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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Environmental Assessment:

Proposed Amended Rule 1130 – Graphic Arts

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TABLE OF CONTENTS

PREFACE

This document constitutes the Final Environmental Assessment (EA) for Proposed Amended Rule 1130 – Graphic Arts. The Draft EA was released for a 30-day public review and comment period from February 25, 2014 to March 26, 2014. No comment letters were received from the public relative to the Draft EA. The environmental analysis in the Draft EA concluded that Proposed Amended Rule 1130 would not generate any significant adverse environmental impacts.

Minor modifications were made to the proposed amended rule subsequent to release of the Draft EA for public review. To facilitate identifying modifications to the document, added and/or modified text is underlined. Staff has reviewed these minor modifications and concluded that they do not make any impacts substantially worse or change any conclusions reached in the Draft EA. As a result, these minor revisions do not require recirculation of the document pursuant to CEQA Guidelines §15088.5. Therefore, this document now constitutes the Final EA for Proposed Amended Rule 1130.

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 2012 AQMP concluded that major reductions in emissions of particulate matter (PM), oxides of sulfur (SOx) and oxides of nitrogen (NOx) are necessary to attain the state and national ambient air quality standards for ozone, particulate matter with an aerodynamic diameter of 10 microns or less (PM10) and particulate matter with an aerodynamic diameter of 2.5 microns or less (PM2.5). More emphasis is placed on NOx and SOx emission reductions because they provide greater ozone and PM emission reduction benefits than volatile organic compound (VOC) emission reductions. VOC emission reductions, along with NOx emission reductions, continue to be necessary, because emission reductions of both of these ozone precursors are necessary to meet the ozone standards. VOC emission reductions also contribute to achieving the PM2.5 ambient air quality standards. Proposed Amended Rule (PAR) 1130 – Graphic Arts, would partially implement 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) as explained in more detail below.

Ozone, a criteria pollutant that is formed when NOx and VOCs react in the atmosphere, has been shown to adversely affect human health. The federal one-hour[4] and eight-hour ozone standards were exceeded in the district in 2010. The Central San Bernardino Mountain area recorded the greatest number of exceedences of the one-hour state standard (52 days), eight-hour state standard (101 days), and eight-hour federal standard (74 days). However, none of the four counties had health advisory days in 2010. Altogether, in 2010, the South Coast Air Basin exceeded the federal eight-hour ozone standard on 102 days, the state one-hour ozone standard on 79 days, and the state eight-hour ozone standard on 131 days.[5]

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 components 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.

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

[2] Health and Safety Code, §40460 (a).

[3] Health and Safety Code, §40440 (a).

[4] The federal one-hour ozone standard was replaced by the federal eight-hour ozone standard, effective June 15, 2005, but SCAQMD must still attain this standard, based on a 2011 court decision.

[5] 2010 Air Quality Historical Data, South Coast Air Quality Management District, http://www.aqmd.gov/smog/historical/AQ10card.pdf.

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 §§40913, 40914, and 40920.5. The term "feasible" is defined in the Title 14 of the California Code of Regulations, §15364, as a measure "capable 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

PAR 1130 incorporates certain EPA Control Technology Guidelines (CTG) recommendations applicable to printing operations not included in the current rule that pertain to the overall add-on control device efficiency and VOC content requirements for fountain solutions. The proposed amendment further adds prohibition of storage of non-compliant VOC-containing materials at a worksite, removes obsolete rule language, revises definitions, adds a rule exemption for graphic arts materials that have a VOC content of no more than 10 g/L, as applied, and makes minor corrections and clarifications, including associated section renumbering.

Rule 1130 is currently applicable to persons performing graphic arts operations and to any person who solicits, specifies, offers for sale, sells, or distributes graphic arts materials for use in the District. Using the Standard Industrial Classification (SIC) codes, SCAQMD staff conducted a search in the Automated Equipment Inventory Systems (AEIS) database to find industries that conduct graphic arts operations. Table 1-1 shows the following SIC codes that apply to this proposed rule amendment.

TABLE 1-1
SIC CODES USED FOR PAR 1130

PAR1130 - SIC CODES USED				
2399	5112	2731	7336	2711
2672	2732	3993	2396	2761
3089	2753	7384	2754	9999
7011	2771	3569	2741	2759
2260	3199	2750	2329	2752
2893	2721	2782	2751	

Using the SIC codes in Table 1-1, SCAQMD staff surveyed the active facilities with active permits in AEIS for all graphic arts printing operations and categorized the active permits per county as shown in Table 1-2.

TABLE 1-2
PERMITTED EQUIPMENT AND PERCENTAGE DISTRIBUTION

COUNTY	NUMBER OF PERMITS	PERCENTAGE
Los Angeles County	403	69%
Orange County	146	25%
Riverside County	31	4%
San Bernardino County	15	2%
SCAQMD Jurisdiction	**587**	**100%**

However, there are some printing operations with low emissions potential that are exempt from permitting based on SCAQMD Rule 219 – Equipment Not Requiring a Written Permit Pursuant To Regulation II but would continue to be subject to Rule 1130.

The 2012 AQMP Control Measure CTS-02 seeks to reduce VOC emissions from miscellaneous coating, adhesive, solvent and lubricant categories by further limiting the allowable VOC content in formulations, including fountain solutions. Since local affected operations already comply with the proposed requirements, the proposed amendments are not expected to achieve additional VOC reductions.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

Proposed Amended Rule (PAR) 1130 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 draft 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 draft EA to address the potential adverse environmental impacts associated with the proposed project. The draft 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 §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 §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 comments were received on the Draft EA during the public comment period for the proposed project.

PROJECT LOCATION

The known affected facilities are located throughout 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). The Basin, which is a subarea of the SCAQMD's jurisdiction, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. It includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. The Riverside County portion of the SSAB is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley. The federal nonattainment area (known as the Coachella Valley Planning Area) is a subregion of Riverside County and the SSAB that is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east (Figure 1-1).

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

PROJECT OBJECTIVE

The objectives of PAR 1130 are to:

- Incorporate certain CTG recommendations applicable to printing operations regulations;
- Increase the overall add-on control device efficiency requirements;
- Lower VOC content requirements for fountain solutions;
- Add prohibition of storage of non-compliant VOC-containing materials at a worksite;
- Remove obsolete rule language;
- Update definitions for consistency with other SCAQMD rules;
- Add a rule exemption for graphic arts materials that have a low VOC content to encourage their use;
- Make minor corrections and clarifications, including associated section numbering.

PROJECT BACKGROUND / TECHNOLOGY OVERVIEW

Rule 1130 was adopted on October 3, 1980 and has been subsequently amended fourteen times. The most recent amendment was on October 8, 1999, which further reduced VOC emissions, required higher efficiencies for add-on controls, eliminated the small user exemption, and specified retention factors for lithographic inks. As noted earlier, Rule 1130 is applicable to persons performing graphic arts operations and to any person who solicits, specifies, offers for sale, sells, or distributes graphic arts materials for use in SCAQMD's jurisdiction.

Offset Lithography

Offset lithography is a common printing process that is used to produce large volumes of brochures, books, magazines, posters and newspapers and is the primary focus of the proposed amendment. Offset lithography is a planographic method of printing which means that the printing and non-printing areas are in the same plane on the surface of a thin lithographic plate. The inked image is transferred, or offset, from the plate to a rubber blanket cylinder and from that, to the substrate. The ink that is transferred to the lithographic plate contains the image area, which receives the oil based ink, and the non-image area, which is wetted with a water based solution, called the fountain solution, that provides a film that repels the ink. Since oil and water don't mix, the image area is transferred to the printing surface of the substrate whereas the non-image areas do not receive ink and thus no ink transfer occurs. There are two subsets of offset lithography printing and they are characterized by the way they are fed into the press: sheet-fed and web-fed printing. Both sheet-fed and web-fed printing inks dry by a combination of adsorption and oxidation.

Inks

Offset lithographic printing inks are paste inks and contain pigments, vehicles, binders and other additives. The pigments contain the desired color, the vehicle is the solvent that carries the pigment and binder, the binders fix the pigment to the substrate and the additives contain waxes, lubricants and driers. The inks are generally composed of petroleum and vegetable oils. Some printing operations may use varnishes, essentially an ink without pigmentation. Heatset inks may contain up to 45 percent VOCs. In heatset web lithographic printing, 20 percent of the petroleum ink oils and essentially all of the vegetable ink oils are retained in the substrate and dry ink film. The remaining 80 percent of the petroleum ink oil is volatilized in and then exhausted from the dryer. Since the vegetable ink oil does not volatilize in the dryer, the amount

of vegetable ink oil that can be used in heatset web offset lithographic inks is very limited. If there is too much vegetable oil in a heatset web offset lithographic ink, the ink will not dry properly. Coldset inks typically contain below 35 percent VOC and sheet-fed inks contain below 25 percent VOC. In sheet-fed and coldset web offset printing, 95 percent of the petroleum ink oils and essentially all of the vegetable oils are absorbed into the substrate and dried ink film. The remaining 5 percent of the petroleum ink oil is volatilized and emitted to atmosphere. Ultraviolet (UV) and electron beam (EB) energy cured inks are normally lower VOC-containing inks. In the SCAQMD jurisdiction, the coatings are predominately water based or energy cured materials having low VOC emissions.

SCAQMD guideline for calculating emissions for annual reporting pursuant to Rule 304 – Fees "*VOC Emission Calculation Methodology for Lithographic Printing Operations – December 2011*" (see Appendix A of PAR 1130 Draft Staff Report) outlines the use of the aforementioned parameters, as well as additional considerations for annual emission reporting purposes. UV and EB inks are normally lower VOC-containing inks.

Fountain Solution

Fountain solutions are used in the offset lithographic printing process and are primarily composed of water with certain additives to moisten the non-image area of the lithographic plate in order to keep ink from depositing (and thus printing) in areas where the ink is not wanted. Since offset lithographic inks are oil based and the fountain solution water based, the fountain solution renders the non-image areas unreceptive to ink and thus the ink is not transferred. The fountain solution contains a small amount of gum Arabic or synthetic resins, acids, and buffer salts to maintain the pH of the solution. Alcohols, including isopropanol, n-propanol and ethanol, are typically added to the water to lower the surface tension and increase the viscosity of the fountain solution. The alcohol substitute fountain solutions are formulated using no alcohol and are typically glycol ethers or ethylene glycol for lower VOC emissions but still provide the same purpose as the alcohol containing fountain solutions. Fountain solutions are packaged as either a "one-step" or "two-step" product. Fountain solutions consist of a concentrate of chemicals that are mixed with a large volume of water, typically two to six ounces of concentrate to one gallon of water, and alcohol or alcohol substitute, generally requiring two steps to make a press-ready solution. Historically, the alcohol was added in amounts of up to 25 percent of the solution to provide wetting to the dampening rollers and the non-image areas of the printing plates and, due to the amount of alcohol used, could not be packaged with the concentrate. With lower alcohol or alcohol substitute requirements, combining the concentrate with the wetting agent as a single or one-step formulation became available.

The fountain solution is stored in a reservoir which is a collection tank that serves to hold the fountain solution while it is continuously recirculated from the reservoir to the fountain trays used at the printing working area. The fountain tray simply holds a small amount of fountain solution and by constant recirculation; the fountain solution not only provides a film for non-ink retention, but also serves to cool the lithographic plate. The fountain solution reservoir typically is equipped with cooling coils for refrigeration of the fountain solution. The reservoir volume does not include the volume of the trays or any other additional containers such as mixing units.

Emissions Control Systems

Emission control systems are used in graphic arts operations to reduce VOC emissions. The emission control system is another major strategy in the reduction of VOCs from offset lithographic printing operations. The capture system consists of equipment capable of collecting the emissions generated from the printing process and transferring the emissions to a control device. The control device is generally a thermal oxidizer or catalytic oxidizer and is used to destroy the emissions.

The CTG recommended 90 percent control efficiency in the 1993 draft CTG and 95 percent control efficiency for a control device for equipment that was installed after the date of the current CTG, September 2006. The current version of Rule 1130 requires overall efficiency for flexography, packaging gravure, lithography and letterpress printing to be 75 percent or greater overall control efficiency (publication gravure requires 85 percent control device efficiency).

SCAQMD staff identified 29 active permitted air pollution control devices in the AEIS records, all of which currently meet the recommended CTG levels. The facilities that utilize these air pollution control devices typically have higher production rates than the rest of the facilities identified and utilize heatset inks which typically contain a higher VOC content. Therefore, it was necessary for these facilities to install air pollution control devices to lower their VOC emissions.

The CTG does not recommend capture and control of VOC emissions from sheet-fed or coldset web inks because the VOC emissions from these operations are already low, are not amenable to add-on control, and inks can meet the lower VOC content limits. Fountain solution VOCs can be controlled by refrigerated cooling coils in the fountain reservoir where the temperature of the fountain solution is maintained at 55 degrees Fahrenheit or less to control volatilization.

In lieu of requiring a source test to determine the collection efficiency, the SCAQMD allows companies to use a collection (capture) efficiency default value of 99.5 percent for heat-set lithographic printing, provided the operator can demonstrate that there is always sufficient air flow into the dryer through all the dryer's openings (excluding the exhaust stack) to prevent emissions from escaping the dryer during normal operations. Lacking any physical evidence to the contrary (such as visible emissions emanating from the dryer), an operator can make this demonstration by showing that the pressure inside the dryer is always negative (lower) relative to the static pressure of the press room by either of the methods specified in the SCAQMD's "*Compliance Advisory – Determining Collection Efficiencies for Air Pollution Control Systems Serving Heat-Set Lithographic Printing Presses, 1997*." Appendix B of the Draft Staff Report for PAR 1130 includes a copy of this advisory.

Since all of the affected facilities/operations already comply with the proposed requirements, the proposed amendments are not expected to achieve additional VOC reductions.

PROJECT DESCRIPTION

The following summarizes the proposed amendments to Rule 1130. A copy of PAR 1130 is included in Appendix A.

Subdivision (a) Purpose and Applicability

PAR 1130 would incorporate the following revisions to subdivision (a) to further clarify the purpose and applicability:

"The purpose of this rule is to reduce Volatile Organic Compounds (VOC) emissions from graphic arts operations. This rule applies to any persons performing graphic arts operations or who supplies, sells, offers for sale, markets, manufactures, blends, repackages, stores at a worksite, distributes, applies or solicits the application of graphic arts materials for use in the District."

Subdivision (b) Definitions

PAR 1130 proposes the following revision to the definition "*Aerosol Coating Product*" to make it consistent with the "*Aerosol Coating Product*" definition in other Regulation XI rules.

"(1) AEROSOL COATING PRODUCT is a pressurized coating product containing pigments or resins that dispenses product ingredients by means of a propellant, and is packaged in a disposable can for hand-held application, or for use in specialized equipment for ground marking and traffic marking applications."

PAR 1130 adds new definitions to the rule to define "*Alcohol*" and "*Alcohol Substitute*":

"(2) ALCOHOL is an organic compound that contains a hydroxyl (OH) group and is used in the fountain solution to reduce the surface tension and increase the viscosity of water to prevent piling (ink build-up). For purposes of this rule, alcohol includes, but is not limited to, isopropyl alcohol (isopropanol), n-propanol and ethanol."

"(3) ALCOHOL SUBSTITUTE is an additive that contains VOCs but no alcohol and is used in the fountain solution to reduce the surface tension and increase the viscosity of water to prevent piling (ink build-up)."

PAR 1130 proposes the following revision to the definition "*Coating*" to make it consistent with the "*Coating*" definition in other Regulation XI rules.

"(4) COATING is a material which is applied to a surface in order to beautify, protect, or provide a barrier to such surface in a relatively unbroken film."

PAR 1130 proposes to add a new definition to the rule to define "*Energy Curable Coatings, Inks and Adhesives*" to provide clarity to energy curable graphic arts materials, and replace references to UV and EB materials with the definition thoughout the rule.

"(8) ENERGY CURABLE COATINGS, INKS and ADHESIVES 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 COATINGS, INKS

and ADHESIVES 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."

PAR 1130 proposes the following correction to the definition "*Flexographic Printing*", "Fountain Solution" and "Letterpress Printing" by hypenating the word "*nonimage*" to "*non-image*."

"*(11) FLEXOGRAPHIC PRINTING is a printing method utilizing a flexible rubber or other elastomeric plate in which the image area is raised relative to the non-image area."*

"*(13) FOUNTAIN SOLUTION is the solution used in offset lithographic printing which is applied to the image plate to maintain the hydrophilic properties of the non-image areas. It is primarily water and contains at least one of the following materials: etchants such as mineral salts; hydrophilic gums; or VOC additives to reduce the surface tension of the solution."*

"*(21) LETTERPRESS PRINTING is a printing process in which the image area is raised relative to the non-image area and the ink is transferred to the substrate directly from the image surface."*

PAR 1130 proposes to correct a spelling error in the definition "*Graphic Arts Operations.*" The misspelled word is shown as "*Opertions*" and will be changed to "*Operations*", then the word "offset" will be added to lithographic printing processes.

"*(16) GRAPHIC ARTS OPERATIONS are gravure, letterpress, flexographic, and offset lithographic printing processes or related coating or laminating processes."*

PAR 1130 proposes the following revisions to the definition "*Heatset Ink*" to clarify the type of ink and to properly refer to the equipment as web-fed, not web-feed and revise the description of dryers as hot air high velocity dryers.

"*(19) HEATSET INK is an offset lithographic printing ink used on continuous web-fed printing presses that are equipped with hot air high velocity dryers. The ink dries or sets by heat induced evaporation of the ink oils and subsequent chilling of the ink by chill rolls.*"

PAR 1130 proposes to revise the "*Lithographic Printing*" definition by adding "*Offset*" to be consistent with the CTG, hypenate non-image, remove metal lithographic plate since the plates can be made of many non-metal materials and incorporate additional rule language to enhance the current definition, and update all similar references to lithographic printing throughout the rule.

"*(26) OFFSET LITHOGRAPHIC PRINTING is a planographic printing process in which the image and areas are on the same plane of a thin lithographic plate and are chemically differentiated. The ink film is transferred from the lithographic plate to an intermediary surface, a rubber covered cylinder called a blanket, which, in turn, transfers the ink to the substrate. This printing process differs from other printing processes where the image is typically printed from a raised or recessed surface."*

"*(24) NON-HEATSET INK is an offset lithographic printing ink that sets and dries by absorption into the substrate, and hardens by ambient air oxidation that may be accelerated by the use of infrared light sources. For the purposes of this definition energy curable inks are examples of non-heatset inks."*

PAR 1130 proposes the following revisions to the definition "*Matte Finish Ink*" and "*Metallic Ink*" to clarify the type of printing ink and then change the word "*applied*" to the word "*used*", to be consistent with the applicability purposes of this rule.

"*(22) MATTE FINISH INK is a flexographic printing ink which is used on non-porous substrates in flexographic printing operations and contains at least five (5) percent by weight silicon dioxide flattening agent."*

"*(23) METALLIC INK is a flexographic printing ink which is used on non-porous substrates in flexographic printing operations and contains at least 28 percent by weight elemental metal particles."*

PAR 1130 proposes the following revision to the definition "*Solvent Cleaning*" to make it consistent with the "*Solvent Cleaning*" definition in other Regulation XI rules.

"*(37) SOLVENT CLEANING is as defined in Rule 1171 – Solvent Cleaning Operations."*

PAR 1130 proposes to add the title of the referenced rule (Rule 102) to the current definition.

"*(39) VOLATILE ORGANIC COMPOUND (VOC) is as defined in Rule 102 - Definition of Terms."*

PAR 1130 proposes to correct the term "*Web-Feed*" to "Web-Fed." The current version of Rule 1130 specifies "*WEB-FEED*" but the term is actually "*WEB-FED*."

"*(40) WEB-FED is an automatic system which supplies substrate from a continuous roll, or from an extrusion process."*

Subdivision (c) Requirements

Paragraph (c)(1) – VOC Content of Graphic Arts Materials

PAR 1130 would update the current rule language to enhance clarity by detailing the actions subject to this provision. In addition, the VOC content limits are updated in the proposed amendment, consistent with the formatting used in other SCAQMD rules, as shown below.

"No person shall supply, sell, offer for sale, market, manufacture, blend, package, repackage, store at a worksite, distribute, apply or solicit the application of any graphic arts material, including any VOC-containing materials added to the original graphic arts materials, for use in the District, which contains VOC in excess of the VOC content limits set-forth in the Table of Standards I below:"

TABLE 1-3
PROPOSED TABLE OF STANDARDS I
TABLE OF STANDARDS I

VOC CONTENT LIMITS Grams Of VOC Per Liter Of Coating Or Ink Or Adhesive, Less Water And Less Exempt Compounds	
GRAPHIC ART MATERIAL	Current Limit (g/L)
Adhesive	150
Coating	300
Flexographic Fluorescent Ink	300
Flexographic Ink: Non-Porous Substrate	300
Flexographic Ink: Porous Substrate	225
Gravure Ink	300
Letterpress Ink	300
Offset Lithographic Ink	300

Paragraph (c)(2) – VOC Content of Fountain Solutions

PAR 1130 would delete obsolete rule language from Paragraph (c)(2), make revisions to the existing rule language to enhance clarity and introduce a new Table of Standards II, to combine the VOC limits for the fountain solutions that are used for the various types of printing methods in offset lithographic printing operations.

The current version of Rule 1130 limits fountain solution to 100 grams per liter of VOC provided the fountain solution is refrigerated and maintained at 55 degrees Fahrenheit or less, or to 80 grams per liter of VOC at room temperature.

The CTG recommends a percentage of alcohol or alcohol substitute when calculating the VOCs for either room temperature (ambient) or refrigerated fountain solutions and type of printing method. SCAQMD staff converted the CTG recommended mass percentage limits to a gram per liter limit, consistent with SCAQMD VOC content terminology.

Table 1-4 shows the recommended weight percent values and equivalent VOC content in grams per liter, based on standard unit conversion and product material densities.

TABLE 1-4
CONVERSION OF PERCENTAGE OF VOC VALUES TO MASS/VOLUME VOC VALUES – BASED ON CTG RECOMMENDATIONS

FOUNTAIN SOLUTION	CTG RECOMMENDATION (weight percent)	EQUIVALENT (g/L)
Heatset Web Offset Lithographic At Room Temperature	1.6%	16
Heatset Web Offset Lithographic Using Refrigerated Chiller	3.0%	30
Heatset Web Offset Lithographic Using Alcohol Substitute	5.0%	50
Sheet-fed Offset Lithographic At Room Temperature	5.0%	50
Sheet-fed Offset Lithographic Using Refrigerated Chiller	8.5%	85
Sheet-fed Offset Lithographic Using Alcohol Substitute	5.0%	50
Non-Heatset Web Offset Lithographic Using Alcohol Substitute	5.0%	50

Table 1-5 shows the updated VOC content requirements in the proposed amendment. SCAQMD staff reviewed commercially available fountain solutions and found 90 percent of the fountain solution products meet the most restrictive 16 g/L limit. The VOC content of the fountain solution can substantially be affected by the amount of dilution water added; the typical dosage identified was 4 to 6 fluid ounces of fountain solution concentrate per gallon of water. With the exception of just three products, the fountain solutions that calculated in the excess of 16 g/L VOC could be used at lower concentration. In fact, SCAQMD staff determined that when using the lowest concentrate limit proposed by the product manufacturer, 98 percent of the products were calculated to be under 16 g/L of VOC. Two of the three fountain solutions that could not meet the 16 g/L VOC limit for a heatset press using fountain solution at room temperature could meet the limit for a heatset press using refrigerated fountain solutions. The one product which

calculated at 41 g/L VOC could still be used for the other categories shown in Table 1-5. Therefore, SCAQMD staff believes that the CTG recommended fountain solution limits reflect existing operational practices.

PAR 1130 would eliminate the current language in subparagraph (c)(2)(A), in lieu of the Table of Standards II, and add new language to subparagraph (c)(2)(B), to provide clarification that alcohol containing fountain solutions would be prohibited for use in non-heatset web-fed operations. Table 1-5 shows the VOC limits for the fountain solutions, as applied on-press:

"(A) No person shall apply any fountain solution, including any VOC-containing materials added to the original fountain solution for use in a graphic arts operation within the District unless the VOC content in the fountain solution, as applied, complies with the applicable VOC limits set-forth in the Table of Standards II below."

TABLE 1-5
PROPOSED TABLE OF STANDARDS II
TABLE OF STANDARDS II

VOC CONTENT LIMITS Grams of VOC Per Liter of Material		
FOUNTAIN SOLUTION	1/1/2000 (g/L)	(Date of Adoption) (g/L)
Heatset Web-Fed		
Using Alcohol without Refrigerated Chiller	80	16
Using Alcohol with Refrigerated Chiller	100	30
Using Alcohol Substitute	80	50
Sheet-Fed		
Using Alcohol without Refrigerated Chiller	80	50
Using Alcohol with Refrigerated Chiller	100	85
Using Alcohol Substitute	80	50
Non-Heatset Web-Fed		
Using Alcohol Substitute without Refrigerated Chiller	80	50
Using Alcohol Substitute with Refrigerated Chiller		

(B) The use of alcohol containing fountain solutions is prohibited for use in non-heatset web-fed operations.

"Paragraph(c)(3) – Solvent Cleaning Operations; Storage and Disposal of VOC containing Materials

PAR 1130 would incorporate the following revision to enhance the clarity of paragraph (c)(3) to make it consistent with other Regulation XI rules.

"(3) Solvent Cleaning Operations; Storage and Disposal of VOC-containing Materials. Solvent cleaning operations and the storage and disposal of VOC-containing materials used in cleaning operations are subject to the provisions of Rule 1171 - Solvent Cleaning Operations."

Paragraph(c)(4) – Approved Emission Control System

PAR 1130 would update the Approved Emission Control System requirements to align the CTG to reflect the same control efficiency requirement as in other Regulation XI rules. The proposed revised rule language is as follows:

Approved Emission Control System

"(4) A person may comply with the provisions of paragraph (c)(1) and (c)(2) by using an emission control system to reduce VOC emissions provided such system is first approved in writing by the Executive Officer and meet the following requirements:

(A) The control device reduces VOC emissions from an emissions collection system by at least 95 percent, by weight, or the output of the air pollution control device is no more than 50 PPM by volume calculated as carbon with no dilution; and

(B) The owner/operator demonstrates that the emission collection system collects at least 90 percent, by weight, of the VOC emissions generated by the sources emissions."

Paragraph (c)(5) – Alternative Emission Control Plan

PAR 1130 would revise paragraph (c)(5) to clarify rule language as follows:

"(5) Alternative Emission Control Plan"
A person may comply with the provisions of paragraphs (c)(1) or (c)(2) by means of an approved Alternative Emission Control Plan pursuant to Rule 108 - Alternative Emission Control Plans."

<u>Subdivision (d) Prohibition of Specification and Sale</u>

Paragraph (d)(2)

PAR 1130 would incorporate the following revisions to paragraph (d)(2) to clarify the actions a person may not partake in during a graphic arts operation and correct the reference of the applicable subparagraph.

"(2) No person shall supply, offer for sale, sell, market, blend, package, repackage, manufacture or distribute, to an end-user any graphic arts material for use in the District which, when applied as supplied or thinned or reduced according to the manufacturer's recommendation for application, does not meet the applicable VOC limits in paragraph (c)(1) or subparagraph(i)(4)(C) for the specific application."

Paragraph (d)(3)

PAR 1130 would add a new paragraph to clarify a manufacturer's responsibility to the labeling requirements with Rule 443.1 and to clarify the "prohibition of sales" provision in the District.

"(3) The prohibition of sales and use as specified in paragraphs (d)(1) and (d)(2) shall not apply to any manufacturer of graphic arts materials, provided that the manufacturer has complied with the labeling requirements of Rule 443.1 – Labeling of Materials Containing Organic Solvents, and the product is not sold directly to a user located in the District, or the product was sold to an independent distributor or a sales outlet located in the District that is not a subsidiary of, or under the control of the manufacturer, and was informed in writing by the manufacturer about the compliance status of the product with Rule 1130."

Subdivision (f) – Rule 442 Applicability

PAR 1130 would incorporate the following revision to enhance the clarity of this subdivision.

"Any graphic arts operations exempted from all or a portion of the VOC limits of this rule shall comply with the provisions of Rule 442."

Subdivision (g) – Emission Reduction Credits

PAR 1130 would update the rule language for Emission Reduction Credits to be consistent with other Regulation XI rules. PAR 1130 would delete the current rule language and replace it with the following revised rule language.

"(g) *Emission Reduction Credits*
Facilities that use matte finish and metallic inks shall not receive emission reduction credit(s) pursuant to SCAQMD Rule 1309 above those emission reduction credit(s) that the facility would have received if it was operated with coatings having a VOC content of no more than 300 grams per liter, less water and less exempt compounds irrespective of the VOC limits specified in paragraph (i)(4)(C)."

Subdivision (h) - Test Methods

Subparagraph (h)(1)(A)

PAR 1130 would incorporate the following revisions to refine the rule language in subparagraphs (h)(1)(A) and (h)(1)(B) and subparagraphs (h)(2)(A) and (h)(2)(B), to make the rule language consistent with other Regulation XI rules.

"(A) United States Environmental Protection Agency (U. S. EPA) Reference Test Method 24, (Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings, Code of Federal Regulations, Title 40, Part 60, Appendix A). The exempt compounds' content shall be determined by South Coast Air Quality Management's (SCAQMD) Laboratory Test Method 302 (Distillation of Solvents from Paints, Coatings and Inks) and 303 (Determination of Exempt Compounds) contained in SCAQMD's "Laboratory Methods of Analysis for Enforcement Samples" manual; or "

Subparagraph (h)(1)(B)

PAR 1130 would refine the rule language by including the title name of the test method and make the rule language consistent with other Regulation XI rules, as follows.

"(B) SCAQMD Test Method 304 [Determination of Volatile Organic Compounds (VOCs) in Various Materials] contained in SCAQMD's "Laboratory Methods of Analysis for Enforcement Samples" manual."

Subparagraph (h)(2)(A)

PAR 1130 would refine the rule language by including the title name of the test methods and make the rule language consistent with other Regulation XI rules, as follows.

"(A) United States Environmental Protection Agency (U.S. EPA) Reference Test Method 24A, Determination of Volatile Matter Content and Density of Publication Rotogravure Inks and Related Publication Rotogravure Coatings, Code of Federal Regulations Title 40, Part 60, Appendix A). The exempt compounds' content shall be determined by District SCAQMD's Laboratory Test Method 303 (Determination of Exempt Compounds) contained in SCAQMD's "Laboratory Methods of Analysis for Enforcement Samples" manual; or"

Subparagraph (h)(2)(B)

PAR 1130 would refine the rule language by making the rule language consistent with other Regulation XI rules, as follows.

"(B) SCAQMD Test Method 304 [Determination of Volatile Organic Compounds (VOCs) in Various Materials] contained in SCAQMD's "Laboratory Methods of Analysis for Enforcement Samples" manual."

Paragraph (h)(3) – Exempt Perfluorocarbon Compounds

PAR 1130 would refine the rule language by making the rule language consistent with other Regulation XI rules. First, the list of classes of compounds has been formatted to a semi-bulleted list for easier reading. Then SCAQMD staff incorporated minor revisions to provide enhanced clarity of the rule language.

"The following classes of compounds:

- *Cyclic, branched, or linear, completely fluorinated alkanes;*
- *Cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;*
- *Cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and*
- *Sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine will be analyzed as exempt compounds for compliance with subdivision (c) and subparagraph (i)(4)(C), only when manufacturers specify which individual compounds are used in the ink and coating formulations. In addition, the manufacturers must identify U.S. EPA, CARB, and SCAQMD approved test methods, which can be used to quantify the amount~~s~~ of each exempt compound."*

Paragraph (h)(4) - Determination of Efficiency of Emission Control Systems
Subparagraph (h)(4)(A)

PAR 1130 would refine the rule language in paragraph (h)(4) by making the rule language consistent with other Regulation XI rules. This will include the elimination of clauses (i), (ii), and (iii).

"(A) The capture efficiency of an emission control system as specified in paragraph (b)(5) shall be determined by the procedures presented in U.S. EPA technical guideline document, "Guidelines for Determining Capture Efficiency, January 9, 1995". Notwithstanding the test methods specified by the Guidelines, any other method approved by the U.S. EPA, CARB and the SCAQMD Executive Officer may be substituted.

Subparagraph (h)(4)(B)

PAR 1130 would refine the rule language in subparagraph (h)(4)(B) by making the rule language consistent with other Regulation XI rules.

"(B) The efficiency of the control device of the emission control system as specified in paragraph (b)(6) and the VOC content in the control device exhaust gases, measured and calculated as carbon, shall be determined by U.S. EPA Test Methods 25, 25A, SCAQMD Method 25.1 (Determination of Total Gaseous Non-Methane Organic Emissions as Carbon) or SCAQMD Method 25.3 (Determination of Low Concentration Non-Methane Non-Ethane Organic Compound Emissions from

Clean Fueled Combustion Sources) as applicable. U.S. EPA Test Method 18, or CARB Method 422 shall be used to determine emissions of exempt compounds."

Paragraph (h)(5) – Equivalent Test Methods

PAR 1130 would refine the rule language in paragraph (h)(5) by making the rule language consistent with other Regulation XI rules.

"(5) Equaivalent Test Methods
Other test methods determined to be equivalent by the Executive Officer, CARB, and the U. S. EPA,and approved in writing by the District Executive Officer may also be used."

Paragraph (h)(7) – Test Methods Dates

PAR 1130 would revise the rule language in paragraph (h)(7) to be consistent with other Regulation XI rules.

"(7) Test Methods Dates
All test methods referenced in this subdivision shall be the most recently approved version by the appropriate governmental entities."

Subdivision (i) Exemptions

PAR 1130 would reformat subdivision (i) to update section numbering, move the exemption for Aerosol Coating Products and add a new exemption for graphic arts materials that have 10 g/L of VOC or less. Graphic arts materials do not include materials used in cleaning operations.

"(i) Exemptions
(1) The provisions of this rule shall not apply to: […]
(I) Aerosol coating products
(J) Graphic arts materials that have a VOC content of no more than 10 g/L, less water and less exempt compounds, as applied."

PAR 1130 would also relocate the emissions threshold and associated record keeping for metallic and matte finish inks of paragraph (i)(11) to a new paragraph (i)(5) and change the records retention requirement from two years to five years. The revised rule language is shown below.

"(5) Facilities operating under the provisions of paragraph (i)(4) whose actual emissions exceed ten (10) tons in any calendar year shall:
(A) henceforth be subject to the requirements of paragraph (c)(1).
(B) In addition to the requirements of subdivision (e), facilities shall retain records of purchase orders and invoices of VOC-containing materials for a minimum of five (5) years."

PAR 1130 would add new rule language to provide an exemption for storage of graphic arts materials that exceed the VOC limits in paragraph (c)(1) provided the VOCs from those graphic arts materials are collected and controlled by an emissions control system, consistent with SCAQMD VOC rules.

> *"(6) The provision of paragraph (c)(1) shall not apply to the storage at a worksite of graphic arts materials that are intended for use in an emission control system pursuant with the requirements of paragraph (c)(4)."*

Finally, PAR 1130 would add new language to provide rule relief for sheet-fed presses that have a sheet size no larger than 11 inches by 17 inches, or if the total fountain solution reservoir capacity is one gallon or less as recommended by the CTG. However, this exemption can only be met if the sheet-fed presses, having a sheet size no larger than 11 inches by 17 inches, or if the total fountain solution reservoir capacity is one gallon or less, uses a fountain solution with a VOC content of no more than 80 grams per liter of material, as applied, or if using a refrigerated chiller, no more than 100 grams per liter of material, as applied. The new language will appear in paragraph (i)(8) as follows.

> *"(8) The provisions of paragraph (c)(2) shall not apply to sheet-fed presses that have a sheet size no larger than 11 inches by 17 inches, or if the total solution reservoir capacity is one gallon or less, provided the VOC content of the fountain solution used contains no more than 80 grams per liter of material, as applied, or if using a refrigerated chiller, no more than 100 grams per liter of material, as applied."*

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:	Draft Environmental Assessment (EA) for Proposed Amended Rule (PAR) 1130 – Graphic Arts
Lead Agency Name:	South Coast Air Quality Management District
Lead Agency Address:	21865 Copley Drive Diamond Bar, CA 91765
CEQA Contact Person:	Mr. Jeff Inabinet (909) 396-2453
PAR 1130 Contact Person	Mr. Don Hopps (909) 396-2334
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 1130 would partially implement Control Measure CTS-02- Further Emission Reductions from Miscellaneous Coatings, Adhesives, Solvents and Lubricants and the Reasonably Available Control Measures (RACM) Demonstration of Appendix VI, of the 2012 Air Quality Management Plan (AQMP). PAR 1130 would improve consistency with the United States Environmental Protection Agency's (U.S. EPA) Control Techniques Guidelines (CTG) for Offset Lithographic Printing and Letterpress Printing (EPA 453/R-06-002) and Flexible Package Printing (EPA 453/R-06-003) applicable to printing operations regulations by amending the overall add-on control device efficiency requirements and VOC content limits for fountain solutions. The proposed amendment further adds prohibition of storage of non-compliant VOC-containing materials at a worksite, removes obsolete rule language, revises definitions, adds an exemption for graphic arts materials that have a VOC content of no more than 10 g/L, as applied, and makes minor corrections and clarifications.
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 §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: February 21, 2014 Signature: _____

Michael Krause
Program Supervisor

ENVIRONMENTAL CHECKLIST AND DISCUSSION

As discussed in Chapter 1, the main focus of PAR 1130 is to reduce VOC emissions associated with graphic arts operations. The objectives of PAR 1130 are to:

- Improve consistency with the CTGs applicable to printing operations regulations;
- Increase the overall add-on control device efficiency requirements;
- Lower VOC content limits for fountain solutions;
- Add prohibition of storage of non-compliant VOC-containing materials at a worksite;
- Remove obsolete rule language;
- Update definitions for consistency with other SCAQMD rules;
- Add an exemption for graphic arts materials that have a low VOC content to incentivize their use;
- Make minor corrections and clarifications.

The analysis conducted in this draft environmental assessment identified three main components/objectives of the proposed project where potential environmental impacts may potentially occur. Therefore, in order to ensure that any potential significant adverse environmental impacts are identified and evaluated and that feasible methods to reduce or avoid any potential significant adverse environmental impacts associated with the proposed project are identified and evaluated, the environmental analysis for PAR 1130 focuses on the following three main components/objectives of the proposed project:

Increase Efficiency of Control Equipment

The proposed project would revise the efficiency of control equipment by replacing the current requirement of 75 percent overall control efficiency with requirements for 95 percent control and 90 percent capture. SCAQMD staff identified 29 active permitted air pollution control devices located within the District in the AEIS records. All 29 air pollution control devices identified currently meet the recommended CTG levels of 95 percent control and 90 percent capture. The typical overall control device efficiency for the control units operating in the District is 96.3 percent (see Appendix B). Therefore, the proposed project is not expected to result in the replacement of any currently existing control devices or the addition of new control devices at any of the currently existing facilities. No significant adverse environmental impacts are expected as a result of this portion of the proposed project.

Lower VOC Content of Fountain Solutions

The proposed project would align the VOC requirements in Rule 1130 with the recommended VOC requirements in the U.S. EPA CTGs for fountain solutions. SCAQMD staff conducted a survey of fountain solutions used by the graphic arts industry and found that out of 169 fountain solutions, 152 met the most restrictive proposed VOC limit of 16 grams per liter from the heatset web-fed without a refrigerated chiller. Typically, the technical data sheets for manufacturers of fountain solutions recommend two to four ounces of the fountain solution to be mixed with one gallon of water. SCAQMD staff used the highest dosages to calculate the maximum VOC content of the fountain solutions, and even at the maximum dosage for fountain solution, SCAQMD staff still found that 152 fountain solutions will meet the most restrictive VOC limit. The 17 remaining fountain solutions would still be available for use in the other printing categories that have a higher VOC limit or would be able to be used at a higher dilution rate. This data shows that the affected industry has been using products that already comply with the

new adjusted VOC limits. Therefore, the proposed project would not require the reformulation of any fountain solution products or any changes to the current usage of fountain solutions at the existing affected facilities. No significant adverse environmental impacts are expected as a result of this portion of the proposed project.

Exemption for Materials with VOC Content less than 10g/L

The proposed project adds an exemption for graphic arts materials that have a VOC content of no more than 10 g/L, as applied. This exemption is intended to promote the use of "supercompliant" products in order to achieve additional VOC emission reductions. Although the "supercompliant" products may be formulated with different technologies, products that meet this VOC content requirement are typically utilized in ultraviolet (UV) and electron beam (EB) curing applications, collectively referred to as "energy curable." UV and EB curing refers to a process in which coatings, inks, adhesives, composites and other materials may be cured or dried, rather than using traditional 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, using less energy than traditional dryers (see Appendix D). UV & EB is considered environmentally responsible since most of the solvents in traditional processes may be eliminated due to the unique capabilities of the UV and EB curing process.[6] Additionally, facilities that choose to use materials with a VOC content of less than 16 g/L would likely be replacing currently used materials that have a higher VOC content, therefore, providing an air quality benefit. The UV/EB equipment is typically manufactured offsite and is installed on existing paved foundations. Therefore, no significant adverse environmental impacts are expected as a result of this portion of the proposed project.

The remaining components of the proposed project were considered to be administrative in nature and therefore were not considered to have the potential to create any potential significant adverse environmental impacts.

		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?	☐	☐	☐	☑

6 http://www.radtech.org

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
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) Adoption of PAR 1130 would improve consistency with the CTGs applicable to printing operations regulations by amending the overall add-on control device efficiency requirements and VOC content limits for fountain solutions. The proposed project further adds prohibition of the storage of non-compliant VOC-containing materials at a worksite and adds an exemption for graphic arts materials that have a VOC content of no more than 10 g/L, as applied. 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 (e.g., UV/EB process is expected to be installed within the existing facility space, so no change in aesthetics). Therefore, adoption of PAR 1130 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 1130 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. 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 Draft 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) The existing industrial or commercial businesses that may be affected by the adoption of PAR 1130 are primarily located within urbanized areas that are typically designated as industrial or commercial. 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 printing operations are expected to occur completely within the confines of existing affected commercial and industrial facilities. For the same reasons, PAR 1130 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 Draft 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)?	☐	☐	☐	☑

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
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 1130 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 CO2/year threshold for industrial sources.

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	

TABLE 2-1
SCAQMD Air Quality Significance Thresholds (concluded)

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 Quarterly average	 1.5 μg/m^3 (state) 0.15 μg/m^3 (federal) 1.5 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) 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. This control measure seeks to reduce VOC emissions from miscellaneous coating, adhesive, solvent 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 AQMP, PAR 1130 would partially implement Control Measure CTS-02. PAR 1130 would affect graphic printing 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.

Implementing PAR 1130 is not expected to conflict with or obstruct implementation of the applicable air quality control plan because the 2012 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 AQMP) would bring the District into attainment with all applicable national and state ambient air quality standards. Further, PAR 1130 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 AQMP. Accordingly, this impact issue will not be further analyzed.

III. b) For a discussion of these items, refer to the following analysis:

Rule Objective and Facility Applicability

The objectives of PAR 1130 are generally to improve consistency with the CTGs applicable to printing operations regulations by amending the overall add-on control device efficiency requirements and VOC content limits for fountain solutions. The proposed project further adds prohibition of storage of non-compliant VOC-containing materials at a worksite, removes obsolete rule language, revises definitions, and adds an exemption for graphic arts materials that have a low VOC content.

Approximately 587 existing graphic arts printing operations or facilities would be affected by the requirements of PAR 1130. Based on the determination that these affected facilities are already in compliance with the proposed amendments, no emission reduction is assumed. Additionally, 29 existing control units would be affected by the proposed change to the add-on control device efficiency requirement from 75 percent overall to the CTG recommended 95 percent control and 90 percent capture efficiency. However, SCAQMD staff has analyzed the data for the 29 control units in the SCAQMD jurisdiction and found that all of them currently meet the new revised control requirements based on existing permitting requirements (see Appendix B).

Construction Impacts

PAR 1130 amends the overall add-on control device efficiency requirements from 75 percent overall to the CTG recommended 95 percent control and 90 percent capture efficiency. SCAQMD staff has analyzed the data for the 29 control units in the SCAQMD jurisdiction and found that all of them meet the new revised control requirements based on existing permitting requirements (see Appendix B). Therefore, no existing facilities are expected to be required to install a new emission control device.

PAR 1130 also aligns the VOC content limits for fountain solutions with the recommended VOC requirements in the U.S. EPA CTGs for fountain solutions. SCAQMD staff conducted a survey of fountain solutions (see Appendix C) and found that the affected industry has been using products that already comply with the new adjusted VOC limits. Therefore, the proposed project would not require any construction activities associated with the reformulation of any fountain solution products or any changes to the current usage of fountain solutions at the existing affected facilities.

PAR 1130 also adds an exemption for graphic arts materials that have a VOC content of no more than 10 g/L, as applied, to encourage the usage of low VOC products. Although the "supercompliant" products may be formulated with different technologies, products that meet this VOC content requirement are typically utilized in UV and EB curing applications. UV and EB curing refers to a process in which coatings, inks, adhesives, composites and other materials may be cured or dried, rather than using traditional methods which typically use more energy and generate greater emissions (see Appendix D). The use of these "supercompliant" materials 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, according to the above analysis of potential construction impacts, there would be no significant adverse construction air quality impacts resulting from the proposed project for criteria pollutants.

Operational Impacts- Criteria Pollutants

PAR 1130 is expected to have a direct and beneficial reduction of VOC emissions. No other criteria pollutants are expected to be directly affected by PAR 1130 because of the narrow regulatory focus of Rule 1130. Based on SCAQMD staff research, the affected printing facilities 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 increase in control efficiency and the usage of lower VOC content fountain solutions and "supercompliant" materials (less than 10g/L) is not expected to result in any significant adverse operational air quality impacts from the existing affected facilities.

Operational Impacts- Toxic Air Contaminants

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

As stated previously, the objectives of PAR 1130 are generally to improve consistency with the CTGs applicable to printing operations regulations by amending the overall add-on control device efficiency requirements and lowering the VOC content limits for fountain solutions. The proposed project further adds prohibition of storage of non-compliant VOC-containing materials at a worksite, removes obsolete rule language, revises definitions, and adds an exemption for graphic arts materials that have a VOC content of no more than 10 g/L, as applied.

The increase of control efficiency and the use of UV/EB systems do not generate toxic emissions. Based on SCAQMD staff research, no changes are necessary in the current fountain solution formulations. 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) The preceding analysis concluded that there would be no significant adverse construction or operational emissions impacts, thus, no incremental effect to other projects causing related impacts. Since PAR 1130 is not expected to be significant for any air quality adverse impact, it

is not expected to be cumulatively considerable and, therefore, is not expected to create significant adverse cumulative air quality impacts (CEQA Guidelines §15130(a)).

III. d) Affected facilities are also not expected to increase exposure by sensitive receptors to substantial pollutant concentrations from the implementation of PAR 1130 for the following reasons: 1) the affected facilities are existing facilities located primarily in commercial/industrial areas; 2) no construction and operational emission increases are associated with the proposed project. Therefore, no significant adverse air quality impacts to sensitive receptors are expected from implementing PR 1130.

III. e) 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 fountain solutions currently utilized at the affected facilities is expected to occur and the use of UV/EB is not known to generate adverse odor impacts. Therefore, the proposed project is not expected to create new significant adverse objectionable odors.

III. f) The affected facilities would continue to be required to comply with all applicable SCAQMD, CARB, and USEPA 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) 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.[7] State law defines GHG to include the following: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6) (HSC §38505(g)). The most common GHG that results from human activity is CO2, followed by CH4 and N2O.

[7] 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

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. 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.[8]

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 EIR for the 2012 AQMP concluded that implementing the control measures in the 2012 AQMP would provide a comprehensive ongoing regulatory program that would reduce overall GHGs emissions in the District. Specifically, PAR 1130 increases efficiency of control devices and lowers VOC content limits of certain products, albeit no new reformulation is anticipated to be necessary. Thus, the proposed project does not introduce the need to emit GHG emissions. Therefore, PAR 1130 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 1130, SCAQMD staff has concluded that PAR 1130 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.

[8] 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 §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)	Conflicting 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) PAR 1130 would not require any new development or require major modifications to buildings or other structures to comply with the new requirements for printing operations. The installation of UV/EB systems is expected to be located at existing facilities that are already paved. As a result, PAR 1130 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 1130 is not expected to adversely affect special status plants, animals, or natural communities.

IV. e) & f) PAR 1130 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 1130 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 Draft 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 §15064.5?	☐	☐	☐	☑
b)	Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	☐	☐	☐	☑

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
c)	Directly or indirectly destroy a unique paleontological resource, site, or feature?	☐	☐	☐	☑
d)	Disturb any human remains, including those interred outside formal cemeteries?	☐	☐	☐	☑

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 to a community or ethnic or social group.
- Unique paleontological resources are present that could be disturbed by construction of the proposed project.
- The project would disturb human remains.

Discussion

V. a), b), c), & d) PAR 1130 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. The installation of UV/EB systems is expected to be located at existing facilities that are already paved. Since no construction-related activities requiring soil disturbance would be associated with the implementation of PAR 1130, no impacts to historical or cultural resources are anticipated to occur. Further, PAR 1130 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.

Based upon these considerations, significant adverse cultural resources impacts are not expected from implementing PAR 1130 and will not be further assessed in this Draft 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) Adoption of PAR 1130 would improve consistency with the CTGs applicable to printing operations regulations by amending the overall add-on control device efficiency requirements and VOC content limits for fountain solutions. The proposed project further adds prohibition of the storage of non-compliant VOC-containing materials at a worksite and adds an exemption for graphic arts materials that have a VOC content of no more than 10 g/L, as applied. UV/EB applications typically cure materials more quickly, using less energy than traditional dryers. The proposed rule 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, it is unlikely that energy demand requirements would change. As a result, PAR 1130 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 1130 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 draft EA.

VI. b), c) & d) 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. PAR 1130 provides an exemption for graphic arts materials that have a VOC content of no more than 10 g/L, as applied. Supercompliant materials (eg., UV and EB 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 D).

PAR 1130 is not expected to generate significant adverse energy resources impacts and will not be discussed further in this Draft EA. Since no significant energy impacts were identified, no mitigation measures are necessary or required.

		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?	☐	☐	☐	☑

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
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) 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 1130 is not expected to affect a facility's ability to continue to comply with any applicable Uniform Building Code requirements. Consequently, PAR 1130 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 draft EA.

VII. b), c), d) & e) Since PAR 1130 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 located in industrial or commercial areas where such features have already been altered or removed. Finally, since adoption of PAR 1130 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 draft 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?	☐	☐	☐	☑

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
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 §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) 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. Based on the fact that the proposed rules do not require the transport, use and disposal of hazardous materials, PAR 1130 will not create a significant hazard to the public or environment through a reasonably foreseeable release of these materials into the environment.

Based on the facts, there is no additional formulation required, thus 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 light industrial or commercial areas, but the proposed project does not introduce any hazardous materials, so the existing setting does not change. Further, PAR 1130 is intended to ensure 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) Government Code §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 §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) Since PAR 1130 would incorporate new requirements for printing operations, implementation of PAR 1130 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 1130 is not expected to create any additional safety hazards for people residing or working in the project area.

VIII. f) The proposed project will not impair implementation of, or physically interfere with any adopted emergency response plan or emergency evacuation plan. Any existing commercial or light industrial 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 §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 1130 is not expected to hinder in any way with the above business emergency response plan requirements.

VIII. g) Since the affected facilities are primarily located in industrial or commercial 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 1130.

VIII. h) Affected printing 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 1130 is intended to ensure the reduction of VOC emissions at printing 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 1130 will not interfere with fire prevention practices.

In conclusion, potentially significant adverse hazard or hazardous material impacts resulting from adopting and implementing PAR 1130 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?	☐	☐	☐	☑

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☑
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) Adoption of PAR 1130 would improve consistency with the CTGs applicable to printing operations regulations by increasing the overall add-on control device efficiency requirements and lower VOC content limits for fountain solutions. The proposed project further adds prohibition of the storage of non-compliant VOC-containing materials at a worksite and adds an exemption for graphic arts materials that have a VOC content of no more than 10 g/L, as applied. Increasing efficiency and potential operation of UV/EB systems would not result in increased water usage because no new reformulations are anticipated to comply with the lower VOC content limit for fountain solutions. Additional water usage will not result from the proposed project.

No additional wastewater generation is expected to result from the proposed project. Further, PAR 1130 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 1130 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 1130 would not create a change in the current volume of existing wastewater streams from the affected facilities. In addition, the proposed amended rule 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 1130 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. No new major construction is anticipated. Based on the current printing facility inventory in the District, implementation of PAR 1130 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 1130.

PAR 1130 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) 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 1130. 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 1130 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 1130.

IX. e), f) & h) The proposed project would incorporate new requirements for printing facilities. As a result, PAR 1130 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 1130 is not expected to require additional workers at affected facilities because the proposed project does not affect how equipment is operated. Therefore, PAR 1130 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 1130 is not expected to expose people or structures to significant new flooding risks, or make worse any existing flooding risks. Because PAR 1130 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 1130 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 1130 and will not be further analyzed in this draft 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) PAR 1130 would not require any new development or require major modifications to buildings or other structures to comply with the new requirements for printing operations at any of the currently existing facilities. Therefore, PAR 1130 does not include any components that would require physically dividing an established community.

X. b) There are no provisions in PAR 1130 that would affect land use plans, policies, or regulations. 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 printing operations. Therefore, as already noted in the discussion under "Biological Resources," PAR 1130 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 amended rule.

Based upon these considerations, significant adverse land use and planning impacts are not expected from the implementation of PAR 1130 and will not be further analyzed in this Draft 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) There are no provisions in PAR 1130 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 is likely only to affect currently existing printing operations, PAR 1130 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 1130 are not anticipated.

Based upon these aforementioned considerations, significant mineral resources impacts are not expected from the implementation of PAR 1130. 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) PAR 1130 would incorporate new efficiency and VOC content requirements for printing operations that do not generate noise. PAR 1130 would not require any new development or require major modifications to buildings or other structures to comply with the proposed amended rule at any of the currently existing facilities. Any new UV/EB equipment installed would not be expected to generate noise above the existing setting. All of the affected activities occur within existing facilities. Compliance with the new requirements for printing operations are not expected to adversely affect operations at affected facilities because the existing facilities 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 1130 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) PAR 1130 is not anticipated to expose people to, or generate excessive groundborne vibration or groundborne noise levels since complying with PAR 1130 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 1130. Since existing operations are not expected to generate excessive groundborne vibration or noise levels, and PAR 1130 is not expected to alter physical operations, no groundborne vibrations or noise levels are expected from the proposed amended rule.

XII. c) No increase in periodic or temporary ambient noise levels in the vicinity of affected facilities above levels existing prior to implementing PAR 1130 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 printing operations. See also the response to items XII.a) and XII.b).

XII. d) 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 1130 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 1130 and are not further evaluated in this Draft 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) 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 1130. As such, PAR 1130 would not result in changes in population densities or induce significant growth in population.

XIII. b) Because the proposed project affects printing facilities but does not require additional employees, PAR 1130 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. Installation and operation of any new UV/EB systems is anticipated to be operated by the existing labor pool in southern California and would not warrant any new housing.

Based upon these considerations, significant adverse population and housing impacts are not expected from the implementation of PAR 1130 and are not further evaluated in this Draft 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) PAR 1130 would implement new efficiency and VOC content requirements for printing operations that would have no effect on public services. UV/EB systems are not flammable, so any additional systems will not require additional public services to the existing services. 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) As indicated in discussion under item XIII. Population and Housing, implementing PAR 1130 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 1130, 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 1130 and are not further evaluated in this Draft 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) As discussed under "Land Use and Planning" above, there are no provisions in PAR 1130 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 1130, which only affect printing operations. Further, PAR 1130 would not affect in any way affect 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 1130. 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) Adoption of PAR 1130 would improve consistency with the CTGs applicable to printing operations regulations by increasing the overall add-on control device efficiency requirements and lowering VOC content limits for fountain solutions. The proposed project further adds prohibition of the storage of non-compliant VOC-containing materials at a worksite and adds an exemption for graphic arts materials that have a VOC content of no more than 10 g/L, as applied.

PAR 1130 is not expected to require the replacement of manufacturing equipment at affected facilities and any new UV/EB systems do not generate substantial waste; therefore, no new solid or hazardous waste impacts specifically associated with PAR 1130 are expected. The affected facilities are 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 1130. PAR 1130 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 1130 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 1130 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?	☐	☐	☐	☑

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
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) Adopting PAR 1130 would improve consistency with the CTGs applicable to printing operations regulations by increasing the overall add-on control device efficiency requirements and lowering VOC content limits for fountain solutions. The proposed project further adds prohibition of the storage of non-compliant VOC-containing materials at a worksite and adds an exemption for graphic arts materials that have a VOC content of no more than 10 g/L, as applied. The adoption of PAR 1130 would not change or cause additional transportation demands or services because no 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 printing facilities are 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 1130 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) PAR 1130 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 1130 is not expected to adversely affect air traffic patterns. Further, PAR 1130 will not affect in any way air traffic in the region because it will not require transport of any PAR 1130 materials by air.

XVII. d) No physical modifications are expected to occur by adopting PAR 1130 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) Equipment replacements or retrofits associated with adopting PAR 1130 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 1130 is not expected to adversely impact emergency access.

XVII. f) No changes to the parking capacity at or in the vicinity of the affected facilities are expected with adopting PAR 1130. Adoption of PAR 1130 does not change existing operations, so no new workers at affected facilities or area sources are expected. Since adoption of PAR 1130 is not expected to require additional workers, no traffic impacts are expected to occur and additional parking capacity will not be required. Therefore, PAR 1130 is not expected to adversely impact on- or off-site parking capacity. PAR 1130 has no provisions that would conflict with alternative transportation, such as bus turnouts, bicycle racks, et cetera.

Based upon these considerations, PAR 1130 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) As discussed in the "Biological Resources" section, PAR 1130 is not expected to significantly adversely affect plant or animal species or the habitat on which they rely because PAR 1130 implements new requirements for printing operations, which will primarily be conducted at existing affected facilities. New UV/EB systems installed to qualify for the exemption are anticipated to be installed on existing paved foundations. 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 1130 is not expected to induce construction of any new land use projects that could affect biological resources.

XVIII. b) 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 1130 does not generate project-specific impacts, cumulative impacts are not considered to be "cumulatively considerable" as defined by CEQA guidelines §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 whatsoever. 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 1130 has no potential for significant cumulative or cumulatively considerable impacts in any environmental areas.

XVIII. c) Based on the foregoing analyses, PAR 1130 is not expected to cause significant adverse effects to human beings. Significant adverse air quality impacts are not expected from the implementation of PAR 1130. 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 1130.

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 1130

(Adopted October 3, 1980)(Amended February 1, 1985)(Amended May 5, 1989)
(Amended February 2, 1990)(Amended March 2, 1990)(Amended April 6, 1990)
(Amended June 1, 1990)(Amended November 2, 1990)(Amended December 7, 1990)
(Amended August 2, 1991)(Amended March 6, 1992)(Amended July 9, 1993)
(Amended September 8, 1995)(Amended March 8, 1996)(Amended October 8, 1999)
(Proposed Amended Rule 1130 April 2014)
(PostPublicWorkshop-1)

PROPOSED AMENDED RULE 1130. GRAPHIC ARTS

(a) Purpose and Applicability

The purpose of this rule is to reduce ~~emissions of v~~Volatile ~~o~~Organic ~~c~~Compound~~s~~ (VOC) emissions from graphic arts operations. ~~The~~ This rule applies to any person~~s~~ performing graphic arts operations or who ~~solicit, specify, offer for sale, sell, or distribute~~ supplies, sells, offers for sale, markets, manufactures, blends, repackages, stores at a worksite, distributes, applies or solicits the application of graphic arts materials for use in the District.

(b) Definitions

For the purpose of this rule, the following definitions shall apply:

(1) AEROSOL COATING PRODUCT is a pressurized coating product containing pigments or resins that dispenses product ingredients by means of a propellant, and is packaged in a disposable can for hand-held application, or for use in specialized equipment for ground marking and traffic~~/~~ marking applications.

(2) ALCOHOL is an organic compound that contains a hydroxyl (OH) group and is used in the fountain solution to reduce the surface tension and increase the viscosity of water to prevent piling (ink build-up). For purposes of this rule, alcohol includes, but is not limited to, isopropyl alcohol (isopropanol), n-propanol and ethanol.

(3) ALCOHOL SUBSTITUTE is an additive that contains VOCs but no alcohol and is used in the fountain solution to reduce the surface tension and increase the viscosity of water to prevent piling (ink build-up).

(~~2~~4) COATING is a ~~layer of~~ material which is applied to a ~~substrate~~ surface in order to beautify, protect or provide a barrier to such surface in a relatively unbroken film.

(~~3~~5) CAPTURE EFFICIENCY, in percent, is the ratio of the weight of the VOC in the effluent stream entering the control device to the weight of

VOC emitted from graphic arts operations, both measured simultaneously, and can be calculated by the following equation:

Capture Efficiency = $[W_c/W_e] \times 100$

Where: W_c = weight of VOC entering control device

W_e = weight of VOC emitted

~~Capture Efficiency = [Wc/We] x 100~~

~~Where: W_e = weight of VOC entering control device~~

~~W_e = weight of VOC emitted~~

(~~4~~6) CONTROL DEVICE EFFICIENCY, in percent, is the ratio of the weight of the VOC removed by the control device from the effluent stream entering the control device to the weight of the VOC in the effluent stream entering the control device, both measured simultaneously, and can be calculated by the following equation:

Control Device Efficiency = $[(W_c - W_a)/W_c] \times 100$

Where: W_c = Weight of VOC entering control device

W_a = Weight of VOC discharged from the control device

~~Control Device Efficiency = $[(W_c - W_a)/W_c] \times 100$~~

~~Where: W_e = Weight of VOC entering control device~~

~~W_a = Weight of VOC discharged from the control device~~

(~~5~~7) END-USER is a person who performs graphic arts operations.

(8) ENERGY CURABLE COATINGS, INKS AND ADHESIVES 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 Coatings, Inks And Adhesives 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.”

(~~6~~9) EXEMPT COMPOUNDS (See Rule 102-Definition of Terms).

(~~7~~10) FACILITY is any permit unit or grouping of permit units or other air-contaminant-emitting activities which are located on one or more contiguous properties within the District, in actual physical contact or

separated solely by a public roadway or other public right-of-way, and are owned or operated by the same person (or by persons under common control). Such above-described groupings, if non-contiguous, but connected only by land carrying a pipeline, shall not be considered one facility.

(~~8~~11) FLEXOGRAPHIC PRINTING is a printing method utilizing a flexible rubber or other elastomeric plate in which the image area is raised relative to the ~~nonimage~~ non-image area.

(~~9~~12) FLUORESCENT INK is a printing ink that emits electromagnetic radiation as a result of the absorption of energy from radiation.

(~~10~~13) FOUNTAIN SOLUTION is the solution used in offset lithographic printing which is applied to the image plate to maintain the hydrophilic properties of the non-image ~~nonimage~~ areas. It is primarily water and contains at least one of the following materials: etchants such as mineral salts; hydrophilic gums; or VOC additives to reduce the surface tension of the solution.

(~~11~~14) GRAMS OF VOC PER LITER OF COATING (OR INK OR ADHESIVE), LESS WATER AND LESS EXEMPT COMPOUNDS, is the weight of VOC per combined volume of VOC and coating (or ink or adhesive) solids and can be calculated by the following equation:

$$\text{Grams of VOC per Liter of Coating (or Ink or Adhesive), Less Water and Less Exempt Compounds} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Where: W_s = weight of volatile compounds in grams

W_w = weight of water in grams

W_{es} = ~~–~~weight of exempt compounds in grams

V_m = volume of material in liters

V_w = volume of water in liters

V_{es} = volume of exempt compounds in liters

For coatings that contain reactive diluents, the grams of VOC per Liter of Coating (or ink or adhesive), Less Water and Less Exempt Compounds, shall be calculated by the following equation:

$$\text{Grams of VOC per Liter of Coating (or Ink or Adhesive), Less Water and Less Exempt Compounds} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Where: W_s = weight of volatile compounds evolved during curing and analysis in grams

W_w = weight of water evolved during curing and analysis in grams

W_{es} = weight of exempt compounds evolved during curing and analysis in grams

V_m = volume of material prior to reaction in liters

V_w = volume of water evolved during curing and analysis in liters

V_{es} = volume of exempt compounds evolved during curing and analysis in liters

(~~12~~15) GRAMS OF VOC PER LITER OF MATERIAL is the weight of VOC per volume of material and can be calculated by the following equation:

$$\text{Grams of VOC per Liter of Material} = \frac{W_s - W_w - W_{es}}{V_m}$$

Where: W_s = weight of volatile compounds in grams

W_w = weight of water in grams

W_{es} = weight of exempt compounds in grams

V_m = volume of material in liters

(~~13~~16) GRAPHIC ARTS ~~OPERTIONS~~ OPERATIONS are gravure, letterpress, flexographic, and offset lithographic printing processes or related coating or laminating processes.

(~~14~~17) GRAPHIC ARTS MATERIALS are any inks, coatings, or adhesives, including added thinners or retarders, used in printing or related coating or laminating processes.

(~~15~~18) GRAVURE PRINTING is an intaglio printing process in which the ink is carried in minute etched or engraved wells on a roll or cylinder, excess ink being removed from the surface by a doctor blade.

(~~16~~19) HEATSET INK is an offset lithographic printing ink used on continuous web-~~feed~~fed printing presses that are equipped with hot air high velocity

dryers ~~or ovens~~. The ink dries or sets by heat induced evaporation of the ink oils and subsequent chilling of the ink by chill rolls.

(~~17~~20) LAMINATION is a process of composing two or more layers of material to form a single, multiple-layer sheet by using an adhesive.

(~~18~~21) LETTERPRESS PRINTING is a printing process in which the image area is raised relative to the ~~nonimage~~ non-image area and the ink is transferred to the substrate directly from the image surface.

~~(19) LITHOGRAPHIC PRINTING is a planographic printing process in which the image and nonimage areas are on the same plane and are chemically differentiated. This printing process differs from other printing processes where the image is typically printed from a raised or recessed surface.~~

(~~20~~22) MATTE FINISH INK is a flexographic printing ink which is ~~applied~~ used on non-porous substrates in flexographic printing operations and contains at least five (5) percent by weight silicon dioxide flattening agent.

(~~21~~23) METALLIC INK is a flexographic printing ink which is ~~applied~~ used on non-porous substrates in flexographic printing operations and contains at least 28 percent by weight elemental metal particles.

(~~22~~24) NON-HEATSET INK is an offset lithographic printing ink that sets and dries by absorption into the substrate, and hardens by ambient air oxidation that may be accelerated by the use of infrared light sources. For the purposes of this definition ~~ultraviolet and electron beam~~ energy curable inks are examples of non-heatset inks.

(~~23~~25) NON-POROUS SUBSTRATE is a substrate whose surface prevents penetration by water, including but not limited to foil, polyethylene, polypropylene, cellophane, paper or paperboard coated with a non-porous material, metalized polyester, nylon, and mylar.

(26) OFFSET LITHOGRAPHIC PRINTING is a planographic printing process in which the image and non-image areas are on the same plane of a thin lithographic plate and are chemically differentiated. The ink film is transferred from the lithographic plate to an intermediary surface, a rubber covered cylinder called a blanket, which, in turn, transfers the ink to the substrate. This printing process differs from other printing processes where the image is typically printed from a raised or recessed surface.

(~~24~~27) OVERALL CONTROL EFFICIENCY (C.E.), in percent, is the ratio of the weight of the VOC removed by the emission control system from the effluent stream entering the control device to the total VOC emitted from

graphic arts operations, both measured simultaneously, and can be calculated by the following equations:

$$C.E. = [(W_c - W_a)/W_e] \times 100$$

$$C.E. = [(\text{Capture Efficiency}) \times (\text{Control Device Efficiency})/100]$$

Where: W_c = Weight of VOC entering control device

W_a = Weight of VOC discharged from the control device

W_e = Weight of VOC emitted

(~~25~~28) PACKAGING GRAVURE is gravure printing on paper, paperboard, foil, film or other substrates used to produce containers or packages.

(~~26~~29) POROUS SUBSTRATE is a substrate whose surface does not prevent the penetration by water, including but not limited to paper, paperboard, and any paper product that is coated with a porous material.

(~~27~~30) POTENTIAL TO EMIT is the maximum capacity of a stationary source to emit a regulated air pollutant based on its physical or operational design. Any physical or operational limitation on the capacity of the stationary source to emit a pollutant, including air pollution control equipment and restrictions on hours of operations or on the type of material combusted, stored, or processed, shall be treated as part of the design only if the limitation is federally enforceable.

(~~28~~31) PRINTING in the graphic arts is any operation that imparts color, design, alphabet, or numerals on a substrate.

(~~29~~32) PRINTING INK is a pigmented fluid or viscous material used in printing.

(~~30~~33) PROOF PRESS is a press used only to check the quality of print, color reproduction, and editorial content.

(~~31~~34) PUBLICATION GRAVURE is gravure printing on paper subsequently formed into books, magazines, catalogues, brochures, directories, newspaper supplements or other types of printed materials not classified as packaging gravure.

(~~32~~35) REACTIVE DILUENT is a liquid which is a VOC during application and one in which, through chemical reaction or physical actions, such as adsorption or retention in the substrate, 20 percent or more of the VOC becomes an integral part of a finished product.

(~~33~~36) REFRIGERATED CHILLER is a device that continuously maintains and supplies fountain solution to a holding tray at a temperature of 55 degrees

Fahrenheit or less measured at the supply tank, thereby reducing evaporative emissions of VOCs in fountain solutions.

(~~34~~37) SOLVENT CLEANING ~~is the removal of loosely held uncured adhesives, uncured inks, uncured coatings, and contaminants including, but not limited to, dirt, soil, and grease from parts, products, tools, machinery, equipment and general work areas~~is as defined in Rule 1171 – Solvent Cleaning Operations.

(~~35~~38) STERILIZATION INDICATING INKS are inks that change color to indicate that sterilization has occurred. Such inks are used to monitor the sterilization of medical instruments, autoclave efficiency, and the thermal processing of foods for prevention of spoilage.

(~~36~~39) VOLATILE ORGANIC COMPOUND (VOC) is as defined in Rule 102 – Definition of Terms.

(~~37~~40) ~~WEB-FEED~~WEB-FED is an automatic system which supplies substrate from a continuous roll, or from an extrusion process.

(c) Requirements

(1) VOC Content of Graphic Arts Materials

No person shall supply, sell, offer for sale, market, manufacture, blend, package, repackage, distribute, apply or solicit the application of any graphic arts material, including any VOC-containing materials added to the original graphic arts materials, for use in the District, which contains ~~a total~~ VOC in excess of the VOC content limits ~~specified~~ set-forth in the Table of Standards I below:

~~GRAPHIC ARTS MATERIAL~~	~~VOC LIMIT~~ ~~Grams per Liter of Coating (or Ink or Adhesive), Less Water and Less Exempt Compounds~~	
	~~(October 8, 1999)~~	~~Effective January 1, 2000~~
~~Lithographic Ink~~	~~300~~	~~300~~
~~Letterpress Ink~~	~~300~~	~~300~~
~~Gravure Ink~~	~~300~~	~~300~~
~~Flexographic Ink Non-Porous Substrate~~	~~300~~	~~300~~

Flexographic Ink Porous Substrate	300	225
Flexographic Fluorescent Ink	300	300
Coating	300	300
Adhesive	300	150

TABLE OF STANDARDS I

VOC CONTENT LIMITS Grams of VOC Per Liter of Coating, Ink, and Adhesive, Less Water And Less Exempt Compounds	
GRAPHIC ART MATERIAL	Current Limit (g/L)
Adhesive	150
Coating	300
Flexographic Fluorescent Ink	300
Flexographic Ink: Non-Porous Substrate	300
Flexographic Ink: Porous Substrate	225
Gravure Ink	300
Letterpress Ink	300
Offset Lithographic Ink	300

(2) VOC Content of Fountain Solution

(A) Through December 31, 1999, no No person shall apply any in any graphic arts operation any fountain solution, including any VOC-containing materials added to the original fountain solution, which contains a total VOC in excess of 100 grams per liter of material. Effective January 1, 2000, the VOC content of fountain solution, including any VOC containing material added to the original fountain solution as applied, shall be: for use in a graphic arts operation within the District unless the VOC content in the fountain solution, as applied, complies with the applicable VOC limits set-forth in the Table of Standards II below.

(A) no greater than 80 grams per liter of material, or

TABLE OF STANDARDS II

VOC CONTENT LIMITS Grams of VOC Per Liter of Material		
FOUNTAIN SOLUTION	1/1/2000 g/L	7/1/2014 g/L
Heatset Web-Fed		
Using Alcohol without Refrigerated Chiller	80	16
Using Alcohol with Refrigerated Chiller	100	30
Using Alcohol Substitute	80	50
Sheet-Fed		
Using Alcohol without Refrigerated Chiller	80	50
Using Alcohol with Refrigerated Chiller	100	85
Using Alcohol Substitute	80	50
Non-Heatset Web-Fed		
Using Alcohol Substitute without Refrigerated Chiller	80	50
Using Alcohol Substitute with Refrigerated Chiller		

~~(A) no greater than 80 grams per liter of material, or~~

(B) ~~no greater than 100 grams per liter of material, if a refrigerated chiller is used.~~The use of alcohol containing fountain solutions is prohibited for use in non-heatset web-fed operations.

(3) Solvent Cleaning Operations; Storage and Disposal of VOC-containing Materials~~.~~

Solvent cleaning ~~of application equipment, parts, products, tools, machinery, equipment, general work areas, and the storage and disposal of VOC-containing materials used in cleaning~~ operations and the storage and disposal of VOC-containing materials used in cleaning operations are subject to the provisions of ~~shall be carried out pursuant to~~ Rule 1171 - Solvent Cleaning Operations.

(4) Prohibition of Storage

Effective July 1, 2014, a person shall not store any graphic arts material at a worksite for use in the District which contains VOC in the excess of the VOC-content limits specified in paragraph (c)(1).

(45) Approved Emission Control System

~~A person may comply with the provisions of paragraphs (c)(1) or (c)(2) by using an emission control system, consisting of a collection and a control device, which is approved, in writing, by the Executive Officer for reducing emissions of volatile organic compounds.~~

~~(A) Graphic Arts Materials~~

~~The Executive Officer shall approve an emission control system to be used in conjunction with graphic arts materials only if its overall control efficiency will reduce the VOC emissions from the use of non-compliant graphic arts materials to a level equal to or lower than that which would have been achieved through compliance with the terms of paragraphs (c)(1) or meets the applicable limits listed below, whichever results in lower emissions.~~

~~Type of Printing~~	~~Overall Efficiency~~	
	~~(October 8, 1999)~~	~~Effective January 1, 2000~~
~~Flexography~~	~~67%~~	~~75%~~
~~Publication gravure~~	~~75%~~	~~85%~~
~~Packaging gravure~~	~~67%~~	~~75%~~
~~Lithography~~	~~67%~~	~~75%~~
~~Letterpress~~	~~67%~~	~~75%~~

~~The required overall efficiency of an emission control system at which an equivalent VOC emission will be achieved, compared to the emissions achieved through compliance with paragraphs (c)(1), shall be calculated by the following equation:~~

$$\text{~~C.E.} = \left[1 - \left\{ \frac{VOC_{LWc}}{VOC_{LWn,Max}} \times \frac{1 - (VOC_{LWn,Max}/D_{n,Max})}{1 - (VOC_{LWc}/D_c)} \right\}\right] \times 100\text{~~}$$

~~Where: C.E. = Overall Control Efficiency, percent~~

~~VOC_{LWc} = VOC Limit of Rule 1130, less water and less exempt compounds, pursuant to paragraphs (c)(1).~~

~~$VOC_{LWn,Max}$ = Maximum VOC content of non-compliant~~

~~graphic arts materials used in conjunction with a control device, less water and exempt compounds, g/L.~~

~~$D_{n,Max}$ = Density of VOC solvent, reducer, or thinner contained in the non-compliant graphic arts materials containing the maximum VOC, g/L.~~

~~D_e = Density of corresponding VOC solvent, reducer, or thinner used in the compliant graphic arts materials = 880 g/L.~~

~~(B) Fountain Solution~~

~~Through December 31, 1999, the Executive Officer shall approve an emission control system to be used in conjunction with fountain solutions only if its overall control efficiency is at least 67%. Effective January 1, 2000, the overall control efficiency shall be at least 75%.~~

A person may comply with the provisions of paragraph (c)(1) or (c)(2) by using an emission control system to reduce VOC emissions provided such system is first approved in writing by the Executive Officer and meets the following requirements:

(A) The control device reduces VOC emissions from an emissions collection system by at least 95 percent, by weight, or the output of the air pollution control device is no more than 50 PPM by volume calculated as carbon with no dilution; and

(B) The owner/operator demonstrates that the emission collection system collects at least 90 percent, by weight, of the VOC emissions generated by the sources emissions.

(~~5~~6) Alternative Emission Control Plan

A person may comply with the provisions of paragraphs (c)(1) or (c)(2) by means of an approved Alternative Emission Control Plan ~~(AECP)~~ pursuant to Rule 108 - Alternative Emission Control Plans.

(d) Prohibition of Specification and Sale

(1) No person shall solicit from, or require any other person to use in the District any graphic arts material which, when applied as supplied or thinned or reduced according to the manufacturer's recommendation for application, does not meet the applicable VOC limits in paragraph (c)(1) or subparagraph ~~(i)(11)(C)~~ (i)(4)(C) for the specific application.

(2) No person shall supply, offer for sale, sell, market, blend, package, repackage, manufacture or distribute, ~~or distribute directly~~ to an end-user ~~for use in the District~~ any graphic arts material for use in the District which, when applied as supplied or thinned or reduced according to the manufacturer's recommendation for application, does not meet the applicable VOC limits in paragraph (c)(1) or subparagraph ~~(i)(11)(C)~~ (i)(4)(C) for the specific application.

(3) The prohibition of sales and use as specified in paragraphs (d)(1) and (d)(2) shall not apply to any manufacturer of graphic arts materials, provided that the manufacturer has complied with the labeling requirements of Rule 443.1 – Labeling of Materials Containing Organic Solvents, and the product is not sold directly to a user located in the District, or the product was sold to an independent distributor or a sales outlet located in the District that is not a subsidiary of, or under the control of the manufacturer, and was informed in writing by the manufacturer about the compliance status of the product with Rule 1130.

(e) Recordkeeping and Reporting Requirements

Records shall be maintained pursuant to Rule 109. For emissions reporting purposes, the following substrate retention factors shall be applied to the lithographic oil content of the inks: 20 percent retention for heatset inks and 95 percent retention for non-heatset inks.

(f) Rule 442 Applicability

Any graphic arts operations ~~subject to this rule which is exempt~~exempted from all or a portion of the VOC limits of this rule shall comply with the provisions of Rule 442 – Usage of Solvents.

(g) Emission Reduction Credits

~~The calculations for emission reduction credits issued pursuant to District Rule 1309 for matte finish and metallic inks shall be based on a maximum VOC limit of 300 grams per liter (less water and less exempt compounds) irrespective of the VOC limits specified in subparagraph (i)(11)(C).~~Facilities that use matte finish and metallic inks shall not receive emission reduction credit(s) pursuant to SCAQMD Rule 1309 above those emission reduction credit(s) that the facility would have received if it was operated with coatings having a VOC content of no

more than 300 grams per liter, less water and less exempt compounds irrespective of the VOC limits specified in paragraph (i)(4)(C).

(h) Test Methods

(1) VOC Content of Graphic Arts Materials

The VOC content of graphic arts materials except publication rotogravure inks shall be determined by:

(A) United States Environmental Protection Agency (U.S. EPA) Reference Test Method 24, (Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings, Code of Federal Regulations, Title 40, ~~Code of Federal Regulations,~~ Part 60, Appendix A). The exempt compounds' content shall be determined by ~~District~~ South Coast Air Quality Management's (SCAQMD) Laboratory Test Method 302 (Distillation of Solvents from Paints, Coatings and Inks) and 303 (Determination of Exempt Compounds) contained in ~~the District~~ SCAQMD's "Laboratory Methods of Analysis for Enforcement Samples" manual; or

(B) SCAQMD ~~District~~ Test Method 304 [Determination of Volatile Organic Compounds (VOCs) in Various Materials] contained in ~~the District~~ SCAQMD's "Laboratory Methods of Analysis for Enforcement Samples" manual.

(2) VOC Content and Density of Publication Rotogravure Ink:

The VOC content and density of publication rotogravure inks shall be determined by:

(A) ~~United States Environmental Protection Agency (~~U.S. EPA~~)~~ Reference Test Method 24A, (~~Title 40 Code of Federal Regulations, Part 60, Appendix A~~Determination of Volatile Matter Content and Density of Publication Rotogravure Inks and Related Publication Rotogravure Coatings, Code of Federal Regulations Title 40, Part 60, Appendix A). The exempt compounds' content shall be determined by ~~District~~ SCAQMD's Laboratory Test Method 303 (Determination of Exempt Compounds) contained in ~~the District~~ SCAQMD's "Laboratory Methods of Analysis for Enforcement Samples" manual; or

(B) SCAQMD ~~District~~ Test Method 304 [Determination of Volatile Organic Compounds (VOCs) in Various Materials] contained in ~~the District~~ SCAQMD's "Laboratory Methods of Analysis for Enforcement Samples" manual.

(3) Exempt Perfluorocarbon Compounds

~~The following classes of compounds: cyclic, branched, or linear, completely fluorinated alkanes; cyclic, branched, or linear, completely fluorinated ethers with no unsaturations; cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine,~~ The following classes of compounds:

Cyclic, branched, or linear, completely fluorinated alkanes;

Cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;

Cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and

Sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine,

will be analyzed as exempt compounds for compliance with subdivision (c) and subparagraph ~~(i)(11)(C)~~ (i)(4)(C), only ~~at such time as~~ when manufacturers specify which individual compounds are used in the ink and coating formulations. ~~and identify the test methods, which, prior to such analysis, have been approved by~~In addition, the manufacturers must identify ~~the~~ U.S. EPA, CARB, and ~~the District, that~~SCAQMD approved test methods, which can be used to quantify the amount~~s~~ of each exempt compound.

(4) Determination of Efficiency of Emission Control Systems

(A) The capture efficiency of an emission control system as ~~defined~~ specified in paragraph (b)(~~2~~5) shall be determined ~~by a minimum of three sampling runs subject to the data quality objective (DQO) presented in the~~ by the procedures presented in U.S. EPA technical guideline document, "Guidelines for Determining Capture Efficiency, January 9, 1995". ~~Individual capture efficiency test runs subject to the USEPA technical guidelines shall be determined by:~~Notwithstanding the test methods specified by the

Guidelines, any other method approved by the U.S. EPA, CARB and the SCAQMD Executive Officer may be substituted.

~~(i) Applicable USEPA Methods 204, 204A, 204B, 204C, 204E, and/or 204F; or~~

~~(ii) The District "Protocol for Determination of Volatile Organic Compounds (VOC) Capture Efficiency"; or~~

~~(iii) any other method approved by the USEPA, the California Air Resources Board, and the District Executive Officer.~~

(B) The efficiency of the control device ~~efficiency~~ of ~~an~~ the emission control system as ~~defined~~ specified in paragraph (b)(~~3~~6) and the VOC content in the control device exhaust gases, measured and calculated as carbon, shall be determined by U.S. EPA Test Methods 25, 25A, ~~or District~~ SCAQMD Method 25.1 (Determination of Total Gaseous Non-Methane Organic Emissions as Carbon) or SCAQMD Method 25.3 (Determination of Low Concentration Non-Methane Non-Ethane Organic Compound Emissions from Clean Fueled Combustion Sources) as applicable. U.S. EPA Test Method 18, or CARB Method 422 shall be used to determine emissions of exempt compounds.

(5) Equivalent Test Methods

Other test methods determined ~~by the staffs of the District~~to be equivalent by the Executive Officer, CARB, and the U.S. EPA, ~~to be equivalent to the test methods specified in this rule,~~ and approved in writing by the District Executive Officer may also be used.

(6) Multiple Test Methods

When more than one test method or set of test methods are specified for any testing, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of the rule.

(7) Test Methods Dates

All test methods referenced in this ~~section~~ subdivision shall be the most recently approved versions~~. The Executive Officer may update test methods as necessary to reflect the most accurate method available, provided the method does not affect the stringency of the rule~~by the appropriate governmental entities.

(i) Exemptions

(1) The provisions of this rule shall not apply to:

(~~1~~A) Fountain solutions used on proof presses.

(~~2~~B) Coating operations subject to other rules of Regulation XI.

(~~3~~C) Solar-control window film.

(~~4~~D) Heat-applied transfer decals.

(~~5~~E) Graphic arts on ceramic materials.

(~~6~~F) Circuitry printing.

(~~7~~G) Blanket repair material used in containers of four ounces or less.

(~~8~~H) Sterilization indicating inks.

(I) Aerosol coating products.

(J) Graphic arts materials that have a VOC content of no more than 10 g/L, less water and less exempt compounds, as applied.

(~~9~~2) The prohibition specified in paragraphs (d)(1) or (d)(2) shall not apply to persons offering graphic arts materials for sale to, selling graphic arts materials to, distributing graphic arts materials to, or requiring the use of graphic arts materials from, persons who are operating an approved emission control system under paragraph (c)(~~4~~5), or complying under paragraph (c)(~~5~~6)~~-~~, or operating pursuant to paragraphs (i)(1), ~~(i)(2), (i)(3),~~ (i)(4), (i)(5)~~,~~ or (i)(6)~~, (i)(7), (i)(8), (i)(11)(C), (i)(12), or (i)(13)~~.

(~~10~~3) The prohibition specified in subdivision (d) shall not apply to graphic arts materials which will be used solely outside of the District.

(~~11~~4) The provisions of paragraph (c)(1) shall not apply to metallic and matte finish inks provided that:

(A) The usage of matte finish or metallic inks each as supplied shall not exceed two (2) gallons on any one day and 125 gallons per calendar year at a facility; and

(B) The potential to emit and the actual VOC emissions from a facility which applies matte finish or metallic inks does not exceed ten (10) tons per calendar year from all VOC emission sources; and

(C) The VOC content of matte finish and metallic inks do not exceed 535 and 460 grams per liter (less water and less exempt compounds) respectively, including any VOC containing materials added to the original ink, as applied; and

(D) The owner or operator of the facility certifies in writing to the Executive Officer that they shall not emit VOCs in excess of ten (10) tons per calendar year. Such a certification shall be considered an agreement by the facility to limit the facility's potential to emit~~; and~~.

~~(E) Facilities operating under the provisions of paragraph (i)(11) whose actual emissions exceed ten (10) tons in any calendar year shall henceforth be subject to the requirements of paragraph (c)(1); and~~

~~(F) In addition to the requirements of subdivision (e), facilities shall retain records of purchase orders and invoices of VOC-containing materials for a minimum of two (2) years.~~

(5) Facilities operating under the provisions of paragraph (i)(4) whose actual emissions exceed ten (10) tons in any calendar year shall:

(A) henceforth be subject to the requirements of paragraph (c)(1).

(B) In addition to the requirements of subdivision (e), facilities shall retain records of purchase orders and invoices of VOC-containing materials for a minimum of five (5) years.

(6) The provision of paragraph (c)(4) shall not apply to a worksite that stores graphic arts materials provided such graphic arts materials are vented exclusively to printing systems equipped with an approved emission control system pursuant ~~with~~to the requirements of paragraph (c)(5).

~~(12) The provisions of this rule shall not apply to aerosol coating products.~~

(~~13~~7) The provisions of paragraph (c)(1) shall not apply to postal cancellation inks provided the VOC emissions from these inks, at a facility, do not exceed 60 pounds per calendar month.

(8) The provisions of paragraph (c)(2) shall not apply to sheet-fed offset presses that have a sheet size no larger than 11 inches by 17 inches, or any offset press if the total solution reservoir capacity is one gallon or less, provided the VOC content of the fountain solution used contains no more than 80 grams per liter of material, as applied, or if using a refrigerated chiller, no more than 100 grams per liter of material, as applied.

APPENDIX B

AFFECTED PAR 1130 FACILITIES WITH EXISTING ADD–ON CONTROLS AND OVERALL CAPTURE EFFICIENCY

Affected PAR 1130 Facilities with Existing Add-On Controls and Overall Capture Efficiency

Facility No.	County Location	Collection Efficiency	Destruction Efficiency	Capture Efficiency	Control Description
1	LAC	99.5%	99.9%	99.4%	Regenerative/Recuperative Oxidizer - Ceramic Hot Rock
2	LAC	99.5%	99.8%	99.3%	Regenerative/Recuperative Oxidizer - Ceramic Hot Rock
3	LAC	99.5%	99.8%	99.3%	Afterburner, Direct Flame
4	LAC	99.5%	99.7%	99.2%	Regenerative/Recuperative Oxidizer - Ceramic Hot Rock
5	LAC	99.5%	99.7%	99.2%	Regenerative/Recuperative Oxidizer - Ceramic Hot Rock
6	LAC	99.5%	99.6%	99.1%	Regenerative/Recuperative Oxidizer - Ceramic Hot Rock
7	LAC	100.0%	99.0%	99.0%	Afterburner, Direct Flame
8	LAC	99.5%	99.0%	98.5%	Regenerative/Recuperative Oxidizer - Ceramic Hot Rock
9	OC	99.5%	98.3%	97.8%	Regenerative/Recuperative Oxidizer - Ceramic Hot Rock
10	OC	99.5%	98.1%	97.6%	Afterburner, Direct Flame
11	OC	99.5%	98.0%	97.5%	Afterburner, Direct Flame
12	OC	99.5%	97.5%	97.0%	Regenerative/Recuperative Oxidizer - Ceramic Hot Rock
13	RC	99.5%	97.4%	96.9%	Afterburner, Direct Flame
14	SBC	100.0%	96.7%	96.7%	Afterburner, Direct Flame
15	OC	99.5%	96.8%	96.3%	Afterburner/Oxidizer, Catalytic
16	LAC	99.5%	95.5%	95.0%	Afterburner/Oxidizer, Catalytic
17	LAC	99.5%	95.0%	94.5%	Afterburner, Direct Flame
18	RC	99.5%	95.0%	94.5%	Regenerative/Recuperative Oxidizer - Ceramic Hot Rock
19	LAC	99.5%	95.0%	94.5%	Afterburner/Oxidizer, Catalytic
20	SBC	99.5%	95.0%	94.5%	Afterburner/Oxidizer, Catalytic
21	LAC	99.5%	95.0%	94.5%	Afterburner, Direct Flame
22	LAC	99.5%	95.0%	94.5%	Regenerative/Recuperative Oxidizer - Ceramic Hot Rock
23	LAC	99.5%	95.0%	94.5%	Regenerative/Recuperative Oxidizer - Ceramic Hot Rock
24	OC	99.5%	95.0%	94.5%	Afterburner (< 1 mmBTU/hr, venting to MS)
25	LAC	99.5%	95.0%	94.5%	Afterburner, Direct Flame
26	OC	99.5%	95.0%	94.5%	Afterburner, Direct Flame

Affected PAR 1130 Facilities with Existing Add-On Controls and Overall Capture Efficiency

27	OC	99.5%	95.0%	94.5%	Regenerative/Recuperative Oxidizer - Ceramic Hot Rock
28	SBC	99.5%	95.0%	94.5%	Afterburner, Direct Flame
29	RC	99.5%	92.1%	91.6%	Afterburner/Oxidizer, Catalytic
	Average	**99.5%**	**97.0%**	**96.3%**	

APPENDIX C

FOUNTAIN SOLUTION SURVEY DATA AND PROPOSED VOC COMPLIANCE LIMITS

Fountain Solution Survey Data and Proposed VOC Compliance Limits

Product	Packaged VOC (g/L)	Recommended Mixture (in ounces)	Highest Mixture (in ounces)	Mixture plus 128 ounces (in ounces)	R.T.U. VOC (g/L)	Exceeds 16 g/L (min dose)	Exceeds 16 g/L (max dose)	Exceeds 30 g/L ?	Exceeds 50 g/L ?	25?
Laser Plate Fountain Solution and Etch	0.0	9.0 to 12.0	12.0	137.0	0.0	OK	OK	OK	OK	No
Neutral pH Fountain Solution	0.0	1.0 to 1.25	1.3	129.0	0.0	OK	OK	OK	OK	No
SHEETFED FOUNTAIN SOLUTION Alcohol Free Fountain Solution	402.0	3.0 to 5.0	5.0	131.0	15.1	OK	OK	OK	OK	No
SHEETFED FOUNTAIN SOLUTION Alcohol Free Fountain Solution	402.0	3.0 to 6.0	6.0	131.0	18.0	OK	EXCEEDS	OK	OK	No
SILVER FOUNTAIN SOLUTION	402.0	2.0 to 5.0	5.0	130.0	15.1	OK	OK	OK	OK	No
WIDE FORMAT/WEB FOUNTAIN SOLUTION	402.0	3.0 to 6.0	6.0	131.0	18.0	OK	EXCEEDS	OK	OK	No
UNIVERSAL FOUNTAIN SOLUTION	250.6	8.0	8.0	136.0	14.7	OK	OK	OK	OK	No
UNIVERSAL FOUNTAIN SOLUTION	249.7	8.0	8.0	136.0	14.7	OK	OK	OK	OK	No
Universal Fountain Solution, Laser Plates	236.7	4.0	4.0	132.0	7.2	OK	OK	OK	OK	No
FOUNTAIN SOLUTION for Metal, Silver, or Laser Polyester Plates	93.5	4.0	4.0	132.0	2.8	OK	OK	OK	OK	No
WEB Fed	219.3	4.0 to 6.0	6.0	132.0	9.8	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	35.9	4.0 to 6.0	6.0	132.0	1.6	OK	OK	OK	OK	No
FOUNTAIN	0.0	2.5 to 4.0	4.0	130.5	0.0	OK	OK	OK	OK	No
Fountain Solution	249.2	4.0 to 6.0	6.0	132.0	11.2	OK	OK	OK	OK	No
Fountain Solution	278.0	5.0 to 8.0	8.0	133.0	16.4	OK	EXCEEDS	OK	OK	No
Fountain Solution	0.0	2.5 to 4.0	4.0	130.5	0.0	OK	OK	OK	OK	No
Duplicator Fountain Solution	179.0	1.0 to 4.0	4.0	129.0	5.4	OK	OK	OK	OK	No
Sheetfed	179.0	5.0 to 8.0	8.0	133.0	10.5	OK	OK	OK	OK	No
Sheetfed Fountain Solution	232.0	4.0 to 9.0	9.0	132.0	15.2	OK	OK	OK	OK	No
Sheetfed Fountain Solution	230.0	2.5 to 4.0	4.0	130.5	7.0	OK	OK	OK	OK	No
Sheetfed Fountain Solution	216.0	2.5 to 4.0	4.0	130.5	6.5	OK	OK	OK	OK	No
Sheetfed Fountain Solution	230.0	4.0 to 8.0	8.0	132.0	13.5	OK	OK	OK	OK	No
Small Sheetfed Presses	290.0	4.0 to 6.0	6.0	132.0	13.0	OK	OK	OK	OK	No
Duplicator Fountain Solution	203.0	1.0 to 4.0	4.0	129.0	6.2	OK	OK	OK	OK	No
Small Sheetfed Presses	64.0	1.0 to 3.0	3.0	129.0	1.5	OK	OK	OK	OK	No
Sheetfed Fountain Solution	80.0	2.0 to 3.0	3.0	130.0	1.8	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	62.3	2.5 to 5.0	5.0	130.5	2.3	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	62.3	2.5 to 5.0	5.0	130.5	2.3	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	40.7	1.0 to 2.0	2.0	129.0	0.6	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	64.7	1.0 to 2.0	2.0	129.0	1.0	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	53.9	1.5	1.5	129.5	0.6	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	24.0	1.5	1.5	129.5	0.3	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	22.8	2.0 to 4.0	4.0	130.0	0.7	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	37.1	1.5	1.5	129.5	0.4	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	22.8	2.0 to 4.0	4.0	130.0	0.7	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	179.7	5.0 to 7.0	7.0	133.0	9.3	OK	OK	OK	OK	No

Fountain Solution Survey Data and Proposed VOC Compliance Limits

Product	Packaged VOC (g/L)	Recommended Mixture (in ounces)	Highest Mixture (in ounces)	Mixture plus 128 ounces (in ounces)	R.T.U. VOC (g/L)	Exceeds 16 g/L (min dose)	Exceeds 16 g/L (max dose)	Exceeds 30 g/L ?	Exceeds 50 g/L ?	25?
FOUNTAIN CONCENTRATE	227.7	2.0 to 3.0	3.0	130.0	5.2	OK	OK	OK	OK	No
FOUNTAIN CONCENTRATE	234.9	5.0	5.0	133.0	8.8	OK	OK	OK	OK	No
FOUNTAIN CONCENTRATE	263.6	4.5 to 5.5	5.5	132.5	10.9	OK	OK	OK	OK	No
FOUNTAIN CONCENTRATE	335.5	4.0 to 5.0	5.0	132.0	12.6	OK	OK	OK	OK	No
FOUNTAIN CONCENTRATE	79.1	4.0	4.0	132.0	2.4	OK	OK	OK	OK	No
FOUNTAIN CONCENTRATE	0.0	2.5 to 3.5	3.5	130.5	0.0	OK	OK	OK	OK	No
FOUNTAIN CONCENTRATE	0.0	3.0	3.0	131.0	0.0	OK	OK	OK	OK	No
FOUNTAIN CONCENTRATE	349.9	3.5 to 5.5	5.5	131.5	14.4	OK	OK	OK	OK	No
Acid Fountain Solution	227.7	2.0 to 3.0	3.0	130.0	5.2	OK	OK	OK	OK	No
Fountain Solution for Sheetfed Applications	365.5	4.0 to 5.0	5.0	132.0	13.7	OK	OK	OK	OK	No
Alcohol Replacement Fountain Solution	263.6	4.5 to 5.5	5.5	132.5	10.9	OK	OK	OK	OK	No
Acid Fountain Solution with Calcium Control	0.0	3.0	3.0	131.0	0.0	OK	OK	OK	OK	No
Fountain Solution Concentrate	9.6	2.0	2.0	130.0	0.1	OK	OK	OK	OK	No
Alcohol Replacement Fountain Solution	297.2	5.0 to 6.0	6.0	133.0	13.3	OK	OK	OK	OK	No
Acid Fountain Solution for Ink Dryer & Calcium Control	203.7	3.0	3.0	131.0	4.7	OK	OK	OK	OK	No
Alcohol Replacement Fountain Solution	95.9	4.5 to 5.5	5.5	132.5	3.9	OK	OK	OK	OK	No
Neutral Fountain Solution Concentrate	25.2	1.5 to 2.0	2.0	129.5	0.4	OK	OK	OK	OK	No
Alcohol Replacement Fount for Heat-Set Webs	83.9	4.5 to 5.0	5.0	128.0	3.2	OK	OK	OK	OK	No
Fountain Solution Concentrate	0.0	1.5 to 2.0	2.0	128.0	0.0	OK	OK	OK	OK	No
Acid Fount for Sheetfed and Brush Dampening	0.0	2.5 to 3.5	3.0	128.0	0.0	OK	OK	OK	OK	No
All Purpose, Pure Gum Arabic Solution	0.0	4.0 to 19.0	19.0	128.0	0.0	OK	OK	OK	OK	No
Alcohol Replacement Fountain Solution	92.3	4.0 to 5.0	5.0	128.0	3.5	OK	OK	OK	OK	No
Newspaper Fountain Solution	6.0	1.5 to 2.0	2.0	128.0	0.1	OK	OK	OK	OK	No
Heat Set Web Fount	73.1	4.0 to 5.0	5.0	128.0	2.7	OK	OK	OK	OK	No
2-Part Acid Fountain Solution for Sheetfed Application	204.9	2.0	2.0	128.0	3.2	OK	OK	OK	OK	No
2-Part Acid Fountain Solution for Sheetfed Application	222.9	2.0	2.0	128.0	3.4	OK	OK	OK	OK	No
2-Part Acid Fountain Solution for Sheetfed Application	204.9	2.0	2.0	128.0	3.2	OK	OK	OK	OK	No
Neutral Fountain Solution Concentrate	26.4	2.0	2.0	128.0	0.4	OK	OK	OK	OK	No
Alkaline Fountain Solution for Newspapers	22.8	1.5 to 2.0	2.0	129.5	0.4	OK	OK	OK	OK	No
Acid Fountain Solution	232.5	4.0 to 5.0	5.0	132.0	8.7	OK	OK	OK	OK	No
Alcohol Replacement Fountain Solution	234.9	4.5 to 5.0	5.0	132.5	8.8	OK	OK	OK	OK	No
Alcohol Replacement Fountain Solution	227.7	4.5 to 5.5	5.5	128.0	9.4	OK	OK	OK	OK	No
Acid Fountain Solution	228.9	4.0 to 5.0	5.0	132.0	8.6	OK	OK	OK	OK	No
Alcohol Replacement Fountain Solution	251.6	4.5 to 5.5	5.5	128.0	10.4	OK	OK	OK	OK	No
Single-Package Alcohol Replacement Acid Fountain Solution	365.5	5.0	5.0	133.0	13.7	OK	OK	OK	OK	No
Acid Fountain Solution for Web Presses	378.7	3.0	3.0	131.0	8.7	OK	OK	OK	OK	No

Fountain Solution Survey Data and Proposed VOC Compliance Limits

Product	Packaged VOC (g/L)	Recommended Mixture (in ounces)	Highest Mixture (in ounces)	Mixture plus 128 ounces (in ounces)	R.T.U. VOC (g/L)	Exceeds 16 g/L (min dose)	Exceeds 16 g/L (max dose)	Exceeds 30 g/L ?	Exceeds 50 g/L ?	25?
Acid Fountain Solution	225.3	2.0 to 3.0	3.0	130.0	5.2	OK	OK	OK	OK	No
Alcohol Replacement Fountain Solution for Polyester Plates	335.5	5.0	5.0	133.0	12.6	OK	OK	OK	OK	No
Neutral Fountain Solution Concentrate	0.0	1.7 to 2.0	2.0	129.7	0.0	OK	OK	OK	OK	No
Mild Acid Fountain Solution	12.0	1.75 to 2.25	2.3	129.8	0.2	OK	OK	OK	OK	No
Premium Newspaper Fountain Solution	81.5	2.0 to 3.0	3.0	130.0	1.9	OK	OK	OK	OK	No
Newspaper Fountain Solution	0.0	1.25 to 1.5	1.5	129.3	0.0	OK	OK	OK	OK	No
Super Concentrate for Newspapers & Cold webs	0.0	2.0 to 3.2	3.2	130.0	0.0	OK	OK	OK	OK	No
2-Part Acid Fountain Solution for Sheetfed Application	249.2	2.0 to 3.0	3.0	130.0	5.7	OK	OK	OK	OK	No
Mild Acid Fountain Solution for Newspapers	80.3	2.0 to 2.5	2.5	130.0	1.5	OK	OK	OK	OK	No
Acid Fountain Solution for Brush Dampening	79.1	3.0 to 4.0	4.0	131.0	2.4	OK	OK	OK	OK	No
Fountain Solution for Heatset Web	87.5	4.0 to 6.0	6.0	132.0	3.9	OK	OK	OK	OK	No
Non-HAPS Alcohol Substitute	811.3	1.0 to 4.0	4.0	129.0	24.6	OK	EXCEEDS	OK	OK	No
Single Step Fountain Solution for Sheetfed Applications	299.6	4.0 to 6.0	6.0	132.0	13.4	OK	OK	OK	OK	No
2-Part Acid Fountain Solution for Sheetfed Application	219.3	4.0 to 6.0	6.0	132.0	9.8	OK	OK	OK	OK	No
Single Step Fountain Solution for Sheetfed Applications	291.2	3.5 to 5.5	5.5	131.5	12.0	OK	OK	OK	OK	No
Single Step Fountain Solution for Sheetfed Applications	348.7	3.5 to 5.5	5.5	128.0	14.4	OK	OK	OK	OK	No
2-Part Acid Fountain Solution for Sheetfed Application	225.3	4.0 to 6.0	6.0	128.0	10.1	OK	OK	OK	OK	No
2-Step, Acid Fountain Solution w/Calcium Control	235.0	2.0 to 4.0	4.0	128.0	7.1	OK	OK	OK	OK	No
Neutral Fountain Solution	0.0	1.7 to 2.0	2.0	128.0	0.0	OK	OK	OK	OK	No
Mild Acid Fountain Solution for Newspapers	83.9	2.0 to 2.5	2.5	130.0	1.6	OK	OK	OK	OK	No
Single-Part Fountain Solution for use with Polyester or Metal Plates	335.5	4.0 to 5.0	5.0	132.0	12.6	OK	OK	OK	OK	No
For Heat Set or Sheetfed Presses with Continuous Dampening	335.5	4.0 to 5.0	5.0	132.0	12.6	OK	OK	OK	OK	No
Acid Fountain Concentrate used with HAD Fountain Solutions	32.4	2.0 to 3.0	3.0	130.0	0.7	OK	OK	OK	OK	No
Acid Fountain Concentrate used with HAD Fountain Solutions	56.3	2.0 to 3.0	3.0	130.0	1.3	OK	OK	OK	OK	No
Chromate Free Buffered Formula	224.0	8.5	8.5	136.5	13.9	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	103.0	4.3	4.3	132.3	3.3	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	0.0	2.0 to 4.0	4.0	130.0	0.0	OK	OK	OK	OK	No
ALCOHOL REPLACEMENT	587.0	1.0 to 3.0	3.0	129.0	13.4	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	100.0	4.0 to 6.0	6.0	132.0	4.5	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	302.0	2.0 to 4.0	4.0	130.0	9.2	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	302.0	2.0 to 4.0	4.0	130.0	9.2	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	302.0	4.0 to 6.0	6.0	132.0	13.5	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	16.0	3.0 to 6.0	6.0	131.0	0.7	OK	OK	OK	OK	No
Alcohol Substitute	719.0	2.5 to 4.0	4.0	130.5	21.8	OK	EXCEEDS	OK	OK	No
Alcohol Substitute	719.0	2.5 to 4.0	4.0	130.5	21.8	OK	EXCEEDS	OK	OK	No
Alcohol Substitute	689.0	1.0 to 3.0	3.0	129.0	15.8	OK	OK	OK	OK	No

Fountain Solution Survey Data and Proposed VOC Compliance Limits

Product	Packaged VOC (g/L)	Recommended Mixture (in ounces)	Highest Mixture (in ounces)	Mixture plus 128 ounces (in ounces)	R.T.U. VOC (g/L)	Exceeds 16 g/L (min dose)	Exceeds 16 g/L (max dose)	Exceeds 30 g/L ?	Exceeds 50 g/L ?	25?
Alcohol Substitute	761.0	2.0 to 4.0	4.0	130.0	23.1	OK	EXCEEDS	OK	OK	No
Alcohol Substitute	942.0	3.0	3.0	131.0	21.6	EXCEEDS	EXCEEDS	OK	OK	No
Sheetfed Fountain Solution	228.0	2.5 to 4.0	4.0	130.5	6.9	OK	OK	OK	OK	No
Sheetfed Fountain Solution	0.0	1.5 to 2.5	2.5	129.5	0.0	OK	OK	OK	OK	No
One-Step Fountain Solution for Sheetfed Presses	210.0	4.0 to 6.0	6.0	132.0	9.4	OK	OK	OK	OK	No
One-Step Fountain Solution for Sheetfed Presses	210.0	4.0 to 6.0	6.0	132.0	9.4	OK	OK	OK	OK	No
Acid Fountain Solution	202.0	4.0 to 6.0	6.0	132.0	9.0	OK	OK	OK	OK	No
Newspaper Fountain Solution	1.0	1.5 to 4.0	4.0	129.5	0.0	OK	OK	OK	OK	No
Mild Acid Fountain Solution	60.0	2.0	2.0	130.0	0.9	OK	OK	OK	OK	No
Mild Acid Fountain Solution	60.0	2.0 to 3.0	3.0	130.0	1.4	OK	OK	OK	OK	No
Acid Fountain Solution for Web Offset Lithography	0.0	2.0 to 3.0	3.0	130.0	0.0	OK	OK	OK	OK	No
Newspaper Fountain Solution	0.0	1.5 to 4.0	4.0	129.5	0.0	OK	OK	OK	OK	No
Newspaper Fountain Solution	0.0	1.5 to 4.0	4.0	129.5	0.0	OK	OK	OK	OK	No
Neutral Fountain Solution	0.0	1.0 to 2.0	2.0	129.0	0.0	OK	OK	OK	OK	No
Newspaper Fountain Solution	0.0	1.5 to 4.0	4.0	129.5	0.0	OK	OK	OK	OK	No
Newspaper Fountain Solution	0.0	2.0 to 3.0	3.0	130.0	0.0	OK	OK	OK	OK	No
Newspaper Fountain Solution	30.0	1.0 to 2.5	2.5	129.0	0.6	OK	OK	OK	OK	No
Acid Fountain Solution for Web Offset	78.0	4.0 to 6.0	6.0	132.0	3.5	OK	OK	OK	OK	No
Acid Fountain Solution for Web Offset	223.0	4.0 to 6.0	6.0	132.0	10.0	OK	OK	OK	OK	No
Acid Fountain Solution for Continuous Dampening	234.0	4.0 to 6.0	6.0	132.0	10.5	OK	OK	OK	OK	No
Acid Fountain Solution for High Speed Web	198.0	4.0 to 6.0	6.0	132.0	8.9	OK	OK	OK	OK	No
Acid Fountain Solution	300.0	5.0 to 7.0	7.0	133.0	15.6	OK	OK	OK	OK	No
One-Step Acid Fountain Solution	77.0	4.0 to 6.0	6.0	132.0	3.4	OK	OK	OK	OK	No
Acid Fountain Solution for Continuous Dampening	276.0	5.0 to 7.0	7.0	133.0	14.3	OK	OK	OK	OK	No
Acid Fountain Solution for Sheetfed Offset	259.0	4.0 to 6.0	6.0	132.0	11.6	OK	OK	OK	OK	No
Acid Fountain Solution	224.0	4.0 to 6.0	6.0	132.0	10.0	OK	OK	OK	OK	No
Acid Fountain Solution for Offset	242.0	3.0 to 6.0	6.0	131.0	10.8	OK	OK	OK	OK	No
Acid Fountain Solution for Offset	242.0	3.0 to 6.0	6.0	131.0	10.8	OK	OK	OK	OK	No
Acid Fountain Solution	242.0	3.0 to 6.0	6.0	131.0	10.8	OK	OK	OK	OK	No
One-Step Alcohol Replacement Fountain Solution	312.0	7.0 to 9.0	9.0	135.0	20.5	OK	EXCEEDS	OK	OK	No
FOUNTAIN SOLUTION	84.0	4.0	4.0	132.0	2.5	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	60.0	4.0	4.0	132.0	1.8	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	12.0	8.0	8.0	136.0	0.7	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	1.0	18.2	18.2	146.2	0.1	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	1.0	18.2	18.2	146.2	0.1	OK	OK	OK	OK	No
FOUNTAIN SOLUTION	1.0	18.2	18.2	146.2	0.1	OK	OK	OK	OK	No

Fountain Solution Survey Data and Proposed VOC Compliance Limits

Product	Packaged VOC (g/L)	Recommended Mixture (in ounces)	Highest Mixture (in ounces)	Mixture plus 128 ounces (in ounces)	R.T.U. VOC (g/L)	Exceeds 16 g/L (min dose)	Exceeds 16 g/L (max dose)	Exceeds 30 g/L ?	Exceeds 50 g/L ?	25?
Non-glaring Acidic Fountain Concentrate	107.8	3.0	3.0	131.0	2.5	OK	OK	OK	OK	No
One Step Fountain Concentrate	227.7	6.0	6.0	134.0	10.2	OK	OK	OK	OK	No
One Step Sheetfed Fountain Concentrate	251.6	5.0	5.0	133.0	9.5	OK	OK	OK	OK	No
Metal & Plastic Plate Fountain Concentrate	155.8	8.0	8.0	136.0	9.2	OK	OK	OK	OK	No
Acid Fountain Concentrate	95.9	2.0 to 4.0	4.0	130.0	2.9	OK	OK	OK	OK	No
High Performance Alcohol Replacement	731.0	1.0 to 4.0	4.0	129.0	22.2	OK	EXCEEDS	OK	OK	No
Mild Acid Fountain Concentrate	72.0	2.0	2.0	130.0	1.1	OK	OK	OK	OK	No
Premium High Speed Alcohol Replacer	719.0	1.0 to 4.0	4.0	129.0	21.8	OK	EXCEEDS	OK	OK	YES
High Technology Alcohol Replacement	913.0	3.0 to 6.0	6.0	131.0	40.9	EXCEEDS	EXCEEDS	EXCEEDS	OK	No
High Technology Alcohol Replacement	773.0	1.5 to 3.0	3.0	129.5	17.7	OK	EXCEEDS	OK	OK	No
Alcohol Substitute for Sheetfed & Web Presses	744.0	2.0 to 4.0	4.0	130.0	22.5	OK	EXCEEDS	OK	OK	No
One Step Fountain Solution	575.0	3.0 to 4.0	4.0	131.0	17.4	OK	EXCEEDS	OK	OK	YES
One Step Fountain Solution	657.0	4.0 to 6.0	6.0	132.0	29.4	EXCEEDS	EXCEEDS	OK	OK	No
Sheetfed Fountain Solution with Calcium Control	0.0	3.0	3.0	131.0	0.0	OK	OK	OK	OK	No
One Step CTP Fountain Solution	77.0	3.0 to 5.0	5.0	131.0	2.9	OK	OK	OK	OK	No
One Step Fountain Solution with Built-in Alcohol Replacement	359.5	5.0 to 6.0	6.0	133.0	16.1	OK	EXCEEDS	OK	OK	No
Fountan Solution for Sheetfed Presses	128.2	3.0 to 6.0	6.0	131.0	5.7	OK	OK	OK	OK	No
High Speed, Heat Set Web Fountain Solution	65.4	4.0 to 6.0	6.0	132.0	2.9	OK	OK	OK	OK	No
Heatset Web Fountain Solution with Non-piling Additive	67.1	4.0 to 6.0	6.0	132.0	3.0	OK	OK	OK	OK	No
Advanced Fountain Solution for Sheetfed Presses	203.7	6.0	6.0	134.0	9.1	OK	OK	OK	OK	No
One Step Fountain Solution for Polyester Plates	131.8	8.0	8.0	136.0	7.8	OK	OK	OK	OK	No
Universal Fountain Solution	35.9	4.0 to 6.0	6.0	132.0	1.6	OK	OK	OK	OK	No
Neutral Fountain Solution	0.0	2.0	2.0	130.0	0.0	OK	OK	OK	OK	No
Neutral Fountain Solution	0.0	2.0	2.0	130.0	0.0	OK	OK	OK	OK	No
High Technology, Mild Acid Fountain Solution	0.0	2.0 to 3.0	3.0	130.0	0.0	OK	OK	OK	OK	No
	COUNTER	169			COMPLY	166	152	168	169	2
					EXCEED	3	17	1	0	167
					Miss Data	5	5	5	5	
					% Comply	98%	90%	99%	100%	
					% Exceed	2%	10%	1%	0%	

APPENDIX D

SUSTAINABILITY ADVANTAGES OF ULTRAVIOLET AND ELECTRON BEAM CURING

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

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