SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Revised Final Environmental Assessment for Proposed Amended Rule 1106 – Marine and Pleasure Craft Coatings and Rescission of Rule 1106.1 – Pleasure Craft Coating Operations

April 2019

SCAQMD No. 150804JI
State Clearinghouse No. 2015081052

Authors:	Tracy Tang	Air Quality Specialist
	Jeff Inabinet	Air Quality Specialist
Technical Assistance:	Don Hopps	Program Supervisor, Planning and Rules
	Charlene Nguyen	Assistant Air Quality Specialist
Reviewed By:	Daniel Garcia	Acting Planning and Rules Manager, CEQA
	Jillian Wong, Ph.D.	Planning and Rules Manager
	Barbara Radlein	Program Supervisor, CEQA
	David De Boer	Planning and Rules Manager
	Stacey Pruitt	Senior Deputy District Counsel

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD

CHAIRMAN: DR. WILLIAM A. BURKE
Speaker of the Assembly Appointee

VICE CHAIRMAN: DR. CLARK E. PARKER, SR.
Senate Rules Committee Appointee

MEMBERS:

LISA BARTLETT
Supervisor, Fifth District
County of Orange

BEN BENOIT
Council Member, Wildomar
Cities of Riverside County

JOE BUSCAINO
Council Member, 15th District
City of Los Angeles Representative

MICHAEL A. CACCIOTTI
Council Member, South Pasadena
Cities of Los Angeles County/Eastern Region

JANICE HAHN
Supervisor, Fourth District
County of Los Angeles

LARRY MCCALLON
Mayor Pro Tem, Highland
Cities of San Bernardino County

JUDITH MITCHELL
Mayor, Rolling Hills Estates
Cities of Los Angeles County/Western Region

V. MANUEL PEREZ
Supervisor, Fourth District
County of Riverside

DWIGHT ROBINSON
Council Member, Lake Forest
Cities of Orange County

JANICE RUTHERFORD
Supervisor, Second District
County of San Bernardino

VACANT
Governor's Appointee

EXECUTIVE OFFICER:
WAYNE NASTRI

PREFACE

This document constitutes the Revised Final Environmental Assessment (EA) for Proposed Amended Rule (PAR) 1106 – Marine and Pleasure Craft Coating Operations and Rescission of Rule 1106.1 – Pleasure Craft Coating Operations. The Draft EA was released for a 30-day public review and comment period from August 19, 2015 to September 18, 2015. The environmental analysis in the Draft EA concluded that PAR 1106 and the rescission of Rule 1106.1 would not generate any significant adverse environmental impacts. No comment letters were received relative to the Draft EA during the public comment period. The Final EA (dated September 2015) for PAR 1106 and Rescission of Rule 1106.1 was released as part of the Governing Board package for the October 2, 2015 public hearing which can be accessed on SCAQMD's website here: http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2015/2015-oct2-034.pdf. The project, however, was not adopted and the Final EA was not certified at that time.

Subsequent to the release of the Draft EA for public review and comment and the preparation of the September 2015 Final EA, modifications were made to PAR 1106 and some revisions were made in response to verbal and written comments received during the rule development process. To facilitate identification, modifications were reflected in the Final EA and were included as single underlined text, and text removed from the document was indicated by ~~single strikethrough~~. Further, in 2019, staff reprised the rule development process for this project and proposed additional modifications to PAR 1106 regarding reporting requirements. Other minor changes to PAR 1106 were made to provide additional clarity. As such, these modifications have been incorporated into the Revised Final EA (dated April 2019) and are included as double underlined text for new information since the September 2015 Final EA, and text removed from the September 2015 Final EA is indicated by ~~double strikethrough~~. To avoid confusion, minor formatting changes are not shown in underline or strikethrough mode.

Staff has reviewed the modifications to PAR 1106 and concluded that none of the revisions constitute: 1) significant new information; 2) a substantial increase in the severity of an environmental impact; or 3) provide new information of substantial importance relative to the draft document. In addition, revisions to the proposed project in response to verbal or written comments would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the document pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, this document now constitutes the Revised Final EA for PAR 1106 and Rescission of Rule 1106.1.

TABLE OF CONTENTS

CHAPTER 1 - PROJECT DESCRIPTION

Introduction

Affected Facilities

California Environmental Quality Act

Project Location

Project Objective

Project Background / Technology Overview

Project Description

INTRODUCTION

The California Legislature created the South Coast Air Quality Management District (SCAQMD) in 1977[1] as the agency responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin (Basin) and portions of the Salton Sea Air Basin and Mojave Desert Air Basin referred to herein as the District. By statute, the SCAQMD is required to adopt an Air Quality Management Plan (AQMP) demonstrating compliance with all federal and state ambient air quality standards for the District[2]. Furthermore, the SCAQMD must adopt rules and regulations that carry out the AQMP[3]. The Final 2012 and 2016 AQMP concluded that reductions in emissions of particulate matter (PM), oxides of sulfur (SOx), oxides of nitrogen (NOx), and volatile organic compounds (VOC) are necessary to attain the current state and national ambient air quality standards for ozone and particulate matter with an aerodynamic diameter of 2.5 microns or less (PM2.5). Ozone, a criteria pollutant that is formed when NOx and VOCs react in the atmosphere, has been shown to adversely affect human health.

The Basin is designated by the United States Environmental Protection Agency (U.S. EPA) as a non-attainment area for ozone and PM2.5 emissions because the federal ozone standard and the 2006 PM2.5 standard have been exceeded. For this reason, the SCAQMD is required to evaluate all feasible control measures in order to reduce direct ozone and PM2.5 emissions, including precursors, such as NOx and VOCs. The Final 2012 and 2016 AQMP sets forth a comprehensive program for the Basin to comply with the federal 24-hour PM2.5 air quality standard, satisfy the planning requirements of the federal Clean Air Act, and provide an update to the Basin's commitments towards meeting the federal 8-hour ozone standard. In particular, the Final 2012 and 2016 AQMP contains a multi-pollutant control strategy to achieve attainment with the federal 24-hour PM2.5 air quality standard. The 2012 and 2016 AQMP also serves to satisfy the recent requirements promulgated by the EPA for a new attainment demonstration of the revoked 1-hour ozone standard, as well as to provide additional measures to partially fulfill long-term reduction obligations under the 2007 8-hour Ozone State Implementation Plan (SIP).

Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations of VOCs because of interference with oxygen uptake. In general, ambient VOC concentrations in the atmosphere are suspected to cause coughing, sneezing, headaches, weakness, laryngitis, and bronchitis, even at low concentrations. Some hydrocarbon compounds classified as VOC emissions are thought or known to be toxic air contaminants (TACs). With stationary and mobile sources being the major producers of VOCs, which contribute to ozone formation, reducing the quantity of VOCs in the District has been an on-going effort by the SCAQMD.

The California Clean Air Act (CCAA) requires districts to achieve and maintain state standards by the earliest practicable date and for extreme non-attainment areas, to include all feasible measures pursuant to Health and Safety Code Sections 40913, 40914, and 40920.5. The term "feasible" is defined in the Title 14 of the California Code of Regulations, Section 15364, as a measure "capable

[1] The Lewis-Presley Air Quality Management Act, 1976 Cal. Stats., ch 324 (codified at Health and Safety Code, Section 40400-40540).
[2] Health and Safety Code, Section 40460 (a).
[3] Health and Safety Code, Section 40440 (a).

of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."

AFFECTED FACILITIES

Rule 1106 (Marine Coating Operations) is applicable to all coating operations of boats, ships, and their appurtenances, and to buoys and oil drilling rigs intended for the marine environment. Currently, coating operations of vessels which are manufactured or operated primarily for recreational purposes are subject to the requirements of Rule 1106.1 (Pleasure Craft Coating Operations).

The current Rule 1106.1 is applicable to all coating operations of pleasure craft, as defined in paragraph (b)(10) of this rule, or their parts and components, for the purpose of refinishing, repairing, modification, or manufacturing such craft. This rule also applies to establishments engaged in activities described in the North American Industry Classification System (NAICS) codes 81149 – Other Personal and Household Goods Repair and Maintenance and 713930 - Marinas. Pleasure craft coating operations which are currently subject to the requirements of Rule 1106.1 are not subject to the requirements of Rule 1106. Descriptions of crafts utilizing the coatings affected by these rules as well as the types of paints can be found in the Project Background section.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

PAR 1106 is a discretionary action by a public agency, which has potential for resulting in direct or indirect changes to the environment and, therefore, is considered a "project" as defined by the California Environmental Quality Act (CEQA). SCAQMD is the lead agency for the proposed project and has prepared this Revised Final Environmental Assessment (EA) with no significant adverse impacts pursuant to its Certified Regulatory Program and SCAQMD Rule 110. California Public Resources Code §21080.5 allows public agencies with regulatory programs to prepare a plan or other written document in lieu of an environmental impact report or negative declaration once the Secretary of the Resources Agency has certified the regulatory program. SCAQMD's regulatory program was certified by the Secretary of the Resources Agency on March 1, 1989, and is codified as SCAQMD Rule 110.

CEQA and Rule 110 require that potential adverse environmental impacts of proposed projects be evaluated and that feasible methods to reduce or avoid significant adverse environmental impacts of these projects be identified. To fulfill the purpose and intent of CEQA, the SCAQMD has prepared this Revised Final EA to address the potential adverse environmental impacts associated with the proposed project. The Revised Final EA is a public disclosure document intended to: (a) provide the lead agency, responsible agencies, decision makers and the general public with information on the environmental effects of the proposed project; and, (b) be used as a tool by decision makers to facilitate decision making on the proposed project.

SCAQMD's review of the proposed project shows that the proposed project would not have a significant adverse effect on the environment. Therefore, pursuant to CEQA Guidelines Sections 15252 and 15126.6(f), no alternatives are proposed to avoid or reduce any significant effects because there are no significant adverse impacts, and pursuant to CEQA Guidelines Section 15126.4(a)(3), mitigation measures are not required for effects not found to be significant. The

analysis in the form of the environmental checklist in Chapter 2 supports the conclusion of no significant adverse environmental impacts.

No comment letters were received on the Draft EA during the public comment period.

PROJECT LOCATION

The potentially affected facilities are located within the SCAQMD jurisdiction. The SCAQMD has jurisdiction over an area of approximately 10,743 square miles, consisting of the four-county South Coast Air Basin (Basin) (Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties), and the Riverside County portions of the Salton Sea Air Basin (SSAB) and Mojave Desert Air Basin (MDAB) (Figure 1-1).

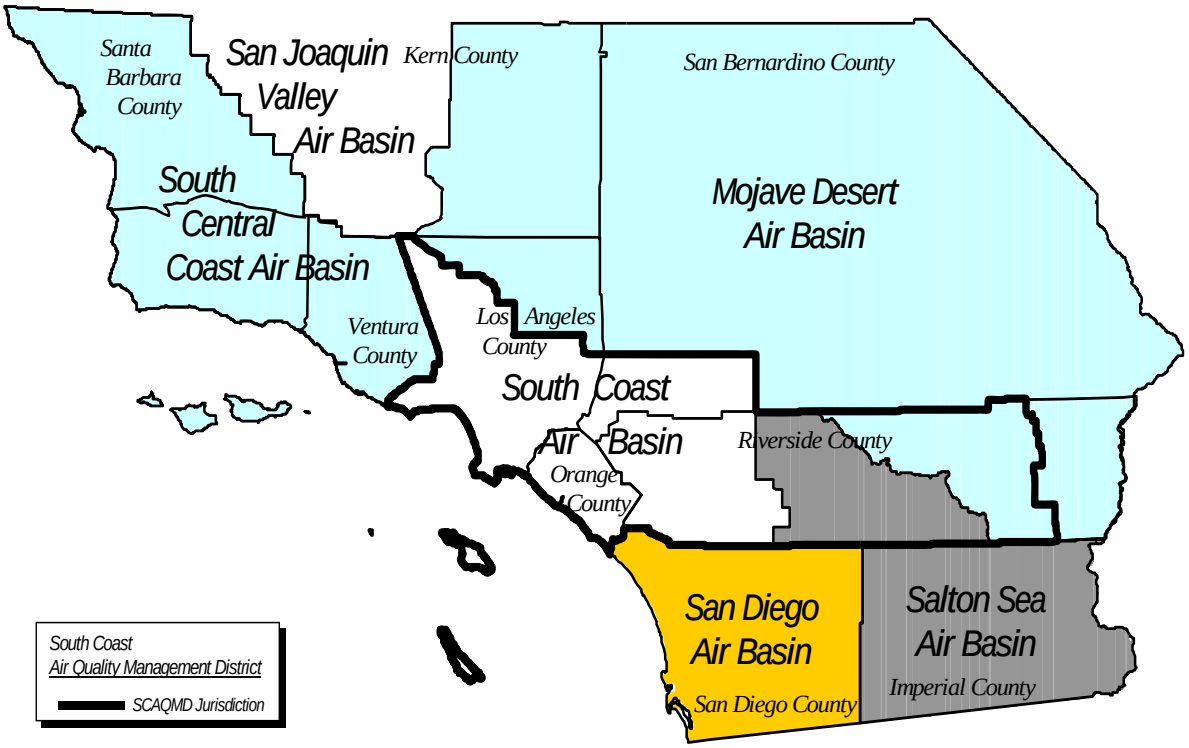

Figure 1-1
Boundaries of the South Coast Air Quality Management District

PROJECT OBJECTIVE

The specific objectives of PAR 1106 are to:

- Rescind Rule 1106.1 but maintain the requirements;
- revise VOC content limits for some coating categories in order to align limits with U.S. EPA Control Techniques Guidelines and other California air pollution control districts (APCDs)/air quality management districts (AQMDs);
- add new coating categories;
- add provisions for pollution prevention measures and enhanced enforceability,
- make minor revisions to the applicability subdivision and revise/add new definitions to the definitions subdivision; and
- include clarifications and editorial corrections.

PROJECT BACKGROUND / TECHNOLOGY OVERVIEW

Rule 1106 was adopted on November 4, 1988, and has been subsequently amended seven times. The most recent amendment was on January 13, 1995, which incorporated corrective action items in efforts to resolve deficiencies determined by U.S. EPA. The corrective action items in that amendment included an equation for control device equivalency, an applicability statement, test methods that were required to be specified, language regarding multiple test methods and the most recent test method added, an updated definition for aerosol coatings and exempt compounds, and a permanent exemption for aerosol containers was added to satisfy U.S. EPA requirements.

Rule 1106.1 was adopted on May 1, 1992, and has been subsequently amended three times. The most recent amendment was on February 12, 1999, which removed Pleasure Craft Coating Operations from existing Rule 1106 - Marine Coating Operations. Many of the existing coating categories in Rule 1106 at that time were not representative of the pleasure craft coating industry. Consequently, the SCAQMD adopted Rule 1106.1 with the intent of identifying the special categories of coatings applied on pleasure craft.

Coatings:

Ships, Yachts, Boats

Water going vessels, commonly referred to as ships, yachts, and boats have coatings specifically designed for the two main portions of a boat; top side and bottom side. The deciding factor is, with the boat at rest, anything above the water line is considered the top side and anything below the water line is considered bottom side.

Top Side

The top side of the ship, yacht or boat is the visual portion of the boat from the water-line up. These coatings not only have to perform well in protecting the substrate in a marine environment, but also have to look good as well. The substrates can include wood of many various types, fiberglass and composites, steel, stainless steel, aluminum, brass and bronze. These coatings can be applied by hand application, usually with a paint brush, or by atomized spray. There are several categories of top side coatings that are included in Rules 1106 and 1106.1, such as one-component, two-component, varnish, antenna coatings, pre-treatment wash primers etc.

Bottom Side

A boat that is docked or moored in both fresh water and sea water is susceptible to what the marine industry calls fouling. Fouling is typically broken down into hard growth, such as barnacles, mussels, or shipworms, and soft growth, such as marine plant growth like algae and grass which would if unabated, continue to grow and cause excessive drag on the boat during operation. Fouling could also cause severe damage to the hull substrate such as corrosion to steel and aluminum hulls and shipworms boring into wooden hulls. Fouling also poses a potential threat to the environment through transporting harmful marine organisms to other waterways. The solution to fouling comes by way of an antifoulant coating which is used to inhibit the growth of foulant from adhering to the bottom of the boat. There are two different types of antifoulant coatings - though there is aluminum substrate and "other," a hard bottom paint and an ablative bottom paint.

Hard Bottom Paint

Hard bottom paint is an epoxy type paint formulated with copper, organotin (an organic compound with one or more tin atoms in its molecules) compounds and other biocides and pesticides to control marine growth from adhering to the hull. The copper is used for hard growth such as mussels and barnacles, and biocides and pesticides are used to control the soft growth such as algae and other marine organisms like ship worms. Hard bottom paints control marine growth by biocide and pesticide release which are released slowly from the pores of the paint while in water. Other types of hard bottom paint include Teflon and silicone which make the coating surface too slick for marine growth to adhere to. This type of coating is typically used for boats that spend long periods of time at rest in the water.

Ablative Bottom Paint

Ablative bottom paint is specially formulated to be a sacrificial coating designed to be slowly worn away during boat operation. For the marine environment, ablation is simply a wear away type coating where the coating continuously wears off at a slow rate during boat operation, thus exposing a new layer with fresh antifoulant compounds. However, there have been environmental concerns with the use of copper in these bottom paints and the toxic effects it has on marine life.

<u>At this time, there is no proposal to address the copper content of antifoulant coatings in PAR 1106. However, copper-based antifoulant coatings are regulated by other agencies. For example, in October 2013, California Assembly Bill 425 (AB 425) "Pesticides: copper-based antifouling paint: leach rate determination: mitigation measure recommendations" was signed into law. AB 425 required the Department of Pesticide Regulation (DPR) to "determine a leach rate for copper-based antifouling paint used on recreational vessels and make recommendations for appropriate mitigation measures that may be implemented to address the protection of aquatic environments from the effects of exposure to that paint if it is registered as a pesticide" no later than February 1, 2014. As a result, 3 Code of California Regulations (CCR) §6190 Copper-Based Antifouling Paints and Coatings, was promulgated and adopted by DPR on January 1, 2018. 3 CCR §6190 requires applicants to register copper-based antifouling coatings used for recreational vessels and limits the leach rate to no more than 9.5 µg/cm^2/day, effective July 1, 2018. Additionally, registered copper-based antifouling coatings exceeding the 9.5 µg/cm^2/day limit would have their registration canceled.</u>

The Port of San Diego continues to investigate how much copper can be reduced from copper-based antifoulant coatings, and has until 2022 to reduce copper pollution in the San Diego Bay by 76 percent. ~~and~~ Washington State passed a law which may phase in a ban of ~~on~~ copper antifoulant coatings on recreational vessels beginning in January 2021~~2018~~. Some innovative bottom paints that do not rely on copper or tin have been developed in response to the increasing scrutiny that copper-based ablative bottom paints have received as environmental pollutants.

Application Methods:

High Volume Low Pressure (HVLP)
HVLP spray guns are the staple of spray guns and were created to meet the transfer efficiency requirements of governmental agencies, including the SCAQMD. HVLP spray guns can meet the high transfer efficiency requirement and operate at less than 10 pounds per square inch (psi) at the air cap. HVLP spray guns are used in the South Coast Air Basin to spray coatings for a multitude of categories including automotive coatings, metal coatings, wood coatings, industrial coatings and marine coatings.

Low Volume Low Pressure (LVLP)
LVLP spray guns are a subset of non-conventional spray guns and may be used in the spraying of marine or pleasure craft coatings, provided they meet the transfer efficiency requirements as identified in Rule 1106 clause (d)(~~8~~9)(A)(v). LVLP offers an alternative to HVLP because they have less air flow requirements and can be used with a smaller compressor. This makes LVLP appealing for mobile painters and applicators that use a small air compressor. Manufacturers of LVLP spray guns state that LVLP can operate at less than 10 psi at the air cap and achieve transfer efficiencies equivalent to HVLP application. The working speed of LVLP is not as fast as HVLP spray guns.

Low Volume Medium Pressure (LVMP)
LVMP spray guns are a subset of the non-conventional spray guns and may also be used in the spraying of marine or pleasure craft coatings, provided the requirements in Rule 1106 clause (d) ~~8~~9)(A)(v) for transfer efficiency are met, including achieving equivalent or better transfer efficiency to HVLP using the test method protocols prescribed in Rule 1106 to determine transfer efficiency, and obtaining written approval from the Executive Officer prior to use.

Reduced Pressure (RP)
RP spray guns are a subset of non-conventional spray guns and may be used in the spraying of marine or pleasure craft coatings provided the requirements in Rule 1106 clause (d)(~~8~~9)(A)(v) for transfer efficiency are met, including achieving equivalent or better transfer efficiency to HVLP using the test method protocols prescribed in Rule 1106 to determine transfer efficiency, and obtaining written approval from the Executive Officer prior to use. RP spray guns also use smaller air compressors because they need less air flow requirements than HVLP spray guns, which makes RP attractive for mobile painters. RP can be an alternative to HVLP and has a fast working speed comparable to HVLP guns.

Pressure Fed (PF)
PF spray guns are unique as compared to the other types of spray guns in that they are equipped with auxiliary containers used for holding larger quantities of coating product. PF spray guns can be used in the spraying of marine or pleasure craft coatings provided all the requirements in Rule 1106 clause (d)(~~8~~9)(A)(v) for transfer efficiency are met, including achieving equivalent or better transfer efficiency to HVLP using the test method protocols prescribed in Rule 1106 to determine transfer efficiency, and obtaining written approval from the Executive Officer prior to use.

New Conventional (NC)
Staff has identified an additional subset of conventional spray guns being marketed as New Conventional (NC). Manufacturers of such spray guns claim the NC spray guns offer the same wide pattern (spray) as the old conventional spray guns, but have better transfer efficiency and have the ability to spray thick fluids. This technology could be used for spraying marine or pleasure craft coatings, but only if the spray gun meets all the requirements in Rule 1106 clause (d)(~~8~~9)(A)(v) for transfer efficiency, including achieving equivalent or better transfer efficiency to HVLP using the test method protocols prescribed in Rule 1106 to determine transfer efficiency, and obtaining written approval from the Executive Officer prior to use.

Transfer Efficiency Requirements
PAR 1106 incorporates similar transfer efficiency requirements found in Rule 1151 - Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations, for applying a marine or pleasure craft coating. The transfer efficiency requirement for spray application is use of electrostatic, HVLP spray equipment, and other spray guns that meet the HVLP definition of definition of paragraph (b)(~~18~~19) in design and use. Demonstration must be based on the manufacturer's published technical material on the design of the spray gun and by demonstration of the operation of the spray gun using an air pressure tip gauge from the manufacturer of the spray gun [See clause (d)(~~8~~9)(A)(v)].

Brush and roller coating are applied directly from the paint brush bristles or the roller to the substrate and have a very high coating to substrate transfer efficiency. Dip coatings are simply a container filled with paint where an object is dipped into the coating, which also provides a very high coating to substrate transfer efficiency. Brush, roller and dip coating processes are proposed to be included as compliant transfer efficiency processes as specified in clause (d)(~~8~~9)(A)(iii) of the transfer efficiency requirements in order to be to be consistent with the Coating Application Methods provision in the state Suggested Control Measure.

In addition, PAR 1106 provides two test methods for spray guns that do not meet the HVLP definition in design and use to determine if such spray guns can meet the transfer efficiency requirements: SCAQMD method "Spray Equipment Transfer Efficiency Test Procedure for Equipment User, May 24, 1989" and SCAQMD "Guidelines for Demonstrating Equivalency With District Approved Transfer Efficiency Spray Gun September 26, 2002" [See paragraph (h)(~~4~~6) of PAR 1106 in Appendix A]. Any spray gun used in the SCAQMD jurisdiction must meet the criteria for these test methods to qualify as a compliant transfer efficient spray gun for use in the SCAQMD jurisdiction.

In addition to specifying the VOC limits for pleasure craft coating operations, the current Rule 1106.1 requires that coatings be applied either by hand or HVLP spray application equipment. HVLP spray equipment utilizes very low air pressure (i.e., less than 10 psi) to atomize the coating material and propel the atomized droplets at a low velocity and high volume to the surface being coated. The HVLP requirement in Rule 1106.1 affects only those coatings which are sprayed.

Subsequent to the release of the Draft EA, an exemption pertaining to high viscosity / high solids coatings for metal parts and products was included in PAR 1106:

> (5)~~(4)~~ The provisions of paragraph (d)(9) shall not apply to Marine or Pleasure Craft coatings with a viscosity of 650 centipoise or greater, as applied.

For various types of substrates and operations (e.g., metal parts, architectural, marine), application of the ultra-low VOC, high viscosity resin coatings (e.g., epoxy, polyurethane) can be facilitated by the ability to apply the coatings with specialized applicators such as heated plural component airless or air assisted spray guns, or unique cartridge gun systems. Incorporation of this exemption based on the coating viscosity will permit the use of the application equipment best suited for the material while retaining the benefits of using the low-VOC high solids coatings. Without the proposed exemption, facilities required to use HVLP equipment would otherwise have to thin the high solids coatings with VOC-containing solvents to allow them to be sprayed, thus eliminating the benefit of the low-VOC high solids coatings. Therefore, a provision was added to the proposed rule to allow a coating with 650 or more centipoise to be exempted from the transfer efficiency requirements. This proposed exemption is not expected to cause any adverse environmental impacts because these high solids, high viscosity coatings already contain low levels of VOCs and are already currently being utilized in the marine coatings industry. Thus, it is not expected that additional facilities would begin using these products because of the proposed exemption.

An exemption was also included for pre-treatment wash primers and special marking coatings that are intended to be used on submerged vessel (submarine) components [(typically used per military specifications (Mil-Specs)] and currently meet the VOC limits in Rule 1106 - Marine Coating Operations. However, these coatings will not meet the new aligned VOC limits in PAR 1106, which seeks to align these VOC limits with other APCDs/AQMDs.

> (6)~~(5)~~ The provisions of paragraphs (d)(1), (d)(2), and (d)(3) shall not apply to marine coatings that are used for vessels that are intended to submerge to at least 500 feet below the surface of the water provided that the total combined usage of such coatings do need exceed 12 gallons per calendar year and such coatings are in compliance with the VOC limits in the U.S. EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) for Shipbuilding and Ship Repair (Surface Coatings).

The usage of these materials are required based on approved standards from the U.S. Navy that cannot be replaced. To assure a lifetime of no corrosion on these components, facilities already have limited selections of materials to use in these specific manufacturing processes. Therefore, an exemption for these types of coatings was included of no more than 12 gallons per calendar year, of all products combined, for this type of operation and will require that the products used will have to be in compliance with the U.S. EPA National Emission Standard for Shipbuilding and

Ship Repair (Surface Coating) as provided in Part 63 of the Federal Register. This proposed exemption is not expected to cause any adverse environmental impacts because these products are utilized for a very specific type of application/industry, and therefore, very limited quantities are currently used or expected to be used in the future. Additionally, because of the limited, specialized usage/application of these products, it is not expected that additional facilities would begin using these coatings as result of the proposed exemption. Finally, this limited exemption will not encourage or allow additional usage of these higher VOC coatings beyond what is already in use in the existing setting.

A definition was also added to PAR 1106 for Ultraviolet/Electron Beam (UV/EB) curable thin film marine and pleasure craft coatings. The definition includes a reference to ASTM D7767-11 "Standard Test Method to Measure Volatiles from Radiation Curable Monomers, Oligomers, and Blends and Thin Coatings Made from Them".

(9) ENERGY CURABLE COATINGS are single-component reactive products that cure upon exposure to visible-light, ultra-violet light or to an electron beam. The VOC content of thin film Energy Curable Marine and Pleasure Craft Coatings may be determined by manufacturers using ASTM Test Method 7767-11 "Standard Test Method to Measure Volatiles from Radiation Curable Acrylate Monomers, Oligomers, and Blends and Thin Coatings Made from Them".

The use of energy curable coatings is considered an alternative compliance technology. UV/EB curing refers to a process in which coatings and other materials may be cured or dried, rather than using traditional thermal methods (natural gas-fueled) which typically use more energy and generate greater emissions. The UV light spectrum in a UV lamp and the focused electrons in an EB interact with specially formulated chemistries to cure materials, typically more quickly, and using less energy than traditional dryers (see Appendix B[4]). UV/EB curing has some environmental benefits over traditional solvent-based coatings by significantly reducing the amount of solvents needed in the coating itself and by reducing the burning of fossil fuels to cure/dry the product[5].

[4] *Sustainability Advantages of Ultraviolet and Electron Beam Curing*, 2008 – a UV/EB industry trade association publication
[5] http://www.radtech.org

Additionally, staff is proposing to add paragraph (i)(1) to exempt marine or pleasure craft coatings that have a VOC content of no more than 50 grams per liter (g/L) or its equivalent, less water and exempt compounds, as applied, provided that the coatings do not containing Group II Exempt compounds or nickel, cadmium, lead, or hexavalent chromium.

SCAQMD staff visited several facilities and found that many facilities conducting marine and pleasure craft coating operations believed that touch-up operations such as maintenance and repair were exempt from the requirements of Rule 1106. However, the exemption for touch-up coatings is intended for minor imperfections or minor mechanical damage incurred after the main coating operation. Staff has added language to paragraph (i)(3) to clarify that only touch-up coatings as defined by paragraph (c)(41) are exempt from the requirements of PAR 1106.

PROJECT DESCRIPTION

PAR 1106 subsumes Rule 1106.1 within Rule 1106, adds a prohibition of possession and sale provision, adds transfer efficiency requirements (similar to other SCAQMD coatings rules), and includes various clarifications and administrative changes. Additionally, five new coating categories have been established, and the VOC limits for the following five specialty coatings categories are being lowered based on existing limits that several other air agencies already require [Ventura County Air Pollution Control District (VCAPCD), San Diego Air Pollution Control District (SDAPCD), and Bay Area Air Quality Management District (BAAQMD)] and to align limits with U.S. EPA Control Techniques Guidelines.

Amendment	Action
Prohibition elements	Add sales and possession specifications
Five new coatings categories	1) aluminum substrate antifoulant - 560 g/L 2) mist coating - 340 g/L 3) nonskid coating - 340 g/L 4) marine deck sealant primer - 420 g/L 5) organic zinc coating - 340 g/L
Five VOC limit revisions	1) pre-treatment wash primer - from 780 to 420 g/L 2) solvent-based inorganic zinc - 650 to 340 g/L 3) special marking - 490 to 420 g/L 4) antenna coating - 530 to 340 g/L 5) repair and maintenance thermoplastic coating - 550 to 340 g/L

The specific amendments of PAR 1106 are the following:

- rescind Rule 1106.1 and subsume the requirements of Rule 1106.1 into PAR 1106 (which would regulate both marine and pleasure craft operations under one rule);
- revise VOC content limits for pretreatment wash primers, antenna, repair and maintenance thermoplastic, inorganic zinc, and specialty marking coatings in order to align limits with U.S. EPA Control Techniques Guidelines and other California APCDs/AQMDs;
- add new categories for marine aluminum antifoulant, mist, nonskid and organic zinc coatings and marine deck primer sealant;
- add provisions for pollution prevention measures and enhanced enforceability,

- make minor revisions to the applicability subdivision and revise/add new definitions to the definitions subdivision;
- add two tables of standards that will contain VOC limits;
- include clarifications and editorial corrections to the entire rule as necessary;
- remove provisions for approved emission control systems and provisions to determine the efficiency of the emission control system; and
- add exemptions for low VOC marine or pleasure craft coatings (<50 g/L), marine or pleasure craft coatings with high viscosity (650 centipoise or greater), and marine coatings used on vessels intended to submerge at least 500 feet below the surface of water.

The amendments to this rule are expected to provide enhanced compliance with the VOC limits through the proposed ~~reporting, recordkeeping and the~~ prohibition provisions requirements. ~~The proposed amendment will include an Annual Quantity Emission Report (AQER) and a Manufacturer's Distribution List. The AQER will require manufacturers and distributors to report the VOC content limits and the volume of product for each marine and pleasure craft coating sold in the SCAQMD's jurisdiction. In addition, manufacturers will be required to submit to the SCAQMD an annual Manufacturer's Distribution List to show all distributors who distribute these types of products into the SCAQMD jurisdiction.~~ Since local affected operations are expected to already comply with the proposed requirements, the proposed amendments are not expected to achieve additional VOC reductions.

Copies of PAR 1106 and rescinded Rule 1106.1 are included in Appendix A.

CHAPTER 2 - ENVIRONMENTAL CHECKLIST

Introduction

General Information

Environmental Factors Potentially Affected

Determination

Environmental Checklist and Discussion

INTRODUCTION

The environmental checklist provides a standard evaluation tool to identify a project's potential adverse environmental impacts. This checklist identifies and evaluates potential adverse environmental impacts that may be created by the proposed project.

GENERAL INFORMATION

Project Title:	Revised Final Environmental Assessment (EA) for Proposed Amended Rule (PAR) 1106 – Marine and Pleasure Craft Coatings ~~Operations~~ and Rescission of Rule 1106.1 – Pleasure Craft Coating Operations
Lead Agency Name:	South Coast Air Quality Management District
Lead Agency Address:	21865 Copley Drive Diamond Bar, CA 91765
CEQA Contact Person:	Ms. Tracy Tang (909) 396-2484
PAR 1106 Contact Person	Mr. Don Hopps (909) 396-2334 Ms. Charlene Nguyen (909) 396-2648
Project Sponsor's Name:	South Coast Air Quality Management District
Project Sponsor's Address:	21865 Copley Drive Diamond Bar, CA 91765
General Plan Designation:	Not applicable
Zoning:	Not applicable
Description of Project:	PAR 1106 would subsume Rule 1106.1 (Pleasure Craft Coating Operations) within Rule 1106 (Marine Coating Operations), add a prohibition of possession and sale provision, add transfer efficiency requirements (similar to other SCAQMD coatings rules), and include administrative changes. Additionally, five new coating categories have been established, and the volatile organic compound (VOC) limits for five specialty coatings categories are being lowered based on existing limits that several other air agencies already require (Ventura County Air Pollution Control District, San Diego Air Pollution Control District, and Bay Area Air Quality Management District) and to align limits with U.S. EPA Control Techniques Guidelines. Since affected facilities are already expected to be in compliance with the proposed requirements, no physical changes are expected to take place and no additional VOC reductions are expected because the lower VOC limits are already being met.
Surrounding Land Uses and Setting:	Not applicable
Other Public Agencies Whose Approval is Required:	Not applicable

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The following environmental impact areas have been assessed to determine their potential to be affected by the proposed project. As indicated by the checklist on the following pages, environmental topics marked with an "✓" may be adversely affected by the proposed project. An explanation relative to the determination of impacts can be found following the checklist for each area.

☐ Aesthetics	☐ Geology and Soils	☐ Population and Housing
☐ Agriculture and Forestry Resources	☐ Hazards and Hazardous Materials	☐ Public Services
☐ Air Quality and Greenhouse Gas Emissions	☐ Hydrology and Water Quality	☐ Recreation
☐ Biological Resources	☐ Land Use and Planning	☐ Solid/Hazardous Waste
☐ Cultural Resources	☐ Mineral Resources	☐ Transportation/Traffic
☐ Energy	☐ Noise	☐ Mandatory Findings of Significance

DETERMINATION

On the basis of this initial evaluation:

☑ I find the proposed project, in accordance with those findings made pursuant to CEQA Guideline Section 15252, COULD NOT have a significant effect on the environment, and that an ENVIRONMENTAL ASSESSMENT with no significant impacts has been prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will NOT be significant effects in this case because revisions in the project have been made by or agreed to by the project proponent. An ENVIRONMENTAL ASSESSMENT with no significant impacts will be prepared.

☐ I find that the proposed project MAY have a significant effect(s) on the environment, and an ENVIRONMENTAL ASSESSMENT will be prepared.

☐ I find that the proposed project MAY have a "potentially significant impact" on the environment, but at least one effect 1)has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL ASSESSMENT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL ASSESSMENT pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL ASSESSMENT, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Date: September 18, 2015 Signature: Jillian Wong

Jillian Wong, Ph.D.
Program Supervisor

ENVIRONMENTAL CHECKLIST AND DISCUSSION

As discussed in Chapter 1, the main focus of PAR 1106 is to bring VOC emission limits associated with marine and pleasure craft coating operations in line with other agencies and to collect usage data. The objectives of PAR 1106 are to:

- rescind Rule 1106.1 and subsume the requirements of Rule 1106.1 into PAR 1106 (which would regulate both marine and pleasure craft operations under one rule);
- revise VOC content limits for pretreatment wash primers, antenna, repair and maintenance thermoplastic, inorganic zinc, and specialty marking coatings in order to align limits with U.S. EPA Control Techniques Guidelines and other California APCDs/AQMDs;
- add new categories for marine aluminum antifoulant, mist coating, nonskid and organic zinc coatings and marine deck primer sealant;
- add provisions for pollution prevention measures and enhanced enforceability,
- make minor revisions to the applicability subdivision and revise/add new definitions to the definitions subdivision;
- add three tables of standards that will contain VOC limits; and
- include clarifications and editorial corrections to the entire rule as necessary.

The proposed amendments to this rule are expected to provide enhanced compliance with the VOC limits through the proposed ~~reporting, recordkeeping and the~~ prohibition provisions requirements. ~~The proposed amendments will include an Annual Quantity Emission Report (AQER) and a Manufacturer's Distribution List. The AQER will require manufacturers and distributors to report the VOC content limits and the volume of product for of each marine and pleasure craft coating sold in the SCAQMD's jurisdiction. In addition, manufacturers will be required to submit to the SCAQMD, an annual Manufacturer's Distribution List to show all distributors who distribute these types of products into the SCAQMD jurisdiction.~~

Since all of the affected facilities/operations are expected to already comply with the proposed requirements, the proposed amendments are not expected to achieve additional VOC reductions. Potential impacts from the proposed project are evaluated below in the appropriate environmental topic area.

Amendment	Action	Environmental Analysis
Prohibition elements	Add sales and possession specifications	Clarification of existing prohibition requirements; will result in benefit from eliminating VOC emissions from non-compliant usage.
Five new coatings categories	1) aluminum substrate antifoulant - 560 g/L 2) mist coating - 340 g/L 3) nonskid coating - 340 g/L 4) marine deck sealant primer - 420 g/L 5) organic zinc coating - 340 g/L	VOC limits set at current general or "other" limits; no change from current requirements.

Amendment	Action	Environmental Analysis
Five VOC limit revisions	1) pre-treatment wash primer - from 780 to 420 g/L 2) solvent-based inorganic zinc - 650 to 340 g/L 3) special marking - 490 to 420 g/L 4) antenna coating - 530 to 340 g/L 5) repair and maintenance thermoplastic coating - 550 to 340 g/L	Coatings are already formulated and available with lower VOC limits and are currently being used. Thus, no new coating reformulation is expected to be necessary to comply with amendments.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
I.	**AESTHETICS.** Would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☑
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☑
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☑
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☑

Significance Criteria

The proposed project impacts on aesthetics will be considered significant if:

- The project will block views from a scenic highway or corridor.
- The project will adversely affect the visual continuity of the surrounding area.
- The impacts on light and glare will be considered significant if the project adds lighting which would add glare to residential areas or sensitive receptors.

Discussion

I. a), b), c) & d) **No Impact.** Adoption of PAR 1106 would subsume Rule 1106.1 within Rule 1106, add a prohibition of possession, specification and sale provision, add transfer efficiency requirements (similar to other SCAQMD coatings rules), and include various clarifications and administrative changes. Additionally, the VOC limits for five specialty coatings categories are being lowered based on existing limits that several other agencies already require (VCAPCD, SDAPCD, and BAAQMD) and to align limits with U.S. EPA Control Techniques Guidelines. The proposed amendments are expected to provide enhanced compliance with the VOC limits through monitoring. Since local affected operations are expected to already comply with the proposed requirements, no physical changes are expected at affected facilities and no additional VOC reductions are expected since the VOC limits are already being met. The proposed project is expected to affect facilities at existing locations. The proposed project does not require construction of new buildings or potential equipment replacement. Therefore, adoption of PAR 1106 would not require the construction of new buildings or other structures that would obstruct scenic resources or degrade the existing visual character of a site, including but not limited to, trees, rock outcroppings, or historic buildings. Further, PAR 1106 would not involve the demolition of any existing buildings or facilities, require any subsurface activities, require the acquisition of any new land or the surrendering of existing land, or the modification of any existing land use designations or zoning ordinances. Thus, the proposed project is not expected to degrade the visual character of any site where a facility is located or its surroundings, affect any scenic vista or damage scenic resources. ~~By reducing VOC emissions, the aesthetic environment benefits~~

~~from the reduction in environmental degradation.~~ Since the proposed project does not require existing facilities to operate at night, it is not expected to create any new source of substantial light or glare.

Based upon these considerations, significant adverse aesthetics impacts are not anticipated and will not be further analyzed in this Final EA. Since no significant adverse aesthetics impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
II.	**AGRICULTURE AND FORESTRY RESOURCES.** Would the project:				
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland mapping and Monitoring Program of the California Resources Agency, to non- agricultural use?	☐	☐	☐	☑
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☑
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104 (g))?	☐	☐	☐	☑
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☑

Significance Criteria

Project-related impacts on agriculture and forestry resources will be considered significant if any of the following conditions are met:

- The proposed project conflicts with existing zoning or agricultural use or Williamson Act contracts.
- The proposed project will convert prime farmland, unique farmland or farmland of statewide importance as shown on the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, to non-agricultural use.
- The proposed project conflicts with existing zoning for, or causes rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined in Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code § 51104 (g)).
- The proposed project would involve changes in the existing environment, which due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use.

Discussion

II. a), b), c) & d) **No Impact.** The existing commercial businesses that may be affected by the adoption of PAR 1106 are primarily located within urbanized port areas that are typically designated as industrial or commercial and are not designed for agricultural purposes or where forests are located. The proposed project would not result in any new construction of buildings or other structures that would convert farmland to non-agricultural use or conflict with zoning for agricultural use or a Williamson Act contract. The proposed project would not require converting farmland to non-agricultural uses because the affected marine and pleasure craft coating operations are expected to occur completely within the confines of existing affected commercial and industrial facilities. For the same reasons, PAR 1106 would not result in the loss of forest land or conversion of forest land to non-forest use.

Based upon these considerations, significant adverse agricultural and forestry resource impacts are not anticipated and will not be further analyzed in this Final EA. Since no significant agriculture and forestry resource impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
III. AIR QUALITY AND GREENHOUSE GAS EMISSIONS. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☑
b) Violate any air quality standard or contribute to an existing or projected air quality violation?	☐	☐	☐	☑
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☑
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☑
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☑
f) Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?	☐	☐	☐	☑
g) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	☑
h) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☑

~~Air Quality~~ Significance Criteria

To determine whether or not air quality impacts from adopting and implementing PAR 1106 are significant, impacts will be evaluated and compared to the criteria in Table 2-1. The project will be considered to have significant adverse air quality impacts if any one of the thresholds in Table 2-1 are equaled or exceeded.

To determine whether or not greenhouse gas emissions from the proposed project may be significant, impacts will be evaluated and compared to the 10,000 MT CO2eq./year threshold for industrial projects.

TABLE 2-1
SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds [a]		
Pollutant	**Construction [b]**	**Operation [c]**
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
SOx	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs), Odor, and GHG Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MT/yr CO2eq for industrial facilities	
Ambient Air Quality Standards for Criteria Pollutants [d]		
NO2 1-hour average annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM10 24-hour average annual average	10.4 µg/m^3 (construction)[e] & 2.5 µg/m^3 (operation) 1.0 µg/m^3	
PM2.5 24-hour average	10.4 µg/m^3 (construction)[e] & 2.5 µg/m^3 (operation)	
SO2 1-hour average 24-hour average	0.25 ppm (state) & 0.075 ppm (federal – 99th percentile) 0.04 ppm (state)	
Sulfate 24-hour average	25 µg/m^3 (state)	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
Lead 30-day Average Rolling 3-month average	1.5 µg/m^3 (state) 0.15 µg/m^3 (federal)	

[a] Source: SCAQMD CEQA Handbook (SCAQMD, 1993)
[b] Construction thresholds apply to both the South Coast Air Basin and Coachella Valley (Salton Sea and Mojave Desert Air Basins).
[c] For Coachella Valley, the mass daily thresholds for operation are the same as the construction thresholds.
[d] Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.
[e] Ambient air quality threshold based on SCAQMD Rule 403.

KEY: lbs/day = pounds per day ppm = parts per million µg/m^3 = microgram per cubic meter ≥ = greater than or equal to
MT/yr CO2eq = metric tons per year of CO2 equivalents > = greater than

III. a) **No Impact.** The 2012 AQMP Control Measure CTS-02 – Further Emission Reductions from Miscellaneous Coatings, Adhesives, Solvents and Lubricants and the Reasonably Available Control Measures (RACM) Demonstration (Appendix VI of 2012 AQMP), contains unspecified emission reduction goals for VOCs that apply to a variety of emission sources. The 2016 AQMP Control Measure CTS-01 - Further Emission Reductions from Miscellaneous Coatings, Solvents, Adhesives, and Sealants sets a VOC emission reduction goal of 1 ton per day by 2023 and 2 tons per day by 2031. These~~is~~ control measures seek to reduce VOC emissions from miscellaneous coating, adhesive, solvent, sealant, and lubricant categories by further limiting the allowable VOC content in formulations. Examples of the miscellaneous categories to be considered include, but are not limited to, coatings used in aerospace and marine applications; adhesives used in a variety of sealing applications; fountain solutions; solvents for graffiti abatement activities; and lubricants used as metalworking fluids to reduce heat and friction to prolong the life of the tool, improve product quality, and carry away debris. Based on the general emission reduction goals in the 2012 as well as the 2016 AQMP, PAR 1106 would partially implement Control Measure CTS-02 from the 2012 AQMP and CTS-01 from the 2016 AQMP by aligning limits with U.S. EPA Control Techniques Guidelines and other California APCDs/AQMDs. Upon adoption, PAR 1106 will be forwarded to the California Air Resources Board (CARB) for approval and subsequent submittal to the U.S. EPA for inclusion into the State Implementation Plan (SIP).

PAR 1106 would affect marine and pleasure craft coating operations. Since affected facilities/operations are anticipated to already comply with the proposed requirements, the proposed amendments are not expected to achieve additional VOC reductions to be credited toward CTS-02 or CTS-01.

Implementing PAR 1106 is not expected to conflict with or obstruct implementation of the applicable air quality control plan because both the 2012 and 2016 AQMP demonstrates that the effects of all existing rules, in combination with implementing all AQMP control measures (including "black box" measures not specifically described in the 2012 and 2016 AQMP) would bring the District into attainment with all applicable national and state ambient air quality standards. ~~Further, PAR 1106 is not expected to significantly conflict or obstruct implementation of the applicable air quality plan, but instead, would contribute to attaining and maintaining the ozone and PM standards by achieving VOC reductions.~~

For these reasons, implementation of all other SCAQMD VOC rules along with AQMP control measures, when considered together, is expected to reduce VOC emissions throughout the region ~~overall~~ by 2023. Therefore, implementing the proposed project will not conflict or obstruct implementation of the 2012 and 2016 AQMP. Accordingly, this impact issue will not be further analyzed.

III. b) **No Impact.** For a discussion of these items, refer to the following analysis:

Rule Objective and Facility Applicability
The objectives of PAR 1106 include the following:

- rescind Rule 1106.1 but maintain the requirements;
- revise VOC content limits for some coating categories in order to align limits with U.S. EPA Control Techniques Guidelines and other California APCDs/AQMDs;
- add new coating categories;

- add provisions for pollution prevention measures and enhanced enforceability,
- make minor revisions to the applicability subdivision and revise/add new definitions to the definitions subdivision; and
- include clarifications and editorial corrections.

Currently, Rule 1106 is applicable to all coating operations of boats, ships, and their appurtenances, and to buoys and oil drilling rigs intended for the marine environment, and Rule 1106.1 is applicable to all coating operations of pleasure craft, as defined in paragraph (b)(10) of this rule, or their parts and components, for the purpose of refinishing, repairing, modification, or manufacturing such craft. Staff believes the proposed project will provide enhanced compliance with the VOC limits through the proposed ~~reporting, recordkeeping and the~~ prohibition provisions requirements. ~~The proposed amendments will include an Annual Quantity Emission Report (AQER) and a Manufacturer's Distribution List. The AQER will require manufacturers and distributors to report the VOC content limits and the volume of product for of each marine and pleasure craft coating sold in the SCAQMD's jurisdiction. In addition, manufacturers will be required to submit to the SCAQMD, an annual Manufacturer's Distribution List to show all distributors who distribute these types of products into the SCAQMD jurisdiction.~~

Construction Impacts

The proposed project is not expected to require any new construction activities since the affected industry are not expected to require any physical changes to comply with the proposed amendments, and operate their equipment subject to PAR 1106 in a similar manner to the current rules (Rules 1106 and 1106.1). Staff believes the proposed project will provide enhanced compliance with the VOC limits through monitoring. Therefore, no existing facilities are expected to be required to install any new equipment or new emission control devices. Additionally, the proposed project would not require any construction activities associated with the reformulation of any marine or pleasure craft coating products or any changes to the current usage of marine or pleasure craft coatings at the existing affected facilities.

Facilities that choose to use energy curable coatings would not likely require any major physical changes or modifications to install a UV/EB system. Further, there would be no additional emissions from the UV/EB coating process or additional vehicle trips.

As a result, there would be no significant adverse construction air quality impacts resulting from the proposed project for criteria pollutants.

Operational Impacts- Criteria Pollutants

~~PAR 1106 is expected to have a direct and beneficial reduction of VOC emissions.~~ No other criteria pollutants are expected to be directly affected by PAR 1106 because of the narrow regulatory focus of Rules 1106 and 1106.1. Based on SCAQMD staff research, the affected coatings facilities should already use materials that are compliant with the proposed amendments. Therefore, there would be no change in operational emissions from the existing affected facilities. The proposed project is not expected to result in any significant adverse operational air quality impacts from the existing affected facilities.

Since the Draft EA was released for public review and comment, ~~two~~three exemptions were included in PAR 1106. A high viscosity / high solids coatings exemption was included for metal parts and products:

(4) The provisions of paragraph (d)(9) shall not apply to Marine or Pleasure Craft coatings with a viscosity of 650 centipoise or greater, as applied.

For various types of substrates and operations (e.g., metal parts, architectural, marine), application of the ultra-low VOC, high viscosity resin coatings (e.g., epoxy, polyurethane) can be facilitated by the ability to apply the coatings with specialized applicators such as heated plural component airless or air assisted spray guns, or unique cartridge gun systems. Incorporation of this exemption based on the coating viscosity will permit the use of the application equipment best suited for the material while retaining the benefits of using the low-VOC high solids coatings. Without the proposed exemption, facilities required to use HVLP equipment would otherwise have to thin the high solids coatings with VOC-containing solvents to allow them to be sprayed, thus eliminating the benefit of the low-VOC high solids coatings. Therefore, a provision was added to the proposed rule to allow a coating with 650 or more centipoise to be exempted from the transfer efficiency requirements. This proposed exemption is not expected to cause any adverse environmental impacts because these high solids, high viscosity coatings already contain low levels of VOCs and are already currently being utilized in the marine coatings industry. Thus, it is not expected that additional facilities would begin using these products because of the proposed exemption.

An exemption was also included for pre-treatment wash primers and special marking coatings that are intended to be used on submerged vessel (submarine) components [(typically used per military specifications (Mil-Specs)] and currently meet the VOC limits in Rule 1106 - Marine Coatings Operations. However, these coatings will not meet the new aligned VOC limits in PAR 1106, which seeks to align these VOC limits with other APCDs/AQMDs.

(5) The provisions of paragraphs (d)(1), (d)(2), and (d)(3) shall not apply to marine coatings that are used for vessels that are intended to submerge to at least 500 feet below the surface of the water provided that the total combined usage of such coatings do need exceed 12 gallons per calendar year and such coatings are in compliance with the VOC limits in the U.S. EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) for Shipbuilding and Ship Repair (Surface Coatings).

The usage of these materials are required based on approved standards from the U.S. Navy that cannot be replaced. To assure a lifetime of no corrosion on these components, facilities already have limited selections of materials to use in these specific manufacturing processes. Therefore, an exemption for these types of coatings was included of no more than 12 gallons per calendar year, of all products combined, for this type of operation and will require that the products used will have to be in compliance with the U.S. EPA National Emission Standard for Shipbuilding and Ship Repair (Surface Coating) as provided in Part 63 of the Federal Register. This proposed exemption is not expected to cause any adverse environmental impacts because these products are utilized for a very specific type of application/industry, and therefore, very limited quantities are currently used or expected to be used in the future. Additionally, because of the limited, specialized usage/application of these products, it is not expected that additional facilities would begin using these coatings as result of the proposed exemption. Finally, this limited exemption will not encourage or allow additional usage of these higher VOC coatings beyond what is already in use in the existing setting.

A definition was also added to PAR 1106 for Ultraviolet/Electron Beam (UV/EB) curable thin film marine and pleasure craft coatings. The definition includes a reference to ASTM D7767-11 "Standard Test Method to Measure Volatiles from Radiation Curable Monomers, Oligomers, and Blends and Thin Coatings Made from Them".

(9) ENERGY CURABLE COATINGS are single-component reactive products that cure upon exposure to visible-light, ultra-violet light or to an electron beam. The VOC content of thin film Energy Curable Marine and Pleasure Craft Coatings may be determined by manufacturers using ASTM Test Method 7767-11 "Standard Test Method to Measure Volatiles from Radiation Curable Acrylate Monomers, Oligomers, and Blends and Thin Coatings Made from Them".

The use of energy curable coatings is considered an alternative compliance technology. UV/EB curing refers to a process in which coatings and other materials may be cured or dried, rather than using traditional thermal methods (natural gas-fueled) which typically use more energy and generate greater emissions. The UV light spectrum in a UV lamp and the focused electrons in an EB interact with specially formulated chemistries to cure materials, typically more quickly, and using less energy than traditional dryers (see Appendix B[6]). UV/EB curing has some environmental benefits over traditional solvent-based coatings by significantly reducing the amount of solvents needed in the coating itself and by reducing the burning of fossil fuels to cure/dry the product[7].

SCAQMD staff is proposing to add paragraph (i)(1) to exempt marine or pleasure craft coatings that have a VOC content of no more than 50 g/L or its equivalent, less water and less exempt compounds, as applied. At least three manufacturers currently have products with a VOC content less than or equal to 50 g/L which will provide an environmental benefit since 50 g/L of VOC is substantially lower than the VOC content limits in PAR 1106. Further, in order to qualify for this exemption, coatings will need to comply with paragraph (d)(6) which prohibits marine or pleasure craft coatings from containing any Group II Exempt compounds (stratospheric ozone-depleting compounds) and paragraph (d)(7) which prohibits marine or pleasure craft coatings from containing cadmium, nickel, lead, or hexavalent chromium. Since coatings that qualify for the exemption are expected to contain less VOC, less or no toxics, and no stratospheric ozone-depleting compounds, the proposed exemption is not expected to cause any adverse environmental impacts.

SCAQMD staff visited several facilities and found that many facilities conducting marine and pleasure craft coating operations believed that touch-up operations such as maintenance and repair were exempt from the requirements of Rule 1106. However, the exemption for touch-up coatings is intended for minor imperfections or minor mechanical damage incurred after the main coatings are applied. Many operations had misinterpreted the exemption for touch-up coatings to include coatings used for maintenance and repair operations. To remedy this misunderstanding, staff has clarified the existing exemption for touch-up coatings to reference the definition of touch-up coatings in paragraph (c)(41).

[6] *Sustainability Advantages of Ultraviolet and Electron Beam Curing*, 2008 – a UV/EB industry trade association publication
[7] http://www.radtech.org

As noted previously, many operators had interpreted the exemption for touch-up coatings included coatings used for maintenance and repair operations. The exemption will now explicitly reference the definition of touch-up coatings in paragraph (c)(41). It is anticipated that operators will use compliant marine and craft coatings for maintenance and repair operations.

Rule 1106 currently allows for operators to use non-compliant coatings in approved emission control systems provided that the emission control system would reduce VOC emissions to an equivalent or greater level that achieved by complying with VOC limit. However, SCAQMD staff found that none of the facilities conducting marine and/or pleasure craft coating operations use emission control systems. Therefore, staff is proposing to remove both paragraph (c)(2) – Approved Emission Control System and paragraph (g)(6) – Determination of Transfer Efficiency of Application Equipment. These proposed amendments are not expected to cause any adverse environmental impacts because facilities will need to comply with the VOC content limits set forth in PAR 1106 in lieu of using non-compliant coatings in an approved emissions control system. Also, marine and pleasure craft coating operators will need to use compliant coatings with more stringent VOC limits than the current limits in Rule 1106 (version January 13, 1998). Further, PAR 1106 includes prohibition of possession and sale provisions in subdivision (e) – Prohibition of Possession, Specification and Sale. As such, operators will not be able to purchase, store, or use non-compliant coatings and manufacturers will not be able to sell, manufacture, or store non-compliant coatings within the SCAQMD jurisdiction.

Operational Impacts- Toxic Air Contaminants

In assessing potential impacts from the adoption of proposed rules and amendments, SCAQMD staff not only evaluates the potential air quality impacts, but also determines potential health risks associated with implementation of the proposed amendments.

As stated previously, the proposed project will provide enhanced compliance with VOC limits through monitoring lower VOC limits, and wording clarifications. The proposed amendments do not generate any additional toxic emissions at any of the affected facilities. In 2015, staff also included the following language in PAR 1106 to prohibit marine or pleasure craft coatings from containing cadmium, nickel, lead, or hexavalent chromium in paragraph (d)(8):

> (8) Carcinogenic Materials
>
> A person shall not manufacture, sell, offer for sale, distribute for use in the SCAQMD jurisdiction, or apply any marine or pleasure craft coating which contains cadmium, nickel, lead or hexavalent chromium that was introduced as a pigment or as an agent to impart any property or characteristic to the marine or pleasure craft coatings during manufacturing, distribution, or use of the applicable marine or pleasure craft coatings.

It is important to note that this prohibition was included in the October 2, 2015 Governing Board package but was inadvertently omitted at the time the Final EA was drafted. Nonetheless, because this additional change is memorializing existing requirements for carcinogenic materials to further protect the environment, no adverse impacts are expected.

Based on SCAQMD staff research, no changes are necessary in current marine and pleasure craft coating formulations that currently comply with the new lower VOC limits. Therefore, no changes

in toxicity are expected. As a result, there will be no increase in toxic air contaminant emissions from the affected facilities due to the proposed rule amendments.

III. c) No Impact. As Lead Agency, the SCAQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant[8].

This approach was upheld by the Court in *Citizens for Responsible Equitable Environmental Development v. City of Chula Vista* (2011) 197 Cal. App. 4th 327, 334. The Court determined that where it can be found that a project did not exceed the SDAPCD's established air quality significance thresholds, the City of Chula Vista properly concluded that the project would not cause a significant environmental effect, nor result in a cumulatively considerable increase in these pollutants. The court found this determination to be consistent with CEQA Guidelines Section§15064.7, stating, "The lead agency may rely on a threshold of significance standard to determine whether a project will cause a significant environmental effect." The court found that, "Although the project will contribute additional air pollutants to an existing nonattainment area, these increases are below the significance criteria…" "Thus, we conclude that no fair argument exists that the Project will cause a significant unavoidable cumulative contribution to an air quality impact." As in *Chula Vista*, here the District has demonstrated, when using accurate and appropriate data and assumptions, that the project will not exceed the established SCAQMD significance thresholds. See also, *Rialto Citizens for Responsible Growth v. City of Rialto* (2012) 208 Cal. App. 4th 899. Here again the court upheld the lead agency's approach to utilizing the established air quality significance thresholds to determine whether the impacts of a project would be cumulatively considerable. Thus, it may be concluded that the Project will not cause a significant unavoidable cumulative contribution to an air quality impact.

Based on the foregoing analysis, project-specific air quality impacts from implementing the proposed project would not exceed air quality significance thresholds (Table 2-1); therefore, based on the above discussion, cumulative impacts are not expected to be significant for air quality. Therefore, potential adverse impacts from the proposed project would not be "cumulatively considerable" as defined by CEQA Guidelines Section§15064(h)(1) for air quality impacts. Per CEQA Guidelines Section §15064(h)(4), the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulative considerable.

III. d) No Impact. Affected facilities are also not expected to increase exposure by sensitive receptors to substantial pollutant concentrations from the implementation of PAR 1106 for the following reasons: 1) the affected facilities are existing facilities located primarily in port commercial/industrial areas; 2) no construction and operational emission increases are associated

[8] SCAQMD Cumulative Impacts Working Group White Paper on Potential Control Strategies to Address Cumulative Impacts From Air Pollution, August 2003, Appendix D, Cumulative Impact Analysis Requirements Pursuant to CEQA, at D-3, http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf.

with the proposed project. Therefore, no significant adverse air quality impacts to sensitive receptors are expected from implementing PAR 1106.

III. e) No Impact. Odor problems depend on individual circumstances, materials involved, and individual odor sensitivities. For example, individuals can differ quite markedly from the population average in their sensitivity to odor due to any variety of innate, chronic or acute physiological conditions. This includes olfactory adaptation or smell fatigue (i.e., continuing exposure to an odor usually results in a gradual diminution or even disappearance of the smell sensation).

As already noted, the proposed project does not result in the use of construction equipment. As a result, no odor impacts associated with diesel exhaust from either on-road or off-road mobile sources are expected to occur. No change in marine and pleasure craft coating formulations currently utilized at the affected facilities is expected to occur. ~~It is expected that the proposed amendments would improve air quality, visibility, and reduce odors from reducing VOC emissions.~~ Therefore, the proposed project is not expected to create new significant adverse objectionable odors.

III. f) No Impact. The affected facilities would continue to be required to comply with all applicable SCAQMD, CARB, and U.S. EPA rules and regulations. The proposed project is not in conflict or expected to diminish an existing air quality rule or future compliance requirements. Further, adopting and implementing the proposed project enhances existing air pollution control rules that are expected to assist the SCAQMD in its efforts to attain and maintain with a margin of safety the state and federal ambient air quality standards for ozone and PM2.5 because VOCs are considered to be precursor pollutants that contribute to the formation of ozone and PM2.5. Accordingly the proposed project would not diminish any air quality rules or regulations.

III. g) & h) No Impact. Changes in global climate patterns have been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, recently attributed to accumulation of GHG emissions in the atmosphere. GHGs trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through the combustion of fossil fuels (i.e., fuels containing carbon) in conjunction with other human activities, appears to be closely associated with global warming.[9] State law defines GHG to include the following: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6) (Health and Safety Code Section 38505(g)). The most common GHG that results from human activity is CO2, followed by CH4 and N2O.

GHGs and other global warming pollutants are perceived as solely global in their impacts and that increasing emissions anywhere in the world contributes to climate change anywhere in the world.

[9] Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.). 2007. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007. Cambridge University Press. http://www.ipcc.ch/publications_and_data/ar4/wg1/en/contents.html

A study conducted on the health impacts of CO2 "domes" that form over urban areas cause increases in local temperatures and local criteria pollutants, which have adverse health effects.[10]

The analysis of GHGs is a much different analysis than the analysis of criteria pollutants for the following reasons. For criteria pollutants, the significance thresholds are based on daily emissions because attainment or non-attainment is primarily based on daily exceedances of applicable ambient air quality standards. Further, several ambient air quality standards are based on relatively short-term exposure effects on human health (e.g., one-hour and eight-hour standards). Since the half-life of CO2 is approximately 100 years, for example, the effects of GHGs occur over a longer term which means they affect the global climate over a relatively long time frame. As a result, the SCAQMD's current position is to evaluate the effects of GHGs over a longer timeframe than a single day (e.g., annual emissions). GHG emissions are typically considered to be cumulative impacts because they contribute to global climate effects.

On December 5, 2008, the SCAQMD adopted an interim CEQA GHG Significance Threshold for projects where SCAQMD is the lead agency (SCAQMD, 2008). This interim threshold is set at 10,000 metric tons of CO2 equivalent emissions (MTCO2eq) per year. Projects with incremental increases below this threshold will not be cumulatively considerable.

The Program EIRs for the 2012 and 2016 AQMPs concluded that implementing the control measures in both the 2012 and 2016 AQMPs would provide a comprehensive ongoing regulatory program that would have the co-benefit of reducing overall GHGs emissions in the District. Specifically, PAR 1106 adds a prohibition of possession and sale provision, adds transfer efficiency requirements (similar to other SCAQMD coatings rules), and includes various clarifications and administrative changes. Additionally, five new coating categories have been established, and the VOC limits for five specialty coatings categories are being lowered based on existing limits that several other air agencies already require (VCAPCD, SDAPCD, and BAAQMD) and to align limits with U.S. EPA Control Techniques Guidelines. Thus, the proposed project does not introduce the need to emit GHG emissions, but rather ~~reduce~~ ensures that VOC emissions remain low from activities subject to this rule. Therefore, PAR 1106 is not expected to create significant cumulative adverse GHG emission impacts or conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

Conclusion

Based on the preceding evaluation of potential air quality impacts from PAR 1106, SCAQMD staff has concluded that PAR 1106 does not have the potential to generate significant adverse air quality impacts. Since no significant adverse air quality and greenhouse gases impacts were identified, no mitigation measures are necessary or required.

[10] Jacobsen, Mark Z. "Enhancement of Local Air Pollution by Urban CO2 Domes," Environmental Science and Technology, as describe in Stanford University press release on March 16, 2010 available at: http://news.stanford.edu/news/2010/march/urban-carbon-domes-031610.html.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
IV.	**BIOLOGICAL RESOURCES.** Would the project:				
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
c)	Have a substantial adverse effect on federally protected wetlands as defined by Section ~~§~~404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☑
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☑
e)	Conflict~~ing~~ with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑
f)	Conflict with the provisions of an adopted Habitat Conservation plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

Significance Criteria

Impacts on biological resources will be considered significant if any of the following criteria apply:

- The project results in a loss of plant communities or animal habitat considered to be rare, threatened or endangered by federal, state or local agencies.
- The project interferes substantially with the movement of any resident or migratory wildlife species.
- The project adversely affects aquatic communities through construction or operation of the project.

Discussion

IV. a), b), c), & d) **No Impact.** PAR 1106 would not require any new construction or require any major modifications to buildings or other structures to comply with the new requirements for marine and pleasure craft coating operations, thus, no grading activities or disruption of soil or plant life. As a result, PAR 1106 would not directly or indirectly affect any species identified as a candidate, sensitive or special status species, riparian habitat, federally protected wetlands, or migratory corridors. For this same reason, PAR 1106 is not expected to adversely affect special status plants, animals, or natural communities.

IV. e) & f) **No Impact.** PAR 1106 would not conflict with local policies or ordinances protecting biological resources or local, regional, or state conservation plans because it would not cause new development. Additionally, PAR 1106 would not conflict with any Habitat Conservation Plan, Natural Community Conservation Plan, or any other relevant habitat conservation plan for the same reason identified in Item IV. a), b), c), and d) above. Likewise, the proposed project would not in any way impact wildlife or wildlife habitat.

Based upon these considerations, significant adverse biological resources impacts are not anticipated and will not be further analyzed in this Final EA. Since no significant adverse biological resources impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
V.	**CULTURAL RESOURCES.** Would the project:				
a)	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☑
b)	Cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5?	☐	☐	☐	☑
c)	Directly or indirectly destroy a unique paleontological resource, site, or feature?	☐	☐	☐	☑
d)	Disturb any human remains, including those interred outside formal cemeteries?	☐	☐	☐	☑
e)	Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074?	☐	☐	☐	☑

Significance Criteria

Impacts to cultural resources will be considered significant if:

- The project results in the disturbance of a significant prehistoric or historic archaeological site or a property of historic or cultural significance, or tribal cultural significance to a community or ethnic or social group or a California Native American tribe.
- Unique paleontological resources or objects with cultural value to a California Native American tribe are present that could be disturbed by construction of the proposed project.
- The project would disturb human remains.

Discussion

V. a), b), c), & d) **No Impact.** PAR 1106 does not require construction of new facilities, increasing the floor space of existing facilities, or any other construction activities that would require disturbing soil that may contain cultural resources. Since no construction-related activities requiring soil disturbance would be associated with the implementation of PAR 1106, no impacts to historical or cultural resources are anticipated to occur. Further, PAR 1106 is not expected to require any physical changes to the environment, which may disturb paleontological or archaeological resources or disturb human remains interred outside of formal cemeteries.

V. e) **No Impact.** The proposed project is not expected to require physical changes to a site, feature, place, cultural landscape, sacred place or object with cultural value to a California Native American Tribe. Furthermore, the proposed project is not expected to result in a physical change to a resource determined to be eligible for inclusion or listed in the California Register of Historical Resources or included in a local register of historical resources. For these reasons, the proposed

project is not expected to cause any substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code §21074.

It is important to note that as part of releasing this CEQA document for public review and comment, the SCAQMD also provided a formal notice of the proposed project to all California Native American Tribes (Tribes) that requested to be on the Native American Heritage Commission's (NAHC) notification list per Public Resources Code §21080.3.1 (b)(1). The NAHC notification list provides a 30-day period during which a Tribe may respond to the formal notice, in writing, requesting consultation on the proposed project.

In the event that a Tribe submits a written request for consultation during this 30-day period, the SCAQMD will initiate a consultation with the Tribe within 30 days of receiving the request in accordance with Public Resources Code §21080.3.1 (b). Consultation ends when either: 1) both parties agree to measures to avoid or mitigate a significant effect on a Tribal Cultural Resource and agreed upon mitigation measures shall be recommended for inclusion in the environmental document [see Public Resources Code §21082.3 (a)]; or, 2) either party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached [see Public Resources Code §21080.3.2 (b)(1)-(2) and §21080.3.1 (b)(1)].

Based upon these considerations, significant adverse cultural resources impacts are not expected from implementing the proposed project and will not be further assessed in this Revised Final EA. Since no significant cultural resources impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
VI.	**ENERGY.** Would the project:				
a)	Conflict with adopted energy conservation plans?	☐	☐	☐	☑
b)	Result in the need for new or substantially altered power or natural gas utility systems?	☐	☐	☐	☑
c)	Create any significant effects on local or regional energy supplies and on requirements for additional energy?	☐	☐	☐	☑
d)	Create any significant effects on peak and base period demands for electricity and other forms of energy?	☐	☐	☐	☑
e)	Comply with existing energy standards?	☐	☐	☐	☑

Significance Criteria

Impacts to energy and mineral resources will be considered significant if any of the following criteria are met:

- The project conflicts with adopted energy conservation plans or standards.
- The project results in substantial depletion of existing energy resource supplies.
- An increase in demand for utilities impacts the current capacities of the electric and natural gas utilities.
- The project uses non-renewable resources in a wasteful and/or inefficient manner.

Discussion

VI. a) & e) **No Impact.** Adoption of PAR 1106 would subsume Rule 1106.1 within Rule 1106, add a prohibition of possession and sale provision, add transfer efficiency requirements (similar to other SCAQMD coatings rules), and include various clarifications and administrative changes. Additionally, five new coating categories have been established, and the VOC limits for five specialty coatings categories are being lowered based on existing limits that several other air agencies already require (VCAPCD, SDAPCD, and BAAQMD) and to align limits with U.S. EPA Control Techniques Guidelines. The proposed amendments are expected to provide enhanced compliance with the VOC limits through monitoring. The proposed project also adds a definition for energy curable coatings. UV/EB applications typically cure materials more quickly, using less energy than traditional dryers. The proposed amendments are not expected to create any additional demand for energy at any of the affected facilities. Since it is unlikely that the affected facilities would require new equipment or modifications at existing facilities, current energy demand requirements would not change. As a result, PAR 1106 would not conflict with energy conservation plans, use non-renewable resources in a wasteful manner, or result in the need for new or substantially altered power or natural gas systems. Since PAR 1106 would affect primarily existing facilities, it will not conflict with adopted energy conservation plans because existing facilities would be expected to continue implementing any existing energy conservation plans. Additionally, operators of affected facilities are expected to implement existing energy

conservation plans or comply with energy standards to minimize operating costs. Accordingly these impact issues will not be further analyzed in the Revised Final EA.

VI. b), c) & d) No Impact. The proposed project adds a definition for energy curable coatings. Energy cured materials typically dry/cure more quickly, using less energy than conventional drying methods, which typically use natural gas as a fuel source (see Appendix B[11]). The proposed amendments are not expected to increase any electricity or natural gas demand in any way and would not create any significant effects on peak and base period demands for electricity and other forms of energy because no new physical changes to the affected facilities is anticipated. The adoption of PAR 1106 will not create any significant effects on local or regional energy supplies, create any significant effects on peak and base period demands for electricity and other forms of energy, or result in the need for new or substantially altered power or natural gas utility systems since the affected industry will be able to continue business as usual and operate their equipment subject to PAR 1106 in a similar manner to existing practices.

PAR 1106 is not expected to generate significant adverse energy resources impacts and will not be discussed further in this Revised Final EA. Since no significant energy impacts were identified, no mitigation measures are necessary or required.

[11] *Sustainability Advantages of Ultraviolet and Electron Beam Curing*, 2008 – a UV/EB industry trade association publication

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
VII.	**GEOLOGY AND SOILS.** Would the project:				
a)	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☐	☑
	• Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	☐	☑
	• Strong seismic ground shaking?	☐	☐	☐	☑
	• Seismic–related ground failure, including liquefaction?	☐	☐	☐	☑
b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☑
c)	Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☑
d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☑
e)	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☑

Significance Criteria

Impacts on the geological environment will be considered significant if any of the following criteria apply:

- Topographic alterations would result in significant changes, disruptions, displacement, excavation, compaction or over covering of large amounts of soil.
- Unique geological resources (paleontological resources or unique outcrops) are present that could be disturbed by the construction of the proposed project.

- Exposure of people or structures to major geologic hazards such as earthquake surface rupture, ground shaking, liquefaction or landslides.
- Secondary seismic effects could occur which could damage facility structures, e.g., liquefaction.
- Other geological hazards exist which could adversely affect the facility, e.g., landslides, mudslides.

Discussion

VII. a) No Impact. Southern California is an area of known seismic activity. Structures must be designed to comply with the Uniform Building Code Zone 4 requirements if they are located in a seismically active area. The local city or county is responsible for assuring that a proposed project complies with the Uniform Building Code as part of the issuance of the building permits and can conduct inspections to ensure compliance. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. The goal of the code is to provide structures that will: 1) resist minor earthquakes without damage; 2) resist moderate earthquakes without structural damage but with some non-structural damage; and 3) resist major earthquakes without collapse but with some structural and non-structural damage.

The Uniform Building Code bases seismic design on minimum lateral seismic forces ("ground shaking"). The Uniform Building Code requirements operate on the principle that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represent the foundation conditions at the site. Accordingly, buildings and equipment at existing affected facilities are likely to conform with the Uniform Building Code and all other applicable state codes in effect at the time they were constructed.

No new buildings or structures are expected to be constructed in response to the proposed project, so no change in geological existing setting is expected. Additionally, no modification to existing equipment would be necessary. Therefore, PAR 1106 is not expected to affect a facility's ability to continue to comply with any applicable Uniform Building Code requirements. Consequently, PAR 1106 is not expected to expose persons or property to geological hazards such as earthquakes, landslides, mudslides, ground failure, or other natural hazards. As a result, substantial exposure of people or structure to the risk of loss, injury, or death involving seismic-related activities is not anticipated and will not be further analyzed in this Revised Final EA.

VII. b), c), d) & e) No Impact. Since PAR 1106 would affect primarily existing facilities, it is expected that the soil types present at the affected facilities that are susceptible to expansion or liquefaction would be considered part of the existing setting. New subsidence impacts are not anticipated since no excavation, grading, or fill activities will occur at affected facilities. Further, the proposed project does not involve drilling or removal of underground products (e.g., water, crude oil, et cetera) that could produce new, or make worse existing subsidence effects. Additionally, the affected areas are not envisioned to be prone to new risks from landslides or have unique geologic features, since the affected facilities are primarily located in ports or marinas in industrial or commercial areas where such features have already been altered or removed. Finally, since adoption of PAR 1106 would be expected to affect operations at primarily existing facilities, the proposed project is not expected to alter or make worse any existing potential for subsidence, liquefaction, etc.

Based on the above discussion, the proposed project is not expected to have an adverse impact on geology or soils. Since no significant adverse impacts are anticipated, this environmental topic will not be further analyzed in the Revised Final EA. No mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
VIII.	**HAZARDS AND HAZARDOUS MATERIALS.** Would the project:				
a)	Create a significant hazard to the public or the environment through the routine transport, use, and disposal of hazardous materials?	☐	☐	☐	☑
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☑
c)	Emit hazardous emissions, or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☑
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment?	☐	☐	☐	☑
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public use airport or a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
g)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☑
h)	Significantly increased fire hazard in areas with flammable materials?	☐	☐	☐	☑

Significance Criteria

Impacts associated with hazards will be considered significant if any of the following occur:

- Non-compliance with any applicable design code or regulation.
- Non-conformance to National Fire Protection Association standards.
- Non-conformance to regulations or generally accepted industry practices related to operating policy and procedures concerning the design, construction, security, leak detection, spill containment or fire protection.
- Exposure to hazardous chemicals in concentrations equal to or greater than the Emergency Response Planning Guideline (ERPG) 2 levels.

Discussion

VIII. a, b) & c) **No Impact.** The proposed project will not create a significant hazard to the public or the environment through the routine transport, use, and disposal of hazardous materials, due to the fact that the proposed amendments do not require the transport, use, and disposal of hazardous materials beyond current operations. Based on the fact that the proposed rules do not require the transport, use and disposal of hazardous materials, PAR 1106 will not create a significant hazard to the public or environment through a reasonably foreseeable release of these materials into the environment.

No additional formulation is anticipated, thus, there is little likelihood that affected facilities will emit new hazardous emissions or handle hazardous materials, substances or waste within one-quarter mile of an existing or proposed school as a result of implementing the proposed project. The affected facilities are typically located in port/marina areas, but the proposed project does not introduce any hazardous materials, so the existing setting does not change. Further, PAR 1106 is intended to ensure that VOC emissions remain low from activities subject to this rule ~~the reduction of overall VOC emissions in the District~~. It is expected that the proposed amendments would improve air quality, visibility and reduce odors surrounding existing facilities and, would do likewise for any existing or proposed schools within one-quarter mile of affected facilities.

VIII. d) **No Impact.** Government Code Section 65962.5 typically refers to a list of facilities that may be subject to Resource Conservation and Recovery Act (RCRA) permits. For any facilities affected by the proposed project that are on the Government Code Section 65962.5 list, it is anticipated that they would continue to manage any and all hazardous materials and hazardous waste, in accordance with federal, state and local regulations.

VIII. e) **No Impact.** Since PAR 1106 would incorporate new requirements for marine and pleasure craft coating operations, implementation of PAR 1106 is not expected to increase or create any new hazardous emissions in general, which could adversely affect public/private airports located in close proximity to the affected sites. Implementation of PAR 1106 is not expected to create any additional safety hazards for people residing or working in the project area.

VIII. f) **No Impact.** The proposed project will not impair implementation of, or physically interfere with any adopted emergency response plan or emergency evacuation plan. Any existing facilities affected by the proposed project will typically have their own emergency response plans. Any new facilities will be required to prepare emergency response and evacuation plans as part of the land use permit review and approval process conducted by local jurisdictions for new development. Emergency response plans are typically prepared in coordination with the local city or county emergency plans to ensure the safety of not only the public (surrounding local

communities), but the facility employees as well. Since the proposed project does not involve the change in current uses of any hazardous materials, or generate any new hazardous waste, no changes to emergency response plans are anticipated.

Health and Safety Code Section 25506 specifically requires all businesses handling hazardous materials to submit a business emergency response plan to assist local administering agencies in the emergency release or threatened release of a hazardous material. Business emergency response plans generally require the following:

1. Identification of individuals who are responsible for various actions, including reporting, assisting emergency response personnel and establishing an emergency response team;
2. Procedures to notify the administering agency, the appropriate local emergency rescue personnel, and the California Office of Emergency Services;
3. Procedures to mitigate a release or threatened release to minimize any potential harm or damage to persons, property or the environment;
4. Procedures to notify the necessary persons who can respond to an emergency within the facility;
5. Details of evacuation plans and procedures;
6. Descriptions of the emergency equipment available in the facility;
7. Identification of local emergency medical assistance; and
8. Training (initial and refresher) programs for employees in:
    a. The safe handling of hazardous materials used by the business;
    b. Methods of working with the local public emergency response agencies;
    c. The use of emergency response resources under control of the handler; and
    d. Other procedures and resources that will increase public safety and prevent or mitigate a release of hazardous materials.

In general, every county or city and all facilities using a minimum amount of hazardous materials are required to formulate detailed contingency plans to eliminate, or at least minimize, the possibility and effect of fires, explosion, or spills. In conjunction with the California Office of Emergency Services, local jurisdictions have enacted ordinances that set standards for area and business emergency response plans. These requirements include immediate notification, mitigation of an actual or threatened release of a hazardous material, and evacuation of the emergency area. Adopting PAR 1106 is not expected to hinder in any way with the above business emergency response plan requirements.

VIII. g) **No Impact.** Since the affected facilities are primarily located in port/marina areas where wildlands are typically not prevalent, risk of loss or injury associated with wildland fires is not expected as a result of implementing PAR 1106.

VIII. h) **No Impact.** Affected marine and pleasure craft coating facilities must comply with all local and county requirements for fire prevention and safety. The proposed project does not require

any activities which would be in conflict with fire prevention and safety requirements, and thus would not create or increase fire hazards at these existing facilities.

PAR 1106 is intended to ensure the reduction of VOC emissions at marine and pleasure craft coating facilities. Typically, these facilities use and store flammable materials. Pursuant to local and county fire prevention and safety requirements, facilities are required to maintain appropriate site management practices to prevent fire hazards. PAR 1106 will not interfere with fire prevention practices.

In conclusion, potentially significant adverse hazard or hazardous material impacts resulting from adopting and implementing PAR 1106 are not expected and will not be considered further. No mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
IX.	**HYDROLOGY AND WATER QUALITY.** Would the project:				
a)	Violate any water quality standards, waste discharge requirements, exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board, or otherwise substantially degrade water quality?	☐	☐	☐	☑
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☑
c)	Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in substantial erosion or siltation on- or off-site or flooding on- or off-site?	☐	☐	☐	☑
d)	Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☑
e)	Place housing or other structures within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, which would impede or redirect flood flows?	☐	☐	☐	☑
f)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam, or inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☑

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
g)	Require or result in the construction of new water or wastewater treatment facilities or new storm water drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☑
h)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☑
i)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☑

Significance Criteria

Potential impacts on water resources will be considered significant if any of the following criteria apply:

Water Demand:

- The existing water supply does not have the capacity to meet the increased demands of the project, or the project would use more than 262,820 gallons per day of potable water.
- The project increases demand for total water by more than five million gallons per day.

Water Quality:

- The project will cause degradation or depletion of ground water resources substantially affecting current or future uses.
- The project will cause the degradation of surface water substantially affecting current or future uses.
- The project will result in a violation of National Pollutant Discharge Elimination System (NPDES) permit requirements.
- The capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system are not sufficient to meet the needs of the project.
- The project results in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.
- The project results in alterations to the course or flow of floodwaters.

Discussion

IX. a), b), c), d) & g) **No Impact.** Adoption of PAR 1106 would subsume Rule 1106.1 within Rule 1106, add a prohibition of possession and sale provision, add transfer efficiency requirements (similar to other SCAQMD coatings rules), and include various clarifications and administrative changes. Additionally, five new coating categories have been established, and the VOC limits for five specialty coatings categories are being lowered based on existing limits that several other air agencies already require (VCAPCD, SDAPCD, and BAAQMD) and to align limits with U.S. EPA Control Techniques Guidelines. The proposed amendments are expected to provide enhanced compliance with the VOC limits through monitoring. The proposed amendments would not result in increased water usage because no new reformulations are anticipated to comply with the lower VOC content limit for the five specialty coatings categories, as these coating categories already meet the proposed lower VOC limits. Additional water usage will not result from the proposed project.

No additional wastewater generation is expected to result from the proposed project. Further, PAR 1106 has no provision that would require the construction of additional water resource facilities, increase the need for new or expanded water entitlements, or alter existing drainage patterns. The proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. PAR 1106 would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Further, the adoption of PAR 1106 would not create a change in the current volume of existing wastewater streams from the affected facilities. In addition, the proposed project is not expected to require additional wastewater disposal capacity, violate any water quality standard or wastewater discharge requirements, or otherwise substantially degrade water quality.

Adoption of PAR 1106 could affect future operations at existing facilities that are typically located in industrial or commercial areas that are already paved and have drainage infrastructures in place. However, due to the fact that current operations already comply with the proposed lower VOC limits, no new major construction is anticipated. Based on the current affected facility inventory in the District, implementation of PAR 1106 is not expected to involve major construction activities including site preparation, grading, etc., so no changes to storm water runoff, drainage patterns, groundwater characteristics, or flow are expected. Therefore, these impact areas are not expected to be affected by PAR 1106.

PAR 1106 is not expected to have significant adverse water demand or water quality impacts for the following reasons:

- The proposed project does not increase demand for water by more than 5,000,000 gallons per day.
- The proposed project does not require construction of new water conveyance infrastructure.
- The proposed project does not create a substantial increase in mass inflow of effluents to public wastewater treatment facilities.
- The proposed project does not result in a substantial degradation of surface water or groundwater quality.

- The proposed project does not result in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.
- The proposed project does not result in alterations to the course or flow of floodwaters.

IX. i) No Impact. The proposed project is not expected to change existing operations at affected facilities, nor would it result in the generation of increased volumes of wastewater, because no increased water usage is expected due to the proposed project. As a result, there are no potential changes in wastewater volume expected from facilities as a result of the adoption of PAR 1106. It is expected that facilities and operations will continue to handle wastewater generated in a similar manner and with the same equipment as the wastewater that is currently generated. Further, PAR 1106 is not expected to cause affected facilities to violate any water quality standard or wastewater discharge requirements since there would be no additional wastewater volumes generated as a result of adopting PAR 1106.

IX. e), f) & h) No Impact. The proposed project would incorporate new requirements for marine and pleasure craft coating operations. As a result, PAR 1106 would not require construction of new housing, contribute to the construction of new building structures, or require major modifications or changes to existing structures. Further, PAR 1106 is not expected to require additional workers at affected facilities because the proposed project does not affect how equipment is operated. Therefore, PAR 1106 is not expected to generate construction of any new structures in 100-year flood areas as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood delineation map. As a result, PAR 1106 is not expected to expose people or structures to significant new flooding risks, or make worse any existing flooding risks. Because PAR 1106 would not require construction of new structures or the addition of new employees, the proposed project will not affect in any way any potential flood hazards inundation by seiche, tsunami, or mud flow that may already exist relative to existing facilities or create new hazards at existing facilities. Additionally, since PAR 1106 does not require additional water usage or demand, sufficient water supplies are expected to be available to serve the project from existing entitlements and resources, and no new or expanded entitlements would be needed.

Based upon these considerations, significant hydrology and water quality impacts are not expected from the adoption of PAR 1106 and will not be further analyzed in this Revised Final EA. Since no significant hydrology and water quality impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
X.	**LAND USE AND PLANNING.** Would the project:				
a)	Physically divide an established community?	☐	☐	☐	☑
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☑

Significance Criteria

Land use and planning impacts will be considered significant if the project conflicts with the land use and zoning designations established by local jurisdictions.

Discussion

X. a) No Impact. PAR 1106 would not require any new construction or require major modifications to buildings or other structures to comply with the new requirements for marine and pleasure craft coating operations at any of the currently existing facilities. Therefore, PAR 1106 does not include any components that would require physically dividing an established community.

X. b) No Impact. There are no provisions in PAR 1106 that would affect land use plans, policies, or regulations beyond what is currently required from affected sources, such as prohibition of use. Land use and other planning considerations are determined by local governments and no land use or planning requirements would be altered by the new requirements for marine and pleasure craft coating operations. Therefore, as already noted in the discussion under "Biological Resources," PAR 1106 would not affect in any habitat conservation or natural community conservation plans, agricultural resources or operations, and would not create divisions in any existing communities. Present or planned land uses in the region would not be significantly adversely affected as a result of implementing the proposed project.

Based upon these considerations, significant adverse land use and planning impacts are not expected from the implementation of PAR 1106 and will not be further analyzed in this Revised Final EA. Since no significant land use and planning impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XI.	**MINERAL RESOURCES.** Would the project:				
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☑
b)	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☑

Significance Criteria

Project-related impacts on mineral resources will be considered significant if any of the following conditions are met:

- The project would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.
- The proposed project results in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Discussion

XI. a) & b **No Impact.** There are no provisions in PAR 1106 that would result in the loss of availability of a known mineral resource of value to the region and the residents of the state, or of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Some examples of mineral resources are gravel, asphalt, bauxite, and gypsum, which are commonly used for construction activities or industrial processes. Since the proposed project only affects coating formulations at marine and pleasure craft coating operations, PAR 1106 does not require and would not have any effects on the use of important minerals, such as those described above. Therefore, no new demand for mineral resources is expected to occur and significant adverse mineral resources impacts from implementing PAR 1106 are not anticipated.

Based upon these aforementioned considerations, significant mineral resources impacts are not expected from the implementation of PAR 1106. Since no significant mineral resources impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XII. NOISE. Would the project result in:				
a) Exposure of persons to or generation of permanent noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☑
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☑
c) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☑
d) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public use airport or private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

Significance Criteria

Noise impact will be considered significant if:

- Construction noise levels exceed the local noise ordinances or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three decibels (dBA) at the site boundary. Construction noise levels will be considered significant if they exceed federal Occupational Safety and Health Administration (OSHA) noise standards for workers.
- The proposed project operational noise levels exceed any of the local noise ordinances at the site boundary or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three dBA at the site boundary.

Discussion

XII. a) <u>No Impact.</u> PAR 1106 would incorporate new requirements and VOC content limits for marine and pleasure craft coating operations that do not generate noise. PAR 1106 would not require any new construction or require major modifications to buildings or other structures to comply with the proposed amended rule at any of the currently existing facilities. All of the affected activities occur within existing facilities. Compliance with the new requirements for marine and pleasure craft coating operations are not expected to adversely affect operations at affected facilities because the existing facilities are expected to already meet the currently proposed requirements. Thus, the proposed project is not expected to expose persons to the generation of excessive noise levels above current facility levels because no change in current operations is expected to occur as a result of the proposed project. It is expected that any facility

affected by PAR 1106 would continue complying with all existing local noise control laws or ordinances.

In commercial environments, Occupational Safety and Health Administration (OSHA) and California-OSHA have established noise standards to protect worker health. It is expected that operators at affected facilities will continue complying with applicable OSHA or Cal/OSHA noise standards, which would limit noise impacts to workers, patrons and neighbors.

XII. b) **No Impact.** PAR 1106 is not anticipated to expose people to, or generate excessive groundborne vibration or groundborne noise levels since complying with PAR 1106 is not expected to alter operations at affected facilities. Therefore, any existing noise or vibration levels at affected facilities are not expected to change as a result of implementing PAR 1106. Since existing operations are not expected to generate excessive groundborne vibration or noise levels, and PAR 1106 is not expected to alter physical operations, no groundborne vibrations or noise levels are expected from the proposed project.

XII. c) **No Impact.** No increase in periodic or temporary ambient noise levels in the vicinity of affected facilities above levels existing prior to implementing PAR 1106 is anticipated because the proposed project would not require heavy-duty diesel-fueled construction-related activities nor would it change the existing activities currently performed by marine and pleasure craft coating operations. See also the response to items XII.a) and XII.b).

XII. d) **No Impact.** Even if an affected facility is located near a public/private airport, there are no new noise impacts expected from any of the existing facilities as a result of complying with the proposed project. Similarly, any existing noise levels at affected facilities are not expected to increase appreciably. Thus, PAR 1106 is not expected to expose people residing or working in the vicinities of public airports to excessive noise levels.

Based upon these considerations, significant adverse noise impacts are not expected from the implementation of PAR 1106 and are not further evaluated in this Revised Final EA. Since no significant noise impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XIII. POPULATION AND HOUSING. Would the project:				
a) Induce substantial growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (e.g. through extension of roads or other infrastructure)?	☐	☐	☐	☑
b) Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

Significance Criteria

Impacts of the proposed project on population and housing will be considered significant if the following criteria are exceeded:

- The demand for temporary or permanent housing exceeds the existing supply.
- The proposed project produces additional population, housing or employment inconsistent with adopted plans either in terms of overall amount or location.

Discussion

XIII. a) No Impact. The proposed project is not anticipated to generate any significant adverse effects, either direct or indirect, on the district's population or population distribution as no additional workers are anticipated to be required for affected facilities to comply with the proposed amendments. Human population within the jurisdiction of the SCAQMD is anticipated to grow regardless of implementing PAR 1106. As such, PAR 1106 would not result in changes in population densities or induce significant growth in population.

XIII. b) No Impact. Because the proposed project affects marine and pleasure craft coating facilities but does not require additional employees, PAR 1106 is not expected to result in the creation of any new industry that would affect population growth, directly or indirectly, induce the construction of single- or multiple-family units, or require the displacement of people elsewhere. Since the proposed project does not require any construction activities or any additional employees, it would not warrant any new or replacement housing.

Based upon these considerations, significant adverse population and housing impacts are not expected from the implementation of PAR 1106 and are not further evaluated in this Revised Final EA. Since no significant population and housing impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES. Would the proposal result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
a) Fire protection?	☐	☐	☐	☑
b) Police protection?	☐	☐	☐	☑
c) Schools?	☐	☐	☐	☑
d) Parks?	☐	☐	☐	☑
e) Other public facilities?	☐	☐	☐	☑

Significance Criteria

Impacts on public services will be considered significant if the project results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response time or other performance objectives.

Discussion

XIV. a) & b) **No Impact.** PAR 1106 would incorporate new requirements and VOC content limits for marine and pleasure craft coating operations that would have no effect on public services, as no new physical changes at affected facilities are expected. The proposed project does not require any action which would alter and, thereby, adversely affect existing public services, or require an increase in governmental facilities or services to support the affected existing facilities. Current fire, police and emergency services are adequate to serve existing facilities, and the proposed project will not result in the need for new or physically altered government facilities in order to maintain acceptable service ratios, response times, or other performance objectives because no change in operations is expected to occur at affected facilities.

Because the proposed project does not require or involve the use of new hazardous materials or generate new hazardous waste, it will not generate an emergency situation that would require additional fire or police protection, or impact acceptable service ratios or response times.

XIV. c) & d) **No Impact.** As indicated in discussion under item XIII. Population and Housing, implementing PAR 1106 would not induce population growth or dispersion because no additional

workers are expected to be needed at the existing affected facilities. Therefore, with no increase in local population anticipated as a result of adopting and implementing PAR 1106, additional demand for new or expanded schools or parks is also not anticipated. As a result, no significant adverse impacts are expected to local schools or parks.

Based upon these considerations, significant adverse public services impacts are not expected from the implementation of PAR 1106 and are not further evaluated in this Revised Final EA. Since no significant public services impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XV. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☑
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment or recreational services?	☐	☐	☐	☑

Significance Criteria

Impacts to recreation will be considered significant if:

- The project results in an increased demand for neighborhood or regional parks or other recreational facilities.
- The project adversely affects existing recreational opportunities.

Discussion

XV. a) & b) **No Impact.** As discussed under "Land Use and Planning" above, there are no provisions in PAR 1106 that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments. No land use or planning requirements would be altered by the adoption of PAR 1106, which only affect marine and pleasure craft coating operations. Further, PAR 1106 would not affect in any way district population growth or distribution (see Section XIII), in ways that could increase the demand for or use of existing neighborhood and regional parks or other recreational facilities, or require the construction of new or expansion of existing recreational facilities that might have an adverse physical effect on the environment because it would not directly or indirectly increase or redistribute population.

Based upon these considerations, significant recreation impacts are not expected from the implementation of PAR 1106. Since no significant recreation impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVI. SOLID/HAZARDOUS WASTE. Would the project:				
a) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☑
b) Comply with federal, state, and local statutes and regulations related to solid and hazardous waste?	☐	☐	☐	☑

Significance Criteria

The proposed project impacts on solid/hazardous waste will be considered significant if the following occurs:

- The generation and disposal of hazardous and non-hazardous waste exceeds the capacity of designated landfills.

Discussion

XVI. a) & b) **No Impact.** Adoption of PAR 1106 would subsume Rule 1106.1 within Rule 1106, add a prohibition of possession and sale provision, add transfer efficiency requirements (similar to other SCAQMD coatings rules), and include various clarifications and administrative changes. Additionally, five new coating categories have been established, and the VOC limits for five specialty coatings categories are being lowered based on existing limits that several other air agencies already require (VCAPCD, SDAPCD, and BAAQMD) and to align limits with U.S. EPA Control Techniques Guidelines. The proposed amendments are expected to provide enhanced compliance with the VOC limits through monitoring.

PAR 1106 is not expected to require the replacement of equipment at affected facilities, and therefore, no new solid or hazardous waste impacts specifically associated with PAR 1106 are expected. The affected facilities are expected to be currently in compliance with the proposed amendments, and as a result, no substantial change in the amount of solid or hazardous waste streams is expected to occur. The character of solid or hazardous waste streams are not expected to occur as a result of the adoption of PAR 1106, as no physical change at affected facilities are expected. PAR 1106 is not expected to increase the volume of solid or hazardous wastes from affected facilities, require additional waste disposal capacity, or generate waste that does not meet applicable local, state, or federal regulations. With regard to potential wastewater impacts, please see the discussion under item IX., "Hydrology and Water Quality."

Based upon these considerations, PAR 1106 is not expected to increase the volume of solid or hazardous wastes that cannot be handled by existing municipal or hazardous waste disposal facilities, or require additional waste disposal capacity. Further, adopting PAR 1106 is not expected to interfere with any affected facility's ability to comply with applicable local, state, or federal waste disposal regulations. Since no solid/hazardous waste impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION/TRAFFIC. Would the project:					
a)	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☑
b)	Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☑
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☑
d)	Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☐	☑
e)	Result in inadequate emergency access?	☐	☐	☐	☑
f)	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☑

Significance Criteria

Impacts on transportation/traffic will be considered significant if any of the following criteria apply:

- Peak period levels on major arterials are disrupted to a point where level of service (LOS) is reduced to D, E or F for more than one month.

- An intersection's volume to capacity ratio increase by 0.02 (two percent) or more when the LOS is already D, E or F.
- A major roadway is closed to all through traffic, and no alternate route is available.
- The project conflicts with applicable policies, plans or programs establishing measures of effectiveness, thereby decreasing the performance or safety of any mode of transportation.
- There is an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system.
- The demand for parking facilities is substantially increased.
- Water borne, rail car or air traffic is substantially altered.
- Traffic hazards to motor vehicles, bicyclists or pedestrians are substantially increased.
- The need for more than 350 employees
- An increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round trips per day
- Increase customer traffic by more than 700 visits per day.

Discussion

XVII. a) & b) **No Impact.** Adoption of PAR 1106 would subsume Rule 1106.1 within Rule 1106, add a prohibition of possession and sale provision, add transfer efficiency requirements (similar to other SCAQMD coatings rules), and include various clarifications and administrative changes. Additionally, five new coating categories have been established, and the VOC limits for five specialty coatings categories are being lowered based on existing limits that several other air agencies already require (VCAPCD, SDAPCD, and BAAQMD) and to align limits with U.S. EPA Control Techniques Guidelines. The proposed amendments are expected to provide enhanced compliance with the VOC limits through monitoring. The adoption of PAR 1106 would not change or cause additional transportation demands or services because no physical change in operations at affected facilities is expected to occur. Therefore, the proposed project would not increase traffic or adversely impact the existing traffic load and capacity of the street system, as the amount of product to be delivered is not anticipated to change nor generate additional services to affect transportation demand. Because the current existing marine and pleasure craft coating facilities are expected to be in compliance with the proposed amendments, no increase in material delivery trips is expected as a result of the proposed project.

Since no construction-related trips and no additional operational-related trips per facility are anticipated, the adoption of PAR 1106 is not expected to significantly adversely affect circulation patterns on local roadways or the level of service at intersections near affected facilities. Since no construction is required, no significant construction traffic impacts are anticipated.

XVII. c) **No Impact.** PAR 1106 will not require operators of existing facilities to construct buildings or other structures or change the height and appearance of the existing structures, such that they could interfere with flight patterns. Therefore, adoption of PAR 1106 is not expected to adversely affect air traffic patterns. Further, PAR 1106 will not affect in any way air traffic in the region because it will not require transport of any PAR 1106 materials by air.

XVII. d) **No Impact.** No physical modifications are expected to occur by adopting PAR 1106 at the affected facilities. Additionally, no offsite modifications to roadways are anticipated for the proposed project that would result in an additional design hazard or incompatible uses.

XVII. e) **No Impact.** Equipment replacements or retrofits associated with adopting PAR 1106 are not expected to occur at the potentially affected existing facilities. Therefore, no changes to emergency access at or in the vicinity of the affected facilities would be expected. As a result, PAR 1106 is not expected to adversely impact emergency access.

XVII. f) **No Impact.** No changes to the parking capacity at or in the vicinity of the affected facilities are expected with adopting PAR 1106. Adoption of PAR 1106 does not change existing operations, so no new workers at affected facilities or area sources are expected to be necessary to comply with the proposed amendments. Since adoption of PAR 1106 is not expected to require additional workers, no traffic impacts are expected to occur and additional parking capacity will not be required. Therefore, PAR 1106 is not expected to adversely impact on- or off-site parking capacity. PAR 1106 has no provisions that would conflict with alternative transportation, such as bus turnouts, bicycle racks, et cetera.

Based upon these considerations, PAR 1106 is not expected to generate significant adverse project-specific or cumulative transportation/traffic impacts and, therefore, this topic will not be considered further. Since no significant transportation/traffic impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☑
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	☐	☐	☐	☑
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☑

XVIII. a) **No Impact.** As discussed in the "Biological Resources" section, PAR 1106 is not expected to significantly adversely affect plant or animal species or the habitat on which they rely because PAR 1106 implements new requirements for marine and pleasure craft coating operations, which will primarily be conducted at existing affected facilities. All of the currently affected facilities are located at sites that have already been greatly disturbed and that currently do not support such habitats. PAR 1106 is not expected to induce construction of any new land use projects that could affect biological resources.

XVIII. b) **No Impact.** Based on the foregoing analyses, cumulative impacts in conjunction with other projects that may occur concurrently with or subsequent to the proposed project are not expected to adversely impact any environmental topic. Related projects to the currently proposed project include existing and proposed amended rules and regulations, as well as AQMP control measures, which produce emission reductions from most industrial and commercial sectors. Furthermore, because PAR 1106 does not generate project-specific impacts, cumulative impacts

are not considered to be "cumulatively considerable" as defined by CEQA Guidelines Section §15065(a)(3). For example, the environmental topics checked 'No Impact' (e.g., aesthetics, agriculture resources, air quality, biological resources, cultural resources energy, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, solid/hazardous waste and transportation and traffic) would not be expected to make any contribution to potential cumulative impacts. Also, in the case of air quality impacts, the net effect of implementing the proposed project with other proposed amended rules and regulations, and AQMP control measures is an overall reduction in District-wide emissions, thus, contributing to the attainment of state and national ambient air quality standards. Therefore, it is concluded that PAR 1106 has no potential for significant cumulative or cumulatively considerable impacts in any environmental areas.

XVIII. c) No Impact. Based on the foregoing analyses, PAR 1106 is not expected to cause significant adverse effects to human beings. Significant adverse air quality impacts are not expected from the implementation of PAR 1106. Based on the preceding analyses, no significant adverse impacts to aesthetics, agriculture resources, biological resources, cultural resources, energy, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, solid/hazardous waste and transportation and traffic are expected as a result of the implementation of PAR 1106.

As discussed in items I through XVIII above, the proposed project would have no potential to cause significant adverse environmental effects.

APPENDIX A

PROPOSED AMENDED RULE 1106 AND PROPOSED RESCINDED RULE 1106.1

In order to save space and avoid repetition, please refer to the latest versions of PAR 1106 and proposed rescinded Rule 1106.1 located elsewhere in the May 3, 2019 Governing Board Package.

The versions of PAR 1106 and proposed rescinded rule 1106.1 that were circulated with the Draft SEA which was released on August 19, 2015 for a 30-day public review and comment period ending on September 18, 2015 was identified in Appendix A as follows:

> PAR 1106 was identified as version "Proposed Amended Rule August 2015"
> Rule 1106.1 was identified as version "PRR1106.1 August 2015"

The versions of PAR 1106 and proposed rescinded rule 1106.1 that was included with the Final SEA in the October 2, 2015 Governing Board Package identified in Appendix A as follows:

> PAR 1106 was identified as version "PAR1106 October 2015"
> Rule 1106.1 was identified as version "Proposed Rescinded Rule 1106.1 October 2, 2015"

Original hard copies of the Draft SEA and the Final EA for the October 2, 2015 Governing Board Package, which include the draft version of the proposed amended and proposed rescinded rules listed above, can be obtained through the SCAQMD Public Information Center at the Diamond Bar headquarters or by contacting Fabian Wesson, Public Advisor at the SCAQMD's Public Information Center by phone at (909) 396-2039 or by email at PICrequests@aqmd.gov.

APPENDIX B

SUSTAINABILITY ADVANTAGES OF ULTRAVIOLET AND ELECTRON BEAM (UV/EB) CURING - (UV/EB Industry Trade Association Publication)

Sustainability Advantages of Ultraviolet and Electron Beam Curing

By Ronald Golden

Consumers and suppliers of consumer products are taking an increasingly active interest in environmental issues and "sustainable development." A number of RadTech members have been approached by their customers with requests to provide information on the contributions that their products can make to the sustainability initiative. In some cases, sustainability may be considered as a criterion in purchasing decisions.

Sustainability Advantages of Ultraviolet and Electron Beam Curing

Ultraviolet (UV) and electron beam (EB) curing offer several significant "sustainability" features compared to conventional thermal curing processes:

- Reduced use of solvents, lower VOC and HAPS.
- Reduced energy usage.
- Reduced fossil fuel usage.
- Lower greenhouse gas emissions.
- Reduced or eliminated "end-of-pipe" pollution controls.
- Reduced transportation requirements.
- UV and EB inks, coatings and adhesives do not dry out by evaporation…
  - — That makes it easier to recover and recycle printing and coating materials.
  - — That means they require less solvent to clean up.
- UV and EB printed/coated packaging materials are recyclable and repulpable.
- UV/EB curing materials have very low vapor pressures (reduced worker exposure).

These features have been confirmed by studies that consistently demonstrated that UV and EB curing enable reduced energy usage and greenhouse gas emissions, primarily because of their very high applied solids, and because UV or EB energy is used instead of heat for curing. Thermal curing must heat large volumes of air and/or generate radiant infrared energy to:

- Maintain the thermal curing oven at temperature;
- Evaporate and remove water and/or solvent;

TABLE 1

Pressure-sensitive adhesive application parameters

		Technology		
	Units	UV-Cured acResin	Solvent	WB Dispersion
Coating Weight	g/m^2	20	20	20
Coating Solids	%	99	47	55
Line Speed	m/min	200	167	100
Web Width	m/min	0.8	0.8	0.8
Production Rate	m^2/hr	9,600	8,016	4,800
Annual Production Time	hr/yr	8,000	8,000	8,000
Annual Production	m^2/yr	76,800,000	64,128,000	38,400,000

TABLE 2

Electrical energy consumption for web coating pressure-sensitive adhesive

		Technology		
	Units	UV-Cured acResin	Solvent	W/B Dispersion
Electricity Consumption				
Adhesive Preparation	kWh/m^2	0.008	0.008	
Coating Application	kWh/m^2	0.009	0.011	
Curing	kWh/m^2	0.028	0.013	
Finishing	kWh/m^2	0.006	0.001	
Solvent Incineration	kWh/m^2	0	0.01	
Electricity Subtotal	kWh/m^2	0.051	0.04	0.14
Annual Electricity Consumption	kWh	3,916,800	2,757,504	5,376,000
Average Cost of Electricity to Industrial Users[5]	$/kWh	0.062	0.062	0.062
Annual Electricity Cost		242,842	170,965	333,312
Normalized Electricity Cost	$/million m^2	3,162	2,666	8,680

- Stay below the lower explosive limit when solvents are present;
- Heat the substrate to the curing temperature; and
- Cure the ink and/or coating.

Moreover, any volatile organic solvent emissions from thermal curing ovens require "end-of-pipe" controls (incineration or solvent capture). Both processes require additional energy input and generate corresponding greenhouse gases.

In contrast, with UV or EB curing processes, reactive monomers replace all or most of the diluting medium and become part of the cured polymer so little if any added volatile solvent or water is needed in the formulation, and effective applied solids can approach 100 percent. Curing is initiated by UV or EB radiation and is almost instantaneous, the substrate remains cool, and air circulation is mainly for equipment and substrate cooling, and evacuation of any volatiles.

Previous analyses comparing UV/EB processes to competitive solvent and waterborne technologies have also shown substantial reductions in pollution and hazardous waste associated with spent solvent-borne materials and cleanup, as well as significant improvements in product performance and productivity, often at an overall lower net cost.[1]

RadTech Sustainability Task Force

RadTech International North America has formed a Sustainability Task Force—comprising a group of raw material suppliers; ink, coatings and adhesives formulators; equipment manufacturers; end-use converters; and packaging manufacturers—to study and quantify these sustainability characteristics. Specifically, the RadTech Sustainability Task Force has established the following goals:

- Develop comprehensive life cycle analyses for all applicable technology options.
- Develop quantitative comparisons of energy, emissions and resource use of UV/EB processes versus conventional thermal curing alternatives.
- Develop a model to help decision-makers to quantify sustainability factors when evaluating technology options.

Pressure-Sensitive Adhesive Case Study

The most complete published quantitative analysis comparing ultraviolet and waterborne technologies was a 1997 study of the conversion to UV curing from thermal curing of waterborne inks and coatings for exterior aluminum can decoration and coating at Coors Brewing Company.[2] A previous *RadTech Report* article[3] reported how the conversion resulted in a reduction of up to 80 percent in total energy usage in Btu, including electrical power and natural gas. Greenhouse gas emissions showed a corresponding reduction of up to 67 percent. Moreover, these benefits were achieved at a lower net cost for the finished product.

The RadTech Sustainability Task Force was seeking a more recent study to develop a similar comparison using current energy and emissions factors. BASF Corporation generously provided RadTech with the raw data from their ecoefficiency evaluation of water-borne, solvent and UV web-applied pressure sensitive adhesives[4] as the

TABLE 3

Natural gas consumption for web coating pressure-sensitive adhesive

	Technology			
	Units	UV-Cured acResin	Solvent	W/B Dispersion
Natural Gas Subtotal	1000 ft3/m^2	0	0.0033	0.003
Curing	1000 ft^3/yr	0	147,494	115,200
Solvent Incineration	1000 ft^3/yr	0	64,128	0
Annual Natural Gas Demand	1000 ft^3	0	211,622	115,200
Normalized Natural Gas Consumption	1000 ft^3/ million m^2	0	3,300	3,000
Natural Gas Price to Industrial Users[6]	$/1000 ft^3	N/A	8.00	8.00
Annual Natural Gas Cost		0	1,693,000	922,000

basis for the following quantitative analysis. Table 1 shows the application parameters. Tables 2, 3 and 4 show a comparison of the energy demand components for each coating technology.

The higher solids of the UV coating also means reduced energy required to transport the coating from the formulator to the application site. Table 4 shows the transportation energy required to deliver enough of each type of coating to cover 76,800,000 square meters at an applied coat weight of 20 g/m^2.

Table 5 shows a comparison of the total energy requirements of each of the three technologies, normalized to Btu/square meter of coated surface. Conversion of electrical energy MWh to Btu is based on an average heat rate of 9.713 million Btu/MWh; conversion of natural gas usage to Btu is based on 1,031 Btu per cubic foot.

On a normalized basis (Btu per square meter of coated substrate) the UV-cured resin requires up to 89 percent less energy, compared to solvent and waterborne systems.

TABLE 4

Transportation energy requirements on an equal coverage basis

	Technology			
	Units	UV-Cured acResin	Solvent	W/B Dispersion
Normalized Annual Coating				
Solids	MT	1,538	1,538	1,538
Liquid Annual Coating				
Volume	MT	1,553	3,272	2,796
Net Truckload	MT	20	20	20
Truckloads/Year		76	160	137
Diesel Fuel Usage*	gal/yr	6,781	14,365	12,275
Energy Consumption**	Million Btu/yr	943	1,997	1,706

*Based on an average 500-mile delivery trip and fuel mileage of 5.7 mpg[7]

**Based on 139,000 Btu per gallon of diesel fuel[8]

Greenhouse Gas Emissions

Both generation of electrical energy and combustion of natural gas generate corresponding greenhouse gas emissions (Table 6).

Factors for conversion of electrical MWh and combustion of various fuels to greenhouse gas emissions are based on data published by the U.S. Energy Information Administration and the U.S. Environmental Protection Agency (EPA).[9] On a normalized basis (MT CO2 per million square meters of coated substrate), the UV-cured resin generates up to 87 percent less carbon dioxide, compared to thermal curing solvent and waterborne systems.

UV-Cured Products Are Recyclable

Trials at Beloit Corporation confirmed that UV/EB inks and coatings repulp easily.[10] Mill scale trials show that UV/EB-coated waste can be incorporated into standard furnish with no detrimental effects on product quality. The study concluded that UV- and EB-printed and coated

TABLE 5

Overall energy requirements on an equal coverage basis

		Technology		
	Units	UV-Cured acResin	Solvent	W/B Dispersion
Electricity Consumption	MWh/yr	3,917	2,758	5,376
Natural Gas-Curing	kft^3/yr	0	147,494	115,200
Natural Gas-VOC Incineration	kft^3/yr	0	64,128	
Transportation	Million Btu/yr	943	1,997	1,706
Total Energy Demand	Million Btu/yr	38,986	246,963	172,695
Normalized Total Annual Energy Demand	$Btu/m^2/yr$	508	3,851	4,497

paper can be recycled into tissue and/or fine paper grades using commercially available equipment.

Moreover, the high gloss and abrasion resistance of UV- and EB-cured coatings in some cases, can enable replacement of laminated structures with printed inks and coatings. Laminated paper and plastics are difficult to recycle due to problems with separating two incompatible types of materials. UV/EB printed inks and coatings break down under recycling process conditions, permitting effective recycling of both paper and plastic structures that formerly were intractable in laminated form.

Summary

In summary, UV and EB curing have numerous "sustainability" characteristics:

- Substantial reductions in energy demand.
- Substantial reductions in fossil fuel usage.
- Substantial reductions in greenhouse gas emissions.
- Reduced transportation costs and emissions.
- Safer workplace.
- Recyclable inks, coatings and product wastes.
- Positive performance advantages and economic returns.

Where Do We Go From Here?

The RadTech Sustainability Task Force has already developed "cradle-to-grave-to-cradle" life cycle analyses for the various coating and printing technologies, including energy usage, carbon footprint, transportation, emissions controls, waste, recyclability and more at each stage of production of raw materials and finished products, as well as the end use of the products and their disposal and recycling. Current plans include working with industry, academic and government partners on demonstration projects to develop additional data and practical insights. The resulting data will be used to develop additional quantitative analyses, as well as a working model for technology comparison, including economic factors. ◗

TABLE 6

Greenhouse gas (CO_2) emissions

		Technology		
	Units	UV-Cured acResin	Solvent	W/B Dispersion
Transportation	MT/yr	70	146	125
Electricity Consumption	MT/yr	2,389	1,682	3,279
Natural Gas	MT/yr	-	11,600	6,315
Total	MT/yr	2,459	13,429	9,719
Normalized Greenhouse Emissions	MT CO_2/ million m^2	32	209	253

References

1. (a) Electric Power Research Institute (EPRI), *UV Curable Coatings for Wood Meet Manufacturer's Challenges,* Report TA-112685 (1999); *www.epri.com*; (b) Commonwealth of Massachusetts Executive Office of Environmental Affairs, Office of Technical Assistance, New Coatings Technologies Provide Big Payoffs For Kidde-Fenwall, Inc., Toxics Use Reduction Case Study No. 43, (1996); *www.magnet.state.ma.us/ota*; (c) Northeast Waste Management Official's Association (NEWMOA), Northeast States for Coordinated Air Use Management (NESCAUM), Wood Furniture Finishing, Ultraviolet Radiation Cured Coatings and Aqueous-Based Coatings, Hussey Seating Company of North Berwick, Maine, Pollution Prevention Case Study (1997); *www.newmoa.com*; (d) Wood Furniture Coatings Case Study, Artistic Finishes, Inc., Roseville, MN, The Minnesota Technical Assistance Program, *www.mntap.umn.edu/paint/Case%20Studies%20article%202.doc*
2. Robert Brady et al., Evaluation of UV-Curable Coatings for Aluminum Can Production, National Industrial Competitiveness through Efficiency, Environment and economics (NICE3) Project #DE-FG48-93R810499, June 9, 1997
3. Ronald Golden, "Low-Emission Technologies: A Path to Greener Industry," *RadTech Report,* May/June 2005, p 14
4. "Measuring Success," Dr. B. Jesse E. Reich et al., *Adhesives & Sealants Industry Magazine*, November, 2006
5. US Energy Information Administration, Electric Power Annual 2006
6. US Energy Information Administration *(http://tonto.eia.doe.gov/dnav/ng/ng_pri_sum_dcu_nus_m.htm)*
7. US Energy Information Administration Annual Energy Outlook 2007 Table D3. Key Results for Transportation Sector Technology Cases; Supplemental Tables to the Annual Energy Outlook 2007, Table 57. Freight Transportation Energy Use *http://www.eia.doe.gov/oiaf/aeo/supplement/pdf/suptab_57.pdf*
8. US Energy Information Administration
9. (a) US Energy Information Administration Energy Emission Coefficients *www.eia.doe.gov/oiaf/1605/factors.html*; Energy Information Administration/Electric Power Annual 2006 *www.eia.doe.gov/cneaf/electricity/epa/epa_sum.html*; (c) USA EPA 2008 Inventory of U.S. Greenhouse Gas Emissions and Sinks *http://www.epa.gov/climatechange/emissions/usinventoryreport.html*
10. David J. Korn, "Recyclability of UV and EB Printed and Coated Paper," *RadTech Report,* May/June 2005, p. 47

—Ronald Golden, Ph.D., offers consulting services through FocalPoint Consulting, Marietta, Ga.