SACRAMENTO METROPOLITAN
AIR QUALITY MANAGEMENT DISTRICT

STAFF REPORT

RULE 450 – GRAPHIC ARTS OPERATIONS

RULE 451 – SURFACE COATING OF MISCELLANEOUS METAL PARTS AND PRODUCTS

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RULE 466 – SOLVENT CLEANING

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BACKGROUND

Ground level ozone is a secondary pollutant formed from photochemical reactions of nitrogen oxides (NOx) and volatile organic compounds (VOCs) in the presence of sunlight. Ozone is a strong irritant that adversely affects human health and damages crops and other environmental resources. As documented by the U.S. Environmental Protection Agency (EPA) in the most recent Criteria Document for ozone (U.S. EPA 2006), both short-term and long-term exposure to ozone can irritate and damage the human respiratory system, resulting in:

- decreased lung function;
- development and aggravation of asthma;
- increased risk of cardiovascular problems such as heart attacks and strokes;
- increased hospitalizations and emergency room visits; and
- premature deaths.

The District is currently designated as a nonattainment area for both the state and federal ozone standards. Since VOCs are a precursor to ozone, one of the strategies to control ozone pollution is to reduce VOC emissions from existing stationary sources.

The primary purpose of this rule project is to amend the solvent cleaning limits and requirements specified in Rule 450, Graphic Arts Operations; Rule 451, Surface Coating of Miscellaneous Metal Parts and Products; Rule 452, Can Coating; Rule 454, Degreasing Operations; Rule 456, Aerospace Assembly and Component Coating Operations; Rule 463, Wood Products Coatings; Rule 464, Organic Chemical Manufacturing Operations; Rule 465, Polyester Resin Operations; and Rule 466, Solvent Cleaning. In the 2003 Triennial Report, the District committed to adopt more stringent solvent cleaning standards to satisfy state plan requirements for “all feasible measures.” These amendments will fulfill that state plan commitment, and will also achieve emission reductions that will help the District attain the federal 8-hour ozone standard. These rules were originally adopted to meet federal Reasonably Available Control Technology (RACT) requirements, state Best Available Retrofit Control Technology (BARCT) requirements, and to meet 1994 State Implementation Plan requirements.

Solvent cleaning is an essential part of any manufacturing operation or service operation (e.g., automotive repair, graphic arts printing) and is not limited just to application equipment, but also includes manufactured or serviced parts or equipment. The cleaning process generally involves surface preparation such as wipe cleaning or degreasing to remove grease and other contaminants prior to assembling. Currently, most of the cleaning is done using cleanup materials containing VOCs or materials containing inorganic or exempt compounds (e.g., halogenated solvents, and non-halogenated solvents.) Some of the halogenated solvents have been regulated by EPA under 40 CFR Part 463, Subpart T – National Emission Standards for Halogenated Solvent Cleaning.

Staff is also proposing to amend Rules 450 and 451 to conform to recent Control Technique Guideline documents (CTGs) promulgated by EPA. The two graphic arts-related CTGs, dated September 2006, address emissions from offset lithographic and letterpress printing and flexible package printing. The September 2007 CTG for metal

furniture coatings address emissions from such coating operations.

BACKGROUND FOR EACH RULE

The proposed changes will lower the VOC content limits for cleaning solvents to feasible limits that have been implemented in the South Coast Air Quality Management District (SCAQMD). Additionally, the proposed changes will lower the VOC limits for fountain solutions and include control device requirements specified in the 2006 CTGs for graphic arts operations, and lower the VOC limits and increase the emissions control equipment efficiency requirement for metal furniture coatings to be consistent with the 2007 CTG for metal furniture coatings.

Rule 450- Graphic Arts Operations

Adopted on July 23, 1981 and last amended on March 23, 2000, Rule 450 regulates VOC emissions from graphic arts operations, which include cleaning activities for gravure, screen printing, flexographic, lithographic, and various other coating and laminating operations. This rule is being proposed for amendment in order to require that general cleaning and application equipment cleaning operations use cleanup materials with lower VOC content than previously allowed. The proposed amendments will:

- Lower the solvent VOC limits for several cleaning categories to as low as 25 grams per liter (g/l); and
- Eliminate the current VOC composite vapor pressure limits and all references to vapor pressure limits.
- For sources that emit more than 450 pounds of VOC per month, lower the VOC limits for fountain solutions.
- For sources that emit 25 tons of VOC or more per year, require control equipment for lithographic, letterpress, and flexible package printing operations, in conformance with the 2006 CTGs.

Rule 451- Surface Coating of Miscellaneous Metal Parts and Products

Rule 451 was adopted on June 19, 1979 and was last amended on October 2, 1997. This rule applies to coating, coating removal (stripping), surface preparation, and cleanup operations for miscellaneous metal parts and products. The proposed amendment will lower the VOC limit for surface preparation and cleanup materials to 25 g/l, lower the VOC limits for metal furniture coatings to as low as 275 g/l, and increase the emissions control equipment efficiency requirement to 90%.

Rule 452- Can Coating

Rule 452 was adopted on June 19, 1979 and last amended on September 5, 1996. Can coating operations include surface preparation and cleanup. The proposed amendments will:

- Lower the VOC limit for cleaning to 25 g/l.

- Reduce the VOC content limits for two piece and three piece interior body sprays and end sealing compounds.
- Specify acceptable application methods.
- Increase emissions control equipment efficiency requirement to 90%.

Rule 454- Degreasing Operations

Adopted on June 5, 1979 and last amended on May 23, 2002, Rule 454 regulates VOC emissions from solvent degreasing operations. As defined in this rule, degreasing operations include vapor and non-vapor (cold) degreasing. This rule is being proposed for amendment in order to require that all degreasing operations use solvents that contain no more than 25 g/l of VOCs. This rule currently allows the use of airtight/airless cleaning system or emissions control equipment as alternatives to complying with the VOC limit. Staff proposes to retain the option to use an airtight/airless cleaning system. Staff also proposes to add an exemption for the degreasing of high-voltage microwave vacuum tubes.

Rule 456- Aerospace Assembly and Component Coating Operations

Rule 456 was adopted on February 23, 1993 and was last amended on July 23, 1998. This rule limits VOC emissions from aerospace assembly and coating operations, which include coating removal (stripping), surface preparation and cleaning, and application equipment cleanup material. The proposed amendments to this rule will lower the solvent VOC limit for cleaning application equipment to 25 g/l.

Rule 463- Wood Products Coatings

Rule 463 was adopted on September 5, 1996 and was last amended on July 23, 1998. This rule regulates VOC emissions from wood coating operations, including strippers used on wood products and surface preparation and cleanup materials. The proposed amendments will reduce the VOC limit for surface preparation and cleanup materials to 25 g/l and will lower the low usage exemption to 55 gallons per year. Additionally, Staff proposes to restrict the use of the emissions averaging provisions to a maximum of 20 gallons per year of historical reproduction coatings.

Rule 464- Organic Chemical Manufacturing Operations

Rule 464 was adopted on July 23, 1998 and has never been amended. This rule limits VOC emissions from organic chemical plants. Cleanup activities, which include maintenance solvent cleaning and in-line solvent cleaning of process units and piping, are regulated under this rule.

The solvent cleaning requirements for Rule 464 are found under the cleanup and storage requirements section. The proposed amendments will reduce the VOC limit for maintenance cleaning solvent to 25 g/l.

Rule 465- Polyester Resin Operations

Rule 465 was adopted on February 6, 1997 and was last amended on June 4, 1998. The rule regulates emissions from polyester resin operations. Polyester resin operations include but are not limited to bathtub, shower, and sink manufacturers, spa and boat manufacturers, and tomato bin manufacturers, and include cleaning materials. The proposed amendments will reduce the VOC limit for cleaning materials to 25 g/l. Additionally, Staff proposes to increase the emissions control equipment efficiency requirement to 90%.

Rule 466- Solvent Cleaning

Prior to the adoption of Rule 466 on May 23, 2002, there were still cleaning activities such as the cleaning of electrical and electronic components, medical devices and pharmaceuticals, and architectural coating application equipment, that were not regulated by the industry-specific solvent cleaning rules (Rules 450, 451, etc.). Rule 466 was implemented to capture these solvent cleaning activities. This rule has not been amended since adoption. The proposed amendments will:

- Lower the solvent VOC limits for several cleaning categories to as low as 25 g/l, and
- Add a new VOC standard of 200 grams per liter for the sterilization of food product manufacturing and processing equipment.
- Add an exemption for the cleaning of high-voltage microwave vacuum tubes.

LEGAL MANDATES

Attainment Demonstration Plan: The District is designated as a nonattainment area for the federal 8-hour ozone standard (69 FR 23858, April 30, 2004). U.S. EPA's Phase 2 Rule (70 FR 71611, Nov. 29, 2005) to implement the 8-hour ozone standard requires the District to submit an attainment demonstration plan into the state implementation plan.

The proposed amendments will achieve reductions in VOC emissions that will be necessary to help the Sacramento area attain the federal 8-hour ozone standard. These rules will be included in the attainment demonstration plan.

Reasonably Available Control Technology (RACT); Clean Air Act (CAA) section 172 (c)(1) specifies that state implementation plans (SIPs) for nonattainment areas must include "reasonably available control measures" (RACM), including "reasonably available control technology" (RACT), for sources of emissions. Section 182 (b)(2) specifically provides that for nonattainment areas classified as "moderate" or worse, states must revise their SIPs to include RACT for sources of VOC emissions covered by a CTG document issued after November 15, 1990 and prior to the area's date of attainment. EPA defines RACT as "the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility." 44 FR 53761 (Sept. 17,

1979). In developing CTGs, EPA evaluates, among other things, the sources of VOC emissions and the available control approaches for addressing these emissions, including the costs of such approaches. Based on available information and data, EPA provides the recommendations for RACT.

The details of the 2006 CTGs pertaining to graphic arts operations and the 2007 CTG for metal furniture coatings are summarized below.

CTG for Offset Lithographic Printing and Letterpress Printing (EPA-453/R-06-002)

Applicability

This CTG, promulgated by EPA in September 2006, provides control recommendations for reducing VOC emissions stemming from the use of fountain solutions, cleaning materials, and inks in offset lithographic printing and cleaning materials and inks in letterpress printing. The requirements for fountain solutions do not apply to offset lithographic printing operations with less than or equal to 15 pounds per day of actual VOC emissions. The requirements for control equipment do not apply to presses with potential to emit less than 25 tons of VOC per year, prior to controls.

Recommended Control Options

The CTG specifies three methods to reduce VOC emissions from offset lithographic printing and letterpress printing. These options are add-on controls; process modifications or work practices; and material reformulation or substitution. Specific CTG requirements are detailed below.

A. Heatset web offset lithographic and heatset letterpress inks and dryers add-on control requirements:

• The recommended level of control for VOC emissions from heatset dryers is 90 percent control efficiency for a control device whose first installation date was prior to the effective date of a State RACT rule, which was issued after the date of this CTG.
• The recommended level of control for VOC emissions from heatset dryers is 95 percent control efficiency for a control device whose first installation date was on or after the effective date of the State RACT rule, which was issued after the date of this CTG.
• To accommodate situations where the inlet VOC concentration is so low that a 90 or 95 percent efficiency may not be achievable, it is recommended that an alternative requirement be specified for the control device outlet concentration to be no more than 20 ppmv as hexane on a dry basis.

B. Fountain Solution VOC content limits:

• Heatset Web Offset Lithographic Printing: 1.6% alcohol by weight (or 3% if chilled)
• Sheet-fed Offset Lithographic Printing: 5% alcohol by weight (or 8.5% if chilled)
• Coldset Web Offset Lithographic Printing: 5% percent alcohol substitute by weight and no alcohol in the fountain solution

C. Cleaning materials VOC limits:

The following recommendations apply to blanket washing, roller washing, plate cleaners, metering roller cleaners, impression cylinder cleaners, rubber rejuvenators, and other cleaners used for cleaning a press, press parts, or to remove dried ink from areas

around a press.
• Use cleaning materials with a VOC composite vapor pressure less than 10mm Hg at 20 degrees C or cleaning materials containing less than 70 weight % VOC.

D. Work Practices
• Keep cleaning materials and used shop towels in closed containers.

CTG for Offset Flexible Package Printing (EPA-453/R-06-003)

Applicability
This CTG, promulgated by EPA in September 2006, provides control recommendations for reducing VOC emissions from inks, coatings, adhesives and cleaning materials used in flexible package printing. The requirements for control equipment do not apply to presses with potential to emit less than 25 tons of VOC per year, prior to controls.

Recommended Control Options
The two options for reducing VOC emissions from inks, coatings, and adhesives used in the flexible package printing industry are adding/improving add-on controls, and material reformulation or substitution.

Recommendations for controlling VOC emissions from inks, coatings, adhesives and cleaning materials used in flexible package printing operations are as follows:

A. Coatings, inks and adhesives used on flexible packaging printing presses
The recommended control levels in the final CTG include the following:
• 65% overall control for a press that was first installed prior to March 14, 1995 and that is controlled by an add-on air pollution control device whose first installation date was prior to the effective date of the State RACT rule.
• 70% overall control for a press that was first installed prior to March 14, 1995 and that is controlled by an add-on air pollution control device whose first installation date was on or after the effective date of the State RACT rule.
• 75% overall control for a press that was first installed on or after March 14, 1995 and that is controlled by an add-on air pollution control device whose first installation date was prior to the effective date of the State RACT rule.
• 80% overall control for a press that was first installed on or after March 14, 1995 and that is controlled by an add-on air pollution control device whose first installation date was on or after the effective date of the State RACT rule.

B. Cleaning Materials Work Practices at Flexible Package Printing Presses
Keep cleaning materials and used shop towels in closed containers, and conveying cleaning materials from one location to another in closed containers or pipes.

The proposed amendments will meet RACT requirements and achieve reductions in VOC emissions that will be necessary to help the Sacramento area attain the federal 8-hour ozone standard. These rules will be included in the attainment demonstration plan.

CTG for Metal Furniture Coatings (EPA-453/R-07-005)

Applicability

This CTG, promulgated by EPA in September 2007, provides control recommendations for reducing VOC emissions stemming from the use of surface coatings on metal furniture. The requirements for metal furniture do not apply to each metal furniture surface coating unit at a facility where the total actual VOC emissions from all such operations, including related cleaning activities, are less than 15 pounds per day (equivalent to 3 tons per 12-month rolling period) before consideration of controls.

Recommended Control Options

The CTG specifies three methods to reduce VOC emissions from metal furniture coatings. These options are lower VOC limits, add-on controls, work practices, or application methods. Various exemptions are also recommended. Specific CTG requirements are detailed below.

A. Metal furniture coatings VOC content limits:

	VOC CONTENT: Grams/Liter (Lbs/Gal) excluding water and exempt compounds	
COATING TYPE	**AIR DRIED**	**BAKED**
General, One-Component	275 (2.3)	275 (2.3)
General, Multi-Component	340 (2.8)	275 (2.3)
Extreme High Gloss	340 (2.8)	360 (3.0)
Extreme Performance	420 (3.5)	360 (3.0)
Heat Resistant	420 (3.5)	360 (3.0)
Metallic	420 (3.5)	420 (3.5)
Pretreatment Coatings	420 (3.5)	420 (3.5)
Solar Absorbent	420 (3.5)	360 (3.0)

B. Add-on control requirements:
The CTG recommends an overall control efficiency of 90% for metal furniture coating operations.

C. Work Practices
• store all VOC-containing materials and used shop towels in closed containers
• ensure that mixing and storage containers used for VOC-containing materials are kept closed at all times except when depositing or removing these materials
• minimize spills of VOC-containing materials
• convey VOC-containing materials from one location to another in closed containers or pipes
• minimize VOC emission from cleaning of storage, mixing, and conveying equipment

D. Application Methods
The following application methods are recommended:

- Electrostatic application

- HVLP spray
- Flow coat
- Roller coat
- Dip coat, including electrodeposition
- Other coating application methods capable of achieving a transfer efficiency equivalent or better than that achieved by HVLP spraying

Recommended exemptions

The CTG recommends the following types of coatings and coating operations be exempt from our recommended VOC content limits:

- Stencil coatings
- Safety-indicating coatings
- Solid-film lubricants
- Electric-insulating and thermal-conducting coatings
- Touch-up and repair coatings
- Coating application utilizing hand-held aerosol cans

State Mandates:

Serious Nonattainment Plan Requirements: The District is designated as a serious nonattainment area for the state ozone standard. The California Clean Air Act requires areas with this designation to adopt control measures required in sections 40913, 40914, and 40919 of the California HSC:

- HSC Section 40913 requires districts to develop a plan to achieve California's ambient air quality standards by the earliest practicable date.
- HSC Section 40914(b)(2) requires every nonattainment district which cannot achieve a reduction of 5% or more per year in district wide emissions to include in their state attainment plans "every feasible measure" to reduce the emissions of nonattainment pollutants and their precursors. SCAQMD Rule 1171, which regulates emissions from solvent cleaning, qualifies as a "feasible measure." The District's 2003 Triennial Plan update included a commitment to achieve VOC emission reductions of 0.37 tons per day by implementing more stringent, feasible controls on solvent cleaning. The proposed amendments will achieve VOC emission reductions of 0.54 tons per day and will satisfy the state plan commitment.
- HSC Section 40919(a)(3) requires districts with serious nonattainment for ozone to adopt BARCT for all existing permitted sources. Staff has found that the proposed amendments will meet the BARCT requirement.

Transport Mitigation Emission Control Requirements: Title 17, Section 70600 of the California Code of Regulations requires that districts within the areas of origin of transported air pollutants, as identified in section 70500(c), include sufficient emission control measures (including "all feasible measures" and BARCT) in their attainment plans for ozone to mitigate the impact of pollution sources within their jurisdictions on ozone concentrations in downwind areas commensurate with the level of contribution. An upwind district shall comply with the transport mitigation planning and implementation requirements set forth in this section regardless of its attainment status, unless the

upwind district complies with the requirements of section 70601.

The proposed amendments are based on all feasible control measures and BARCT requirements, and therefore comply with the state mandates.

SUMMARY OF REQUIREMENTS

The proposed rules will set more stringent VOC content limits, and in some cases eliminate vapor pressure limits. Several VOC limits in SCAQMD Rule 1171 for graphic arts-related cleaning categories have not yet been implemented. Staff considered these VOC limits with future effective dates in the proposed rules, as discussed below in the summary for Rule 450.

The requirements for each proposed rule are as follows.

Rule 450

Rule 450 includes cleaning and storage requirements for graphic arts operations. Solvent cleaning in a graphic arts operation falls under two categories: general cleaning (which includes maintenance, repair, and wipe cleaning) and application equipment cleaning (which includes such activities as cleaning for lithographic and letter press printing and screen printing). The rule currently allows compliance by meeting a VOC composite vapor pressure limit in lieu of achieving the VOC content limit. Alternatively, air pollution control equipment may be used if neither limit can be attained.

The VOC limits for lithographic printing (other than newsprint substrates), screen printing, and UV/electron beam ink equipment cleaning in SCAQMD Rule 1171 recently became effective, on January 1, 2008. SCAQMD technology assessments completed in August 2006 provide evidence to support the implementation of these VOC limits. The San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) also used these limits, effective January 1, 2010, when they amended their graphic arts rule (Rule 4607) on September 20, 2007. Therefore, Staff proposes to lower the VOC limits in Rule 450 for the above cleaning categories to the January 1, 2008 limits in SCAQMD Rule 1171, but with a future effective date of January 1, 2011.

Staff proposes to add exemptions for two cleaning categories: cleaning of metering rollers and printing plates (for newsprint as well as other substrates) and stripping of cured inks, cured coatings, and cured adhesives. In the proposed exemption for metering rollers and printing plates, specific presses are not subject to the monthly usage limit for materials used to clean metering rollers and printing plates specified in Section 302.2, provided that they comply with the eventual VOC limit of 100 g/l (effective 1/1/2011) for these components. The proposed exemption for the stripping of cured materials is for clarification purposes only, since the current definition of solvent cleaning already implies that stripping of such cured materials is exempt.

Currently, Rule 450 allows cleaning solvents to comply with vapor pressure limits instead of VOC content limits. Staff is proposing to remove the solvent vapor pressure limits

from Rule 450. This change is consistent with SCAQMD Rule 1171, which contains solvent VOC limits that are less than or equal to the current Rule 450 VOC limits and does not allow the use of low vapor pressure solvents in lieu of meeting the VOC content limits. Staff considers the SCAQMD VOC content limits to constitute a more stringent feasible measure than the current Rule 450 VOC content/vapor pressure limits.

Adoption of the SCAQMD limits will result in greater and more quantifiable reductions from solvent cleaning in graphic arts operations. While low vapor pressure solvents may evaporate at a slower rate, all of the solvent eventually evaporates. Setting a lower VOC limit will reduce further what is eventually emitted to the air than setting a low vapor pressure limit. EPA's CTG for Offset Lithographic Printing and Letterpress Printing (2006) states that the use of low vapor pressure cleaning materials (vapor pressure less than 10 mm Hg at 20 °C) results in an emission reduction comparable to using materials with 30% VOC by weight (approximately 240 g/l of VOC), considerably higher than the proposed VOC limits in Rule 450.

Staff proposes to reduce the allowable VOC content of fountain solutions to those specified in the 2006 CTG for Offset Lithographic Printing and Letterpress Printing (see table following #8). In order to incorporate the CTG requirements, it is necessary to establish separate categories for heatset web, coldset web, sheet fed, and all other lithographic presses.

The new requirements for emissions control equipment also address the 2006 CTG recommendations. Effective one year after the date of adoption, the minimum overall control system efficiency of 67% will be increased to various levels, depending upon the specific process involved and the date on which the press and emissions control equipment were first installed. Unless exempted in Section 110 as described below, sources must use emissions control equipment, and the equipment must achieve at least an overall efficiency of one of the following, whichever is applicable:

Heatset Web Offset Lithographic Printing and Heatset Web Letterpress Printing:

- 90% overall efficiency if permit application is deemed complete prior to (date of adoption)
- 95% overall efficiency if permit application is deemed complete after (date of adoption).

Flexible Package Printing Inks, Coatings, and Adhesives:

- 70% overall efficiency for a press that was first installed prior to March 14, 1995.
- 80% overall efficiency for a press that was first installed on or after March 14, 1995.

To be consistent with the 2006 CTG recommendations, a new section was also added to provide an alternative to compliance with the overall system efficiency requirements for heatset web offset lithographic and heatset web letterpress printing. In lieu of complying with those overall efficiency requirements, sources are required to use emissions control equipment with mass outlet concentration no greater than 20 ppmv as hexane on a dry basis. For all other printing operations including exempted operations, the emissions control equipment (with a required 67% efficiency, consistent with the current requirement) is optional if the associated VOC limits are achieved.

The new exemptions in Section 110 of the proposed rule are also based on the 2006 CTG recommendations. Fountain solutions are exempt from the revised VOC limits if the offset lithographic operations do not exceed 15 pounds of VOC per day (in which case the current VOC limits for fountain solutions will remain in effect). A heatset web offset lithographic press is exempt from the control equipment requirements if 1) the potential to emit from the dryer is less than 25 tons of VOC per year, or 2) the press is used for book printing, or 3) if the press has a maximum web width of 22 inches or less. Inks, coatings, and adhesives used for flexible package printing are exempt from the control equipment requirements if the potential to emit from the dryer is less than 25 tons of VOC per year. Section 110 also clarifies that if actual emissions from control equipment are at least 25 tons per year of VOC per rolling 12-month period, then that unit must comply with Section 303.1 and cannot use the exemptions in this section. This is a "once in, always in" requirement.

The proposed amendments for this rule are listed below. For a detailed list of all changes to Rule 450, please refer to Appendix B.

1. Lower the solvent VOC limits for several cleaning categories (see below).

Material Type	**Current Limits (The specified limits remain in effect until limits are replaced by limits listed in subsequent columns.)**			**Proposed Limits**	
				Effective (one year after date of adoption)	**Effective 1/1/2011**
	VOC Content g/l (lb/gal) Including Water and Exempt Compounds		**VOC Composite Partial Pressure Millimeters of Mercury at 20 ^{o}C (68 ^{o}F)**	**VOC Content g/l (lb/gal) Including Water and Exempt Compounds**	**VOC Content g/l (lb/gal) Including Water and Exempt Compounds**
General (e.g., maintenance, repair, solvent, wipe) Cleaning	72 (0.60)			25 (0.21)	
Application Equipment Cleaning					
General (not specifically listed below)	100 (0.83)	AND	3	25 (0.21)	
Lithographic and Letter Press Printing					
Newsprint substrates					
Blanket and Roller Washes	300 (2.5)	OR	10	100 (0.83)	
Metering Rollers/Printing Plates	300 (2.5)	OR	25	100 (0.83)	
Other On-Press Components	100 (0.83)	AND	3	100 (0.83)	
Removable Press Components	100 (0.83)	AND	3	25 (0.21)	
Substrates other than newsprint					
Blanket and Roller Washes	300 (2.5)	OR	10		100 (0.83)
Metering Rollers/Printing Plates	300 (2.5)	OR	25		100 (0.83)
Other On-Press Components	100 (0.83)	AND	3		100 (0.83)
Removable Press Components	100 (0.83)	AND	3	25 (0.21)	
Screen Printing	300 (2.5)	OR	10		100 (0.83)

Material Type	Current Limits (The specified limits remain in effect until limits are replaced by limits listed in subsequent columns.)			Proposed Limits	
				Effective (one year after date of adoption)	Effective 1/1/2011
	VOC Content g/l (lb/gal) Including Water and Exempt Compounds		VOC Composite Partial Pressure Millimeters of Mercury at 20 ^{o}C (68 ^{o}F)	VOC Content g/l (lb/gal) Including Water and Exempt Compounds	VOC Content g/l (lb/gal) Including Water and Exempt Compounds
Flexographic Printing	100 (0.83)	AND	3	25 (0.21)	
Specialty Flexographic Printing	810 (6.8)	AND	21	100 (0.83)	
Ultraviolet/Electron Beam Inks (Except Screen Printing)	800 (6.7)	AND	33	650 (5.4)	100 (0.83)

2. Add a new VOC limit of 100 g/l specifically for blanket and roller washes used on newsprint equipment (shown in the table above).
3. Add a new VOC limit of 25 g/l specifically for removable press components (shown in the table above).
4. Add definitions of “potential to emit,” “electron beam ink,” “newsprint,” “other on-press component”, “removable press component,” “stripping,” and “cured coating, cured ink, or cured adhesive,” using the same definitions as the ones in the SCAQMD rules.
5. Replace the term “other cleaning” with “metering rollers/printing plates,” consistent with previous definition.
6. Add a new VOC limit of 100 g/l specifically for metering rollers and printing plates used in newsprint operations (shown in the table above).
7. Eliminate the current VOC composite vapor pressure limits.
8. Add new categories for fountain solutions and lower the VOC limits, as shown in the following table.

MATERIAL TYPE	VOC Content Limits Including water and exempt compounds	
	Current Limits (g/l) (The specified limits remain in effect until limits are replaced by limits listed in the subsequent column.)	**Effective (One Year After Date Of Adoption) (% by weight)**
Heatset Web Offset Lithography		
Fountain Solutions Containing Alcohol		
1. Chilled Using Refrigerated Chiller	100	3
2. Non-Chilled	80	1.6
Fountain Solutions Containing No Alcohol		
1. Chilled Using Refrigerated Chiller	100	5
2. Non-Chilled	80	5
Coldset Web Offset Lithography		
Fountain Solutions Containing Alcohol		
1. Chilled Using Refrigerated Chiller	100	(*See below)
2. Non-Chilled	80	(*See below)
Fountain Solutions Containing No Alcohol		
1. Chilled Using Refrigerated Chiller	100	5
2. Non-Chilled	80	5
Sheet-fed Offset Lithography with maximum sheet size greater than 11 X 17 inches or total solution reservoir greater than 1 gallon		
Fountain Solutions Containing Alcohol		
1. Chilled Using Refrigerated Chiller	100	8.5
2. Non-Chilled	80	5
Fountain Solutions Containing No Alcohol		
1. Chilled Using Refrigerated Chiller	100	5
2. Non-Chilled	80	5
All Other Presses (includes offset lithographic presses exempt pursuant to Section 110.9)		
1. Chilled Using Refrigerated Chiller	100	10
2. Non-Chilled	80	8

* Effective one year after date of adoption, fountain solutions containing alcohol shall not be used in coldset web offset lithography printing operations.

9. Add a requirement for mandatory emissions control equipment for heatset web offset lithographic printing, heatset web letterpress printing, and flexible package printing inks, coatings, and adhesives. Increase the required overall control efficiency to the following levels:

Process Description	Overall Control Efficiency	
	Current	Proposed
Heatset Web Offset Lithographic Printing and Heatset Web Letterpress Printing		
Permit application complete prior to date of adoption	67%	90%
Permit application complete after date of adoption	67%	95%
Flexible Package Printing Inks, Coatings, and Adhesives		
Press was first installed prior to 3/14/95	67%	70%
Press was first installed on or after 3/14/95	67%	80%

10. Add exemptions (as described above) for VOC content of fountain solutions and for control equipment for heatset web offset lithographic printing, heatset web letterpress printing, and flexible package printing inks, coatings, and adhesives.
11. Update the recordkeeping section to include new usage record requirements for materials used for printing on newsprint.
12. Add calculation method for determining overall emissions control equipment system efficiency.
13. Update the test methods to specify the most current test methods.

Rule 451

Rule 451 limits VOC emissions from the application of coating, coating removers (strippers), surface preparation material, and cleanup material to miscellaneous metal parts and products in a shop environment. Similar to Rule 450, Rule 451 also provides the option of using an emission control system in lieu of complying with the specified VOC emissions limits.

Currently, Sections 110.2 and 110.3 of Rule 451 provide low-usage exemptions for aluminum coatings applied to window frames and door frames, as well as for pretreatment wash primers, that exceed the VOC limits in the rule, provided that the usage of such materials is less than 200 gallons per calendar year. Section 401 requires facilities utilizing the low-usage exemptions to submit annual reports showing the usage of these materials. Staff reviewed the recent annual reports and found that no facility used such materials in an amount greater than 55 gallons per calendar year. Therefore, Staff is proposing to eliminate the low-usage exemptions in Sections 110.2 and 110.3. The usage of these materials will be subject to the general low-usage exemption of 55 gallons per calendar year as specified in Section 110.1. The 55 gallon/year exemption level is consistent with the EPA Region IX "Little Bluebook" (*Guidance Document for Correcting Common VOC & Other Rule Deficiencies*, April 1, 1991, revised August 21, 2001).

Staff also proposes to revise the current rule language such that electrostatic spray guns are subject to the proposed VOC requirement for cleanup of metal parts/products coating application equipment. This proposal is consistent with the June 30, 2005

sunset of an exemption for electrostatic coating application equipment cleaning in SCAQMD Rule 1171. Also, the use of enclosed gun cleaners will no longer remain as a compliance option for the application equipment cleanup requirements under the proposed rule, consistent with SCAQMD Rule 1171.

In the current rule, Section 304.4 allows spray gun nozzles to be soaked in solvent-based materials in a tightly covered container not exceeding 5 gallons in size. Staff proposes to eliminate this section to be consistent with SCAQMD Rule 1171, which currently does not contain such a provision.

Staff proposes to reduce the allowable VOC content of metal furniture coatings (which is defined in the proposed rule) to those specified in the 2007 CTG for Metal Furniture Coatings (see table following #2). Under the current rule, metal furniture coating operations are subject to the coating VOC limits specified in Section 301. The proposed rule establishes separate VOC limits for metal furniture coating operations at sources emitting at least 3 tons of VOC emissions per 12-month rolling period prior to controls. As stated in the new exemption for metal furniture coatings, sources that emit less than 3 tons per 12-month rolling period prior to controls are not subject to the metal furniture coatings requirements, but are subject to the requirements for miscellaneous metal parts and products coatings in Section 301 In order to incorporate the CTG requirements, it is necessary to establish two new coating categories (which are subject to the "all other coatings" category under the current rule), for general multi-component coatings and all other coatings.

The new requirement for emissions control equipment also addresses the 2007 CTG recommendations. Effective on the rule adoption date, the minimum overall control system efficiency of 85% will be increased to 90%.

The proposed rule also includes the following amendments:

1. Lower both of the solvent VOC limits in the surface preparation/cleanup/storage requirements from 72 g/l to 25 g/l.
2. Lower the VOC limits for metal furniture coatings at large sources (3 tons of VOC or more per 12-month rolling period) as shown in the following table, and add an exemption from this section for sources with emissions of less than 3 tons per 12-month rolling period.

	VOC CONTENT: Grams/Liter (Lbs/Gal) less water and exempt compounds			
	CURRENT LIMITS		EFFECTIVE (ONE YEAR AFTER DATE OF ADOPTION)	
COATING CATEGORY	AIR DRIED	BAKED	AIR DRIED	BAKED
General, Multi-Component	340 (2.8)	275 (2.3)	340 (2.8)	275 (2.3)
Extreme High Gloss	420 (3.5)	360 (3.0)	340 (2.8)	360 (3.0)
Extreme Performance	420 (3.5)	420 (3.5)	420 (3.5)	360 (3.0)
Heat Resistant	420 (3.5)	360 (3.0)	420 (3.5)	360 (3.0)
Metallic/Iridescent	420 (3.5)	420 (3.5)	420 (3.5)	420 (3.5)
Pretreatment Wash Primer	420 (3.5)	420 (3.5)	420 (3.5)	420 (3.5)
Solar Absorbent	420 (3.5)	360 (3.0)	420 (3.5)	360 (3.0)
All Other Coatings	340 (2.8)	275 (2.3)	275 (2.3)	275 (2.3)

3. Add definitions for “electrostatic spray,” “metal furniture,” and “multi-component coating.”
4. Increase the overall emissions control equipment efficiency from 85% to 90%.
5. Add an exemption for metal furniture coatings.
6. Add additional work practice requirements for disposal of cloth, paper, or sponges used for coating application; minimizing spillage of VOC-containing materials; and conveyance of VOC-containing materials using closed containers or pipes, to be consistent with the 2007 CTG for Metal Furniture Coatings and the 2008 Draft CTG for Miscellaneous Metal and Plastic Parts Coatings (dated July 3, 2008).
7. Revise the duration of records requirement from three to five years to be consistent with other District rules, and
8. Update the test methods to specify the most current test methods.

Rule 452

Rule 452 limits VOC emissions from can coating operations, which include coatings applied or intended for application onto the surfaces of metal cans or metal sheets, strips, rolls, and coils intended for can construction. The option of using of an emission control system instead of meeting the specified VOC emissions limits is available in this rule. The following amendments are proposed:

1. Add applicability and severability sections to the rule.
2. Lower the solvent VOC limits for cleanup of container assembly equipment from 200 g/l to 25 g/l.
3. Lower the VOC limits for three piece can interior body spray and two piece can interior body spray to be consistent with the more stringent, feasible limits in BAAQMD Rule 8-11, SJVAPCD Rule 4604.
4. Separate the end sealing compound category into “end sealing compound for food/beverage cans” and “end sealing compound for non-food containers,” and

establish VOC limits that are lower than the current VOC limit for end sealing compound. The proposed VOC limits for the two subcategories are consistent with the more stringent, feasible limits in SCAQMD Rule 1125.

5. Add a definition of "dip coat," "electrostatic spray," "flow coat," "food/beverage can," ""hand application equipment," "high-volume low-pressure application equipment," "low-volume low-pressure application equipment," and "roll coater."
6. Add section for application equipment requirements, consistent with the requirements in the other current District coating rules, with an additional option to use emissions control equipment that achieves an overall system efficiency of at least 85.5%. This requirement is consistent with current permit conditions and ensures that the emissions control equipment achieves an emission reduction equivalent to the use of HVLP.
7. Add equations for calculation of overall system efficiency, of VOC content of cleanup material, and of percent control efficiency and VOC mass emission rate.
8. Increase the required emissions control equipment efficiency from 85.5% to 90%, except when emissions control equipment is used as an application method as given under the application equipment requirements in new Section 304.
9. Revise the duration of records requirement from two to five years to be consistent with other District rules, and
10. Update the test methods to specify the most current test methods.

Rule 454

Vapor and non-vapor degreasing operations are regulated under Rule 454. The proposed rule implements more stringent VOC limits for both types of degreasers. However, sources are still allowed to use an airtight/airless cleaning system in lieu of complying with the limits on VOC content.

Section 110.5 in the current rule exempts solvent degreasing operations using exempt compounds mixed with VOCs not exceeding 5% in weight. Staff proposes to eliminate this exemption because it duplicates the exemption in Section 110.3, which is being proposed to sunset one year after the adoption date of these amendments. Under the proposed amendments, all degreasers using solvents containing 25 g/l or less of VOCs will be exempt from the rule.

Staff is proposing to add an exemption for degreasing high-voltage microwave vacuum tubes, at the request of a facility within the District that manufactures these devices. Staff has reviewed detailed technical information submitted by this facility and concurs that the use of low-VOC solvents is technically infeasible for this application. The facility conducted testing of various low-VOC solvents and blends over the past three years and has been unable to find a suitable alternative to using 100% isopropyl alcohol for the cleaning of components during the manufacture and repair of high-voltage microwave vacuum tubes. The high-vacuum, high-voltage operation of the devices requires an ultra-low level of contamination by organic residues and moisture. Alternative low-VOC solvents were demonstrated to result in unacceptably high failure rates of these devices, which are the principal components of electronic radar-jamming devices. Some of these devices are used in aerospace applications, which are exempt under Rule 456. Staff researched the location of competitors for this source and identified SCAQMD and

BAAQMD. Staff reviewed the rules for these districts and contacted SCAQMD staff to discuss the compliance status of these facilities. It was determined that the cleaning of these devices with high VOC solvents is allowed under the existing rules for aerospace assembly operations.

The additional proposed changes to Rule 454 are presented below.

1. Lower the solvent VOC limits for non-vapor degreasing operations from 50 g/l to 25 g/l.
2. Add a new VOC limit of 25 g/l for vapor degreasing operations.
3. Add a definition of "water separator."
4. Add an exemption for degreasing of high-voltage microwave vacuum tubes.
5. Revise the duration of records requirement from three to five years to be consistent with other District rules, and
6. Update the test methods to specify the most current test methods.

Rule 456

The proposed changes to this rule, which limits solvent VOC emissions from aerospace assembly and coating operations, primarily involve the implementation of more stringent VOC limits. The use of an emission control system will remain as an alternative to compliance with the specified VOC standards. However, the proposed rule will remove the option of using an enclosed gun cleaner in lieu of complying with the specified VOC limit for the cleaning of spray guns. This proposed change is consistent with the SCAQMD solvent cleaning rules, which currently do not allow the use of enclosed gun cleaners as a compliance method.

Currently, Section 110 of Rule 456 provides a low-usage exemption for materials such as coatings, adhesives, maskants, and strippers that exceed the VOC limits in the rule, provided that the usage of such materials is less than 200 gallons per calendar year. Staff is proposing to lower the exemption level to 55 gallons per calendar year. The 55 gallon/year exemption level is consistent with the EPA Region IX "Little Bluebook" (*Guidance Document for Correcting Common VOC & Other Rule Deficiencies*, April 1, 1991, revised August 21, 2001). Section 401 requires facilities utilizing the low-usage exemption to submit annual reports showing the usage of these materials. Staff reviewed the recent annual reports and found that no facility used such materials in an amount greater than 55 gallons per calendar year.

Staff also proposes to revise the current rule language such that electrostatic spray guns are subject to the proposed VOC requirement for the cleaning of spray guns. This inclusion of electrostatic spray guns follows from the June 30, 2005 sunset of an exemption for electrostatic coating application equipment cleaning in SCAQMD Rule 1171.

In the current rule, Section 304.4 allows spray gun nozzles to be soaked in solvent-based materials in a tightly covered container not exceeding 5 gallons in size. Staff proposes to eliminate this section to be consistent with SCAQMD Rule 1171, which currently does not contain such a provision.

The following changes are also proposed:

1. Lower the solvent VOC limits for the cleaning of spray guns used in coating operations from 200 g/l to 25 g/l.
2. Add a sunset date for the option of using an enclosed gun cleaner in lieu of complying with the 25 g/l VOC limit for the cleaning of spray guns used in coating operations.
3. Revise the low usage exemption to lower usage limit from 200 gallons to 55 gallons to be consistent with other District rules and with EPA Region IX "Little Bluebook."
4. Add a definition of "electrostatic spray."
5. Revise the duration of records requirement from three to five years to be consistent with other District rules, and
6. Update the test methods to specify the most current test methods.

Rule 463

Rule 463 regulates VOC emissions from coatings, strippers, and surface preparation and cleanup materials used in wood products coating operations. The proposed rule lowers the VOC limit for surface preparation and cleanup. The current VOC limit for strippers is equivalent to the limit specified by SCAQMD, and therefore remains the same.

In the current rule, Section 308.1 allows spray gun nozzles to be soaked in solvent-based materials in a tightly covered container not exceeding 5 gallons in size. Staff proposes to eliminate this section to be consistent with SCAQMD Rule 1171, which currently does not contain such a provision.

Staff is proposing to limit the applicability of the emissions averaging provisions in Section 306 to a maximum of 20 gallons per year of noncompliant, refinishing coatings applied to historical reproductions of antique wood products. Only one facility in the District currently uses Section 306, Emissions Averaging Provisions, to comply with Rule 463. This change is being proposed to address requirements in the EPA Region IX "Little Bluebook" (*Guidance Document for Correcting Common VOC & Other Rule Deficiencies*, April 1, 1991, revised August 21, 2001) and RACT requirements for major sources.

The proposed changes to this rule are indicated below.

1. Add a severability section to this rule.
2. Remove the exemption pertaining to stencil coatings used in compliance with U.S. Military Specifications. (Staff determined that the facility that used this exemption is no longer in operation.)
3. Lower the solvent VOC limit for surface preparation or cleanup from 200 g/l to 25 g/l.
4. Revise the equation for determining compliance with emissions limits for coatings.
5. Limit the applicability of Section 306, as described previously.
6. Add definition of "historical reproduction coating."
7. Revise the duration of records requirement from three to five years to be consistent

with other District rules, and
8. Update the test methods to specify the most current test methods.

Rule 464

Rule 464 limits VOC emissions from organic chemical plants. These are the proposed changes to Rule 464:

1. Lower the solvent VOC limit for maintenance solvent cleaning from 50 g/l to 25 g/l, and
2. Update the test methods to specify the most current test methods.

Rule 465

Rule 465 regulates emissions of VOCs from polyester resin operations, which include bathtub, shower, and sink manufacturers and spa and boat manufacturers. The proposed changes to Rule 465 are listed below.

1. Lower the solvent VOC limit for cleaning materials from 204 g/l to 25 g/l,
2. Increase the overall emissions control efficiency requirements from 85% to 90% to be consistent with the more stringent, feasible requirements in SCAQMD Rule 1162.
3. Revise the duration of records requirement from three to five years to be consistent with other District rules, and
4. Update the test methods to specify the most current test methods.

Rule 466

Rule 466 regulates emissions from solvent cleaning activities, which include repair and maintenance cleaning, architectural coating application equipment cleaning, cleaning during manufacturing, and surface preparation. The proposed amendments require general cleaning to be performed with materials that contain less than 25 grams per liter VOCs as applied. The proposed changes also involve lowering other VOC content limits, with various limits specified for each type of cleaning activity. For some cleaning activities, such as medical devices/pharmaceuticals and platelets, the VOC limits will remain unchanged. The proposed rule still allows the use of air pollution control equipment as an alternative to complying with the VOC limits proposed by the rule, although emission control systems must ensure that emissions are no greater than would have resulted from compliance with the applicable VOC limits. The rule also specifies cleaning method requirements, general equipment requirements, operating requirements, storage and disposal requirements, and recordkeeping requirements.

Staff is proposing to add an exemption for the cleaning of high-voltage microwave vacuum tubes, at the request of a facility within the District that manufactures these devices. Staff has reviewed detailed technical information submitted by this facility and concurs that the use of low-VOC solvents is technically infeasible for this application. The facility conducted testing of various low-VOC solvents and blends over the past three years and has been unable to find a suitable alternative to using 100% isopropyl alcohol for the cleaning of components during the manufacture and repair of high-

voltage microwave vacuum tubes. The high-vacuum, high-voltage operation of the devices requires an ultra-low level of contamination by organic residues and moisture. Alternative low-VOC solvents were demonstrated to result in unacceptably high failure rates of these devices, which are the principal components of electronic radar-jamming devices. Some of these devices are used in aerospace applications, which are exempt under Rule 456. Staff researched the location of competitors for this source and identified SCAQMD and BAAQMD. Staff reviewed the rules for these districts and contacted SCAQMD staff to discuss the compliance status of these facilities. It was determined that the cleaning of these devices with high VOC solvents is allowed under the existing rules for aerospace assembly operations.

The current exemption in Section 110.2(g) for electrostatic coating application equipment cleaning is being proposed for removal, consistent with the June 30, 2005 sunset of an exemption for this cleaning category in SCAQMD Rule 1171.

Staff also proposes to add a specific exemption from the solvent cleaning requirements for the stripping of cured inks, cured coatings, and cured adhesives. Since the current definition of solvent cleaning already implies that the stripping of such cured materials is exempt, this new exemption is for clarification purposes only.

In the current rule, Section 302.8 allows spray gun nozzles to be soaked in solvent-based materials in a tightly covered container not exceeding 5 gallons in size. Staff proposes to eliminate this section to be consistent with SCAQMD Rule 1171, which currently does not contain such a provision.

The additional proposed changes are specified below.

1. Lower the solvent VOC limits for several cleaning categories, as shown in the following table.

Solvent Cleaning Activity	VOC Content g/l (lb/gal)	
	Prior to (one year after date of adoption)	**Effective (one year after date of adoption)**
General (wipe cleaning, maintenance cleaning)	50 (0.42)	25 (0.21)
Product Cleaning During Manufacturing Process or Surface Preparation for Coating, Adhesive, Sealants, or Ink Application		
General	50 (0.42)	25 (0.21)
Electrical Apparatus Components and Electronic Components	500 (4.2)	100 (0.83)
Medical Devices and Pharmaceuticals	800 (6.7)	800 (6.7)
Platelets	800 (6.7)	800 (6.7)
Repair and Maintenance Cleaning		
General	50 (0.42)	25 (0.21)
Electrical Apparatus Components and Electronic Components	900 (7.5)	100 (0.83)
Medical Devices and Pharmaceuticals		
General Work Surfaces	600 (5.0)	600 (5.0)
Tools, Equipment, and Machinery	800 (6.7)	800 (6.7)
Platelets	800 (6.7)	800 (6.7)

Solvent Cleaning Activity	VOC Content g/l (lb/gal)	
	Prior to (one year after date of adoption)	Effective (one year after date of adoption)
Architectural Coating Application Equipment		
Water based Coatings		
Enclosed Gun Cleaner	No limit	25 (0.21)
No Enclosed Gun Cleaner	50 (0.42)	25 (0.21)
Solvent based Coatings		
Enclosed Gun Cleaner	No limit	25 (0.21)
No Enclosed Gun Cleaner, cleaning at jobsite	300 (2.5)	25 (0.21)
No Enclosed Gun Cleaner, cleaning not at jobsite	50 (0.42)	25 (0.21)
Sterilization of food manufacturing and processing equipment	No limit	200 (1.68)

2. Revise the duration of records requirement from three to five years to be consistent with other District rules,
3. Add a new VOC limit of 200 g/l for the sterilization of food product manufacturing and processing equipment (shown in the table above).
4. Add definitions of "general work surface," "jobsite," "pharmaceutical product," "solvent based coating," "water based coating," "sterilization," "food manufacturing and processing operation," "stripping," and "cured coating, cured ink, or cured adhesive," using the same definitions as those in the SCAQMD rules, and
5. Update the test methods to specify the most current test methods.
6. Remove the exemption for the cleaning of electrostatic application equipment.
7. Add an exemption for the cleaning of high-voltage microwave vacuum tubes.

EMISSIONS IMPACT

In most cases, emissions reductions for individual cleaning categories were calculated by multiplying the percentage reduction for that category by its corresponding emissions inventory. Percentage reductions were computed by comparing the current VOC limit to the proposed limit. (For example, the lowering of a VOC limit from 100 g/l to 25 g/l represents a 75% reduction.) Because more specific information is not available, these emissions calculations assume that all sources performing the specific cleaning activity use products matching the current VOC limit, and will replace them with products matching the proposed VOC limit.

A different approach was used to calculate emission reductions for categories for which all affected sources could be identified. In these cases, more precise emissions reductions were computed by comparing the actual VOC content of the current products to the proposed VOC limits. The amounts of solvent products currently used by affected facilities were obtained though telephone inquiries and annual emission inventory surveys of these facilities. Usage amounts are not expected to change when switching from the current product to a compliant, low VOC product. Staff also assumed that current annual solvent usage amounts are representative of usage levels in 2010 (the year for which the emission reductions were estimated).

Staff expects that compliance with the lower VOC limits will be achieved, in many cases, by using acetone (an exempt compound), or by using mixtures of acetone and other exempt compounds. The assumption that the VOC content of replacement materials will match the VOC limits leads to conservative estimates of the emission reductions.

The total emission of VOC from all solvent cleaning operations, in the absence of the proposed amendments, is projected to be 498 tons per year in 2010. The allocation of this inventory to specific activities covered by individual rules in presented in Appendix C.

Rule 450

As shown in Appendix C, the estimated 2010 emissions inventory for solvent cleaning activities associated with Rule 450 is 80.82 tons per year of VOC. The proposed amendments to the rule are expected to result in an overall VOC emission reduction of 55.16 tons per year. The VOC emission reductions were estimated based on the following information:

1. Estimated 2010 emissions inventory for Rule 450 in Appendix C, and
2. The 2004 SCAQMD emissions inventory (from the 4/19/05 staff report for SCAQMD Rule 1171) to estimate the % of each graphic arts related cleaning activity, as shown in the following table. (The 2004 SCAQMD emissions inventory represents the last inventory prior to implementation of reduced VOC limits in 2005 and 2006 for Rule 1171.) Graphic arts-related cleaning processes within Sacramento County are expected to be similar to the SCAQMD. These percentages were applied to the 2010 emissions inventory to approximate the annual emissions for each cleaning activity. Except for newsprint and UV/electron beam inks, emissions reductions were calculated by using the current-to-proposed VOC limit comparison described in the beginning of the Emissions Impact section.

Cleaning Activity	% of Rule 450 inventory	2010 Emissions Inventory (Tons/year)	Current VOC limit (g/l)	Proposed VOC limit (g/l)	% VOC Emissions Reduction	2010 VOC Emissions Reduction (Tons/year)
Repair & Maintenance Cleaning						
(i) General*	0.00%	0.00	72	25	65.28%	0
Ink Application Equipment Cleaning						
(i) General	0.96%	0.78	100	25	75.00%	0.58
(ii) Flexographic or Gravure	5.02%	4.05	100	25	75.00%	3.04
(iii) Litho/Letterpress						
(1) Roller Wash-Blanket Wash & Metering Rollers & Printing Plates						
(a) Newsprint	2.70%**	2.18**	300	100	83.49%**	1.82**
(b) Other Substrates	67.33%	54.41	300	100	66.67%	36.28
(2) Removable Press Components	0.58%	0.47	100	25	75.00%	0.35
(iv) Screen Printing	20.45%	16.53	300	100	66.67%	11.02
(vi) UV/Electron Beam Ink	0.85%**	0.69**	800	100	82.60%**	0.57**
(vii) Specialty Flexographic	2.12%	1.72	810	100	87.65%	1.50
TOTAL	100.00%	80.82			68.25%	55.16

* Based on annual District survey data of permitted sources, general repair and maintenance cleaning solvent emissions are minimal.

** For these categories, all sources were readily identified using the District permit database and other permit records. Annual emission inventory surveys, telephone surveys, and annual permit inspection reports provided the annual solvent usage amounts and VOC contents of current products necessary to compute more precise VOC emission inventories and reductions for each facility identified. Note that the VOC content of current products may exceed current limits if products comply with the low vapor pressure option.

No emissions reductions will result from the amendments proposed to address the 2006 CTGs for graphic arts. According to District permitting records, all sources are already in compliance with the proposed VOC limits for fountain solutions. Of the 22 sources that conduct sheet-fed offset lithographic printing operations, six will be exempt (their emissions are below 15 lbs/day) and the rest currently use fountain solutions achieving the proposed VOC limits. Of the six sources that conduct coldset web offset lithographic printing operations, three will be exempt (their emissions are below 15 lbs/day) and the other three currently use fountain solutions containing less than 5% alcohol substitute. All four facilities conducting heatset web offset lithographic printing operations are using fountain solutions compliant with the proposed VOC limits. The graphic arts facilities that use presses exceeding the 25 tons/year potential to emit level already use emissions control equipment that achieve the proposed overall system efficiency levels.

Each amendment will result in the following VOC emission reductions, calculated for 2010:

Requirement	**VOCs Reduced Tons/year**
General Repair and Maintenance Cleaning	0
Application Equipment Cleaning	
1. General (not specifically listed)	0.58
2. Lithographic & Letter Press Printing, Blanket & Roller Washes Metering Rollers and Printing Plates, Newsprint	1.82
3. Lithographic & Letter Press Printing, Blanket & Roller Washes Metering Rollers and Printing Plates (Except Newsprint)	36.28
4. Lithographic & Letter Press Printing, Removable Press Components	0.35
5. Screen Printing	11.02
6. Flexographic Printing	3.04
7. Specialty Flexographic Printing	1.50
8. Ultraviolet Inks (Except Screen Printing)	0.57
2006 CTG requirements for fountain solutions and control equipment	0
Total	55.16

Rule 451

Staff identified 61 permitted metal parts/products coating operations in the District permit database. The estimated VOC emissions inventory for solvent cleaning activities associated with Rule 451 in 2010 is 11.09 tons per year, 7.15 tons per year of which are

attributed to application equipment cleaning and 3.94 tons per year to surface preparation/cleanup (see Appendix C). The anticipated emission reduction for 2010 for surface preparation, product cleaning, and application equipment cleanup is a combined 163 pounds per year. This reduction is relatively small because only five facilities currently use noncompliant material, according to annual facility inspection reports. Annual emissions inventory survey data showed that four of these facilities have small annual usage totals for these products, while one facility reported high usage of a product only slightly exceeding 25 g/l. The other facilities already meet the proposed standards, either by using the low usage exemption, exempt compounds (such as acetone), or soap and water.

No emissions reductions will result from the amendments proposed to address the 2007 CTG for metal furniture coatings. According to District permitting records, only one source currently conducts metal furniture coating operations. However, this facility only conducts powder coating operations, and its total annual emissions from such coating operations fall well below the applicability threshold of 3 tons of VOC per 12-month rolling period. Based on permitting records, Staff also determined that none of the existing facilities subject to Rule 451 use emissions control equipment.

Rule 452

The estimated 2010 VOC emissions inventory for solvent cleaning associated with Rule 452 is 13.31 tons per year for application equipment cleaning, as shown in Appendix C. There is currently only one can coating operation, Silgan Can Company. No emissions reductions will result from the proposed rule because Silgan does not use VOC containing solvents for cleaning, already meets the proposed lower VOC limits for can coating, and uses emissions control equipment to comply with the application equipment requirements in Section 304, which specifies the same overall control efficiency (85.5%) required under the current rule. Information contained in the annual emission inventory survey indicates that only exempt compounds are used for cleaning.

Rule 454

As shown in Appendix C, the estimated 2010 VOC emissions inventory for solvent cleaning associated with Rule 454 is 101.97 tons per year. The proposed amendments to the rule are expected to result in an overall VOC emission reduction of 50.99 tons per year, calculated for 2010.

Each amendment will result in the following VOC emission reductions:

Requirement	**VOCs Reduced Tons/year**
Non-vapor degreasing	50.29
Vapor degreasing	0.7

Rule 456

The estimated 2010 VOC emissions inventory for solvent cleaning activities associated with Rule 456 is 14.32 tons per year, 9.03 tons per year of which are attributed to application equipment cleaning and 5.29 tons per year to surface preparation/cleanup. There are currently two facilities that conduct aerospace application equipment cleanup using noncompliant material. These facilities use high VOC materials in enclosed gun cleaners, which can no longer be used for compliance with the proposed VOC limits. Assuming that enclosed gun cleaners result in VOC emissions equivalent to the current VOC limit (200 g/l) for application equipment cleanup, the proposed requirements are expected to result in an overall emission reduction of 17 pounds per year. This reduction is based on the usage rates for the only two facilities that use noncompliant material.

Rule 463

Despite no current requirement to use low VOC products for surface preparation/cleanup, all permitted sources already voluntarily perform surface preparation or cleanup activities using acetone or water. Because of the widespread, voluntary use of acetone for this cleaning activity, Staff has no reason to expect that unpermitted sources use VOC containing solvents. However, the current inventory for this category still assumes that wood coating sources use VOC-containing solvents. As given in Appendix C, the estimated 2010 VOC emissions inventory for solvent cleaning associated with this rule is 24.75 tons per year, consisting of 22.33 tons per year from application equipment cleaning and 2.42 tons per year from surface preparation/cleanup. Emission reductions were estimated by applying an 87% reduction (the VOC limits are lowered from 200 g/l to 25 g/l) to both the surface preparation and cleanup inventories. The adoption of the new requirements will result in an inventory reduction of 21.4 tons per year of VOC for this rule.

Rule 464

None of the three facilities currently regulated by Rule 464 currently use solvent-based materials for maintenance cleaning in organic chemical manufacturing operations. Water-based detergent solutions are used for this purpose. No emissions reductions will result from the proposed rule.

Rule 465:

The five permitted sources in Sacramento County that conduct polyester resin operations use acetone in their cleaning activities. However, the inventory for this category still assumes that polyester resin operations use VOC-containing solvents. As computed in Appendix C, the estimated 2010 VOC emissions inventory for solvent cleaning activities associated with this rule is 1.97 tons per year, consisting of 1.44 tons per year from application equipment cleaning and 0.52 tons per year from surface preparation/cleanup. Emission reductions were estimated by applying an 87% reduction (the VOC limits are lowered from 204 g/l to 25 g/l) to both the surface preparation and cleanup inventories. The adoption of the new requirements will result in an inventory

reduction of 1.72 tons per year of VOC for this category.

Rule 466

The estimated 2010 VOC emissions inventory for solvent cleaning activities associated with Rule 466 is 141.91 tons per year, as shown in Appendix C. The proposed amendments to the rule are expected to result in an overall VOC emission reduction of 66.24 tons per year (see below). The VOC emissions inventory and reductions were estimated based on the following information:

1. Architectural coating equipment cleaning category: The 2010 CARB Ozone SIP Planning Inventory, Version 1.06, Sacramento NAA (Rf#980), November 16, 2006, was used (www.arb.ca.gov/app/emsinv/o3sip/fcemssumcat_o3v106.php). The inventory for this category is 82.82 tons per year. This inventory consists of both cleaning for water-based coatings and cleaning for solvent-based coatings A composite emissions reduction percentage of 57.1% was calculated based upon the assumption that 83% of architectural solvent usage is attributed to the water-based coatings subcategory (refer to the CARB report entitled "New Method for Estimating Emissions from Thinning and Cleanup Solvents," March 9, 2006), and the remaining 17% of the usage is attributed to solvent-based coating cleaning. The emissions reduction is an estimated 47.34 tons per year.

2. All other solvent cleaning categories in Rule 466: The 2004 SCAQMD emissions inventory (see previous discussion for Rule 450) was used to establish the percentage breakdown for each solvent cleaning activity related to Rule 466. These cleaning processes within Sacramento County are expected to be similar to the SCAQMD. The percentage breakdown is shown in the table below. These percentages were applied to the remaining 2010 emissions inventory (see Appendix C) of 141.91-82.82 = 59.09 tons per year to approximate the annual emissions for each cleaning category. The current-to-proposed VOC limit comparison was then used to estimate the emissions reductions shown in the following table. The total emissions reduction for these solvent cleaning categories is 17.16 tons per year.

Cleaning Activity	**% of Rule 466 inventory (excluding architectural coating equipment cleaning)**	**2010 Emissions Inventory (Tons/year)**	**Current VOC limit (g/l)**	**Proposed VOC limit (g/l)**	**% VOC Emissions Reduction**	**2010 VOC Emissions Reduction (Tons/year)**
(A) Product Cleaning & Surface Preparation						
(i) General	10.77%	6.36	50	25	50.00%	3.18
(ii) Electrical/Electronic Apparatus & Components	20.05%	11.85	500	100	80.00%	9.48

Cleaning Activity	% of Rule 466 inventory (excluding architectural coating equipment cleaning)	2010 Emissions Inventory (Tons/year)	Current VOC limit (g/l)	Proposed VOC limit (g/l)	% VOC Emissions Reduction	2010 VOC Emissions Reduction (Tons/year)
(iii) Medical Devices &Pharmaceuticals	29.09%	17.19	800	800	0.00%	0.00
(B) Repair & Maintenance						
(i) General	8.25%	4.88	50	25	50.00%	2.44
(ii) Electrical/Electronic Apparatus & Components	3.93%	2.32	900	100	88.89%	2.06
(iii) Medical Devices & Pharmaceuticals						
(A) Tools, Machinery & Equipment	15.72%	9.29	800	800	0.00%	0.00
(B) General Work Surfaces	12.19%	7.20	600	600	0.00%	0.00
TOTAL	100.00%	59.09			29.04%	17.16

3. Methods #1 and #2 above were not used to calculate the emission reductions for food equipment sterilization. These emission reductions are based on annual emission inventory surveys, telephone surveys, and permit records. These reductions were calculated using the same methods as described above for readily identifiable sources. The estimated emission reduction is 1.74 tons per year.

The table below summarizes the VOC emission reductions:

Requirement	VOCs Reduced Tons/year
Product Cleaning During Manufacturing Process or Surface Preparation for Coating, Adhesive, Sealants, or Ink Application	
1. General	3.18
2. Electrical Apparatus Components and Electronic Components	9.48
3. Medical Devices and Pharmaceuticals	0 (no change in VOC limit)
4. Platelets	0 (no change in VOC limit)
Repair and Maintenance Cleaning	
1. General	2.44
2. Electrical Apparatus Components and Electronic Components	2.06

Requirement	VOCs Reduced Tons/year
3. Medical Devices and Pharmaceuticals-General Work Surfaces	0 (no change in VOC limit)
4. Medical Devices and Pharmaceuticals-Tools, Equipment, and Machinery	0 (no change in VOC limit)
5. Platelets	0 (no change in VOC limit)
Architectural Coating Application Equipment	
1. Water-based Coatings	47.34 (combined)
2. Solvent-based Coatings	
Sterilization of food product manufacturing and processing equipment	1.74
Total	66.24

Total Emission Reduction for All Rules:

The total reduction in VOC emissions from the amendment of all nine rules is 195.64 tons per year, calculated for 2010. The table below summarizes the emission reductions for each rule.

Rule	VOCs Reduced Tons/year
450	55.16
451	0.081
452	0
454	50.99
456	0.008
463	21.44
464	0
465	1.72
466	66.24
Total	**195.64**

COST IMPACT

Section 40703 of the California Health and Safety Code requires that districts consider and make public findings relating to the cost effectiveness of implementing an emission control measure.

Cost to Businesses:

The majority of the proposed solvent cleaning limits are not expected to result in additional costs to the industry because compliant products, which have been readily available for some time, do not cost more than the materials currently used, with exceptions noted in the following sections. SCAQMD has released several technology

assessments in 2003 and 2006 demonstrating that, for many cleaning applications, current cleaning products can be diluted with water or blended with other compliant products to form a compliant cleaning material that is also equally effective. These technology assessments are available at http://www.aqmd.gov/rules/support.html#r1171.

A technology assessment[1] performed by SCAQMD concluded that compliant products for the cleaning of application equipment are readily available in the market and do not result in additional costs to industry. SCAQMD has published a list of "Clean Air Solvents," defined as solvents with VOC concentrations not greater than 25 g/l, that comply with both SCAQMD Rules 1122- Solvent Degreasers and 1171- Solvent Cleaning Operations. Businesses looking for information on compliant products will find further information at the SCAQMD Clean Air Solvent Certification Program at http://www.aqmd.gov/rules/cas/index.html.

The cost information presented below is primarily based on SCAQMD cost estimates, which are applicable because industry processes in SCAQMD are similar to those in SMAQMD. Staff expects that sources in SMAQMD can readily replace their current products with the compliant products because they are currently available in SCAQMD.

The following sections provide additional cost information for each proposed rule.

Rule 450

General Wipe Cleaning: There will be no additional costs for this category. Low VOC cleaners are detergent-based and cost more per gallon than solvent-based cleaners, but can be diluted with water, resulting in a lower total cost.

Application Equipment Cleaning - Roller and Blanket Washes, Metering Rollers and Printing Plates, and Other On-Press Components: Based on the March 2006 SCAQMD technology assessment for lithographic printing, the cost of compliant material is approximately $16 per gallon, while the approximate average cost of the current cleaning products is $6.60 per gallon.

Application Equipment Cleaning – Removable Press Components: According to the 9/27/99 staff report for SCAQMD Rule 1171, the proposed requirements will result in increased costs if handwiping is performed, but no additional costs if remote reservoir cleaners are used (see the 8/15/96 staff report for SCAQMD Rule 1171 for cost effectiveness analysis for remote reservoir cleaners). SCAQMD estimates that 75% of the emissions from this category are from handwipe operations and the remaining 25% are from using remote reservoir cleaners. SCAQMD states that current handwiping materials can be blended with acetone, a mixture of acetone, MeAc, and PCBTF, or a mixture of MeAc and PCBTF to achieve the proposed 25 g/l limit, for an average cost of $19 per gallon. The approximate average cost of the current cleaning products is $9 per gallon.

[1] "Assessment, Development and Demonstration of Low-VOC Cleaning Systems for South Coast Air Quality Management District Rule 1171," SCAQMD, August 2003.

Application Equipment Cleaning – Screen Printing: Based on the May 2006 SCAQMD technology assessment for screen printing, the cost of a typical compliant material is approximately $10.90 per gallon, while the typical cost of the current cleaning products is approximately $13 per gallon. Most screen printing operations are expected to reduce costs by switching to the lower VOC cleaning materials.

Application Equipment Cleanup – Flexographic Printing: The proposed requirements applicable to flexographic printing are not expected to result in an increase in cost to affected businesses, according to SCAQMD's industry sources (1999 staff report for SCAQMD Rule 1171).

Application Equipment Cleanup – Specialty Flexographic Printing: The proposed requirements applicable to specialty flexographic printing are expected to result in cost savings for affected businesses, according to the 9/27/99 staff report for SCAQMD Rule 1171. SCAQMD states that the 100 g/l limit can be met by blending VOC materials currently used (IPA) with water. The estimated cost of this mixture is $1 per gallon, whereas the cost of IPA is approximately $6 per gallon.

Application Equipment Cleanup – Ultraviolet/Electron Beam Inks: The 650 g/l VOC limit was implemented by SCAQMD in July 2006. According to the June 2006 SCAQMD Rule 1171 staff report, SCAQMD expects no additional compliance costs associated with this new VOC limit. SCAQMD also states that compliant products are readily available and their costs are comparable to that of existing high-VOC solvents.

The eventual VOC limit of 100 g/l (effective 1/1/2010) is expected to result in cost savings for the one permitted source that performs application equipment cleanup of UV/electron beam inks. This facility uses a UV wash costing $6 per gallon, according to a recent telephone survey. The 9/27/99 staff report for SCAQMD Rule 1171 estimates that a compliant product (a blend of IPA, the current VOC material, with water) costs $1 per gallon.

Fountain Solutions and Control Equipment: As described earlier, no graphic arts facilities will be affected by the proposed changes for fountain solutions and control equipment because they either will be exempt or already use solvents or control equipment achieving the proposed, CTG-recommended requirements. Therefore, no additional compliance costs will be incurred.

Rule 451

Application Equipment Cleanup: The proposed requirements are expected to result in cost savings for affected businesses. According to the November 2003 staff report for SCAQMD Rule 1171, the average cost of compliant material (consisting of such products as acetone, a mixture of acetone and PCBTF, and a mixture of acetone and sulfonic acid) is $11 per gallon. The average cost of currently used material is $14.16 per gallon.

Product Cleaning or Surface Preparation: SCAQMD stated in the 1999 staff report for Rule 1171 that reducing the VOC limit from 70 g/l to 25 g/l would not result in increased cost due to minimal material substitution necessary to lower the VOC content. For the same reason, Staff believes that lowering this VOC limit from 72 g/l to 25 g/l will not increase costs.

SCAQMD has found that cleaning products meeting the 25 g/l VOC limit are comparable to those complying with the 50 g/l limit (as well as those complying with the previous limit of 70 g/l) in terms of average price. Staff therefore believes that lowering the limit from 72 g/l will not lead to additional compliance costs.

Metal Furniture Coatings and Control Equipment: District permitting records indicate that only one facility in Sacramento County conducts metal furniture coating operations. However, this facility only conducts powder coating operations, and its total annual emissions from such coating operations fall well below the applicability threshold of 3 tons of VOC per 12-month rolling period. Based on permitting records, staff also determined that none of the existing facilities subject to Rule 451 use emissions control equipment. Therefore, the proposed CTG-recommended amendments will not lead to additional compliance costs.

Rule 452

The only source affected by this proposed rule is already in compliance with the proposed rule. As a result, no additional compliance costs are incurred.

Rule 454

In the previous amendment of Rule 454, Staff found that almost all of the regulated facilities were using solvent type parts cleaners, which are usually leased. With the eventual adoption of the amendment, the affected sources were essentially required to replace these degreasers with new units that are designed to be used with aqueous cleaners since almost all of the low VOC cleaners are aqueous. Those same sources, which have since installed aqueous cleaning equipment, do not need to replace their cleaning systems again because the new rule requires them only to switch to another aqueous material with lower VOC content. There will be no additional compliance costs associated with Rule 454 because no cleaning system replacement is necessary and the cost of compliant materials is comparable to the current aqueous products used.

Rule 456

Compliance costs are expected to decrease for the two sources that currently perform spray gun cleaning using noncompliant materials. The average cost of the noncompliant material is $23.40 per gallon, while the average cost of compliant material, as given in the November 2003 staff report for SCAQMD Rule 1171, is $11 per gallon. Examples of compliant materials include acetone, an acetone/PCBTF blend, and an acetone/ sulfonic acid blend.

Rule 463

The proposed amendments are not expected to result in a change in cost for affected businesses because they are already using exempt compounds. Acetone, an exempt compound, is currently used in surface preparation operations.

Rule 464

Facilities currently regulated by Rule 464 use water-based detergent solutions for maintenance cleaning in organic chemical manufacturing operations. Because these materials already comply with the proposed limits, there will be no additional costs.

Rule 465

There will be no additional compliance costs associated with the proposed amendments. Acetone is the cleaning product used in polyester resin operations.

Rule 466

General Product Cleaning/ Surface Preparation, General Repair/Maintenance Cleaning, Cleaning of Architectural Coating Application for Solvent-based coatings (for cleaning not performed at jobsite) and Water-based coatings, and Spray gun cleaning: There is no expected cost increase for these categories because sources are already using aqueous cleaners or acetone to meet the current 50 g/l VOC limit. The proposed rule will require some sources to switch from one aqueous cleaning solvent to another comparably-priced material that meets the new VOC limit.

Product Cleaning/ Surface Preparation- Electrical Apparatus and Electronic Components: The proposed requirements applicable to cleaning of electrical components are expected to result in either cost savings or increases for affected businesses, depending on the compliant product a particular source chooses. The following table summarizes the approximate cost of current cleaning products and their potential replacements. The cost data is based on the 9/27/99 staff report for SCAQMD Rule 1171.

Category	Cost of Current Material (500 g/l)	Cost of Compliant Material (100 g/l)
Printed circuit boards	$3 per gallon (mixture of deionized water and IPA)	$1 per gallon (mixture of deionized water and IPA)
Other electrical and electronic components	$5 per gallon (mixture of current material with acetone) Or $14 per gallon (mixture of current material with exempt solvent blend*)	$3 per gallon (mixture of current material with acetone) Or $21 per gallon (mixture of current material with exempt solvent blend*)

*Note: Exempt solvent blend is a mixture of acetone, methyl acetate, and parachlorobenzotrifluoride. Estimated cost of this mixture is $23 per gallon, according to the 9/27/99 staff report for SCAQMD Rule 1171.

Repair/Maintenance Cleaning- Electrical Apparatus and Electronic Components:

The proposed requirements applicable to repair/maintenance cleaning of electrical components are expected to result in either cost savings or increases for affected businesses, depending on the compliant product a particular source chooses. The table below summarizes the approximate cost of current cleaning products and their potential replacements. The cost data is based on the 9/27/99 staff report for SCAQMD Rule 1171.

Category	Cost of Current Material (900 g/l)	Cost of Compliant Material (100 g/l)
Printed circuit boards	$6 per gallon (IPA)	$1 per gallon (mixture of deionized water and IPA)
Other electrical and electronic components	$6 per gallon (IPA)	$3 per gallon (mixture of current material with acetone) Or $21 per gallon (mixture of current material with exempt solvent blend)

*Exempt solvent blend is a mixture of acetone, methyl acetate, and parachlorobenzotrifluoride. Estimated cost of this mixture is $23 per gallon, according to the 9/27/99 staff report for SCAQMD Rule 1171.

Architectural Coating Application Equipment- Solvent based Coatings (for cleaning performed at jobsite):

Sources that perform this type of cleaning at the jobsite currently use a mixture of thinner, acetone and other exempt solvents to meet the 300 g/l limit. There will be an increase in compliance cost. The cost data shown in the table below was taken from the 5/23/02 staff report for Rules 454 and 466 and the 9/27/99 staff report for SCAQMD Rule 1171.

Cost of Current Material (300 g/l)	Cost of Compliant Material (25 g/l)
$7 per gallon (mixture of thinner, acetone and other exempt solvents)	$19 per gallon (mixture of current material with acetone and other exempt solvents)

Sterilization of food product manufacturing and processing equipment:

The proposed requirements applicable to food manufacturing/processing equipment sterilization are expected to result in cost savings for affected businesses. Staff identified one source that currently conducts this sterilization process. This facility will be able to meet the 200 g/l VOC limit by diluting their current VOC product (IPA) with water. This compliance method has been proven to be sufficient for accomplishing the FDA-required sterilization for sources subject to a similar VOC standard in SCAQMD. (Please refer to the 8/23/00 staff report for SCAQMD Rule 1131 for supporting documentation.) The cost data of the current non-compliant material is based on a price quote from an online vendor for a 500 gallon drum of sterilizing product. Diluting with water will lower the IPA usage at this facility to 35% of the current usage.

Category	Cost of Current Material (571 g/l)	Cost of Compliant Material (200 g/l)
Sterilization of food product manufacturing and processing equipment	$13.61 per gallon (IPA)	$4.76 per gallon (mixture of water and IPA)

Overall Rule Cost Effectiveness:

The cost effectiveness estimates for the rule amendments are shown in the following table. The rule-by-rule cost data in the preceding “Cost Impact” section was used to calculate the overall compliance cost and the corresponding cost effectiveness for each rule. The sum of all compliance costs divided by the sum of all emission reductions (from the preceding “Emissions Impact” section) yields the overall cost effectiveness for the particular rule.

Rule	Cost Effectiveness
450	$3.70 per lb of VOC reduced
451	Cost savings
456	Cost savings
466	$3.70 per lb of VOC reduced

In year 2007 dollars, previously adopted District rules have cost effectiveness figures for VOC reductions ranging from $1.06 per pound of VOC reduced (for the 8/21/1990 adoption of Rule 452) to as much as $18.05 per pound of VOC reduced (for the 12/17/1991 adoption of Rule 449, Transfer of Gasoline into Vehicle Fuel Tanks).

Cost to the District:

The proposed amendments are not expected to result in additional costs to the District. Sources affected by the rule amendments are already subject to requirements under the existing rules.

SOCIOECONOMIC IMPACT

CHSC Section 40728.5 requires a district to perform an assessment of the socioeconomic impacts before adopting, amending, or repealing a rule that will significantly affect air quality or emission limitations. The District Board is required to actively consider the socioeconomic impacts of the proposal and make a good faith effort to minimize adverse socioeconomic impacts.

CHSC Section 40728.5 defines "socioeconomic impact" to mean the following:

1. The type of industry or business, including small business, affected by the proposed rule or rule amendments.
2. The impact of the proposed rule or rule amendments on employment and the economy of the region.
3. The range of probable costs, including costs to industry or business, including small business.
4. The availability and cost-effectiveness of alternatives to the proposed rule or rule amendments.
5. The emission reduction potential of the rule or regulation.
6. The necessity of adopting, amending, or repealing the rule or regulation to attain state and federal ambient air standards.

Type of industry or business, including small business, affected by the rule amendments:

Rule 450 applies to all graphic arts operations, including small businesses. According to the Sacramento County business directory, there are over 260 graphic arts operations in the District. All of these graphic arts operations are currently subject to the solvent cleaning limits in Rule 450 and will be affected by the proposed rule amendments.

There are 61 permitted metal parts and products coating operations that are currently subject to the requirements of Rule 451. Five of these operations will be affected by the new solvent cleaning limits in the proposed rule. All other operations already employ exempt compounds, water, or low-VOC material for surface preparation and/or equipment cleaning. As described earlier, none of the current sources subject to Rule 451 will be affected by the proposed CTG-recommended changes.

There is only one can coating process operating within the District. This source manufactures steel and aluminum containers used for food products like soup, meat, vegetables, and coffee. The proposed changes to Rule 452 will not affect this source because exempt compounds are already being used to clean container assembly equipment.

Rule 454 will affect all degreasing operations. The majority of degreasers in the District are parts cleaners, but only two parts cleaners are required to obtain air district permits because most parts cleaners are smaller than our 100 gallon exemption. All parts cleaners, however, are subject to Rule 454. Parts cleaners are widely used by automotive repair shops. According to the Bureau of Automotive Repair, there are over 1900 automotive repair operations in the county. In addition to the two permitted parts cleaners, there are three other permitted degreasing operations in the District.

Rule 456 will affect two aerospace coating operations. All other facilities are in compliance with the proposed VOC limits for spray gun cleaning, the only cleaning activity with a reduced VOC limit.

All wood products operations exceeding 55 gallons a year in coating and stripper usage are subject to the new requirements in Rule 463. Many of the wood products operations are conducted by small businesses that produce wood household furniture, kitchen cabinets, television cabinets, office furniture, and store fixtures. All permitted businesses are already in compliance with the proposed VOC content limits in this rule. Because of the widespread use of acetone, businesses that are exempt from permit requirements because of low usage are also expected to be in compliance with the proposed limits.

Organic chemical manufacturing operations with uncontrolled VOC emissions exceeding 15 pounds per day are required to comply with the requirements of the Rule 464. As mentioned earlier, none of the three facilities currently regulated by Rule 464 use solvent-based materials for maintenance cleaning, and are, therefore, already in compliance with the proposed rule.

Rule 465 will affect businesses that use polyester resins in their manufacturing process, which include tub, shower, and sink manufacturers and tomato bin manufacturers. There are currently seven facilities regulated by the rule. These sources and others with resin usage exceeding 20 gallons per month are subject to the new requirements. As previously stated, products currently used by these sources comply with the proposed rule.

Rule 466 was introduced in 2002 to address previously unregulated cleaning operations,

such as wipe cleaning and cleaning of medical devices and pharmaceuticals, electrical apparatus components and electronic components, and architectural application equipment. The proposed rule will continue to regulate these operations and other solvent cleaning operations not already addressed by the industry specific solvent cleaning rules.

Impact of rule amendments on employment and the economy in the District:

Amendments for two of the rules – Rule 450 and Rule 466 – will result in additional costs to businesses to comply with the new requirements. The increase in annual costs for the entire graphic arts industry is estimated to be $408,000 per year, or about $1,550 per year for each graphic arts operation. A socioeconomic impact analysis was performed by SJVUAPCD when they adopted nearly identical solvent cleaning requirements for graphic arts operations on September 20, 2007, and they concluded that compliance costs for the printing industry, as a percentage of net profits, were well below the level at which significant economic or employment impacts would occur. Printing operations in Sacramento County are similar to those in SJVUAPCD, and Staff expects that the proposed amendments to Rule 450 will not significantly impact employment or the economy in the District.

The amendments to Rule 466 are estimated to increase annual costs by a total of $489,000 per year, or about $130 per year for each affected business. These cost increases are relatively minor and are not expected to result in significant effects on employment or the economy in the District.

Range of Probable Costs of Rule Amendments: This is discussed under the "COST IMPACT" section above.

Availability and Cost-Effectiveness of Alternatives to Rules:

The most fundamental alternative to the proposed rules is to not amend them. However, the District is required by Section 40914(b)(2) of the Health and Safety Code to include in its state attainment plan “all feasible measures” to reduce ozone precursors. The proposed standards have been demonstrated as feasible in the SCAQMD, and consequently, the District committed to them in the 2003 Triennial Report. This evaluation confirms that the proposed changes provide substantive, cost effective emission benefits. Many of them provide cost savings. If the proposed rules are not adopted, the District will not fulfill this state plan commitment. Furthermore, the VOC emissions reductions will not be achieved, which could require the District to implement less cost effective measures for other sources in order to attain the federal 8-hour ozone standard.

Emission Reduction Potential: The proposed amendments to the rules will achieve an emission reduction of at least 195.64 tons per year of VOCs in 2010 (See discussion under Emissions Impact).

Necessity of Adopting, Amending, or Repealing the Rules of Regulation to Attain State and Federal Ambient Air Standards:

The proposed amendments to the solvent cleaning rules are necessary to comply with all feasible measures requirements and provide additional VOC emission reductions that contribute to the attainment of both the state and federal ozone standards, in Sacramento County and downwind areas.

INCREMENTAL COST EFFECTIVENESS ANALYSIS

Pursuant to Health and Safety Code Section 40920.6(a)(3), the District is required to perform incremental cost effectiveness analysis prior to adopting requirements for Best Available Retrofit Control Technology (BARCT) or a "feasible measure" requirement pursuant to HSC Section 40914. The District is required to identify one or more potential control options that achieve the emission reduction objective for the regulation. Staff evaluated the cost effectiveness of using alternative control options such as the use of air pollution control equipment, where feasible. Staff did not perform a cost effectiveness analysis where the use of air pollution control equipment is not feasible (e.g., wipe cleaning for equipment and machinery.) No other options could meet the emission reduction commitments for these rules.

The incremental cost effectiveness analysis performed for this rule is based on the Discounted Cash Flow cost analysis method to compute the present value of the proposed rule's costs over a 10-year period (the assumed equipment lifetime), using a 7.0% interest rate (based on a U.S. Treasury Security maturing in 10 years plus two percent.) The incremental cost effectiveness analysis was performed for the following:

1. Compliant materials (proposed control option);
2. Air pollution control equipment; and
3. Compliant materials and air pollution control equipment.

The incremental cost effectiveness was performed for the following control options:

1. Use of compliant materials vs. air pollution control equipment
2. Use of control equipment vs. air pollution control equipment and compliant material.
3. Use of compliant materials vs. air pollution control equipment and compliant material.

The following equation was used to calculate the incremental cost:

$$IC/E(\$/ton) = \left(\frac{PV_{option2} - PV_{opetion1}}{TER_{option2} - TER_{option1}} \right)$$

Where: IC = Incremental Cost ($)
E = Emission reduction (tons)

$PV_{option\ 2}$	=	Present value of control costs for option 2 ($/yr)
$PV_{option\ 1}$	=	Present value of control costs for option 1 ($/yr)
$TER_{option2}$	=	Total emission reduction for option 2 over a 10-year period (tons)
$TER_{option1}$	=	Total emission reduction for option 1 over a 10-year period (tons)

Rule 450

As discussed earlier, cost increases are expected for the cleaning of blanket and roller washes, metering rollers and printing plates, other on-press components, and removable press components.

As stated earlier, incremental cost effectiveness analysis was performed for compliant materials only, air pollution control (APC) equipment only, and both compliant materials and APC equipment. This analysis assumes typical press room dimensions of 40' W x 60' L x 20' H and 6 air changes occur per hour, thus requiring a blower with a flow rate with an airflow capacity of least 5,000 cubic feet per minute (CFM) The cost of APC equipment is based on actual cost data taken from the EPA Air Pollution Control Cost Manual, Sixth Edition. The costs of using a Calgon Carbon Corporation's High Flow Ventsorb System carbon adsorption system with a flow rate of 6,000 CFM— to accommodate the typical printing facility airflow rate of 5,000 CFM— was used for these calculations. The High Flow Ventsorb System represents the lowest priced carbon adsorption system (according to the EPA cost manual) with sufficient airflow capacity. This cost analysis also accounted for all capital costs and annual costs of using a carbon adsorption system. Capital costs include installation costs, equipment costs, and labor costs, and annual costs include carbon replacement costs, electricity costs, labor costs, property taxes, insurance, overhead, and administrative costs. The tables listing the cost effectiveness and incremental costs of these control options are shown below.

Control Option	Present Value of Cost	Annualized Cost	Total Emission Reduction	Cost Effectiveness	
	$	$/yr	Tons/year	$/ton	$/lb
Compliant Material	$2,867,214	$408,226	55.16	$7,400	$3.70
APC Equipment	$39,068,293	$5,562,446	53.74	$103,502	$51.75
Compliant & APC	$33,336,134	$4,746,315	72.22	$65,719	$32.86

Incremental Comparisons	IC/E ($/ton)	IC/E ($/lb)
Compliant material vs. add on control equipment	-$2,551,170	-$1,275
Compliant material vs. add on control equipment and compliant material	$178,599	$89.30

Based on the above analysis, it is not cost effective to require the use of APC equipment instead of compliant material because APC equipment costs more and reduces less VOCs. Also, the incremental cost effectiveness of using both compliant material and APC equipment vs. only compliant material also significantly exceeds $18.05/lb.

Rules 451, 452, 454, 456, 463, 464, and 465

Compliance costs are expected to decrease for sources regulated by Rules 451 and 456. Sources regulated by Rules 452, 463, 464, and 465 are already in compliance with the VOC limits proposed. No incremental cost effectiveness analysis is necessary for these rules.

Emission reductions will result from the proposed changes to Rule 454. However, incremental cost effectiveness analysis is not needed for these rules because there are no added compliance costs for this rule.

Rule 466

As stated earlier, incremental cost effectiveness analysis was performed for compliant materials only, air pollution control (APC) equipment only, and both compliant materials and APC equipment. Staff assumes the room dimensions and airflow requirements for a printing facility and a non-printing facility to be the same, since the 7/19/02 SCAQMD staff report for Rule 1171 states that the airflow requirement for a non-printing facility is approximately 5,000 CFM. Therefore, equipment, installation, and annual costs are assumed to be similar as well, and the costs computed for Rule 450 can be used here (only the annual emission reductions differ from that of Rule 450). The tables listing the cost effectiveness and incremental costs of these control options are shown below.

Control Option	Present Value of Cost	Annualized Cost	Total Emission Reduction	Cost Effectiveness	
	$	$/yr	Tons/year	$/ton	$/lb
Compliant Material	$3,437,559	$489,431	66.23	$7,390	$3.70
APC Equipment	$405,861,794	$57,785,588	121.33	$476,255	$238.13
Compliant & APC	$396,024,905	$56,385,037	130.94	$430,630	$215.32

Incremental Comparisons	IC/E ($/ton)	IC/E ($/lb)
Compliant material vs. add on control equipment	$730,276	$365
Compliant material vs. add on control equipment and compliant material	$606,699	$303

Based on the above analysis, the cost effectiveness of using APC equipment or using

both APC equipment and compliant material significantly exceeds the most expensive control measure ever required by the District, $18.05 per pound.

OTHER FACTORS:

Technological Feasibility: The VOC limits proposed in the solvent cleaning rules are based on requirements adopted and implemented by SCAQMD. Therefore, the proposed VOC limits are technologically feasible.

Enforceability: Reporting requirements and testing procedures have been included in the rules to increase enforceability, as required by EPA.

Public Acceptability: Similar requirements are currently implemented in SCAQMD. The rules have a future compliance timeline to allow time for affected businesses to identify and purchase the appropriate complaint materials. Therefore, Staff expects these rules and other associated costs to be acceptable to the public.

PUBLIC COMMENTS

Staff held a public workshop to discuss the proposed amendments on April 28, 2008. A public notice was mailed to interested parties including all permitted stationary sources, printing and automotive repair shops identified through the yellow pages, and all persons who have requested to receive rulemaking notices. The notice was posted on the District website, and the draft rules and staff report were made available for public review at that time.

Staff received several comments and questions at the workshop, as well as written comments from industry and CARB. All comments and responses are included in Appendix D.

ENVIRONMENTAL REVIEW AND COMPLIANCE

Staff finds that the proposed rules are exempt from the California Environmental Quality Act as an action by a regulatory agency for protection of the environment (Class 8 Categorical Exemption, Section 15308 State CEQA Guidelines) and because it can be seen with certainty that there is no possibility that the activity in question may have a significant adverse effect on the environment (Section 15061(b)(3), State CEQA Guidelines).

California Public Resources Code (Section 21159) requires an environmental analysis of the reasonably foreseeable methods of compliance. Compliance is expected to be achieved by the replacement of current cleaning solvents with compliant products. Compliant products may contain higher levels of exempt compounds, but these exempt compounds are generally less toxic than the VOC solvents they replace. The proposed rules will not increase emissions and will not cause any other significant adverse effects on the environment; therefore Staff has concluded that no environmental impacts will be

caused by compliance with the proposed rules.

FINDINGS

The California Health and Safety Code, Division 26, Air Resources, require local Districts to comply with a rule adoption protocol as set forth in Section 40727 of the Code. This section has been revised through legislative mandate to contain six findings that the District must make when developing, amending, or repealing a rule. These findings, effective January 1, 1992, and their definitions are listed in the table below.

Rule 450

FINDING	FINDING DETERMINATION
Authority: The District must find that a provision of law or of a state or federal regulation permits or requires the District to adopt, amend, or repeal the rule.	The District is authorized to adopt rules and regulations by California Health and Safety Code, Sections 40001, 40702, 40716, 41010 and 41013. (CHSC Section 40727(b)(2))
Necessity: The District must find that the rulemaking demonstrates that a need exists for the rule, or for its amendment or repeal.	Proposed amendments to Rule 450 are necessary in order to meet the Federal Clean Air Act Reasonably Available Control Technology requirements (Sections 182(b)(2) and 172(c)(1) (42 U.S.C. 7502 of the Federal Clean Air Act Amendments of 1990), 1994 Sacramento Area Regional Ozone Attainment Plan (CHSC Section 40913), the state's Best Available Retrofit Control Technology requirements (CHSC Section 40919(a)(3)), and "all feasible measures" requirement (CHSC Section 40914) for reducing volatile organic compound emissions from graphic arts operations. (CHSC Section 40727(b)(1))
Clarity: The District must find that the rule is written or displayed so that its meaning can be easily understood by the persons directly affected by it.	Staff has reviewed the proposed rule amendments and determined that they can be easily understood by the affected industry. In addition, the record contains no evidence that the persons directly affected by the rule can not understand it. (CHSC Section 40727(b)(3))
Consistency: The rule is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.	The proposed rule amendments do not conflict with and are not contradictory to, existing statutes, court decisions, or state or federal regulations. (CHSC Section 40727(b)(4))
Non-Duplication: The District must find that either: 1) The rule does not impose the same requirements as an existing state or federal regulation; or 2) that the duplicative requirements are necessary or proper to execute the powers and duties granted to, and imposed upon the District.	The proposed rule amendments do not duplicate any state laws or regulations, regarding the attainment and maintenance of state and federal air quality standards. (CHSC Section 40727(b)(5))
Reference: The District must refer to any statute, court decision, or other provision of law that the District implements, interprets, or makes specific by adopting, amending or repealing the rule.	CHSC Sections 40913, 40914 and 40919(a)(3), 41010; Sections 182(b)(2) and 172(c)(1) of the Federal Clean Air Act Amendments of 1990. (CHSC Section 40727(b)(6))

FINDING	FINDING DETERMINATION
Additional Informational Requirements (CHSC Section 40727.2): In complying with CHSC Section 40727.2, the District must identify all federal requirements and District rules that apply to the same equipment or source type as the proposed rule or amendments.	The discussion attached (Appendix A) contains a comparison of other requirements that apply to graphic arts operations. (CHSC Section 40727.2)

Rule 451

FINDING	FINDING DETERMINATION
Authority: The District must find that a provision of law or of a state or federal regulation permits or requires the District to adopt, amend, or repeal the rule.	The District is authorized to adopt rules and regulations by California Health and Safety Code, Sections 40001, 40702, 40716, 41010 and 41013. (CHSC Section 40727(b)(2))
Necessity: The District must find that the rulemaking demonstrates that a need exists for the rule, or for its amendment or repeal.	Proposed amendments to Rule 451 are necessary in order to meet the Federal Clean Air Act Reasonably Available Control Technology requirements (Sections 182(b)(2) and 172(c)(1) (42 U.S.C. 7502 of the Federal Clean Air Act Amendments of 1990), 1994 Sacramento Area Regional Ozone Attainment Plan (CHSC Section 40913), the state's Best Available Retrofit Control Technology requirements (CHSC Section 40919(a)(3)), and "all feasible measures" requirement (CHSC Section 40914) for reducing volatile organic compound emissions from surface coating of miscellaneous metal parts and products. (CHSC Section 40727(b)(1))
Clarity: The District must find that the rule is written or displayed so that its meaning can be easily understood by the persons directly affected by it.	Staff has reviewed the proposed rule amendments and determined that they can be easily understood by the affected industry. In addition, the record contains no evidence that the persons directly affected by the rule can not understand it. (CHSC Section 40727(b)(3))
Consistency: The rule is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.	The proposed rule amendments do not conflict with and are not contradictory to, existing statutes, court decisions, or state or federal regulations. (CHSC Section 40727(b)(4))
Non-Duplication: The District must find that either: 1) The rule does not impose the same requirements as an existing state or federal regulation; or 2) that the duplicative requirements are necessary or proper to execute the powers and duties granted to, and imposed upon the District.	The proposed rule amendments do not duplicate any state laws or regulations, regarding the attainment and maintenance of state and federal air quality standards. (CHSC Section 40727(b)(5))
Reference: The District must refer to any statute, court decision, or other provision of law that the District implements, interprets, or makes specific by adopting, amending or repealing the rule.	CHSC Sections 40913, 40914 and 40919(a)(3), 41010; Sections 182(b)(2) and 172(c)(1) of the Federal Clean Air Act Amendments of 1990. (CHSC Section 40727(b)(6))

FINDING	FINDING DETERMINATION
Additional Informational Requirements (CHSC Section 40727.2): In complying with CHSC Section 40727.2, the District must identify all federal requirements and District rules that apply to the same equipment or source type as the proposed rule or amendments.	The discussion attached (Appendix A) contains a comparison of other requirements that apply to surface coating of miscellaneous metal parts and products. (CHSC Section 40727.2)

Rule 452

FINDING	FINDING DETERMINATION
Authority: The District must find that a provision of law or of a state or federal regulation permits or requires the District to adopt, amend, or repeal the rule.	The District is authorized to adopt rules and regulations by California Health and Safety Code, Sections 40001, 40702, 40716, 41010 and 41013. (CHSC Section 40727(b)(2))
Necessity: The District must find that the rulemaking demonstrates that a need exists for the rule, or for its amendment or repeal.	Proposed amendments to Rule 452 are necessary in order to meet the Federal Clean Air Act Reasonably Available Control Technology requirements (Sections 182(b)(2) and 172(c)(1) (42 U.S.C. 7502 of the Federal Clean Air Act Amendments of 1990), 1994 Sacramento Area Regional Ozone Attainment Plan (CHSC Section 40913), the state's Best Available Retrofit Control Technology requirements (CHSC Section 40919(a)(3)), and "all feasible measures" requirement (CHSC Section 40914) for reducing volatile organic compound emissions from can coating operations. (CHSC Section 40727(b)(1))
Clarity: The District must find that the rule is written or displayed so that its meaning can be easily understood by the persons directly affected by it.	Staff has reviewed the proposed rule amendments and determined that they can be easily understood by the affected industry. In addition, the record contains no evidence that the persons directly affected by the rule can not understand it. (CHSC Section 40727(b)(3))
Consistency: The rule is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.	The proposed rule amendments do not conflict with and are not contradictory to, existing statutes, court decisions, or state or federal regulations. (CHSC Section 40727(b)(4))
Non-Duplication: The District must find that either: 1) The rule does not impose the same requirements as an existing state or federal regulation; or 2) that the duplicative requirements are necessary or proper to execute the powers and duties granted to, and imposed upon the District.	The proposed rule amendments do not duplicate any state laws or regulations, regarding the attainment and maintenance of state and federal air quality standards. (CHSC Section 40727(b)(5))
Reference: The District must refer to any statute, court decision, or other provision of law that the District implements, interprets, or makes specific by adopting, amending or repealing the rule.	CHSC Sections 40913, 40914 and 40919(a)(3), 41010; Sections 182(b)(2) and 172(c)(1) of the Federal Clean Air Act Amendments of 1990. (CHSC Section 40727(b)(6))

FINDING	FINDING DETERMINATION
Additional Informational Requirements (CHSC Section 40727.2): In complying with CHSC Section 40727.2, the District must identify all federal requirements and District rules that apply to the same equipment or source type as the proposed rule or amendments.	The discussion attached (Appendix A) contains a comparison of other requirements that apply to can coating operations. (CHSC Section 40727.2)

Rule 454

FINDING	FINDING DETERMINATION
Authority: The District must find that a provision of law or of a state or federal regulation permits or requires the District to adopt, amend, or repeal the rule.	The District is authorized to adopt rules and regulations by California Health and Safety Code, Sections 40001, 40702, 40716, 41010 and 41013. (CHSC Section 40727(b)(2))
Necessity: The District must find that the rulemaking demonstrates that a need exists for the rule, or for its amendment or repeal.	Proposed amendments to Rule 454 are necessary in order to meet the Federal Clean Air Act Reasonably Available Control Technology requirements (Sections 182(b)(2) and 172(c)(1) (42 U.S.C. 7502 of the Federal Clean Air Act Amendments of 1990), 1994 Sacramento Area Regional Ozone Attainment Plan (CHSC Section 40913), the state's Best Available Retrofit Control Technology requirements (CHSC Section 40919(a)(3)), and "all feasible measures" requirement (CHSC Section 40914) for reducing volatile organic compound emissions from solvent cleaning operations. (CHSC Section 40727(b)(1))
Clarity: The District must find that the rule is written or displayed so that its meaning can be easily understood by the persons directly affected by it.	Staff has reviewed the proposed rule amendments and determined that they can be easily understood by the affected industry. In addition, the record contains no evidence that the persons directly affected by the rule can not understand it. (CHSC Section 40727(b)(3))
Consistency: The rule is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.	The proposed rule amendments do not conflict with and are not contradictory to, existing statutes, court decisions, or state or federal regulations. (CHSC Section 40727(b)(4))
Non-Duplication: The District must find that either: 1) The rule does not impose the same requirements as an existing state or federal regulation; or 2) that the duplicative requirements are necessary or proper to execute the powers and duties granted to, and imposed upon the District.	The proposed rule amendments do not duplicate any state laws or regulations, regarding the attainment and maintenance of state and federal air quality standards. (CHSC Section 40727(b)(5))
Reference: The District must refer to any statute, court decision, or other provision of law that the District implements, interprets, or makes specific by adopting, amending or repealing the rule.	CHSC Sections 40913, 40914 and 40919(a)(3), 41010; Sections 182(b)(2) and 172(c)(1) of the Federal Clean Air Act Amendments of 1990. (CHSC Section 40727(b)(6))

FINDING	FINDING DETERMINATION
Additional Informational Requirements (CHSC Section 40727.2): In complying with CHSC Section 40727.2, the District must identify all federal requirements and District rules that apply to the same equipment or source type as the proposed rule or amendments.	The discussion attached (Appendix A) contains a comparison of other requirements that apply to degreasing operations. (CHSC Section 40727.2)

Rule 456

FINDING	FINDING DETERMINATION
Authority: The District must find that a provision of law or of a state or federal regulation permits or requires the District to adopt, amend, or repeal the rule.	The District is authorized to adopt rules and regulations by California Health and Safety Code, Sections 40001, 40702, 40716, 41010 and 41013. (CHSC Section 40727(b)(2))
Necessity: The District must find that the rulemaking demonstrates that a need exists for the rule, or for its amendment or repeal.	Proposed amendments to Rule 456 are necessary in order to meet the Federal Clean Air Act Reasonably Available Control Technology requirements (Sections 182(b)(2) and 172(c)(1) (42 U.S.C. 7502 of the Federal Clean Air Act Amendments of 1990), 1994 Sacramento Area Regional Ozone Attainment Plan (CHSC Section 40913), the state's Best Available Retrofit Control Technology requirements (CHSC Section 40919(a)(3)), and "all feasible measures" requirement (CHSC Section 40914) for reducing volatile organic compound emissions from aerospace assembly and component coating operations. (CHSC Section 40727(b)(1))
Clarity: The District must find that the rule is written or displayed so that its meaning can be easily understood by the persons directly affected by it.	Staff has reviewed the proposed rule amendments and determined that they can be easily understood by the affected industry. In addition, the record contains no evidence that the persons directly affected by the rule can not understand it. (CHSC Section 40727(b)(3))
Consistency: The rule is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.	The proposed rule amendments do not conflict with and are not contradictory to, existing statutes, court decisions, or state or federal regulations. (CHSC Section 40727(b)(4))
Non-Duplication: The District must find that either: 1) The rule does not impose the same requirements as an existing state or federal regulation; or 2) that the duplicative requirements are necessary or proper to execute the powers and duties granted to, and imposed upon the District.	The proposed rule amendments do not duplicate any state laws or regulations, regarding the attainment and maintenance of state and federal air quality standards. (CHSC Section 40727(b)(5))
Reference: The District must refer to any statute, court decision, or other provision of law that the District implements, interprets, or makes specific by adopting, amending or repealing the rule.	CHSC Sections 40913, 40914 and 40919(a)(3), 41010; Sections 182(b)(2) and 172(c)(1) of the Federal Clean Air Act Amendments of 1990. (CHSC Section 40727(b)(6))

FINDING	FINDING DETERMINATION
Additional Informational Requirements (CHSC Section 40727.2): In complying with CHSC Section 40727.2, the District must identify all federal requirements and District rules that apply to the same equipment or source type as the proposed rule or amendments.	The discussion attached (Appendix A) contains a comparison of other requirements that apply to aerospace assembly and component coating operations. (CHSC Section 40727.2)

Rule 463

FINDING	FINDING DETERMINATION
Authority: The District must find that a provision of law or of a state or federal regulation permits or requires the District to adopt, amend, or repeal the rule.	The District is authorized to adopt rules and regulations by California Health and Safety Code, Sections 40001, 40702, 40716, 41010 and 41013. (CHSC Section 40727(b)(2))
Necessity: The District must find that the rulemaking demonstrates that a need exists for the rule, or for its amendment or repeal.	Proposed amendments to Rule 463 are necessary in order to meet the Federal Clean Air Act Reasonably Available Control Technology requirements (Sections 182(b)(2) and 172(c)(1) (42 U.S.C. 7502 of the Federal Clean Air Act Amendments of 1990), 1994 Sacramento Area Regional Ozone Attainment Plan (CHSC Section 40913), the state's Best Available Retrofit Control Technology requirements (CHSC Section 40919(a)(3)), and "all feasible measures" requirement (CHSC Section 40914) for reducing volatile organic compound emissions from wood products coating operations. (CHSC Section 40727(b)(1))
Clarity: The District must find that the rule is written or displayed so that its meaning can be easily understood by the persons directly affected by it.	Staff has reviewed the proposed rule amendments and determined that they can be easily understood by the affected industry. In addition, the record contains no evidence that the persons directly affected by the rule can not understand it. (CHSC Section 40727(b)(3))
Consistency: The rule is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.	The proposed rule amendments do not conflict with and are not contradictory to, existing statutes, court decisions, or state or federal regulations. (CHSC Section 40727(b)(4))
Non-Duplication: The District must find that either: 1) The rule does not impose the same requirements as an existing state or federal regulation; or 2) that the duplicative requirements are necessary or proper to execute the powers and duties granted to, and imposed upon the District.	The proposed rule amendments do not duplicate any state laws or regulations, regarding the attainment and maintenance of state and federal air quality standards. (CHSC Section 40727(b)(5))
Reference: The District must refer to any statute, court decision, or other provision of law that the District implements, interprets, or makes specific by adopting, amending or repealing the rule.	CHSC Sections 40913, 40914 and 40919(a)(3), 41010; Sections 182(b)(2) and 172(c)(1) of the Federal Clean Air Act Amendments of 1990. (CHSC Section 40727(b)(6))

FINDING	FINDING DETERMINATION
Additional Informational Requirements (CHSC Section 40727.2): In complying with CHSC Section 40727.2, the District must identify all federal requirements and District rules that apply to the same equipment or source type as the proposed rule or amendments.	The discussion attached (Appendix A) contains a comparison of other requirements that apply to wood products coating operations. (CHSC Section 40727.2)

Rule 464

FINDING	FINDING DETERMINATION
Authority: The District must find that a provision of law or of a state or federal regulation permits or requires the District to adopt, amend, or repeal the rule.	The District is authorized to adopt rules and regulations by California Health and Safety Code, Sections 40001, 40702, 40716, 41010 and 41013. (CHSC Section 40727(b)(2))
Necessity: The District must find that the rulemaking demonstrates that a need exists for the rule, or for its amendment or repeal.	Proposed amendments to Rule 464 are necessary in order to meet the Federal Clean Air Act Reasonably Available Control Technology requirements (Sections 182(b)(2) and 172(c)(1) (42 U.S.C. 7502 of the Federal Clean Air Act Amendments of 1990), 1994 Sacramento Area Regional Ozone Attainment Plan (CHSC Section 40913), the state's Best Available Retrofit Control Technology requirements (CHSC Section 40919(a)(3)), and "all feasible measures" requirement (CHSC Section 40914) for reducing volatile organic compound emissions from organic chemical manufacturing operations. (CHSC Section 40727(b)(1))
Clarity: The District must find that the rule is written or displayed so that its meaning can be easily understood by the persons directly affected by it.	Staff has reviewed the proposed rule amendments and determined that they can be easily understood by the affected industry. In addition, the record contains no evidence that the persons directly affected by the rule can not understand it. (CHSC Section 40727(b)(3))
Consistency: The rule is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.	The proposed rule amendments do not conflict with and are not contradictory to, existing statutes, court decisions, or state or federal regulations. (CHSC Section 40727(b)(4))
Non-Duplication: The District must find that either: 1) The rule does not impose the same requirements as an existing state or federal regulation; or 2) that the duplicative requirements are necessary or proper to execute the powers and duties granted to, and imposed upon the District.	The proposed rule amendments do not duplicate any state laws or regulations, regarding the attainment and maintenance of state and federal air quality standards. (CHSC Section 40727(b)(5))
Reference: The District must refer to any statute, court decision, or other provision of law that the District implements, interprets, or makes specific by adopting, amending or repealing the rule.	CHSC Sections 40913, 40914 and 40919(a)(3), 41010; Sections 182(b)(2) and 172(c)(1) of the Federal Clean Air Act Amendments of 1990. (CHSC Section 40727(b)(6))

FINDING	FINDING DETERMINATION
Additional Informational Requirements (CHSC Section 40727.2): In complying with CHSC Section 40727.2, the District must identify all federal requirements and District rules that apply to the same equipment or source type as the proposed rule or amendments.	The discussion attached (Appendix A) contains a comparison of other requirements that apply to organic chemical manufacturing operations. (CHSC Section 40727.2)

Rule 465

FINDING	FINDING DETERMINATION
Authority: The District must find that a provision of law or of a state or federal regulation permits or requires the District to adopt, amend, or repeal the rule.	The District is authorized to adopt rules and regulations by California Health and Safety Code, Sections 40001, 40702, 40716, 41010 and 41013. (CHSC Section 40727(b)(2))
Necessity: The District must find that the rulemaking demonstrates that a need exists for the rule, or for its amendment or repeal.	Proposed amendments to Rule 465 are necessary in order to meet the Federal Clean Air Act Reasonably Available Control Technology requirements (Sections 182(b)(2) and 172(c)(1) (42 U.S.C. 7502 of the Federal Clean Air Act Amendments of 1990), 1994 Sacramento Area Regional Ozone Attainment Plan (CHSC Section 40913), the state's Best Available Retrofit Control Technology requirements (CHSC Section 40919(a)(3)), and "all feasible measures" requirement (CHSC Section 40914) for reducing volatile organic compound emissions from polyester resin operations. (CHSC Section 40727(b)(1))
Clarity: The District must find that the rule is written or displayed so that its meaning can be easily understood by the persons directly affected by it.	Staff has reviewed the proposed rule amendments and determined that they can be easily understood by the affected industry. In addition, the record contains no evidence that the persons directly affected by the rule can not understand it. (CHSC Section 40727(b)(3))
Consistency: The rule is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.	The proposed rule amendments do not conflict with and are not contradictory to, existing statutes, court decisions, or state or federal regulations. (CHSC Section 40727(b)(4))
Non-Duplication: The District must find that either: 1) The rule does not impose the same requirements as an existing state or federal regulation; or 2) that the duplicative requirements are necessary or proper to execute the powers and duties granted to, and imposed upon the District.	The proposed rule amendments do not duplicate any state laws or regulations, regarding the attainment and maintenance of state and federal air quality standards. (CHSC Section 40727(b)(5))
Reference: The District must refer to any statute, court decision, or other provision of law that the District implements, interprets, or makes specific by adopting, amending or repealing the rule.	CHSC Sections 40913, 40914 and 40919(a)(3), 41010; Sections 182(b)(2) and 172(c)(1) of the Federal Clean Air Act Amendments of 1990. (CHSC Section 40727(b)(6))

FINDING	FINDING DETERMINATION
Additional Informational Requirements (CHSC Section 40727.2): In complying with CHSC Section 40727.2, the District must identify all federal requirements and District rules that apply to the same equipment or source type as the proposed rule or amendments.	The discussion attached (Appendix A) contains a comparison of other requirements that apply to polyester resin operations. (CHSC Section 40727.2)

Rule 466

FINDING	FINDING DETERMINATION
Authority: The District must find that a provision of law or of a state or federal regulation permits or requires the District to adopt, amend, or repeal the rule.	The District is authorized to adopt rules and regulations by California Health and Safety Code, Sections 40001, 40702, 40716, 41010, and 41013. (CHSC Section 40727(b)(2))
Necessity: The District must find that the rulemaking demonstrates that a need exists for the rule, or for its amendment or repeal.	It is necessary to adopt proposed Rule 466 in order to meet the Federal Clean Air Act Reasonably Available Control Technology requirements (Sections 182(b)(2) and 172(c)(1) (42 U.S.C. 7502 of the Federal Clean Air Act Amendments of 1990), 1994 Sacramento Area Regional Ozone Attainment Plan (CHSC Section 40913), the state's Best Available Retrofit Control Technology requirements (CHSC Section 40919(a)(3)), and "all feasible measures" requirement (CHSC Section 40914) for reducing volatile organic compound emissions from solvent cleaning operations. (CHSC Section 40727(b)(1))
Clarity: The District must find that the rule is written or displayed so that its meaning can be easily understood by the persons directly affected by it.	Staff has reviewed the rule and determined that it can be easily understood by the affected industry. In addition, the record contains no evidence that the persons directly affected by the rule can not understand it. (CHSC Section 40727(b)(3))
Consistency: The rule is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.	The proposed rule does not conflict with and are not contradictory to, existing statutes, court decisions, or state or federal regulations. (CHSC Section 40727(b)(4))
Non-Duplication: The District must find that either: 1) The rule does not impose the same requirements as an existing state or federal regulation; or 2) that the duplicative requirements are necessary or proper to execute the powers and duties granted to, and imposed upon the District.	The proposed rule does not duplicate any state laws or regulations, regarding the attainment and maintenance of state and federal air quality standards. (CHSC Section 40727(b)(5))
Reference: The District must refer to any statute, court decision, or other provision of law that the District implements, interprets, or makes specific by adopting, amending or repealing the rule.	CHSC Sections 40913, 40914 and 40919(a)(3), 41010; Sections 182(b)(2) and 172(c)(1) of the Federal Clean Air Act Amendments of 1990. (CHSC Section 40727(b)(6))

FINDING	FINDING DETERMINATION
Additional Informational Requirements (CHSC Section 40727.2): In complying with CHSC Section 40727.2, the District must identify all federal requirements and District rules that apply to the same equipment or source type as the proposed rule or amendments.	The discussion attached (Appendix A) contains a comparison of other requirements that apply to solvent cleaning operations. (CHSC Section 40727.2)

REFERENCES

1. South Coast Air Quality Management District, "Clean Air Solvent (CAS) Certification Program." http://www.aqmd.gov/rules/cas/index.html.

2. Institute for Research and Technical Assistance, "Assessment, Development, and Demonstration of Low-VOC Cleaning Systems for South Coast Air Quality Management District Rule 1171." August 2003.

3. South Coast Air Quality Management District, "Technology Assessment to Determine the Relationship of Solvent Vapor Pressure and VOC Mass Emissions." April 10, 2002.

4. Air Resources Board, "New Method for Estimating Emissions from Thinning and Cleanup Solvents." March 9, 2006.

5. Bay Area Air Quality Management District, "BACT/TBACT Workbook – Guidelines for Best Available Control Technology." http://www.baaqmd.gov/pmt/bactworkbook/

6. South Coast Air Quality Management District, "Rule 1130, Graphic Arts Operations," October 8, 1999.

7. South Coast Air Quality Management District, "Rule 1107, Coating of Metal Parts and Products," January 6, 2006.

8. South Coast Air Quality Management District, "Rule 1125, Metal Container, Closure and Coil Coating Operations," January 13, 1995.

9. South Coast Air Quality Management District, "Rule 1122, Solvent Degreasers," October 1, 2004.

10. South Coast Air Quality Management District, "Rule 1124, Aerospace Assembly and Component Manufacturing Operations," September 21, 2001.

11. South Coast Air Quality Management District, "Rule 1136, Wood Products Coatings," June 14, 1996.

12. South Coast Air Quality Management District, "Rule 1162, Polyester Resin Operations," July 8, 2005

13. South Coast Air Quality Management District, “Rule 1171, Solvent Cleaning Operations,” May 6, 2005.

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15. South Coast Air Quality Management District, “Staff Report for Proposed Amended Rule 1122- Solvent Degreasers,” September 21, 2004.

16. South Coast Air Quality Management District, “Final Report for Technology Assessment for 2006 VOC Limit for Vapor Degreasers Under Rule 1122- Solvent Degreasers,” October 12, 2005.

17. South Coast Air Quality Management District, “Staff Report for Proposed Rule 1131- Food Product Manufacturing and Processing Operations,” August 23, 2000.

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21. South Coast Air Quality Management District, “Staff Report for Proposed Amended Rule 1171- Solvent Cleaning Operations,” November 2003.

22. South Coast Air Quality Management District, “Staff Report for Proposed Amended Rule 1171- Solvent Cleaning Operations,” April 19, 2005.

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25. EPA Air Pollution Control Cost Manual, Sixth Edition, January 2002.

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27. University of Tennessee Center for Clean Products and Clean Technologies, “Compatibility Testing of Low-VOC Alternative Cleaning Solvents for Lithographic Printing Application,” April 2006.

28. Institute for Research and Technical Assistance, "Assessment, Development, and Demonstration of Low-VOC Materials for Cleaning Ultraviolet and Electron Beam Curable Coatings and Adhesives," May 2006.

29. Institute for Research and Technical Assistance, "Low-VOC, Low-Toxicity Clean up Solvents for Screen Printing: Safer Alternatives," May 2006.

30. Institute for Research and Technical Assistance, "Assessment, Development, and Demonstration of Low-VOC Materials for Cleaning of Lithographic Printing Ink Application Equipment," May 2006.

31. San Joaquin Valley Unified Air Pollution Control District, "Final Draft Staff Report for Rules 4603, 4604, 4605, 4606, 4607, 4612, 4653, 4661, 4662, 4663, and 4684," August 2007.

32. United States Environmental Protection Agency, "Control Techniques Guidelines for Flexible Package Printing," September 2006.

33. United States Environmental Protection Agency, "Control Techniques Guidelines for Offset Lithographic Printing and Letterpress Printing," September 2006.

34. United States Environmental Protection Agency, "Control Techniques Guidelines for Metal Furniture Coatings," September 2007.

Appendix A
Rule Consistency Analysis

Proposed Rules 450, 451, 452, 454, 456, 463, 464, 465, and 466 will limit the VOC emissions from solvent cleaning activities. There are EPA standards such as Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER) that apply to solvent cleaning. There are also National Emission Standards for regulating the emissions of Hazardous air pollutants from solvent cleaning operations. This regulation is 40 CFR Part 63 Subpart T – Halogenated Solvent Emissions from Solvent Cleaning. Proposed Rule 454 now prohibits the use of solvents regulated under 40 CFR Part 63 Subpart T in degreasing operations unless an airless/airtight cleaning system is used. The rule consistency matrices for the proposed rules are listed in the following tables A-1 through A-9.

Appendix A-1
40727.2 Matrix for Proposed Amendments to Rule 450, Graphic Arts Operations

Elements of Comparison	Specific Provisions	Proposed Rule 450	BACT/LAER (*)
Exemptions		Sixty pounds per month for actual VOC emissions or 175 pounds per month for potential emissions. Gravure printing; business and personal printers; prepress operations; aerosol adhesives for screen printing; aerosol adhesives other than screen printing; stripping of cured inks, coatings, and adhesives; lithographic and letter press printing- metering rollers and printing plates Fountain solutions for lower VOC if total offset lithographic printing operations emit less than or equal to 450 pounds per month of VOC Heatset web offset lithographic printing presses or heatset web letterpress printing presses with potential to emit less than 25 tons per year of VOC prior to controls Heatset web offset lithographic printing presses used for book printing or presses with maximum web width of 22 inches or less Flexible package printing presses with potential to emit less than 25 tons per year of VOC prior to controls	10 pounds of VOCs per day. (Rule 202, NEW SOURCE REVIEW)
Averaging Provisions		For air pollution control equipment, meet the control and collection efficiency specified in the rule or lbs-VOC/gal or grams of VOC/liter as applied.	Compliance with control/collection is done using source test methods specified below and the corresponding averaging period (typically average of three 40-minute runs.)
Units		% Control or lbs-VOC/gal or grams of VOC/liter as applied.	% Control or lbs-VOC/gal or grams of VOC/liter as applied.

Elements of Comparison	Specific Provisions	Proposed Rule 450	BACT/LAER (*)
Emission Limits	**Emission Reductions**	Meet the VOC limits specified in Section 300 or install air pollution control equipment with overall control efficiency of 67% Mandatory control equipment for heatset web offset lithographic printing, heatset web letterpress printing, and flexible package printing with overall control efficiencies ranging from 67% to 95%, depending on specific process and date of control equipment installation (see Sections 303 and 304 of the rule)`	If cost effective, capture and vent VOC to afterburner or carbon adsorption system with ≥98.5% destruction/recovery device efficiency; or VOC outlet ≤10 ppmv. (*)
	Compliance alternatives	Air Pollution Control Equipment	Air Pollution Control Equipment
Operating Parameters			
Work Practice Requirements		Closed Containers; Proper disposal of spent solvents.	Closed containers, proper disposal of spent solvents.
Monitoring/ Records	**Recordkeeping**	Records of VOC emissions and usage	Records of emissions and operating parameters. Records vary depending on the control technology.
	Frequency	Daily and/or monthly. Records are to be kept for five years.	Daily, monthly, and/or quarterly.
Monitoring/ Testing	**Test Methods**	Applicable test methods are specified under Section 502 of the rule.	Applicable EPA Methods 2, 2C, 18, 25, 25A, 204, 204A, 204B, 204C, 204D, 204E, 204F or ARB Method 432.
	Frequency	No testing frequency specified in the rule.	Frequency can be annual if air pollution control equipment is selected.

(*) BACT trigger level is based on District's Rule 202 – NEW SOURCE REVIEW. BACT limits are based on similar requirements adopted by other districts as BACT that are determined to be cost effective and technologically feasible.

(**) Based on BACT adopted by the Bay Area Air Quality Management District, BACT/TBACT Workbook – Guidelines for Best Available Control Technology.

Appendix A-2
40727.2 Matrix for Proposed Amendments to Rule 451, Surface Coating of Miscellaneous Metal Parts and Products

Elements of Comparison	Specific Provisions	Proposed Rule 451	BACT/LAER
Exemptions		Usage less than 55 gal/yr Coating of prefabricated architectural components or structures not coated in a shop environment; motor vehicles; aircraft or aerospace vehicles, components, and tooling; cans, coils, or magnetic wire; adhesives; magnetic data storage discs; safety-indicating coatings; stencil coatings; conformal coatings; hand lettering Aerosol containers less than or equal to 1 liter Touch-up coating and repair coating operations; application of coatings producing a textured finish Metal furniture for lower VOC if less than 3 tons per year from such operations	a) touch-up coatings b) stencil coatings c) aerosol coating products d) emission limits not applicable if using approved emissions control system, operating under an alternative emission control plan, or using less than twelve pounds per day for educational purposes at a training center.
Averaging Provisions		For air pollution control equipment, meet the control and collection efficiency specified in the rule or lbs-VOC/gal or grams of VOC/liter as applied.	For emission control equipment, must reduce emissions to level that is equivalent or lower than limit specified in rule.
Units		% Control or lbs-VOC/gal or grams of VOC/liter as applied.	1. Grams per liter less water and exempt compounds, or; 2. Pounds per gallon less water and exempt compounds.
Emission Limits	**Emission Reductions**	Meet the emission limits specified in Section 300, or install emissions control equipment specified in Section 305 with overall system efficiency of ≥ 90%.	Lower solvent content, higher transfer efficiency than required by applicable rules, and control equipment with overall capture/destruction efficiency of ≥ 90%
	Compliance alternatives	Air Pollution Control Equipment	Air Pollution Control Equipment
Operating Parameters			

Elements of Comparison	Specific Provisions	Proposed Rule 451	BACT/LAER
Work Practice Requirements		Closed containers for disposal of materials used for surface preparation, cleanup and coating removal; closed containers; cleanup to take place in an enclosed system; minimizing spills, conveyance of VOC materials using closed containers or pipes.	Closed containers for disposal of materials used for surface preparation, cleanup and coating removal; closed containers; cleanup to take place in an enclosed system.
Monitoring/ Records	**Recordkeeping**	Recordkeeping of usage; recordkeeping for air pollution control equipment if used.	Daily records of operations for most recent two years; method application and substrate type; amount of coating used including exempt amounts; VOC content of each coating; amount of surface prep and cleanup material used; vapor pressure of solvents, where applicable.
	Frequency	Daily and/or monthly for coating usages. Records kept for a continuous five-year period.	Daily records of coating usages
Monitoring/ Testing	**Test Methods**	Applicable test methods are specified under Section 502 of the rule.	Applicable EPA Methods 2 or 2C, 18, 24, 25, 25A, 204, 204A, 204B, 204C, 024D, 204E, 204F, ASTM D 4457-85 or ARB method 432, ASTM Standard D2832, ASTM D 4457-85, SCAQMD 318, and Sections 221, and 404 of the Rule.
	Frequency	No frequency specified in the rule	

Appendix A-3
40727.2 Matrix for Proposed Amendments to Rule 452, Can Coating

Elements of Comparison	Specific Provisions	Proposed Rule 452	BACT/LAER
Exemptions		None	a) touch-up coatings b) stencil coatings c) aerosol coating products d) emission limits not applicable if using approved emissions control system, operating under an alternative emission control plan, or using less than twelve pounds per day for educational purposes at a training center.
Averaging Provisions		For air pollution control equipment, meet the control and collection efficiency specified in the rule or lbs-VOC/gal or grams of VOC/liter as applied.	For emission control equipment, must reduce emissions to level that is equivalent or lower than limit specified in rule.
Units		% Control or lbs-VOC/gal or grams of VOC/liter as applied.	1. Grams per liter less water and exempt compounds, or; 2. Pounds per gallon less water and exempt compounds.
Emission Limits	**Emission Reductions**	Meet the emission limits specified in Section 300, or install emissions control equipment specified in Section 302 with overall system efficiency of ≥ 90%.	Lower solvent content, higher transfer efficiency than required by applicable rules, and control equipment with overall capture/destruction efficiency of ≥ 90%
	Compliance alternatives	Air Pollution Control Equipment	Air Pollution Control Equipment
Operating Parameters			
Work Practice Requirements		Closed containers for disposal of materials used for cleanup; closed containers; cleanup to take place in an enclosed system.	Closed containers for disposal of materials used for surface preparation, cleanup and coating removal; closed containers; cleanup to take place in an enclosed system.
Monitoring/ Records	**Recordkeeping**	Recordkeeping of usage; recordkeeping for air pollution control equipment if used.	Daily records of operations for most recent two years; method application and substrate type; amount of coating used including exempt amounts; VOC content of each coating; amount of surface prep and cleanup material used; vapor pressure of solvents, where applicable.
	Frequency	Daily and/or monthly for coating usages. Records kept for a continuous five-year period.	Daily records of coating usages

Elements of Comparison	Specific Provisions	Proposed Rule 452	BACT/LAER
Monitoring/ Testing	**Test Methods**	Applicable test methods are specified under Section 501 of the rule.	Applicable EPA Methods 2 or 2C, 18, 24, 25, 25A, 204, 204A, 204B, 204C, 024D, 204E, 204F, ASTM D 4457-85 or ARB method 432, ASTM Standard D2832, ASTM D 4457-85, SCAQMD 318, and Sections 221, and 404 of the Rule.
	Frequency	No frequency specified in the rule	

Appendix A-4
40727.2 Matrix for Proposed Amendments to Rule 454, Solvent Degreasing

Elements of Comparison	Specific Provisions	Proposed Rule 454	BACT/LAER
Exemptions		Cleaning operations using cleanup materials containing less than 25 grams per liter VOCs; Cleanup operations specifically regulated under other prohibitory rules; open-top vapor degreasers; degreasing of high-voltage microwave vacuum tubes	10 lbs-VOC/day
Averaging Provisions		None	None
Units		Lbs-VOC/gal or grams of VOC/liter	Lbs-VOC/gal or grams of VOC/liter
Emissions Limits	**Emissions Reduction**	Meet the VOC limits in Section 300 or use an airtight airless cleaning system	Typical BACT for cold solvent cleaning tanks is using low volatility solvents, drain cover, and a freeboard height at least 6 inches. Other BACT used by SJVUAPCD is the use of Safety Kleen Premium Solvent – California and a degreaser cover. Use of air pollution control equipment such as an afterburner with 99% destruction efficiency.
	Compliance Alternatives	Use an airtight airless cleaning system	Reduce VOC emissions by add on air pollution control equipment and meet certain control and collection efficiency (generally >95%).
Operating Parameters		Operating parameters for air pollution control equipment are specified in Section 404 of the rule.	Specific operating parameters will be specified in the permit to operate and will vary depending on the control technology selected.
Work Practice Requirements		Operating requirements for degreasers; Storage and disposal requirements for solvents.	Operating requirements for degreasers; Storage and disposal requirements for solvents.
Monitoring/ Records	**Recordkeeping**	Recordkeeping of usage; recordkeeping for air pollution control equipment if used.	Recordkeeping of usage and recordkeeping for air pollution control equipment.
	Frequency	Daily for exemptions and monthly for sources subject to the rule. Records are to be kept for five years.	Daily records for air pollution control equipment; Monthly records for solvent usage.
Monitoring/ Testing	**Test Methods**	Applicable test methods are specified under Section 502 of the rule.	Applicable test methods are the same as those listed in Rule 454.
	Frequency	No testing frequency is specified in the rule.	Initial testing to verify system control efficiency; Annual testing thereafter.

Appendix A-5
40727.2 Matrix for Proposed Amendments to Rule 456, Aerospace Assembly and Component Coating Operations

Elements of Comparison	Specific Provisions	Proposed Rule 456	Aerospace Control Technology Guideline	BACT/LAER	Aerospace NESHAP
Exemptions		Less than 55 gal/yr, aerosol containers <1 liter, surface prep/clean for space vehicles and adhesive bonding; coatings applied via templates, stencil, stamp, or hand lettering; touch-up and repair coating operations and use of detail guns; application of coatings containing fillers adversely affecting atomization with HVLP spray guns; hand held spray containers less than or equal to 8 ounces and total facility usage less than or equal to 10 gal/yr	Less than 200 gal/yr, aerosol containers, space vehicles, cleanup of R & D, lab testing, rework operations		Certain water-reducible coatings, hand-held spray application, essential use cleaning solvents
Averaging Provisions					

Elements of Comparison	Specific Provisions	Proposed Rule 456	Aerospace Control Technology Guideline	BACT/LAER	Aerospace NESHAP
Units		grams of VOC/liter (g/l)	grams of VOC/liter (g/l)		
Emissions Limits	**Surface prep and cleanup**	Cleaning/surface prep: VOC content limit of 200 g/l; spray gun cleaning: VOC content limit of 25 g/l	80% aqueous solvent or VOC with vapor pressure less than or equal to 45 millimeters of mercury (mm Hg) at 20° C, or enclosed gun cleaner		Use of solvents less than 45 mm Hg at 20° C, or enclosed gun cleaner
	Stripping	VOC content limit of 300 g/l			HAP strippers limited to 26 gal commercial, 50 gal military per year
	Compliance Alternatives	85% overall system efficiency.	VOC emissions capture and control equipment efficiency of at least 81% by weight		Carbon absorber, incineration, Hi-transfer efficiency equipment to HVLP or electrostatic, spray booth vented to dry particle filter, waterwash hi-efficiency particulate filter, stage II or III, particulate filter, capture and control of 81%
Operating Parameters					
Work Practice Requirements		All containers closed when not in use. VOC content available for all materials.	All containers closed when not in use. Label all materials for VOC content.		Use of closed containers, other housekeeping measures
Monitoring/ Records	**Recordkeeping**	List of materials with VOC contents, as applied, method of application, usage amounts, monitoring	VOC content as applied, coating usage, aqueous and semi-aqueous hand-wipe cleaning solvents- list		Continuous monitoring for pressure drop at filter unit. Name, vapor pressure, and documentation

Elements of Comparison	Specific Provisions	Proposed Rule 456	Aerospace Control Technology Guideline	BACT/LAER	Aerospace NESHAP
		parameters for control equipment	materials with water contents, vapor pressure compliant hand-wipe cleaning solvents- list cleaning solvents and vapor pressures or, for blended solvents, VOC composite vapor pressures, exempt hand-wipe cleaning processes, monitoring parameters for control equipment		for all HAP, solvents. Records of leaks from gun cleaners. VOC content of each VOC coating. Name, volume, and HAP content of all chemical strippers. Name, type of non-chemical equipment.
	Frequency	Monthly for all; daily for non-compliant; records are to be kept for five years	On annual basis		Monthly for noncompliant, semi-annual for compliant coatings.
Monitoring/ Testing	**Test Methods**	Applicable test methods are specified under Section 502 of the rule.	VOC content: EPA Method 24 Control Equipment: EPA method 18, 25, and/or 25A		Filtration Efficiency; Method 139, HAP and VOC content: Method 24 Carbon Absorption: Method 18 Gas Analysis: Method 3
	Frequency	As needed	As needed		As needed

Appendix A-6
40727.2 Matrix for Proposed Amendments to Rule 463, Wood Products Coatings

Elements of Comparison	Specific Provisions	Proposed Rule 463	BACT/LAER
Exemptions		Usage less than 55 gal/yr; wood products coatings sold in non-refillable aerosol containers; coating operations for the purpose of manufacturing a finished wood panel for attachment to inside walls of buildings; coating of architectural components or structures not coated in a shop environment	a) touch-up coatings b) stencil coatings c) aerosol coating products d) emission limits not applicable if using approved emissions control system, operating under an alternative emission control plan, or using less than twelve pounds per day for educational purposes at a training center.
Averaging Provisions		Rolling 30-day averaging for a maximum of 20 gallons per year of historical reproduction coatings	For emission control equipment, must reduce emissions to level that is equivalent or lower than limit specified in rule.
Units		% Control or lbs-VOC/gal or grams of VOC/liter as applied.	3. Grams per liter less water and exempt compounds, or; 4. Pounds per gallon less water and exempt compounds.
Emission Limits	**Emission Reductions**	Meet the emission limits specified in Sections 300, or install emissions control equipment specified in Section 305	Lower solvent content, higher transfer efficiency than required by applicable rules, and control equipment with overall capture/destruction efficiency of ≥ 90%
	Compliance alternatives	Air Pollution Control Equipment with equivalent or greater emission reduction than would result from compliance with VOC limits	Air Pollution Control Equipment
Operating Parameters			
Work Practice Requirements		Closed containers for disposal of materials used for surface preparation, cleanup and coating removal; closed containers; cleanup to take place in an enclosed system.	Closed containers for disposal of materials used for surface preparation, cleanup and coating removal; closed containers; cleanup to take place in an enclosed system.
Monitoring/ Records	**Recordkeeping**	Recordkeeping of usage; recordkeeping for air pollution control equipment if used.	Daily records of operations for most recent two years; method application and substrate type; amount of coating used including exempt amounts; VOC content of each coating; amount of surface prep and cleanup material used; vapor pressure of solvents, where applicable.
	Frequency	Daily and/or monthly for coating usages. Records kept for a continuous five-year period.	Daily records of coating usages

Elements of Comparison	Specific Provisions	Proposed Rule 463	BACT/LAER
Monitoring/ Testing	**Test Methods**	Applicable test methods are specified under Section 503 of the rule.	Applicable EPA Methods 2 or 2C, 18, 24, 25, 25A, 204, 204A, 204B, 204C, 024D, 204E, 204F, ASTM D 4457-85 or ARB method 432, ASTM Standard D2832, ASTM D 4457-85, SCAQMD 318, and Sections 221, and 404 of the Rule.
	Frequency	No frequency specified in the rule	

Appendix A-7
40727.2 Matrix for Proposed Amendments to Rule 464, Organic Chemical Manufacturing Operations

Elements of Comparison	Specific Provisions	Proposed Rule 464	BACT/LAER
Exemptions		Equipment or operations with VOC emissions less than or equal to 15 pounds per day; laboratory equipment solvent cleaning; solvent cleaning regulated by FDA with less than or equal to 15 pounds per day of VOC emissions	
Averaging Provisions			
Units			
Emissions Limits	**Emissions Reduction**	90% control efficiency for VOC emissions exceeding 15 pounds per day	Double bed type carbon adsorber (estimated control efficiency of 97%)
	Compliance Alternatives	90% overall control efficiency.	
Operating Parameters			
Work Practice Requirements			
Monitoring/Records	**Recordkeeping**	Daily recordkeeping is required for exempt equipment or operations emitting 15 pounds or less of VOCs per day. Daily recordkeeping is also required for cleanup solvent usage. Records are also required for source test results.	
	Frequency	Daily or annual (see above); records are to be kept for five years	
Monitoring/Testing	**Test Methods**	Applicable test methods are specified under Section 502 of the rule.	
	Frequency	Initial/annual as required by the APCO	

Appendix A-8
40727.2 Matrix for Proposed Amendments to Rule 465, Polyester Resin Operations

Elements of Comparison	Specific Provisions	Proposed Rule 465	BACT/LAER
Exemptions		Polyester resin material usage less than 20 gallons per month	10 lbs-VOC/day
Averaging Provisions			None
Units		Lbs-VOC/gal or grams of VOC/liter	Lbs-VOC/gal or grams of VOC/liter
Emissions Limits	**Emissions Reduction**	Meet the VOC limits in Sections 301 and 303 or install air pollution control equipment	If cost effective, vent to an afterburner (≥0.3 sec. retention time at ≥1400^{o}F) or an activated carbon adsorption system (≥6 ppm at outlet) (*)
	Compliance Alternatives	90% overall efficiency	Reduce VOC emissions by add on air pollution control equipment and meet certain control and collection efficiency (generally >95%).
Operating Parameters		Operating parameters for air pollution control equipment are specified in Section 405 of the rule.	Store solvents in closed containers; Use of rags to clean parts and use of a rag washing machine with solvent reclamation system; Use of enclosed cleaning system.
Work Practice Requirements		Application equipment requirements; Storage and disposal requirements; surface preparation and cleanup requirements.	Application equipment requirements; Storage and disposal requirements; surface preparation and cleanup requirements.
Monitoring/Records	**Recordkeeping**	Recordkeeping of usage; recordkeeping for air pollution control equipment if installed.	Recordkeeping of usage and recordkeeping for air pollution control equipment.
	Frequency	Daily for exemptions and monthly for sources subject to the rule. Records are to be kept for five years.	Daily records for air pollution control equipment; Monthly records for solvent usage.
Monitoring/Testing	**Test Methods**	Applicable test methods are specified under Section 502 of the rule.	Applicable test methods are the same as those listed in Rule 465.
	Frequency	No testing frequency is specified in the rule. However, source testing Will be required for initial compliance verification if air pollution control equipment is installed Testing frequency thereafter will be specified based on need.	Initial testing to verify system control efficiency; Annual testing thereafter.

(*) Based on BACT adopted by the Bay Area Air Quality Management District, BACT/TBACT Workbook – Guidelines for Best Available Control Technology.

Appendix A-9
40727.2 Matrix for Proposed Amendments to Rule 466, Solvent Cleaning

Elements of Comparison	Specific Provisions	Proposed Rule 466	BACT/LAER
Exemptions		Cleaning operations using cleanup materials containing less than 25 grams per liter VOCs; Cleanup operations specifically regulated under other prohibitory rules; Other exemptions specific to District are specified in Section 110 of the rule.	10 lbs-VOC/day
Averaging Provisions		None	None
Units		Lbs-VOC/gal or grams of VOC/liter	Lbs-VOC/gal or grams of VOC/liter
Emissions Limits	**Emissions Reduction**	Meet the VOC limits in Section 300 or install air pollution control equipment	Use of solvents for general cleanup with VOC limit less than 50 grams per liter; Use of air pollution control device such as after burner, carbon adsorption system; use of exempt solvent such as acetone.
	Compliance Alternatives	95% control efficiency and 90% collection efficiency, and emissions must not be greater than would have resulted from compliance with applicable VOC limits	Reduce VOC emissions by add on air pollution control equipment and meet certain control and collection efficiency (generally >95%).
Operating Parameters		Operating parameters for air pollution control equipment are specified in Section 405 of the rule.	Store solvents in closed containers; Use of rags to clean parts and use of a rag washing machine with solvent reclamation system; Use of enclosed cleaning system.
Work Practice Requirements		Application equipment requirements; Storage and disposal requirements; surface preparation and cleanup requirements.	Application equipment requirements; Storage and disposal requirements; surface preparation and cleanup requirements.
Monitoring/Records	**Recordkeeping**	Recordkeeping of usage; recordkeeping for air pollution control equipment if installed.	Recordkeeping of usage and recordkeeping for air pollution control equipment.
	Frequency	Daily for exemptions and monthly for sources subject to the rule. Records are to be kept for five years.	Daily records for air pollution control equipment; Monthly records for solvent usage.
Monitoring/Testing	**Test Methods**	Applicable test methods are specified under Section 502 of the rule.	Applicable test methods are the same as those listed in Rule 466.

Elements of Comparison	Specific Provisions	Proposed Rule 466	BACT/LAER
	Frequency	No testing frequency is specified in the rule. However, source testing Will be required for initial compliance verification if air pollution control equipment is installed Testing frequency thereafter will be specified based on need.	Initial testing to verify system control efficiency; Annual testing thereafter.

Appendix B

Summary of Changes

Rule 450, Graphic Arts Operations

Existing Section Number	New Section Number	Proposed Change
101-102	Same	Updated references to renumbered sections.
110.1	Same	Removed paragraph (a) that is no longer applicable because it has expired.
110.2	NA	Removed this section because it has expired.
110.3-110.6	110.2-110.5	Sections renumbered.
110.7	110.6	For clarification, revised the language to specify that this exemption is applicable to aerosol adhesives used by graphic arts operations "other than screen printing." Consistent with original intent of this section as documented in the staff report for the 3/23/00 amendment of Rule 450. Added requirement that aerosol adhesives that are exempt from Rule 450 under this section shall comply with the limits of Rule 460, Adhesives and Sealants (consistent with new section number 110.5).
NA	110.7	Added an exemption for materials used to strip cured inks, cured coatings, or cured adhesives, consistent with SCAQMD Rule 1171. This exemption was already implied in the definition of Solvent Cleaning, but this new section has been added for clarification.
NA	110.8	Added an exemption from the requirements of Sections 302.2, 501.3(b)(2), and 501.3(b)(5) for presses that use solvents containing 100 g/l VOC or less to clean metering rollers and printing plates. The reason for this exemption is that it is not necessary to restrict the usage of such solvents to 15% of the usage of blanket and roller washes if such solvents meet VOC limits as stringent as those for blanket and roller washes.
NA	110.9	Added an exemption from the future requirements of Section 301.2 for fountain solutions used in an offset lithographic printing operation with actual emissions less than or equal to 450 pounds of VOC per month. This exemption fulfills the recommendations specified in the 2006 EPA Control Techniques Guidelines for Lithographic and Letterpress Printing.
NA	110.10	Added an exemption from the requirements of Section 303.1 for heatset web offset lithographic presses and heatset web letterpress presses with potential to emit from the dryer less than 25 tons of VOC per year, prior to controls. This exemption fulfills the recommendations specified in the 2006 EPA Control Techniques Guidelines for Lithographic and Letterpress Printing.

Existing Section Number	New Section Number	Proposed Change
		Added an exemption from the requirements of Section 303.1 for heatset web offset lithographic presses and heatset web letterpress presses used for book printing and for presses with maximum web width of 22 inches or less. This exemption fulfills the recommendations specified in the 2006 EPA Control Techniques Guidelines for Lithographic and Letterpress Printing. Added rule language clarifying that if actual emissions prior to control equipment are at least 25 tons per year of VOC per rolling 12-month period, then that unit must comply with Section 303.1 and cannot use the exemptions in this section. This is a "once in, always in" requirement.
NA	110.11	Added an exemption from the requirements of Section 303.2 for inks, coatings, and adhesives used in a flexible package printing press with potential to emit from the dryer less than 25 tons of VOC per year, prior to controls. This exemption fulfills the recommendations specified in the 2006 EPA Control Techniques Guidelines for Lithographic and Letterpress Printing. Added rule language clarifying that if actual emissions prior to control equipment are at least 25 tons per year of VOC per rolling 12-month period, then that unit must comply with Section 303.1 and cannot use the exemption in this section. This is a "once in, always in" requirement.
NA	210	For clarification, added a definition for cured ink, cured coating, or cured adhesive. This definition is consistent with SCAQMD Rule 1171.
210	211	Section renumbered.
NA	212	Added a definition for "electron beam ink." This definition is the same as the definition used in SCAQMD Rule 1171.
211-217	213-219	Sections renumbered.
218	220	Corrected grammatical error.
219-226	221-228	Sections renumbered.
227	NA	Removed the definition for "Lithographic and Letter Press Printing, Other Cleaning." For clarification, references in the rule to "Other Cleaning" have been replaced with "cleaning of metering rollers and printing plates," consistent with this former definition.
228-231	229-232	Sections renumbered.
232	233	Clarified that metering rollers transfer and meter fountain solution, not just water.
NA	234	Added a definition for "Newsprint." This definition is the same as the definition used in SCAQMD Rule 1171.
233-236	235-238	Sections renumbered.
NA	239	Added a definition for "Other On-Press Component." This definition is the

Existing Section Number	New Section Number	Proposed Change
		same as the definition of "On-Press Component" used in SCAQMD Rule 1171, but excludes blankets, rollers, metering rollers, and printing plates, which have different current limits.
237	240	Sections renumbered.
NA	241	Added a definition for "Potential to Emit." This definition is the same as the definition used in Rule 202 – NEW SOURCE REVIEW.
238-242	242-246	Sections renumbered.
NA	247	Added a definition for "Removable Press Component." This definition is the same as the definition used in SCAQMD Rule 1171.
243-248	248-253	Sections renumbered.
NA	254	For clarification, defined "Stripping" as the removal of cured inks, cured coatings, or cured adhesives, consistent with SCAQMD Rule 1171.
249-259	255-265	Sections renumbered.
301	Same	Removed from the tables the limits that have expired.
301.2	Same	Revised the table to include more subcategories for chilled and non-chilled fountain solutions, and include more stringent VOC limits. The future limits fulfill the recommendations specified in the 2006 EPA Control Techniques Guidelines for Lithographic and Letterpress Printing.
NA	301.4	Added a section prohibiting the use of fountain solutions containing alcohol on coldest web offset lithographic presses, consistent with the recommendations specified in the 2006 EPA Control Techniques Guidelines for Lithographic and Letterpress Printing.
302.1	Same	Revised the text to clarify that composite partial vapor pressure standards will no longer be in effect after new, more stringent VOC content limits take effect. Revised the table to include more stringent VOC limits for cleaning materials. The future limits are consistent with SCAQMD Rule 1171. Most new limits will take effect one year after the date of adoption; however, the new limits for the following categories have been delayed until 1/1/2011 to allow sufficient time for successful implementation in SCAQMD first: • Blanket and roller washes, cleaning of metering rollers and printing plates, and cleaning of other on-press components used in lithographic and letter press printing on substrates other than newsprint; • Screen printing; and • Ultraviolet/electron beam inks (interim limit to take effect one year after date of adoption; final limit to take effect 1/1/2011). Divided Lithographic and Letter Press Printing into two substrate groups (Newsprint, and Substrates other than Newsprint) to allow for different

Existing Section Number	New Section Number	Proposed Change
		effective dates, consistent with SCAQMD Rule 1171. Eliminated Lithographic and Letter Press Printing, Other Cleaning, and replaced with Metering Rollers and Printing Plates, consistent with former definition. Added new categories for Other On-Press Components and Removable Press Components, previously included under General cleaning, for clarification. These categories will ultimately be subject to different limits.
302.2	Same	Updated text to reflect the elimination of the definition of "Other Cleaning", and replaced with "Cleaning of Metering Rollers and Printing Plates," consistent with previous definition. Added a sunset date for this section so that it expires on 1/1/2011. After that date, the limits for cleaning metering rollers and printing plates will be at least as stringent as the limits for Blanket and Roller Washes; therefore, restricting the monthly usage of these cleaning materials to 15% will no longer be necessary. Added reference to exemption of Section 110.8.
NA	303	Added requirements for mandatory control equipment for heatset web offset lithographic printing, heatset web letterpress printing, and flexible package printing. The revised emissions control equipment requirements are specified in new Sections 303.1—303.3 and are effective on the date of adoption. Added a section providing an alternative to compliance with the overall system efficiency requirements specified in Section 303.1. In lieu of complying with the overall efficiency requirements, sources are required to use emissions control equipment with mass outlet concentration no greater than 20 ppmv as hexane on a dry basis. The above requirements fulfill the recommendations specified in the 2006 EPA Control Techniques Guidelines.
303	304	Updated to reflect renumbered section, and clarified that this section applies to alternative control equipment. The current rule specifies separate efficiency level requirements for the control device and emission collection. The proposed rule specifies a combined overall system efficiency requirement rather than separate capture and control efficiency requirements.
402.4	Same	Revised so that sellers will not be required to display composite partial pressure after 1/1/2011, because after this date, there will no longer be any standards for composite partial pressure in effect.
403	Same	Updated ASTM method numbers to the most current versions.
407	406	Removed the reference to deleted section 110.2.

Existing Section Number	New Section Number	Proposed Change
NA	408	Added section specifying calculation method for determining overall system efficiency of emissions control equipment, consistent with the method stated in other District rules.
501.1	Same	Removed the reference to deleted section 110.2. Updated references to renumbered sections.
501.3	Same	Updated references to renumbered sections. Added a requirement to paragraph (b)(1) to differentiate between materials used for printing on newsprint and materials used for printing on other substrates until 1/1/2011 (when the standards will be the same for all substrates). Clarified that presses exempt pursuant to Section 110.8 will not be required to maintain separate usage records for materials used for printing on newsprint and non-newsprint substrates. Updated text in paragraph (b)(4) to replace "Lithographic and Letter Press Printing, Other Cleaning" with "metering rollers and printing plates," consistent with former definition. Added a sunset date for this paragraph so that it expires on 1/1/2011. Added reference to exemption of Section 110.8.
502	Same	Updated ASTM method numbers to the most current, EPA-approved versions. Updated references to renumbered sections. Corrected typographical errors.
NA	502.9	To clarify enforceability, added paragraph stating that where multiple test methods are specified, a violation established by any one of the test methods constitutes a violation of the rule.

Rule 451, Surface Coating of Miscellaneous Metal Parts and Products

Existing Section Number	New Section Number	Proposed Change
110.1	110	Section renumbered, and updated to reflect new paragraphs added to section 305.
110.2	NA	Section deleted. The 200 gallon/year exemption for aluminum coatings on window and door frames is no longer necessary. Records indicate that the general 55 gallon/year exemption is sufficient for applicable District sources, and is consistent with the EPA Region IX "Little Bluebook."
110.3	NA	Section deleted. The 200 gallon/year exemption for pretreatment wash primer is no longer necessary. Records indicate that the general 55 gallon/year exemption is sufficient for applicable District sources, and is consistent with the EPA Region IX "Little Bluebook."
111	Same	Moved the exemptions in Sections 111.6, 111.7, 111.8, and 111.10 into the

Existing Section Number	New Section Number	Proposed Change
		new Section 112. Clarified that the conformal coatings are regulated under Rule 456- Aerospace Assembly and Component Coating Operations. Removed rule language requiring operations and coatings exempted under the remaining exemptions in this section to comply with Section 501. The remaining exemptions pertain to operations and coatings subject to other District rules. Therefore, Section 501 in the other District rules should apply to such operations and coatings, rather than Section 501 under Rule 451.
NA	112	Moved the exemptions in Sections 111.6, 111.7, 111.8, and 111.10 into this new section in order to require these operations and coatings to comply with the storage, disposal, and recordkeeping requirements. Clarified that only coatings applied exclusively by hand lettering are exempt.
112-113	113-114	Sections renumbered.
NA	115	Added an exemption for coatings on metal furniture. Such coating operations emitting less than 3 tons of VOC per 12-month rolling period are subject to the requirements of Section 301 (pertaining to miscellaneous metal parts and products coatings) rather than Section 302 (pertaining to metal furniture coatings). This exemption is consistent with the recommendations in the 2007 EPA Control Techniques Guidelines.
NA	216	Added a definition for “electrostatic spray.” This definition is the same as the definition used in Shasta County AQMD Rule 3:13- Polyester Resin Operations.
216-227	217-228	Sections renumbered.
NA	229	Added a definition for “metal furniture.” This definition is consistent with the definition specified in the 2007 CTG for Metal Furniture Coatings.
228-229	230-231	Sections renumbered.
NA	232	Added a definition for “multi-component coating.” This definition is consistent with the definition used in SCAQMD Rule 1107- Coating of Metal Parts and Products.
230	233	Updated to reflect the new paragraphs added to section 305.
231	234	Section renumbered.
232-246	235-249	Sections renumbered.
301	Same	Removed the expired VOC limits from the table. Clarified that the VOC content limits apply to materials “as applied.”
NA	302	Established separate VOC limits for metal furniture coating operations emitting greater than or equal to 3 tons of VOC per 12-month rolling period from such operations, to be consistent with the recommendations specified in the 2007 CTG for Metal Furniture Coatings. Metal furniture coating operations emitting less than 3 tons of VOC per 12-month rolling period

Existing Section Number	New Section Number	Proposed Change
		remain subject to Section 301.
302	303	Removed the past effective date.
303.9	304.8	Section renumbered to correct previous error in numbering.
304	305	Added a sunset date for the current standard for solvents used in the cleanup of application equipment in miscellaneous metal parts and products coating operations, and lowered the VOC limit to 25 g/l. Added a sunset date for the provision that allows application equipment to be cleaned in an enclosed gun cleaner in lieu of complying with the VOC limit. Added a sunset date for the exception for electrostatic spray guns. Changes are consistent with SCAQMD Rule 1171- Solvent Cleaning Operations, in (c)(1)(B)(i). Added a sunset date for the provision that allows the soaking of spray gun nozzles in solvents without a limit on VOC content. After the sunset date, spray gun nozzles are subject to the same requirements as other application equipment, consistent with SCAQMD Rule 1171. Added a sunset date for the current standard for solvents used in product cleaning or surface preparation, and lowered the VOC limit to 25 g/l. This limit is consistent with SCAQMD Rule 1171- Solvent Cleaning Operations, in (c)(1)(A)(i). Added additional work practice requirements for use of closed containers for disposal of cloth, paper or sponges used for coating application; minimizing spillage of VOC-containing materials; and for conveyance of VOC-containing materials using closed containers or pipes. These requirements are be consistent with the 2007 CTG for Metal Furniture Coatings and the 2008 EPA Draft CTG for Miscellaneous Metal and Plastic Parts Coatings (dated July 3. 2008).
305	306	Updated to reflect the new paragraphs added to section 305. Increased the required overall emissions control efficiency from 85% to 90%, consistent with the recommendations in the 2007 CTG for Metal Furniture Coatings
401	Same	Removed the past effective date and updated to reflect new paragraphs added to section 305.
405	Same	Corrected previous typographical error in equation for calculating control efficiency.
406	Same	Corrected previous typographical errors in text and in equation for calculating overall system efficiency.
407	Same	Updated to reflect the new paragraphs added to section 305.
501	Same	Updated to include the new exemption Section 112. As discussed earlier, several exemptions in Section 111 in the current rule have been moved

Existing Section Number	New Section Number	Proposed Change
		into new Section 112 in order to require such operations and coatings to comply with the rule requirements for storage, disposal, and recordkeeping (this section).
501.1	Same	Corrected typographical error and updated to reflect the new paragraphs added to section 305.
501.3	Same	Updated to reflect the new paragraphs added to section 305.
501.5	Same	Added a sunset date for the current requirement for duration of records. Revised the requirement for duration of records to five years. This is consistent with other District rules.
502	Same	Updated ASTM method numbers to the most current versions.
502.3	Same	Updated to incorporate most recent U.S. EPA guidelines on determining capture efficiency.
NA	502.7	To clarify enforceability, added paragraph stating that where multiple test methods are specified, a violation established by any one of the test methods constitutes a violation of the rule.

Rule 452, Can Coating

Existing Section Number	New Section Number	Proposed Change
NA	102	Added an applicability section to this rule, consistent with other District rules.
NA	103	Added a severability section to this rule, consistent with other District rules.
NA	203	Added a definition for “dip coat.” This definition is the same as the definition used in other District rules.
NA	204	Added a definition for “electrostatic spray.” This definition is the same as the definition used in Shasta County AQMD Rule 3:13- Polyester Resin Operations.
203-205	205-207	Sections renumbered.
NA	208	Added a definition for “flow coat.” This definition is the same as the definition used in other District rules.
NA	209	Added a definition for “food/beverage can.” This definition is the same as the definition used in SCAQMD Rule 1125- Metal Container, Closure, and Coil Coating Operations.
NA	210	Added a definition for “hand application equipment.” This definition is the same as the definition used in other District rules.
NA	211	Added a definition for “high-volume low-pressure application equipment.” This definition is the same as the definition used in other District rules.
206-207	212-213	Sections renumbered.
NA	214	Added a definition for “low-volume low-pressure application equipment.”

Existing Section Number	New Section Number	Proposed Change
		This definition is the same as the definition used in other District rules.
208	215	Section renumbered.
NA	216	Added a definition for "roll coater." This definition is the same as the definition used in other District rules.
209-211	217-219	Sections renumbered.
301	Same	Lowered VOC limits for three piece can interior body spray and two piece can interior body spray to be consistent with the limits in BAAQMD Rule 8-11 and SJVAPCD Rule 4604. Separated the end sealing compound category into "end sealing compound for food/beverage cans" and "end sealing compound for non-food containers," and established VOC limits that are lower than the current VOC limit for end sealing compound. The proposed VOC limits for the two subcategories are consistent with the more stringent, feasible limits in SCAQMD Rule 1125.
302	Same	Increased emissions control efficiency requirement to be consistent with the requirements in BAAQMD Rule 8-11 and SJVAPCD Rule 4604. Added an equation for the calculation of the allowable daily emissions from emissions control equipment and from compliance with the VOC limits.
303	Same	Added a sunset date to the current VOC limit for cleanup of container assembly equipment, and removed the expired effective date. Revised the VOC limit for the cleanup of container assembly equipment to 25 g/l. This is now consistent with SCAQMD Rule 1171- Solvent Cleaning Operations, in (c)(1)(B)(i).
NA	304	Added a section for application equipment requirements. These requirements are the same as the requirements in other District coating rules, with an additional option to use an add-on control device with an overall system efficiency of 85.5% (equivalent to 90% capture efficiency and 95% control efficiency).
NA	403	Added a section for the calculation of VOC content of cleanup material, consistent with other District rules.
NA	404	Added a section for the calculation of percent control efficiency and VOC mass emission rate, consistent with other District rules. Specified EPA Method 25A as an allowed method of determining VOC mass concentration to be consistent with other District rules.
NA	405	Added a section for calculation for determining overall system efficiency. This calculation is the same as the calculation in other District rules.
501.1	Same	Added a reference to new section 403, which specifies the procedure for calculating VOC content of cleanup material.
501.2	Same	Added a reference to new section 404, which specifies the procedure for calculating the percent control efficiency.
501.3	Same	Revised the test methods for determining capture efficiency to be

Existing Section Number	New Section Number	Proposed Change
		consistent with other District rules. Specified EPA Method 25A as an allowed method of determining control efficiency and emission rates from control devices to be consistent with other District rules.
501.4	Same	Updated ASTM method number to the most current version.
NA	501.5	To clarify enforceability, added paragraph stating that where multiple test methods are specified, a violation established by any one of the test methods constitutes a violation of the rule.
504	Same	Added a sunset date for the current requirement for duration of records. Revised the requirement for duration of records to five years. This is consistent with other District rules.

Rule 454, Degreasing Operations

Existing Section Number	New Section Number	Proposed Change
110.2	NA	Removed this section because it has since expired.
110.3	110.2	Added a sunset date for the current exemption.
NA	110.3	Revised the exemption to 25 grams per liter or less VOCs for solvents used in degreasers. This is consistent with SCAQMD Rule 1122, Solvent Degreasers, in (d).
110.5	NA	Removed this section because it duplicated the exemption in previous section 110.3, which is being sunset.
110.6	110.5	Added a sunset date for the current exemption, which will make degreasers that are subject to the NESHAP also subject to the requirements of this rule, including VOC content limits. The NESHAP does not regulate VOC content.
110.7	NA	Removed this section because it has since expired.
110.8	110.6	Section renumbered.
110.9	110.7	Updated to reflect the new paragraph added to section 302 and renumbering of Rule 456.
NA	110.8	Added an exemption for the degreasing of high-voltage microwave vacuum tubes because compliance with the degreasing VOC limit is not technologically feasible.
215	Same	Clarified the definition of non-vapor degreaser to emphasize that the definition includes remote reservoir degreasers.
NA	226	Added a definition for “water separator.” This definition is the same as the definition used in SCAQMD Rule 1122.
226-227	227-228	Sections renumbered.
301	Same	Deleted text that was unnecessary because the term “degreaser” already includes “remote reservoir degreaser.”

Existing Section Number	New Section Number	Proposed Change
302	Same	Clarified to emphasize that non-vapor degreasers are also subject to the requirements of Section 301.
302.1	Same	Removed the reference to Section 110.2 because this section has since expired. Removed "including remote reservoir degreasers" because the definition of "non-vapor degreasers" already includes remote reservoir degreasers. Corrected the typographical error to now read "b" instead of "d."
302.2	Same	Added a sunset date for the current VOC limit for solvents used in non-vapor degreasers.
NA	302.3	Revised the VOC limit for solvents used in non-vapor degreasers. Solvents used in non-vapor degreasers must have a VOC content of 25 g/l or less. This is consistent with SCAQMD Rule 1122, Solvent Degreasers, in (d).
303	Same	Corrected typographical error.
304	Same	Corrected grammatical error.
304.1	NA	Removed this section because it has since expired.
304.2	304.1	Removed the effective date, which has passed. Corrected grammatical error.
304.3	304.2	Updated to reflect renumbered section.
NA	304.3	Added a new VOC limit for vapor degreasing operations. Solvents used in vapor degreasers must have a VOC content of 25 g/l or less. This is consistent with SCAQMD Rule 1122, Solvent Degreasers, in (e)(3).
305	Same	Removed the effective date, which has passed. Clarified to emphasize that remote reservoir degreasers are also subject to the requirements of Sections 301 and 302.
309	Same	Added emissions control equipment requirements to the requirements for lip exhaust system. After the sunset date for Section 310, emissions control equipment will no longer be allowed as an alternative to Sections 302, 304, and 307 (see discussion of Section 310 below), but will still be allowed for venting emissions from a lip exhaust system.
310	Same	Added a sunset date for the provision allowing the use of emissions control equipment in lieu of compliance with the equipment requirements for degreasing operations. After the sunset date, the use of an emission control device as specified in this section would no longer ensure emission reductions that are equivalent to compliance with the other sections of the rule, which will require the use of solvents containing no more than 25 g/l VOC or the use of an airtight/airless system. Change is consistent with SCAQMD Rule 1122, Solvent Degreasers.
401	Same	Corrected typographical error.
501.5	501.4	Corrected the typographical error to now read 501.4 instead of 501.5. Added a sunset date for the current requirement for duration of records.

Existing Section Number	New Section Number	Proposed Change
		Revised the requirement for duration of records to five years. This is consistent with other District rules.
502	Same	Updated ASTM method numbers to the most current versions.
502.3	Same	Reworded to be consistent with other District rules. No change in meaning.
NA	502.8	To clarify enforceability, added paragraph stating that where multiple test methods are specified, a violation established by any one of the test methods constitutes a violation of the rule.

Rule 456, Aerospace Assembly and Component Coating Operations

Existing Section Number	New Section Number	Proposed Change
110	Same	Effective 1/1/09, the low usage exemption will be lowered from 200 gallons per year to 55 gallons per year. Records indicate that the 55 gallons per year exemption is sufficient for applicable District sources, and is consistent with the EPA Region IX "Little Bluebook."
113	Same	Updated to reflect renumbering of Section 304.5 to 304.6.
NA	219	Added a definition for "electrostatic spray." This definition is the same as the definition used in Shasta County AQMD Rule 3:13- Polyester Resin Operations.
219-232	220-233	Sections renumbered.
NA	234	Defined Material as any coating, coating remover, or solvent.
233-234	235-236	Sections renumbered.
235	237	Revised to clarify that non-compliant materials include adhesives, maskants, and strippers as well as coatings.
236-262	238-264	Sections renumbered.
301	Same	Removed the past effective date. Clarified that the VOC limits are as applied.
302	Same	Removed the past effective date.
304	Same	Added a sunset date for current standard for cleaning of spray guns used in coating operations. Added a VOC limit of 25 g/l for cleaning of application equipment, effective one year after adoption date. This proposed provision applies to all application equipment, not just spray guns. An enclosed gun cleaner may still be used in lieu of complying with the 25 g/l limit, until two years after adoption date, when the VOC limit is applicable regardless of whether an enclosed gun cleaner is used. (This extension was added in response to a comment from an aerospace coating source, to allow sufficient time to test and requalify substitute solvents.) Eventual requirements (VOC limit without enclosed gun cleaner option) are consistent with SCAQMD Rule 1171- Solvent Cleaning Operations, in

Existing Section Number	New Section Number	Proposed Change
		(c)(1)(C). Added a sunset date for the provision that allows the soaking of spray gun nozzles in solvents without a limit on VOC content. After the sunset date, spray gun nozzles are subject to the same requirements as other application equipment, consistent with SCAQMD Rule 1171. Removed the past effective date.
401	Same	Removed the past effective date and clarified that non-compliant materials include adhesives, maskants, and strippers as well as coatings.
406	Same	Updated ASTM test method numbers to the most current versions.
407	Same	Corrected the typographical error in the equation for percent control efficiency.
408	Same	Corrected the typographical error in the equation for overall system efficiency
501.5	Same	Added a sunset date for the current requirement for duration of records. Revised the requirement for duration of records to five years. This is consistent with other District rules.
502	Same	Updated ASTM method numbers to the most current versions.
502.5	Same	Updated to incorporate most recent U.S. EPA guidelines on determining capture efficiency.
NA	502.8	To clarify enforceability, added paragraph stating that where multiple test methods are specified, a violation established by any one of the test methods constitutes a violation of the rule.

Rule 463, Wood Products Coatings

Existing Section Number	New Section Number	Proposed Change
NA	103	Added a severability section to this rule, consistent with other District rules.
110.4	Same	Clarified that coating of architectural components or structures not coated in a shop environment is subject to Rule 442- Architectural Coatings.
110.5	NA	Removed exemption pertaining to stencil coatings used to comply with U.S. Military Specifications. The facility that used this exemption is no longer in operation.
210	Same	Replaced the term “self sealing” with “combined sealer/topcoat” to clarify that conversion varnish is not subject to the VOC limit for sealers when used as a combined sealer/topcoat system. Removed the past effective date.

Existing Section Number	New Section Number	Proposed Change
NA	220	Added a definition for "historical reproduction coating." This definition limits the applicability of the emissions averaging provision specified in Section 306.1 to a wood coating facility in Sacramento County. This facility, the only source in Sacramento County currently using the emissions averaging provision in the current Rule 463, will be allowed to continue to use the provision for the restoration of antique wood products to a historically accurate finish.
220-222	221-223	Sections renumbered.
NA	224	Added a definition for "major stationary source of VOC." This definition was extracted from Rule 207, TITLE V – FEDERAL OPERATING PERMIT PROGRAM.
223-242	225-244	Sections renumbered.
301	Same	Removed the past effective date.
302	Same	Clarified that the VOC limits are as applied.
302.2	Same	Revised the language to clarify that "VOC limits expressed in grams per liter shall be used" if emissions averaging is used to achieve rule compliance for low-solids stains, toners, and washcoats. Clarified that the VOC limit for conversion varnish is applicable "when used as a combined sealer/topcoat system." Previously, this information could be found only in Section 210. Removed the expired VOC limits and the past effective date for the current VOC limits. Corrected typographical error to include correct units for low-solid stains, toners, and washcoats.
302.3	NA	Removed this section because it shouldn't have applied after 7/1/05, but was never sunset.
303.2	Same	Revised the rule language to clarify that "VOC limits expressed in grams per liter shall be used" if emissions averaging is used to achieve rule compliance for low-solids stains, toners, and washcoats. Removed the past effective date for the current VOC limits. Corrected typographical errors, including correct units for low-solid stains, toners, and washcoats.
304	Same	Removed the past effective date.
306	Same	Revised the emissions averaging provision to limit its applicability to historical reproduction coatings only and not for a major stationary source, and to limit the usage of these coatings to 20 gallons per year per facility. These changes are proposed to address EPA comments concerning the

Existing Section Number	New Section Number	Proposed Change
		approvability of the averaging provision. Removed the section that is no longer applicable because it has since expired. Revised the equation for determining compliance with emissions limits for coatings for consistency with the expiration of the 0.9 multiplier. Added paragraph 306.2 to specify that if a stationary source does not satisfy the requirement to demonstrate compliance with the averaging provision at any time during a rolling 30-day period, the stationary source has exceeded the allowable emissions on every day of the rolling 30-day period.
308	Same	Added a sunset date for the provision that allows the soaking of spray gun nozzles in solvents without a limit on VOC content. After the sunset date, spray gun nozzles are subject to the same requirements as other application equipment, consistent with SCAQMD Rule 1171. Removed the past effective dates. Added a sunset date for the surface preparation/cleanup requirement that spray equipment must be disassembled and cleaned in an enclosed gun cleaner. After the sunset date, the rule no longer requires spray equipment cleanup to be performed using an enclosed gun cleaner, but still requires compliance with the proposed VOC limit for surface preparation and cleanup, consistent with SCAQMD Rule 1171. Added a sunset date for current VOC limit for surface preparation and cleanup with a VOC material. Added a new VOC limit for surface preparation and cleanup with a VOC material. This new limit is consistent with SCAQMD Rule 1171- Solvent Cleaning Operations, in (c)(1)(A)(i).
401	Same	Removed the past effective date.
407	NA	Removed this section because it has since expired.
501.1	Same	Inserted missing label for paragraph c.
502	Same	Added a sunset date for the current requirement for duration of records. Revised the requirement for duration of records to five years. This is consistent with other District rules.
503	Same	Updated ASTM method numbers to the most current versions.
503.4	Same	Reworded to be consistent with other District rules. No change in meaning.
NA	503.8	To clarify enforceability, added paragraph stating that where multiple test methods are specified, a violation established by any one of the test methods constitutes a violation of the rule.

Rule 464, Organic Chemical Manufacturing Operations

Existing Section Number	New Section Number	Proposed Change
110-113	Same	Updated to reflect section 400 renumbering.
115	Same	Updated to reflect new paragraph added to section 308.
301-304	Same	Updated to reflect section 400 renumbering.
305	Same	Updated to reflect section 400 renumbering, and removed past effective dates.
306-307	Same	Updated to reflect section 400 renumbering.
308	Same	Added sunset date for current VOC limit for maintenance solvent cleaning. Lowered the VOC limit for maintenance solvent cleaning to 25 g/l. This new limit is consistent with SCAQMD Rule 1171- Solvent Cleaning Operations, in (c)(1)(B)(i).
401	NA	Deleted section because the compliance date has passed.
402-413	401-412	Sections renumbered, and text updated to reflect renumbered sections.
407	406	Updated ASTM method numbers to the most current versions.
501.1	Same	Updated to reflect section 400 renumbering.
501.3	Same	Updated to reflect section 400 renumbering.
501.4-501.7	Same	Added rule language to require sources to keep records of the VOC content of materials used. Sources already keep these records, but the added rule language clarifies this requirement.
502.2	Same	Changed “capture efficiency” to “collection efficiency” to maintain consistency with other sections of this rule. Reworded to be consistent with other District rules. No change in meaning.
502.4	Same	Updated ASTM method number to the most current version.
NA	502.6	To clarify enforceability, added paragraph stating that where multiple test methods are specified, a violation established by any one of the test methods constitutes a violation of the rule.

Rule 465, Polyester Resin Operations

Existing Section Number	New Section Number	Proposed Change
104	Same	Added a sunset date for the current exemption for cleaning materials. This is consistent with SCAQMD Rule 1171- Solvent Cleaning Operations, which does not contain such an exemption.
301	Same	Increased overall control efficiency requirements to 90%, consistent with the requirements in SCAQMD Rule 1162.
303	Same	Added a sunset date for the current VOC limit for cleaning materials.

Existing Section Number	New Section Number	Proposed Change
		Lowered the VOC limit for cleaning materials to 25 g/l. Eliminated the provision currently allowing the use of an enclosed gun cleaner In lieu of compliance with the VOC content limit for cleaning materials. This new limit is consistent with SCAQMD Rule 1171-Solvent Cleaning Operations, in (c)(1)(E).
404	Same	Corrected previous typographical error in equation for calculating overall system efficiency.
501.2c	Same	Replaced “non-compliant coatings” with “non-compliant materials” for consistency with Section 215.
501.4	Same	Added a sunset date for the current requirement for duration of records. Revised the requirement for duration of records to five years. This is consistent with other District rules.
502.4	Same	Updated ASTM method number to the most current version.
502.5	Same	Updated to incorporate most recent U.S. EPA guidelines on determining capture efficiency.
NA	502.7	To clarify enforceability, added paragraph stating that where multiple test methods are specified, a violation established by any one of the test methods constitutes a violation of the rule.

Rule 466, Solvent Cleaning Operations

Existing Section Number	New Section Number	Proposed Change
102	Same	Clarified that the requirements of proposed Rule 466 apply to sterilization of food manufacturing and processing equipment
110.2	Same	Added a sunset date for current exemption for solvent cleaning. Lowered the VOC limit in the exemption to 25 g/l. This new limit is consistent with SCAQMD Rule 1171- Solvent Cleaning Operations, in (h)(1). Added an exemption for the cleaning of high-voltage microwave vacuum tubes because, similar to other exempt applications, compliance with the solvent VOC limit is not technologically feasible. Added a sunset date for the exemption for electrostatic coating application equipment, consistent with SCAQMD Rule 1171.
110.4	Same	Corrected typographical error. Cleaning of nozzle tips of automated spray equipment systems is not subject to the entire Section 302, not only 302.2.
NA	110.5	Added an exemption for materials used to strip cured inks, cured coatings, or cured adhesives, consistent with SCAQMD Rule 1171. This exemption was already implied in the definition of Solvent Cleaning, but this new

Existing Section Number	New Section Number	Proposed Change
		section has been added for clarification.
NA	209	For clarification, added a definition for cured ink, cured coating, or cured adhesive. This definition is consistent with SCAQMD Rule 1171.
209-213	210-214	Sections renumbered.
NA	215	Added a definition for food product manufacturing and processing operation. This definition is the same as the definition in SCAQMD Rule 1131- Food Product Manufacturing and Processing Operations.
NA	216	Added a definition for general work surface. This definition is the same as the definition in SCAQMD Rule 1171- Solvent Cleaning Operations.
214-216	217-219	Sections renumbered.
217	220	Revised the definition of janitorial cleaning. This definition is the same as the definition in SCAQMD Rule 1171- Solvent Cleaning Operations.
NA	221	Added a definition for jobsite to clarify the applicability of the VOC limits in the table in Section 301.1.
218-219	222-223	Sections renumbered.
220	224	Revised the definition of maintenance cleaning. This definition is the same as the definition in SCAQMD Rule 1171- Solvent Cleaning Operations.
221-226	225-230	Sections renumbered.
NA	231	Added a definition for pharmaceutical product. This definition is the same as the definition in SCAQMD Rule 1171- Solvent Cleaning Operations.
227-235	232-240	Sections renumbered.
NA	241	Added a definition for solvent based coating to clarify the applicability of the VOC limits in the table in Section 301.1.
236	242	Added a provision that effective one year after date of adoption, solvent cleaning operations will include the sterilization of food manufacturing and processing equipment.
237	243	Section renumbered.
NA	244	Added a definition for sterilization. This definition is the same as the definition in SCAQMD Rule 1131- Food Product Manufacturing and Processing Operations.
238-239	245-246	Sections renumbered.
NA	247	For clarification, defined “stripping” as the removal of cured inks, cured coatings, or cured adhesives.
240-241	248-249	Sections renumbered.
NA	250	Added a definition for water based coating to clarify the applicability of the VOC limits in the table in Section 301.1.
242	251	Section renumbered.
301	Same	Replaced “per Section 502.1” with “pursuant to Section 502.1” for consistency with other rule language. Added sunset dates for current VOC standards for solvent cleaning activities. Lowered the VOC limits for solvent cleaning activities. These

Existing Section Number	New Section Number	Proposed Change
		new limits are consistent with SCAQMD Rule 1171- Solvent Cleaning Operations, in (c)(1). Added a sunset date for the current standards for architectural coating application equipment cleaning using solvent based coatings without an enclosed gun cleaner. Lowered the VOC limit to 25 g/l for this category. This new VOC limit applies regardless of whether an enclosed gun cleaner is used, and is consistent with SCAQMD Rule 1171. Added a new VOC standard for sterilization of food product manufacturing and processing equipment. This new limit is consistent with SCAQMD Rule 1131- Food Product Manufacturing and Processing Operations.
302	Same	Deleted sections that specified devices and methods used to clean architectural coating application equipment. These requirements have been added to the table in Section 301.1. Added a sunset date for the provision that allows the soaking of spray gun nozzles in solvents without a limit on VOC content. After the sunset date, spray gun nozzles are subject to the same requirements as other application equipment, consistent with SCAQMD Rule 1171.
304	Same	Deleted reference to Section 302, from which the architectural application equipment cleaning requirements have been moved to Section 301. Clarified that all of the following paragraphs apply.
304.2	Same	Updated to reflect section renumbering.
NA	304.3	Added a provision requiring emissions from use of an emissions control equipment to be less than or equal to the emissions resulting from compliance with all applicable VOC limits. This is more stringent than SCAQMD Rule 1171, which does not contain such a provision. Added an equation for the calculation of the allowable quarterly emissions from emissions control equipment and from compliance with the VOC limits.
401	NA	Deleted section because the compliance date has passed.
402-405	401-404	Sections renumbered.
501.2	Same	Updated to reflect section renumbering.
501.4	Same	Updated to reflect section renumbering.
501.5	Same	Added a sunset date for the current requirement for duration of records. Revised the requirement for duration of records to five years. This is consistent with other District rules.
502.1	Same	Updated to reflect section renumbering.
502.2	Same	Updated ASTM method number to the most current version. Updated to reflect section renumbering.
502.4	Same	Updated to incorporate most recent U.S. EPA guidelines on determining capture efficiency.

Existing Section Number	New Section Number	Proposed Change
NA	502.6	To clarify enforceability, added paragraph stating that where multiple test methods are specified, a violation established by any one of the test methods constitutes a violation of the rule.

Appendix C- Allocation of the 2010 District Solvent Cleaning Emissions Inventory to Specific District Rules

VOC Emissions by EIC code		2010 Non-Coating, VOC TPY			2010 Coating - Application Equipment Cleaning - VOC TPY							2010 Coating - Surf Prep/Cleanup - VOC TPY						
EIC	2010 Ozone SIP (v1.06 RF980, 11/16/06)) TPY	Print-ing (Rule 450)	Deg-reasing (Rule 454)	Other (Rule 466)	Misc. Metal Parts (Rule 451)	Can Coating (Rule 452)	Aero-Spac e (Rule 456)	Auto Refin-ishin g (Rule 459)	Adhesives & Sealants (Rule 460)	Wood Products (Rule 463)	Polyester Resin (Rule 465)	Misc. Metal Parts (Rule 451)	Can Coating (Rule 452)	Aero-Spac e (Rule 456)	Auto Refin-ishin g (Rule 459)	Adhesives & Sealants (Rule 460)	Wood Products (Rule 463)	Polyester Resin (Rule 465)
COLD CLEANING																		
230-240-8300-0000 Coatings – Thinning and Cleanup Solvents (Unspecified)	116.10							92.2		22.3	1.4							
220-204-0500-0000 Cold Cleaning – Petroleum Naphtha	190.46	64.94	69.91		7.15	13.31	9.03		8.71			3.63	0.00	4.88	4.37	1.81	2.24	0.48
220-204-3022-0000 Cold Cleaning – Alcohols (Unspecified)	4.67		4.67		0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
220-204-3083-0000 Cold Cleaning – Chlorofluorocarbons (Unspecified)	1.06		1.06		0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
220-204-3162-0000 Cold Cleaning – Fluorocarbons (Unspecified)	0.00																	
220-204-3176-0000 Cold Cleaning – Glycol Ethers (Unspecified)	0.29		0.29		0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
220-204-3202-0000 Cold Cleaning – Isopropanol	0.37		0.37		0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
220-204-3204-0000 Cold Cleaning – Ketones (Unspecified)	0.18		0.18		0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix C
Allocation of the 2010 District Solvent Cleaning Emissions Inventory to Specific District Rules
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VOC Emissions by EIC code		2010 Non-Coating, VOC TPY			2010 Coating - Application Equipment Cleaning - VOC TPY							2010 Coating - Surf Prep/Cleanup - VOC TPY						
EIC	2010 Ozone SIP (v1.06 RF980, 11/16/06)) TPY	Print-ing (Rule 450)	Deg-reasing (Rule 454)	Other (Rule 466)	Misc. Metal Parts (Rule 451)	Can Coating (Rule 452)	Aero-Spac e (Rule 456)	Auto Refin-ishin g (Rule 459)	Adhesives & Sealants (Rule 460)	Wood Products (Rule 463)	Polyester Resin (Rule 465)	Misc. Metal Parts (Rule 451)	Can Coating (Rule 452)	Aero-Spac e (Rule 456)	Auto Refin-ishin g (Rule 459)	Adhesives & Sealants (Rule 460)	Wood Products (Rule 463)	Polyester Resin (Rule 465)
220-204-3246-0000 Cold Cleaning – Methylene Chloride (Dichloromethane)	0.00																	
220-204-3333-0000 Cold Cleaning – Terpenes (Unspecified)	2.41		2.41		0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
220-204-3339-0000 Cold Cleaning – Toluene/Xylene	0.15		0.15		0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
220-204-3344-0000 Cold Cleaning – 1,1,1,-Trichloroethane (TCA)	0.00																	
220-204-8104-0000 Cold Cleaning – Degreasing Solvents – Pure (Unspecified)	0.07		0.07		0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
220-204-8106-0000 Cold Cleaning – Degreasing Solvents – Blends (Unspecified)	21.46		21.46		0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
220-206-3083-0000** Vapor Degreasing-Chlorofluorocarbons (Unspecified)	0.55		0.55															
220-206-3107-0000** Vapor Degreasing-Dichlorofluoroethane (HCFC-141B)	0.04		0.04															

VOC Emissions by EIC code		2010 Non-Coating, VOC TPY			2010 Coating - Application Equipment Cleaning - VOC TPY							2010 Coating - Surf Prep/Cleanup - VOC TPY						
EIC	2010 Ozone SIP (v1.06 RF980, 11/16/06)) TPY	Print-ing (Rule 450)	Deg-reasing (Rule 454)	Other (Rule 466)	Misc. Metal Parts (Rule 451)	Can Coating (Rule 452)	Aero-Spac e (Rule 456)	Auto Refin-ishin g (Rule 459)	Adhesives & Sealants (Rule 460)	Wood Products (Rule 463)	Polyester Resin (Rule 465)	Misc. Metal Parts (Rule 451)	Can Coating (Rule 452)	Aero-Spac e (Rule 456)	Auto Refin-ishin g (Rule 459)	Adhesives & Sealants (Rule 460)	Wood Products (Rule 463)	Polyester Resin (Rule 465)
220-206-3300-0000** Vapor Degreasing-Perchloroethylene	0.00																	
220-206-3301-0000** Vapor Degreasing-Perfluorocarbons (Unspecified)	0.15		0.15															
220-206-3344-0000** Vapor Degreasing-1,1,1,- Trichloroethane (TCA)	0.00																	
220-206-3346-0000** Vapor Degreasing-Trichloroethylene (TCE)	0.66		0.66															
WIPE CLEANING																		
220-208-0500-0000 Handwiping – Petroleum Naphtha	24.71			24.71	0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
220-208-3022-0000 Handwiping – Alcohols (Unspecified)	11.17			11.17	0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
220-208-3083-0000 Handwiping – Chlorofluorocarbons (Unspecified)	0.15			0.15	0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
220-208-3176-0000 Handwiping – Glycol Ethers (Unspecified)	2.34			2.34	0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix C
Allocation of the 2010 District Solvent Cleaning Emissions Inventory to Specific District Rules
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VOC Emissions by EIC code		2010 Non-Coating, VOC TPY			2010 Coating - Application Equipment Cleaning - VOC TPY							2010 Coating - Surf Prep/Cleanup - VOC TPY						
EIC	2010 Ozone SIP (v1.06 RF980, 11/16/06)) TPY	Print-ing (Rule 450)	Deg-reasing (Rule 454)	Other (Rule 466)	Misc. Metal Parts (Rule 451)	Can Coating (Rule 452)	Aero-Spac e (Rule 456)	Auto Refin-ishin g (Rule 459)	Adhesives & Sealants (Rule 460)	Wood Products (Rule 463)	Polyester Resin (Rule 465)	Misc. Metal Parts (Rule 451)	Can Coating (Rule 452)	Aero-Spac e (Rule 456)	Auto Refin-ishin g (Rule 459)	Adhesives & Sealants (Rule 460)	Wood Products (Rule 463)	Polyester Resin (Rule 465)
220-208-3204-0000 Handwiping – Ketones (Unspecified)	8.47			8.47	0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
220-208-3246-0000 Handwiping – Methylene Chloride (Dichloromethane)	0.00																	
220-208-3333-0000 Handwiping – Terpenes (Unspecified)	0.07			0.07	0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
220-208-3339-0000 Handwiping – Toluene/Xylene	2.19			2.19	0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
220-208-3344-0000 Handwiping – 1,1,1,-Trichloroethane (TCA)	0.00																	
220-208-3346-0000 Handwiping – Trichloroethylene (TCE)	0.22			0.22	0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
220-208-8104-0000 Handwiping – Degreasing Solvents-Pure (Unspecified)	1.61			1.61	0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
220-208-8106-0000 Handwiping – Degreasing Solvents – Blends (Unspecified)	5.15			5.15	0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
230-216-8350-0000 Coatings – Preparation Solvents (Unspecified)	1.10			1.10														

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VOC Emissions by EIC code		2010 Non-Coating, VOC TPY			2010 Coating - Application Equipment Cleaning - VOC TPY							2010 Coating - Surf Prep/Cleanup - VOC TPY						
EIC	2010 Ozone SIP (v1.06 RF980, 11/16/06)) TPY	Print-ing (Rule 450)	Deg-reasing (Rule 454)	Other (Rule 466)	Misc. Metal Parts (Rule 451)	Can Coating (Rule 452)	Aero-Spac e (Rule 456)	Auto Refin-ishin g (Rule 459)	Adhesives & Sealants (Rule 460)	Wood Products (Rule 463)	Polyester Resin (Rule 465)	Misc. Metal Parts (Rule 451)	Can Coating (Rule 452)	Aero-Spac e (Rule 456)	Auto Refin-ishin g (Rule 459)	Adhesives & Sealants (Rule 460)	Wood Products (Rule 463)	Polyester Resin (Rule 465)
230-240-3008-0000 Coatings – Acetone	0.00																	
230-240-3128-0000 Coatings – Ethyl Alcohol	0.00				0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
230-240-3232-0000 Coatings – Methyl Ethyl Ketone (MEK)	0.00				0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
230-240-8302-0000 Coatings – Thinning Solvents (Unspecified)	0.22				0.00	0.00	0.00		0.00			0.05	0.00	0.06	0.05	0.02	0.03	0.01
230-240-8350-0000 Coatings – Cleanup Solvents (Unspecified)	1.24				0.00	0.00	0.00		0.00			0.26	0.00	0.35	0.31	0.13	0.16	0.03
240-240-3202-0000 Printing – Thinning and Cleanup Solvents – Isopropanol	15.00	15.00			0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
240-240-3314-0000 Printing – Thinning and Cleanup Solvents – N-Propanol	1.10			1.10														
240-240-8302-0000 Printing – Thinning Solvents (Unspecified)	0.88	0.88			0.00	0.00	0.00		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00
299-995-8000-0000 Coatings – Other Solvents (Unspecified)	0.84			0.84														

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Allocation of the 2010 District Solvent Cleaning Emissions Inventory to Specific District Rules
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VOC Emissions by EIC code		2010 Non-Coating, VOC TPY			2010 Coating - Application Equipment Cleaning - VOC TPY							2010 Coating - Surf Prep/Cleanup - VOC TPY						
EIC	2010 Ozone SIP (v1.06 RF980, 11/16/06)) TPY	Print-ing (Rule 450)	Deg-reasing (Rule 454)	Other (Rule 466)	Misc. Metal Parts (Rule 451)	Can Coating (Rule 452)	Aero-Spac e (Rule 456)	Auto Refin-ishin g (Rule 459)	Adhesives & Sealants (Rule 460)	Wood Products (Rule 463)	Polyester Resin (Rule 465)	Misc. Metal Parts (Rule 451)	Can Coating (Rule 452)	Aero-Spac e (Rule 456)	Auto Refin-ishin g (Rule 459)	Adhesives & Sealants (Rule 460)	Wood Products (Rule 463)	Polyester Resin (Rule 465)
520-522-8300-0000** Architectural Coatings-Thinning and Cleanup Solvents-Coatings (Unspecified)	82.82			82.82														
Total TPY	497.77	80.82	101.97	141.9	7.15	13.31	9.03	92.23	8.71	22.33	1.44	3.94	0.00	5.29	4.74	1.96	2.42	0.52
Total TPD	1.36	0.22	0.28	0.38	0.02	0.04	0.02	0.25	0.02	0.06	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.00

Total VOC Emissions by District Rule

	Rule 450-Graphic Arts	Rule 451-Misc. Metal Parts	Rule 452-Can Coating	Rule 454-Degreasing	Rule 456-Aerospace	Rule 459-Auto Refinishing	Rule 460-Adhesives & Sealants	Rule 463-Wood Products	Rule 465-Polyester Resin	Rule 466-Solvent Cleaning	**Total**
Total TPY (Application Equipment Cleaning)	**80.82**	**7.15**	**13.31**		**9.03**	**92.23**	**8.71**	**22.33**	**1.44**		**235.01**
Total TPY (Surface Preparation/Cleanup)		**3.94**			**5.29**	**4.74**	**1.96**	**2.42**	**0.52**		**18.88**
Total TPY (Other)				**101.97**						**141.91**	**243.88**
TOTAL TPY	**80.82**	**11.09**	**13.31**	**101.97**	**14.32**	**96.97**	**10.67**	**24.75**	**1.97**	**141.91**	**497.77**

APPENDIX D
PUBLIC COMMENTS

Public Workshop Comments (April 28, 2008)

Participants:

Kathy Adams
Al Batakji
Larry Battenberg
Frederick Carr
Steve Cerniglit
Bill Coleman
George Contos
Richard Crowe
Bob Dipper
Don Eggleston
Nancy Fletcher
Randy Harvey
Beth Barker Hidalgo
Vern Howlett
Ted Huff
James Iwamoto
Rodger Mannka
Kevin Peterson
David Ratajczak
Jill Reed
Chelsea Sand
Randy Thompson
Raymond Vigil
Jim Williams
Kevin Willy

Comment #1: Is the 15% monthly usage limit for metering roller/printing plate cleaning in Rule 450 (Section 302.2) going away? What is the purpose of this 15% usage limit? Acetone is hazardous and extremely flammable, so why is it an exempt solvent? Also, it is not feasible to use non-acetone solvents because they leave residue.

Response: The 15% usage limit is proposed to sunset when the VOC content of blanket/roller washes and metering rollers/printing plates are all required to meet a limit of 100 g/l. This usage limit was originally designed to limit the usage of metering roller/printing plate cleaning because the rule allows for higher vapor pressure limits than for blanket and roller washes. Acetone is an exempt compound because the U.S. EPA determined that acetone has negligible reactivity for forming ground-level ozone.

Sources in the South Coast AQMD are currently using non-acetone cleaning products to comply with the 100 g/l limit. Staff is proposing to extend by one year the effective dates for all categories in Rule 450 that have 1/1/2010 effective dates in the version of proposed Rule 450 presented at the 4/28/08 Public Workshop. The new effective date for these categories is 1/1/2011. Staff believes that extending the effective dates for these categories will allow sufficient time for industry to convert to the lower VOC cleaning products and find suitable replacement solvents.

Comment #2: It is currently not feasible to require low VOC solvents to be used on automatic washing systems for ink rollers. Manufacturers of automatic washing systems are not recommending the use of low VOC solvents, because of potential problems with the seals.

Response: Sources in the South Coast AQMD are currently using low-VOC solvents in automatic washing systems. Staff believes the delayed effective date of 1/1/2011 for non-newsprint cleaning provides enough time to find

suitable materials.

Comment #3: We plan on requesting exemptions for the use of higher VOC cleaning materials for our products because we find that soaking and degreasing is more effective than wipe cleaning. We will submit written comments regarding this.

Response: Staff will review the written comments once we receive them. (See response to Comment #1 from Teledyne MEC).

Comment #4: Will the VOC limit for gun cleaning drop to 25 g/l?

Response: Yes, Staff proposes to lower the VOC limit for application equipment cleaning, which includes gun cleaning, to 25 g/l in Rules 451, 456, 463 and 466. The option of using enclosed gun cleaners with solvents containing greater than 25 g/l VOC will no longer be allowed in the proposed rules. Solvents used in enclosed gun cleaners must comply with the 25 g/l limit as well.

Comment #5: Solvents containing 25 g/l or less VOCs are not capable of cleaning guns effectively. The use of polyurethane in particular destroys the guns, thereby requiring the guns to be replaced frequently.

Response: Based on the successful implementation of the 25 g/l limit for application equipment cleaning in other air districts, Staff believes compliant, effective solvents for gun cleaning are readily available. Staff believes that spray guns do not require specialized cleaning processes or products.

Comment #6: When will these rules be adopted?

Response: These amendments are tentatively scheduled for consideration at the September 25, 2008 Board meeting.

Comment #7: Regarding Rule 450, we use the same material to clean removable press components that we use to clean blankets and rollers. Why is a 25 g/l VOC limit proposed for removable press components?

Response: The 25 g/l VOC limit for cleaning removable press components has been demonstrated to be feasible in the South Coast AQMD.

Comment #8: We use the same presses and cleaning materials for printing on both newsprint and non-newsprint substrates. The separate recordkeeping requirements proposed in Rule 450, Section 501.3 are unnecessary.

Response: See response to Comment #3 from the Office of State Publishing.

Comment #9: Regarding Rule 451, Section 110, Staff is proposing to delete the 200 gal/yr low usage exemptions for aluminum coatings and pretreatment wash primers. A 55 gal/yr exemption is not enough for my business.

Response: In follow-up discussions with the commenter, Staff learned that this business will use powder coatings and will be able to comply with the rule as proposed.

Comment #10: Regarding Rule 466, cleaning of high voltage electrical equipment is also critical. Why isn't this cleaning application exempt?

Response: See response to Comment #1 from SMUD.

Letter from Alex Krichevsky, California Air Resources Board (April 24, 2008)

Comment #1: We recommend that the District lower the exemption level in Section 110.1 of Rule 450, from 60 pounds of VOC per month to 200 pounds per rolling 12-month period, since Ventura County Air Pollution Control District (VCAPCD) Rule 74.19 currently contains the latter exemption level.

Response: The VCAPCD Rule 74.19 exemption specifies 200 pounds per rolling 12-month period, but the exemption does not include VOC emissions from aerosol products, cold cleaners, and vapor degreasers in this determination. Also the VCAPCD rule includes an exemption for circuit board printing and specifies VOC limits for cleaning materials and printing adhesives that are higher than those specified in proposed Rule 450. Collectively, the exemptions and proposed VOC limits in proposed Rule 450 will deliver greater emission reductions than that achieved by implementing the recommended VCAPCD exemption level and limits. Therefore, this change to the exemption level is not recommended.

Comment #2: We recommend that the District revise the VOC limits in Rule 450 for "Extreme Performance Ink/Coating" for screen printing from 800 g/l to 400 g/l and the VOC limit for "Sign Ink/Coating" from 500 g/l to 400 g/l, because other air districts in California (Bay Area and San Joaquin Valley) have implemented the 400 g/l limit in their respective rules.

Response: SJVUAPCD Rule 4607 includes an exemption for facilities that emit less than 400 pounds of VOC per calendar month, which is less stringent than the exemption level in proposed Rule 450. Also, proposed Rule 450 includes several VOC limits for solvent cleaning that are lower than those in SJVUAPCD Rule 4607. The 2002 emissions inventory for screen printing inks and coatings is only 0.07 tons per day of VOC. The two categories mentioned above only affect a portion of the screen printing inventory, and, therefore, Staff is not proposing to lower these limits.

Comment #3: We recommend that the District withhold the proposed amendment of the VOC limit for cleaning of ultraviolet/electron beam inks (from 800 g/l to 100 g/l on 1/1/2010) until after the VOC limit for this category becomes effective in South Coast AQMD Rule 1171 on 1/1/2009. The proposed VOC limit for ultraviolet inks is a technology forcing limit.

Response: Staff is proposing to extend by one year the effective dates for all categories in Rule 450 that have 1/1/2010 effective dates in the version of

proposed Rule 450 presented at the 4/28/08 Public Workshop. The new effective date for these categories is 1/1/2011. Staff believes that extending the effective dates for these categories will allow sufficient time for industry to convert to the lower VOC cleaning products.

Comment #4: We recommend that the combined collection and control efficiency for an emission control system in Rule 450 (Section 303) be raised from 67% to 85%, consistent with the current requirement in San Diego County APCD Rule 67-16.

Response: Staff now proposes to increase the overall emissions control system efficiencies to at least 90% for several types of printing processes to conform to two recent Control Techniques Requirements (CTGs) promulgated by EPA in September 2006.

Comment #5: We recommend that the District revise Section 502.3 in Rule 450 to specify the latest ASTM method, ASTM Test Method D 4457-02(2008).

Response: Staff has revised the rule language to specify this updated ASTM method.

Comment #6: We recommend that the District revise Section 502.7 in Rule 450 to specify the latest ASTM method, ASTM Test Method D 2879-97(2007).

Response: Staff has revised the rule language to specify this updated ASTM method.

Comment #7: We recommend that the District revise the rule language in Rule 454 (Section 310) to reflect the sunset date of the emissions control equipment requirement.

Response: To address this potential loophole, Staff has added the emissions control equipment requirements to the lip exhaust system requirements (Section 309), which still provide the option of using emissions control equipment.

Comment #8: We recommend that the low usage exemption in Section 110 of Rule 463 be lowered from 55 gallons per year to 20 gallons per year, consistent with the exemption level adopted by other air districts in California (Bay Area, El Dorado County, San Joaquin Valley, and Santa Barbara County) in their respective rules.

Response: Unlike Rule 463, the rules at other air districts that contain this 20 gallon/year exemption do not establish VOC limits for refinishing of wood products. Staff is proposing to maintain the current exemption level with the existing and proposed VOC limits for refinishing and repairing, which will collectively deliver greater VOC reductions than the requirements in other districts.

Comment #9: We recommend that VOC limit for “High-Solid Stain” in Rule 463 be lowered from 350 g/l to 240 g/l and the VOC limit for “Sealer” from 275 g/l to 240 g/l, consistent with the VOC limits adopted by other air districts in California (El Dorado County, San Joaquin Valley, Santa Barbara County, and Ventura County).

Response: Staff determined that, as potential all-feasible measures, lowering the VOC limits for high-solid stains and sealers to the most stringent limits in the San Joaquin and Ventura County rules would reduce VOC emissions by less than 0.02 tons per day. Therefore, Staff is not proposing to lower these limits.

Comment #10: We recommend that VOC limit for strippers in Rule 463 be lowered from 350 g/l to 200 g/l, consistent with the VOC limit in SDAPCD Rule 67-11.

Response: SDAPCD Rule 67-11 includes an exemption for sources with coating usage levels below 500 gallons per year, while Rule 463 exempts sources with coating usage levels less than 55 gallons per year. The District exemption is more stringent than the SDAPCD exemption, and therefore Staff is not proposing to lower the VOC limit for strippers.

Comment #11: We recommend that the District revise Section 503.3 in Rule 463 to specify the latest ASTM method, ASTM Test Method D 4457-02(2008).

Response: Staff has revised the rule language to specify this updated ASTM method.

Comment #12: We recommend that the District revise Section 503.7 in Rule 463 to specify the latest ASTM method, ASTM Test Method D 5403-93(2007).

Response: Staff has revised the rule language to specify this updated ASTM method.

Comment #13: We recommend that the District revise the combined collection and control efficiency for an emission control system in Rule 465 (Section 301.2) from 85% to 90%, consistent with the current requirement in SCAQMD Rule 1162.

Response: Staff now proposes to increase the control efficiency requirement for Rule 465 from 85% to 90%.

Comment #14: We recommend that the District revise Section 502.2 in Rule 466 to specify the latest ASTM method, ASTM Test Method D 4457-02(2008).

Response: Staff has revised the rule language to specify this updated ASTM method.

Letter from Don Eggleston, Office of State Publishing (April 25, 2008)

Comment #1: Compliance dates by substrate in Rule 450 (Section 302.1) are not appropriate for printers who use both newsprint and non-newsprint in their products from the same presses. At OSP, the same cleanup solvents are used on these presses regardless of substrate. Printers who use the same materials regardless of substrate should be allowed the maximum compliance period which is until 1/1/2010.

Response: South Coast AQMD successfully implemented a similar two-tier structure for establishing effective dates for newsprint and non-newsprint substrates. The VOC limit for newsprint substrates became effective on

7/1/2006, earlier than the effective date of 1/1/2008 for the VOC limit for non-newsprint substrates. Staff therefore believes compliance dates by substrates, as it relates to newsprint and non-newsprint, is reasonable.

Comment #2: For Rule 450 (Section 302.1), the proposed 25 g/l VOC limit for the cleaning of "Removable Press Components" is unreasonable because in most cases, the contamination is the same material removed from ink rollers and blankets, and blanket and roller washes are often used to clean such components. VOC limits for "Removable Press Components" should match those of "Blanket and Roller Washes."

Response: The 25 g/l VOC limit for the cleaning of "Removable Press Components" has already been demonstrated to be feasible in SCAQMD. Sources must utilize cleaning products other than blanket and roller washes to clean removable press components. Components that can be readily detached from the printing press do not necessitate specialized cleaning processes and higher VOC limits.

Comment #3: Printers such as OSP use the same fountain solutions, same solvents, same adhesives, and essentially the same inks on presses that run both newsprint and other substrates. Therefore, the list of materials used for newsprint would be identical to the list of materials for other substrates. The requirement in Rule 450 (Section 501.3) for separate usage records to be kept for newsprint and non-newsprint substrates serves no practical purpose in this case, and should be dropped.

Response: Staff has revised the recordkeeping requirement in Rule 450 for newsprint and non-newsprint substrates. The revised rule language does not require a source to keep separate usage records for newsprint and non-newsprint substrates provided that the source can already comply with the 1/1/2011 requirements for newsprint substrates.

Letter from Ted Huff, SMUD (May 5, 2008)

Comment #1: We request that an exemption be added to Section 110.2c in Rule 466 to include high voltage gloves, hot sticks, rubber blankets, line hoses, mechanical jumpers, insulator covers, and high-voltage test equipment leads. This equipment is used by personnel on energized circuits to perform testing, switching, equipment repairs, protection of personnel and other related functions to equipment and apparatus that cannot be practically de-energized. This high voltage equipment (hot sticks, gloves, rubber blankets, line hoses, mechanical jumpers, insulator covers and high voltage test equipment leads) represents in some cases, the individual's only protection from injury or death from electrocution while working on energized circuits or equipment. The products currently used for cleaning of this high voltage equipment provides the necessary level of cleaning to ensure that the equipment remains safe for use on live or energized circuits. The concern is that lower VOC-content products may not clean the surface as thoroughly and leave a residue allowing tracking and flashover of the device.

Response: Staff has determined that compliant products (aerosol products) are readily available and have been successfully used by electrical utilities in SCAQMD. These aerosol cleaners are exempt from Rule 450 when used in quantities of 160 fluid ounces or less per day. CARB's Consumer Products Regulations allow up to 45% VOC by weight for these electrical cleaners, which is lower that the current Rule 450 limit of 900 g/l but higher than the proposed limit of 100 g/l that will take effect one year after the date of adoption.

Letter from Daniel B. Pourreau, Lyondell Chemical Company (May 5, 2008)

Comment #1: We request that an exemption for tertiary-butyl acetate (TBAC) be added to all nine of the solvent cleaning rules. TBAC is a much better degreaser than acetone, produces less ozone than acetone, is safer to use than acetone, and was exempted from the federal VOC definition in November 2004 because of its negligible photochemical reactivity.

Response: Compliant products that do not contain TBAC are readily available. In order to exempt TBAC, Rule 101—General Provisions and Definitions, which lists all exempt compounds, would need to be revised to include TBAC. However, Rule 101 is not being proposed for amendment at this time. Staff will consider the request for the exemption of TBAC when Rule 101 is proposed for amendment.

Letter from G.M. Bonetto, Ph.D., Printing Industries of California (PIC) (May 7, 2008)

Comment #1: The District justifies its currently proposed VOC limits and corresponding implementation schedule by citing similar amendments already in effect in SCAQMD Rule 1171 and SCAQMD Technology Assessments that provide the supporting evidence. However, the results acquired in these technology assessments (specifically the report entitled "Assessment, Development, and Demonstration of Low-VOC Solvents for Cleaning of Lithographic Ink Application Equipment" by the Institute for Research and Technology Assistance") are inconclusive and incomplete. Solvent formulations found to be successful during Institute for Research and Technology Assistance's (IRTA) experiments do not work over the long term and cause a number of problems over time, including buildup and absorption of solvent residue on the rollers and reduction of the ink's tack (which is detrimental because the level of ink tack governs the sharpness of the dot pattern). These problems have been substantiated in PIC's independent studies, which were conducted by a well-known technical expert on lithographic printing. Additional problems and issues from the use of low-VOC solvents given in IRTA's report include reduction of overall worker productivity and in extreme cases, fire hazards and destruction of the printing press.

Response: These studies did not evaluate all of the materials currently available on the market. There are other products available on the market, and there is at least one source in Sacramento County already using cleaning materials that comply with these limits.

SCAQMD Rule 1171, adopted in 1999, set a date of July 1, 2005 for compliance with the 100 g/l limits. This date was extended twice, and the limits finally took effect on January 1, 2008. SCAQMD's June 2006 staff report, which addressed the extension of the deadline for the final time, noted that field testing of compliant materials had been completed and that the additional 18 months (until 1/1/2008) would be necessary for additional testing and to give the industry time to transition to the new cleaning materials. Sources and their suppliers in SMAQMD are now working in earnest to make this transition. As was noted by Mr. Bonetto during discussions, there are other promising materials being developed, such as surfactant-based cleaners.

Comment #2: PIC recommends that the District revise the definition of "Other On-Press Components" in Rule 450 to exclude dampening rollers, fountains, impression cylinders, and plates. The definition of "Removable Press Components" excludes these items.

Response: Staff intended to exclude dampening rollers, fountains, impression cylinders, and plates from the definition of "Removable Press Components" in order for these items to be subject to the requirements for "Other On-Press Components." Staff has revised the definition of "Other On-Press Components" to explicitly state that these items are included.

Comment #3 PIC recommends that the District reduce the VOC limits for in Rule 450 for the non-newsprint cleaning of blankets, rollers, metering rollers/printing plates, and other on-press components in two steps; first to less than 500 g/l one year after the effective date, and then to 100 g/l one year after the first date. This would give printers time to adjust to working with these low-VOC solvents. No other district attempted to move from the current limit to less than 100 g/l. It is hard to get these low-VOC solvents to work. The stepping down allows printers to become familiar with how lower solvent work and prepares them for less than 100 g/l limit. In doing so, SMAQMD would have extended the Effective Date of the 100 g/l by only six months to around July 2010. Please seriously consider this request.

Response: Staff has delayed the effective date for these categories to January 1, 2011, giving sources additional time as requested to address issues that printers in SCAQMD currently encounter in their transition to the use of low-VOC solvents.

Staff did not include an additional interim limit in the rule as requested. It has been determined that many sources (including the largest printing establishments) are already using solvents containing less than 500 g/l of VOC. Establishing an interim limit of 500 g/l without a vapor pressure option, thereby replacing the current limit 300 g/l with a vapor pressure option, for the above categories could constitute a relaxation of the current requirements. Since many sources are already phasing to lower VOC products with the current limits in place, staff did not include this PIC proposed limit.

Comment #4: PIC requests the removal of Section 302.2 in Rule 450, which specifies a 15% usage limit for solvents used for cleaning metering rollers and printing plates. No other air district in the nation has this standard. It is also more difficult to find an effective low-VOC solvent for metering rollers/printing plates than for rollers/blankets, and because of this, printers will have no incentive to use lower VOC solvents because it will exceed the usage percentage for metering rollers/printing plates. PIC suggests establishing the same VOC limit for metering rollers/printing plates as for On-Press Components. It follows that Section 501.3(b)(4) (in which sources are required to keep monthly records showing the percentage of materials used for cleaning metering rollers/printing plates according to Section 302.2) should also be removed if the District grants PIC's request for the removal of Section 302.2.

Response: We agree with many of the issues raised and have made the following change. Section 302.2 now has a proposed sunset date of January 1, 2011, when the non-newsprint VOC limits for blanket/roller washes, metering rollers/printing plates, and other on-press components become effective. The VOC limits for all three of these categories will be 100 g/l. To avoid relaxing the 15% usage limit, Section 302.2 will remain in effect until the 1/1/11 effective date for the three VOC limits mentioned above.

Under the proposed Rule 450, printers that use the same solvent for both metering rollers/printing plates and blankets/rollers and meet the 100 g/l limit for both materials are exempt from the 15% requirement.

Comment #5: Sources should not be required to retain their records for more than 2 years, as required in the proposed Rule 450 (Section 501.5). It is unreasonable for and especially burdensome on small businesses, which are now being asked to retain records for 5 years, equivalent to the EPA requirements for Title V sources. Ninety percent of all printing companies in SMAQMD have fewer than 15 employees.

Response: The proposed requirement for sources to retain records for 5 years is intended to be a means of standardizing the record retention requirements for all of the solvent cleaning rules. Several rules, such as Rule 450, already currently require records to be kept for at least 5 years. The proposed rules are expected to be SIP-approved by EPA, rendering them federally enforceable rules. Requiring records to be kept for 5 years ensures consistency with federal statute of limitations of 5 years for acting upon a rule violation.

Comment #6: Since the District is proposing to delete the vapor pressure requirement in Rule 450 on 1/1/2010, Section 502.7 should also be deleted.

Response: Section 502.7 specifies the method of determining vapor pressure. Section 502.7 must remain in Rule 450 at least until 1/1/2011. The majority, but not all, of the vapor pressure requirements will be removed on 1/1/2010. Vapor pressure will remain a compliance option for non-newsprint substrates and for screen printing until 1/1/2011.

Comment #7: The District should reconsider its decision to remove the vapor pressure compliance option. PIC and SCAQMD had agreed in discussions during the 10/8/1999 amendments to SCAQMD Rule 1171 that a study should be conducted to ascertain the relationship between vapor pressure and VOC mass emission rates. SCAQMD produced an inadequate study, however, since the study addressed how vapor pressure affects total mass emissions rather than emission rates as agreed upon during the discussions. SCAQMD based its decision to remove vapor pressure on its conclusion that lower vapor pressure do not lead to lower mass emissions, but acknowledges that lower vapor pressure does lead to lower mass emission rates. PIC agrees with the latter conclusion, and disagrees with SCAQMD's decision to remove vapor pressure based on total mass emissions.

It is also baffling that SCAQMD did not follow the solvent cleaning requirements set by EPA, which recognizes and supports the use of low vapor pressure cleaning solvents in several EPA documents. The EPA document entitled "Technical Support Document (TSD) for Title V Permitting of Printing Facilities (January 2005)" encourages the use of low vapor pressure products as a means of reducing emissions at a particular source.

Response: South Coast's studies focused on total mass emissions while PIC focuses on the mass emission rates. While low vapor pressure solvents may evaporate at a slower rate, the SCAQMD study showed that all of the solvent eventually evaporates. Since solvent eventually evaporates, setting a lower VOC limit will reduce further what is eventually emitted to the air than setting a low vapor pressure limit.

In addition, even if we agreed with PIC's focus on emission rates, low vapor pressure limits do not reduce emissions equivalent to the low-VOC limits being proposed. EPA's document, Control Techniques Guidelines for Offset Lithographic Printing and Letterpress Printing (2006) recommends the use of low vapor pressure cleaning materials (specified in the CTG as having a vapor pressure of less than 10 mm Hg at 20 °C), and that the use of such materials results in an emission reduction comparable to using materials with 30% VOC by weight (or approximately 240 g/l of VOC). However, the proposed limits in Rule 450 of 25 g/l VOC for general cleaning and 100 g/l for blanket and roller washes, metering rollers, printing plates, and other on-press components are lower than CTG limits and, therefore, will lead to greater emission reductions than low vapor pressure solvents. Furthermore, stand-alone VOC limits (without vapor pressure as a compliance option) have already been demonstrated to be feasible in SCAQMD, and some sources in Sacramento County are already using cleaning materials that comply with these limits.

Comment #8: PIC believes that looking at just VOC content may likely result in higher consumption of materials and consequently, the creation of greater waste streams.

Response: Some of the compliant cleaning options, such as the impregnated cloth cleaning systems already in use at some Sacramento County sources, consume much less cleaning material than the previous cleaning techniques. Nevertheless, sources subject to Rule 450 are also required to comply with applicable state and federal regulations concerning the proper handling and disposal of hazardous waste.

Letter from Al Batakji, Teledyne MEC (January 31, 2007)

Comment #1: Teledyne MEC requests an exemption in Rules 454 and 466 for high voltage microwave tubes or rule language stating that alternative compliance in Rule 107 may be applied to high voltage microwave tubes. (Teledyne had previously been granted a variance to allow Alternative Compliance pursuant to Rule 107.) Our small scale operation manufactures high voltage microwave tubes, which are the principal components of electronic radar jamming devices that are used primarily in military aircraft and vessels to protectively disable incoming missile guidance systems. The use of 100% anhydrous isopropyl alcohol (IPA) has proven for decades to be the most effective cleaning and degreasing solvent for such complicated and expensive assemblies ($15,000 each) in that it produces the least number of rejected assemblies or those that fail during use. In contrast, the use of an IPA/acetone blend has demonstrated in testing to result in twice the number of device rejects, due to increased residue retention on critical surfaces of the assemblies. Teledyne MEC has undergone extensive efforts to identify comparable alternatives to IPA, but no such solvent or blend has been found that cleans as effectively. To support the fact that 100% anhydrous IPA removes residue and other potential contaminants more effectively than alternatives, we have included reports from our own investigations, from component vendors, and from our mass spectrometry study of vacuum tube surfaces when exposed to different solvents. The airtight/airless cleaning system allowed in Rule 454 is not an option either because it would be impractical and infeasible to employ such a system to capture emissions from such operations, which involve hand manipulation of very small parts during cleaning and assembly. We estimate that such an exemption would lead to an increase of only 25 pounds of VOC emissions per operating day.

Response: Staff has reviewed the technical information submitted by Teledyne pertaining to the cleaning of high voltage microwave tubes. Staff also reviewed rules in other districts where such devices are produced, and determined that the cleaning of such devices with high VOC solvents is allowed under existing rules for aerospace assembly operations. Staff acknowledges that these types of assemblies require high VOC products to clean them effectively and has proposed exemptions in Rule 454 and 456.

Letter from Chelsea Sand, Aerojet (May 19, 2008)

Comment #1: Aerojet requests a minimum delay of 2 years from rule adoption in the proposed effective date for Section 304.4 of Rule 456, which will reduce the VOC limit for application equipment cleanup from 200 g/l to 25 g/l and eliminate the enclosed gun cleaner compliance option. Aerojet is also requesting the retention of the enclosed gun cleaner compliance option, which is a critical compliance tool currently for Aerojet and achieves the same reductions as the reduced VOC limit. Aerojet is concerned about the proposed requirement for a number of reasons. These changes will cause Aerojet to place a heavier reliance on exempt solvents, particularly acetone, or an acetone-based material, which will have negative health and safety impacts (such as fire hazards) and will be restricted based on Environmental Health and Safety risks. There are no known commercially available products that achieve 25 g/l and can effectively cleaning aerospace coatings. A very limited number of substitute, compliant solvents are available that thoroughly clean multi-part epoxies and polyurethane containing materials. There is not enough time given by SMAQMD to test and requalify substitute solvents by the proposed effective date of this rule change. (This research process can potentially last a minimum of 36 months without any guarantee of successfully finding an alternative product.) Based on preliminary discussions with our suppliers, suitable replacements may not even exist. Aerojet would incur additional costs associated with the work to requalify and incorporate the replacement solvents, costs related to reduced productivity and throughput from diverting resources to this research of solvents, as well as the high costs of the replacement solvents themselves. If acetone is used, additional costs would come from controlling hazards in both explosive and inert operating areas and replacing damaged equipment as the result of applying acetone. Aerojet's strict standards on health and safety rule out the use of all other SMAQMD exempt compounds. The aerospace facilities in SCAQMD, which were used as the basis for the compliance costs associated with achieving the 25 g/l limit in SCAQMD Rule 1171, are much smaller than the Aerojet campus in Sacramento and have far fewer spray booths. Therefore, it is inappropriate to assume that the same compliance costs in SCAQMD (which were based on the cost of acetone) could be applied to our facility. A delay in the rule effective date will allow Aerojet adequate time to conduct the necessary research for alternative products. Retention of the enclosed gun cleaner option will allow Aerojet to use this option to effectively clean spray guns and long booms/wands (also currently a SMAQMD approved technique).

Response: Staff now proposes to retain the enclosed gun cleaner option until the proposed sunset date of two years from rule adoption. Delaying the sunset date for the enclosed gun cleaner option will allow Aerojet and other affected sources to continue to use this option while giving sufficient time for a suitable, low-VOC alternative solvent to be found and successfully implemented.

Letter from Andrew Steckel, EPA Region 9 (August 18, 2008)

Rule 450

Comment #1: Potential Approvability Issue: The 2006 CTG for Offset Lithographic Printing and Letterpress Printing recommends a 1.6 percent alcohol by weight fountain solution for heatset web offset lithographic printing, a 5 percent alcohol by weight for sheet-fed offset lithographic printing, and 5 percent alcohol substitute or less and no alcohol in the fountain solution for coldset web offset lithographic printing. For heatset web and sheet-fed printing, the CTG provides different approaches for achieving the recommended level of control. The 100 g/L VOC limit for chilled fountain solutions and 80 g/L limit for non-chilled fountain solutions in Section 301.2 are not as stringent as the CTG recommendations. Please include requirements that are as stringent as the CTG recommendations.

Response: Staff has revised proposed Rule 450 to conform to all of the recommendations in the 2006 CTG for Offset Lithographic Printing and Letterpress Printing. Refer to the Summary of Requirements section of this staff report for further details.

Comment #2: Potential Approvability Issue: The 2006 CTG for Offset Lithographic Printing and Letterpress Printing recommends a control device with an overall control efficiency of 90% or 95% for heatset web offset lithographic printing depending on the first installation date of the control device, and also recommends that the dryer be operated at negative pressure. While Section 303.2.a requires a control device efficiency of at least 95%, Section 303.2.b requires an emission collection efficiency of at least 70%. The 70% emission collection efficiency requirement is not as stringent as requiring the dryer to operate at negative pressure. Please include requirements that are as stringent as the CTG recommendations. Please note that the CTG does not recommend that heatset web sources be allowed to use graphic art printing materials (inks and varnishes) with a certain VOC content instead of using an add-on control device. Please change rule requirements to allow heatset web sources to comply only by using control technology that has an overall capture and control efficiency that's equivalent to CTG recommendations or demonstrate that compliance with the VOC content limits is equally as stringent.

Response: See response to EPA comment #1. Staff has revised proposed Rule 450 to conform to the recommendations in the 2006 CTG for Offset Lithographic Printing and Letterpress Printing, including requirements for overall system efficiency (which combines capture and control). The proposed rule is now as stringent as the CTG recommendations. Refer to the Summary of Requirements section of this staff report for further details.

Comment #3: Potential Approvability Issue: The 2006 CTG for Flexible Package Printing, depending on first installation date of the press and add-on control device, recommends an overall capture and control efficiency of up to 80%. Section 303.2 requires an overall capture and control

efficiency of only 67%. As an alternative to meeting the applicable capture and control efficiency, the CTG recommends that materials be used that meet the following limits: .8 kg VOC/kg solids applied or .16 kg VOC/kg materials applied. Please include requirements that are as stringent as the CTG recommendations.

Response: Staff has revised proposed Rule 450 to conform to the recommendations in the 2006 CTG for Flexible Package Printing. Staff is not proposing to include the following less stringent overall system efficiencies specified below because these requirements would not apply to any existing or future sources.

- 65% overall control for a press that was first installed prior to March 14, 1995 and that is controlled by an add-on air pollution control device whose first installation date was prior to the effective date of the State RACT rule.
- 75% overall control for a press that was first installed on or after March 14, 1995 and that is controlled by an add-on air pollution control device whose first installation date was prior to the effective date of the State RACT rule.

The option to use the low VOC materials in lieu of emissions control equipment was not included in the proposed rule. Staff determined that this compliance option is not necessary for any existing District sources and that it is unlikely that any future sources would need this compliance option. Refer to the Summary of Requirements section of this staff report for further details.

Comment #4: Recommendation: Section 110.1 exempts any graphic art operation that has actual emissions of less than or equal to 60 pounds per calendar month. As noted in CARB's April 24 comments, VCAPCD Rule 74.19 contains a current exemption limit of 200 pounds per rolling 12-month period. The SJVUAPCD is currently workshopping their Rule 4607 and also intends to lower their exemption to graphic arts operations which emit less than 200 pounds per 12 rolling consecutive calendar months. Please consider making Rule 450 limits as stringent.

Response: See response to CARB comment #1. The VCAPCD Rule 74.19 exemption specifies 200 pounds per rolling 12-month period, but the exemption does not include VOC emissions from aerosol products, cold cleaners, and vapor degreasers in this determination. Also the VCAPCD rule includes an exemption for circuit board printing and specifies VOC limits for cleaning materials and printing adhesives that are higher than those specified in proposed Rule 450. Collectively, the exemptions and proposed VOC limits in proposed Rule 450 will deliver greater emission reductions than that achieved by implementing the recommended VCAPCD exemption level and limits. Therefore, this change to the exemption level is not recommended.

Comment #5: Recommendation: The VOC limit for “Extreme Performance Ink/Coating” for screen printing is currently 800 g/L. SJVUAPCD Rule 4607 and

BAAQMD Rule 8-20 both limit the VOC content for this category to 400 g/L. Please consider making Rule 450 limits as stringent.

Response: See response to CARB comment #2. SJVUAPCD Rule 4607 includes an exemption for facilities that emit less than 400 pounds of VOC per calendar month, which is less stringent than the exemption level in proposed Rule 450. Also, proposed Rule 450 includes several VOC limits for solvent cleaning that are lower than those in SJVUAPCD Rule 4607. The 2002 emissions inventory for screen printing inks and coatings is only 0.07 tons per day of VOC. Staff has determined that lowering the VOC limits for the above categories will have minimal impact on overall emissions, and is not proposing to lower these limits.

Comment #6: Recommendation: The VOC limit for "Sign Ink/Coating" for screen printing is currently 500 g/L. Both SJVUAPCD Rule 4607 and BAAQMD Rule 8-20 limit the VOC content for this category to 400 g/L. Please consider making Rule 450 limits as stringent.

Response: See response to CARB comment #2. SJVUAPCD Rule 4607 includes an exemption for facilities that emit less than 400 pounds of VOC per calendar month, which is less stringent than the exemption level in proposed Rule 450. Also, proposed Rule 450 includes several VOC limits for solvent cleaning that are lower than those in SJVUAPCD Rule 4607. The 2002 emissions inventory for screen printing inks and coatings is only 0.07 tons per day of VOC. Staff has determined that lowering the VOC limits for the above categories will have minimal impact on overall emissions, and is not proposing to lower these limits.

Rule 451

Comment #7: Potential Approvability Issue: Section 111.9 exempts conformal coatings. This exemption is not recommended in applicable CTGs. Please demonstrate that Rule 451 meets RACT even though this exemption is not recommended in applicable CTGs.

Response: The exemption for conformal coatings was adopted in the 2/23/93 amendment of Rule 451, in response to comment letters from industry submitted in the previous year. A letter from a process engineer with a paints and depaints company requested this exemption in order to clarify that such coatings are not categorized under electrical insulating coatings, which are subject to rule requirements. In her letter, the engineer stated that conformal coatings are applied to circuit boards, which usually contain very closely spaced circuits, and that moisture, corrosion, or fungi/bacteria can cause a short circuit and eventually result in catastrophic failure of the associated equipment. The District staff report for the 2/23/93 amendments states that this exemption was added for clarity because coating of printed circuit boards is regulated under a separate rule (referring to Rule 456, which was amended on the same date and includes a VOC limit for aerospace conformal coatings). A 10/7/93 District letter to EPA explains that, at the time, survey results indicated that no non-aerospace operations in Sacramento County

applied conformal coatings. That is still the case today. Therefore, in response to this comment, Staff is proposing to limit the conformal coating exemption to those coatings regulated by Rule 456.

Comment #8: Potential Approvability Issue: We understand that Rule 451 includes coating emission limits for metal furniture operations. Please ensure that Rule 451 requirements are as stringent as the recommendations in the 2007 Metal Furniture Coatings CTG. Certain limits in the VOC content table in Section 301 are less stringent than the recommend emission limits for various coating categories in the 2007 Metal Furniture Coatings CTG (e.g., the VOC table in the rule has a 3.5 lb/gal air dried limit for extreme high gloss coatings whereas the CTG recommends a 2.8 lb/gal air dried limit for the same category). Moreover, the CTG recommends an overall capture and control efficiency of 90% whereas Section 305 only requires an overall capture and control efficiency of 85%. The CTG also recommends work practice standards for both coating and cleaning activities, whereas the rule only contains work practice standards for surface preparation and clean-up in Section 304.

Response: Staff has revised proposed Rule 451 to conform to all of the recommendations in the 2007 CTG for Metal Furniture Coatings. Refer to the Summary of Requirements section of this staff report for further details.

Comment #9: Recommendation: SCAQMD Rule 1107 has lower limits for the extreme high gloss, extreme performance, pre-fabricated architectural component, and general one-component coating categories. Please consider making Rule 451 limits as stringent as Rule 1107 for these categories.

Response: See response to EPA comment #8. Staff has revised proposed Rule 451 to conform to the recommendations in the 2007 CTG for Metal Furniture Coatings, including lowering the VOC limits for high-gloss, extreme performance, and general one-component coatings applied to metal furniture.

The projected 2018 inventory for other metal parts and products coatings is only 0.09 tons per day of VOC. Rule 451 contains two categories, camouflage coatings and electrical insulating coatings, with limits that are more stringent than SCAQMD Rule 1107. In addition, SCAQMD Rule 1107 contains more specialty coating categories, with higher VOC limits than are allowed under the "All Other Coatings" category of Rule 451. For these reasons, Staff determined that, as potential all-feasible measures, lowering the VOC limits for the coatings applied to other miscellaneous metal parts and products will have an insignificant impact on overall emissions. Therefore, Staff is not proposing to lower these VOC limits at this time.

Rule 452

Comment #10: Potential Approvability Issue: Unlike similar rules in other areas, Rule 452

does not require sources to use specific coating application methods (see, for example, Section (c)(4) of South Coast Air Quality Management District (SCAQMD) Rule 1125 and Section 5.6.2 of San Joaquin Valley Air Pollution Control District (SJVUAPCD) Rule 4604). Please add provisions to Rule 452 that specify appropriate coating application methods.

Response: Staff has added a new section that provides a list of approved coating application methods. This added section is the same as Section 303 in Rules 451 and 456, and includes an additional option to an air pollution control device with an overall control efficiency of at least 85.5%. Definitions for each method (roll coater, dip coat, electrostatic spray, flow coat, HVLP and LVLP application equipment, and hand application equipment) have also been added.

Comment #11: Potential Approvability Issue: We noticed that there were several other California rules that had more stringent requirements than Rule 452. Please explain why each of the following more stringent requirements are not feasible in Sacramento or change Rule 452 to be equally as stringent:

- The VOC limit for end sealing compound is 440 g/L. BAAQMD Rule 8-11 and SJVUAPCD Rule 4604 have a 60 g/L limit for drum, pail and lid end sealing compounds, and a 20 g/L limit for end sealing compounds in all other categories.
- SCAQMD Rule 1125 has a 20 g/L limit for end sealing compounds for food/beverage cans and a 0 limit for end sealing compounds for non-food containers.
- The VOC limit for three piece can interior body spray is 510. BAAQMD Rule 8-11 and SJVUAPCD Rule 4604 both have a 360 g/L limit for this category.
- The VOC limit for two piece can interior body spray is 440. BAAQMD Rule 8-11 and SJVUAPCD Rule 4604 both have a 420 g/L limit for this category.
- Section 302.1 requires an overall 85% capture and control efficiency for add-on control devices. BAAQMD Rule 8-11 and SJVUAPCD Rule 4604 both require an overall 90% capture and control efficiency.

Response: Staff has revised proposed Rule 452 to include all of the recommended changes. Refer to the Summary of Requirements section of this staff report for further details.

Comment #12: Recommendation: Section 302 allows sources to comply with the use of an add-on control device only if emissions do not exceed the level which would be achieved from the equivalent use of compliant coatings. However, Rule 452 does specify how to calculate whether the control device is achieving emission reductions that would be equivalent to using compliant coatings. We recommend adding a section that's similar to SJVUAPCD Rule 4604 Section 5.2.9.

Response: Staff has added a new section that provides an equation for calculating emissions equivalency. This added section is the same as Section 304.3 in the proposed Rule 466.

Rule 454

Comment #13: Recommendation: Section 304.1 gives sources the option of complying with rule requirements by operating a vapor degreaser with a water separator. We recommend adding a definition for water separator. See SCAQMD Rule 1122 Section (b)(40) for potential draft rule language.

Response: Staff has added a definition for "water separator," consistent with the one in SCAQMD Rule 1122.

Comment #14: Recommendation: Rule 454 requires that airtight/airless cleaning systems not have a vapor leak of more than 50 parts per million measured as methane at the outlet of the airtight/airless cleaning system. SCAQMD Rule 1122 section (f)(4) requires that airless/air-tight equipment be maintained in a vapor-tight, leak-free condition and states that any leak is a violation. Please consider whether a similar provision would strengthen Rule 454.

Response: SCAQMD Rule 1122 does not define what constitutes a vapor-tight, leak-free condition. Staff therefore considers Rule 454 to be as stringent as SCAQMD Rule 1122 in regards to requiring leak-free airtight/airless cleaning systems.

Rule 456

Comment #15: Recommendation: Section 302 limits the VOC content of strippers to 300 g/L of VOC per liter of material. Section B.6 of Imperial Rule 425 limits the VOC content of strippers to 200 g/L. Please consider inserting this lower limit into Rule 456.

Response: Imperial County APCD Rule 425 exempts stationary source using less than 3 gallons per day of aerospace coatings, which is equivalent to 1,095 gallons per year. Proposed Rule 456 exempts sources using less than 55 gallons per year of aerospace materials, including coatings and strippers. Because District sources use less coating volume than Imperial County's exemption level, the combination of the exemption level and VOC limits in proposed Rule 456 is more stringent and will lead to greater emission reductions.

Comment #16: Recommendation: The current limit for adhesives is 600 g/L. SJVUAPCD Rule 4605 has three different categories for adhesives - non-structural adhesives with a 250 g/L limit, structural autoclavable adhesives with a 50 g/L limit, and structural nonautoclavable adhesives with a 850 g/L limit. Please consider whether including a category for non-structural adhesives or structural autoclavable adhesives would allow the District to obtain additional emission reductions.

Response: SJVUAPCD Rule 4605 exempts aerospace coating operations using less than 4 gallons per day of aerospace materials, which is equivalent to 1,460 gallons per year. Proposed Rule 456 exempts sources using less than 55 gallons per year of aerospace materials. Because District sources use less coating volume than San Joaquin's exemption level, the combination of the exemption level and VOC limits in proposed Rule 456 is more stringent and will lead to greater emission reductions.

Comment #17: Recommendation: The current limit for adhesive bonding agents is 780 g/L. SJVUAPCD Rule 4605 has six different categories for adhesive bonding primer, three with a 250 g/L limit, and three with a 805 g/L limit. Please consider if including additional categories that have a 250 g/L limit would allow the District to obtain additional emission reductions.

Response: See response to EPA comment #16. SJVUAPCD Rule 4605 exempts aerospace coating operations using less than 4 gallons per day of aerospace materials, which is equivalent to 1,460 gallons per year. Proposed Rule 456 exempts sources using less than 55 gallons per year of aerospace materials. . Because District sources use less coating volume than San Joaquin's exemption level, the combination of the exemption level and VOC limits in proposed Rule 456 is more stringent and will lead to greater emission reductions.

Rule 463

Comment #18: Potential Approvability Issue: Section 306 provides for a rolling 30 day averaging period for compliance with the rule's emission limits. From conversations with the District, we understand that only one very small source that refinishes antiques is currently utilizing this averaging provision. We are aware of no other areas that have SIP approved rules with such an extensive compliance period for wood coatings. Though we recognize that rules in other areas that have daily or no averaging provisions might be less stringent than Rule 463 in some other respects, we recommend the District remove this provision. However, if the District significantly narrows the scope of the provision (e.g., to very small sources refinishing antiques), we believe that the District can utilize our 1% Screening Analysis (see December 2002 Memo from Andrew Steckel) to demonstrate that the averaging provision does not cause the rule to deviate from RACT or affect attainment of the eight hour ozone standard.

Response: The only wood coating facility that currently uses this emissions averaging provision performs restorations of historical antique wood products. Based on the EPA recommendations above, Staff proposes to limit the applicability of this emissions averaging provision to this wood facility, and limit the total annual usage of such coating products to 20 gallons per year. Using the 1% screening analysis, Staff was able to show that the emissions benefits from removing the averaging provision (and thus having this facility subject to the VOC limits in this rule) represent only 0.04% of baseline emissions, which is much less than 1%. Refer to the Summary of Requirements section of this staff report for

further details.

Comment #19: Potential Approvability Issue: Please demonstrate that Rule 463 meets RACT though the exemption for military stencil coatings in Section 110.5 is not in the 1996 Wood Furniture Manufacturing CTG.

Response: Staff proposes to remove Section 110.5 in proposed Rule 463. The military facility that used this exemption is no longer in operation.

Comment #20: Recommendation: Section 110.4 exempts the coating of architectural components or structures, not coated in a shop environment. We recommend that the District add rule language to Section 110.4 to clarify that the exempted wood products are still subject to the requirements in the District's architectural coatings rule.

Response: Staff has added rule language clarifying that such components and structures are subject to Rule 442.

Comment #21: Recommendation: The VOC limit for strippers is 350 g/l. San Diego County Air Pollution Control District (SDAPCD) Rule 67-11 Section (d)(5)(i) has a limit of 200 g/l for strippers. We recommend that the district include this lower limit in the rule.

Response: See response to CARB comment #10. SDAPCD Rule 67-11 includes an exemption for sources with coating usage levels below 500 gallons per year, while Rule 463 exempts sources with coating usage levels less than 55 gallons per year. The District exemption is more stringent than the SDAPCD exemption, and therefore Staff is not proposing to lower the VOC limit for strippers.

Comment #22: Recommendation: Section 306 provides for a rolling 30 day averaging period for compliance with the rule's emission limits. Please confirm that District policy interprets any violation of the averaging period as a violation of each day of the averaged period. EPA recommends inserting language similar to the following to clarify this in the rule: “Any rolling 30-day averaged value which exceeds the applicable emission limit shall constitute a violation of the rule for each day of the averaged period.”

Response: Staff now proposes to insert rule language in Rule 463 as requested.

Comment #23: Sources using less than 55 gallons per year of wood product coatings and/or strippers are exempt from the requirements of this rule. BAAQMD Rule 8-32, SJVUAPCD Rule 4606, and Santa Barbara County Air Pollution Control District (SBAPCD) Rule 351 limit this exemption to 20 gallons per year. Please consider making Rule 463 as stringent.

Response: See response to CARB comment #8. Unlike Rule 463, the rules at other air districts that contain this 20 gallon/year exemption do not establish VOC limits for refinishing of wood products. Staff is proposing to maintain the current exemption level with the existing and proposed VOC limits for refinishing and repairing, which will collectively deliver greater VOC

reductions than the requirements in other districts.

Comment #24: The VOC limit for "High-Solid Stain" in Section 302.2 is 350 g/l. SJVUAPCD Rule 4606, SBAPCD Rule 351, and VCAPCD Rule 74-30 all have a limit of 240 g/l for this category. Please consider making Rule 463 as stringent.

Response: See response to CARB comment #9. Staff determined that, as potential all-feasible measures, lowering the VOC limits for high-solid stains and sealers to the most stringent limits in the San Joaquin and Ventura County rules would reduce VOC emissions by less than 0.02 tons per day. Therefore, Staff is not proposing to lower these limits.

Comment #25: Recommendation: The VOC limit for "Sealer" in Section 302.2 is 275 g/l. VCAPCD Rule 74-30 has a limit of 240 g/l for this category. Please consider making Rule 463 as stringent.

Response: See response to CARB comment #9. Staff determined that, as potential all-feasible measures, lowering the VOC limits for high-solid stains and sealers to the most stringent limits in the San Joaquin and Ventura County rules would reduce VOC emissions by less than 0.02 tons per day. Therefore, Staff is not proposing to lower these limits.

Rule 464

Comment #26: Recommendation: While the recordkeeping provisions in Section 501.4 through Section 501.7 require sources to keep daily records on-site of the types and amounts of organic compounds used for continuous processes as well as information about each production batch for batch processes, they do not specifically require sources to record the VOC content of the materials used. We recommend adding a recordkeeping requirement specifically for the VOC content of materials used.

Response: Staff has added recordkeeping requirements for the VOC content of materials used in the proposed Rule 464.

Rule 465

Comment #27: Potential Approvability Issue: We noticed several other California rules have more stringent requirements than Rule 465. Please explain why having the following more stringent requirements is not feasible or change Rule 465 to be equally as stringent:

- Section 301.1.a.1 requires that general resins have a monomer content of no more than 35%. Ventura County Air Pollution Control District (VCAPCD) Rule 74.14 and SCAQMD Rule 1162 have replaced the general purpose resin category with four sub-categories: marble resins (10% monomer content or 32% as supplied, no fillers), solid surface resins (17% monomer content), tub/shower resins (24% monomer content or 35% as supplied, no

fillers), and lamination resins (31% monomer content or 35% as supplied, no fillers).

- Section 301.1.a.2 requires that pigmented gel coats have a monomer content of no more than 45%. VCAPCD Rule 74.14 and SCAQMD Rule 1162 have replaced the limit for pigmented gel coats with lower limits in three sub-categories: white and off white (30% monomer content), non-white (37% monomer content), and primer (28% monomer content).

- Section 301.1.a.3 requires that specialty resins and clear gel coats have a monomer content of no more than 50%. Rule 74.14 and SCAQMD Rule 1162 have replaced the limit for clear gel coats with two sub-categories that have lower limits: marble resins (40% monomer content) and other resins (44% monomer content). Rule 465 defines specialty resins as "any...resin used to make product for exposure to one or more of the following extreme environmental conditions: acute or chronic exposure to corrosive agents, caustic agents, acidic agents, or flame." Both Rule 74.14 and SCAQMD Rule 1162 also have 38% monomer content limit for fire retardant resin, 48% monomer content limit for corrosion resistant resin, and 40% monomer content limit for high strength resin.

- Section 301.2 requires that emission control systems have an overall 85% control efficiency. Rule 74.14 and SCAQMD Rule 1162 both require an overall capture and control efficiency of 90%.

Response: EPA identified this as a potential approvability issue based on the fact that there is a polyester resin operation within the District that will become a major source of VOC if the District “bumps up” to a classification of severe nonattainment, as expected. Section 182(b)(2) of the federal Clean Air Act requires RACT for all major sources of VOC and all source categories for which EPA has promulgated a CTG. In recent discussions with the source, however, Staff has learned that the source is in the process of submitting an application to modify the permit to limit the potential-to-emit to less than 25 tons per year. In light of this development and because polyester resin operations is not a CTG category, Staff believes that this should no longer be considered a RACT/approvability issue. As potential all-feasible measures, Staff determined that lowering the VOC limits to those contained in the South Coast and Ventura County rules will only reduce VOC emissions by 0.1 tons per day. Therefore, Staff is not proposing to lower these limits. However, Staff is proposing to increase the required overall capture and control efficiency to 90%.

Rule 466

Comment #28: Potential Approvability Issue: The VOC standards table in Section 301 allows for different limits for the solvent cleaning of architectural coating

application equipment for water based coatings and solvent based coatings. Until one year after rule adoption, for water based coatings, cleaning without an enclosed gun cleaner has a 50 g/L limit, whereas for solvent based coatings, cleaning without an enclosed gun cleaner can have a limit up to 300 g/L.

In order to ensure that these limits are enforceable, please define water based coating and solvent based coating. Also, under solvent based coatings, cleaning architectural coating equipment without an enclosed gun cleaner at the jobsite has a 300 g/L limit whereas cleaning architectural coating equipment without an enclosed gun cleaner not at the jobsite has a 50 g/L limit. In order to ensure that these limits are enforceable, please define job-site in the rule.

Response: Staff has added definitions for "water based coating," "solvent based coating," and "jobsite."

Comment #29: Recommendation: Section 110.4 exempts the cleaning of the nozzle tips of automated spray equipment from the requirements of Section 302.2. Section 302.2 is one of many options that sources can pick from in order to be in compliance with the rule's requirements for cleaning devices and methods. Please ensure that the reference in Section 110.4 to Section 302.2 is correct.

Response: The reference to Section 302.2 is incorrect. Section 110.4 was intended to exempt such cleaning from the requirements in Section 302 as a whole, not only the one option indicated in the current Rule 466. Staff has corrected this typographical error.

Comment #30: Recommendation: The District is widening the applicability of the rule by including VOC content limits for the sterilization of food manufacturing and processing equipment. We recommend clarifying this in Section 102, Applicability.

Response: Staff has added this clarification to the Applicability section of proposed Rule 466.

Comment #31: Recommendation: To further clarify the applicability of the VOC limits in table 301.1, we recommend adding a definition for pharmaceutical product and general work surfaces. Potential draft language can be found in SCAQMD Rule 1171.

Response: Staff has added definitions for these terms, consistent with those specified in SCAQMD Rule 1171.

Letter from Don Eggleston, Office of State Publishing (August 20, 2008)

Comment #1: OSP requests the removal of Section 302.2 in Rule 450, which specifies a 15% usage limit for solvents used for cleaning metering rollers and printing plates. OSP has been using new lower-VOC blanket wash for the last two months and discovered that smaller quantities of this wash

are needed to do the job when compared to washes previously used. This transition has already made a substantial impact on reduction of VOC emissions and waste generation at OSP. Unfortunately, this situation creates solvent usage ratios that exceed the 15% limit because our plate cleaner and metering roller cleaner usage is relatively the same from month to month.

Response: Section 302.2 now has a proposed sunset date of January 1, 2011, when the non-newsprint VOC limits for blanket/roller washes, metering rollers/printing plates, and other on-press components become effective. The VOC limits for all three of these categories will be 100 g/l. To ensure equivalency with the 15% usage limit, Section 302.2 must remain in effect until the 1/1/11 effective date for the three VOC limits mentioned above.

Section 110.8 of proposed Rule 450 provides an exemption from the 15% usage limit for presses that use materials for cleaning metering rollers and printing plates containing 100 g/l of VOC or less.