvents described in this permit, the permittee shall not use solvents that have a VOC content greater than 25 g/l (0.21 lb/gal) of cleaning material. [District Rules 4602, 4653, and 4663]

Section 5.2 establishes requirements for cleaning methods. Section 5.2.1 states that Sections 5.2.2 through 5.2.7 shall apply to operators performing solvent cleaning operations outside the control of a VOC emission control system and the cleaning operations are not subject to Table 1 Category A.1 or Table 1 Category B.1. The solvents used as part of the proposed facility wide solvent usage operation will be used for the cleaning of products during the manufacturing process or for preparing a work surface for coating or adhesive application. Therefore, the solvents used are subject to the VOC limits in Table 1, Category A.1 and the requirements of Sections 5.2.2 through 5.2.7 will not apply.

Section 5.3 states that in lieu of complying with the requirements in Table 1 of Section 5.1 above or complying with the provisions of Section 5.2, an operator may control VOC emissions from cleaning operations with a VOC emission control system that meets the requirements of Section 5.5. FF, Inc. is proposing to vent the emissions from the main paint line to a VOC control system. Therefore, the requirements of this section will only be applicable to permit C-9248-8-0. The requirements for the RTO will be discussed in more detail in the Section 5.5 section below.

Section 5.4 states that an operator shall store or dispose of fresh or spent solvents, waste solvent cleaning materials such as cloth, paper, etc., coatings, 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. The following conditions will be included on permits C-9248-6-0, '-8-0, '-9-0, '-10-0 and '-11-0 as a mechanism to ensure compliance with this section:

- 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 Rules 4602 and 4663]

Section 5.5 specifies requirements for operators that elect to install and operate a VOC emission control system to satisfy the requirements of this rule. As discussed above, FF, Inc. is proposing to install and operate a VOC emission control system to demonstrate compliance with the requirements of this rule for the main paint line under permit C-9248-8-0.

- 5.5.1 In lieu of complying with the requirements of Section 5.1 or 5.2, an operator may comply with this rule by using a VOC emission control system in association with the solvent cleaning operation, provided that during emission-producing activities, the system complies with Sections 5.5.4 and 5.5.5 and either Section 5.5.2 or Section 5.5.3, as applicable.
- 5.5.2 The VOC emission control system's collection device(s) has a capture efficiency of at least 90 percent, by weight, of the emissions generated by the solvent cleaning operation and one of the following requirements:

- The VOC emission control system's control device(s) has a control efficiency of at least 95 percent, by weight, or
 - The VOC emission control system has an output of less than 50 parts per million by weight (ppm) calculated as carbon with no dilution; or,
- 5.5.3 If the solvent cleaning activity is associated with operations subject to Rule 4661 (Organic Solvents), the VOC emission control system shall meet the VOC emission control system overall capture and control efficiency requirements as specified in Rule 4661.
- 5.5.4 The VOC emission control system shall be approved by the APCO.
- 5.5.5 In no case shall compliance through the use of a VOC emission control system result in VOC emissions in excess of the VOC emissions which would result from compliance with Section 5.1 or 5.2, as applicable.

FF, Inc. is proposing to install a VOC capture and control system on the main paint line that is expected to operate with an overall capture and control efficiency of 95%. The following conditions will be included on permit C-9248-8-0 as a mechanism to ensure compliance:

- The air seal system, all associated ventilation systems, and the regenerative thermal oxidizer (RTO) shall be in use whenever any emission generating equipment associated with the main paint line or e-coat curing operation is in operation. [District Rules 2201, 4602 and 4663]
- The overall VOC capture and control efficiency of the air seal system and the RTO serving all of the emission generating equipment associated with this motor vehicle assembly coating operation (paint spray zone, curing ovens, and inspection stations) shall be maintained at a minimum of 95%. [District Rules 2201, 4602, and 4663, and 40 CFR 60.392]

Section 6.1 states that manufacturers of any solvents subject to this rule shall indicate on the solvent container, or on a separate product data sheet or material safety data sheet, the name of the solvent, manufacturer's name, the VOC content, and density of the solvent, as supplied. The VOC content shall be expressed in units of gm/liter or lb/gallon. FF, Inc. is not a manufacturer of solvents and will only be using organic liquid solvents for surface preparation and cleaning. Therefore, the requirements of Section 6.1 are not applicable to the proposed operations at this facility.

Section 6.2 specifies the recordkeeping requirements for solvent operations. Section 6.2.1 specifies that an operator shall retain the records required by this rule on site for a period of five years, make the records available on-site during normal business hours to the APCO, ARB, or EPA, and submit the records to the APCO, ARB, or EPA upon request. The following conditions will be included on permits C-9248-6-0, '-8-0, '-9-0, '-10-0 and '-11-0 as a mechanism to ensure compliance with this section:

- Records shall be retained on-site for a minimum of five (5) years and made available for District inspection upon request. [District Rules 1070, 4602, and 4663]

Section 6.2.2 states that an operator shall keep a copy of the manufacturer's product data sheet or material safety data sheet of the solvents used for organic solvent cleaning activities. The following condition will be included on permits C-9248-6-0, '-8-0, '-9-0, '-10-0 and '-11-0 as a mechanism to ensure compliance with this section:

- The permittee shall maintain a copy of the manufacturer's product data sheet or materials safety data sheet for all solvents used for organic solvent cleaning activities. [District Rule 4663]

Section 6.2.3 states that an operator shall maintain a current list of solvents that are being used for organic solvent cleaning activities at the stationary source. The list shall include the following information:

- 6.2.3.1 The name of the solvent and its manufacturer's name.
- 6.2.3.2 The VOC content of the solvent expressed in grams/liter or lb/gallon.
- 6.2.3.3 When the solvent is a mixture of different materials that are blended by the operator, the mix ratio of the batch shall be recorded and the VOC content of the batch shall be calculated and recorded in order to determine compliance with the specified limits of VOC content, as applied.
- 6.2.3.4 The type of cleaning activity for each solvent that is being used at the stationary source in accordance with the applicable cleaning category specified in Table 1 of this rule.

In addition, Section 6.2.4 states that an operator shall record the quantity of solvents used in solvent cleaning operations on a daily basis.

The following conditions will be included on permits C-9248-8-0, '-9-0, '-10-0 and '-11-0 as a mechanism to ensure compliance with these sections:

C-9248-6-0, '-8-0 and '-9-0 (Coating Operations):

- The permittee shall maintain records of the following: quantity of coatings used (gallons); quantity of liquid solvents used (gallons); quantity of aerosol solvents used (gallons), quantity of solvent wipes used (sheets); and the number of days the coating booth was in operation during any given month. [District Rules 2201, 4602, and 4663]

C-9248-10-0 and '-11-0 (Paint Sanding Operation):

- The permittee shall maintain records of the following: quantity of vehicles sanded; quantity of polish used; quantity of aerosol solvent used; quantity of solvent wipes used; and the number of days this paint sanding operation was utilized during any given month. [District Rules 2201, 4602, and 4663]

- The permittee shall maintain records and maintain a current list of all solvents used that includes the following: the name of each solvent and its manufacturer's name; VOC content of each solvent expressed in grams/liter or lb/gallon; the type of cleaning activity each solvent was being used for; and if applicable, when the solvent is a mixture of different materials that are blended together, the mix ratio of the batch shall be recorded and the VOC content of the batch shall be calculated and recorded in order to determine compliance with the specified VOC content limits, as applied. [District Rules 2201 and 4663]

Section 6.2.5 specifies records that need to be maintained for an operator claiming exemption under Section 4.4. FF, Inc. is not proposing to claim exemption from the requirements of this rule in accordance with Section 4.4. Therefore, the requirements of this section are not applicable.

Section 6.2.6 specifies records that an operator should maintain when they are using a VOC emission control system to demonstrate compliance with the requirements of this rule. As discussed above, FF, Inc. is not proposing to utilize a VOC emission control system to comply with the requirements of this rule. Therefore, the requirements of this section are not applicable.

Rule 4701 Internal Combustion Engines - Phase 1

C-9248-12-0 (Emergency IC Engine):

The purpose of this rule is to limit the emissions of nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC) from internal combustion engines. Except as provided in Section 4.0, the provisions of this rule apply to any internal combustion engine, rated greater than 50 bhp and that requires a PTO.

The proposed engine is also subject to District Rule 4702, Internal Combustion Engines. Since the emissions limits of District Rule 4702 and all other requirements are equivalent or more stringent than the District Rule 4701 requirements for emergency engines, compliance with District Rule 4702 requirements will satisfy requirements of District Rule 4701.

Rule 4702 Internal Combustion Engines

C-9248-12-0 (Emergency IC Engine):

The purpose of this rule is to limit the emissions of nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), and sulfur oxides (SO_x) from internal combustion engines. Except as provided in Section 4, this rule applies to any internal combustion engine rated at 25 brake horsepower or greater.

Emergency standby engines are defined in Section 3.0 of District Rule 4702 as follows:

3.15 Emergency Standby Engine: an internal combustion engine which operates as a temporary replacement for primary mechanical or electrical power during an unscheduled outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the operator. An engine shall be considered to be an emergency standby engine if it is used only for the following purposes: (1) periodic maintenance, periodic readiness testing, or readiness testing during and after repair work; (2) unscheduled outages, or to supply power while maintenance is performed or repairs are made to the primary power supply; and (3) if it is limited to operate 100 hours or less per calendar year for non-emergency purposes. An engine shall not be considered to be an emergency standby engine if it is used: (1) to reduce the demand for electrical power when normal electrical power line service has not failed, or (2) to produce power for the utility electrical distribution system, or (3) in conjunction with a voluntary utility demand reduction program or interruptible power contract.

Emergency standby engines cannot be used to reduce the demand for electrical power when normal electrical power line service has not failed, or to produce power for the electrical distribution system, or in conjunction with a voluntary utility demand reduction program or interruptible power contract. The following conditions will be included on the permit:

- An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702 and 17 CCR 93115]
- This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702 and 17 CCR 93115]

As discussed in this evaluation below, the 100 hour requirement is less stringent than the Air Toxic Control Measure operating limitations for emergency standby engines. Therefore, compliance with the applicable Air Toxic Control Measure requirements ensures compliance with the 100 hour requirement.

Operation of emergency standby engines are limited to 100 hours or less per calendar year for non-emergency purposes. The Air Toxic Control Measure for Stationary Compression Ignition Engines (Stationary ATCM) limits this engine's maintenance and testing to 50 hours/year; therefore, compliance is expected. The following conditions will be included on the permit:

- This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201, 4102, and 4702, and 17 CCR 93115]

The following exemption in Section 4.2 of District Rule 4702 applies to emergency standby engines:

4.2 Except for the requirements of Section 5.9 and Section 6.2.3, the requirements of this rule shall not apply to:

4.2.1 An emergency standby engine as defined in Section 3.0 of this rule, and provided that it is operated with a nonresettable elapsed operating time meter. In lieu of a nonresettable time meter, the owner of an emergency engine may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO. The owner of the engine shall properly maintain and operate the time meter or alternative device in accordance with the manufacturer's instructions.

Pursuant to the exemption in Section 4.2, the following requirements of Section 5.9 are applicable to emergency standby engines:

Section 5.9 requires the owner to:

5.9.2 Properly operate and maintain each engine as recommended by the engine manufacturer or emission control system supplier.

5.9.3 Monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.

5.9.4 Install and operate a nonresettable elapsed operating time meter. In lieu of installing a nonresettable time meter, the owner of an engine may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO and is allowed by Permit-to-Operate or Permit-Exempt Equipment Registration condition. The owner of the engine shall properly maintain and operate the time meter or alternative device in accordance with the manufacturer's instructions.

Properly operate and maintain each engine as recommended by the engine manufacturer or emission control system supplier. The following condition will be included on the permit:

- This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]

Monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier. The following condition will be included on the permit:

- During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]

Install and operate a nonresettable elapsed time meter. In lieu of installing a nonresettable elapsed time meter, the operator may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO and EPA and is allowed by Permit-to-Operate condition. The operator shall properly maintain and operate the nonresettable elapsed time meter or alternative device in accordance with the manufacturer's instructions. The following condition will be included on the permit:

- This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]

The exemption in Rule 4702 Section 4.2 for emergency standby engines requires the engines to comply with Section 6.2.3, shown below.

6.2.3 An owner claiming an exemption under Section 4.2 or Section 4.3 shall maintain annual operating records. This information shall be retained for at least five years, shall be readily available, and provided to the APCO upon request. The records shall include, but are not limited to, the following:

- 6.2.3.1 Total hours of operation,*
- 6.2.3.2 The type of fuel used,*
- 6.2.3.3 The purpose for operating the engine,*
- 6.2.3.4 For emergency standby engines, all hours of non-emergency and emergency operation shall be reported, and*
- 6.2.3.5 Other support documentation necessary to demonstrate claim to the exemption.*

Records of the total hours of operation, type of fuel used, purpose for operating the engine, all hours of non-emergency and emergency operation, and other support documentation must be maintained. All records shall be retained for a period of at least five years, shall be readily available, and be made available to the APCO upon request. The following conditions will be included on the permit:

- The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
- The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]

- All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

Rule 4801 Sulfur Compounds

Rule 4801 requires that sulfur compound emissions (as SO₂) shall not exceed 0.2% by volume (2,000 ppm).

C-9248-7-0, '-9-0, '-10-0, and '-11-0 (Sanding and Paint Booth Heaters):

Natural Gas-Fired Booth Heaters:

Using the ideal gas equation and the emission factors presented in Section VII, the sulfur compound emissions are calculated as follows:

$$\text{Volume SO}_2 = \frac{nRT}{P}$$

With:

N = moles SO₂

T (Standard Temperature) = 60°F = 520°R

P (Standard Pressure) = 14.7 psi

R (Universal Gas Constant) = $\frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}}$

$$\text{Volume SO}_2 = \frac{0.00285 \text{ lb} - \text{SO}_x}{\text{MMBtu}} * \frac{\text{MMBtu}}{8,578 \text{ dscf}} * \frac{1 \text{ lb} - \text{mol}}{64 \text{ lb}} * \frac{10.73 \text{ psi} - \text{scf}}{\text{lb} - \text{mol} - ^\circ\text{R}} * \frac{520 ^\circ\text{R}}{14.7 \text{ psi}} * \frac{10^6 \text{ parts}}{\text{million}}$$

Sulfur Concentration = 1.97 parts/million

Since 1.97 ppmv is ≤ 2,000 ppmv, this engine is expected to comply with Rule 4801. The following condition will be included on permits C-9248-7-0, '-9-0, '-10-0, and '-11-0 as a mechanism to ensure compliance:

- The booth heater(s) shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4801]

C-9248-12-0 (Emergency IC Engine):

Rule 4801 requires that sulfur compound emissions (as SO₂) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

$$\text{Volume SO}_2 = (n \times R \times T) \div P$$

Where;

n = moles SO₂

T = standard temperature: 60°F or 520°R

R = universal gas constant: $\frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}}$

$$\text{Volume } SO_2 = \frac{0.000015 \text{ lb} - S}{\text{lb} - \text{fuel}} * \frac{7.1 \text{ lb}}{\text{gal}} * \frac{64 \text{ lb} - SO_2}{32 \text{ lb} - S} * \frac{1 \text{ MMBtu}}{9,051 \text{ scf}} * \frac{1 \text{ gal}}{0.137 \text{ MMBtu}} * \frac{\text{lb} - \text{mol}}{64 \text{ lb} - SO_2} * \frac{10.73 \text{ psi} - \text{scf}}{\text{lb} - \text{mol} - ^\circ\text{R}} * \frac{520 ^\circ\text{R}}{14.7 \text{ psi}} * \frac{10^6 \text{ parts}}{\text{million}}$$

Sulfur Concentration = 1.02 parts/million

Since 1.02 ppmv is $\leq$ 2,000 ppmv, this engine is expected to comply with Rule 4801. The following condition will be included on the ATC as a mechanism to ensure compliance:

- Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

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.

Title 17 California Code of Regulations (CCR), Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines

The following requirements apply to new engines (those installed after 1/1/05):

Title 17 CCR Section 93115 Requirements for New Emergency IC Engines Powering Electrical Generators	Proposed Method of Compliance with Title 17 CCR Section 93115 Requirements
Emergency engine(s) must be fired on CARB diesel fuel, or an approved alternative diesel fuel.	The applicant has proposed the use of CARB certified diesel fuel. The proposed permit condition, requiring the use of CARB certified diesel fuel, is included on the permit. Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]
The engine(s) must meet the emission standards in Table 1 of the ATCM for the specific power rating and model year of the proposed engine.	The applicant has proposed the use of an engine that is certified to the latest EPA Tier Certification standards for the applicable horsepower range, guaranteeing compliance with the emission standards of the ATCM. Additionally, the proposed diesel PM emissions rate is less than or equal to 0.15 g/bhp-hr.
The engine may not be operated more than 50 hours per year for maintenance and testing purposes unless the PM emissions are $\leq$ 0.01 g/bhp-hr, then the engine is allowed 100 hours per year. Emissions	The following conditions will be included on the permit: Emissions from this IC engine shall not exceed 0.05 g-PM₁₀/bhp-hr based on USEPA certification using

from this engine are certified at 0.05 g/bhp-hr, therefore the engine is allowed 50 hours.	ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115] This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201, 4102, and 4702, and 17 CCR 93115]
Engines, with a PM₁₀ emissions rate greater than 0.01 g/bhp-hr and located at schools, may not be operated for maintenance and testing whenever there is a school sponsored activity on the grounds. Additionally, engines located within 500 feet of school grounds may not be operated for maintenance and testing between 7:30 AM and 3:30 PM	The District has verified that this engine is not located within 500' of a school.
A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed upon engine installation, or by no later than January 1, 2005, on all engines subject to all or part of the requirements of sections 93115.6, 93115.7, or 93115.8(a) unless the District determines on a case-by-case basis that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history.	The following condition will be included on the permit: This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]
An owner or operator shall maintain monthly records of the following: emergency use hours of operation; maintenance and testing hours of operation; hours of operation for emission testing; initial start-up testing hours; hours of operation for all other uses; and the type of fuel used. All records shall be retained for a minimum of 36 months.	The following condition will be included on the permit: The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]

California Environmental Quality Act (CEQA)

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 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; and
- 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.

Greenhouse Gas (GHG) Significance Determination

It is determined that another agency has prepared an environmental review document for the project. The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CEQA Guidelines §15381). As a Responsible Agency, the District is limited to mitigating or avoiding impacts for which it has statutory authority. The District does not have statutory authority for regulating greenhouse gas emissions. The District has determined that the applicant is responsible for implementing greenhouse gas mitigation measures, if any, imposed by the Lead Agency.

District CEQA Findings

Faraday & Future Inc. (applicant) proposed an automotive manufacturing operation within a former 1,070,000 square feet warehouse building under Site Plan Review 2018-10 (Project). The Project is proposed to be developed in phases with no expansion of the existing building. The City of Hanford (City) is the public agency having principal responsibility for approving the Project, which covers ATCs C-1180142 and C-1172714. As such, the City served as the Lead Agency for the Project. The City determined the Project to be exempt from CEQA according to CEQA Guidelines §15268. Consistent with CEQA Guidelines §15062, a Notice of Exemption was prepared and adopted by the City.

The District is a Responsible Agency for the Project because of its discretionary approval power over the Project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CEQA Guidelines §15381).

The District's engineering evaluation of the Project (this document) demonstrates that compliance with District rules and permit conditions would reduce Stationary Source emissions from the Project to levels below the District's thresholds of significance for criteria pollutants. Thus, the District concludes that through a combination of project design elements and permit conditions, Project specific stationary source emissions will be reduced to less than significant levels. The District does not have authority over any of the other project impacts and has, therefore, determined that no additional findings are required (CEQA Guidelines §15096(h)).

Indemnification Agreement/Letter of Credit Determination

According to District Policy APR2010 (CEQA Implementation Policy), when the District is the Lead or Responsible Agency for CEQA purposes, an indemnification agreement and/or letter of credit may be required. The decision to require an indemnity agreement and/or letter of credit is based on a case-by-case analysis of a particular project's potential to generate public concern, its potential for significant impacts, and the project proponent's ability to pay for the costs of litigation without a letter of credit, among other factors.

There is minimal potential for public concern for this particular type of facility/operation. Therefore, an indemnification agreement and/or letter of credit will not be required for this project in the absence of expressed public concern.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue ATCs C-9248-5-0 through '-12-0 subject to the permit conditions on the attached draft ATCs in Appendix A.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
C-9248-5-0	3020-03-E	4,000 kVa Electrical Energy Usage	\$417
C-9248-6-0	3020-03-D	1,100 kVa Electrical Energy Usage	\$291
C-9248-7-0	3020-01-D	70 kVa Electrical Energy Usage	\$136
C-9248-8-0	3020-02-G	5.2 MMBtu/hr Thermal Oxidizer	\$936
C-9248-9-0	3020-02-E	1.5 MMBtu/hr Booth Heater	\$473
C-9248-10-0	3020-02-G	5.424 MMBtu/hr Booth Heaters	\$936
C-9248-11-0	3020-02-F	3.616 MMBtu/hr Booth Heaters	\$698
C-9248-12-0	3020-10-D	762 bhp IC engine	\$551

Appendixes

- A: Draft ATCs C-9248-5-0 through '-12-0
- B: Coating Operation Material Usage Lists
- C: Subpart MM and Rule 4602 VOC Emission Limit Compliance Calculations
- D: New BACT Determination and Top-Down BACT Analysis for Electrodeposition Coating (E-Coat) Operation
- E: New BACT Determination and Top-Down BACT Analysis for Motor Vehicle Assembly Coating Operation (Main Paint Line)
- F: BACT Guideline 4.2.12 and Top-Down BACT Analysis for Final Repair Coating Operation (C-9248-9-0) and Paint Polishing and Plastic Part Paint Polishing Operations (C-9248-10-0 and '-11-0)
- G: BACT Guideline 3.1.1 and Top-Down BACT Analysis for Emergency IC Engine
- H: Health Risk Assessment (HRA) and Ambient Air Quality Analysis (AAQA) Summaries
- I: Statewide Compliance Certification
- J: IC Engine Emission Data Sheet
- K: Quarterly Net Emissions Change Calculations

Appendix A

Draft ATCs C-9248-5-0 through '-12-0

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: C-9248-5-0

LEGAL OWNER OR OPERATOR: FARADAY & FUTURE, INC.

MAILING ADDRESS: PO BOX 11262
CARSON, CA 90749

LOCATION: 10701 IDAHO AVE
HANFORD, CA 93230

EQUIPMENT DESCRIPTION:

MOTOR VEHICLE BODY ASSEMBLY OPERATION (BODY IN WHITE (BIW)) CONSISTING OF MANUAL AND ROBOTIC NON-ATOMIZING ADHESIVE, SEALANT, AND DEFECT OIL APPLICATION EQUIPMENT

CONDITIONS

1. Permittee shall submit an application to comply with SJVUAPCD District Rule 2520 - Federally Mandated Operating Permits within 12 months after commencing operation. [District Rule 2520]
2. Prior to operating any piece of equipment authorized by Authority to Construct permits C-9248-5-0, '-6-0, '-7-0, '-8-0, '-9-0, '-10-0 or '-11-0, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 6,644 lb, 2nd quarter - 6,644 lb, 3rd quarter - 6,644 lb, and 4th quarter - 6,645 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16). [District Rule 2201]
3. ERC Certificate Number S-4745-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. {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]
6. The volatile organic compound (VOC) emissions from the body assembly operations and its associated sub-processes shall not exceed any of the following limits: 1) main body assembly - 2.0 lb/day; 2) body closures - 0.5 lb/day; or 3) metal finish inspection and repair - 1.8 lb/day. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

Arnaud Marjollet, Director of Permit Services

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7. VOC emissions from the surface cleaning operation (i.e cleaning of any surfaces associated with the body assembly operation with solvent wipes) shall not exceed 2.0 lb/day. [District Rule 2201]
8. The VOC emissions from the body assembly operation through the use of adhesive and sealant materials associated with this body assembly operation shall be determined as follows: 1) Adhesive VOC emissions = [VOC content, as applied (lb/gal) x Usage (gal)]; 2) Sealant VOC emissions = [VOC content, as applied (lb/gal) x Usage (gal)] x 0.05; and 3) Total VOC emissions shall be the sum of all adhesives and sealants used. [District Rule 2201]
9. The VOC emissions from the use of solvent materials associated with this body assembly operation shall be determined as follows: 1) VOC emissions from each solvent wipe used = VOC content (lb/sheet) x Usage (sheets); and 2) Total VOC emissions shall be the sum of all solvent wipes used. [District Rule 2201]
10. For all body assembly operations, the VOC content of materials applied, less water and exempt compounds, shall not exceed either of the following limits: adhesives - 250 g/l (2.09 lb/gal); or sealants - 420 g/l (3.50 lb/gal). [District Rules 2201, 4602, and 4653]
11. All adhesive, sealant, and defect oil materials utilized by this operation shall only be applied using non-air-atomizing application equipment. [District Rules 2201, 4602, and 4653]
12. The operator shall implement the following work practices for all adhesive and sealant related activities: store or dispose of adhesive products, sealant products, catalysts, thinners, fresh or spent solvents, and waste solvent materials such as cloth, paper, etc., 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. The containers used for disposal of adhesive materials, solvents, or any unused VOC containing materials shall be self-closing; ensure that mixing containers for used VOC-containing adhesive products and sealant products and process-related waste materials are kept closed at all times except when depositing or removing these materials; minimize spills of VOC-containing adhesive products, and sealant products, and process-related waste materials; and convey VOC-containing adhesive products, sealant products, and process-related waste materials from one location to another in closed containers or pipes. [District Rule 4653]
13. When liquid organic solvent is used for cleaning operations, the permittee shall not use solvents that have a VOC content greater than 25 g/l (0.21 lb/gal) of cleaning material. [District Rules 4602 and 4653]
14. When participating in liquid organic solvent cleaning activities, the operator shall implement the following work practices: minimize spills of VOC-containing cleaning materials; convey VOC-containing cleaning materials from one location to another in closed containers or pipes; and minimize VOC emissions from cleaning of application, storage, mixing, and conveying equipment by ensuring that equipment cleaning is performed without atomizing the cleaning solvent and all spent solvent is captured in closed containers. [District Rule 4653]
15. Cleaning activities that use liquid organic solvents shall be performed by one or more of the following methods: wipe cleaning; application of solvent from hand-held spray bottles from which solvents are dispensed without a propellant-induced force; non-atomized solvent flow method in which the cleaning solvent is collected in a container or a collection system which is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container; or solvent flushing method in which the cleaning solvent is discharged into a container that is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container. The discharged solvent from the equipment must be collected into containers without atomizing into the open air. The solvent may be flushed through the system by air or hydraulic pressure, or by pumping. [District Rules 4602 and 4653]
16. Liquid solvents shall not be atomized into the open air unless it is vented to a VOC emission control system. This provision shall not apply to the cleaning of nozzle tips of automated spray equipment systems, except for robotic systems, and cleaning with spray bottles or containers described elsewhere in this permit. Aerosol spray solvents shall not be used as a part of this sealant application operation. [District Rules 4602 and 4653]
17. The permittee shall not use VOC-containing materials to clean spray equipment used for the application of coatings, adhesives or sealants unless an enclosed system, or equipment proven to be equally effective at controlling emissions, is used for cleaning. If an enclosed system is used, it must totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing and draining procedures, and it must be used according to the manufacturer's recommendations and must be closed when not in use. [District Rules 4602 and 4653]

CONDITIONS CONTINUE ON NEXT PAGE

18. 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 Rules 4602 and 4653]
19. The permittee shall calculate and record the following: VOC emissions from main body assembly (lb/day); VOC emissions from body closures (lb/day); VOC emissions from metal finish inspection and repair (lb/day); and VOC emissions from the surface cleaning operation (lb/day). Records shall be maintained on a monthly basis, with the ability to calculate daily averages based on the number of operating days in any given month. For each month, daily average records shall be updated by no later than the end of the following month. [District Rule 2201]
20. The permittee shall maintain records of the following: quantity of adhesives used (gal); quantity of sealants used (gal); quantity of defect oil used (gal), quantity of liquid solvent used (gal); quantity of solvent wipes used (sheets); and the number of days the body assembly operation was utilized during any given month. [District Rules 2201, 4602 and 4653]
21. The permittee shall maintain and have available at all times a current list of coatings, adhesives, sealants, defect oils, and liquid solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter) and specific chemical constituents of coatings as applied; and the VOC content and specific chemical constituents of solvents used for surface preparation and cleanup. [District Rules 4602 and 4653]
22. Permittee shall keep the following records for liquid organic solvent cleaning activities: quantity of liquid organic solvents used on a daily basis; manufacturers product data sheet or MSDS for solvents used; and maintain a current list of solvents that are being used for organic solvent cleaning activities that includes the name of the solvent and its manufacturer's name, the VOC content of the solvent expressed in grams per liter or pounds per gallon, when the solvent is a mixture of different materials that are blended by the operator, the mix ratio of the batch would be recorded in order to determine compliance with the specified limits of VOC content, as applied, and the type of cleaning activity for which each solvent is used. [District Rule 4653]
23. The permittee shall develop and implement a work practice plan to minimize VOC emissions from cleaning and purging of equipment. The plan shall specify practices and procedures utilized to ensure VOC emissions are minimized from the following operations: vehicle body wiping; adhesive/sealant line purging; flushing of adhesive/sealant systems; cleaning of adhesive/sealant application areas; and other housekeeping measures. [District Rule 4602]
24. Records shall be retained on-site for a minimum of five (5) years and made available for District inspection upon request. [District Rules 1070, 4602, and 4653]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: C-9248-6-0

LEGAL OWNER OR OPERATOR: FARADAY & FUTURE, INC.

MAILING ADDRESS: PO BOX 11262
CARSON, CA 90749

LOCATION: 10701 IDAHO AVE
HANFORD, CA 93230

EQUIPMENT DESCRIPTION:

MOTOR VEHICLE ASSEMBLY DIP COATING LINE (E-COAT) CONSISTING OF SIX DIP TANKS, ONE FINAL RINSE STATION, ELECTRODEPOSITION APPLICATION EQUIPMENT, ASSOCIATED ENCLOSED PROCESS TANKS, METERING AND DOSING EQUIPMENT AND A PERMIT EXEMPT CURING OVEN WITH TWO NATURAL GAS-FIRED BURNERS (CLOSED INDIRECT FIRED HEAT TRANSFER SYSTEMS, EQUAL TO OR LESS THAN 5 MMBTU/HR) SERVED BY ONE 5.2 MMBTU/HR REGENERATIVE THERMAL OXIDIZER (RTO SHARED WITH PERMIT C-9248-8)

CONDITIONS

1. Permittee shall submit an application to comply with SJVUAPCD District Rule 2520 - Federally Mandated Operating Permits within 12 months after commencing operation. [District Rule 2520]
2. Prior to operating any piece of equipment authorized by Authority to Construct permits C-9248-5-0, '-6-0, '-7-0, '-8-0, '-9-0, '-10-0 or '-11-0, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 6,644 lb, 2nd quarter - 6,644 lb, 3rd quarter - 6,644 lb, and 4th quarter - 6,645 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16). [District Rule 2201]
3. ERC Certificate Number S-4745-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. {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]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

Arnaud Marjollet, Director of Permit Services

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6. Emissions from the curing of all coating materials shall be vented and controlled by the regenerative thermal oxidizer (RTO) described on permit C-9248-8. The RTO shall be in operation whenever any product is being cured in the e-coat oven. [District Rule 2201]
7. No coatings, solvents, or additives containing hexavalent chromium, cadmium, lead, or nickel shall be used. [District Rule 4102]
8. The volatile organic compound (VOC) emissions from all coating activities performed by this electrodeposition coating (e-coat) operation, at the dip tanks shall not exceed either of the following limits: 12.4 lb/day or 3,858 lb/year. [District Rules 2201 and 4102]
9. The VOC emissions from all curing activities performed by this e-coat operation shall not exceed either of the following limits: 1.1 lb/day or 345 lb/year. [District Rule]
10. The VOC emissions from the surface cleaning operation (i.e. cleaning of any surfaces associated with this coating operation with solvent wipes and aerosol solvents) shall not exceed 2.0 lb/day. [District Rule 2201]
11. The VOC emissions from all pretreatment and coating activities performed by this e-coat operation shall be calculated as follows: VOC emissions = Production (vehicles/day) x 0.386 lb-VOC/vehicle. [District Rule 2201]
12. The VOC emissions from all curing activities performed by this e-coat operation shall be calculated as follows: VOC emissions = [Production (vehicles/day) x 0.69 (lb-VOC/vehicle)] x 0.05. [District Rule 2201]
13. The VOC emissions from the use of solvent materials associated with surface cleaning activities shall be determined as follows: 1) VOC emissions from aerosol solvents = VOC content, as applied (lb/gal) x Usage (gal); 2) VOC emissions from each solvent wipe used = VOC content (lb/sheet) x Usage (sheets); and 3) total VOC emissions shall be the sum of VOC emissions from all liquid aerosol solvents and/or solvent wipes used. [District Rule 2201]
14. The maximum amount of aerosol solvent used at this facility shall not exceed 160 fluid ounces during any given day. Aerosol solvents used shall be supplied to the facility in containers with a net volume of 16 fluid ounces or less, or a net weight of one pound or less. [District Rules 4602 and 4663]
15. The VOC emission limit from all coatings applied by this e-coat operation, based on the amount of solids deposited on components coated, shall not exceed 0.084 kilograms of VOC per liter of deposited solids (0.7 lb of VOC per gallon of deposited solids), on a daily weighted average basis. [District Rules 2201 and 4602, and 40 CFR 60.392]
16. The VOC emission limits from all coatings applied by this e-coat operation, based on the amount of solids deposited on components coated, shall be determined using the following equation: $N = G * [1 - (F * E)]$. Where N = VOC emissions (lb/gal of deposited solids); G is the total amount of uncontrolled VOC emissions generated by the e-coat operation = [(VOC content of each coating, as applied (lb/gal) x Usage (gal)) + VOC emissions generated by curing of coatings in oven (lb)] / [Solids content of each coating applied, by volume (volume %) x Usage (gal)]; F is the fraction of total VOC which is emitted by the e-coat operation that is controlled by the RTO = sum of the uncontrolled VOC emissions from the e-coat operation entering the RTO / sum of uncontrolled VOC emissions from all e-coat operations at the facility; and E = the destruction efficiency of the RTO, as measured during the most recent source test. [District Rules 2201 and 4602, and 40 CFR 60.393]
17. Only electrodeposition or dip pretreatment and coating application equipment, or other application equipment approved by the District in writing, shall be used to apply VOC containing coating and pre-treatment materials. All application equipment shall be operated in accordance with the manufacturer's recommendations. [District Rules 2201 and 4602]
18. When liquid organic solvent is used for cleaning operations, except for aerosol solvents described in this permit, the permittee shall not use solvents that have a VOC content greater than 25 g/l (0.21 lb/gal) of cleaning material. [District Rules 4602 and 4663]

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CONDITIONS CONTINUE ON NEXT PAGE

19. Cleaning activities that use liquid organic solvents shall be performed by one or more of the following methods: wipe cleaning; application of solvent from hand-held spray bottles from which solvents are dispensed without a propellant-induced force; non-atomized solvent flow method in which the cleaning solvent is collected in a container or a collection system which is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container; or solvent flushing method in which the cleaning solvent is discharged into a container that is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container. The discharged solvent from the equipment must be collected into containers without atomizing into the open air. The solvent may be flushed through the system by air or hydraulic pressure, or by pumping. [District Rules 4602 and 4663]
20. Liquid solvents shall not be atomized into the open air unless it is an aerosol solvent, as described in this permit, or the solvent is vented to a VOC emission control system. This provision shall not apply to the cleaning of nozzle tips of automated spray equipment systems, except for robotic systems, and cleaning with spray bottles or containers described elsewhere in this permit. [District Rule 4602]
21. The permittee shall not use VOC-containing materials to clean spray equipment used for the application of coatings unless an enclosed system, or equipment proven to be equally effective at controlling emissions, is used for cleaning. If an enclosed system is used, it must totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing and draining procedures, and it must be used according to the manufacturer's recommendations and must be closed when not in use. [District Rule 4602]
22. 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 Rules 4602 and 4663]
23. The permittee shall calculate and record the following: VOC emissions from all coating activities performed by this e-coat operation (lb/day); VOC emissions from curing activities performed by this e-coat operation (lb/day); VOC emissions from the surface cleaning operation (lb/day); and VOC emission limits from all coatings applied by the e-coat operation, based on the amount of solids applied on components coated (lb-VOC/gallon applied solids). Records shall be maintained on a monthly basis, with the ability to calculate daily averages based on the number of operating days in any given month. For each month, daily average records shall be updated by no later than the end of the following month. [District Rules 2201 and 4602, and 40 CFR 60.395]
24. The permittee shall maintain records of the total annual VOC emissions from this e-coat operation (lb/year) and those records shall be updated at least once per month. [District Rule 2201]
25. The permittee shall maintain records of the following: quantity of vehicles coated, quantity of coatings used (gal); quantity of liquid solvents used (gal); quantity of aerosol solvents used (gal), quantity of solvent wipes used (sheets); and the number of days this e-coat line was in operation during any given month. [District Rules 2201, 4602, and 4663, and 40 CFR 60.395]
26. The permittee shall maintain and have available at all times a current list of coatings and solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter); the VOC content of solvents used for surface preparation and cleanup, the solids content of each coating by weight; and the solids content of each coating, by volume. [District Rules 2201 and 4602, and 40 CFR 60.395]
27. The permittee shall maintain a copy of the manufacturer's product data sheet or materials safety data sheet for all solvents used for organic solvent cleaning activities. [District Rule 4663]
28. The owner or operator shall identify, record, and submit a written report at least once every calendar quarter for each instance in which the volume-weighted average of the total mass of VOCs emitted to the atmosphere per volume of applied coating solids exceeds the limits specified in this permit. The report is due on the 30th day following the end of the calendar quarter and shall include the following: time intervals; data and magnitude of excess emissions; nature and the cause of excess emissions (if known); and corrective actions taken and preventative measures adopted. If no exceedances occurred during a calendar quarter, a report stating this shall be submitted at least once every six months. [40 CFR 60.395]

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CONDITIONS CONTINUE ON NEXT PAGE

29. The permittee shall develop and implement a work practice plan to minimize VOC emissions from cleaning and purging of equipment. The plan shall specify practices and procedures utilized to ensure VOC emissions are minimized from the following operations: vehicle body wiping; coating line purging; flushing of coating systems; cleaning of spray booth grates, walls, and equipment, cleaning external spray booth areas; and other housekeeping measures. [District Rule 4602]
30. Records shall be retained on-site for a minimum of five (5) years and made available for District inspection upon request. [District Rules 1070, 4602, and 4663]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: C-9248-7-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: FARADAY & FUTURE, INC.

MAILING ADDRESS: PO BOX 11262
CARSON, CA 90749

LOCATION: 10701 IDAHO AVE
HANFORD, CA 93230

EQUIPMENT DESCRIPTION:

E-COAT PAINT SANDING AND SEALING OPERATION CONSISTING OF WET SANDING UNIT(S), ONE PULL-THROUGH OPEN-END BOOTH WITH DRY EXHAUST FILTERS AND A 1.808 MMBTU/HR, OR EQUIVALENT, NATURAL GAS FIRED BOOTH HEATER, AND TWO SEALING DECKS WITH NON-ATOMIZING APPLICATION EQUIPMENT

CONDITIONS

1. Permittee shall submit an application to comply with SJVUAPCD District Rule 2520 - Federally Mandated Operating Permits within 12 months after commencing operation. [District Rule 2520]
2. Prior to operating any piece of equipment authorized by Authority to Construct permits C-9248-5-0, '-6-0, '-7-0, '-8-0, '-9-0, '-10-0 or '-11-0, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 6,644 lb, 2nd quarter - 6,644 lb, 3rd quarter - 6,644 lb, and 4th quarter - 6,645 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16). [District Rule 2201]
3. ERC Certificate Number S-4745-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. {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]
6. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director / APCO

Arnaud Marjollet, Director of Permit Services

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7. The permittee shall obtain APCO approval for the use of any equivalent sanding booth heater not specifically approved by this Authority to Construct. Approval of an equivalent sanding booth heater shall only be made after the APCO's determination that the submitted design and performance data for the proposed sanding booth heater is equivalent to the approved sanding booth heater. [District Rule 2201]
8. The permittee's request for approval of an equivalent sanding booth heater shall include the following information: sanding booth heater manufacturer and model number, maximum heat input rating, and manufacturer's guaranteed NOx emission rate/concentration. [District Rule 2201]
9. No emission factor and no emissions shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]
10. The permittee's request for approval of an equivalent sanding booth heater shall be submitted to the District at least 90 days prior to the planned installation date. The permittee shall also notify the District at least 30 days prior to the actual installation of the District approved equivalent sanding booth heater. [District Rule 2201]
11. The volatile organic compound (VOC) emissions from the sealing operation shall not exceed either of the following limits: 1.2 lb/day or 360 lb/year. [District Rule 2201]
12. The VOC emissions from the surface cleaning operation (i.e. cleaning of any surfaces associated with the e-coat paint sanding and sealing operation with solvent wipes) shall not exceed 2.0 lb/day [District Rule 2201]
13. The Particulate matter (PM10) emission rate from the paint sanding operation shall not exceed 1.2 lb/day. [District Rule 2201]
14. The booth heater shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4801]
15. Emissions from the booth heater shall not exceed any of the following limits: 0.036 lb-NOx/MMBtu (equivalent to 30 ppmv @ 3% O2), 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 0.20 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rule 2201]
16. The VOC emissions from the use of sealant materials associated with this operation shall be determined as follows: 1) VOC emissions = [VOC content, as applied (lb/gal) x Usage (gal)] x 0.05; and 2) Total VOC emissions shall be the sum of all sealants used. [District Rule 2201]
17. The VOC emissions from the use of solvent materials associated with this operation shall be determined as follows: 1) VOC emissions from each solvent wipe used = VOC content (lb/sheet) x Usage (sheets); and 2) Total VOC emissions shall be the sum of all solvent wipes used. [District Rule 2201]
18. The PM10 emissions from the paint sanding operation shall be calculated as follows: PM10 emissions = production (vehicles sanded/day) x 0.029138. [District Rule 2201]
19. The VOC content of all sealants applied by this operation shall not exceed 420 g/l (3.50 lb/gal), excluding water and exempt compounds. [District Rules 2201, 4602, and 4653]
20. All sealant materials utilized by this operation shall only be applied using non-air-atomizing application equipment. [District Rules 2201, 4602, and 4653]
21. The operator shall implement the following work practices for all adhesive and sealant related activities: store or dispose of adhesive products, sealant products, catalysts, thinners, fresh or spent solvents, and waste solvent materials such as cloth, paper, etc., 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. The containers used for disposal of adhesive materials, solvents, or any unused VOC containing materials shall be self-closing; ensure that mixing containers for used VOC-containing adhesive products and sealant products and process-related waste materials are kept closed at all times except when depositing or removing these materials; minimize spills of VOC-containing adhesive products, and sealant products, and process-related waste materials; and convey VOC-containing adhesive products, sealant products, and process-related waste materials from one location to another in closed containers or pipes. [District Rule 4653]
22. When liquid organic solvent is used for cleaning operations, the permittee shall not use solvents that have a VOC content greater than 25 g/l (0.21 lb/gal) of cleaning material. [District Rules 4602 and 4653]

CONDITIONS CONTINUE ON NEXT PAGE

23. When participating in liquid organic solvent cleaning activities, the operator shall implement the following work practices: minimize spills of VOC-containing cleaning materials; convey VOC-containing cleaning materials from one location to another in closed containers or pipes; and minimize VOC emissions from cleaning of application, storage, mixing, and conveying equipment by ensuring that equipment cleaning is performed without atomizing the cleaning solvent and all spent solvent is captured in closed containers. [District Rule 4653]
24. Cleaning activities that use liquid organic solvents shall be performed by one or more of the following methods: wipe cleaning; application of solvent from hand-held spray bottles from which solvents are dispensed without a propellant-induced force; non-atomized solvent flow method in which the cleaning solvent is collected in a container or a collection system which is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container; or solvent flushing method in which the cleaning solvent is discharged into a container that is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container. The discharged solvent from the equipment must be collected into containers without atomizing into the open air. The solvent may be flushed through the system by air or hydraulic pressure, or by pumping. [District Rules 4602 and 4653]
25. Liquid solvents shall not be atomized into the open air unless it is vented to a VOC emission control system. This provision shall not apply to the cleaning of nozzle tips of automated spray equipment systems, except for robotic systems, and cleaning with spray bottles or containers described elsewhere in this permit. Aerosol spray solvents shall not be used as a part of this sealant application operation. [District Rules 4602 and 4653]
26. The permittee shall not use VOC-containing materials to clean spray equipment used for the application of coatings, adhesives or sealants unless an enclosed system, or equipment proven to be equally effective at controlling emissions, is used for cleaning. If an enclosed system is used, it must totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing and draining procedures, and it must be used according to the manufacturer's recommendations and must be closed when not in use. [District Rules 4602 and 4653]
27. 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 Rules 4602 and 4653]
28. The permittee shall calculate and record the following: VOC emissions from the sealing operation (lb/day); VOC emissions from the surface cleaning operation (lb/day); and PM10 emissions from the e-coat paint sanding operation (lb/day). Records shall be maintained on a monthly basis, with the ability to calculate daily averages based on the number of operating days in any given month. For each month, daily average records shall be updated by no later than the end of the following month. [District Rule 2201]
29. The permittee shall maintain records of the following: quantity of vehicles sanded; quantity of sealants used (gal); quantity of liquid solvent used (gal); quantity of solvent wipes used (sheets); and the number of days the sanding and sealing operation were utilized during any given month. [District Rules 2201, 4602 and 4653]
30. The permittee shall maintain records of the annual VOC emissions from the sealing operation (lb/year) and those records shall be updated at least once per month. [District Rule 2201]
31. The permittee shall maintain and have available at all times a current list of coatings, adhesives, sealants, and liquid solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter) and specific chemical constituents of coatings as applied; and the VOC content and specific chemical constituents of solvents used for surface preparation and cleanup. [District Rules 4602 and 4653]
32. Permittee shall keep the following records for liquid organic solvent cleaning activities: quantity of liquid organic solvents used on a daily basis; manufacturers product data sheet or MSDS for solvents used; and maintain a current list of solvents that are being used for organic solvent cleaning activities that includes the name of the solvent and its manufacturer's name, the VOC content of the solvent expressed in grams per liter or pounds per gallon, when the solvent is a mixture of different materials that are blended by the operator, the mix ratio of the batch would be recorded in order to determine compliance with the specified limits of VOC content, as applied, and the type of cleaning activity for which each solvent is used. [District Rule 4653]

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CONDITIONS CONTINUE ON NEXT PAGE

33. The permittee shall develop and implement a work practice plan to minimize VOC emissions from cleaning and purging of equipment. The plan shall specify practices and procedures utilized to ensure VOC emissions are minimized from the following operations: vehicle body wiping; sealant line purging; flushing of sealant systems; cleaning of sealant application areas; and other housekeeping measures. [District Rule 4602]
34. Records shall be retained on-site for a minimum of five (5) years and made available for District inspection upon request. [District Rules 1070, 4602, and 4653]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: C-9248-8-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: FARADAY & FUTURE, INC.

MAILING ADDRESS:
PO BOX 11262
CARSON, CA 90749

LOCATION:
10701 IDAHO AVE
HANFORD, CA 93230

EQUIPMENT DESCRIPTION:

MOTOR VEHICLE ASSEMBLY COATING OPERATION (MAIN PAINT LINE) CONSISTING OF ONE PREP BOOTH ZONE, ONE DOWNDRAFT PAINT SPRAY ZONE WITH DRY EXHAUST FILTERS AND ROBOTIC ELECTROSTATIC APPLICATION EQUIPMENT, FIVE PERMIT EXEMPT NATURAL GAS-FIRED CURING OVENS (CLOSED INDIRECT FIRED HEAT TRANSFER SYSTEMS, EACH LESS THAN 5 MMBTU/HR), ONE TRANSFER ZONE AND TWO COOLING STATIONS. PAINT SPRAY ZONE, CURING OVENS, AND TRANSFER ZONE ALL SERVED BY A 5.2 MMBTU/HR NATURAL GAS-FIRED REGENERATIVE THERMAL OXIDIZER (RTO SHARED WITH PERMIT C-9248-6)

CONDITIONS

1. Permittee shall submit an application to comply with SJVUAPCD District Rule 2520 - Federally Mandated Operating Permits within 12 months after commencing operation. [District Rule 2520]
2. Prior to operating any piece of equipment authorized by Authority to Construct permits C-9248-5-0, '-6-0, '-7-0, '-8-0, '-9-0, '-10-0 or '-11-0, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 6,644 lb, 2nd quarter - 6,644 lb, 3rd quarter - 6,644 lb, and 4th quarter - 6,645 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16). [District Rule 2201]
3. ERC Certificate Number S-4745-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. {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]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

Arnaud Marjollet, Director of Permit Services

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6. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
7. The air seal system, all associated ventilation systems, and the regenerative thermal oxidizer (RTO) shall be in use whenever any emission generating equipment associated with the main paint line spray zone, transfer zone, or curing ovens are in operation. [District Rules 2201 and 4602]
8. The overall VOC capture and control efficiency of the air seal system and the RTO serving the paint spray zone, curing ovens, and transfer zone shall be maintained at a minimum of 95%. [District Rules 2201, 4602, and 40 CFR 60.392]
9. All coating shall be conducted in the paint spray zone with filters in place, fan(s) operating, and air seals operating. [District Rule 2201]
10. The RTO 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]
11. No coatings, solvents, or additives containing hexavalent chromium, cadmium, lead, or nickel shall be used. [District Rule 4102]
12. The volatile organic compound (VOC) emissions from all coating activities performed by this coating operation shall not exceed either of the following limits: 70.2 lb/day or 13,562 lb/year. [District Rules 2201 and 4102]
13. The VOC emissions from the surface cleaning operation (i.e. cleaning of any surfaces associated with this coating operation with solvent wipes and aerosol solvents) shall not exceed 2.0 lb/day. [District Rule 2201]
14. The PM10 emission rate from the prep booth paint sanding operation shall not exceed 1.6 lb/day. [District Rule 2201]
15. The particulate matter (PM10) emission rates from all coating activities performed by this coating operation shall not exceed either of the following limits: 7.9 lb/day or 1,637 lb/year. [District Rule 2201]
16. The RTO shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4801]
17. Emissions from the combustion of natural gas in the RTO shall not exceed any of the following limits: 0.036 lb-NOx/MMBtu (equivalent to 30 ppmv @ 3% O₂), 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 0.2956 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rule 2201]
18. The VOC emissions from all coating activities performed by this coating operation shall be determined as follows: 1) VOC emissions from each coating, primer, and/or liquid solvent applied shall be calculated as follows: VOC emissions = [VOC content (lb/gal), as applied x Usage (gal)] x 0.05; and 2) total VOC emissions shall be the sum of the VOC emissions from all coatings, primers, and/or liquid solvents used. [District Rule 2201]
19. The VOC emissions from the use of solvent materials associated with surface cleaning activities shall be determined as follows: 1) VOC emissions from aerosol solvents = VOC content, as applied (lb/gal) x Usage (gal); 2) VOC emissions from each solvent wipe used = VOC content (lb/sheet) x Usage (sheets); and 3) total VOC emissions shall be the sum of VOC emissions from all liquid aerosol solvents and/or solvent wipes used. [District Rule 2201]
20. The PM10 emissions from the prep booth paint sanding operation shall be calculated as follows: PM10 emissions = Production (vehicles sanded/day) x 0.038321. [District Rule 2201]
21. The PM10 emissions from each coating and/or primer applied shall be calculated as follows: PM10 emissions = Coating and/or primer density (lb/gallon) x Coating and/or primer solids content, by weight (%) x Usage (gal) x 0.005. The total PM10 emissions shall be the sum of the PM10 emissions from all coating and/or primers applied. [District Rule 2201]
22. The RTO shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]
23. The combustion zone of the RTO shall be maintained at a temperature of at least 1,400 degrees F. [District Rule 2201 and 40 CFR 60.394]
24. The RTO shall be equipped with a continuous temperature monitoring and recording device installed in the firebox, in operation at all times. [District Rule 2201 and 40 CFR 60.394]
25. Each temperature measurement device shall be installed, calibrated, and maintained according to accepted practice and the manufacturer's specifications. [District Rule 2201 and 40 CFR 60.394]

CONDITIONS CONTINUE ON NEXT PAGE

26. Source testing to measure the VOC control efficiency of the RTO shall be conducted within 90 days of initial startup and at least once every 12 months thereafter. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]
27. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081 and 40 CFR 60.395]
28. The control efficiency of the RTO shall be determined using EPA Test Methods 2, 2A, or 2D for measuring flow rates and EPA Test Methods 25, 25A, or 25B for measuring total gaseous organic concentrations at the inlet and outlet of the control device(s). EPA Method 18 or ARB Method 422 shall be used to determine the emissions of exempt compounds. [District Rules 2201 and 4602, and 40 CFR 60.396]
29. For emissions source testing, the arithmetic average of three 60-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the testing cannot be used to demonstrate compliance with an application limit. [District Rule 2201 and 40 CFR 60.396]
30. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
31. An initial demonstration of the VOC capture efficiency of the main paint line and associated air seal system vented to the RTO shall be conducted within 90 days of initial start-up. The initial demonstration of the VOC capture efficiency shall consist of a visual verification using smoke tubes that there is a continuous inward flow of air to the paint spray zone and transfer zone. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]
32. Ongoing compliance with the VOC capture efficiency of the main paint line and associated air seal system vented to the RTO shall be verifiable at all times based on a visual inspection of lightweight strips of paper or fabric hung such that the direction of the airflow is indicated. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]
33. The direction of airflow of that air seals at the spray zone entrance and exit shall be indicated by lightweight strips of fabric or paper and these strips must indicate, by visual inspection, that airflow is directed into the spray zone. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]
34. The direction of airflow in the air seal before the exit of the transfer zone entering the final cooling zone shall be indicated by lightweight strips of paper or fabric and these strips must indicate, by visual inspection, that airflow is directed into the transfer zone. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]
35. The lightweight strips of paper or fabric required for verification of direction of airflow shall be installed and spaced evenly around the air sealed openings to the spray zone and transfer zone. An adequate quantity shall be installed to demonstrate that the airflow is traveling into the spray zone and transfer zone across the entire area of each air-sealed openings. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]
36. If a visual inspection of the lightweight strips of fabric or paper reveals that airflow is not directed into the spray zone and/or into the transfer zone, the permittee shall cease operation of all emission producing activities associated with the main paint line. Operation shall not recommence until the problem has been identified and corrected and visual inspections show that all airflow is going into the spray zone and/or transfer zone. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]
37. Compliance with the 95% overall capture and control efficiency of the air seal system and the RTO shall be demonstrated at least once every 12 months using the following equation: $OCC = \{1 - [(CAP * (1 - CE)) + (1 - CAP)]\} * 100\%$; where OCC is the overall capture and control efficiency of the system; CAP is the VOC capture efficiency of the system, based on visual inspections of air seal systems; and CE is the VOC control efficiency the RTO, taken from the most recent source test performed by the facility for control efficiency. [District Rules 2201, 4602, 4663, and 40 CFR 60.396]
38. The maximum amount of aerosol solvent used at this facility shall not exceed 160 fluid ounces during any given day. [District Rule 4663]

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CONDITIONS CONTINUE ON NEXT PAGE

39. Except for the coatings applied by the electrodeposition coating operation (e-coat), the VOC emission limits from all other coatings applied by this facility shall not exceed the following: primer-surfacer operations/guide coats - 1.40 kilograms of VOC per liter of deposited solids (11.68 lb of VOC per gallon of deposited solids) on a daily weighted average basis; and topcoat operations - 1.44 kilograms of VOC per liter of deposited solids (12.0 pounds of VOC per gallon of deposited solids on a daily weighted average basis. For the purposes of demonstrating compliance with the VOC emission limits specified in this condition, polish shall be considered a coating and the use of adhesion promoters shall not be included in the determination. [District Rule 2201 and 40 CFR 60.392]
40. Except for the coatings applied by the electrodeposition coating operation (e-coat), compliance with the VOC emission limits from all other coatings applied by this facility, based on the amount of solids applied on components coated, shall be determined using the following equation: $N = G * [1 - (F * E)]$. Where N = VOC emissions (lb/gal of applied solids); $G = \{[\text{VOC content of each coating, as applied (lb/gal)} \times \text{Usage (gal)}] / [\text{Solids fraction of each coating applied, by volume (volume \%)} \times \text{Usage (gal)} \times \text{TE (\%)}]\}$; F (fraction of total VOC which is emitted by the facility that is controlled by the RTO) = sum of the uncontrolled VOC emissions from the main paint line entering the RTO / sum of uncontrolled VOC emissions from all coating operations at the facility; E = the destruction efficiency of the RTO, as measured during the most recent source test; and TE (transfer efficiency of application equipment used) = 90% for automatic electrostatic, 75% for HVLP, and 100% for polishing buffers. Compliance with the lb-VOC/gal of applied solids emission limits specified in this permit shall be determined for both primer-surfacers/guide coats and topcoats separately. [District Rule 2201 and 40 CFR 60.393]
41. Cleaning activities that use liquid organic solvents shall be performed inside of the main paint line air seal system with all emissions vented to the RTO. [District Rule 4602]
42. 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 Rules 4602, and 4663]
43. The permittee shall calculate and record the following: VOC emissions (lb/day) from all coating activities performed by this coating operation; VOC emissions (lb/day) from the surface cleaning operation; VOC emission limits from all coatings applied by the facility, based on the amount of solids applied on components coated (lb/gallon applied solids); and PM10 emissions (lb/day) from this coating operation. Records shall be maintained on a monthly basis, with the ability to calculate daily averages based on the number of operating days in any given month. For each month, daily average records shall be updated by no later than the end of the following month. [District Rules 2201 and 4602, and 40 CFR 60.395]
44. The permittee shall maintain records of the total annual VOC and PM10 emissions from this coating operation (lb/year) and those records shall be updated at least once per month. [District Rule 2201]
45. The permittee shall maintain records of the following: quantity of vehicles sanded in the prep booth; quantity of coatings used (gal); quantity of liquid solvents used (gal); quantity of aerosol solvents used (gal), quantity of solvent wipes used (sheets); and the number of days the main paint line was in operation during any given month. [District Rules 2201, 4602, and 4663]
46. The permittee shall maintain and have available at all times a current list of coatings and solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter); the VOC content of solvents used for surface preparation and cleanup, the solids content of each coating by weight; and the solids content of each coating, by volume. [District Rules 2201 and 4602, and 40 CFR 60.395]
47. The permittee shall maintain a copy of the manufacturer's product data sheet or materials safety data sheet for all solvents used for organic solvent cleaning activities. [District Rule 4663]
48. The permittee shall maintain continuous records of the thermal oxidizer combustion temperature. [District Rule 2201 and 40 CFR 60.395]
49. The permittee shall maintain records of the capture efficiency of the air seal system serving the main paint line and the destruction efficiency of the RTO, as determined using the most recent source test results for these parameters, and a description of the method used to establish the fraction of VOC captured and sent to the control device for the facility. [40 CFR 60.392]

50. The permittee shall maintain a report that documents every three-hour period in which the average RTO combustion temperature measured is more than 28 °C (82.4 °F) less than the average temperature measured during the most recent control device performance test at which the destruction efficiency was determined. If no such periods occur, the permittee shall submit a negative report. [40 CFR 60.395]
51. The owner or operator shall identify, record, and submit a written report at least once every calendar quarter for each instance in which the volume-weighted average of the total mass of VOCs emitted to the atmosphere per volume of applied coating solids exceeds the limits specified in this permit. The report is due on the 30th day following the end of the calendar quarter and shall include the following: time intervals; data and magnitude of excess emissions; nature and the cause of excess emissions (if known); and corrective actions taken and preventative measures adopted. If no exceedances occurred during a calendar quarter, a report stating this shall be submitted at least once every six months. [40 CFR 60.395]
52. The permittee shall develop and implement a work practice plan to minimize VOC emissions from cleaning and purging of equipment. The plan shall specify practices and procedures utilized to ensure VOC emissions are minimized from the following operations: vehicle body wiping; coating line purging; flushing of coating systems; cleaning of spray booth grates, walls, and equipment, cleaning external spray booth areas; and other housekeeping measures. [District Rule 4602]
53. Records shall be retained on-site for a minimum of five (5) years and made available for District inspection upon request. [District Rules 1070, 4602, and 4663]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: C-9248-9-0

LEGAL OWNER OR OPERATOR: FARADAY & FUTURE, INC.

MAILING ADDRESS: PO BOX 11262
CARSON, CA 90749

LOCATION: 10701 IDAHO AVE
HANFORD, CA 93230

EQUIPMENT DESCRIPTION:

FINAL REPAIR MOTOR VEHICLE COATING OPERATION CONSISTING OF A PAINT SPRAY BOOTH WITH DRY EXHAUST FILTERS, HVLP APPLICATION EQUIPMENT, AND ONE 1.50 MMBTU/HR, OR EQUIVALENT, NATURAL GAS-FIRED BOOTH HEATER

CONDITIONS

1. Permittee shall submit an application to comply with SJVUAPCD District Rule 2520 - Federally Mandated Operating Permits within 12 months after commencing operation. [District Rule 2520]
2. Prior to operating any piece of equipment authorized by Authority to Construct permits C-9248-5-0, '-6-0, '-7-0, '-8-0, '-9-0, '-10-0 or '-11-0, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 6,644 lb, 2nd quarter - 6,644 lb, 3rd quarter - 6,644 lb, and 4th quarter - 6,645 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16). [District Rule 2201]
3. ERC Certificate Number S-4745-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. {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]
6. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

Arnaud Marjollet, Director of Permit Services

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7. The permittee shall obtain APCO approval for the use of any equivalent paint booth heater not specifically approved by this Authority to Construct. Approval of an equivalent paint booth heater shall only be made after the APCO's determination that the submitted design and performance data for the proposed paint booth heater is equivalent to the approved paint booth heater. [District Rule 2201]
8. The permittee's request for approval of an equivalent paint booth heater shall include the following information: paint booth heater manufacturer and model number, maximum heat input rating, and manufacturer's guaranteed NOx emission rate/concentration. [District Rule 2201]
9. No emission factor and no emissions shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]
10. The permittee's request for approval of an equivalent paint booth heater shall be submitted to the District at least 90 days prior to the planned installation date. The permittee shall also notify the District at least 30 days prior to the actual installation of the District approved equivalent paint booth heater. [District Rule 2201]
11. All coating shall be conducted in booth with filters in place, fan(s) operating, and doors closed. [District Rule 2201]
12. The paint booth 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]
13. No coatings, solvents, or additives containing hexavalent chromium, cadmium, lead, or nickel shall be used. [District Rule 4102]
14. The volatile organic compound (VOC) emissions from all coating activities performed by this final repair coating operation shall not exceed either of the following limits: 30.0 lb/day or 2,000 lb/year. [District Rules 2201 and 4102]
15. The VOC emissions from the surface cleaning operation (i.e. cleaning of any surfaces associated with this final repair coating operation with solvent wipes and aerosol solvents) shall not exceed 2.0 lb/day. [District Rules 2201 and 4102]
16. The particulate matter (PM10) emission rates from all coating activities performed by this final repair coating operation shall not exceed either of the following limits: 2.4 lb/day or 158 lb/year. [District Rule 2201]
17. The booth heater shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4801]
18. Emissions from the booth heater shall not exceed any of the following limits: 0.036 lb-NOx/MMBtu (equivalent to 30 ppmv @ 3% O₂), 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 0.20 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rule 2201]
19. The VOC emissions from all coating activities performed by this final repair coating operation shall be determined as follows: 1) VOC emissions from each coating, primer, and/or liquid solvent applied shall be calculated as follows: VOC emissions = VOC content (lb/gal), as applied x Usage (gal); and 2) Total VOC emissions shall be the sum of the VOC emissions from all coatings, primers, and/or liquid solvents. [District Rule 2201]
20. The VOC emissions from the use of solvent materials associated with surface cleaning activities shall be determined as follows: 1) VOC emissions from aerosol solvents = VOC content, as applied (lb/gal) x Usage (gal); 2) VOC emissions from each solvent wipe used = VOC content (lb/sheet) x Usage (sheets); and 3) total VOC emissions shall be the sum of VOC emissions from all liquid aerosol solvents and/or solvent wipes used. [District Rule 2201]
21. PM10 emissions from each coating and/or primer applied shall be calculated as follows: PM10 emissions = Coating and/or primer density (lb/gallon) x Coating and/or primer solids content, by weight (%) x Usage (gallons/day) x 0.0125. The total PM10 emissions shall be the sum of the PM10 emissions from all coating and/or primers applied. [District Rule 2201]
22. The maximum amount of aerosol solvent used at this facility shall not exceed 160 fluid ounces during any given day. Aerosol solvents used shall be supplied to the facility in containers with a net volume of 16 fluid ounces or less, or a net weight of one pound or less. [District Rules 4602 and 4663]
23. The VOC content of all coatings applied by this final repair operation shall not exceed 4.8 lb-VOC/gallon, less water and exempt solvents. For the purposes of demonstrating compliance with the VOC emission limit specified in this condition, the use of adhesion promoters shall not be included in the determination. [District Rules 2201 and 4602]

CONDITIONS CONTINUE ON NEXT PAGE

24. Except for the coatings applied by the electrodeposition coating operation (e-coat), the VOC emission limits from all other coatings applied by this facility shall not exceed the following: primer-surfacer operations/guide coats - 1.40 kilograms of VOC per liter of deposited solids (11.68 lb of VOC per gallon of deposited solids) on a daily weighted average basis; and topcoat operations - 1.44 kilograms of VOC per liter of deposited solids (12.0 pounds of VOC per gallon of deposited solids on a daily weighted average basis. For the purposes of demonstrating compliance with the VOC emission limits specified in this condition, polish shall be considered a coating and the use of adhesion promoters shall not be included in the determination. [40 CFR 60.392]
25. Except for the coatings applied by the electrodeposition coating operation (e-coat), compliance with the VOC emission limits from all other coatings applied by this facility, based on the amount of solids applied on components coated, shall be determined using the following equation: $N = G * [1 - (F * E)]$. Where N = VOC emissions (lb/gal of applied solids); $G = \{[\text{VOC content of each coating, as applied (lb/gal)} \times \text{Usage (gal)}] / [\text{Solids fraction of each coating applied, by volume (volume \%)} \times \text{Usage (gal)} \times \text{TE (\%)}]\}$; F (fraction of total VOC which is emitted by the facility that is controlled by the RTO) = sum of the uncontrolled VOC emissions from the main paint line entering the RTO / sum of uncontrolled VOC emissions from all coating operations at the facility; E = the destruction efficiency of the RTO, as measured during the most recent source test; and TE (transfer efficiency of application equipment used) = 90% for automatic electrostatic, 75% for HVLP, and 100% for polishing buffers. Compliance with the lb-VOC/gal of applied solids emission limits specified in this permit shall be determined for both primer-surfacers/guide coats and topcoats separately. [40 CFR 60.393]
26. 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 4602]
27. 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 Rules 2201 and 4602]
28. When liquid organic solvent is used for cleaning operations, except for aerosol solvents described in this permit, the permittee shall not use solvents that have a VOC content greater than 25 g/l (0.21 lb/gal) of cleaning material. [District Rules 4602 and 4663]
29. Cleaning activities that use liquid organic solvents shall be performed by one or more of the following methods: wipe cleaning; application of solvent from hand-held spray bottles from which solvents are dispensed without a propellant-induced force; non-atomized solvent flow method in which the cleaning solvent is collected in a container or a collection system which is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container; or solvent flushing method in which the cleaning solvent is discharged into a container that is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container. The discharged solvent from the equipment must be collected into containers without atomizing into the open air. The solvent may be flushed through the system by air or hydraulic pressure, or by pumping. [District Rule 4602]
30. Liquid solvents shall not be atomized into the open air unless it is an aerosol solvent, as described in this permit, or the solvent is vented to a VOC emission control system. This provision shall not apply to the cleaning of nozzle tips of automated spray equipment systems, except for robotic systems, and cleaning with spray bottles or containers described elsewhere in this permit. [District Rule 4602]
31. The permittee shall not use VOC-containing materials to clean spray equipment used for the application of coatings unless an enclosed system, or equipment proven to be equally effective at controlling emissions, is used for cleaning. If an enclosed system is used, it must totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing and draining procedures, and it must be used according to the manufacturer's recommendations and must be closed when not in use. [District Rules 4602]

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CONDITIONS CONTINUE ON NEXT PAGE

32. 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 Rules 4602, and 4663]
33. The permittee shall calculate and record the following: VOC emissions from all coating activities performed by this final repair coating operation (lb/day); VOC emissions from the surface cleaning operation (lb/day); VOC emission limits from all coatings applied by the facility, based on the amount of solids applied on components coated (lb-VOC/gallon applied solids); and PM10 emissions from this final repair coating operation (lb/day). Records shall be maintained on a monthly basis, with the ability to calculate daily averages based on the number of operating days in any given month. For each month, daily average records shall be updated by no later than the end of the following month. [District Rules 2201 and 4602, and 40 CFR 60.395]
34. The permittee shall maintain records of the total annual VOC and PM10 emissions from this final repair coating operation (lb/year) and those records shall be updated at least once per month. [District Rule 2201]
35. The permittee shall maintain records of the following: quantity of coatings used (gal); quantity of liquid solvents used (gal); quantity of aerosol solvents used (gal), quantity of solvent wipes used (sheets); and the number of days this final repair coating booth was in operation during any given month. [District Rules 2201, 4602, and 4663]
36. The permittee shall maintain and have available at all times a current list of coatings and solvents in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter); the VOC content of solvents used for surface preparation and cleanup, the solids content of each coating by weight; and the solids content of each coating, by volume. [District Rules 2201 and 4602, and 40 CFR 60.395]
37. The permittee shall maintain a copy of the manufacturer's product data sheet or materials safety data sheet for all solvents used for organic solvent cleaning activities. [District Rule 4663]
38. The owner or operator shall identify, record, and submit a written report at least once every calendar quarter for each instance in which the volume-weighted average of the total mass of VOCs emitted to the atmosphere per volume of applied coating solids exceeds the limits specified in this permit. The report is due on the 30th day following the end of the calendar quarter and shall include the following: time intervals; data and magnitude of excess emissions; nature and the cause of excess emissions (if known); and corrective actions taken and preventative measures adopted. If no exceedances occurred during a calendar quarter, a report stating this shall be submitted at least once every six months. [40 CFR 60.395]
39. The permittee shall develop and implement a work practice plan to minimize VOC emissions from cleaning and purging of equipment. The plan shall specify practices and procedures utilized to ensure VOC emissions are minimized from the following operations: vehicle body wiping; coating line purging; flushing of coating systems; cleaning of spray booth grates, walls, and equipment, cleaning external spray booth areas; and other housekeeping measures. [District Rule 4602]
40. Records shall be retained on-site for a minimum of five (5) years and made available for District inspection upon request. [District Rules 1070, 4602, and 4663]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: C-9248-10-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: FARADAY & FUTURE, INC.

MAILING ADDRESS: PO BOX 11262
CARSON, CA 90749

LOCATION: 10701 IDAHO AVE
HANFORD, CA 93230

EQUIPMENT DESCRIPTION:

PAINT SANDING AND POLISHING OPERATION CONSISTING OF VACUUM SANDERS SERVED BY A EUROVAC, OR EQUIVALENT, HIGH VOLUME WET FILTRATION COLLECTION SYSTEM AND THREE ENCLOSED BOOTHS, EACH WITH DRY EXHAUST FILTERS AND ONE 1.808 MMBTU/HR, OR EQUIVALENT, NATURAL GAS-FIRED BOOTH HEATER

CONDITIONS

1. Permittee shall submit an application to comply with SJVUAPCD District Rule 2520 - Federally Mandated Operating Permits within 12 months after commencing operation. [District Rule 2520]
2. Prior to operating any piece of equipment authorized by Authority to Construct permits C-9248-5-0, '-6-0, '-7-0, '-8-0, '-9-0, '-10-0 or '-11-0, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 6,644 lb, 2nd quarter - 6,644 lb, 3rd quarter - 6,644 lb, and 4th quarter - 6,645 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16). [District Rule 2201]
3. ERC Certificate Number S-4745-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. {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]
6. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

Arnaud Marjollet, Director of Permit Services

C-9248-10-0 : Jul 3 2018 2:37PM -- BROWND : Joint Inspection Required with BROWND

7. The permittee shall obtain APCO approval for the use of any equivalent wet filtration system and/or sanding booth heater not specifically approved by this Authority to Construct. Approval of an equivalent wet filtration system and/or sanding booth heater shall only be made after the APCO's determination that the submitted design and performance data for the proposed wet filtration system and/or sanding booth heater is equivalent to the approved wet filtration system and/or sanding booth heater. [District Rule 2201]
8. The permittee's request for approval of an equivalent wet filtration system and/or sanding booth heater shall include the following information, as applicable: wet filtration system manufacturer and model number, manufacturer's guaranteed PM10 control efficiency, sanding booth heater manufacturer and model number, maximum heat input rating, and manufacturer's guaranteed NOx emission rate/concentration. [District Rule 2201]
9. No emission factor and no emissions shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, or throughput may be authorized for any alternate equipment. [District Rule 2201]
10. The permittee's request for approval of an equivalent wet filtration system and/or sanding booth heater shall be submitted to the District at least 90 days prior to the planned installation date. The permittee shall also notify the District at least 30 days prior to the actual installation of the District approved equivalent wet filtration system and/or sanding booth heater. [District Rule 2201]
11. All sanding shall be conducted in booth with filters in place, fan(s) operating, and curtains closed. [District Rule 2201]
12. The wet filtration system and the sanding booth exhaust filtration system shall achieve a minimum overall particulate matter (PM10) capture and control efficiency of 95%. [District Rule 2201]
13. All polish materials utilized by this operation shall only be applied using non-air-atomizing application equipment. [District Rules 2201 and 4602]
14. Each sanding booth 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]
15. The PM10 emission rate from this paint sanding operation shall not exceed 0.4 lb/day. [District Rule 2201]
16. The volatile organic compound (VOC) emissions from the polishing operation shall not exceed either of the following limits: 4.0 lb/day or 1,253 lb/year. [District Rule 2201]
17. The VOC emissions from the surface cleaning operation (i.e. cleaning of any surfaces associated with the paint sanding operation with solvent wipes and aerosol solvents) shall not exceed 2.0 lb/day. [District Rule 2201]
18. Each booth heater shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4801]
19. Emissions from each booth heater shall not exceed any of the following limits: 0.036 lb-NOx/MMBtu (equivalent to 30 ppmv @ 3% O2), 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 0.20 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rule 2201]
20. The PM10 emissions from the paint sanding operation shall be calculated as follows: PM10 emissions = production (vehicles sanded) x 0.00974. [District Rule 2201]
21. The VOC emissions from the use of polish materials associated with this operation shall be determined as follows: 1) VOC emissions = VOC content, as applied (lb/gal) x Usage (gal); and 2) Total VOC emissions shall be the sum of all polishes used. [District Rule 2201]
22. The VOC emissions from the use of solvent materials associated with this operation shall be determined as follows: 1) VOC emissions from aerosol solvents = VOC content, as applied (lb/gal) x Usage (gal); 2) VOC emissions from each solvent wipe used = VOC content (lb/sheet) x Usage (sheets); and 3) total VOC emissions shall be the sum of VOC emissions from all liquid aerosol solvents and/or solvent wipes used. [District Rule 2201]
23. The maximum amount of aerosol solvent used at this facility shall not exceed 160 fluid ounces during any given day. Aerosol solvents used shall be supplied to the facility in containers with a net volume of 16 fluid ounces or less, or a net weight of one pound or less. [District Rules 4602 and 4663]

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CONDITIONS CONTINUE ON NEXT PAGE

24. Except for the coatings applied by the electrodeposition coating operation (e-coat), the VOC emission limits from all other coatings applied by this facility shall not exceed the following: primer-surfacer operations/guide coats - 1.40 kilograms of VOC per liter of deposited solids (11.68 lb of VOC per gallon of deposited solids) on a daily weighted average basis; and topcoat operations - 1.44 kilograms of VOC per liter of deposited solids (12.0 pounds of VOC per gallon of deposited solids on a daily weighted average basis. For the purposes of demonstrating compliance with the VOC emission limits specified in this condition, polish shall be considered a coating and the use of adhesion promoters shall not be included in the determination. [District Rules 2201 and 4602, and 40 CFR 60.392]
25. Except for the coatings applied by the electrodeposition coating operation (e-coat), compliance with the VOC emission limits from all other coatings applied by this facility, based on the amount of solids applied on components coated, shall be determined using the following equation: $N = G * [1 - (F * E)]$. Where N = VOC emissions (lb/gal of applied solids); $G = \{[\text{VOC content of each coating, as applied (lb/gal)} \times \text{Usage (gal)}] / [\text{Solids fraction of each coating applied, by volume (volume \%)} \times \text{Usage (gal)} \times \text{TE (\%)}]\}$; F (fraction of total VOC which is emitted by the facility that is controlled by the RTO) = sum of the uncontrolled VOC emissions from the main paint line entering the RTO / sum of uncontrolled VOC emissions from all coating operations at the facility; E = the destruction efficiency of the RTO, as measured during the most recent source test; and TE (transfer efficiency of application equipment used) = 90% for automatic electrostatic, 75% for HVLP, and 100% for polishing buffers. Compliance with the lb-VOC/gal of applied solids emission limits specified in this permit shall be determined for both primer-surfacers/guide coats and topcoats separately. [District Rules 2201 and 4602, and 40 CFR 60.393]
26. When liquid organic solvent is used for cleaning operations, except for aerosol solvents described in this permit, the permittee shall not use solvents that have a VOC content greater than 25 g/l (0.21 lb/gal) of cleaning material. [District Rules 4602 and 4663]
27. Cleaning activities that use liquid organic solvents shall be performed by one or more of the following methods: wipe cleaning; application of solvent from hand-held spray bottles from which solvents are dispensed without a propellant-induced force; non-atomized solvent flow method in which the cleaning solvent is collected in a container or a collection system which is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container; or solvent flushing method in which the cleaning solvent is discharged into a container that is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container. The discharged solvent from the equipment must be collected into containers without atomizing into the open air. The solvent may be flushed through the system by air or hydraulic pressure, or by pumping. [District Rules 4602 and 4663]
28. Liquid solvents shall not be atomized into the open air unless it is an aerosol solvent, as described in this permit, or the solvent is vented to a VOC emission control system. This provision shall not apply to the cleaning of nozzle tips of automated spray equipment systems, except for robotic systems, and cleaning with spray bottles or containers described elsewhere in this permit. [District Rule 4602]
29. The permittee shall not use VOC-containing materials to clean spray equipment used for the application of coatings or adhesives unless an enclosed system, or equipment proven to be equally effective at controlling emissions, is used for cleaning. If an enclosed system is used, it must totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing and draining procedures, and it must be used according to the manufacturer's recommendations and must be closed when not in use. [District Rule 4602]
30. 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 Rules 4602 and 4663]
31. The permittee shall calculate and record the following: PM10 emissions from the paint sanding operation (lb/day); VOC emissions from the polishing operation (lb/day); VOC emissions from the surface cleaning operation (lb/day); and VOC emission limits from all coatings applied by the facility, based on the amount of solids deposited on components coated (lb-VOC/gallon applied solids). Records shall be maintained on a monthly basis, with the ability to calculate daily averages based on the number of operating days in any given month. For each month, daily average records shall be updated by no later than the end of the following month. [District Rules 2201 and 4602, and 40 CFR 60.395]

32. The permittee shall maintain records of the total annual VOC emissions from the polishing operation (lb/year) and those records shall be updated at least once per month. [District Rule 2201]
33. The permittee shall maintain records of the following: quantity of vehicles sanded; quantity of polish used (gal), quantity of aerosol solvent used (gal); quantity of solvent wipes used (sheets); and the number of days this paint sanding and polishing operation was utilized during any given month. [District Rules 2201, 4602, and 4663]
34. The permittee shall maintain and have available at all times a current list of coatings in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter); the VOC content of solvents used for surface preparation and cleanup, the solids content of each coating by weight; and the solids content of each coating, by volume. [District Rules 2201 and 4602, and 40 CFR 60.395]
35. The permittee shall maintain records and maintain a current list of all solvents used that includes the following: the name of each solvent and its manufacturer's name; VOC content of each solvent expressed in grams/liter or lb/gallon; the type of cleaning activity each solvent was being used for; and if applicable, when the solvent is a mixture of different materials that are blended together, the mix ratio of the batch shall be recorded and the VOC content of the batch shall be calculated and recorded in order to determine compliance with the specified VOC content limits, as applied. [District Rules 2201 and 4663]
36. The permittee shall maintain a copy of the manufacturer's product data sheet or materials safety data sheet for all solvents used for organic solvent cleaning activities. [District Rule 4663]
37. The owner or operator shall identify, record, and submit a written report at least once every calendar quarter for each instance in which the volume-weighted average of the total mass of VOCs emitted to the atmosphere per volume of applied coating solids exceeds the limits specified in this permit. The report is due on the 30th day following the end of the calendar quarter and shall include the following: time intervals; data and magnitude of excess emissions; nature and the cause of excess emissions (if known); and corrective actions taken and preventative measures adopted. If no exceedances occurred during a calendar quarter, a report stating this shall be submitted at least once every six months. [40 CFR 60.395]
38. The permittee shall develop and implement a work practice plan to minimize VOC emissions from cleaning and purging of equipment. The plan shall specify practices and procedures utilized to ensure VOC emissions are minimized from the following operations: vehicle body wiping; coating line purging; flushing of coating systems; cleaning of spray booth grates, walls, and equipment, cleaning external spray booth areas; and other housekeeping measures. [District Rule 4602]
39. Records shall be retained on-site for a minimum of five (5) years and made available for District inspection upon request. [District Rules 1070, 4602, and 4663]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: C-9248-11-0

LEGAL OWNER OR OPERATOR: FARADAY & FUTURE, INC.

MAILING ADDRESS: PO BOX 11262
CARSON, CA 90749

LOCATION: 10701 IDAHO AVE
HANFORD, CA 93230

EQUIPMENT DESCRIPTION:

PLASTIC PARTS PAINT SANDING AND POLISHING OPERATION CONSISTING OF VACUUM SANDERS SERVED BY A EUROVAC, OR EQUIVALENT, HIGH VOLUME WET FILTRATION COLLECTION SYSTEM AND TWO ENCLOSED BOOTHS, EACH WITH DRY EXHAUST FILTERS AND ONE 1.808 MMBTU/HR, OR EQUIVALENT, NATURAL GAS-FIRED BOOTH HEATER

CONDITIONS

1. Permittee shall submit an application to comply with SJVUAPCD District Rule 2520 - Federally Mandated Operating Permits within 12 months after commencing operation. [District Rule 2520]
2. Prior to operating any piece of equipment authorized by Authority to Construct permits C-9248-5-0, '-6-0, '-7-0, '-8-0, '-9-0, '-10-0 or '-11-0, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 6,644 lb, 2nd quarter - 6,644 lb, 3rd quarter - 6,644 lb, and 4th quarter - 6,645 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16). [District Rule 2201]
3. ERC Certificate Number S-4745-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. {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]
6. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

Arnaud Marjollet, Director of Permit Services

C-9248-11-0 : Jul 3 2018 2:37PM -- BROWND : Joint Inspection Required with BROWND

7. The permittee shall obtain APCO approval for the use of any equivalent wet filtration system and/or sanding booth heater not specifically approved by this Authority to Construct. Approval of an equivalent wet filtration system and/or sanding booth heater shall only be made after the APCO's determination that the submitted design and performance data for the proposed wet filtration system and/or sanding booth heater is equivalent to the approved wet filtration system and/or sanding booth heater. [District Rule 2201]
8. The permittee's request for approval of an equivalent wet filtration system and/or sanding booth heater shall include the following information, as applicable: wet filtration system manufacturer and model number, manufacturer's guaranteed PM10 control efficiency, sanding booth heater manufacturer and model number, maximum heat input rating, and manufacturer's guaranteed NOx emission rate/concentration. [District Rule 2201]
9. No emission factor and no emissions shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, or throughput may be authorized for any alternate equipment. [District Rule 2201]
10. The permittee's request for approval of an equivalent wet filtration system and/or sanding booth heater shall be submitted to the District at least 90 days prior to the planned installation date. The permittee shall also notify the District at least 30 days prior to the actual installation of the District approved equivalent wet filtration system and/or sanding booth heater. [District Rule 2201]
11. All sanding shall be conducted in booth with filters in place, fan(s) operating, and curtains closed. [District Rule 2201]
12. The wet filtration system and the sanding booth exhaust filtration system shall achieve a minimum overall particulate matter (PM10) capture and control efficiency of 95%. [District Rule 2201]
13. All polish materials utilized by this operation shall only be applied using non-air-atomizing application equipment. [District Rules 2201 and 4602]
14. Each sanding booth 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]
15. The PM10 emission rate from this plastic parts paint sanding operation shall not exceed 0.4 lb/day. [District Rule 2201]
16. The volatile organic compound (VOC) emissions from the polishing operation shall not exceed either of the following limits: 4.0 lb/day or 1,253 lb/year. [District Rule 2201]
17. The VOC emissions from the surface cleaning operation (i.e. cleaning of any surfaces associated with the plastic parts paint sanding operation with solvent wipes and aerosol solvents) shall not exceed 2.0 lb/day. [District Rule 2201]
18. Each booth heater shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4801]
19. Emissions from each booth heater shall not exceed any of the following limits: 0.036 lb-NOx/MMBtu (equivalent to 30 ppmv @ 3% O2), 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 0.20 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rule 2201]
20. The PM10 emissions from the plastic parts paint sanding operation shall be calculated as follows: PM10 emissions = production (vehicles sanded) x 0.00974. [District Rule 2201]
21. The VOC emissions from the use of polish materials associated with this operation shall be determined as follows: 1) VOC emissions = VOC content, as applied (lb/gal) x Usage (gal); and 2) Total VOC emissions shall be the sum of all polishes used. [District Rule 2201]
22. The VOC emissions from the use of solvent materials associated with this operation shall be determined as follows: 1) VOC emissions from aerosol solvents = VOC content, as applied (lb/gal) x Usage (gal); 2) VOC emissions from each solvent wipe used = VOC content (lb/sheet) x Usage (sheets); and 3) total VOC emissions shall be the sum of VOC emissions from all liquid aerosol solvents and/or solvent wipes used. [District Rule 2201]
23. The maximum amount of aerosol solvent used at this facility shall not exceed 160 fluid ounces during any given day. Aerosol solvents used shall be supplied to the facility in containers with a net volume of 16 fluid ounces or less, or a net weight of one pound or less. [District Rules 4602 and 4663]

24. Except for the coatings applied by the electrodeposition coating operation (e-coat), the VOC emission limits from all other coatings applied by this facility shall not exceed the following: primer-surfacer operations/guide coats - 1.40 kilograms of VOC per liter of deposited solids (11.68 lb of VOC per gallon of deposited solids) on a daily weighted average basis; and topcoat operations - 1.44 kilograms of VOC per liter of deposited solids (12.0 pounds of VOC per gallon of deposited solids on a daily weighted average basis. For the purposes of demonstrating compliance with the VOC emission limits specified in this condition, polish shall be considered a coating and the use of adhesion promoters shall not be included in the determination. [District Rules 2201 and 4602, and 40 CFR 60.392]
25. Except for the coatings applied by the electrodeposition coating operation (e-coat), compliance with the VOC emission limits from all other coatings applied by this facility, based on the amount of solids applied on components coated, shall be determined using the following equation: $N = G * [1 - (F * E)]$. Where N = VOC emissions (lb/gal of applied solids); $G = \{[\text{VOC content of each coating, as applied (lb/gal)} \times \text{Usage (gal)}] / [\text{Solids fraction of each coating applied, by volume (volume \%)} \times \text{Usage (gal)} \times \text{TE (\%)}]\}$; F (fraction of total VOC which is emitted by the facility that is controlled by the RTO) = sum of the uncontrolled VOC emissions from the main paint line entering the RTO / sum of uncontrolled VOC emissions from all coating operations at the facility; E = the destruction efficiency of the RTO, as measured during the most recent source test; and TE (transfer efficiency of application equipment used) = 90% for automatic electrostatic, 75% for HVLP, and 100% for polishing buffers. Compliance with the lb-VOC/gal of applied solids emission limits specified in this permit shall be determined for both primer-surfacers/guide coats and topcoats separately. [District Rules 2201 and 4602, and 40 CFR 60.393]
26. When liquid organic solvent is used for cleaning operations, except for aerosol solvents described in this permit, the permittee shall not use solvents that have a VOC content greater than 25 g/l (0.21 lb/gal) of cleaning material. [District Rules 4602 and 4663]
27. Cleaning activities that use liquid organic solvents shall be performed by one or more of the following methods: wipe cleaning; application of solvent from hand-held spray bottles from which solvents are dispensed without a propellant-induced force; non-atomized solvent flow method in which the cleaning solvent is collected in a container or a collection system which is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container; or solvent flushing method in which the cleaning solvent is discharged into a container that is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container. The discharged solvent from the equipment must be collected into containers without atomizing into the open air. The solvent may be flushed through the system by air or hydraulic pressure, or by pumping. [District Rules 4602 and 4663]
28. Liquid solvents shall not be atomized into the open air unless it is an aerosol solvent, as described in this permit, or the solvent is vented to a VOC emission control system. This provision shall not apply to the cleaning of nozzle tips of automated spray equipment systems, except for robotic systems, and cleaning with spray bottles or containers described elsewhere in this permit. [District Rule 4602]
29. The permittee shall not use VOC-containing materials to clean spray equipment used for the application of coatings or adhesives unless an enclosed system, or equipment proven to be equally effective at controlling emissions, is used for cleaning. If an enclosed system is used, it must totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing and draining procedures, and it must be used according to the manufacturer's recommendations and must be closed when not in use. [District Rule 4602]
30. 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 Rules 4602 and 4663]
31. The permittee shall calculate and record the following: PM10 emissions from the paint sanding operation (lb/day); VOC emissions from the polishing operation (lb/day); VOC emissions from the surface cleaning operation (lb/day); and VOC emission limits from all coatings applied by the facility, based on the amount of solids deposited on components coated (lb-VOC/gallon applied solids). Records shall be maintained on a monthly basis, with the ability to calculate daily averages based on the number of operating days in any given month. For each month, daily average records shall be updated by no later than the end of the following month. [District Rules 2201 and 4602, and 40 CFR 60.395]

32. The permittee shall maintain records of the total annual VOC emissions from the polishing operation (lb/year) and those records shall be updated at least once per month. [District Rule 2201]
33. The permittee shall maintain records of the following: quantity of vehicles sanded; quantity of polish used (gal), quantity of aerosol solvent used (gal); quantity of solvent wipes used (sheets); and the number of days this plastic parts paint sanding and polishing operation was utilized during any given month. [District Rules 2201, 4602, and 4663]
34. The permittee shall maintain and have available at all times a current list of coatings in use which contains the following, as applicable: the mix ratio of components used; the VOC content (lb/gal or grams/liter); the VOC content of solvents used for surface preparation and cleanup, the solids content of each coating by weight; and the solids content of each coating, by volume. [District Rules 2201 and 4602, and 40 CFR 60.395]
35. The permittee shall maintain records and maintain a current list of all solvents used that includes the following: the name of each solvent and its manufacturer's name; VOC content of each solvent expressed in grams/liter or lb/gallon; the type of cleaning activity each solvent was being used for; and if applicable, when the solvent is a mixture of different materials that are blended together, the mix ratio of the batch shall be recorded and the VOC content of the batch shall be calculated and recorded in order to determine compliance with the specified VOC content limits, as applied. [District Rules 2201 and 4663]
36. The permittee shall maintain a copy of the manufacturer's product data sheet or materials safety data sheet for all solvents used for organic solvent cleaning activities. [District Rule 4663]
37. The owner or operator shall identify, record, and submit a written report at least once every calendar quarter for each instance in which the volume-weighted average of the total mass of VOCs emitted to the atmosphere per volume of applied coating solids exceeds the limits specified in this permit. The report is due on the 30th day following the end of the calendar quarter and shall include the following: time intervals; data and magnitude of excess emissions; nature and the cause of excess emissions (if known); and corrective actions taken and preventative measures adopted. If no exceedances occurred during a calendar quarter, a report stating this shall be submitted at least once every six months. [40 CFR 60.395]
38. The permittee shall develop and implement a work practice plan to minimize VOC emissions from cleaning and purging of equipment. The plan shall specify practices and procedures utilized to ensure VOC emissions are minimized from the following operations: vehicle body wiping; coating line purging; flushing of coating systems; cleaning of spray booth grates, walls, and equipment, cleaning external spray booth areas; and other housekeeping measures. [District Rule 4602]
39. Records shall be retained on-site for a minimum of five (5) years and made available for District inspection upon request. [District Rules 1070, 4602, and 4663]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: C-9248-12-0

LEGAL OWNER OR OPERATOR: FARADAY & FUTURE, INC.

MAILING ADDRESS: PO BOX 11262
CARSON, CA 90749

LOCATION: 10701 IDAHO AVE
HANFORD, CA 93230

EQUIPMENT DESCRIPTION:

762 BHP (INTERMITTENT) PERKINS MODEL 2506C-E15TAG3 TIER 2 CERTIFIED, OR EQUIVALENT, DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

CONDITIONS

1. Permittee shall submit an application to comply with SJVUAPCD District Rule 2520 - Federally Mandated Operating Permits within 12 months after commencing operation. [District Rule 2520]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. The permittee shall obtain APCO approval for the use of any equivalent IC engine not specifically approved by this Authority to Construct. Approval of an equivalent IC engine shall only be made after the APCO's determination that the submitted design and performance data for the proposed IC engine is equivalent to the approved IC engine. [District Rule 2201]
6. The permittee's request for approval of an equivalent IC engine shall include the following information: IC engine manufacturer and model number, maximum horsepower rating, and manufacturer's guaranteed emission rates. [District Rule 2201]
7. No emission factor and no emissions shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

Arnaud Marjollet, Director of Permit Services

C-9248-12-0 : Jul 3 2018 2:37PM -- BROWND : Joint Inspection Required with BROWND

8. The permittee's request for approval of an equivalent IC engine shall be submitted to the District at least 90 days prior to the planned installation date. The permittee shall also notify the District at least 30 days prior to the actual installation of the District approved equivalent IC engine. [District Rule 2201]
9. {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]
10. {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]
11. {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]
12. Emissions from this IC engine shall not exceed any of the following limits: 3.54 g-NOx/bhp-hr, 1.06 g-CO/bhp-hr, or 0.19 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
13. Emissions from this IC engine shall not exceed 0.05 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
14. {4261} This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]
15. {3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]
16. {3807} An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702 and 17 CCR 93115]
17. {3808} This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702 and 17 CCR 93115]
18. {3496} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
19. {4920} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201, 4102, and 4702, and 17 CCR 93115]
20. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
21. {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

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Appendix B

Coating Operation Material Usage Lists

E-Coat Operation Material List

Material	Manufacturer	Usage (gal/day)	Usage (gal/year)	VOC content, less water and exempt compounds (lb/gal)	VOC content, as applied (lb/gal)	Solids Content by Weight (%)	Solids Content by Weight (lb/gal)	Solids Content by Volume (%)	Uncontrolled VOC PE (lb/day)	Uncontrolled VOC PE (lb/year)
Prime Coat - Fugitive Tank Emissions										
		50	15,000	0.24	0.24	N/A	3.53	0.385	12.0	3,600
		4.48	1,400	0.01	0.01	N/A	9.25	0.685	0.1	19
Pretreatment Solvent										
		1.9	580	0.15	0.15	N/A	N/A	N/A	0.3	87

Total: 12.3 3,706

Main Paint Line Material List

Material	Manufacturer	Usage (gal/day)	Usage (gal/year)	VOC content, less water and exempt compounds (lb/gal)	VOC content, as applied (lb/gal)	Solids Content by Weight (%)	Solids Content by Weight (lb/gal)	Solids Content by Volume (%)
Adhesion Promoters - Gray								
		7.34	2,292	6.20	6.20	N/A	2.21	0.75
				5.80	5.80	N/A	2.17	0.75
Adhesion Promoter - White								
		7.34	2,292	5.70	5.70	N/A	2.39	0.75
Basecoats and Topcoats								
		67.47	21,084	3.00	1.20	N/A	2.55	0.75
				3.00	1.30	N/A	2.55	0.75
				3.00	1.20	N/A	2.55	0.75
				3.20	1.20	N/A	2.79	0.75
				3.10	1.40	N/A	2.73	0.75
				3.00	1.30	N/A	2.73	0.75
				3.30	1.50	N/A	2.55	0.75
				3.50	1.40	27	2.35	24
				3.50	1.40	26	2.25	23
				3.50	1.40	26	2.26	22
				3.50	1.40	26	2.31	22
				3.50	1.40	27	2.36	23
				3.50	1.80	46	4.55	32
				3.50	1.40	27	2.4	22
Metallic Basecoats								
		67.47	633	4.60	1.60	18	1.51	16
				4.60	1.60	16	1.34	14
Clearcoats Part A								
		123.84	19,931	4.20	4.20	N/A	4.45	0.75
				4.10	4.10	54	4.48	49.7
				3.90	3.90	57	4.79	51
				4.70	4.70	48	4.13	40.7
				3.90	3.90	57	4.79	50.7
Clearcoats Part B								
		35.9	5,778	8.50	8.50	N/A	7.71	0.75
				2.70	2.70	74	6.59	68.7
Primers								
		31.22	9,756	4.00	4.00	69	7.59	59
				4.00	4.00	67	6.63	58
Monocoats								
		3.7	1,157	3.77	3.77	0.5971	5.16	0.75
Purge Solvent								
		8	2,500	0.37	0.37	N/A	N/A	N/A
		8	2,500	7.15	7.15	N/A	N/A	N/A
Total:								
		1402.9	271,213					
		1,568.7	327,476					
		Uncontrolled VOC PE (lb/day)	Uncontrolled VOC PE (lb/year)					
		45.5	14,210					
		17.5	5,478					
		Uncontrolled PM10 PE (lb/day)	Uncontrolled PM10 PE (lb/year)					
		307.0	95,932					
		16.3	5,074					

Final Repair Coating Operation Material List

Material	Manufacturer	Usage (gal/day)	Usage (gal/year)	VOC content, less water and exempt compounds (lb/gal)	VOC content, as applied (lb/gal)	Solids Content by Weight (%)	Solids Content by Weight (lb/gal)	Solids Content by Volume (%)
Basecoats and Topcoats								
				3.00	1.20	2.55	2.55	0.75
				3.00	1.30	2.55	2.55	0.75
				3.00	1.20	2.55	2.55	0.75
				3.20	1.20	2.79	2.79	0.75
				3.10	1.40	2.73	2.73	0.75
				3.00	1.30	2.73	2.73	0.75
				3.30	1.50	2.55	2.55	0.75
			233	3.50	1.40	27	2.35	24
				3.50	1.40	26	2.25	23
				3.50	1.40	26	2.26	22
				3.50	1.40	26	2.31	22
				3.50	1.40	27	2.36	23
				3.50	1.80	46	4.55	32
				3.50	1.40	27	2.4	22
Clearcoats Part A								
				4.10	4.10	54	4.48	49.7
				3.90	3.90	57	4.79	51
			127	4.70	4.70	48	4.13	40.7
				3.90	3.90	57	4.79	50.7
Clearcoats Part B								
			53	2.70	2.70	74	6.59	68.7
Primers								
			16	4.00	4.00	69	7.59	59
				4.00	4.00	67	6.63	58
Monocoats								
			8	3.77	3.77	0.5971	5.16	0.75
Purge Solvent								
			19	0.17	0.04	N/A	N/A	N/A

Appendix C

Subpart MM and Rule 4602 VOC Emission Limit Compliance Calculations

E-Coat Operation Subpart MM and Rule 4602 VOC Emission Limit Compliance Calculations

Material	Usage (gal/year)	VOC content, as applied (lb/gal)	Total Annual VOC Mass Emissions (lb/year)	Solids Content (% by vol, as decimal)	Annual Volume of Solids (gal/year)	Dip Tank Transfer Efficiency	Annual Volume of Solids Deposited (gal/year)	Uncontrolled Emission Rate (lb VOC/Gal Applied Solids)
Compliance Equation Identifier	L _{ci}	WD	M _O (L _{ci} * WD)	V _{si}	L _s (L _{ci} * V _{si})	T	(L _s * T)	G [M _O / (L _s * T)]
Prime Coat								
	15,000	0.24	3,600	0.385	5,775	1.0	5,775	0.62
	1,400	0.01	19	0.685	959	1.0	959	0.02
Total for E-Coat Tank Fugitive Emissions			3,619				6,734	0.54
Prime Coat								
	15,000	0.46	6,864	0	0.00	1.0	0.00	
	1,400	0.03	36	0	0.00	1.0	0.00	
Total for E-Coat Curing Oven Emissions			6,900				0	No additional solids applied in oven

Main Paint Line Subpart MM VOC Emission Limit Compliance Calculations

Material	Usage (gal/year)	VOC content, as applied (lb/gal)	Total Annual VOC Mass Emissions (lb/year)	Solids Content (% by vol, as decimal)	Annual Volume of Solids (gal/year)	Automatic Electrostatic Transfer Efficiency	Annual Volume of Solids Deposited (gal/year)	Uncontrolled Emission Rate (lb VOC/gal Applied Solids)
Compliance Equation Identifier	L _{ci}	WD	M _o (L _{ci} * WD)	V _{si}	L _s (L _{ci} * V _{si})	T	(L _s * T)	G [M _o / (L _s * T)]
Primer-Surfacers/Guide Coats								
	9,756							
	4,878	4.00	19,512	0.59	2,878	0.9	2,590	7.53
	4,878	4.00	19,512	0.58	2,829	0.9	2,546	7.66
Total for Primer-Surfacers/Guide Coats			39,024				5,137	7.60
Basecoats and Topcoats								
	21,084							
	1,506	1.20	1807.20	0.24	361.44	0.9	325.30	5.56
	1,506	1.30	1957.80	0.24	361.44	0.9	325.30	6.02
	1,506	1.20	1807.20	0.25	376.50	0.9	338.85	5.33
	1,506	1.20	1807.20	0.21	316.26	0.9	284.63	6.35
	1,506	1.40	2108.40	0.26	391.56	0.9	352.40	5.98
	1,506	1.30	1957.80	0.25	376.50	0.9	338.85	5.78
	1,506	1.50	2259.00	0.25	376.50	0.9	338.85	6.67
	1,506	1.40	2108.40	0.24	361.44	0.9	325.30	6.48
	1,506	1.40	2108.40	0.23	346.38	0.9	311.74	6.76
	1,506	1.40	2108.40	0.22	331.32	0.9	298.19	7.07
	1,506	1.40	2108.40	0.22	331.32	0.9	298.19	7.07
	1,506	1.40	2108.40	0.23	346.38	0.9	311.74	6.76
	1,506	1.80	2710.80	0.32	481.92	0.9	433.73	6.25
	1,506	1.40	2108.40	0.22	331.32	0.9	298.19	7.07
Metallic Basecoats								
	633							
	316.5	1.60	506.40	0.16	50.64	0.9	45.58	11.11
	316.5	1.60	506.40	0.14	44.31	0.9	39.88	12.70
Clearcoats Part A								
	19,931							
	3,986.20	4.20	16742.04	0.48	1913.38	0.9	1722.04	9.72
	3,986.20	4.10	16343.42	0.497	1981.14	0.9	1783.03	9.17
	3,986.20	3.90	15546.18	0.51	2032.96	0.9	1829.67	8.50
	3,986.20	4.70	18735.14	0.407	1622.38	0.9	1460.15	12.83
	3,986.20	3.90	15546.18	0.507	2021.00	0.9	1818.90	8.55
Clearcoats Part B								
	5,778							
	2,889	8.50	24556.50	0.77	2224.53	0.9	2002.08	12.27
	2,889	2.70	7800.30	0.687	1984.74	0.9	1786.27	4.37
Monocoats								
	1,157							
	1,157	3.77	4361.89	0.507	586.60	0.9	527.94	8.26
Total for Topcoats			149,710				17,597	8.51

Polish Operation Subpart MM and Rule 4602 VOC Emission Limit Compliance Calculations

Material	Usage (gal/year)	VOC content, as applied (lb/gal)	Total Annual VOC Mass Emissions (lb/year)	Solids Content (% by vol, as decimal)	Annual Volume of Solids (gal/year)	Orbital Buffer Transfer Efficiency	Annual Volume of Solids Deposited (gal/year)	Uncontrolled Emission Rate (lb VOC/Gal Applied Solids)
Compliance Equation Identifier	L _{ci}	WD	M _o (L _{ci} * WD)	V _{sl}	L _s (L _{ci} * V _{sl})	T	(L _s * T)	G [M _o / (L _s * T)]
Polish - Topcoat								
	720	1.74	1,253	0.1	72.00	1.0	72.00	17.40
	720	1.74	1,253	0.1	72.00	1.0	72.00	17.40
Total for Polish			2,506				144	17.40

Prototype Coating Operation Subpart MM and Rule 4602 VOC Emission Limit Compliance Calculations

Material	Usage (gal/year)	VOC content, as applied (lb/gal)	Total Annual VOC Mass Emissions (lb/year)	Solids Content (% by vol, as decimal)	Annual Volume of Solids (gal/year)	HVLP Gun Transfer Efficiency	Annual Volume of Solids Deposited (gal/year)	Uncontrolled Emission Rate (lb VOC/Gal Applied Solids)
Compliance Equation Identifier	L _{ci}	WD	M _o (L _{ci} * WD)	V _{si}	L _s (L _{ci} * V _{si})	T	(L _s * T)	G [M _o / (L _s * T)]
Primer-Surfacers/Guide Coats								
	16							
	8	4.00	32.00	0.59	4.72	0.75	3.54	9.04
	8	4.00	32.00	0.58	4.64	0.75	3.48	9.20
Total for Primer-Surfacers/Guide Coats			64				7	9.12
Basecoats and Topcoats								
	233							
	16.6	1.20	19.92	0.24	3.98	0.75	2.99	6.67
	16.6	1.30	21.58	0.24	3.98	0.75	2.99	7.22
	16.6	1.20	19.92	0.25	4.15	0.75	3.11	6.40
	16.6	1.20	19.92	0.21	3.49	0.75	2.61	7.62
	16.6	1.40	23.24	0.26	4.32	0.75	3.24	7.18
	16.6	1.30	21.58	0.25	4.15	0.75	3.11	6.93
	16.6	1.50	24.90	0.25	4.15	0.75	3.11	8.00
	16.6	1.40	23.24	0.24	3.98	0.75	2.99	7.78
	16.6	1.40	23.24	0.23	3.82	0.75	2.86	8.12
	16.6	1.40	23.24	0.22	3.65	0.75	2.74	8.48
	16.6	1.40	23.24	0.22	3.65	0.75	2.74	8.48
	16.6	1.40	23.24	0.23	3.82	0.75	2.86	8.12
	16.6	1.80	29.88	0.32	5.31	0.75	3.98	7.50
	16.6	1.40	23.24	0.22	3.65	0.75	2.74	8.48
Clearcoats Part A								
	127							
	25.4	4.20	106.68	0.48	12.19	0.75	9.14	11.67
	25.4	4.10	104.14	0.497	12.62	0.75	9.47	11.00
	25.4	3.90	99.06	0.51	12.95	0.75	9.72	10.20
	25.4	4.70	119.38	0.407	10.34	0.75	7.75	15.40
	25.4	3.90	99.06	0.507	12.88	0.75	9.66	10.26
Clearcoats Part B								
	53							
	26.5	8.50	225.25	0.77	20.41	0.75	15.30	14.72
	26.5	2.70	71.55	0.687	18.21	0.75	13.65	5.24
Monocoats								
	8							
	8	3.77	30.16	0.507	4.06	0.75	3.04	9.91
Total for Topcoats			1,176				120	9.81

Appendix D

New BACT Determination and Top-Down BACT Analysis for
Electrodeposition Coating (E-Coat) Operation

San Joaquin Valley Air Pollution Control District

BACT Determination

Electrodeposition Coating Operation at an Automotive Assembly Plant – Dip Tanks

Facility Name:	Faraday & Future, Inc.	Date:	June 26, 2018
Mailing Address:	PO Box 11262 Carson, CA 90749	Engineer:	Derek Fukuda
Contact Person:	Dag Reckhorn	Lead Engineer:	Jerry Sandhu
Telephone:	(310) 483-4006		
E-Mail:	Dag.reckhorn@ff.com		
Application #:	C-9248-6-0		
Project #:	C-1180142		

I. **PROPOSAL**

Faraday & Future, Inc has requested an Authority to Construct (ATC) permit for the installation of a pre-treatment and electrodeposition coating (e-coat) operation with a curing oven at their automotive assembly plant.

II. **PROJECT LOCATION**

The facility is located at 10701 Idaho Ave in Hanford, CA.

III. **EQUIPMENT LISTING**

C-9248-6-0: MOTOR VEHICLE ASSEMBLY DIP COATING LINE (E-COAT) CONSISTING OF SIX DIP TANKS, ONE FINAL RINSE STATION, ELECTRODEPOSITION APPLICATION EQUIPMENT AND A PERMIT EXEMPT CURING OVEN WITH TWO 2.5 MMBTU/HR NATURAL GAS-FIRED BURNERS SERVED BY ONE 5.2 MMBTU/HR REGENERATIVE THERMAL OXIDIZER (RTO SHARED WITH PERMIT C-9248-8)

IV. **PROCESS DESCRIPTION**



V. CONTROL EQUIPMENT EVALUATION

The facility has proposed the use of low-VOC coating which meet the current VOC emission limits in District Rule 4602, Motor Vehicle Assembly Coating, and exhaust all emissions from the curing oven to an RTO with a minimum 95% control of VOC emissions.

A. Best Available Control Technology (BACT) for Permit Unit C-9248-6-0:

Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per 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 per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined by the rule.

*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

VOC is the only pollutant emitted by the pre-treatment and e-coat operation. The curing oven has the potential to emit NO_x, SO_x, PM₁₀, VOC, and CO from the combustion of natural gas, and VOC from the reaction process that occurs during the curing of the e-coat. Based on a review the curing oven, it was determined that the burners in the curing oven are exempt from permitting; therefore, the only potential emissions from the curing oven will be VOC emissions from the coating reaction process. The coatings proposed by the applicant for use in the operation are listed in Appendix B, and the proposed daily and annual PEs of each dip tank in the operation and curing oven are summarized in the following table:

Potential Emissions (VOC)			
Emissions Unit	Operation	Daily PE (lb/day)	Annual PE (lb/year)
Dip Tank #1	Pre-Treatment	0.0	0
Dip Tank #2	Pre-Treatment	0.0	0
Dip Tank #3	Pre-Treatment	0.3	87
Dip Tank #4	Pre-Treatment	0	0
Dip Tank #5	E-Coat*	12.6	3,619
Dip Tank #6			
Dip Tank #7	Rinse	0.0	0
Curing Oven**	Curing Oven	1.1	345

* The E-Coat is applied to vehicles in dip tanks #5 and #6. The PE for the E-Coat operation is based on the amount of coating applied to each vehicle. Therefore, the maximum PE from dip tanks #5 and #6 will be the combined PE from both tanks, calculated based on the coating applied to each vehicle.

**Vented to an RTO with 95% control of VOC emissions.

As shown above, BACT is triggered for VOC emissions from proposed e-coat dip tanks #5 and #6 for having daily emissions greater than two pounds.

B. BACT Policy

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."

The District's 2nd quarter 2018 BACT Clearinghouse was surveyed to determine if an existing BACT guideline was applicable for this class and category of operation. The following two BACT guidelines were evaluated to determine if they were applicable to the operation in this project.

- BACT Guideline 4.2.1: Automotive Spray Painting Operation, < 5.0 MMBtu/hr
- BACT Guideline 4.2.10: Motor Vehicle Chassis Coating Operation – Electrodeposition with a Curing Oven

BACT Guideline 4.2.1 applies to the application of coating of motor vehicle using spray equipment. The operation proposed in this project applies coatings using electrodeposition dip tanks; therefore, BACT Guideline 4.2.1 is not applicable.

BACT Guideline 4.2.10 applies to the application of coatings to truck chassis using electrodeposition. The operation proposed in this project uses electrodeposition to apply coatings to automobile bodies before curing the coatings in a curing oven. Truck chassis and automobile bodies require different levels of precision when applying coating. For example, the electrodeposition coating of a truck chassis is performed in one tank while the coating process for automobiles in the proposed operation is performed in six separate tanks. Therefore, BACT Guideline 4.2.10 is not applicable.

Therefore, pursuant to the District's BACT policy, a Top-Down BACT analysis will be performed for inclusion of a new determination in the District's BACT Clearinghouse.

C. Top-Down BACT Analysis

VOC Emissions:

a. Step 1 - Identify All Possible Control Technologies

The following references were consulted to determine the level of control that is currently being required:

- California Air Resources Board (CARB) BACT Clearinghouse
- Environmental Protection Agency (EPA) BACT/LAER Clearinghouse
- South Coast Air Quality Management District (SCAQMD) BACT Clearinghouse
- Bay Area Air Quality Management District (BAAQMD) BACT Clearinghouse
- San Joaquin Valley Air Pollution Control District (SJVAPCD) BACT Clearinghouse
- Sacramento Metro Air Quality Management District (SMAQMD) BACT Clearinghouse

The following Rules were also consulted:

- SJVAPCD Rule 4602 (Motor Vehicle Assembly Coatings)
- SCAQMD Rule 1115 (Motor Vehicle Assembly Line Coating Operations)
- BAAQMD Regulation 8, Rule 13 (Light and Medium Duty Motor Vehicle Assembly Plants)
- 40 CFR Part 60 Subpart MM (Standards of Performance for Automobile and Light Duty Truck Surface Coating Operations)

BACT Clearinghouse Survey:

The BACT Clearinghouses for the agencies listed above were explored to locate a BACT Guideline applicable to dip tanks in e-coating of automobile bodies in automobile assembly operations. There are currently numerous existing BACT Guidelines addressing automotive coating operations and dip coating operations.

EPA BACT/LAER Clearinghouse

The EPA BACT/LAER Clearinghouse contained multiple automobile assembly operations that included electrodeposition coating operations. These automobile assembly operations include operations such as Subaru of Indiana Automotive, Inc. (RBLC ID IN-0278, IN-0278, IN-0195), Toyota Motor Manufacturing, Kentucky, Inc. (RBLC ID KY-0102), and Volkswagen Group of America, Chattanooga Operations (RBLC ID TN-0161 & TN-0160). The information gathered for the electrodeposition operations at these facilities did not indicate that the dip tanks in the electrodeposition operations were enclosed or controlled. The information did verify that the curing oven used to cure the e-coats were all controlled by an RTO. However, BACT is not triggered for the electrodeposition curing oven in this project and no evaluation of control technologies for curing ovens will be performed.

Applicable Rules Survey:

The e-coat operation in this project would be subject to the emission limits in the following rules:

Rule 4602 – Motor Vehicle Assembly Coatings (SJVAPCD)

The emission limit in this rule includes emissions from the entire e-coat operation (including application area, spray/rinse stations, and curing oven) and changes based on the solids turnover ratio ($R_T^{(6)}$) of the operation. The most stringent emission limit is when the R_T is greater than 0.16; therefore, this emission limit will be used to determine BACT requirements of this operation.

- When $R_T > 0.16$:
0.084 kg of VOC/liter (0.7 lb/gal) coating solids applied

Rule 1115 – Motor Vehicle Assembly Line Coating Operations (SCAQMD)

- 145 g/liter (1.2 lb/gal), less water and exempt compounds

Regulation 8, Rule 13 – Light and Medium Duty Motor Vehicle Assembly Plants (BAAQMD)

- Primer Surfacer: 1.80 kg-VOC/liter (15.0 lb/gal) of applied coating solids.

40 CFR Part 60 Subpart MM

The emission limit in this rule changes based on the R_T of the operation. The most stringent emission limit is when the R_T is greater than 0.16; therefore, this emission limit will be used to determine BACT requirements of this operation.

- When $R_T > 0.16$:
0.17 kg of VOC/liter coating solids applied

As shown above, SJVAPCD Rule 4602 has more stringent VOC limits than that is required by SCAQMD Rule 1115, BAAQMD Regulation 8, Rule 13, and 40 CFR Part 60 Subpart MM. Therefore, only the more stringent VOC limits from SJVAPCD Rule 4602 will be addressed as a potential control option in this top-down BACT analysis.

List of Other Control Options Found:

Capture and Control – Thermal/Catalytic Incineration, and Carbon Adsorption

Capture and control of VOC emissions from the e-coat dip tanks using a thermal/catalytic incinerator or carbon adsorption system are common technologically feasible BACT

⁽⁶⁾ R_T = Solids Turnover Ratio = The ratio of total volume of Coating solids that is added to the e-coat system in a calendar month divided by the total volume design capacity of the e-coat system.

technologies. These control technologies are included in numerous BACT Guidelines for coating application processes and other VOC emitting sources (e.g. SJVAPCD BACT Guidelines 4.2.1, 4.2.2, 4.2.4 through 4.2.8). Therefore, the District will consider these control technologies as a part of this BACT determination.

Achieved-in-Practice Determination:

Achieved in practice (AIP) shall be an emission level or an emission control technology or technique that has been identified by the District, CARB, EPA, or any other air pollution control District as having been AIP for the same class and category of source. An emission control technology or technique is considered to be AIP provided all of the following are satisfied:

- At least one vendor must offer this equipment for regular or full-scale operation. A performance guarantee should be (but is not required to be) available with the purchase of the control technology.
- The control technology must have been installed and operated reliably at one or more commercial facilities for at least 180 days.
- The control technology must be verified to perform effectively over the range of operation expected for that class and category of source. The verification shall be based on a performance test or tests, when possible, or other performance data.

0.084 kg of VOC/liter (0.7 lb/gal) coating solids applied

Existing SJVAPCD Rule 4602, Table 1, lists a VOC content limit for electrodeposition primer operations (including application area, spray/rinse stations, and curing oven). There are currently no operations permitted in the SJVAPCD that are subject to this electrodeposition primer emission limit.

Conclusion:

A control option is considered to be AIP provided all three of the parameters listed at the start of this section are satisfied. The most stringent control option identified is 0.084 kg-VOC/liter coating solids applied.

Based on the information above, the AIP BACT level for VOC will be set equal to the following:

- 0.084 kg-VOC/liter (0.7 lb/gal) coating solids applied

Technologically Feasible Control Alternatives:

Capture and Control – Thermal/Catalytic Incineration, or Carbon Adsorption:

A device to capture emissions (e.g. booth) could physically be constructed around the proposed e-coat dip tanks and provide 100% capture of all VOCs emitted from the operation. Since the emissions from the dip tanks could be captured, VOC capture and control

technologies can be considered technologically feasible. These technologies, consisting of a thermal/catalytic incineration system, and carbon adsorption system, will be considered as a part of this BACT determination.

b. Step 2 – Eliminate Technologically Infeasible Options

All control options identified in step 1 above have been determined to be technologically feasible.

c. Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Rank	Control Efficiency Or Emission Factor	Achieved-in-Practice
1	Capture and Control – Thermal/Catalytic Incineration (98%)	No
2	Capture and Control – Carbon Adsorption (95%)	No
3	0.084 kg-VOC/liter (0.7 lb/gal) coating solids applied	Yes

d. Step 4 – Cost Effectiveness Analysis

A cost effective analysis must be performed for all control options that have not been determined to be achieved in practice in the list from Step 3 above, in the order of their ranking, to determine the cost effective option with the lowest emissions.

District BACT Policy APR 1305 establishes annual cost thresholds for imposed control based upon the amount of pollutants reduced by the controls. If the cost of control is at or below the threshold, it is considered a cost effective control. If the cost exceeds the threshold, it is not cost effective and the control is not required. Per District BACT Policy, the maximum cost limit for VOC reduction is \$17,500 per ton of VOC emissions reduced.

For the purposes of District cost effectiveness analysis, the amount of emissions reduced is defined as the emissions from the technologically feasible control option versus District Standard Emissions (DSE) from this class and category of operation. For new emission units, DSE are equal to the emissions level allowed by an applicable District rule once the final compliance date for the rule has passed. As discussed in this analysis above, District Rule 4602 requires the electrodeposition operation meet a VOC emission limit of less than or equal to 0.084 kg of VOC/liter (0.7 lb/gal) coating solids applied.

DSE = 0.084 kg of VOC/liter (0.7 lb/gal) coating solids applied

In order to calculate the emission reductions from the technologically feasible options, the annual VOC emissions will be adjusted based on the difference between the DSE emission limit listed above and the VOC emission limit proposed by the applicant for this project. As shown by the VOC emission limit compliance calculation in the engineering evaluation for this project, the facility's proposed electrodeposition coating will have VOC emissions less than 0.57 lb-VOC/gallon of applied coating solids.

Based on throughput rates proposed by the facility, the total VOC emissions from the electrodeposition coating operation will have annual VOC emissions of 3,706 lb/year. Therefore, the total emission rate, based on the DSE emission limit, can be determined using the equation shown below.

Proposed Annual VOC Emissions = 3,706 lb/year
Proposed VOC Emission Limit = 0.57 lb-VOC/gal applied solids
DSE VOC Emission limit = 0.7 lb-VOC/gal applied solids

$$\begin{aligned} PE_{DSE} &= [(Total\ VOC\ Emissions) \times (DSE\ Emission\ Limit)] / (Proposed\ VOC\ Emissions) \\ &= [(3,706\ lb/year) \times (0.7\ lb-VOC/gal\ applied\ solids)] / (0.57\ lb-VOC/gal\ applied\ solids) \\ &= \mathbf{4,551\ lb-VOC/year} \end{aligned}$$

Option 1 – Capture and Control – Thermal/Catalytic Incineration:

98% total control using a VOC capture and control system with thermal/catalytic incineration and 100% capture.

(A). Emission Reduction:

Based on the emissions determined above and assuming a VOC capture efficiency of 100% and thermal incineration system control efficiency of 98%, the amount of VOC emissions reduced is calculated below:

$$\begin{aligned} VOC\ Emission\ Reductions &= DSE \times 1\ tons/2,000\ lb \times Overall\ Control\ Eff. \\ &= 4,551\ lb/year \times 1\ tons/2,000\ lb \times 0.98 \\ &= \mathbf{2.23\ ton/year} \end{aligned}$$

(B). Design Parameters:

In order to effectively capture the VOC emissions from the e-coat dip tanks, an enclosed booth or draft hood would have to be installed over the dips tanks that trigger BACT (tanks #5 and #6). The applicant has stated that the combined dimensions of dip tanks #5 and #6 are approximately 11' W x 50' L. Since a draft hood is expected to have lower capital and operation costs compared to an enclosed booth, a draft hood was chosen for this cost effective analysis.

Per District practice, it is assumed that an open area maintaining a face velocity of 100 fpm will have no fugitive emissions escaping out of the open area. The airflow that would be needed, to achieve a face velocity of 100 fpm, for a draft hood can be estimated using the following equation:⁽⁷⁾

$$Q = 1.4 \times P \times H \times FV$$

Where: Q = airflow, in dry standard cubic feet per minute
 P = perimeter of adhesive operation, in feet
 H = height of hood above adhesive operation, in feet⁽⁸⁾
 FV = face velocity, in feet per minute

⁽⁷⁾ Equation taken from, Industrial Ventilation, 17th edition, A Manual of Recommended Practice, Section 5, page 5-101, 1982.

⁽⁸⁾ As a conservative estimate for the purpose of this cost effective analysis, it will be assumed that the draft hood will be hung at a height of 1 foot above the operation.

Therefore, the airflow required for this draft hood is shown below.

$$Q \text{ (dscfm)} = 1.4 \times (11' + 50' + 11' + 50') \times 1' \times 100 \text{ fpm} \\ = 17,080 \text{ dscfm}$$

(C). Annual Natural Gas Cost:

It will be shown that the cost of the natural gas alone will be adequate to cause these technologies to be not cost effective per District BACT policy. This estimate does not include the capital cost of purchasing the incinerator units or any additional operational and maintenance costs. The increase in temperature of the contaminated air stream required by a catalytic incineration system is less than for a thermal incineration system. Therefore, by demonstrating that the cost of the natural gas required by a catalytic incinerator would cause such a system to not be cost effective will also be sufficient to show that a thermal incineration system would not be cost effective either.

The cost of natural gas for this operation is calculated based on an operating schedule of 16 hr/day and 300 day/year (288,000 min/year). A heat exchanger efficiency of 50% is assumed.

$$\text{Natural Gas Usage} = \text{Flow Rate} \times C_{p\text{Air}} \times \Delta T \times \text{HEF}$$

Where: Flow Rate = Air flow through the incinerator (17,080 cfm)
 $C_{p\text{Air}}$ = specific heat of air is 0.194 Btu/scf - °F
 ΔT = increase in the temperature of the contaminated air stream required for catalytic incineration to occur (It will be assumed that the air stream would increase in temperature from 77°F to 600°F.)
HEF = heat exchanger factor (0.5, assumed)

$$\begin{aligned}\text{Natural Gas Usage} &= 17,080 \text{ cfm} \times 0.194 \text{ Btu/scf} \times (600^\circ\text{F} - 77^\circ\text{F}) \times 0.5 \\ &\quad \times 288,000 \text{ min/year} \times \text{MMBtu}/10^6 \text{ Btu} \\ &= 249,548 \text{ MMBtu/year}\end{aligned}$$

$$\begin{aligned}\text{Natural Gas Cost} &= 249,548 \text{ MMBtu/year} \times \$6.96/\text{MMBtu}^{(9)} \\ &= \mathbf{\$1,736,854}\end{aligned}$$

(D). Cost of VOC Emission Reduction

$$\begin{aligned}\text{Cost of reductions} &= (\$1,736,854/\text{year}) \div (2.23 \text{ ton/year}) \\ &= \mathbf{\$778,858/\text{ton of VOC reduced}}\end{aligned}$$

The cost of reducing VOC emissions 98% utilizing a thermal/catalytic incinerator would be greater than the \$17,500/ton cost effectiveness threshold of the District BACT policy. This control option is therefore not cost effective and is being removed from consideration at this time.

Option 2 – Capture and Control – Carbon Adsorption:

95% total control using a VOC capture and control system with carbon adsorption and 100% capture.

(A). Emission Reduction:

Based on the emissions determined above and assuming a VOC capture efficiency of 100% and carbon adsorption system control efficiency of 95%, the amount of VOC emissions reduced is calculated below:

$$\begin{aligned}\text{VOC Emission Reductions} &= \text{Annual PE}_{\text{VOC}} \times 1 \text{ tons}/2,000 \text{ lb} \times \text{Overall Control Eff.} \\ &= 4,551 \text{ lb/year} \times 1 \text{ tons}/2,000 \text{ lb} \times 0.95 \\ &= \mathbf{2.16 \text{ ton/year}}\end{aligned}$$

(B). Annual Carbon Replacement Costs:

Carbon adsorption occurs when air containing VOCs is blown through a carbon unit and the VOCs are adsorbed onto the surface of the cracks in the activated carbon particles. Two main areas of cost are the cost of the carbon adsorption unit itself and the annual operating cost of the unit. The primary annual operating cost is the replacement of the spent activated carbon. It will be shown that the annual cost to replace the spent activated carbon alone will be adequate to cause this technology to be not cost effective per District BACT policy. This estimate does not include the capital cost of purchasing the carbon adsorption unit or any additional operational and maintenance costs.

⁽⁹⁾ The natural gas price used is based on the average of the California industrial natural gas price over 12 months (January 2017 through December 2017) as published by the U.S. Energy Information Administration in their latest monthly natural gas report. See <http://tonto.eia.doe.gov/dnav/ng/hist/n3035ca3m.htm>

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

$$\begin{aligned}\text{Carbon Required} &= 4,551 \text{ lb-VOC/year} \times 0.95 \times 1 \text{ lb-Carbon}/0.2 \text{ lb-VOC} \\ &= 21,617 \text{ lb-Carbon/year}\end{aligned}$$

$$\begin{aligned}\text{Annual Carbon Replacement Cost} &= 21,617 \text{ lb-Carbon/year} \times \$2.91/\text{lb-Carbon}^{(10)} \\ &= \$62,905/\text{year}\end{aligned}$$

(C). Cost Effectiveness of a Carbon Adsorption System:

$$\begin{aligned}\text{Cost Effectiveness} &= \text{Annual Carbon Replacement Cost (\$/year)} \\ &\quad \div \text{Emission Reduction (ton-VOC/year)} \\ &= \$62,905/\text{year} \div 2.16 \text{ ton-VOC/year} \\ &= \mathbf{\$29,123/\text{ton-VOC}}\end{aligned}$$

The cost of reducing VOC emissions 95% utilizing a carbon adsorption system would be greater than the \$17,500/ton cost effectiveness threshold of the District BACT policy. Therefore, this VOC control option is not cost effective and is being removed from consideration for this project.

Option 3 - 0.084 kg of VOC/liter (0.7 lb/gal) coating solids applied:

The only remaining control option in step 3 above has been deemed AIP for this class and category of source and per the District BACT policy is required regardless of the cost. Therefore, a cost effectiveness analysis is not required.

e. Step 5 - Select BACT

Based on this analysis, BACT for the emission unit is determined to 0.084 kg of VOC/liter (0.7 lb/gal) coating solids applied. The facility is proposing an e-coat operation that will have VOC emissions lower than 0.084 kg of VOC/liter (0.7 lb/gal) coating solids applied; therefore, BACT is satisfied for VOC emissions and no further discussion is required.

⁽¹⁰⁾ The cost of carbon replacement used in this evaluation is based on the cost of a 55 pound bag of 4x8 virgin activated carbon charcoal as provide by EnviroSupply & Service Inc. (<http://envirosupply.net>). The cost of carbon replacement for this project is \$2.91/lb-Carbon (\$160/55 lb bag) for standard carbon.

Attachment D-1

Proposed Pages for the BACT Clearinghouse

**San Joaquin Valley
Unified Air Pollution Control District**

Best Available Control Technology (BACT) Guideline 4.2.X

Emission Unit: Dip Tanks in an Electrodeposition
Coating Operation at an
Automotive Assembly Plant

Industry Type: All
Last Update: July 3rd, 2018

Equipment Rating: Any

	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
VOC	0.084 kg of VOC/liter (0.7 lb/gal) coating solids applied	1) Thermal/Catalytic Incineration (98% capture and control) 2) Carbon Adsorption (95% capture and control)	

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 - Permit Specific BACT Determinations on Next Page(s)**

3rd Qtr. 2018

**San Joaquin Valley
Unified Air Pollution Control District**

Best Available Control Technology (BACT) Guideline 4.2.X

Emission Unit: Dip Tanks in an Electrodeposition
Coating Operation at an
Automotive Assembly Plant

Equipment Rating: N/A

References: ATC #: C-9248-6-0
Project #: C-1180142

Facility: Faraday & Future, Inc.

Date of Determination: July 3rd, 2018

Location: 10701 Idaho Ave
Hanford, CA

Pollutant	BACT Requirements
NO _x	N/A
SO _x	N/A
PM ₁₀	N/A
CO	N/A
VOC	0.084 kg of VOC/liter (0.7 lb/gal) coating solids applied

BACT Status:

☒ Achieved in practice ☐ Small Emitter ☐ T-BACT

☐ Technologically feasible BACT

☐ At the time of this determination achieved in practice BACT was equivalent to technologically feasible BACT

☐ Contained in EPA approved SIP

☒ The following technologically feasible options were not cost effective:

- *Capture and Control – Thermal/Catalytic Incineration*
- *Capture and Control – Carbon Adsorption*

☐ Alternate Basic Equipment

☐ The following alternate basic equipment was not cost effective:

3rd Qtr. 2018

Appendix E

New BACT Determination and Top-Down BACT Analysis for
Motor Vehicle Assembly Coating Operation (Main Paint Line)

San Joaquin Valley Air Pollution Control District

BACT Determination

Main Paint Line at an Automotive Assembly Plant

Facility Name:	Faraday & Future, Inc.	Date:	June 26, 2018
Mailing Address:	PO Box 11262 Carson, CA 90749	Engineer:	Jesse A. Garcia
Contact Person:	Dag Reckhorn	Lead Engineer:	Jerry Sandhu
Telephone:	(310) 483-4006		
E-Mail:	Dag.reckhorn@ff.com		
Application #:	C-9248-8-0		
Project #:	C-1180142		

I. PROPOSAL

Faraday & Future, Inc has requested an Authority to Construct (ATC) permit for the installation of a main paint line consisting of prep booth, an open-face paint spray booth with dry exhaust filters, High-Volume Low-Pressure (HVLV) application equipment and permit exempt natural gas-fired curing ovens all served by a 5.2 MMBtu/hr regenerative thermal oxidizer (RTO) at their automotive assembly plant.

II. PROJECT LOCATION

The facility is located at 10701 Idaho Ave in Hanford, CA.

III. EQUIPMENT LISTING

C-9248-8-0: MOTOR VEHICLE ASSEMBLY COATING OPERATION (MAIN PAINT LINE) CONSISTING OF ONE PREP BOOTH, ONE DOWNDRAFT PAINT SPRAY BOOTH WITH DRY EXHAUST FILTERS AND ROBOTIC ELECTROSTATIC APPLICATION EQUIPMENT, FIVE PERMIT EXEMPT NATURAL GAS-FIRED CURING OVENS (CLOSED INDIRECT FIRED HEAT TRANSFER SYSTEMS, EACH ≤ 5 MMBTU/HR), AND ONE FINAL INSPECTION BOOTH ALL SERVED BY A 5.2 MMBTU/HR NATURAL GAS-FIRED REGENERATIVE THERMAL OXIDIZER (RTO SHARED WITH PERMIT C-9248-6)

V. PROCESS DESCRIPTION

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

V. CONTROL EQUIPMENT EVALUATION



Based on information provided by the main paint line designer and manufacturer, it is expected that 100% of the VOC emissions will be captured by the air seal system. All the emission points between the first and final air seal are exhausted to the RTO. The manufacturer of the RTO has guaranteed that it is capable of achieving a 98% VOC control efficiency. However, since this is a brand new facility and operation and source testing will be required, Faraday & Future, Inc has requested to build a factor of safety into the expected control efficiency of the RTO. Faraday & Future, Inc has requested to utilize a minimum overall VOC capture and control efficiency of 95% for the RTO. Therefore, it is expected that all of the VOC emissions from the main paint line will be captured and controlled by at least 95%.

A. Best Available Control Technology (BACT) for Permit Unit C-9248-8-0:

Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per 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 per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined by the rule.

*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

VOC and PM10 are the only pollutants emitted by the main paint line coating operation venting through the RTO. The proposed daily and annual PEs for this unit are summarized in the table below:

Coating Operation – vented through RTO:

Total VOC and PM10 emission rate from the paint line exhausting through the RTO is shown in the table below.

Operation	VOC PE (lb/day)	VOC PE (lb/year)	PM10 PE (lb/day)	PM10 PE (lb/year)
Main Paint Line Coating Operation	70.2	13,562	19.6	4,093

As shown above, BACT is triggered for VOC and PM10 emissions from the proposed coating operation in the main paint line for having daily emissions greater than two pounds per day.

B. BACT Policy

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.”

The District’s 2nd quarter 2018 BACT Clearinghouse was surveyed to determine if an existing BACT guideline was applicable for this class and category of operation. The following two BACT guidelines were evaluated to determine if they were applicable to the operation in this project.

- BACT Guideline 4.2.1: Automotive Spray Painting Operation, < 5.0 MMBtu/hr
- BACT Guideline 4.2.10: Motor Vehicle Chassis Coating Operation – Electrodeposition with a Curing Oven

BACT Guideline 4.2.1 applies to the application of coating of motor vehicle using spray equipment that is compliant with District Rule 4612 Motor Vehicle and Mobile Equipment Coating Operations. The operation proposed in this project is subject to District Rule 4602 Motor Vehicle Assembly Coatings which exempts the operation from Rule 4612; therefore, this BACT guideline is not applicable.

BACT Guideline 4.2.10 applies to the application of coatings to truck chassis using electrodeposition. The operation proposed does not coat the chassis. Therefore, BACT Guideline 4.2.10 is not applicable.

Therefore, pursuant to the District’s BACT policy, a Top-Down BACT analysis will be performed for inclusion of a new determination in the District’s BACT Clearinghouse.

C. Top-Down BACT Analysis

I. *VOC Emissions:*

a. Step 1 - Identify All Possible Control Technologies

The following references were consulted to determine the level of control that is currently being required for automotive assembly plants:

- California Air Resources Board (CARB) BACT Clearinghouse
- Environmental Protection Agency (EPA) BACT/LAER Clearinghouse
- South Coast Air Quality Management District (SCAQMD) BACT Clearinghouse
- Bay Area Air Quality Management District (BAAQMD) BACT Clearinghouse
- San Joaquin Valley Air Pollution Control District (SJVAPCD) BACT Clearinghouse
- Sacramento Metro Air Quality Management District (SMAQMD) BACT Clearinghouse
- San Diego County Air Pollution Control District (SDAPCD) BACT Clearinghouse

The following Rules were also consulted:

- SJVAPCD Rule 4602 (Motor Vehicle Assembly Coatings)
- SCAQMD Rule 1115 (Motor Vehicle Assembly Line Coating Operations)
- BAAQMD Regulation 8, Rule 13 (Light and Medium Duty Motor Vehicle Assembly Plants)

BACT Clearinghouse Survey:

The BACT Clearinghouses for the agencies listed above were explored to locate a BACT Guideline applicable to coating of automobile bodies in automobile assembly operations. The following BACT Guidelines were found to be applicable:

BAAQMD BACT Guideline 161.4.1

Achieved in Practice:

Coating with VOC content and transfer efficiency complying with Regulation 8, Rule 13

Technologically Feasible:

Coating with VOC content less than and transfer efficiency greater than that required by Regulation 8, Rule 13, and emissions controlled to overall capture/ destruction efficiency >60%

EPA BACT/LAER Clearinghouse

The EPA BACT/LAER Clearinghouse was searched for other facilities in Process Type 41.002 (Automotive and Trucks Surface Coating - OEM) that lists a control efficiency for a spray booth. Additionally, the permits, where available, were reviewed to verify the data entered into the database. A summary of these results are presented below:

RBLC ID	Facility Name	Site State	Emissions Unit	RBLC Stated VOC Eff (%)	Source	Permit Date	VOC Capture (%)	VOC Control (%)	Total Capture and Control (%)	Source of VOC Capture & Control
AL-0191	Hyundai Motor Manufacturing	AL	Primer Surface Operations	95	RBLC	03/23/2004	-	-	-	-
AL-0191	Hyundai Motor Manufacturing	AL	Topcoat Operations	95	RBLC	03/23/2004	-	-	-	-
AL-0211	Hyundai Motor Manufacturing	AL	Painting Booth - Rocker Panel Primer	95	RBLC	03/14/2005	-	-	-	-
IN-0149	Subaru of Indiana	IN	ED Curing Oven	63	RBLC	10/04/2012	70	90	60	Permit
IN-0195	Subaru of Indiana	IN	Topcoat Coating Line - Option A	95	RBLC	05/16/2014	18	95	13	Permit
IN-0195	Subaru of Indiana	IN	Intermediate/Topcoat Option B	95	RBLC	05/16/2014	-	-	-	-
IN-0278	Subaru of Indiana	IN	Topcoat Oven	95	RBLC	02/01/2017	-	-	-	-
IN-0278	Subaru of Indiana	IN	Entire Paint Coating Line System C	95	RBLC	02/01/2017	-	-	-	-
KY-0101	Kentucky Truck Plant	KY	3-wet Guidecoat Paint Application	95	RBLC	02/26/2014	-	-	-	-
KY-0101	Kentucky Truck Plant	KY	3-wet Topcoat Application and Curing	95	RBLC	02/26/2014	-	-	-	-
KY-0102	Toyota Motor Manufacturing	KY	Primer Coat	60	RBLC	11/26/2013	-	-	-	-
KY-0102	Toyota Motor Manufacturing	KY	Top Coat	60.2	RBLC	11/26/2013	-	-	-	-
KY-0108	Toyota Motor Manufacturing	KY	Primer and Basecoat Booth	76.95	RBLC	02/24/2016	-	-	-	-
MI-0422	Sterling Heights Assembly Plant	MI	Topcoat Box	90	RBLC	10/01/2016	-	-	-	-
MI-0428	Sterling Heights Assembly Plant	MI	Topcoat Box	90	RBLC	11/02/2017	-	-	-	-
OH-0280	Daimler Chrysler Corporation Paint Shop	OH	Topcoat Booths for Basecoat and Clearcoat	95	RBLC	09/02/2004	100	95	95	Permit
OH-0309	Daimler Chrysler Corporation Toledo Supplier Park-Paint Shop	OH	Topcoat Booths for Basecoat and Clearcoat	95	RBLC	05/03/2007	100	95	95	Permit
OH-0312	Kenworth Truck Co.	OH	Robotic Cab Paint Booths, Line 1	93	RBLC	01/29/2008	96	97	93	Permit
TN-0160	Volkswagen Group of America, Chattanooga Operations	TN	Topcoat Operations	95	RBLC	10/10/2008	-	-	-	-
TN-0161	Volkswagen Group of America, Chattanooga Operations	TN	Topcoat Operations	95	RBLC	12/03/2012	-	-	-	-
VA-0324	Volvo Truck North America Inc	VA	Primer, Basecoat, Clearcoat Spray Booths	95	RBLC	01/19/2016	95	95	90	Source Test

The table above demonstrates that the facilities with the highest capture and control efficiencies are required to achieve or have been source tested to demonstrate a 90% or greater capture and control efficiency.

1. 90% capture and control, VA-0324, Vovlo Truck North America Inc.
 2. 93% capture and control, OH-0312, Kenworth Truck Co.
 3. 95% capture and control, OH-0280 and OH-0309, Daimler Chrysler Corporation
-
1. Volvo Truck North America Inc. – This facility recently (August/September 2017) performed a source test on the Plastics Basecoat/Clearcoat and Cab Basecoat/Clearcoat operations served by an RTO demonstrating a 95% capture efficiency (minus 3 standard deviations). The overall capture and control is 90% (95% capture and 95% control).
 2. Kenworth Truck Co. – The permits for this operation state that 4% of VOCs are uncaptured (96% captured). Although the permit requires 96% capture efficiency, the operation has not been tested to demonstrate a 96% capture efficiency.
 3. Daimler Chrysler Corporation – Although both of the units at the sites operated by this company require a 100% capture efficiency and a 95% control, the units have been source tested and verified to have a capture efficiency of 62.6% (23.3% from basecoat flash oven, 7.4% from basecoat bake oven, 31.9% from clearcoat bake oven) whereas the second facility was verified to have the following capture efficiencies: 72.10% for Classic Black, 51.85% for Bright Silver, 95.60% for Diamondcoat CC. The overall capture and control is as low as 46.9% (51.85% capture and 95% control) and as high as 90.1% (95.6 capture and 95% control).

Applicable Rules Survey:

The main paint line operation in this project would be subject to the requirements in the following rules:

Rule 4602 – Motor Vehicle Assembly Coatings (SJVAPCD)

This rule lists coating emission factors and an alternative compliance method using an emission control system capable of capturing and controlling 90% of VOC emissions.

Rule 1115 – Motor Vehicle Assembly Line Coating Operations (SCAQMD)

This rule lists coating emission factors and an alternative compliance method using an emission control system capable of reducing emissions by an equivalent or greater level to that which would have been achieved by the emission factors stated in the rule. No specific capture and control efficiency is required.

Regulation 8, Rule 13 – Light and Medium Duty Motor Vehicle Assembly Plants (BAAQMD)

This rule lists coating emission factors and offers no alternative compliance method

List of Other Control Options Found:

Capture and control of VOC emissions using a thermal/catalytic incinerator or carbon adsorption systems are common technologically feasible BACT technologies. Although thermal/catalytic incinerators are typically more efficient in controlling VOC emissions, this analysis does not specify a control technology, but only a minimum capture and control efficiency.

Achieved-in-Practice Determination:

Achieved-in-practice (AIP) shall be an emission level or an emission control technology or technique that has been identified by the District, CARB, EPA, or any other air pollution control District as having been AIP for the same class and category of source. An emission control technology or technique is considered to be AIP provided all of the following are satisfied:

- At least one vendor must offer this equipment for regular or full-scale operation. A performance guarantee should be (but is not required to be) available with the purchase of the control technology.
- The control technology must have been installed and operated reliably at one or more commercial facilities for at least 180 days.
- The control technology must be verified to perform effectively over the range of operation expected for that class and category of source. The verification shall be based on a performance test or tests, when possible, or other performance data.

90% Capture and Control

Based off of verified (via source test) capture efficiencies, the overall capture and control of VOC emissions, when including a margin of compliance, of a minimum of 90% (95% capture and 95% control) is considered to be AIP.

Conclusion:

A control option is considered to be AIP provided all three of the parameters listed at the start of this section are satisfied. The most stringent control option identified is a minimum of 90% capture and control.

Based on the information above, the AIP BACT level for VOC will be set equal to the following:

- 90% capture and control

Technologically Feasible Control Alternatives:

Capture and Control – Thermal/Catalytic Incineration, or Carbon Adsorption:

The facilities researched for the AIP determination all used thermal incineration which is considered to have the highest control efficiency when compared to carbon adsorption; therefore, no other control technology will result in a higher control efficiency. However, the facility has proposed to use thermal incineration (RTO) to achieve an overall capture and control of at least 95%; therefore, this will be listed as technologically feasible.

b. Step 2 – Eliminate Technologically Infeasible Options

All control options identified in step 1 above have been determined to be technologically feasible.

c. Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Rank	Control Efficiency Or Emission Factor	Achieved-in-Practice
1	95% Capture and Control	No
2	90% Capture and Control	Yes

d. Step 4 – Cost Effectiveness Analysis

The applicant is proposing the most effective control option for VOC; therefore, a cost effectiveness analysis is not required.

e. Step 5 - Select BACT

Based on this analysis, BACT for VOCs from the emission unit is determined to be a minimum of 95% capture and control of VOCs. The facility is proposing an operation that will have a minimum of 95% capture and control of VOCs; therefore, BACT is satisfied for VOC emissions and no further discussion is required.

II. PM10 Emissions:

a. Step 1 - Identify All Possible Control Technologies

The following references were consulted to determine the level of control that is currently being required for automotive assembly plants.

- California Air Resources Board (CARB) BACT Clearinghouse
- Environmental Protection Agency (EPA) BACT/LAER Clearinghouse
- South Coast Air Quality Management District (SCAQMD) BACT Clearinghouse
- Bay Area Air Quality Management District (BAAQMD) BACT Clearinghouse
- San Joaquin Valley Air Pollution Control District (SJVAPCD) BACT Clearinghouse
- Sacramento Metro Air Quality Management District (SMAQMD) BACT Clearinghouse
- San Diego County Air Pollution Control District (SDAPCD) BACT Clearinghouse

The following Rules were also consulted:

SJVAPCD Rule 4602 (Motor Vehicle Assembly Coatings)
SCAQMD Rule 1115 (Motor Vehicle Assembly Line Coating Operations)
BAAQMD Regulation 8, Rule 13 (Light and Medium Duty Motor Vehicle Assembly Plants)

BACT Clearinghouse Survey:

The BACT Clearinghouses for the agencies listed above were explored to locate a BACT Guideline applicable to coating of automobile bodies in automobile assembly operations. The following BACT Guidelines were found to be applicable:

BAAQMD BACT Guideline 161.4.1

Achieved in Practice:
Dry Filters or Waterwash, Properly Maintained

Technologically Feasible:
None listed

Applicable Rules Survey:

There were no rules found that apply to motor vehicle assembly coating operations that contain emission limits or control requirements for PM10 emissions.

List of Other Control Options Found:

Capture and control of PM₁₀ emissions from the spray application of coatings inside of a paint spray booth with an exhaust air system served by a dry filter system is a common control technology implemented by various types of coating operations permitted by the District. This control technology is included in numerous BACT Guidelines for other types of spray coating operations permitted by the District (e.g. SJVAPCD BACT Guidelines 4.2.1, 4.2.2, 4.2.4, 4.2.5, 4.2.6, 4.2.7 and 4.2.8). Therefore, the District will consider this control option as a part of this BACT analysis.

Achieved-in-Practice Determination:

As shown above, BAAQMD has a BACT guideline for motor vehicle assembly plant coating operations inside of a paint spray booth equipped with dry filters or waterwash and properly maintained.

The District has numerous automotive coating/refinishing operations permitted that apply coatings inside of a spray enclosed booth with dry exhaust filter systems. A typical motor vehicle and mobile equipment coating/refinishing operation applies coatings in an identical fashion to the proposed coating operation. They apply the coatings inside of an enclosed booth with the use of HVLP application equipment. Existing BACT guideline 4.2.1, which applies to automotive spray painting operations, requires an enclosed paint spray booth with exhaust filters (95% control efficiency) as AIP. Since the proposed coating operation will be performed utilizing the same methods and practices as an automobile refinishing operation, the AIP control technology from existing SJVAPCD BACT guideline 4.2.1 will be transferred and used to establish the AIP BACT requirements for this new class and category of source. Therefore, AIP BACT for PM₁₀ emissions will be set equal to the following:

1. Spray Booth with Exhaust Filters - 95% control efficiency

Technologically Feasible Control Alternatives:

As stated above the following were no additional technologically feasible alternatives.

b. Step 2 – Eliminate Technologically Infeasible Options

All control options identified in step 1 above have been determined to be technologically feasible.

c. Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Rank	Control Technology	Achieved-in-Practice
1	Spray Booth Served by Exhaust Filters (95% control efficiency)	Yes

d. Step 4 - Cost Effectiveness Analysis

The only control option listed in Step 3 above has been determined to be AIP. Therefore, a cost effectiveness analysis is not required.

e. Step 5 - Select BACT

Based on this analysis, BACT for PM₁₀ from the emission unit is the use of a coating operation served by exhaust filters that achieve a minimum control efficiency of 95%. The facility is proposing to use a coating operation served by dry exhaust filters that have a manufacturer guaranteed control efficiency of at least 95%. Therefore, BACT is satisfied for PM₁₀ emissions and no further discussion is required.

Attachment E-1

Proposed Pages for the BACT Clearinghouse

**San Joaquin Valley
Unified Air Pollution Control District**

Best Available Control Technology (BACT) Guideline 4.2.X

Emission Unit: Main Paint Line at an Automotive
Assembly Plant

Industry Type: All

Last Update: TBD

Equipment Rating: Any

	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
VOC	90% Capture and Control	95% Capture and Control	
PM10	Spray Booth Served by Exhaust Filters (95% control efficiency)		

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 - Permit Specific BACT Determinations on Next Page(s)**

**San Joaquin Valley
Unified Air Pollution Control District**

Best Available Control Technology (BACT) Guideline 4.2.X

Emission Unit: Main Paint Line at an Automotive Assembly Plant

Equipment Rating: N/A

Facility: Faraday & Future, Inc.

References: ATC #: C-9248-8-0
Project #: C-1180142

Location: 10701 Idaho Ave
Hanford, CA

Date of Determination: TBD

Pollutant	BACT Requirements
NO _x	N/A
SO _x	N/A
PM ₁₀	Spray Booth Served by Exhaust Filters (95% control efficiency)
CO	N/A
VOC	95% Capture and Control

BACT Status:

- ☒ Achieved in practice ☐ Small Emitter ☐ T-BACT
- ☒ Technologically feasible BACT
- ☐ At the time of this determination achieved in practice BACT was equivalent to technologically feasible BACT
- ☐ Contained in EPA approved SIP
- ☐ The following technologically feasible options were not cost effective:
- ☐ Alternate Basic Equipment
- ☐ The following alternate basic equipment was not cost effective:

4.2.X

Appendix F

BACT Guideline 4.2.12 and Top-Down BACT Analysis for Final Repair Coating Operation (C-9248-9-0), and Paint Polishing Operation and Plastic Parts Paint Polishing Operation (C-9248-10-0 and '-11-0)

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 4.2.12*

Last Update: 04/30/2018

**Small Scale Motor Vehicle Assembly (OEM) Coating Operation with a Booth
Heater, < 2,000 lb-VOC/year**

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Coatings compliant with District Rule 4602	1) Thermal/Catalytic Incineration (98% capture and control) 2) Carbon Adsorption (95% capture and control)	
PM10	Spray Booth with Exhaust Filters (95% control efficiency)		

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

I. Top Down BACT Analysis for Final Repair Coating Operation (C-9248-9-0)

1. VOC Emissions

a. Step 1 - Identify all control technologies

BACT Guideline 4.2.12 lists the following control technology options:

- 1) Coatings Compliance with District Rule 4602 (Achieved in Practice)
- 2) 98% Capture and Control – Thermal/Catalytic Incineration (Technologically Feasible)
- 3) 95% Capture and Control – Carbon Adsorption (Technologically Feasible)

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

VOC Emission Control Technology Rankings			
Rank	Control Technology	Control Efficiency	Status
1	Capture and Thermal/Catalytic Incineration	98%	Technologically Feasible
2	Capture and Carbon Adsorption	95%	Technologically Feasible
3	Coatings Compliant with District Rule 4602	N/A	Achieved in Practice

d. Step 4 - Cost Effectiveness Analysis

A cost effective analysis must be performed for all control options that have not been determined to be achieved in practice in the list from Step 3 above, in the order of their ranking, to determine the cost effective option with the lowest emissions.

District BACT Policy APR 1305 establishes annual cost thresholds for imposed control based upon the amount of pollutants reduced by the controls. If the cost of control is at or below the threshold, it is considered a cost effective control. If the cost exceeds the threshold, it is not cost effective and the control is not required. Per District BACT Policy, the maximum cost limit for VOC reduction is \$17,500 per ton of VOC emissions reduced.

For the purposes of District cost effectiveness analysis, the amount of emissions reduced is defined as the emissions from the technologically feasible control option versus District Standard Emissions (DSE) from this class and category of operation. For new emission units, DSE are equal to the emissions level allowed by an applicable District rule once the final compliance date for the rule has passed. As discussed in this analysis above, District Rule 4602 applies to the proposed coating operation. District Rule 4602 requires use of coatings that comply with the following limits:

Primer-Surfacer Operations = 1.44 kg-VOC/liter of deposited solids (12.0 lb-VOC/gal of deposited solids)
 Topcoat Operations = 1.44 kg-VOC/liter of deposited solids (12.0 lb-VOC/gal of deposited solids)
 Final Repair Operations = 0.58 kg-VOC/liter (4.8 lb-VOC/gal)

FF, Inc. is only proposing to perform final repair coating operations in this paint booth. Therefore, the DSE will be set equal to the following emission level for the purposes of this BACT analysis:

DSE = 0.58 kg-VOC/liter (4.8 lb-VOC/gal) – less water and exempt compounds

In order to calculate the emission reductions from the technologically feasible options, the annual VOC emissions will be adjusted based on the difference between the DSE emission limit listed above and the VOC emission limit proposed by the applicant for this project. As shown by the material usage listing for the final repair booth in Appendix B, the coatings that FF, Inc. is proposing to use have an average VOC content, less water and exempt compounds as follows: 3.50 lb-VOC/gallon. FF, Inc. has proposed a total VOC emission limit of 2,000 lb/year for this final repair coating operation. Therefore, the total emission rate, based on the DSE emission limit, can be determined using the equation shown below. As a conservative estimate, the lower VOC emission limit for topcoats will be used in this calculation.

Total Proposed Annual VOC Emissions = 2,000 lb/year
 Proposed VOC Emission Limit = 3.50 lb-VOC/gal deposited solids
 DSE VOC Emission limit = 4.8 lb-VOC/gal deposited solids

$$\begin{aligned} PE_{DSE} &= [(Total\ VOC\ Emissions) \times (DSE\ Emission\ Limit)] / (Proposed\ Emission\ Limit) \\ &= [(2,000\ lb/year) \times (4.8\ lb-VOC/gal)] / (3.50\ lb-VOC/gal) \\ &= 2,743\ lb-VOC/year \end{aligned}$$

Option 1 – Capture and Control – Thermal/Catalytic Incineration:

98% total control using a VOC capture and control system with thermal/catalytic incineration and 100% capture.

(A). Emission Reductions:

Based on the emissions determined above and assuming a VOC capture efficiency of 100% and thermal incineration system control efficiency of 98%, the amount of VOC emissions reduced is calculated below:

$$\begin{aligned} VOC\ Emission\ Reductions &= PE_{DSE} \times 1\ tons/2,000\ lb \times Overall\ Control\ Eff. \\ &= 2,743\ lb/year \times 1\ tons/2,000\ lb \times 0.98 \\ &= \mathbf{1.34\ ton/year} \end{aligned}$$

(B). Design Parameters:

Exhaust Gas Flow Rate (Q): 15,000 cfm (manufacturer's data)

(C). Annual Natural Gas Cost:

It will be shown that the cost of the natural gas alone will be adequate to cause these technologies to be not cost effective per District BACT policy. This estimate does not include the capital cost of purchasing the incinerator units or any additional operational and maintenance costs. The increase in temperature of the contaminated air stream required by a catalytic incineration system is less than for a thermal incineration. Therefore, by demonstrating that the cost of the natural gas required by a catalytic incinerator would cause such a system to not be cost effective will also be sufficient to show that a thermal incineration system would not be cost effective either.

The cost of natural gas for this operation is calculated based on an operating schedule of 16 hr/day and 2,500 hr/year (150,000 min/year) for this final repair coating operation. A heat exchanger efficiency of 50% is assumed.

$$\text{Natural Gas Usage} = \text{Flow Rate} \times \text{Cp}_{\text{Air}} \times \Delta T \times \text{HEF}$$

Where: Flow Rate = Air flow through the incinerator (15,000 cfm)
Cp_{Air} = specific heat of air is 0.194 Btu/scf - °F
ΔT = increase in the temperature of the contaminated air stream required for catalytic incineration to occur (It will be assumed that the air stream would increase in temperature from 77°F to 600°F.)
HEF = heat exchanger factor (0.5, assumed)

$$\begin{aligned} \text{Natural Gas Usage} &= 15,000 \text{ cfm} \times 0.194 \text{ Btu/scf} - ^\circ\text{F} \times (600 ^\circ\text{F} - 77 ^\circ\text{F}) \times 0.5 \\ &\quad \times 150,000 \text{ min/year} \times \text{MMBtu}/10^6 \text{ Btu} \\ &= 114,145 \text{ MMBtu/year} \end{aligned}$$

$$\begin{aligned} \text{Natural Gas Cost} &= 114,145 \text{ MMBtu/year} \times \$6.96/\text{MMBtu}^{(11)} \\ &= \mathbf{\$794,449/\text{year}} \end{aligned}$$

(D). Cost of VOC Emission Reduction

$$\begin{aligned} \text{Cost of reductions} &= (\$794,449/\text{year}) \div (1.34 \text{ ton/year}) \\ &= \mathbf{\$592,872/\text{ton of VOC reduced}} \end{aligned}$$

The cost of reducing VOC emissions 98% utilizing a thermal/catalytic incinerator would be greater than the \$17,500/ton cost effectiveness threshold of the District BACT policy. This control option is therefore not cost effective and is being removed from consideration at this time.

⁽¹¹⁾ The natural gas price used is based on the average of the California industrial natural gas price over 12 months (January 2017 through December 2017) as published by the U.S. Energy Information Administration in their latest monthly natural gas report. See <http://tonto.eia.doe.gov/dnav/ng/hist/n3035ca3m.htm>

Option 2 – Capture and Control – Carbon Adsorption:

95% total control using a VOC capture and control system with carbon adsorption and 100% capture.

(A). Emission Reduction:

Based on the emissions determined above and assuming a VOC capture efficiency of 100% and carbon adsorption system control efficiency of 95%, the amount of VOC emissions reduced is calculated below:

$$\begin{aligned}\text{VOC Emission Reductions} &= \text{Annual PE}_{\text{VOC}} \times 1 \text{ tons}/2,000 \text{ lb} \times \text{Overall Control Eff.} \\ &= 2,743 \text{ lb/year} \times 1 \text{ tons}/2,000 \text{ lb} \times 0.95 \\ &= \mathbf{1.30 \text{ ton/year}}\end{aligned}$$

(B). Annual Carbon Replacement Costs:

Carbon adsorption occurs when air containing VOCs is blown through a carbon unit and the VOCs are adsorbed onto the surface of the cracks in the activated carbon particles. Two main areas of cost are the cost of the carbon adsorption unit itself and the annual operating cost of the unit. The primary annual operating cost is the replacement of the spent activated carbon. It will be shown that the annual cost to replace the spent activated carbon alone will be adequate to cause this technology to be not cost effective per District BACT policy. This estimate does not include the capital cost of purchasing the carbon adsorption unit or any additional operational and maintenance costs.

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

$$\begin{aligned}\text{Carbon Required} &= 2,743 \text{ lb-VOC/year} \times 0.95 \times 1 \text{ lb-Carbon}/0.2 \text{ lb-VOC} \\ &= 13,029 \text{ lb-Carbon/year}\end{aligned}$$

$$\begin{aligned}\text{Annual Carbon Replacement Cost} &= 13,029 \text{ lb-Carbon/year} \times \$2.91/\text{lb-Carbon}^{(12)} \\ &= \$37,914/\text{year}\end{aligned}$$

(C). Cost Effectiveness of a Carbon Adsorption System:

$$\begin{aligned}\text{Cost Effectiveness} &= \text{Annual Carbon Replacement Cost } (\$/\text{year}) \\ &\quad \div \text{Emission Reduction } (\text{ton-VOC}/\text{year}) \\ &= \$37,914/\text{year} \div 1.30 \text{ ton-VOC}/\text{year} \\ &= \mathbf{\$29,165/\text{ton-VOC}}\end{aligned}$$

⁽¹²⁾ The cost of carbon replacement used in this evaluation is based on the cost of a 55 pound bag of 4x8 virgin activated carbon charcoal as provide by EnviroSupply & Service Inc. (<http://envirosupply.net>). The cost of carbon replacement for this project is \$2.91/lb-Carbon (\$160/55 lb bag) for standard carbon.

Option 3 – Coatings Compliant with District Rule 4602:

The only remaining control option in step 3 above has been deemed AIP for this class and category of source and per the District BACT policy is required regardless of the cost. Therefore, a cost effectiveness analysis is not required.

The cost to operate a carbon adsorption system is \$29,105/ton, which is greater than the District's VOC cost-effectiveness threshold of \$17,500/ton. Therefore, this VOC control option is not cost effective and is being removed from consideration for this project.

e. Step 5 - Select BACT

Based on analysis above, BACT for VOC emissions from a small-scale OEM automobile coating operation is the use of coatings that are in compliance with District Rule 4602. The applicant is proposing to use coatings that are compliant with District Rule 4602. Therefore, BACT is satisfied for VOC emissions and no further discussion is required.

1. PM₁₀ Emissions

a. Step 1 - Identify all control technologies

BACT Guideline 4.2.12 lists the following control technology options:

- 1) Spray Booth with Exhaust Filters (95% control efficiency) (Achieved in Practice)

d. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

e. Step 3 - Rank remaining options by control effectiveness

VOC Emission Control Technology Rankings			
Rank	Control Technology	Control Efficiency	Status
1	Spray Booth with Exhaust Filters (95% control efficiency)	95	Achieved in Practice

d. Step 4 - Cost Effectiveness Analysis

The only control option listed in Step 3 above has been determined to be achieved in practice. Therefore, a cost effectiveness analysis is not required.

e. Step 5 - Select BACT

Based on this analysis, BACT for PM₁₀ from a small-scale OEM motor vehicle coating operation is the use of a spray booth with exhaust filters that achieve a minimum control efficiency of 95%. The facility is proposing to meet BACT with the use of a spray booth with dry exhaust filters that have a manufacturer guaranteed control efficiency of at least 95%. Therefore, BACT is satisfied for PM₁₀ emissions and no further discussion is required.

II. Top Down BACT Analysis for Polishing Operations (C-9248-10-0 and '-11-0)

1. VOC Emissions

Both of the proposed polishing operations under C-9248-10-0 and '-11-0 apply the same polish material to painted products and will have the same material usage rates and VOC emission rates. Therefore, one top-down BACT analysis will be performed for both of these operations. The results of the analysis will be applied to both operations.

a. Step 1 - Identify all control technologies

BACT Guideline 4.2.12 lists the following control technology options:

- 1) Coatings Compliance with District Rule 4602 (Achieved in Practice)
- 2) 98% Capture and Control – Thermal/Catalytic Incineration (Technologically Feasible)
- 3) 95% Capture and Control – Carbon Adsorption (Technologically Feasible)

f. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

g. Step 3 - Rank remaining options by control effectiveness

VOC Emission Control Technology Rankings			
Rank	Control Technology	Control Efficiency	Status
1	Capture and Thermal/Catalytic Incineration	98%	Technologically Feasible
2	Capture and Carbon Adsorption	95%	Technologically Feasible
3	Coatings Compliant with District Rule 4602	N/A	Achieved in Practice

d. Step 4 - Cost Effectiveness Analysis

A cost effective analysis must be performed for all control options that have not been determined to be achieved in practice in the list from Step 3 above, in the order of their ranking, to determine the cost effective option with the lowest emissions.

District BACT Policy APR 1305 establishes annual cost thresholds for imposed control based upon the amount of pollutants reduced by the controls. If the cost of control is at or below the threshold, it is considered a cost effective control. If the cost exceeds the threshold, it is not cost effective and the control is not required. Per District BACT Policy, the maximum cost limit for VOC reduction is \$17,500 per ton of VOC emissions reduced.

For the purposes of District cost effectiveness analysis, the amount of emissions reduced is defined as the emissions from the technologically feasible control option versus District Standard Emissions (DSE) from this class and category of operation. For new emission units, DSE are equal to the emissions level allowed by an applicable District rule once the final compliance date for the rule has passed. As discussed in this analysis above, District Rule 4602 applies to the proposed coating operation. District Rule 4602 requires use of coatings that comply with the following limits:

Primer-Surfacer Operations = 1.44 kg-VOC/liter of deposited solids (12.0 lb-VOC/gal of deposited solids)
Topcoat Operations = 1.44 kg-VOC/liter of deposited solids (12.0 lb-VOC/gal of deposited solids)
Final Repair Operations = 0.58 kg-VOC/liter (4.8 lb-VOC/gal)

FF, Inc. is only proposing to apply topcoat (polish) in this small-scale OEM automobile coating operation. Therefore, the DSE will be set equal to the following emission level for the purposes of this BACT analysis:

DSE = 1.44 kg-VOC/liter of deposited solids (12.0 lb-VOC/gal of deposited solids)

In order to calculate the emission reductions from the technologically feasible options, the annual VOC emissions will be adjusted based on the difference between the DSE emission limit listed above and the VOC emission limit proposed by the applicant for this project. As shown by the VOC emission limit compliance calculations in Appendix C of the engineering evaluation for this project, the coatings that FF, Inc. is proposing to use for this coating operation has maximum VOC emissions as follows: Topcoats – 17.40 lb-VOC/gallon of deposited solids. The VOC emission limits from the coatings proposed to be applied by this operation exceed the Rule 4602 limits. However, the VOC limits in 4602 apply to all of the topcoat coating operations at the facility. As shown by the calculations in the Subpart MM discussion of this evaluation, the overall facility VOC emissions will be in compliance with the requirements of of Rule 4602. Since the VOC emissions from the coatings proposed to be used form this particular coating operation exceed the Rule 4602 emission limits, DSE will not be adjusted and will be set equal to the Rule 4602 emission limit for topcoats. FF, Inc. has proposed a total VOC emission limit of 1,253 lb/year for this polishing coating operation. Therefore, the DSE for this analysis will be set as follows:

$PE_{DSE} = 1,253 \text{ lb-VOC/year}$

Option 1 – Capture and Control – Thermal/Catalytic Incineration:

98% total control using a VOC capture and control system with thermal/catalytic incineration and 100% capture.

(A). Emission Reductions:

Based on the emissions determined above and assuming a VOC capture efficiency of 100% and thermal incineration system control efficiency of 98%, the amount of VOC emissions reduced is calculated below:

$$\begin{aligned}
 \text{VOC Emission Reductions} &= PE_{DSE} \times 1 \text{ tons}/2,000 \text{ lb} \times \text{Overall Control Eff.} \\
 &= 1,253 \text{ lb/year} \times 1 \text{ tons}/2,000 \text{ lb} \times 0.98 \\
 &= \mathbf{0.614 \text{ ton/year}}
 \end{aligned}$$

(B). Design Parameters:

Exhaust Gas Flow Rate (Q): 13,200 cfm (manufacturer's data for one booth)

(C). Annual Natural Gas Cost:

It will be shown that the cost of the natural gas alone will be adequate to cause these technologies to be not cost effective per District BACT policy. This estimate does not include the capital cost of purchasing the incinerator units or any additional operational and maintenance costs. The increase in temperature of the contaminated air stream required by a catalytic incineration system is less than for a thermal incineration. Therefore, by demonstrating that the cost of the natural gas required by a catalytic incinerator would cause such a system to not be cost effective will also be sufficient to show that a thermal incineration system would not be cost effective either.

The cost of natural gas for this operation is calculated based on an operating schedule of 16 hr/day and 2,500 hr/year (150,000 min/year) for this final repair coating operation. A heat exchanger efficiency of 50% is assumed.

$$\text{Natural Gas Usage} = \text{Flow Rate} \times Cp_{\text{Air}} \times \Delta T \times \text{HEF}$$

Where: Flow Rate = Air flow through the incinerator (13,200 cfm)
 Cp_{Air} = specific heat of air is 0.194 Btu/scf - °F
 ΔT = increase in the temperature of the contaminated air stream required for catalytic incineration to occur (It will be assumed that the air stream would increase in temperature from 77°F to 600°F.)
HEF = heat exchanger factor (0.5, assumed)

$$\begin{aligned}
 \text{Natural Gas Usage} &= 13,200 \text{ cfm} \times 0.194 \text{ Btu/ scf} - ^\circ\text{F} \times (600 ^\circ\text{F} - 77 ^\circ\text{F}) \times 0.5 \\
 &\quad \times 150,000 \text{ min/year} \times \text{MMBtu}/10^6 \text{ Btu} \\
 &= 100,447 \text{ MMBtu/year}
 \end{aligned}$$

$$\begin{aligned}
 \text{Natural Gas Cost} &= 100,447 \text{ MMBtu/year} \times \$6.96/\text{MMBtu}^{(13)} \\
 &= \mathbf{\$699,111/\text{year}}
 \end{aligned}$$

⁽¹³⁾ The natural gas price used is based on the average of the California industrial natural gas price over 12 months (January 2017 through December 2017) as published by the U.S. Energy Information Administration in their latest monthly natural gas report. See <http://tonto.eia.doe.gov/dnav/ng/hist/n3035ca3m.htm>.

(D). Cost of VOC Emission Reduction

$$\begin{aligned}\text{Cost of reductions} &= (\$699,111/\text{year}) \div (0.614 \text{ ton/year}) \\ &= \mathbf{\$1,138,617/\text{ton of VOC reduced}}\end{aligned}$$

The cost of reducing VOC emissions 98% utilizing a thermal/catalytic incinerator would be greater than the \$17,500/ton cost effectiveness threshold of the District BACT policy. This control option is therefore not cost effective and is being removed from consideration at this time.

Option 2 – Capture and Control – Carbon Adsorption:

95% total control using a VOC capture and control system with carbon adsorption and 100% capture.

(A). Emission Reduction:

Based on the emissions determined above and assuming a VOC capture efficiency of 100% and carbon adsorption system control efficiency of 95%, the amount of VOC emissions reduced is calculated below:

$$\begin{aligned}\text{VOC Emission Reductions} &= \text{Annual PE}_{\text{VOC}} \times 1 \text{ tons}/2,000 \text{ lb} \times \text{Overall Control Eff.} \\ &= 1,253 \text{ lb/year} \times 1 \text{ tons}/2,000 \text{ lb} \times 0.95 \\ &= \mathbf{0.6 \text{ ton/year}}\end{aligned}$$

(B). Annual Carbon Replacement Costs:

Carbon adsorption occurs when air containing VOCs is blown through a carbon unit and the VOCs are adsorbed onto the surface of the cracks in the activated carbon particles. Two main areas of cost are the cost of the carbon adsorption unit itself and the annual operating cost of the unit. The primary annual operating cost is the replacement of the spent activated carbon. It will be shown that the annual cost to replace the spent activated carbon alone will be adequate to cause this technology to be not cost effective per District BACT policy. This estimate does not include the capital cost of purchasing the carbon adsorption unit or any additional operational and maintenance costs.

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

$$\begin{aligned}\text{Carbon Required} &= 1,253 \text{ lb-VOC/year} \times 0.95 \times 1 \text{ lb-Carbon}/0.2 \text{ lb-VOC} \\ &= 5,952 \text{ lb-Carbon/year}\end{aligned}$$

$$\begin{aligned}\text{Annual Carbon Replacement Cost} &= 5,952 \text{ lb-Carbon/year} \times \$2.91/\text{lb-Carbon}^{(14)} \\ &= \$17,320/\text{year}\end{aligned}$$

(C). Cost Effectiveness of a Carbon Adsorption System:

$$\begin{aligned}\text{Cost Effectiveness} &= \text{Annual Carbon Replacement Cost } (\$/\text{year}) \\ &\quad \div \text{Emission Reduction (ton-VOC/year)} \\ &= \$17,320/\text{year} \div 0.6 \text{ ton-VOC/year} \\ &= \mathbf{\$28,867/\text{ton-VOC}}\end{aligned}$$

Option 3 – Coatings Compliant with District Rule 4602:

The only remaining control option in step 3 above has been deemed AIP for this class and category of source and per the District BACT policy is required regardless of the cost. Therefore, a cost effectiveness analysis is not required.

The cost to operate a carbon adsorption system is \$29,105/ton, which is greater than the District's VOC cost-effectiveness threshold of \$17,500/ton. Therefore, this VOC control option is not cost effective and is being removed from consideration for this project.

e. Step 5 - Select BACT

Based on analysis above, BACT for VOC emissions from a small-scale OEM automobile coating operation is the use of coatings that are in compliance with District Rule 4602. The applicant is proposing to use coatings that are compliant with District Rule 4602. Therefore, BACT is satisfied for VOC emissions and no further discussion is required.

⁽¹⁴⁾ The cost of carbon replacement used in this evaluation is based on the cost of a 55 pound bag of 4x8 virgin activated carbon charcoal as provide by EnviroSupply & Service Inc. (<http://envirosupply.net>). The cost of carbon replacement for this project is \$2.91/lb-Carbon (\$160/55 lb bag) for standard carbon.

Appendix G

BACT Guideline 3.1.1 and Top-Down BACT Analysis for
Emergency IC Engine (C-9248-12-0)

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.1.1*

Last Update: 9/10/2013

Emergency Diesel IC engine

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Latest EPA Tier Certification level for applicable horsepower range*		
SOX	Very low sulfur diesel fuel (15 ppmw sulfur or less)		
PM10	0.15 g/bhp-hr or the Latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent. (ATCM)		
NOX	Latest EPA Tier Certification level for applicable horsepower range*		
CO	Latest EPA Tier Certification level for applicable horsepower range*		

*Note: for emergency engines 50 <= bhp < 75, Tier 4 Interim certification is the requirement; for emergency engines 75 <= bhp < 750, Tier 3 certification is the requirement; for emergency engines >= 750 bhp, Tier 2 certification is the requirement.

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**

Top Down BACT Analysis for the Emergency IC Engine

BACT Guideline 3.1.1 (September 10, 2013) applies to emergency diesel IC engines. In accordance with the District BACT policy, information from that guideline will be utilized without further analysis.

1. BACT Analysis for NO_x and VOC Emissions:

a. Step 1 - Identify all control technologies

BACT Guideline 3.1.1 identifies only the following option:

- *Latest EPA Tier Certification level for applicable horsepower range*

To determine the latest applicable Tier level, the following EPA and state regulations were consulted:

- 40 CFR Part 89 – Control of Emissions from New and In-Use Nonroad Compression – Ignition Engines
- 40 CFR Part 1039 – Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines
- Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines

40 CFR Parts 89 and 1039, which apply only to nonroad engines, do not directly apply because the proposed emergency engine does not meet the definition of a nonroad engine. Therefore, only Title 17 CCR, Section 93115 applies directly to the proposed emergency engine.

Title 17 CCR, Section 93115.6(a)(3)(A) (CARB stationary diesel engine ATCM) applies to emergency standby diesel-fired engines and requires that such engines be certified to the emission levels in Table 1 (below).

Table 1: Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines g/bhp-hr (g/kW-hr)					
Maximum Engine Power	Tier	Model Year(s)	PM	NMHC+NOx	CO
50 ≤ HP < 75 (37 ≤ kW < 56)	2	2007	0.15 (0.20)	5.6 (7.5)	3.7 (5.0)
	4i	2008+		3.5 (4.7)	
75 ≤ HP < 100 (56 ≤ kW < 75)	2	2007	0.15 (0.20)	5.6 (7.5)	3.7 (5.0)
	3	2008+		3.5 (4.7)	
100 ≤ HP < 175 (75 ≤ kW < 130)	3	2007	0.15 (0.20)	3.0 (4.0)	3.7 (5.0)
		2008+			
175 ≤ HP < 300 (130 ≤ kW < 225)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
300 ≤ HP < 600 (225 ≤ kW < 450)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
600 ≤ HP ≤ 750 (450 ≤ kW ≤ 560)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
HP > 750 (kW > 560)	2	2007	0.15 (0.20)	4.8 (6.4)	2.6 (3.5)
		2008+			

Therefore, the most stringent applicable emission standards are those listed in the CARB ATCM (Table 1).

For IC engines rated greater than or equal to 50 hp and less than 75 hp, the highest Tier required is Tier 4i. For IC engines rated greater than or equal to 75 hp and less than 750 hp, the highest Tier required is Tier 3. For engines rated equal to or greater than 750 hp, the highest Tier required is Tier 2.

Also, please note that neither the state ATCM nor the Code of Federal Regulations require the installation of IC engines meeting a higher Tier standard than those listed above for emergency applications, due to concerns regarding the effectiveness of the exhaust emissions controls during periods of short-term operation (such as testing operational readiness of an emergency engine).

The proposed engine is rated at 762 hp. Therefore, the applicable control technology option is EPA Tier 2 certification.

b. Step 2 - Eliminate technologically infeasible options

The control option listed in Step 1 is not technologically infeasible.

c. Step 3 - Rank remaining options by control effectiveness

No ranking needs to be done because there is only one control option listed in Step 1.

d. Step 4 - Cost Effectiveness Analysis

The applicant has proposed the only control option remaining under consideration. Therefore, a cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for NOx and VOC emissions will be the use of an EPA Tier 2 certified engine. The applicant is proposing such a unit. Therefore, BACT will be satisfied.

Appendix H

Health Risk Assessment (HRA) and Ambient Air Quality Analysis (AAQA) Summaries

San Joaquin Valley Air Pollution Control District

Risk Management Review

To: Dustin Brown – Permit Services

From: Kyle Melching – Technical Services

Date: July 3, 2018

Facility Name: Faraday & Future, Inc.

Location: 10701 Idaho Ave., Hanford

Application #(s): C-9248-5-0 thru 12-0

Project #: C-1180142

A. RMR SUMMARY

RMR Summary						
Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required ?	Special Permit Requirements?
Unit 5-0 (BIW)	N/A ¹	N/A ¹	N/A ¹	N/A ¹	No	No
Unit 6-0 (E-Coating)	0.02	0.00	0.00	N/A ¹	No	Yes
Unit 7-0 (E-Coat Sanding Op)	0.02	0.00	0.00	1.34E-08	No	Yes
Unit 8-0 (Autocoating)	20.8	0.00	0.00	1.54E-06	Yes	Yes
Unit 9-0 (Autocoating Repair)	1.1	0.02	0.00	1.71E-07	No	Yes
Unit 10 (Paint Sand and Polish)	0.05	0.00	0.00	3.82E-08	No	Yes
Unit 11 (Plastics Sand and Polish)	0.03	0.00	0.00	4.95E-08	No	Yes
Unit 12 (Diesel IC Engine)	2.31	N/A ¹	0.00	1.48E-07	No	Yes
Project Totals	>1	0.03	0.00	1.98E-06		
Facility Totals	>1	0.3	0.04	2.36E-06		

¹Cancer risk, Acute and/or the Chronic Hazard Index was not calculated since there is no risk factor or the risk factor is so low that it has been determined to be insignificant for this type of unit.

Proposed Permit Requirements

Unit # 6-0

1. The exhaust stack for the thermal oxidizers shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction.

Unit # 7-0

1. The exhaust stack for the thermal oxidizer shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction.

To ensure that human health risks will not exceed District allowable levels and to comply with the Airborne Toxic Control Measure (ATCM) for Emissions of Hexavalent Chromium and Cadmium from Motor Vehicle and Mobile Equipment Coatings; the following permit conditions must be included for:

Unit # 8-0 & 9-0

2. 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.
3. {Revised 4442} No coatings, solvents, or additives containing hexavalent chromium or cadmium shall be used. [District Rule 4102]
4. No coatings, solvents, or additives containing lead or nickel shall be used. [District Rule 4102]
5. VOC emissions shall not exceed 30 lb/day or 2,000 lb/yr

Unit # 10-0 & 11-0

1. The sanding booth 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.

Unit # 12-0

1. The PM10 emissions rate shall not exceed 0.05 g/bhp-hr based on US EPA certification using ISO 8178 test procedure.
2. 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.
3. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year.

T-BACT is required for Unit 8 because of emissions of Naphthalene which is a VOC.

B. RMR REPORT

I. Project Description

Technical Services received a request on June 19, 2018, to perform a Risk Management Review and Ambient Air Quality Analysis (AAQA) for a proposed installation of an electric car manufacturing operation. The operation consists of the following operations:

- C-9248-5-0:** Motor vehicle body assembly operation (BIW) consisting of adhesive and sealant application equipment
- C-9248-6-0:** Electrodeposition coating (E-coat) operation consisting of seven dip tanks, and one permit exempt curing oven vented to the thermal oxidizer listed on C-9248-8-0 (RTO shared with '-8-0)
- C-9248-7-0:** E-Coat wet sanding booth with a 1.808 MMBtu/hr natural gas-fired booth heater and sealing station with non-atomizing sealant application equipment
- C-9148-8-0:** Motor vehicle assembly paint line with HVLP application equipment and five permit exempt curing ovens all served by a 5.2 MMBtu/hr regenerative thermal oxidizer (RTO)
- C-9248-9-0:** Final repair motor vehicle coating operation consisting of a paint spray booth with dry exhaust filters, HVLP application equipment, and one 1.50 MMBtu/hr natural gas-fired booth heater
- C-9248-10-0:** Paint sanding and polish operation consisting of three enclosed booths, each with dry exhaust filters, hand-held vacuum sanding units served by a central vacuum system and wet filtration system, and three 1.808 MMBtu/hr natural gas-fired booth heaters (one for each booth)
- C-9248-11-0:** Plastic parts sanding operation consisting of two enclosed booths, each with dry exhaust filters, hand-held vacuum sanding units served by a central vacuum system and wet filtration system, and two 1.808 MMBtu/hr natural gas-fired booth heaters (one for each booth).
- C-9248-12-0:** 762 bhp Perkins model 2506C-E15TAG3 Tier 2 certified diesel-fired emergency standby IC engine powering an electrical generator

II. Analysis

Toxic emissions for this proposed project were calculated using Ventura County's emission factors for external combustion sources and Safety Data Sheets (SDS's) for the coatings, adhesives, sealers, polishes and cleaners used in the operation were reviewed by CAS# for Toxic Air Contaminants (TACs). The values were entered into coating spreadsheets to calculate the TAC emissions. The metal percentages from coating and sanding operations were entered into the PM10 spreadsheet to calculate the TAC emissions. Diesel PM10 emissions were provided by the processing engineer, and input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015), risks from the proposed unit's toxic emissions were prioritized using the procedure in the 2016 CAPCOA Facility Prioritization Guidelines. The prioritization score for this proposed facility was greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required. The AERMOD model was used, with the parameters outlined below and meteorological data for 2013-2017 from Hanford to determine the dispersion

factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Analysis Parameters			
Unit 5-0 (BIW)Two Identical Area Sources			
Source Type	Area	X-Length (m)	9.67
Release Height (m)	16.76	Y-Length (m)	90.97
VOC (lb/hr)	0.18	VOC (lb/yr)	907

Analysis Parameters			
Unit 6-0 (E-Coat Dip Tank)		Unit 7-0 (E-Coat Sanding/Booth Heater)	
Source Type	Point*	Source Type	Point
Stack Height (m)	10.67	Stack Height (m)	9.14
Stack Diameter. (m)	0.91	Stack Diameter. (m)	0.86
Stack Exit Velocity (m/s)	17.08	Stack Exit Velocity (m/s)	10.64
Stack Exit Temp. (°K)	354	Stack Exit Temp. (°K)	293
VOC Emissions (lb/hr)	0.05	VOC Emissions (lb/hr)	0.05
VOC Emissions (lb/hr)	345	VOC Emissions (lb/hr)	360
Surface Cleaning VOC (lb/hr)	0.08	PM10 Emissions (lb/hr)	0.08
Surface Cleaning VOC (lb/yr)	730	PM10 Emissions (lb/yr)	447
		NG Usage (mmscf/hr)	0.0018
		NG Usage (mmscf/yr)	15.84
		Surface Cleaning VOC (lb/hr)	0.08
		Surface Cleaning VOC (lb/yr)	730

*Vented to unit -8 RTO

Analysis Parameters			
Unit 8-0 (Paint Spray Booth)		Unit 9-0 (Final Repair Booth)	
Source Type	Point	Source Type	Point
Stack Height (m)	10.67	Stack Height (m)	9.14
Stack Diameter. (m)	0.91	Stack Diameter. (m)	0.86
Stack Exit Velocity (m/s)	17.08	Stack Exit Velocity (m/s)	12.09
Stack Exit Temp. (°K)	354	Stack Exit Temp. (°K)	294
VOC Emissions (lb/hr)	2.93	VOC Emissions (lb/hr)	1.25
VOC Emissions (lb/hr)	13,562	VOC Emissions (lb/hr)	2,000
PM10 Emissions (lb/hr)	0.33	PM10 Emissions (lb/hr)	0.1
PM10 Emissions (lb/yr)	1,637	PM10 Emissions (lb/yr)	158
NG Usage (mmscf/hr)	0.0052	NG Usage (mmscf/hr)	0.0015
NG Usage (mmscf/yr)	45.55	NG Usage (mmscf/yr)	13.14
Surface Cleaning VOC (lb/hr)	0.08	Surface Cleaning VOC (lb/hr)	0.08
Surface Cleaning VOC (lb/yr)	730	Surface Cleaning VOC (lb/yr)	730

Unit 10			
Paint Sander Vacuum System		Heater/Polishing: 3 Identical Stacks (Each)	
Source Type	Point*	Source Type	Point
Stack Height (m)	2.38	Stack Height (m)	9.14
Stack Diameter. (m)	0.15	Stack Diameter. (m)	0.86
Stack Exit Velocity (m/s)	22.77	Stack Exit Velocity (m/s)	10.64
Stack Exit Temp. (°K)	294	Stack Exit Temp. (°K)	293
PM10 Emissions (lb/hr)	0.02	NG Usage (MMscf/hr)	0.0018
PM10 Emissions (lb/yr)	112	NG Usage (MMscf/yr)	15.84
		PM10 (lb/hr)	0.006
		PM10 (lb/yr)	37
		Surface Cleaning VOC (lb/hr)	0.08
		Surface Cleaning VOC (lb/yr)	730

*Modeled using AERMOD's "Capped & Horizontal Stack Releases."

Unit 11			
Paint Sander Vacuum System		Heater/Polishing: 2 Identical Stacks (Each)	
Source Type	Point*	Source Type	Point
Stack Height (m)	2.38	Stack Height (m)	9.14
Stack Diameter. (m)	0.15	Stack Diameter. (m)	0.86
Stack Exit Velocity (m/s)	22.77	Stack Exit Velocity (m/s)	10.64
Stack Exit Temp. (°K)	294	Stack Exit Temp. (°K)	293
PM10 Emissions (lb/hr)	0.02	NG Usage (MMscf/hr)	0.0018
PM10 Emissions (lb/yr)	112	NG Usage (MMscf/yr)	15.84
		PM10 (lb/hr)	0.006
		PM10 (lb/yr)	37
		Surface Cleaning VOC (lb/hr)	0.08
		Surface Cleaning VOC (lb/yr)	730

Unit 12-0 (Diesel ICE)	
Source Type	Point
Stack Height (m)	1.83
Stack Diameter. (m)	0.13
Stack Exit Velocity (m/s)	147.3
Stack Exit Temp. (°K)	823
Diesel PM10 (lb/yr)	4

Technical Services performed modeling for criteria pollutants CO, NO_x, SO_x, and PM10 with the emission rates below:

Unit #	NO _x (Lbs.)		SO _x (Lbs.)		CO (Lbs.)		PM ₁₀ (Lbs.)	
	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.	Day	Yr.
5-0	0	0	0	0	0	0	0	0
6-0	0	0	0	0	0	0	0	0
7-0	0.07	570	0.004	45	0.36	0	1.5	120
8-0	0.19	1640	0.02	130	1.54	0	8.8	1983
9-0	0.07	473	0.1	37	0.36	0	2.7	258
10-0	0.2	1710	0.013	135	1.09	0	1.3	509
11-0	0.13	1140	0.008	90	0.73	0	1	389
12-0	0	297	0	0	0	0	0	4

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

	Background Site	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Clovis Villa (2016)	Pass	X	Pass	X	X
NO _x	Hanford-Irwin (2016)	Pass ¹	X	X	X	Pass
SO _x	Fresno – Garland (2016)	Pass	Pass	X	Pass	Pass
PM ₁₀	Hanford-Irwin (2016)	X	X	X	Pass ²	Pass ²
PM _{2.5}	Hanford-Irwin (2016)	X	X	X	Pass ³	Pass ³

*Results were taken from the attached PSD spreadsheet.

¹The project was compared to the 1-hour NO₂ National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures. ²The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

³The court has vacated EPA's PM_{2.5} SILs. Until such time as new SIL values are approved, the District will use the corresponding PM₁₀ SILs for both PM₁₀ and PM_{2.5} analyses.

III. Conclusion

Units 5-0, 6-0, 7-0, 9-0, 10-0, 11-0, & 12-0

The acute and chronic indices are below 1.0 and the cancer risk associated with each is less than 1.0 in a million. **In accordance with the District's Risk Management Policy, these units are approved with Toxic Best Available Control Technology (T-BACT).**

Unit 8-0

The acute and chronic indices are below 1.0 and the cancer risk associated with the unit is greater than 1.0 in a million, but less than 20 in a million. **In accordance with the District's Risk Management Policy, the unit is approved with Toxic Best Available Control Technology (T-BACT).**

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

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

IV. Attachments

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Prioritization score w/ toxic emissions summary
- D. Facility Summary

Appendix I

Statewide Compliance Certification



2018.06.18

To Whom It May Concern,

In accordance with SJVAPCD Rule 2201, Section 4.15 *Additional Requirements for New Major Sources and Federal Major Modifications*, Faraday & Future, Inc. hereby provides the following compliance statement regarding the proposed electric vehicle manufacturing facility project in Hanford, California.

I hereby certify that neither Faraday & Future, Inc. nor any entity controlling, controlled by, or under common control with Faraday & Future, Inc. own or operate any major stationary sources in California.

Regards,

A handwritten signature in dark ink, appearing to read 'Dag Reckhorn', followed by a horizontal line.

Dag Reckhorn
Senior Vice President of Global Manufacturing
Dag.Reckhorn@ff.com

Appendix J

IC Engine Emissions Data Sheet

STATEMENT OF EXHAUST EMISSIONS

2018 PERKINS DIESEL FUELED GENERATOR

The measured emissions values provided here are proprietary to Generac and its authorized dealers. This information may only be disseminated upon request, to regulatory governmental bodies for emissions permitting purposes or to specifying organizations as submittal data when expressly required by project specifications, and shall remain confidential and not open to public viewing. This information is not intended for compilation or sales purposes and may not be used as such, nor may it be reproduced without the expressed written permission of Generac Power Systems, Inc. The data provided shall not be meant to include information made public by Generac.

Generator Model:	SD/MD500	EPA Certificate Number:	JCPXL15.2NZS-007
kW _e Rating:	500	CARB Certificate Number:	Not Applicable
Engine Family:	JCPXL15.2NZS	SCAQMD CEP Number:	545376
Engine Model:	2506C-E15TAG3	Emission Standard Category:	Tier 2
Rated Engine Power (BHP)*:	762	Certification Type:	Stationary Emergency CI
Fuel Consumption (gal/hr)*:	31.2		(40 CFR Part 60 Subpart IIII)
Aspiration:	Turbo/Aftercooled		
Rated RPM:	1800		

*Engine Power and Fuel Consumption are declared by the Engine Manufacturer of Record and the U.S. EPA.

Emissions based on engine power of specific Engine Model. (These values are actual composite weighted exhaust emissions results over the EPA 5-mode test cycle.)

CO	NOx + NMHC	PM	
1.43	5.02	0.07	Grams/kW-hr
1.06	3.73	0.05	Grams/bhp-hr

- The stated values are actual exhaust emission test measurements obtained from an engine representative of the type described above.
- Values based on 5mode testing are official data of record as submitted to regulatory agencies for certification purposes. Testing was conducted in accordance with prevailing EPA protocol, which is typically accepted by SCAQMD and other regional authorities.
- No emissions values provided above are to be construed as guarantees of emission levels for any given Generac generator unit.
- Generac Power Systems, Inc. reserves the right to revise this information without prior notice.
- Consult state and local regulatory agencies for specific permitting requirements.
- The emission performance data supplied by the equipment manufacturer is only one element required toward completion of the permitting and installation process. State and local regulations may vary on a case-by-case basis and local agencies must be consulted by the permit application/equipment owner prior to equipment purchase or installation. The data supplied herein by Generac Power Systems cannot be construed as a guarantee of installability of the generating set.

Appendix K

Quarterly Net Emissions Change (QNEC) Calculations

Quarterly Net Emissions Change (QNEC)

The Quarterly Net Emissions Change is used to complete the emission profile screen for the District's permit database (PAS). The QNEC shall be calculated as follows:

$QNEC = PE2 - PE1$, where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.

PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr.

PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

A sample QNEC calculation for VOC emissions from the body assembly operation is shown below.

$$\begin{aligned} PE2_{\text{quarterly}} &= PE2_{\text{annual}} \div 4 \text{ quarters/year} \\ &= 1,151 \text{ lb/year} \div 4 \text{ qtr/year} \\ &= 287.75 \text{ lb NO}_x/\text{qtr} \end{aligned}$$

$$\begin{aligned} PE1_{\text{quarterly}} &= PE1_{\text{annual}} \div 4 \text{ quarters/year} \\ &= 0 \text{ lb/year} \div 4 \text{ qtr/year} \\ &= 0 \text{ lb NO}_x/\text{qtr} \end{aligned}$$

Using the values in Sections VII.C.2 and VII.C.1 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

C-9248-5-0 (Body Assembly Operation):

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM ₁₀	0	0	0
CO	0	0	0
VOC	572	0	572

C-9248-6-0 (E-Coat Operation):

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM ₁₀	0	0	0
CO	0	0	0
VOC	1,233.25	0	1,233.25

C-9248-7-0 (E-Coat Sanding and Sealing Operation):

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	142.5	0	142.5
SO _x	11.25	0	11.25
PM ₁₀	141.75	0	141.75
CO	792	0	792
VOC	294.25	0	294.25

C-9248-8-0 (Motor Vehicle Assembly Main Coating Line):

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	410	0	410
SO _x	32.5	0	32.5
PM ₁₀	1,256.5	0	1,256.5
CO	3,366.25	0	3,366.25
VOC	3,635.75	0	3,635.75

C-9248-9-0 (Final Repair Coating Operation):

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	118.25	0	118.25
SO _x	9.25	0	9.25
PM ₁₀	64.5	0	64.5
CO	657	0	657
VOC	700.5	0	700.5

C-9248-10-0 (Paint Sanding and Polishing Operation):

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	427.5	0	427.5
SO _x	33.75	0	33.75
PM ₁₀	127.25	0	127.25
CO	2,376	0	2,376
VOC	561	0	561

C-9248-11-0 (Plastic Parts Paint Sanding and Polishing Operation):

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	285	0	285
SO _x	22.5	0	22.5
PM ₁₀	97.25	0	97.25
CO	1,584	0	1,584
VOC	539.25	0	539.25

C-9248-12-0 (Emergency IC Engine):

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	74.25	0	74.25
SO _x	0	0	0
PM ₁₀	1	0	1
CO	22.25	0	22.25
VOC	4	0	4