SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Staff Report

Proposed Amended Rule 1171 – Solvent Cleaning Operations

May 2025

Deputy Executive Officer
Planning, Rule Development, and Implementation
Sarah L. Rees, Ph.D.

Assistant Deputy Executive Officer
Planning, Rule Development, and Implementation
Michael Krause

Planning and Rules Manager
Planning, Rule Development, and Implementation
Heather Farr

Authors: Christopher Bradley – Air Quality Specialist

Contributors: Sarady Ka – Program Supervisor
Melissa Gamoning – Program Supervisor
Mojtaba Moghani, Ph.D. – Air Quality Specialist
Mitch Haimov – Senior Engineering Manager
Shannon Lee – Senior Engineering Manager
Bradley McClung – Program Supervisor
Andrew Burris – Senior Air Quality Chemist
Xian-Liang (Tony) Tian, Ph.D. – Program Supervisor
Chris Yu – Assistant Air Quality Specialist
Christopher Gill – Senior Air Quality Engineer
Sina Taghvaee, Ph.D. – Air Quality Specialist

Reviewed By: Heather Farr – Planning and Rules Manager
Michael Morris – Planning and Rules Manager
Barbara Baird – Chief Deputy Counsel
Karin Manwaring – Senior Deputy District Counsel
Barbara Radlein – Planning and Rules Manager
Kevin Ni – Program Supervisor

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WAYNE NASTRI

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Rule 1171 – Solvent Cleaning Operations (Rule 1171) was adopted in August 1991 to limit Volatile Organic Compound (VOC) emissions, toxic air contaminants, stratospheric ozone-depleting compounds, and global-warming compound emissions from solvent cleaning materials used in cleaning operations during the production, repair, maintenance, or servicing of products, tools, machinery, and general work areas. Subsequent rule amendments expanded the scope of the rule to apply to all solvent cleaning activities at all facilities.

Rule 1171 includes five primary categories of solvent cleaning activities with VOC limits and applies to any person who uses solvent cleaning materials in solvent cleaning operations during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or general work areas within South Coast Air Quality Management District (South Coast AQMD). The rule also applies to all persons who store and dispose of solvent cleaning materials used in solvent cleaning operations, and all solvent suppliers who supply, sell, or offer for sale solvent cleaning materials for use in solvent cleaning operations within the South Coast AQMD.

The current proposed rule amendments partially implement the 2022 Air Quality Management Plan (AQMP) control measure CTS-01 to address two exempt compounds that were determined to have toxic end points, including potential carcinogenicity, by the Office of Environmental Health Hazard Assessment (OEHHA): *tert*-Butyl Acetate (t-BAc), which is exempt from the definition of a VOC for certain categories of products in a few source specific rules, and para-chlorobenzotrifluoride (pCBtF), which is considered exempt from the definition of a VOC for all uses within the South Coast AQMD. These exempt compounds can be utilized by manufacturers of solvent cleaning materials to formulate cleaning solvents that comply with Rule 1171 VOC content limits. The Stationary Source Committee directive on April 21, 2017, was to prioritize lowering the toxicity of coatings and solvents, even if it means increasing VOC levels. Additionally, in 2017, Assembly Bill 617 (AB 617) was signed into state law and required development of strategies to reduce toxic air contaminants and criteria pollutants in overburdened communities.

Staff's proposed changes have two primary goals: 1) a prohibition and a phase-out timeline for pCBtF and t-BAc, and 2) to address specific industry concerns regarding ability to comply with specific rule requirements. The proposed amendments to the rule include:

- Prohibiting the use of pCBtF and t-BAc solvent cleaning materials effective:
    - January 1, 2026
    - Sell-through allowed until January 1, 2027
    - Use-through allowed until January 1, 2028
- Prohibiting the possession of non-compliant solvent cleaning materials
- Alternative usage and MIR limits for electricity and water distribution facilities
- Alternative usage limits for aerosol cleaning activities and electric and water utilities
- Alternative MIR limits of 0.38 g O_3/g VOC for any solvent cleaning activity
- Alternative MIR limits of 0.70 g O_3/g VOC for lithographic and screen printing solvent cleaning activities
- Updating rule structure, adding new definitions, and removing outdated rule provisions

Staff does not anticipate any VOC emission increases or costs due to the phase out of pCBtF and t-BAc as most solvent cleaning materials and not formulated with pCBtF or t-BAc.

CHAPTER 1: BACKGROUND

INTRODUCTION

REGULATORY HISTORY

AFFECTED INDUSTRIES

PUBLIC PROCESS

Introduction

Rule 1171 – Solvent Cleaning Operations is a source-specific rule adopted on August 2, 1991, to reduce Volatile Organic Compound (VOC) emissions, toxic air contaminants, stratospheric ozone-depleting compounds, and global-warming compound emissions from the use of solvents for the removal of loosely held uncured adhesives, uncured inks, uncured coatings, and contaminants from parts, products, tools, machinery, equipment and general work areas. Later rule amendments expanded the scope of the rule to apply to all solvent cleaning activities at all facilities. Rule 1171 includes five categories of solvent cleaning activities with VOC limits and applies to any person who uses solvent materials in solvent cleaning operations during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or general work areas within South Coast AQMD. The rule also applies to all persons who store and dispose of solvent cleaning materials used in solvent cleaning operations, and all solvent suppliers who supply, sell, or offer for sale solvent cleaning materials for use in solvent cleaning operations within the South Coast AQMD.

To reduce the VOC emissions from solvent cleaning materials and activities, many cleaning solvent manufacturers have relied on the use of aqueous or water-based options or through the use of solvents that are exempt from the definition of a VOC due to their low photochemical reactivity. In April 2017, the South Coast AQMD Stationary Source Committee recommended a precautionary approach when considering exempt compounds with a potential toxic endpoint and removing the exempt status for any compound that has an established toxic endpoint. The California Office of Environmental Health Hazard Assessment (OEHHA) has determined that two exempt compounds para-chlorobenzotrifluoride (pCBtF) and tert-butyl acetate (t-BAc), have toxic endpoints. Therefore, the current rule development has two primary goals: 1) to propose a phase-out of pCBtF and t-BAc, and 2) to address various industry-specific concerns regarding their ability to continue operations and comply with the rule.

Regulatory History

Rule 1171 was adopted on August 2, 1991, and has since been amended ten times. The most recent amendment was on May 1, 2009, which sought to further extend the compliance date for the 100 grams per liter VOC content limit for solvents used for the cleaning of ultraviolet/electron beam (UV/EB) inks in lithographic printing, and on-press screens and automatic screen reclamation in screen printing operations from January 1, 2009, to January 1, 2010. The amendment also sought to make administrative changes to the rule to enhance the understanding of current applicable rule requirements by removing obsolete rule language and making minor revisions and editorial corrections.

Prior to the 2009 amendment, Rule 1171 was amended in February 2008 to extend the compliance date to January 1, 2009, for the 100 grams per liter VOC content limit for solvents used for the cleaning of ultraviolet/electron beam (UV/EB) inks in lithographic printing, and on-press screens and automatic screen reclamation in screen printing operations. The delay was necessary to allow additional time for the printing industry to test new formulations and transition to the new cleaning materials. Facilities that engage in lithographic and screen printing were directly impacted by the lower VOC limit of 100 grams per liter requirement; the 2006 rule amendment delayed the implementation of the 100 grams per liter due to infeasibility for 18 months; low VOC solvent cleaning material were not available at the time and the technology assessment encountered unforeseen delays. In May 2006, the technology assessment to support the target VOC limit of 100

grams per liter for lithographic ink application was completed and the results indicated that low VOC alternative material such as water-based cleaners, blends of VOC exempt solvents, and methyl esters can be used to clean press rollers and blankets. Additional time that was provided allowed the printing industry and solvent formulators to evaluate the results of the technology assessment, develop and test new formulations, and transition to the new cleaning materials. The printing industry tested compliant products in actual production environments at various printing facilities. The test results indicated significant success in the performance of low VOC cleaning materials for removing conventional inks from rollers and blankets in lithographic in application equipment; the success was achieved for both hand wipe (manual) and automatic cleaning of rollers and blanket.

Background on t-BAc and pCBtF

In 1994, the U.S. EPA exempted pCBtF from the definition of a VOC, and in 2004, South Coast AQMD added pCBtF as an exempt VOC compound in Rule 102. A Rule 102 VOC exemption means pCBtF is not considered a VOC for any application in the South Coast AQMD.

In 2004, the U.S. EPA exempted t-BAc from the definition of a VOC, but due to toxicity concerns, the South Coast AQMD did not allow for an unlimited Rule 102 exemption but did allow for several limited exemptions in source specific rules, e.g., Rules 1113 and 1151. In 2013, the Rule 1113 amendment included a resolution that directed staff to review the exemption for t-BAc due to renewed toxicity concerns. OEHHA finalized their t-BAc assessment in 2017, concluding that it had a higher cancer potency than previously estimated. In 2018, staff presented the preliminary t-BAc assessment and expressed concerns regarding pCBtF because OEHHA had not assessed its toxicity. Based on staff recommendations, the Stationary Source Committee directed staff to: remove existing t-BAc exemption in Rules 1113 and 1151 when rules are amended and request OEHHA to review the potential toxicity of pCBtF and remove the exemption, as resources allow, if pCBtF is deemed a potential carcinogen. In 2020, the pCBtF Hot Spots cancer inhalation unit risk factor document was adopted by OEHHA, which indicated pCBtF is a potential carcinogen.

The Stationary Source Committee recommended a precautionary approach to prioritize reducing the use of compounds with a known or suspected toxic endpoint over reducing VOC emissions. Based on that recommendation, staff is working to amend each VOC rule, considering category by category, the best approach to reduce the toxicity of coatings and solvents used within the South Coast AQMD.

2022 Air Quality Management Plan

The 2022 AQMP adopted on December 2, 2022, set forth a path for improving air quality and meeting federal air pollution standards by striving for zero-NOx emission technologies across all sectors and lower VOC emissions where feasible. The 2022 AQMP includes Control Measure CTS-01 Further Emission Reductions From Coatings, Solvents, Adhesives, and Lubricants, which seeks to reduce the toxic impact of pCBtF and t-BAc emissions. PAR 1171 partially implements the 2022 AQMP Control Measure CTS-01 by prohibiting the use of solvent cleaning materials that contain pCBtF and t-BAc.

Assembly Bill 617

AB 617 was signed into state law in 2017 and requires development of strategies to reduce toxic air contaminants and criteria pollutants in overburdened communities. During the development of

the AB 617 CERP for the South Los Angeles (SLA) community, community members expressed concern about the impacts from autobody shops, many of which are located close to residents and can be clustered within the community. During the rule development for Rule 1151, staff confirmed that automotive coatings used at autobody shops contain large amounts of pCBtF or t-BAc. Autobody shops also conduct solvent cleaning activities that are subject to PAR 1171. PAR 1171 addresses the air quality commitment objectives related to the solvent cleaning operation of autobody refinishing coating application equipment by reducing toxic air emissions with the phase out of pCBtF and t-BAc.

Affected Industries

Rule 1171 is applicable to any person who uses solvent materials in solvent cleaning operations during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or general work areas as part of a business or public service; any person who stores and disposes of solvents used in solvent cleaning operations as part of a business or public service; and all solvent suppliers who supply, sell, or offer for sale solvent cleaning materials for use in solvent cleaning operations within the South Coast AQMD.

Many industries are affected by Rule 1171 and includes but are not limited to automotive refinishing, automotive repair, various types of printing, medical, pharmaceutical, electricity generation and distribution, water distribution, electronics and miscellaneous manufacturing industries.

Process Description

Solvent cleaning materials are used for many purposes including but not limited to product cleaning during manufacturing processes, surface preparation for coating, adhesive or ink application, repair and maintenance cleaning, cleaning of coatings, adhesives, resin or ink application equipment, cleaning of medical tools or devices, and general cleaning of tools, equipment or machinery. Solvent cleaning activities subject to Rule 1171 are those performed during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or general work areas as part of a business or public service within the South Coast AQMD.

Public Process

The current rule amendment process began in December 2023. Staff conducted three working group meetings and multiple individual meetings with industry stakeholders and representatives. Table 1-1 summarizes the key topics discussed at each of the Working Group Meetings, which ranged from one to three hours and included presentations that are posted on the South Coast AQMD's website.[1]

[1] https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1171

Table 1-1: Summary of Public Meetings

Meeting title	Date	Highlights
Working Group Meeting #1	January 16, 2024	• Rule background • Key amendment objectives • Exempt solvent background • Preliminary technology assessments
Working Group Meeting #2	May 29, 2024	• Summary of WGM #1 • Amendment progress update • Industry uses of t-BAc and pCBtF • Industry compliance concerns • Initial rule concepts
Working Group Meeting #3	February 26, 2025	• Rule amendment resumption update • Rule background refresher • Key amendment objectives refresher • WGM #2 summary • t-BAc and pCBtF Regulatory Background • Initial rule concepts
Public Workshop	March 28, 2025	• Rule background • Proposed Rule Amendments • Rule Language • Emissions Impact • Socioeconomic Assessment • CEQA

CHAPTER 2: SOLVENT CLEANING ASSESSMENT

SOLVENT CLEANING AND EXEMPT COMPOUNDS

pCBtF and t-BAc BACKGROUND AND TOXICITY

SOLVENT CLEANING MATERIAL ASSESSMENT

AEROSOL USAGE AND LIQUID ALCOHOLS

PRODUCT WEIGHTED MAXIMUM INCREMENTAL REACTIVITY

Solvent Cleaners and VOC Control

Solvent cleaning materials are used in a variety of solvent cleaning activities by a wide range of industries and their associated equipment and workspaces. Solvent cleaning materials consist of a variety of different products with varying VOC contents, and can be used at industrial, commercial, and residential facilities. However, solvent cleaning activities that occur at residences are not regulated by PAR 1171 because the solvent cleaning materials used at residence are considered consumer products and regulated by the California Air Resources Board (CARB). Solvent cleaning materials subject to PAR 1171 are used during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or general work areas as part of a business or public service within the South Coast AQMD.

VOC emissions resulting from the use of solvent cleaning materials are controlled primarily by two methods. The first approach can be taken at the end-user level through improvement of work practices, including but not limited to keeping solvent containers tightly sealed or properly disposing of used solvents. The second approach includes modifying the chemistry of the solvent cleaning materials to reduce the VOC content. This approach is generally taken at the manufacturer or supplier level. Reducing the VOC content of solvent cleaning materials via reformulation can be achieved by transitioning to a water-based formulation, manufacturing with low-VOC solvent mixtures, or utilizing exempt solvents. The most widely used method for controlling VOC emissions from solvent cleaning materials is to transition to water-based systems since water has excellent cleaning properties and can be enhanced with surfactants, rust inhibitors, and rinsing agents. In these cases, the VOC limit can readily comply with the applicable 25 grams per liter VOC limit. However, for other specific solvent cleaning activities or applications it may be challenging to find suitable effective low-VOC cleaning solvents, these applications are afforded a higher limit in Rule 1171. Another option that manufacturers of solvent cleaning materials can utilize to reduce VOC content is to formulate with exempt compounds or solvents, such as acetone or para-chlorobenzotrifluoride since they do not count towards the VOC content the solvent cleaning material.

Staff is not proposing to change any of the VOC limits. The following table shows the categories and VOC limits in Rule 1171.

Table 2-1: Rule 1171 VOC Limits

Solvent Cleaning Activity	VOC Content Limit (g/L)
(A) Product Cleaning During Manufacturing Process or Surface Preparation For Coating, Adhesives, or Ink Applications	
(i) General	25
(ii) Electrical Apparatus Components & Electrical Components	100
(iii) Medical Devices & Pharmaceuticals	800
(B) Repair and Maintenance Cleaning	
(i) General	25
(ii) Electrical Apparatus Components & Electrical Components	100
(iii) Medical Devices & Pharmaceuticals	
(A) Tool, Equipment, & Machinery	800
(B) General Work Surfaces	600
(C) Cleaning of Coatings or Adhesives Application Equipment	25
(D) Cleaning of Ink Application Equipment	
(i) General	25
(ii) Flexographic Printing	25
(iii) Gravure	
(A) Publications	100
(B) Packaging	25
(iv) Lithographic (offset) or Letter Press Printing	
(A) Roller Wash, Blanket Wash, & On-Press	100
(B) Removable Press Components	25
(v) Screen Printing	100
(vi) Ultraviolet Ink/Electron Beam Ink Application Equipment (except screen printing)	100
(vii) Specialty Flexographic Printing	100
(E) Cleaning of Polyester Resin Application Equipment	25

Comparing pCBtF and t-BAc toxicity to Other Compounds

Staff considered several approaches to address the toxicity concerns for pCBtF and t-BAc from removing the exempt status to a complete prohibition of use. To inform that decision, staff considered how other compounds with potential toxic endpoints have historically been addressed. Rule 102 defines exempt compounds as being Group I or Group II compounds; Group II compounds are prohibited from use in some rules. Cancer Potency Factor is a measure used to estimate the risk of cancer associated with exposure to a carcinogenic substance and represents the increased cancer risk per unit of exposure over a lifetime. Reference Exposure Level (REL) is the

maximum concentration level of a substance in the air that is not expected to have adverse health effects in humans over a specified exposure duration; RELs can be acute (short-term), 8-hour, or chronic (long-term). Four compounds and their Cancer Potency Factors and RELs are listed in Table 2-2 and 2-3 for comparison.

Table 2-2 Cancer Potency Factor Comparison

Compound	Cancer Potency Factor (Slope Factor)
perchloroethylene (perc)	0.021
Dimethyl Carbonate (DMC)	0.0035
t-BAc	0.0047
pCBtF	0.03

For the four compounds shown in the Table 2-2, pCBtF has the highest Cancer Potency Factor. The Cancer Potency Factor of pCBtF is almost 50 percent higher than perchloroethylene's, a prohibited Group II Exempt Compound.

Table 2-3 shows the available Acute RELs for the same four compounds. t-BAc has the lowest REL, meaning the highest risk among the compounds. While the Cancer Potency Factor for pCBtF is much higher than t-BAc, perc, and DMC, but it has no established Acute REL.

Table 2-3 Acute REL Comparison

Compound	Acute REL
perc	20,000
DMC	14,000
t-BAc	10,000
pCBtF	N/A

Staff Recommendations on pCBtF and t-BAc

The preceding comparison of pCBtF and t-BAc to other toxic compounds that are prohibited from use in VOC rules, including Rule 1171, supports a prohibition of pCBtF and t-BAc. OEHHA's assessment of pCBtF and t-BAc shows these compounds to be as toxic as many chemicals currently prohibited; therefore, staff recommends prohibiting the use of pCBtF and t-BAc.

pCBtF and t-BAc Use in Solvent Cleaning

The main objective of PAR 1171 is to prohibit the use of the two exempt compounds or partially exempt compounds that have been determined to have toxic endpoints: pCBtF and t-BAc. PAR

1171 regulates five main categories of solvent cleaning activities in which each of the main category can further be subcategorized into general and more specific solvent cleaning activities. Staff assessed solvent cleaning materials used in each of the main solvent cleaning activity categories and concluded that majority of the solvent cleaning materials used do not contain pCBtF or t-BAc, therefore a prohibition can take effect relatively quickly.

Automotive Coating Manufacturer pCBtF and t-BAc Survey

During the rulemaking for Rule 1151, staff conducted a survey of automotive coating manufacturers to further understand the extent to which pCBtF and t-BAc is used to comply with the VOC limits in Rule 1151 and for solvent cleaning activities. The survey was conducted in December 2023, of manufacturers who sell automotive coatings and products subject to Rule 1151. The main exempt compounds of interest of the survey were pCBtF and t-BAc. As part of the survey, staff requested additional information regarding solvent cleaning products used for the cleaning of automotive coating spray guns and body panels. Based on the survey data that was submitted by the manufacturers, the use of pCBtF or t-BAc was only identified in solvent cleaning materials used for automotive coating spray gun cleaning activities. However, the primary solvent used for solvent cleaning of associated spray gun equipment is acetone.

Solvent Cleaning Material Assessment and pCBtF Usage

The use of t-BAc is not common since it is not a fully exempted solvent in many South Coast AQMD regulations; it is only partially exempt in a few regulations. Since t-BAc is not considered exempted in Rule 1171, its use is still counted towards the overall VOC content. As a result, most solvent cleaning materials subject to Rule 1171 are not formulated with t-BAc. However, pCBtF is a fully exempted solvent and is used in many industries to comply with low VOC limits in many South Coast AQMD regulations. The use of pCBtF in solvent cleaning material subject to Rule 1171 is limited, staff identified three solvent cleaning operations that use solvent cleaning materials that contain pCBtF in its formulation. The three operations are automotive repair and maintenance (parts washing), offset printing (blanket and roller), and autobody repair (spray gun cleaning). Due to its exempt status, pCBtF is not considered a VOC when used in solvent cleaning material; however, it does have potential health impacts due to its toxic end point.

Rule 1171 establishes VOC limits for all solvent cleaning activities identified in the rule. As previously mentioned, achievement of the target VOC limits is expected through greater use of aqueous or water-based cleaning technologies and VOC exempt solvents, through development of new cleaning materials. All of the VOC limits established in the 1999 amendment for Rule 1171 have now been implemented, including ink application equipment which initially encountered challenges in meeting the lower limit. The printing industry has been largely successful in its efforts for finding suitable low VOC solvent cleaning materials and is a prime example of what research and development can achieve. Most recently members of the printing industry have requested an alternative reactivity-based limit to provide additional compliance flexibility in developing solvent cleaning material formulations; giving the industry ability to provide and use more effective solvent cleaning material and provide additional options.

As mentioned previously, the printing industry was given additional time to test many compliant products in actual production environments which showed that water-based cleaners, blend of other exempt solvents, and methyl esters can be successfully used to clean press rollers and blankets. Staff also conducted several visits to autobody facilities which showed the most common

lower cost and pCBtF free options used to clean spray guns is acetone; this was also confirmed in the survey that was conducted for Rule 1151 in December 2023. Automotive repair and maintenance facilities use a pCBtF containing solvent to washing parts or components during transmission or engine repairs; the solvent cleaning material contains 95 percent pCBtF by volume and the intended use of the product is for cleaning and degreasing metal parts for the removal of adhesives, carbon deposits, greases, mold release, oils, and waxes. The manufacturer indicated they primarily rely on pCBtF to comply with the current Rule 1171 VOC limits of 25 grams per liter and that the customer base for the pCBtF containing cleaning material is relatively small and limited to parts washing for transmission and engine repair. The manufacturer indicated that existing customers using the pCBtF containing solvent can be transitioned to a replacement solvent cleaner that is free of pCBtF but would require time to completely transition and replace the existing product.

Staff will be proposing a prohibition of pCBtF and t-BAc that includes sell-through and use-through periods for solvent cleaning materials already in the supply chain in order to prevent stranded assets associated with existing inventory. The sell-through and use-through is for any solvent cleaning material that is manufactured prior to the proposed prohibition date of January 1, 2026. The following table provides a summary of the proposal.

Table 2-4 Proposed Prohibition, sell-through, use-through

Category	Prohibition Effective Date	Sell-through End Date	Use-through End Date
All Solvent Cleaning Activities listed in Table 1	January 1, 2026	January 1, 2027	January 1, 2028

Aerosol Usage Exemption

Rule 1171 provides an exemption for the use of 160 ounces or less per day of aerosol solvent cleaning products that contain VOC in excess of the limits listed in Table 1 – Table of Standards in the Rule. Aerosol solvent cleaning materials are regulated by the California Air Resources Board and are not required to comply with the VOC limits of Rule 1171; however, Rule 1171 can limit the amount of aerosol solvent that can be used at permitted facilities. Several industries and businesses have indicated that they are currently using and rely on the aerosol exemption for cleaning of specific equipment, while others have indicated that the exemption does not reflect the current operation of their business. Electricity generating and distribution, water distribution, water treatment facilities, battery manufacturing facilities, and automotive repair industry have expressed concerns regarding the current exemption. Staff is proposing to reduce the amount of non-compliant aerosol solvent cleaning products from 160 ounces a day to 1,750 ounces a month.

Aerospace Facilities, Electricity Generating and Distribution, Water Treatment, and Water Distribution

Electricity generating and distribution, water distribution, and water treatment facilities that operate similar equipment currently rely on the aerosol exemption and use aerosolized, alcohol-based solvent cleaning products to clean specific equipment. Many electricity distribution facilities

use aerosolized denatured alcohols to clean circuit breaker components such as driving mechanisms and interrupters, as specified by equipment manufacturers. Staff has identified other solvent cleaning materials that can potentially be used to clean the equipment such as dry ice or acetone; however, the equipment manufacturer will not approve the use cleaners that have not been tested; use of untested cleaners can potentially cause safety issues. Furthermore, industry stakeholders expressed concern regarding the availability of denatured alcohol in aerosol spray form since there have been times when it was unavailable. Due to the uncertainty of availability, stakeholders requested the ability to use liquid denatured alcohol or liquid isopropyl alcohol instead of aerosol denatured alcohol. The rule currently allows approximately 456 gallons of denatured alcohol per year in aerosol form, but based on feedback from industry stakeholders, the estimated use of denatured alcohol in liquid form is approximately 70 gallons per year for all large utilities under common ownership. Staff is recommending to allow up to 70 gallons of liquid alcohol use for cleaning and including a maximum incremental reactivity (MIR) limit to reduce the ozone forming potential of the cleaning solvent to the alcohols currently being used. A discission of MIR based-VOC limits is included later in this chapter. Table 2-5 shows the proposed volume and product weighted-MIR limits (PW-MIR).

Similarly, water distribution and water treatment facilities also requested the use of non-compliant liquid denatured alcohols to clean specific equipment such as ozone generators, UV sterilization systems, chlorine systems, and electrical components. Based on the information provided to staff by the facilities, the equipment manufacturers specify using only denatured alcohol for cleaning the specific equipment. Manufacturers of this equipment have indicated that they have not identified suitable, compliant, non-aerosol solvent cleaning alternatives due to insufficient cleaning ability and/or remaining residue that may impact equipment operation and/or safety. Based on facility feedback, the estimated alcohol usage amounts at each facility are:

- Ozone generators at approximately 15 gallons per generator every 10 years and the facilities have several ozone generators
- UV sterilization at approximately five ounces per reactor with a total of 29 reactors every month
- Chlorine system at approximately five gallons per facility per year and can be up to 6 facilities
- Electrical components at approximately five gallons per year per facility

Staff is recommending allowing up to 70 gallons of liquid alcohol use for cleaning of specific equipment located at electricity and water distribution utility operations. Staff will also include a separate usage limit for chlorination systems, ozone generators, ultraviolet light treatment systems, and chlorination systems. Ozone generators and ultraviolet treatment systems will be allowed a usage limit of 40 gallons and 30 gallons, respectively. Chlorination systems will be provided a usage limit of five gallons per year and all solvent cleaning activities will also include a PW-MIR limit to reduce the ozone forming potential of the cleaning solvent to the alcohols currently being used; the two types of alcohol that are currently being used are isopropyl alcohol and denatured alcohol. Isopropyl alcohol has a MIR value of 0.61 whereas the MIR value of denatured alcohol can vary based on composition. The composition of denatured alcohol can vary by manufacturer, so staff evaluated the composition of several commercial denatured alcohol products to estimate a range of potential PW-MIR values; the PW-MIR values ranged from 0.94 to 1.7. As a result, staff is proposing a PW-MIR limit at the upper limit of 1.7 which will provide flexibility to the facility.

Using the upper limit will allow the facility to use denatured alcohol from several manufacturers. Staff acknowledges that as technology matures, and as treatment capacity and water demand grows, facilities may need to increase the amount of solvent cleaning materials used to maintain equipment in acceptable operating condition. Staff recommends addressing this matter in the future should the need arise. Table 2-5 shows the proposed usage volume and PW-MIR limits.

Table 2-5 Proposed Alternative Usage and MIR Limits

Solvent Cleaning Activity	Usage Limits (gallons per year)	PW-MIR
(A) Electricity Generating or Distribution Equipment	70	1.7
(B) Water Distribution Equipment		
(i) Chlorination Systems	5	1.7
(ii) Ozone Generators	40	1.7
(iii) Ultraviolet Light Treatment Systems	30	1.7

Metric used to qualify for aerosol exemption (fluid ounces versus ounces)

In regard to the aerosol exemption, staff is also proposing to change the metric used to qualify for the exemption from fluid ounces to ounces. Fluid ounces are not a unit of weight and is used to measure volume of a liquid and does not align with the California Air Resources Board (CARB) definition for VOC content of an aerosol product. CARB defines the VOC content of an aerosol product as the total weight of VOC in a product expressed as a percentage of the product weight. Since aerosol products sold for use must comply with CARB's consumer product regulation, most aerosol cans sold in California will have labels that display weight in ounces and/or grams.

Automotive Repair Facilities and Battery Manufacturing Facilities

Most of the solvents used for automotive parts washing are aqueous products or are compliant with the 25 grams per liter VOC limit; however, automotive repair facilities also rely on the exempted use of aerosol solvent cleaning products that contain VOC in excess of VOC limits for small solvent cleaning activities, such as adhesive removal, and for the cleaning of intake throttle body automotive components. Battery manufacturers also rely on this exemption to clean grease or other contaminants from battery terminals. Industry stakeholders indicated that they have tested compliant alternative cleaning products but have not found a suitable replacement that meets the operational and performance requirements. The aerosol solvent cleaning products used for these cleaning operations have a VOC content greater than 25 grams per liter limit of the rule and usage will vary depending on the volume of cars serviced or the amount of batteries manufactured. A high-volume car service dealership typically needs approximately 4,500 ounces per month of non-

complaint aerosol for intake/throttle body cleaning whereas aerosol cleaning solvents used for adhesive removal require a much smaller amount of approximately 75 ounces per year. Battery manufacturers use approximately 2,400 ounces per month to clean the terminals during the battery manufacturing process. The rule currently provides a daily aerosol limit that equates to a 4,800 ounces per month allowance; however, stakeholders expressed concern that the daily allowance does not reflect current operational needs. Stakeholders requested that the allowance for non-complaint aerosols be changed to a monthly limit rather than a daily limit to provide additional flexibility to the facilities. Aerospace facilities also expressed concerns for cleaning similar equipment as the electricity and water distribution utilities. They indicated that they do not intend to use liquid cleaners but will continue to rely on use the aerosol exemption for their cleaning needs, instead of transitioning to liquid cleaners, but need at least 160 ounces per month of aerosols to clean their electrical equipment. This change would not increase or change the overall usage volume and merely provide flexibility to the facility. Staff's assessment did not identify any low VOC alternatives for these specific cleaning operations. As a result, staff is proposing to revise the current aerosol allowances to reflect the operational needs for auto repair facilities and battery manufacturers, as shown in Table 2-6.

Table 2-6 Proposed Usage Limits for Aerosol Solvent Cleaners

Solvent Cleaning Activity	Usage Limits
(A) Cleaning of Automotive Parts	
(i) Throttle Body and Intake Systems	4,800 ounces per month
(ii) All Other Automotive Part Cleaning	32 ounces per month
(B) Battery Terminal Cleaning at Battery Manufacturing Facilities	2,400 ounces per month
(C) All Others Solvent Cleaning Activities	1,750 ounces per month

Product-Weighted Maximum Incremental Reactivity

Many stakeholders have requested that PAR 1171 also includes a general alternative PW-MIR VOC limit of 0.38 g O_3/g VOC for all solvent cleaning activities and an alternative PW-MIR for cleaning of ink application equipment for lithographic and screen printing operations. Staff is proposing an alternative PW-MIR limit of 0.70 g O3/g VOC for cleaning activities subject to Table 1 (D)(iv)(A), lithographic or letter press printing for roller wash, blanket wash, and on-press components ink application equipment cleaning, and Table 1 (D)(v) screen printing ink application equipment cleaning. Alternative PW-MIR limits were introduced in Rule 1151- Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations for a few categories to provide manufacturers additional flexibility to develop alternative compliant formulations with less impact on ozone formation. Traditional mass-based VOC limits treat all VOCs equal, other than water

and exempt compounds which are excluded. However, research[2] has shown that different solvents have varying potentials to form ground-level ozone. The MIR scale measures the relative ozone-forming potential of VOCs, offering a more nuanced approach than traditional mass-based limits. By using a PW-MIR VOC limit, one can account for the differences in reactivity, ensuring that products with more reactive VOCs are more strictly regulated, while less reactive VOCs are afforded some flexibility. The California Air Resources Board (CARB) published MIR values for various VOCs, which have been instrumental in developing these limits[3].

As an example, a PW-MIR analysis was conducted in Rule 1151 for the adhesion promoter coating category. Adhesion promoters are typically used to facilitate bonding of paint to plastic automotive parts; adhesion promoters usually consist of a low-solids formulation composed primarily of solvents. One of the primary solvents used is t-BAc but with the prohibition of pCBtF and t-BAc, manufacturers were limited in solvent options to comply with the traditional mass-based limits. For the analysis, staff utilized survey data and online searches to identify adhesion promoters sold within the South Coast AQMD, identifying 15 such products. To gather detailed VOC information for each product, staff reviewed the Safety Data Sheets for all 15 adhesion promoters. Using the CARB MIR values, staff calculated the PW-MIR for each product. In cases where VOC compounds were reported as a range, staff calculated an average PW-MIR based on the mid-point of the reported range, as well as a maximum PW-MIR using the highest reported value for each VOC compound. After calculating the average and maximum PW-MIR values for all the products, staff performed a statistical analysis to propose an appropriate PW-MIR limit for adhesion promoters. Table 2-7 lists the products staff considered; included are the weight percentages (wt%) for pCBtF and t-BAc in those products, as those solvents have very low MIR values. Staff put more emphasis on adhesion promoters without pCBtF and t-BAc to more accurately reflect the potential PW-MIR of these products once those exempt solvents are prohibited.

[2] Carter, William P.L., College of Engineering, Center for Environmental Research and Technology, The SAPRC-99 Chemical Mechanism and Updated VOC Reactivity Scales, February 2023

[3] California Air Resources Board (CARB), "Tables of Maximum Incremental Reactivity (MIR) Values", available at https://ww2.arb.ca.gov/sites/default/files/2020-12/cp_reg_mir-tables.pdf

Table 2-7 PW-MIR Values for Adhesion Promoters in Rule 1151

PRODUCT	Regulatory VOC As Applied (g/L)	pCBtF (wt %)	t-BAc (wt %)	PW-MIR with Average VOC Content (g O_3/g VOC)	PW-MIR with Max VOC Content (g O_3/g VOC)
Product 1	540	87.8	0	0.26	0.36
Product 2	526	0	58.1	1.22	1.75
Product 3	540	0	0	1.35	1.68
Product 4	537	3.1	22	2.72	3.21
Product 5	508	86.9	0	0.35	0.51
Product 6	540	82.8	0	0.4	0.56
Product 7	537	55.8	0	0.49	0.62
Product 8	520	54.8	0	1.42	1.81
Product 9	516	49.4	0	0.16	0.2
Product 10	517	49.3	0	0.37	0.56
Product 11	511	33.9	0	0.47	0.74
Product 12	533	3.5	20.2	2.69	3.17
Product 13	526	0	58.1	1.22	1.75
Product 14	529	0	20	2.68	3.16
Product 15	540	0	0	1.35	1.68

In addition to this assessment, a manufacturer of an adhesion promoter provided data on their potential future non-pCBtF/t-BAc formulation and indicated it could achieve a PW-MIR of between 2.0 – 2.5 g O_3/g VOC, which supports staff's assessment and proposed limit for adhesion promoters in Rule 1151.

The proposed PW-MIR limits for alcohol related solvent cleaning activity in PAR 1171 are in Table 2-5. The PW-MIR limits are designed to achieve equal or greater reductions in ground-level ozone compared to traditional mass-based VOC limits because VOCs with the greatest ozone forming potential will be limited rather than treating each VOC equally; this offers more flexibility in product reformulation. The use of PW-MIR is presented as an option rather than a requirement; the PW-MIR approach provides manufacturers with greater flexibility in reformulating their products. It is also important to note that a product complying with the proposed MIR limit can potentially have a higher mass-based VOC content (g/L) than the limits in the Table of Standards in the rule.

As the South Coast AQMD phases out of exempt solvents such as pCBtF and t-BAc, a mechanism to reduce the air quality impact of solvent cleaning operations is to develop PW-MIR limits. The solvent cleaning materials will continue to have a mass-based VOC limit; however, the new PW-MIR limit may potentially result in less ground-level ozone formation. In essence, reactivity-based limits would require manufacturers to choose solvents with lower MIR value. One of the solvent cleaning materials evaluated by staff was an automotive spray gun cleaner used at autobody repair facilities; a facility can either choose to use a specialty spray gun cleaner that is comprised of a mixture of solvents or acetone. Acetone has a MIR value of 0.36 and a lower potential for ozone formation whereas the specialty spray gun cleaner is only slightly higher. To gather detailed VOC information for the product, staff conducted online searches and also reviewed the technical and safety data sheets for the specialty spray gun cleaner. Using the CARB MIR values, staff calculated the PW-MIR for the product. In cases where VOC compounds were reported as a range, staff determined the PW-MIR based on the upper end of the reported range. Table 2-8 shows staff's assessment of the PW-MIR of a spray gun cleaner that would not meet the mass-based limit of 25 g/L but will comply with the proposed PW-MIR limit of 0.38. The spray gun cleaner is a mixture of acetone and alkanes and has a VOC content of 36 g/L which is higher than the VOC limit of 25 g/L allowed in the rule. The evaluation showed that despite having a higher VOC content limit allowed in the rule, the PW-MIR limit of the cleaner is 0.38 which is similar to the MIR value of acetone. Providing a slightly higher alternative PW-MIR limit at 0.38 will give the manufacturer formulation flexibility to meet the performance requirements of the specific solvent cleaning activity.

Table 2-8 Values of Solvents used in Spray Gun Cleaner

Solvent	Weight Percent	MIR	PW-MIR
Alkanes	3%	0.52	0.03
Acetone	97%	0.36	0.35
Total	**100%**		**0.38**

Potential Ozone Reduction Benefit

By adopting a PW-MIR approach instead of relying solely on mass-based VOC limits measured in grams per liter, the regulatory framework can be better aligned with air quality goals while providing manufacturers with increased flexibility. The PW-MIR approach offers flexibility, allowing manufacturers to explore various formulations without being restricted by a single mass-based VOC limit. This encourages innovation and the development of products that meet regulatory requirements while enhancing performance and reducing environmental impact. Stakeholders that are developing solvent cleaning material also requested that an alternative PW-MIR limit be incorporated since some formulations may not comply with the mass-based limit but would comply with a PW-MIR limit. For the general alternative PW-MIR limits, the stakeholder

indicated that their formulation is comprised primarily acetone with a small mixture of other solvents with an approximate PW-MIR of 0.38. Since acetone is an exempt compound and has a MIR value of approximately 0.4, staff is proposing an alternative PW-MIR limit of 0.38 g O_3/g VOC for all solvent cleaning activities to provide formulation flexibility. For the alternative PW-MIR limit for cleaning lithographic and screen printing ink application equipment, staff consulted with several solvent cleaning manufacturers to determine the PW-MIR limits that would have equivalent or less ozone formation potential than the current 100 g/L VOC limit. Existing solvent cleaning materials were not formulated with the goal of reducing reactivity, so some existing cleaning materials have a very high PW-MIR; however, some solvent cleaners have been formulated to reduce reactivity. Looking at the range of solvents used for cleaning printing equipment and considering what the manufacturers think can be formulated to efficiently clean the equipment, staff is proposing a 0.70 g O_3/g VOC limit. The proposed limit is an alternative limit so facilities can continue to use the 100 g/L mass-based VOC limit that has been in place for 15 years. The alternative is meant to provide flexibility without increasing the ozone formation potential of the cleaning solvents.

Enclosed Mobile Containers Used to Transport Material

Some solvent cleaning operations utilize biodiesel as a solvent cleaning material to clean large enclosed mobile containers used to transport materials. These containers include, but are not limited to, rail tank cars and tanker truck containers. Biodiesel is used as the cleaning agent to remove any residual commodity (known as "heel") remaining in an empty container. This cleaning system works for various commodities requiring cleaning from enclosed containers, such as asphalt, crude oil, and fertilizers.

These solvent cleaning systems are generally closed loop systems, where a nozzle is attached to the top hatch of an enclosed container, forming a sealed high-pressure wash and rinse system that dissolves and dislodges the heel, then removes the residual wash solution through successive high-pressure rinses. The solvent cleaning wash solutions sprayed inside the railcar are pumped from the enclosed container to a holding tank in a closed loop recirculating system. Spent wash solutions are typically pumped from the storage tank into a tank truck for transport to a commercial waste management facility.

Because there is no established VOC content for biodiesel and because the VOC content of biodiesel can vary, staff is proposing an alternate compliance option for solvent cleaning activities that utilize biodiesel as a solvent cleaning material and that are performed on enclosed mobile containers used to transport material. The proposed alternate compliance option includes requiring the container to be completely airtight and leak free during the solvent cleaning activity and ensuring that all vapor leaks from fugitive components do not exceed a concentration of 50 parts per million calculated as carbon and testing requirements to ensure compliance.

CHAPTER 3: SUMMARY OF PROPOSALS

Introduction

The main objective of the proposed amendments to Rule 1171 is to phase out the use of pCBtF and t-BAc as solvents in solvent cleaning materials, as directed by the South Coast AQMD's Stationary Source Committee, due to toxicity concerns.

Staff is proposing the following amendments to Rule 1171. The proposed amendments primarily pertain to the prohibition of pCBtF and t-BAc use in the regulated products and the introduction of various types of alternative compliance options, including reactivity based limits and volumetric usage limits. Some other amendments are for the purpose of rule clarification or streamlining. The proposed revised rule structure and key provisions are discussed in the following sections.

Proposed Amended Rule Structure

(a) Purpose
(b) Applicability
(c) Definitions
(d) Requirements
(e) Alternative Compliance Options
(f) General Prohibitions
(g) Recordkeeping Requirements
(h) Test Methods
(i) Rule 442 Applicability
(j) Exemptions

Proposed Amended Rule 1171

Purpose [Subdivision (a)]

The purpose of this rule is to reduce emissions of VOCs, toxic air contaminants, stratospheric ozone-depleting compounds, and global-warming compounds from the use, storage and disposal of solvent cleaning materials used in solvent cleaning activities performed in South Coast AQMD.

No significant revisions were made to this subdivision. The subdivision previously combined with the following Applicability subdivision; however, staff separated the two into separate subdivisions to be consistent with the structure of similar rules. Staff capitalized defined terms to indicate that definitions for the associated terms can be found in the Definitions subdivision.

Applicability [Subdivision (b)]

PAR 1171 applies to any person who uses solvent cleaning materials in solvent cleaning operations during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or general work areas within South Coast AQMD at public service facilities or facilities that are a part of a business or businesses. The rule also applies to all persons who store and dispose of solvent cleaning materials used in solvent cleaning operations, and all solvent suppliers who supply, sell, or offer for sale solvent cleaning materials for use in solvent cleaning operations within the South Coast AQMD.

No significant revisions were made to this subdivision. Staff capitalized defined terms to indicate that definitions for the associated terms can be found in the definition's subdivision.

Definitions [Subdivision (c)]

To provide clarity, definitions are used in the proposed amended rule as a proper noun to better distinguish defined terms from common terms. Refer to PAR 1171 for a complete list of definitions.

The following are new and modified definitions for PAR 1171, including some that distinguish the new solvent cleaning activities and associated equipment and facility types. For all definitions, refer to the preliminary draft of PAR 1171 released with the Staff Report. Accordingly, the following definitions will be added:

AEROSOL PRODUCT in paragraph (c)(1), which means:

> *"a hand-held, non-refillable container that expels pressurized product by means of a propellant-inducted force. Aerosol Product does not include pump spray devices, which are packaging systems in which the product ingredients, or Solvent Cleaning Materials, are expelled only while a pumping action is applied to a button, trigger, or other actuator. Ingredients in a pump spray device are not under pressure.*

AUTOMOTIVE PART in paragraph (c)(4), which means:

> *"any individual mechanical component that that is part of a vehicle that allows the vehicle to operate, including but not limited to, engine components, transmission components, suspension components, brake components, and intake system components."*

BATTERY TERMINAL in paragraph (c)(5), which means:

> *"the electrical contact or component of a battery that connects the battery to a charger, device, other battery, or external electrical circuit and transfers energy."*

CHLORINATION SYSTEM in paragraph (c)(8), which means:

> *"a chlorine feed system used for the oxidation of microbiological material, organic compounds or inorganic compounds during the water or wastewater treatment process. Chlorine can be in the form of gaseous chlorine, sodium hypochlorite, or calcium hypochlorite."*

CURED COATING, CURED INK, OR CURED ADHESIVE in paragraph (c)(9), which means:

> *"a coating, ink, or adhesive, that is dry to the touch, and that has undergone a chemical or physical process to achieve its final state and does not release volatile components under normal use conditions."*

ELECTRICITY DISTRIBUTION UTILITY in paragraph (c)(11), which means:

> *"one of several organizations that control energy transmission and distribution in California, including, but not limited to, the Pacific Gas and Electric Company, the San Diego Gas and Electric Company, Southern California Edison, Los Angeles Department of Water and Power, the Imperial Irrigation District, and the Sacramento Municipal Utility District."*

ELECTRICITY GENERATING FACILITY in paragraph (c)(12), which means:

"(A) A facility that is owned or operated by an investor-owned electric utility or a public-owned electric utility and has one or more electric generating units; or

(B) A facility that has electric generating units for onsite use or distribution in the state or local electrical grid system.

Electricity Generating Facility does not include facilities subject to Rule 1109.1 – Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations."

EMISSION CONTROL SYSTEM in paragraph (c)(14), which means:

"any combination of capture systems and control devices used to reduce VOC emissions."

ENERGY CURABLE INK in paragraph (c)(15), which means:

"an ink that dries upon exposure to visible-light, ultra-violet light, or an electron beam."

INK APPLICATION EQUIPMENT in paragraph (c)(26), which means:

"any tool, machine, system, or component of any tool, machine, or system used to apply ink to a substrate."

MAXIMUM INCREMENTAL REACTIVITY (MIR) in paragraph (c)(35), which means:

"the measure of the photochemical reactivity of a VOC, which estimates the weight of ozone produced from a weight of VOC expressed as gram of ozone per gram of VOC (g O_3/g VOC). MIR values for individual VOCs are specified in sections 94700 and 94701, Title 17, California Code of Regulations."

NON-LEAKING CONTAINER in paragraph (c)(39), which means:

"a container that can hold liquids without leaking and is designed to prevent liquids, vapors, or any other contents from escaping through its seams, closures, or any other openings, ensuring secure storage or transport."

OZONE GENERATOR in paragraph (c)(42), which means:

"a mechanical system that produces ozone used for water or wastewater treatment. Ozone is produced by applying an electric potential or ultraviolet light to oxygen that can be either in the form of dry air or pure oxygen. "Ozone Generator" includes the associated oxygen supply equipment that is used to produce ozone."

PERSON in paragraph (c)(44), which means:

"as defined in Rule 102."

PRESS in paragraph (c)(47), which means:

> *"a mechanical device used to apply pressure to an inked surface resting on a substrate to transfer color, design, alphabetical text, or numerals to the substrate."*

PUBLIC WATER SYSTEM in paragraph (c)(49), which means:

> *"a system that provides water for human consumption through pipes or other constructed conveyances that has fifteen or more connections or regularly serves at least twenty-five individuals daily at least sixty days out of the year."*

PRODUCT-WEIGHTED MIR (PW-MIR) in paragraph (c)(50), which means:

> *"the sum of all weighted-MIR for all ingredients in a Regulated Product. The PW-MIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging) and calculated according to the following equations:*
>
> Weighted MIR (Wtd-MIR) ingredient = MIR x Weight fraction ingredient,)
>
> and,
>
> $PW\text{-}MIR = (Wtd\text{-}MIR)_1 + (Wtd\text{-}MIR)_2 + \ldots + (WtdMIR)_n$
>
> where,
>
> | | | |
> |---|---|---|
> | MIR | = | ingredient MIR; and |
> | 1,2,3,...,n | = | each ingredient in the product up to the total n ingredients in the product.*"* |

SOLVENT CLEANER OR SOLVENT CLEANING MATERIAL in paragraph (c)(60), which means:

> *"a liquid substance used to perform Solvent Cleaning."*

SOLVENT CLEANER SUPPLIER in paragraph (c)(61), which means:

> *"any person who sells and delivers or arranges to deliver Solvent Cleaning Materials to a facility subject to this rule."*

SOLVENT CLEANING in paragraph (c)(62), which means:

> *"the use of a Solvent Cleaner or Solvent Cleaning Material for the removal of loosely held uncured adhesives, uncured inks, uncured coatings, and contaminants that include, but are not limited to, dirt, soil, and grease from parts, products, tools, machinery, equipment, and general work areas. Each distinct method of Solvent Cleaning shall constitute a Solvent Cleaning Activity."*

SOLVENT CLEANING ACTIVITY in paragraph (c)(63), which means:

> *"a distinct method of cleaning in a Solvent Cleaning process or single event."*

SOLVENT CLEANING OPERATION in paragraph (c)(64), which means:

> *"a Solvent Cleaning Activity or Solvent Cleaning Activities conducted as part of a business or a public service."*

SOUTH COAST AQMD TEST METHOD in paragraph (c)(66), which means:

> *"a test method included in the manual of "Laboratory Methods of Analysis for Enforcement Samples," which can be found on the South Coast AQMD website and are referenced in subdivision (h)."*

THROTTLE BODY in paragraph (c)(72), which means:

> *"a component of a vehicle air intake system, and is located between the air intake filter and intake manifold of the vehicle air intake system, and controls the amount of air that flows into the vehicle engine."*

ULTRAVIOLET LIGHT TREATMENT in paragraph (c)(73), which means:

> *"the process of using ultraviolet light to inactivate microorganisms (i.e., disinfection) or using ultraviolet light either with or without the addition of peroxide to oxidize contaminants (i.e., oxidation). Ultraviolet light treatment is used for both potable water and wastewater, including indirect and direct potable water reuse projects."*

WATER TREATMENT FACILITY in paragraph (c)(75), which means:

> *"a public entity that is responsible for water delivery operations, sewage pumping plants, sewage treatment, or water reclamation."*

Requirements [Subdivision (d)]

This subdivision contains the provisions for any person who uses solvent cleaning materials in solvent cleaning operations or solvent cleaning activities, and for any person who supplies solvent cleaning materials.

Paragraph (d)(1) - PAR 1171 VOC Content Limits

PAR 1171 establishes VOC content limits and for solvent cleaning activities by category, as summarized in PAR 1171 Table 1 – Table of Standards. The following table provides a summary of the current VOC content limits, staff is not proposing to change any of the current limits. The inclusion of a VOC limit for the cleaning of energy curable lamps and reflectors under ink application equipment is based on manufacturer recommended cleaning and is considered negligible based on the small amount of solvent used and infrequency of equipment cleaning.

Based on the future effective phase out dates, solvent cleaning materials complying with VOC limits will be prohibited from containing pCBtF or t-BAc.

Table 3-1: Summary of the VOC Content Limits

SOLVENT CLEANING ACTIVITY	VOC Limits	
	g/L	lbs/gal
(A) Product Cleaning During Manufacturing Process, or Surface Preparation for Coating, Adhesive, or Ink Application		
(i) General	25	0.21
(ii) Electrical Apparatus Components & Electronic Components	100	0.83
(A) Printed Circuit Boards	800	6.7
(iii) Medical Devices & Pharmaceuticals	800	6.7
(B) Repair and Maintenance Cleaning		
(i) General	25	0.21
(ii) Electrical Apparatus Components & Electronic Components	100	0.83
(A) Electronic or Electrical Cables	400	3.4
(iii) Medical Devices & Pharmaceuticals		
(A) Tools, Equipment, & Machinery	800	6.7
(B) General Work Surfaces	600	5.0
(C) Cleaning of Coatings or Adhesives Application Equipment		
(i) General	25	0.21
(ii) Thin or Sheet Metal Laminating Equipment	950	8.0
(D) Cleaning of Ink Application Equipment		
(i) General	25	0.21
(ii) Flexographic Printing	25	0.21
(iii) Gravure Printing		
(A) Publication	100	0.83
(B) Packaging	25	0.21
(iv) Lithographic (Offset) or Letter Press Printing		
(A) Roller Wash, Blanket Wash, & On-Press Components	100	0.83
(B) Removable Press Components	25	0.21
(v) Screen Printing	100	0.83
(vi) Energy Curable		
(A) Ink Application Equipment (except Screen Printing)	100	0.83
(B) Lamps and Reflectors	800	6.7
(vii) Specialty Flexographic Printing	100	0.83
(E) Cleaning of Polyester Resin Application Equipment	25	0.21

Paragraph (d)(2) – Cleaning Devices and Methods Requirements

Staff removed language referencing an Office of Operations' manual listing approved devices for solvent cleaning activities that was to be periodically updated by the Executive Officer previously in subparagraph (d)(2)(D). Staff confirmed that this manual no longer exists. Staff added language to clarify acceptable wipe cleaning solvent cleaning methods.

Subparagraph (d)(2)(G) – Hand-held Spray Devices

Subparagraph (d)(2)(G) outlines the conditions under which the use of pressurized hand-held spray devices to perform solvent cleaning activities are an approved solvent cleaning method. These conditions include that these devices shall only be used at either electricity distribution utilities, electricity generating facilities, water treatment facilities, or water distribution equipment supporting a public water system. The amount of solvent cleaning materials used in these devices must comply with the volumetric usage limits and the solvent cleaning materials must also comply PW-MIR VOC limits pursuant to paragraph (e)(2).

Paragraph (d)(5) – Solvent Cleaning Material Labeling Requirements

In paragraph (d)(5), staff moved solvent cleaning material labeling requirements from the General Prohibitions subdivision to the Requirements subdivision and added a subparagraph requiring solvent cleaning materials that comply with an alternative PW-MIR VOC limit to have a label on the solvent cleaning material container that includes the PW-MIR of the solvent cleaning material.

Alternative Compliance Options [Subdivision (e)]

This subdivision contains the provisions for any person that chooses to comply with the provisions of paragraph (d)(1) by using an approved emission control system or complying with the applicable proposed volumetric usage limits or alternative PW-MIR limit.

Subdivision (e) was previously a paragraph in the preceding subdivision and is now its own stand-alone subdivision. Staff moved this language for better readability and consistency.

Subparagraph (e)(1)(D) – Cleaning of Enclosed Mobile Containers

Subparagraph (e)(1)(D) outlines the requirements for an alternative compliance option for the cleaning of the internal surfaces of enclosed mobile containers used to transport materials. These enclosed containers include but are not limited to rail tank cars and tanker truck containers.

In lieu of complying with the requirements in paragraph (d)(1), subparagraph (e)(1)(D) allows a person to comply with a measuring requirement and output limit of no more than 50 parts per million of VOC calculated as carbon on a South Coast AQMD organic vapor analyzer at all fugitive components, provided that the enclosed container and system is air-tight and leak-free during solvent cleaning activities. For the purpose of this cleaning activity, the air-tight and leak-free enclosed container shall be considered emission control equipment.

Paragraph (e)(2) – Alternative Limits for Electricity and Water Utilities

Paragraph (e)(2) outlines alternative options for the cleaning of specific equipment associated with electricity generation and distribution, water treatment and water distribution utilities. These

options include volumetric usage limits for solvent cleaning materials that exceed VOC limits in paragraph (d)(1) in addition to a PW-MIR incremental reactivity limit.

The proposed PW-MIR limits are based on industry feedback and the solvent cleaning materials reportedly used. This alternative compliance option will require monthly recordkeeping requirements for a minimum of five years and PW-MIR labeling on solvent cleaning material containers.

Table 3-2 Proposed Alternative Usage and MIR Limits

Solvent Cleaning Activity	Usage Limits (gallons per year)	PW-MIR
(A) Electricity Generating or Distribution Equipment	70	1.7
(B) Water Distribution Equipment		
(i) Chlorination Systems	5	1.7
(ii) Ozone Generators	40	1.7
(iii) Ultraviolet Light Treatment Systems	30	1.7

Paragraph (e)(3) – Alternative Limits for Aerosol Solvent Cleaning Materials

Paragraph (e)(3) outlines alternative options for the cleaning of automotive parts, battery terminals, and all other solvent cleaning activities. These options include usage limits for aerosol solvent cleaning products that exceed VOC limits in paragraph (d)(1).

Table 3-3 Aerosol Solvent Cleaner Usage Limits

Solvent Cleaning Activity	Usage Limits
(A) Cleaning of Automotive Parts	
(i) Throttle Body and Intake Systems	4,800 ounces per month
(ii) All Other Automotive Part Cleaning	32 ounces per month
(B) Battery Terminal Cleaning at Battery Manufacturing Facilities	2,400 ounces per month
(C) All Others Solvent Cleaning Activities	1,750 ounces per month

The proposed usage limits are based on industry feedback and reported usage. This alternative compliance option will require monthly recordkeeping requirements for a minimum of five years [*90 Days after Date of Rule Adoption*] and will require that all aerosol solvent cleaning products comply with applicable CARB regulations.

Paragraph (e)(4) – Alternative MIR Limit

Paragraph (e)(4) clarifies that a person can supply for use within South Coast AQMD or use any solvent cleaning materials that comply with an alternative PW-MIR limit of 0.38 g O_3/g VOC for any solvent cleaning activity in lieu of complying with the applicable VOC limit in paragraph (d)(1).

Paragraph (e)(5) – Alternative MIR Limit for Ink Application Equipment

Paragraph (e)(5) clarifies that a person can supply for use within South Coast AQMD or use any solvent cleaning materials that comply with an alternative PW-MIR limit of 0.70 g O_3/g VOC in lieu of complying with the VOC limits in Table 1 (D)(iv)(A), lithographic or letter press printing for roller wash, blanket wash, and on-press components ink application equipment cleaning, and Table 1 (D)(v) screen printing ink application equipment cleaning.

General Prohibitions [Subdivision (f)]

This subdivision contains the provisions for any person that supplies for use within or uses solvent cleaning materials to perform solvent cleaning activities within the South Coast AQMD.

Paragraph (f)(3) – Carcinogenic Materials and Exempt Compounds

Paragraph (f)(3) was restructured to streamline the rule and group all provisions that include prohibitions together in the same subdivision.

Currently, the rule prohibits the use of any solvent cleaning materials that contain any Group II exempt compounds other than cyclic, branded, or linear, completely methylated siloxanes (VMS).

In addition, PAR 1171 proposes to prohibit the use of solvent cleaning materials that contain pCBtF or t-BAc, with an upper concentration limit of 0.01 weight percent effective January 1, 2026.

Paragraph (f)(4) – Sell-Through and Use-Through Provision

Paragraph (f)(4) clarifies the periods in which solvent cleaning materials that contain pCBtF or t-BAc, and that were manufactured prior to January 1, 2026, can continue to be sold and used.

The sell-through and use-through periods are intended to prevent stranded assets for solvent cleaning materials that are already in the supply chain on the prohibition effective date.

Paragraph (f)(7) – Solvent Cleaning Material Documentation

Paragraph (f)(7) prohibits the use of solvent cleaning materials when documentation confirming the VOC content of the solvent cleaning materials cannot be provided.

This Documentation is required to confirm compliance with applicable VOC limits.

Paragraph (f)(8) – Prohibition of Possession of Non-Compliant Solvent Cleaning Materials

Paragraph (f)(8) prohibits the possession of solvent cleaning materials that do not comply with the requirements of PAR 1171 that are used, intended for use, or labeled for use, for solvent cleaning activities within South Coast AQMD, unless the facility is complying with any of the alternative compliance options pursuant to subdivision (e).

Similar South Coast AQMD rules include a prohibition of the possession applicable non-compliant regulated products in addition to the prohibition of sale and use of applicable non-compliant regulated products.

Recordkeeping Requirements [Subdivision (g)]

Subdivision (g) outlines the recordkeeping requirements including maintaining records for VOC emissions pursuant to Rule 109 – Recordkeeping for Volatile Organic Compound Emissions, emission control systems, and for any person who supplies for use or uses solvent cleaning materials within South Coast AQMD.

This subdivision was previously included in the requirements subdivision; however, staff moved recordkeeping requirements to its own separate subdivision and restructured to streamline and better organize the rule provisions in a manner consistent with the structure of similar rules. Most of the changes are minor, defined terms were capitalized.

Staff revised the lengths of time that records are required to be maintained for uniformity and consistency.

Paragraph (g)(2) – Documentation Requirements

Paragraph (g)(2) specifies the timeframe, information, and documentation to be maintained for each solvent cleaning materials used. The documents must be made available upon request and maintained for five years with the following information: Product name, name and address of suppliers, dates and quantities used during time period requested by South Coast AQMD, VOC content, PW-MIR value if complying with paragraph (e)(2), (e)(4), or (e)(5).

Subparagraph (g)(2)(C) – Dates and Quantities for Each Solvent Material Used

Subparagraph (g)(2)(C) requires each facility to keep records of the dates and quantities for each solvent cleaning material used. For example, large operations such as electrical utilities and water distribution facilities may have multiple storage and distribution warehouses throughout an area in which they serve; the warehouse issues the solvent cleaning material to the end-user (field or maintenance staff) as needed for each job. Usage and documentation out in the field may be challenging for operations that service a large area, so in order to comply with the recordkeeping requirement, the warehousing issuing the solvent cleaning material will must document the date and quantity of solvent cleaning material issued to end-user. Also added to this requirement, South Coast AQMD can request documentation or records for any specified time period deemed necessary to determine compliance from the facility. For example, South Coast AQMD can request the dates and quantities ranging from one month, three months, six months, twelve months, or any other time period necessary to determine compliance.

Paragraph (g)(2) specifies the timeframe, information, and documentation to be maintained for each solvent cleaning materials used. The documents must be maintained for five years with the following information: Product name, name and address of suppliers, dates and quantities used during time period requested by South Coast AQMD, VOC content, PW-MIR value if complying with paragraph (e)(2) or (e)(4).

Subparagraph (g)(2)(E) – PW-MIR Recordkeeping

Staff added a subparagraph requiring documentation to be maintained confirming the PW-MIR value of materials used that comply with an alternative PW-MIR limit in lieu of applicable Table 1 VOC limits.

Paragraph (g)(3) – Solvent Cleaning Material Suppliers

Staff added recordkeeping requirements for any solvent cleaner supplier supplying solvent cleaning materials for use in the South Coast AQMD.

Paragraph (g)(5) – Remote Reservoir Cleaners

Staff added recordkeeping requirements for repairs of any liquid leak, visible tear, or crack detected in a remote reservoir cleaner solvent cleaner container. The recordkeeping is needed to ensure the existing requirements to repair any liquid leak, visible tear, or crack detected is conducted within one calendar day.

Test Methods [Subdivision (h)]

This provision specifies the approved test methods for determining the VOC content of solvent cleaning materials, to quantify amounts of exempt perfluorocarbon compounds in solvent cleaning materials, and efficiency of emission control systems.

Staff removed an outdated test method that is no longer used by the South Coast AQMD laboratory and corrected a separate referenced test method name. The structure and numbering has been amended and streamlined.

Rule 442 Applicability [Subdivision (i)]

This provision clarifies that any solvent cleaner, solvent cleaning material that is exempt pursuant to subdivision (j) from all or a portion of the VOC limits of subdivision (d), shall comply with Rule 442 – Usage of Solvents. This subdivision was not changed other than to capitalize defined terms and amend a reference that changed.

Exemptions [Subdivision (j)]

This subdivision provides conditional exemptions to various provisions of PAR 1171.

Paragraph (j)(1) – Recordkeeping Exemption

Paragraph (j)(1) outlines the conditions in which a person conducting solvent cleaning activities shall not be subject to the recordkeeping provisions in subdivision (g). Staff made no significant changes to this paragraph, but did reword the paragraph to provide greater clarity.

Paragraph (j)(2) – Exempt Solvent Cleaning Activities

Paragraph (j)(2) lists various solvent cleaning activities exempt from all provisions of this rule. Most of these exempted solvent cleaning activities are subject to separate rules. Staff made minor edits to this paragraph and moved an exemption that was previously listed in a paragraph (j)(10) to subparagraph (j)(2)(H). Staff added subparagraph (j)(2)(I) to include a conditional exemption for cleaning of high voltage cables during cable splicing activities where the VOC content of the solvent cleaning materials used does not exceed 790 g/L. The cleaning activity involves the use of individually wrapped saturated towelettes out in the field for specific cable splicing activities on high voltage lines. The cleaning activity using the towelettes occurs in high above ground locations or underground locations. The use of the towelettes is preferred over the use of an aerosol since maintenance time is limited and each towelette is premeasured with the correct amount of solvent for necessary cleaning.

Paragraph (j)(3) – Exemptions from VOC Limits

Paragraph (j)(3) lists solvent cleaning activities that are exempt from the VOC limits in paragraph (d)(1).

Staff removed conditionally exempt solvent cleaning activities, which the exemption status is contingent on the use of a solvent cleaning material that complies with a maximum VOC content limit. Staff moved these solvent cleaning activities and the respective VOC limits to paragraph (d)(1) to be consistent with other solvent cleaning activities with an applicable VOC limit.

Paragraph (j)(4) – Aerosol Atomization Exemption

Paragraph (j)(4) maintains the exemption of the use of aerosol solvent cleaning products that have a VOC content that complies with the VOC limits in Table 1 from paragraph (f)(1), which prohibits solvent cleaning materials from being atomized unless they are vented to emission control equipment. Staff removed language limiting the volume of aerosol solvent cleaning products that

contain VOC in excess of Table 1 VOC limits that can be used and revised and relocated the language to subdivision (e).

Paragraph (j)(5) – Exemptions of Various Cleaning of Coatings or Adhesives Application Equipment

Paragraph (j)(5) lists specific solvent cleaning activities for coating or adhesive application equipment that are exempted from the VOC limits in subparagraph (d)(1)(C).

Staff revised subparagraph (j)(5)(C) to remove the conditional VOC limit of 900 g/L for solvent cleaning materials used for the cleaning of solvent-based fluoropolymer coating application equipment and is proposing to replace the VOC limit with a volumetric usage limit of one gallon per day.

Paragraph (j)(7) and Paragraph (j)(8) – On-Press Screen Cleaning and UV/EB Ink Application and Curing Equipment Cleaning

Paragraph (j)(7) outlined an exemption for the use of solvent cleaning materials used for the cleaning of on-press screen printing equipment from VOC limits listed in clause (c)(1)(D)(v). Paragraph (j)(8) outlined an exemption for the use of solvent cleaning materials used for cleaning of UV/EB ink application and curing equipment from VOC limits listed in clause (c)(1)(D)(vi). Both of the exemptions were allowed until January 1, 2010. Staff has removed these two paragraphs as they are both now obsolete.

Paragraph (j)(10) – Printing and Film Operation Exemption

Paragraph (j)(10) was removed and added to paragraph (j)(2) as subparagraph (j)(2)(H) to streamline the listing of solvent cleaning activities exempt from all provisions of this rule.

CHAPTER 4: IMPACT ASSESSMENT

Emission Inventory

To estimate the VOC emissions inventory for PAR 1171, staff reviewed the rule factors associated with the 2009 rule amendment. The rule factors from the 2009 amendment impacted 3 Source Classification Codes (SCC) for point sources and 13 Category Emission Source (CES) codes for area sources. The category for area sources include chemical evaporation of organic solvents relating to cold solvent cleaning or stripping, general thinning solvents, printing and publishing, solvent degreasing, tank truck and railcar cleaning, graphic arts, and surface coating operations. Categories for point sources include industrial solvent use, cold cleaning and degreasing, and hand wiping with solvents. Staff then ran a query of Annual Emissions Reporting (AER) SIP inventory for compliance year 2023 using the SSC and CES codes. Based on the evaluation, PAR 1171 point sources account for approximately 0.003 tons per day whereas area sources accounts for approximately 3.6 tons per day; the main contributor to the VOC baseline emissions are area sources. PAR 1171 has an estimated 2023 VOC baseline emissions inventory of approximately 3.6 tons per day.

Control Technology

Compliance with PAR 1171 is expected to be met through the use of aqueous solvent cleaning material or by substituting solvent cleaning materials with other chemicals that contain less VOCs, non-toxics solvents, and no stratospheric ozone-depleting compounds. The manufacturers will have flexibility to use any compliant alternative reformulation to meet the VOC limits in PAR 1171. Some end-users may comply with the rule using alternative options such as control devices (e.g., emission collection systems or thermal oxidizer). The latter options may be cost prohibitive for most facilities, so it is anticipated that most will comply with existing VOC limits with existing products or commercially available replacement products.

Emission Reductions

Staff's proposed prohibition of pCBtF and t-BAc does not impact existing VOC emissions for the solvent cleaning activities subject to the rule since alternative pCBtF-free formulations are currently available that meet existing limits. The prohibition will not require any changes to existing VOC limits and will be maintained at current levels. In addition, staff's proposed change to the current aerosol exemption for electricity and water distribution utilities will not impact VOC emissions since the overall usage amounts will not change; the change is simply an alternative usage allowance for the use of liquid alcohol rather than aerosol alcohol. Similarly, changes to the aerosol exemption by including a usage limit for specific operations related to cleaning of automotive parts or battery terminal cleaning at battery manufacturing facilities will not impact exiting aerosol usage and will remain unchanged. Therefore, staff will not be considering any associated emission reductions with the proposed amendments to PAR 1171.

Cost-Effectiveness and Incremental Cost-Effectiveness

Cost-Effectiveness

Staff does not anticipate any cost associated with the proposed changes to PAR 1171 since only a few solvent cleaning materials use pCBtF in their formulations and most solvent cleaning materials already have direct replacements.; thus, a cost-effectiveness and incremental cost-effectiveness analysis was not conducted.

Socioeconomic Impact Assessment

The proposed amendments to Rule 1171 do not affect air quality or emission limitations, and thus, will not result in socioeconomic impacts. Therefore, a socioeconomic impact assessment is not required by Health and Safety Code Sections 40440.8 and 40728.5.

California Environmental Quality Act

Pursuant to the California Environmental Quality Act (CEQA) Guidelines Sections 15002(k) and 15061, the proposed project (PAR 1171) is exempt from CEQA pursuant to CEQA Guidelines Sections 15061(b)(3) and 15308. Further, there is no substantial evidence indicating that the exceptions set forth in CEQA Guidelines Section 15300.2 apply to the proposed project. A Notice of Exemption will be prepared pursuant to CEQA Guidelines Section 15062, and if the proposed project is approved, the Notice of Exemption will be filed with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties, and with the State Clearinghouse of the Governor's Office of Planning and Research.

Draft Findings Under the Health and Safety Code

Health and Safety Code Section 40727 requires that prior to adopting, amending, or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, nonduplication, and reference, as defined in that section, based on relevant information presented at the Public Hearing, this written analysis, and the rulemaking record. The draft findings are as follows:

Necessity – PAR 1171 is needed to phase out two exempt compounds, pCBtF and t-BAc, to address their toxic risk as by proposed by 2022 AQMP Control Measure CTS-01.

Authority - The South Coast AQMD Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from Health and Safety Code Sections 39002, 40000, 40001, 40440, 40702 and 41508.

Clarity - PAR 1171 is written and displayed so that the meaning can be easily understood by persons directly affected by it.

Consistency - PAR 1171 is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or federal and state regulations.

Nonduplication - PAR 1171 does not impose the same requirement as any existing state or federal regulation, and the proposed amendments are necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD.

Reference - In amending Rule 1171, the South Coast AQMD Governing Board references the following statutes which the South Coast AQMD hereby implements, interprets, or makes specific: Health and Safety Code Sections 40001, 40440, and 40702.

Comparative Analysis

Under Health and Safety Code Section 40727.2, the South Coast AQMD is required to perform a comparative analysis when adopting, amending, or repealing a rule or regulation. The comparative analysis is relative to existing federal requirements, existing or proposed South Coast AQMD rules

and air pollution control requirements and guidelines which are applicable to VOC regulations for solvent cleaning operations. There are no other existing or proposed South Coast AQMD rules and air pollution control requirements and guidelines which are applicable to VOC regulations for solvent cleaning operations.

Rule Element	PAR 1171	U.S. EPA Control Techniques Guidelines: Industrial Cleaning Solvents	California Air Districts
Applicability	• Any person who uses solvent cleaning materials in solvent cleaning operations or solvent cleaning activities during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or general work areas as a part of a business or public service within the South Coast AQMD • All persons who store and dispose of solvent cleaning materials used in solvent cleaning activities • All solvent cleaner suppliers who supply, sell, or offer for sale solvent cleaning materials for use in solvent cleaning operations or solvent cleaning activities within the South Coast AQMD	• Any industry that uses organic solvents for cleaning operations where a facility emits at least 15 lbs/day of VOC before consideration of controls in an ozone nonattainment area	• Any process, including wipe cleaning, used to clean or dry metal and non-metal surfaces typically using a cold, vapor or conveyorized solvent cleaner (BAAQMD) • Any organic solvent cleaning performed outside a degreaser during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or in general work areas at stationary sources; storage and disposal of all solvents and waste solvent materials at stationary sources (SJVAPCD)
Requirements	• VOC limits for solvent cleaning activity categories: product cleaning during manufacturing process, or surface preparation for coating adhesive, or ink application; repair and maintenance cleaning; cleaning of coatings or adhesives application equipment; cleaning of ink application equipment; and cleaning of polyester resin application equipment • Alternative VOC limit applicable to all solvent cleaning activities • Alternative volumetric material usage limits coupled with alternative VOC limits • Sell through and use through for products on shelf prior to effective date of rule • Solvent cleaning method requirements • Alternative Compliance option using emission control system	• Work practices to reduce VOC emissions from the use, handling, storage, and disposal of cleaning solvents • VOC content limit of 50 g/L for general purpose cleaning solvents • Alternative composite vapor pressure limit of 8.0 mmHg at 20 degrees Celsius, or an alternative limit that may be used in lieu of the 50 g/L VOC content limit	• VOC content limit of 50 g/L for cold cleaners used for general repair and maintenance cleaning (BAAQMD) • Identical VOC limits to PAR 1171 (SJVAPCD)

Rule Element	PAR 1171	U.S. EPA Control Techniques Guidelines: Industrial Cleaning Solvents	California Air Districts
Prohibition	• Prohibition of the atomization of solvent cleaning materials unless vented to emission control equipment • Prohibition of sale and use of products containing specified exempt compounds • Prohibition of sale and use of carcinogenic material • Prohibition of sale and use of solvent cleaning materials containing pCBtF and t-BAc at a future date	None	• Prohibition of the atomization of solvent cleaning materials unless vented to emission control equipment (SJVAPCD)
Recordkeeping	• Daily usage • Material data	None	• Monthly usage, Material data (BAAQMD) • Daily usage, Material data (SJVAPCD)
Administrative	• Container labeling of VOC content	None	• Container labeling of VOC content (BAAQMD) • Container labeling of VOC content (SJVAPCD)
Exemptions	• Exemption for solvent cleaning activities subject to other source specific rules • Exemption for solvent cleaning materials containing less than 25 grams per liter of VOC • Exemption for specified cleaning activities	• Cleaning operations listed for regulation under CAA Section 183(e)	• Similar to PAR 1171 (BAAQMD) • Similar to PAR 1171 (SJVAPCD)

APPENDIX A: RESPONSES TO COMMENTS

Public Workshop Comments

Staff held a Public Workshop on March 28, 2025, to provide a summary of PAR 1171. The following is a summary of the verbal comments received on PAR 1171 and staff's responses.

Commentor #1 Doug Raymond – W.M. Barr

Doug Raymond expressed support of staff's change of the unit of measurement used from fluid ounces to ounces to limit the usage of aerosol solvent cleaning products that contain VOC in excess of applicable Table 1 VOC limits. Mr. Raymond also expressed support for staff's change from a daily aerosol product allowance of 160 ounces to a monthly allowance of 160 ounces; however, Mr. Raymond expressed concern that the monthly limit may still be too stringent. Mr. Raymond suggested a weekly limit of 160 ounces or a monthly limit of 640 ounces. Mr. Raymond expressed concern regarding the proposed definition of *solvent cleaning activity* and whether residential use of household consumer products may be subsequently subject to PAR 1171. Mr. Raymond requested clarity regarding the alternative compliance option for electricity generating and distribution equipment, and the general alternative PW-MIR limit proposed for all solvent cleaning activities. Mr. Raymond expressed concern regarding the proposed prohibition of volatile methylated siloxanes (VMS)-containing solvent cleaning materials, stating that certain solvent cleaning activities rely on VMS, and that a prohibition of VMS compounds would be premature due to the lack of conclusive toxicity data. Mr. Raymond concluded by stating that the June Governing Board meeting for PAR 1171 was too soon and that more time is needed for rule development.

Staff Response to Commentor #1:

Staff acknowledged the commentor's concerns regarding the proposed aerosol allowance revisions made and revised the proposal to allow 1,750 ounces per month of aerosol solvent cleaning products that contain VOC in excess of Table 1 limits to be used. Staff clarified that the alternative compliance options for electricity generating and distribution equipment and water distribution equipment require compliance with both the proposed applicable volumetric usage limit and PW-MIR limit. Staff also clarified that the proposed general alternative PW-MIR limit of 0.38 g O_3/g VOC is an alternative compliance option for all solvent cleaning activities. Staff acknowledged commentor's concerns regarding the prohibition of VMS and agreed to maintain the current allowance and continue to further assess its potential toxicity and consider revising the allowance in the future.

Commentor #2 Nicholas Georges – Household and Commercial Products Association (HCPA)

Mr. Georges expressed concern regarding the proposed prohibition of VMS-containing solvent cleaning materials and stated that a prohibition would be premature due to inconclusive toxicity data.

Staff Response to Commentor #2:

Staff acknowledged the commentor's concerns regarding the prohibition of VMS and agreed to maintain the current allowance and continue to further assess its potential toxicity and consider revising the allowance in the future.

Commentor #3 Bill Pearce – Boeing

Mr. Pearce expressed concern regarding the revised definition of *non-leaking container*, stating that the criteria to meet the revised definition may not be feasible. Mr. Pearce also expressed concern regarding the proposed prohibition of possession of non-compliant solvent cleaning materials and recordkeeping requirements. Mr. Pearce explained that facilities may receive solvent materials that are not intended for use within South Coast AQMD and store them until they are shipped to their next destination.

Staff Response to Commentor #3:

Staff acknowledged the commentor's concerns regarding the mentioned definition and proposed prohibition of possession of non-compliant solvent cleaning materials and agreed to revised both to address the commentor's concerns. While staff acknowledges the commentor's concerns regarding recordkeeping requirements, the proposed additions to the recordkeeping requirements are required of solvent cleaner suppliers.

Commentor #4 Rita Loof – RadTech

Mrs. Loof expressed appreciation for the inclusion of a definition for energy curable inks in PAR 1171 and suggested incorporating ASTM D7767-11 into the test methods subdivision for UV/EB/LED materials. Mrs. Loof stated that more time was needed for rule development and suggested delaying the Governing Board meeting. Mrs. Loof expressed concern regarding the proposed recordkeeping requirements.

Staff Response to Commentor #4:

Staff acknowledged the commentor's concerns regarding recordkeeping requirements, the proposed additions to the recordkeeping requirements are required of solvent cleaner suppliers. ASTM International D7767-11 "Standard test Method to Measure Volatiles from Radiation Curable Acrylate Monomers, Oligomers and Blends and Thin Coatings Made from Them" is not a U.S. EPA approved test method and cannot be used to enforce a SIP approved rule, therefore will not be added to PAR 1171.

Commentor #5 Jay Parepally – Communities for a Better Environment

Mr. Parepally expressed concern regarding fugitive solvent vapors and inspection frequency and suggested requiring signage at facilities conducting solvent cleaning operations warning the public of potential solvent vapors.

Staff Response to Commentor #5:

Staff acknowledged the commentor's concerns and clarified that while South Coast AQMD inspectors routinely conduct compliance inspections of facilities, the frequency of inspections conducted at each facility can vary for a variety of reasons, including but not limited to staffing. In regard to signage, Rule 1171 covers a large variety of facilities, some using water based cleaning materials with detergent. Requiring warning signs at every facility would be overly burdensome and could cause undue concern by the public. Further, California's Proposition 65 already requires signage to warm the public when businesses use chemicals that could cause cancer, birth defects or other reproductive harm.

Commentor #6 Katy Wolf – IRTA

Ms. Wolf requested clarity regarding the general alternative PW-MIR limit for all solvent cleaning activities and if the limit is tied to a usage limit. Ms. Wolf expressed support of a prohibition of VMS-containing solvent cleaning materials, specifically D5.

Staff Response to Commentor #6:

Staff clarified that the general alternative PW-MIR limit of 0.38 g O_3/g VOC is not tied to any volumetric usage limit. Staff acknowledged the commentor's support of a prohibition of VMS but will wait to make changes in the prohibition until more definitive information is known.

Commentor #7 Rita Loof – RadTech

Mrs. Loof suggested taking into consideration medical sterilization facilities transitioning away from ethylene oxide equipment to UV light treatment equipment and granting regulatory relief in regard to PAR 1171 recordkeeping requirements.

Staff Response to Commentor #7:

Staff acknowledged commentor's suggestion; however no additional recordkeeping requirements are being proposed for facilities conducting solvent cleaning activities.

Commentor #8 Cindy Parsons – LADWP

Ms. Parsons requested clarity whether facilities must maintain all records on-site at the facility where solvent cleaning activities are conducted or if records can be maintained at a central location. Ms. Parsons inquired about the proposed changes in the period of time required for records to be maintained.

Staff Response to Commentor #8:

Staff clarified that records may be maintained electronically or at a central location. Staff has revised the recordkeeping requirements to remove language requiring records to be maintained on-site. Staff clarified that South Coast AQMD rules generally require records to be maintained for a period of five years and that the proposed changes are consistent with other similar rules.

Commentor #9 Jay Parepally – Communities for a Better Environment

Mr. Parepally requested clarity regarding VOC limits in Table 1, specifically if the solvent cleaning activities listed also had associated volumetric usage limits. Mr. Parepally also inquired about different types of emission control systems, and the varying control and capture efficiency requirements for emission control systems. Mr. Parepally inquired about the time required for solvent cleaning material manufacturers to disclose if materials contain exempt perfluorocarbon compounds listed in the test methods subdivision.

Staff Response to Commentor #8:

Staff clarified that the VOC limits in Table 1 are not tied to a volumetric usage limit. Staff explained that various equipment associated with emission control systems used for various industrial processes, materials, other equipment, and types of resulting emissions may have varying physical limitations in capture and control efficiencies. Staff clarified that manufacturers generally will list the composition of solvent cleaning materials on safety data sheets (SDS) and that manufacturers aren't required to have products analyzed for the presence of exempt

perfluorocarbon compounds unless the manufacturer chooses to utilize the compounds to comply with Table 1 VOC limits pursuant to paragraph (h)(2).

Comment Letter #1

March 27, 2025

Mr. Christopher Bradley
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

RE: South Coast Air Quality Management District Proposed Amended Rule 1171 – Cleaning Operations

Dear Mr. Bradley:

The W.M. Barr & Company, Inc. appreciates the opportunity to comment on the South Coast Air Quality Management District (SCAQMD) proposed amendments to Rule 1171 Cleaning Coating Operations. The W.M. Barr & Company, Inc. is a major supplier of Multi-purpose Solvents and Paint Thinners to the retail market under our Klean-Strip® brand. Our family of brands supports consumers in their efforts to maintain clean and well-maintained homes.

W. M. Barr has worked with SCAQMD in the past to provide comments and demonstrations that have assisted in developing rule which are better for the environment and for Industry.

Our comments are mainly focused in two sections of the regulations. These two sections are the (d) (3) Alternative limits for Aerosol Cleaners and (f) (3) General Prohibitions that deal with metholated siloxanes (VMS).

Aerosol Products

The SCAQMD Rule has a long history with regulating Aerosol Products. Consumer Products, including Aerosol Products were first regulated in the early nineties by the California Air Resources (CARB). At that time some limits were significantly higher, especially on Carb and Choke products and Brake Cleaners. Since that time CARB has re-regulated numerous categories and the VOC limits have been reduced significantly. Today the limits have been reduced to the lowest point that is technologically feasible per the State law that governs the CARB regulation.

1-1

Thus, there is little need for SCAQMD to continue to regulate the Aerosol products. W.M. Barr is proposing the SCAQMD simply propose to amend Rule 1171 to state that any cleaning product used under Rule 1171 needs to comply with CARB. This will regulate any products that are used in a manufacturing setting which is currently the only sector not currently subject to the CARB regulations all other uses are currently regulated and enforced by CARB.

W.M. Barr & Company, Inc.
1715 Aaron Brenner Dr., Suite 200, Memphis, TN 38120
www.wmbarr.com

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If SCAQMD does not agree to simple regulate Aerosol Cleaners in this manner, then additional changes need to be made to section (d) (3). The current list of Solvent Cleaning Activities is grossly understated in Table 3. The activities listed in Table 3 ignore numerous uses of cleaning products such as General-Purpose Cleaners, General Purpose Degreaser, Glass Cleaners and other types of surface cleaners routinely used in manufacturing and maintenance of products and components. Replacing 160 ounces per day with 160 ounce per month is not feasible. We would request at least 160 ounces per week or 640 ounces per month to cover other solvent cleaning activities that SCAQMD has not specifically detailed.

1-1 Cont.

VMS

Volatile Methylated Siloxanes (VMS) particularly Octamethyl Cyclotetrsiloxane CAS #556-67-2 (04) is used for a wide variety of consumer and industrial applications. SCAQMD has proposed to virtually ban the use of this compound in the amendments. This compound has been used to replace the use of PCBTF in specialty cleaners which SCAQMD has also proposed to ban in this amendment. In fact, D4 is the only known viable replacement for PCBTF in specific solvent-based cleaning applications other than VOC organic solvents. SCAQMD has stated that numerous other alternatives are available to replace VMS or PCBTF. W.M. Barr would like to request a list of these other alternatives to be used. Our searches have not yielded any replacements for these compounds in cleaning applications for plastic automotive body surfaces.

SCAQMD should revisit the proposal of the ban on D4. The VMS ban is under subsection (f) (3) (B) Carcinogenic Materials and Exempt Compounds. While D4 is exempt it is not carcinogenic. In fact, this compound has not even been listed on the Proposition 65 list by the Office of Environmental Health Hazard Assessment (OEHAA). Thus, we do not understand the reason to ban this important chemical. W.M. Barr has prepared the attached summary on D4 to explain how toxicity of this compound does not support the need for a ban on use of the compound. Specifically, D4 is a critical tool to provide crucial cleaning efficacy needed in solvent cleaning operation. In addition to the summary paper, attached is the full draft risk evaluation on the toxicity of D4 and a representative supplier material Safety Data Sheet. W.M. Barr respectfully request SCAQMD reconsider a ban on D4.

1-2

Summary

W.M. Barr & Company again appreciates the opportunity to comment on the amendments to Rule 1171.

In summary, SCAQMD should consider using the CARB regulation for regulating Cleaning Products. If not SCAQMD needs to allow for the use of other solvent cleaning applications

W.M. Barr & Company, Inc.
1715 Aaron Brenner Dr., Suite 200, Memphis, TN 38120
www.wmbarr.com

that to date SCAQMD has not considered, such as cleaning of surface areas in manufacturing or just general cleaning.

Next, SCAQMD should remove the ban on VMS particularly D4. After SCAQMD reviews the attached data of the toxicity of D4, the ban should be removed.

W. M. Barr respectfully requests the above issues be reviewed; in addition, W.M. Barr would like to meet with SCAQMD staff to discuss these important amendments in Rule 1171 in further detail.

Thank you for your consideration to these comments and we look forward to working with you on these amendments. Any questions or comments please contact our consultant Doug Raymond at djraymond@me.com or at 440-339-4539.

Sincerely,

Amanda Burwell

Amanda Burwell
Director of Regulatory Affairs | W.M. Barr
C: (901) 426-0958
1715 Aaron Brenner Dr. l Suite 600 l Memphis, TN 38120
www.wmbarr.com

cc: Heather Farr
cc. Michael Morris
cc: Doug Raymond

Response to Comment 1-1

Staff appreciates W.M. Barr's feedback and participation throughout the rule development. Staff acknowledges that the VOC content in aerosol products regulated by CARB have been significantly reduced since the early nineties. CARB's regulation pertaining to Antiperspirants and deodorants, consumer products, and aerosol coatings have set limits for 129 consumer product categories. According to CARB, once these three regulations are fully implemented, VOC emissions will be reduced by about 50 percent compared to 1990 levels. However, despite the progress, CARB also predicted that consumer products will become the largest source category of VOC emissions in the South Coast Air Basin by 2020. The South Coast Air Basin is classified as an "extreme" nonattainment area for the following National Ambient Air Quality Standards (NAAQS): 1979 1-hour ozone, 1997 8-hour ozone, 2008 8-hour ozone and the 2015 ozone NAAQS. Therefore, South Coast AQMD must look at all feasible measures to reduce ozone and does not agree with the statement that there is little need for South Coast AQMD to continue to regulate aerosol products in PAR 1171. The aerosol allowance is currently for "non-complaint" products was included to address specialized cleaning operations that cannot comply with the VOC limits. The VOC limits for aerosol products regulated by CARB remain higher than those in PAR 1171, so it is necessary to regulate or limit the amount of aerosol products that can be used to minimize excess emissions. However, additional stakeholders raised a similar concern regarding the 160 ounces per month will be challenging. To address the specific concerns from several operations, staff revised the aerosol solvent cleaner usage limit from 160 ounces per month to 1,750 ounces per month.

Response to Comment 1-2

Thank you for providing the documents and information regarding the use of volatile methylated siloxanes (VMS). Staff is aware that VMS is currently used in a variety of consumer and industrial applications such as solvent cleaning. The VMS alternatives mentioned by staff was in regard to a specialty solvent used for automotive parts cleaning; the manufacturer indicated that they currently have a replacement product for the VMS containing solvent. Staff was only aware of VMS use for automotive parts cleaning and not aware of its use for cleaning of automotive body surfaces.

Staff's initial proposal to prohibit VMS along with pCBtF and t-BAc was because cyclic, branched, or linear, completely methylated siloxanes (VMS) were added to the list of defined Group II exempt compounds in South Coast AQMD Rule 102 – Definition of Terms in 1995. Rule 102 states that the use of Group II compounds may be restricted in the future because they are either toxic, potentially toxic, upper-atmosphere ozone depleting substances, or cause other environmental impacts. The Office of Environmental Health Hazard Assessment (OEHHA) reviewed VMS but ultimately could not make a conclusive determination on their toxicity. Based on the review OEHHA conducted for CARB, staff initially decided to take a precautionary approach and include VMS as part of the pCBtF and t-BAc prohibition. However, after careful review of the study provided and additional evaluations conducted, staff concluded that additional information and data related to VMS are still needed to make a final determination on toxicity. As result, staff is not proposing to prohibit VMS compounds in PAR 1171 at this time but will continue to monitor their status and any future evaluations from OEHHA.

Comment Letter #2

EDISON | Energy for What's Ahead™

Southern California Edison COMMENTS and Request for Clarification

Proposed Amended Rule 1171. Solvent Cleaning Operations

April 8, 2025

Southern California Edison (SCE) appreciates the opportunity to present comments and requests for clarification for Proposed Amended Rule 1171, *Solvent Cleaning Operations*. to the South Coast Air Quality Management District. Below is a summary of our comments and requested revisions.

Requirements

1. Table 2 – Alternative Usage and MIR Limits. There seems to be a disconnect between the discussion in the staff report regarding the use of denatured alcohol (DA) and the MIR limit included in Table 2 for Electricity Generating or Distribution Equipment. The staff report acknowledges the need to use DA to clean components. However, Table 2 PW-MIR limit of 0.61 appears to align with current alcohol-based products. SCE must use straight DA at our facilities. Studies have shown various product combinations are not as effective as DA alone. As of now, Mitsubishi Electric Power Products (MEPPI) has not yet completed the testing of IPA but has already stated that IPA is not an acceptable alternative for some components that make up a significant part of SCE's inventory. SCE will switch to IPA where MEPPI supports its use. However, until then, we will need to use straight DA on many of our components. As such, a PW-MIR limit of 0.61 for Electricity Generating or Distribution Equipment is not a feasible limit for SCE. We request this limit be revised to 1.7 to allow us to continue our cleaning operations until a lower MIR product is approved. **2-1**
2. Alternative Limits for Aerosol Cleaning. Thank you for increasing the Aerosol Solvent Cleaner Usage Limit for "All Others Solvent Cleaning Activities" to 160 ounces per month. Based on our current operations and input from our field personnel, SCE respectfully requests that this limit be further increased to 640 ounces per month or 160 ounces per week. A higher monthly limit would be preferrable as it would provide the flexibility we need for our operations and lessen the recordkeeping requirements. **2-2**
3. It is our understanding that we can use both alternative compliance options (liquid and aerosol) at the same facility (a substation) for a combined use of 160 (640) ounces/month of aerosol and 70 gallons/yr of liquid. Please confirm. Different components need wipe cleaning using liquid solvents and other components need the aerosol pressurized stream. SCE needs the flexibility to use both alternative compliance options at the same facility. **2-3**

Page 1 of 2

4. Please confirm that hand-held spray bottles that use atomized air (see example) do not meet the definition of Aerosol in the rule (Rule 117 (c)(1)) and the material used via this mechanism falls under the 70 gallons per year limit per facility. Our interpretation is consistent with the federal and state definitions of "Aerosol product", both of which exclude pump sprays (40 CFR § 59.202 – Definitions and CCR Title 17, 94508(a)(5)). Please clarify this distinction in the rule definition of "Aerosol Product".

2-4

Recordkeeping

1. Section (g)(2)(c) requires dates and quantities of use. This requirement is extremely challenging for our unmanned locations, the vast number of locations we services, and the nature of our field work. Since the rule's solvent usage limits are either monthly or annual, recording the daily usage of material seems unnecessary. We request that the rule allow for monthly recordkeeping and alternative recordkeeping approaches such as a central record keeping log where operators can input their solvent usage on a monthly basis by location, or use of purchase records without having to log daily usage at each location.

2-5

Thank you again for the opportunity to provide these comments. My contact information is below.

Carol Cauthen

Environmental Advisor, Air Quality

Environmental, Health, Safety & Quality| Environmental Department

T. 626-302-5073 | M. 626-407-1360

2244 Walnut Grove Ave, Rosemead, CA 91770

Response to Comment 2-1

Staff appreciates the clarification on the uses of denatured and isopropyl alcohol in solvent cleaning activities for electricity generating and distributing equipment. Staff's proposal of 0.61 was based on information provided to staff that isopropyl alcohol (IPA) was the approved cleaning solvent. Based on feedback, staff will revise the MIR limits in Table 2 to 1.7 to allow for the usage of denatured alcohol.

Response to Comment 2-2

Staff acknowledges that solvent cleaning covers many industries, many of which rely on the aerosol product allowance to comply with Rule 1171. Similar concerns were raised by other stakeholders. Staff will revise the aerosol solvent cleaning usage limit to 1,750 ounces per month for the "other solvent cleaning activities" category.

Response to Comment 2-3

Facilities can comply via both alternative compliance options (usage with MIR limits in Table 2 and aerosol usage limits in Table 3) at the same facility.

Response to Comment 2-4

Staff agrees to align the definition of an aerosol product with the federal and state definition to exclude "pump sprays." The definition of a pump spray in the Federal Code of Regulation is:

> *Pump spray* means a packaging system in which the product ingredients are expelled only while a pumping action is applied to a button, trigger, or other actuator. Pump spray product ingredients are not under pressure.

As defined, the ingredients in a pump spray are not under pressure and do not include the device pictured in the comment letter. That device operated by pressurizing the ingredients and would qualify as an aerosol product.

Response to Comment 2-5

Staff acknowledges and understands the challenges in recordkeeping for operations at unmanned locations and revised the proposed rule language to remove the mention of "onsite" and require records be maintained and made available upon request. This allows for centralized recordkeeping and for records to be maintained electronically. Staff also revised subparagraph (g)(2)(C) to require quantities of each solvent cleaner's usage during the time period specified by the Executive Officer which means that South Coast AQMD can request the dates and quantities for any specified timeframe deemed necessary to determine compliance.

Comment Letter #3

Outlook

[EXTERNAL] Proposed Amended Rule 1171

From Kathleen Wolf <katywolfirta@gmail.com>
Date Tue 4/8/2025 2:41 PM
To Christopher Bradley <cbradley@aqmd.gov>

1 attachment (25 KB)
P1004S1S.pdf;

I am writing with comments on proposed amended Rule 1171 "Solvent Cleaning Operations." During the workshop, one participant urged the District staff to remove the restriction for the Volatile Methyl Siloxanes (VMS) under (f) (3). I strongly urge you to keep the restriction in place.

OEHHA performed a review of the toxicity of D5, the VMS used in cleaning and dry cleaning applications, and they concluded that they had concerns about D5 toxicity and could not conclude that D5 is not toxic. A link to this document can be accessed at https://ww2.arb.ca.gov/sites/default/files/classic//toxics/dryclean/oehhad5review.pdf

EPA received the results of a cancer study on rodents and concluded that there may be a cancer hazard associated with D5. That document is attached to this email.

I am also providing a link to a report on tests of alternatives to D5 in cleaning applications that was performed several years ago by the Institute for Research and Technical Assistance (IRTA). The project was sponsored by HESIS and EPA and, although the report is very old, many of the conclusions on alternatives should still stand. The link to the report is https://www.irta.us/reports/Five%20Emerging%20Chemicals.pdf.

D5 did give a positive carcinogenicity result in an animal study. Although the results are not definitive, it is good public policy to err on the side of caution. Additional toxicity information may be available in the future that would resolve the issue. Until then, however, I would urge you to keep the restriction of VMS in the rule. It's worth noting that there was no definitive toxicity data on PCBTF until the last several years. Had the District exercised caution many years ago when exempting PCBTF, the action to ban it now may not have been necessary. PCBTF's structure, a benzene ring with a chlorine substituent, was indicative that it was likely to be a carcinogen.

The District has done excellent work on PAR1171 and I support your efforts strongly. If you have questions about these comments, please feel free to call me at (818) 371-9260

Katy Wolf, Ph.D.
Consultant

Katy Wolf, Ph.D.
Phone: (818) 371-9260

3-1

Response to Comment 3-1

Please see response to comment 1-2. As more toxicity data regarding D5 and other VMS compounds becomes available, staff will reassess whether to prohibit the use of solvent cleaning materials that contain VMS compounds.

Comment Letter #4

International Ultraviolet Association
6935 Wisconsin Avenue, Suite 207, Chevy Chase, MD 20815

April 11, 2025

Mr. Michael Morris
Planning and Rules Manager
South Coast Air Quality Management District
mmorris@aqmd.gov

Re: Proposed Amended Rule 1171 (Solvent Cleaning Operations)

Dear Mr. Morris:

The International Ultraviolet Association (IUVA) is pleased to provide comments on the South Coast Air Quality Management District's Proposed Amended Rule (PAR) 1171—Solvent Cleaning Operations. IUVA is a nonprofit dedicated to the advancement of ultraviolet technology for public health and the environment, with over 500 members worldwide. Ultraviolet disinfection is a key technology in water treatment and is currently used by public agencies in Southern California because it is a chemical-free alternative that offers advantages such as the ability to inactivate difficult to eliminate pathogens. Our specific comments on the staff proposal follow:

Definitions (c)42

The current definition for Ozone Generators in PAR 1171 states that Ozone is produced by applying an electric potential to oxygen but makes no mention of Ultraviolet Ozone Generators. Ozone can also be generated by using UV light to convert oxygen molecules into ozone. We urge the district to include Ultraviolet Ozone Generators in the definition section (c)(42) of the rule. 4-1

Alternative Limits for Electricity and Water Equipment (e) (2)

Our comments in Section (e)(2) are specific to Ultraviolet Light Treatment Systems and Ozone generation via exposure to UV light, in water treatment/distribution equipment [Table 2-- B(ii) Ozone Generators and B(iii) Ultraviolet Light Treatment Systems]. The preliminary staff report recognizes the challenges faced by water distribution and water treatment facilities in meeting the requirements of PAR 1171. The staff report mentions that various public agencies currently use denatured alcohols & Isopropyl alcohol to clean specific equipment such as ozone generators, UV sterilization systems and electrical components associated with the UV equipment. While we appreciate the consideration for an allowance of 16 gallons per day per facility for Ultraviolet Light Treatment Systems and 30 gallons per year per facility for Ozone generators, we would urge the district to provide a total exemption for UV equipment. 4-2

According to the Los Angeles Department of Water and Power (LADWP), "UV technology is ideal for treating chlorine-resistant micro-organisms like Cryptosporidium and Giardia. UV treatment will provide essential disinfection while minimizing disinfection by-products, reducing the need for the required

www.iuva.org info@iuva.org

International Ultraviolet Association
6935 Wisconsin Avenue, Suite 207, Chevy Chase, MD 20815

chlorine doses." LADWP is currently completing the construction of a new Ultraviolet (UV) Disinfection Facility at the Los Angeles Reservoir. This UV plant will treat water leaving the reservoir and entering LA's water distribution system. The new state-of-the-art LA Reservoir UV Disinfection Plant is an important investment in the reliability and safety of LA's drinking water infrastructure, greatly enhancing LADWP's mission to deliver pure, clean refreshing tap water in an efficient and publicly responsible manner.

UV water disinfection units inactivate target pathogens to produce safe water. UV is used as one of the vital safety barriers in water disinfection processes. When UV is absorbed by the DNA in microorganisms; it is damaged so that the microorganism cannot reproduce. Cells that cannot reproduce cannot cause disease.

Keeping UV lamps and sleeves clean is essential for optimal proper performance. Dust, dirt, and residue can accumulate on the lamp and sleeve surface, reducing its efficiency, and potentially leading to device overheating or other cleanness-related issues. Non-alcohol based cleaners may leave residues behind. While some industry sectors may be able to deal with the risk of UV equipment not operating at peak performance and cleanliness issues associated with lower VOC solvents--Water treatment agencies simply cannot take the risk to public health lightly. Requiring water agencies like LADWP to switch from conventional alcohol-based solvents to new solvents that have not been fully validated and approved may result in damage to UV disinfection performance, leading to regulatory compliance and public health issues. We respectfully request that water treatment agencies using UV for water disinfection operations be allowed to use denatured alcohol and/or Isopropyl alcohol to ensure proper operation of their systems.

4-2 Cont.

We appreciate your consideration of the concerns we have raised and look forward to a collaborative rulemaking effort.

Regards,

Ted Mao
President IUVA

www.iuva.org info@iuva.org

Response to Comment 4-1

Staff agrees and has added ultraviolet to the definition.

Response to Comment 4-2

Staff acknowledges and understands the critical role ultraviolet light treatment and ozone generating equipment play in water treatment and distribution, and to provide clean and safe drinking water. Staff also understands the importance of using the correct cleaning solvents specified by the manufacturer and intends to allow water treatment and distribution facilities to use denatured alcohol or isopropyl alcohol to meet their needs. The proposed volumetric usage limits for denatured alcohol or isopropyl alcohol are based on industry feedback which reflect their current operation and use.

Comment Letter #5

April 11, 2025

Mr. Chris Bradley
Air Quality Specialist
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765

Dear Mr. Bradley,

Thank you for the opportunity to provide input on the possible proposed revisions to SCAQMD's rule 1171. PRINTING United Alliance (Alliance) appreciates the willingness of the District to work with industry experts in the development of these important requirements. The Alliance hopes that the comments contained herein will prove useful and we stand ready to continue to work with the District in the further development of the requirements.

As background, the Alliance represents the interests of facilities engaged in producing a wide variety of products through screen printing, digital imaging, flexographic, and lithographic print processes. The print industry is comprised primarily of small businesses, with approximately 95 percent of the printing industry falling under the definition of a small business as described by the Small Business Administration.

There has been a long history associated with the cleaning solvent limits for printing operations in Rule 1171. When Rule 1171 was last revised in 1999 for cleaning solvent limits used in the printing industry with the phased in effective dates that extended to January 1, 2010, there was considerable effort invested by the printing industry, solvent suppliers, and the District to find materials that could meet the 100 gram/liter limit and be effective.

As outlined in our letter dated August 21, 2024, this goal has not been achieved. The printing industry and its suppliers have been continuously searching to find blends of chemicals that will meet the cleaning needs of the printing industry and so far, it has not met with satisfactory results.

We are encouraged that an alternative approach using Maximum Incremental Reactivity (MIR) as a parameter to limit the formation of ozone has been included in the proposed revisions to Rule 1171. MIR provides an opportunity to not just rely on VOC content, but to focus on the reactivity of chemicals used to formulate cleaning solution blends. Reactivity-based limits could provide more formulation flexibility while efficiently reducing the ozone formed from these products.

MIR values have been adopted by CARB and the SCAQMD in several rules and allow for flexibility for regulated sources to reduce VOC emissions and reduce emissions of the more reactive VOCs. In reviewing several of these rules, it is apparent that different MIR values have been set based on the type of material, application, and other performance characteristics. These are all critical aspects that need to be considered when setting an MIR value.

5-1

In fact, the proposed MIR limits in Rule 1171 reflect the needs of various cleaning applications and there is not a "one size fits all" approach. It is for these reasons why the proposed alternative MIR limit in 1171 (e)(4) would not be appropriate for the printing industry. Here is the draft provision:

> *(4) Alternative MIR Limit In lieu of complying with the requirements in paragraph (d)(1), a Person may elect to supply for use within South Coast AQMD or use Solvent Cleaning Materials that comply with a PW-MIR limit of 0.38 g O3/g VOC for any Solvent Cleaning Activity.*

The printing industry continues to support efforts to reduce ozone precursors and improve regional air quality. However, the proposed MIR limit of 0.38 g O3/g significantly undercuts what is technologically feasible, even when using the most advanced low-reactivity formulations currently available. We received information from several cleaning solution vendors who evaluated the MIR values of their current products they are selling into the District. They reported back that the MIR values were in the 0.51-1.58 g O3/g VOC range. Therefore, the proposed value of 0.38 g O3/g is too low to provide an equivalent level of reactivity and Rule 1171 compliant cleaning solutions.

Furthermore, with acetone having a MIR value of 0.36 g O3/g, it was pointed out that the proposed 0.38 g O3/g limit does not provide for any formulation flexibility. As discussed in the August 21, 2024 letter acetone is not a printing process friendly chemical, so it is not a viable option. This extremely low threshold does not provide for the necessary ingredients that are required to clean the variety of inks and coatings required for quality products produced in the commercial and packaging printing industry. In addition, cleaning printing equipment requires the use of materials that do not damage critical components such as plates, blankets, rollers, screens, bearers, and other key press components. Cleaning solutions that meet the 100 gram/liter limit do not fulfill these requirements.

5-1 Cont.

In looking at the ingredients necessary to prepare cleaning solutions that are effective and meet the demands required for effective cleaning, several of the cleaning solution vendors have reported that a MIR value range of 0.86-0.89 g O3/g. This MIR range provides the opportunity to formulate cleaning solutions that are effective and would avoid problems with ink and coating removal as well as other key press components. Plus, this value is consistent with other SCAQMD and CARB regulations where MIR is being used to control the emissions of VOC.

To ensure that VOC emissions from cleaning activities are reduced to the lowest level possible while maintaining the integrity of the printing process, it can be coupled with a limit on the VOC composite vapor pressure. As described in the August 21, 2024 letter, vapor pressure is a viable VOC control strategy. While the District is not necessarily in favor of using vapor pressure alone as a control strategy, coupling it with a low MIR value ensures that materials with a high vapor pressure will not be used to formulate cleaning solutions that quickly evaporate allowing for their recovery or destruction during the laundering process.

5-2

As indicated in the July 20, 2015 report *Environmental Fate of Low Vapor Pressure – Volatile Organic Compounds from Consumer Products: A Modeling Approach* by Deborah H. Bennett, once a low vapor pressure VOC makes it to a wastewater treatment facility, it is removed and not released. USEPA has stated in the Control Techniques Guidelines for Offset Lithographic Printing and Letterpress Printing (EPA-453/R-06-002) low vapor pressure solvents used in conjunction with wipes are assigned a 50% retention factor. EPA defines low vapor pressure as 10 mm Hg at 20ºC (68ºF). This means that at least 50% of low vapor pressure emissions are captured and destroyed.

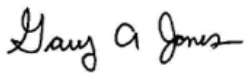
Combining the low MIR with a low vapor pressure limit, provides for a very effective VOC emission control strategy. Setting an alternative limit of 5 mm Hg at 68°F, which is one-half of the limit set by USEPA, in conjunction with an MIR value of 0.89 g O3/g in Rule 1171 would significantly reduce emissions and would represent state of the art for cleaning solutions for the printing industry. This combination would result in the least amount of emissions and those that would occur would be VOCs that are less reactive. It would also provide much needed operational flexibility at a reduced cost for the printing industry.

5-2 Cont.

The printing industry continues to support efforts to reduce ozone precursors and improve regional air quality. The District has historically recognized the need for flexibility and category-specific limits based on performance requirements and material availability. Setting an MIR limit of 0.89 g O3/g with a vapor pressure limit of 5 mm Hg at 68oF for the printing industry would maintain consistency with prior rulemaking for other industrial categories while still significantly reducing ozone-forming emissions compared to historical solvent use. We firmly believe that our suggestion control strategy would lead to the establishment of a mutually beneficial set of conditions that are both technically and economically feasible while reducing VOC emissions.

We would be willing to meet with representatives from the District to discuss our concerns with the current draft of the proposed regulation. Please feel free to contact Gary Jones, Vice President of Environmental, Health and Safety Affairs, at (703) 359-1363 with any questions you may have or to arrange a meeting time that is convenient for you and the appropriate staff involved in the development of the regulation.

Sincerely,



Gary A. Jones
Vice President EHS Affairs
gjones@printing.org
703-359-1363

Response to Comment 5-1

Staff appreciates the comment and considerable efforts undertaken by the printing industry to find suitable compliant material that meet the current 100 g/L limit in the rule. Staff conducted site visits to several printing operations to gain a better understanding of the solvent cleaning materials used by the industry. The printing operations visited have indicated that they have several low VOC compliant options such as soy-based or water-based alternatives that have been effective with satisfactory results. The same facilities have also indicated that these same alternatives can be used as alternatives to pCBtF-containing solvent cleaners. The proposed MIR limit of 0.38 g O_3/g VOC is an alternative limit for all solvent cleaning activities in Table 1 and is not intended to be a substitute for the VOC limits in the Table of Standards. The alternative MIR limit is intentionally set low near that to acetone to prevent VOC emissions backsliding since acetone is an exempt solvent and has a lower potential for ozone formation. Staff understands the importance of formulation flexibility when there are no other options available; several printing operations have indicated that they have suitable effective cleaning solvent options because of the large research and development efforts undertaken over 15 years ago.

Staff understands PW-MIR limits can provide additional flexibility without resulting in more regional ozone formation. For the alternative PW-MIR limit for cleaning lithographic and screen printing ink application equipment, staff consulted with several solvent cleaning manufacturers to determine the PW-MIR limits that would have equivalent or less ozone formation potential than the current 100 g/L VOC limit. Existing solvent cleaning materials were not formulated with the goal of reducing reactivity, so some existing cleaning materials have a very high PW-MIR; however, some solvent cleaners have been formulated to reduce reactivity. Looking at the range of solvents used for cleaning printing equipment and considering what the manufacturers think can be formulated to efficiently clean the equipment, staff is proposing a 0.70 g O_3/g VOC limit. The proposed limit is an alternative limit so facilities can continue to use the 100 g/L mass-based VOC limit that has been in place for 15 years. The alternative is meant to provide flexibility without increasing the ozone formation potential of the cleaning solvents.

Response to Comment 5-2

Staff acknowledges the benefits of having additional flexibility in solvent formulation when limited compliant solvent options are available and is proposing an alternative limit of 0.70 g O_3/g VOC. However, staff does not recommend using vapor pressure as a means by which to limit potential VOC emissions due to findings that some low-vapor pressure VOCs have been found to evaporate nearly as rapidly as the traditional high-volatility solvents and thus can be additional contributors to ozone formation depending on their emission rate, the portion remaining in the gas phase, and their reactivity.

Comment Letter #6

CLEAN WATER SoCAL
CREATING SUSTAINABLE SOLUTIONS

April 11, 2025

Sent via email to: Chris Bradley cbradley@aqmd.gov

South Coast Air Quality Management District
Attn: Planning, Rule Development, and Implementation
21865 Copley Drive
Diamond Bar, CA 91765

Re: PROPOSED AMENDED RULE 1171 – SOLVENT CLEANING OPERATIONS

Clean Water SoCal appreciates the opportunity to comment on the Proposed Amended Rule 1171 – Solvent Cleaning Operations.

Clean Water SoCal represents over 80 public water/wastewater agencies in Southern California. Clean Water SoCal members provide essential water supply, wastewater treatment and water disinfection for approximately 20 million people in San Diego, Orange, Los Angeles, Santa Barbara, Riverside, San Bernardino, and Ventura counties. Our members provide environmentally sound, cost-effective management of more than two billion gallons of wastewater each day and, in the process, convert wastewater into resources for beneficial uses such as recycled water and renewable energy.

We respectfully request that essential public water treatment facilities be exempt from this rule.

The amount of solvents needed to clean water disinfection systems vary widely with the size (capacity) of the treatment facility and the amount of water disinfected. This is not a one size fits all application. Water disinfection system operators need to use alcohols to clean ultraviolet bulbs and ozone generators. They are not able to use low VOC solvents like acetone or waterborne materials. This means that these agencies who are using ultraviolet systems for water disinfection to protect public health and the environment would either not be able to reliably provide regulatory required disinfection or not be able to comply with the district rule. Furthermore, to ensure a drought proof long term water supply for Southern California, several agencies are constructing water recycling facilities that must meet new stringent potable reuse treatment and disinfection requirements to protect public health. These facilities will rely on ultraviolet systems to meet these disinfection requirements. The proposed solvent limits in Table 2 of PAR 1171 may not provide sufficient quantities for effective cleaning of ultraviolet systems limiting much needed recycled water production and stranding expensive public assets. 6-1

P.O Box 231565
Encinitas, CA 92024

email: info@cleanwatersocal.org
phone: 760.415.4332

CLEAN WATER SoCAL
CREATING SUSTAINABLE SOLUTIONS

Beyond water disinfection, Clean Water SoCal members operate and maintain critical infrastructure to provide safe and reliable water and wastewater services to the customers and communities we serve. Agencies utilize aerosol solvents to maintain equipment such as pumps, piping, and engines, at various facilities throughout their service areas. Clean Water SoCal members have voiced concerns about the significant reduction in the proposed rule for the aerosol solvent cleaner's usage limits (PAR Rule 1171 Table 2.) Our members remain concerned with the potential unintended consequences this reduction could have on the maintenance and repair activities of infrastructure and equipment at essential public services. Many maintenance activities at essential public services require the use of aerosols. Aerosols are commonly used because they are quick dry, leave no residue which is critical for proper gasket adhesion and replace effectiveness, and they can reach small inaccessible areas of mechanical components, such as engines and pumps. Non aerosols solvents are typically not conducive to these work environments and equipment types. 6-2

We appreciate the opportunity to provide comments on the proposed amended Rule 1171 and for your consideration of our comments.

Clean Water SoCal supports the SCAQMD mission to clean the air and protect the health of all residents in the South Coast Air District. We have a similar goal and obligation to the public and the environment. As such, we would welcome the opportunity to meet to discuss and develop a solution that meets the public's needs.

If there are any questions regarding these comments, please contact the Clean Water SoCal Air Quality Manager, David Rothbart directly at (714) 878-9655 drothbart@cleanwatersocal.org or contact me directly at (760) 415-4332 sjepsen@cleanwatersocal.org

Sincerely,

Steve Jepsen

Executive Director – Clean Water SoCal

cc: Clean Water SoCal Air Quality Committee

P.O Box 231565
Encinitas, CA 92024

email: info@cleanwatersocal.org
phone: 760.415.4332

Response to Comment 6-1

Staff acknowledges and understands the critical role ultraviolet light treatment and ozone generating equipment play in water treatment and distribution, and to provide clean and safe drinking water. Staff also understands the importance of using the correct cleaning solvents specified by the manufacturer and intends to allow water treatment and distribution facilities to use denatured alcohol or isopropyl alcohol. The proposed volumetric usage limits for denatured alcohol or isopropyl alcohol are based on industry feedback from large water facilities, which reflect their current operation and use. Furthermore, because there are currently existing usage limits for solvent cleaning materials used at public water and wastewater agencies, the requested exemption would result in a backsliding of emissions. If necessary, staff is open to revisiting the issue if the potential need to increase usage arises due to growth or expansion of facilities.

Response to Comment 6-2

Staff acknowledges and understands the critical role public water and wastewater agencies play in providing clean and safe drinking water. Staff has revised the prior proposed allowance of aerosol solvent cleaning products that contain VOC in excess of VOC limits from 160 ounces per day to 1,750 ounces per month. The proposed allowance is based on industry feedback from various stakeholders who stated that they would be able to comply with the latest proposed allowance. Staff is open to meeting and discussing these concerns further.

Comment Letter #7

CIAQC
CONSTRUCTION INDUSTRY AIR QUALITY COALITION

Coalition Members

AGC CALIFORNIA

Associated General Contractors America-San Diego Chapter, Inc.

Building Industry Association of Southern California

California Construction Trucking Association

Engineering Contractors Association

United Contractors

SCCA
Southern California Contractors Association

April 11, 2025

South Coast Air Quality Management Committee
Stationary Source Committee

RE: COMMENTS ON PAR 1171

Dear Chairman Larry McCallon and Members of the Committee:

The Construction Industry Air Quality Coalition (CIAQC) would like to express our serious reservations about the proposed amendments to rule 1171 – Solvent Cleaning Operations.

We wish that the staff had done outreach to our specific industry before the proposed amendments had reached this level of completion.
The use of effective solvents for cleaning parts and equipment used in the construction industry is an integral part of assuring that our equipment is fully operational and in full compliance with the many regulations that govern the use and operation of our unique, on-road, off-road and portable equipment fleets.
Much of this equipment is maintained in the field, on a job site, and away from a better equipped maintenance facility where there may be more options for cleaning parts and tools.

Under the existing rule there are very limited aerosol options that can meet the current 25 g/l VOC emission limits. Further there is also an existing 160 oz/day aerosol limitation which has been challenging to meet when servicing multiple locations simultaneously. 7-1

Proposed Rule 1171 will be eliminating the aerosol spray solvent exemption. Currently, SCAQMD Rule 1171 requires the use of solvents for repair and maintenance with a very low VOC content to 25 g/l or less. Those solvent are not effective on the grease and grime

encountered on off-road mobile equipment. Those solvents are typically citrus-based, or something like Simple Green. The only thing that cuts the grease is petroleum-based solvents. Currently there is an exemption that allows for the use of aerosol solvent cleaner that meet the CARB 10% VOC limitation. The proposed Rule 1171 will eliminate the use of aerosol cleaners (or essentially limit the use to a nonsensical 160 ounces per month per permitted facility). Not all sites are permitted facilities, so this leaves an unlevel playing field.

We have identified several other specific concerns that we would like to address with the staff as soon as possible.

1. Cleaning Effectiveness: Removing proven solvents risks reducing cleaning performance—especially for grease, oil, and other contaminants—which can significantly impact equipment maintenance and lead to increased failures overall, particularly in emissions-related components. 7-2

2. Productivity & Cost Impact: Alternative methods often take longer and require more labor, increasing downtime and repair costs.

3. Compliance Burden: New requirements may force additional costly repairs to equipment, training, and documentation—disproportionately affecting smaller operations.

4. Field Service Limitations: Effective, portable solvents are essential for remote repairs. Restrictions could leave no viable options for field work.

5. Safety & Reliability Risks: Residual buildup from weaker cleaners can compromise equipment safety, performance, and reliability.

6. Insufficient Alternatives & Timeline: Fast-tracking changes without viable substitutes in place risks non-compliance and operational disruption across the industry.

7-2 Cont.

Our industry discussions with solvent suppliers lead us to believe that there may not be an effective compliant alternative available on the schedule established by this proposed amendment.

Finally, if an aerosol solvent is ultimately found that is effective and meets the 25 g/l low VOC requirement for general maintenance, does the 160 oz/day still apply? We would expect that there would be no limit, but this is not stated in the proposed regulation.

CIAQC has several experts available who can speak about these issues and we look forward to the opportunity to address them with your staff.

Sincerely,

Michael Lewis
Senior Vice President
mike@lewisandco.net
951-206-4420

Response to Comment 7-1

Staff appreciates the comment and understands the commenter's concerns regarding PAR 1171. To clarify, staff is not proposing to remove the aerosol allowance in PAR 1171, the provision has been relocated from the exemption subdivision to the alternative compliance options subdivision and made some adjustments to the exemption amounts. Further, staff would like to clarify that the usage limits are for each individual facility or work site; the total cumulative usage between all facilities or work sites does *not* have to be less than the usage limits.

Response to Comment 7-2

Staff acknowledges and understands the challenges in transitioning away from commonly used solvents and understands all the concerns stated in the comment letter. As previously mentioned staff is not removing the aerosol exemption and just revising it based on stakeholders request for usage flexibility from a daily to monthly limit. Furthermore, the aerosol allowance applies to aerosol solvent cleaning products that contain VOC in excess if applicable VOC limits listed in Table 1. If an aerosol solvent is used that complies with the 25 g/L VOC limit, there is no restriction on the amount that can be used.

Comment Letter #8

April 11, 2025

Mr. Michael Morris
South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765
Email: mmorris@aqmd.gov

Re: Public Comments-- Proposed Amended Rule 1171 – Solvent Cleaning Operations-- OPPOSE

Dear Mike:

RadTech International is pleased to comment on the proposed amendments to Rule 1171—Solvent Cleaning Operations. RadTech is the premier trade association in North America for Ultraviolet/Electron Beam/Light Emitting Diode (UV/EB/LED) technology. We speak on behalf of our over 800 members who are involved in a myriad of industry sectors ranging from printing and packaging to nail polish. UV/EB/LED processes are all electric, eliminating the need for add-on control devices thereby preventing emissions of criteria pollutants (Nitrogen Oxides) and Greenhouse Gases. Our products are not formulated with conventional solvents and therefore the emissions of Volatile Organic Contaminants (VOCs) are negligible. Energy curable materials are free of toxic materials and are considered "super-compliant" as they go above and beyond current rule requirements and provide the district with excess emission reductions. Transitioning to these cleaner materials help the district achieve its clean air goals. PAR 1171 will impact every single one of our market sectors.

Unfortunately, we cannot support the current rule proposal as it needlessly saddles our industry with burdensome requirements that do not result in any benefit to air quality. On the contrary, these overly prescriptive requirements act as a barrier to the implementation of clean technology. We urge the district to provide incentives in the form of regulatory flexibility, to companies who invest in UV/EB/LED technology. Our suggested changes are as follows:

Comment 8-1

Request for Exemption

As mentioned during the public workshop, RadTech urges the district to provide regulatory flexibility to UV/EB/LED processes. We cannot support the limit of 100 grams per liter for UV/EB/LED operations. Our members and customers have tried to use low VOC cleaners at their facilities for years only to find that acetone based cleaners leave residue on UV lamps and reflectors, thereby compromising the optical efficiency of the system. Additionally, acetone-based cleaners are highly flammable and since UV/EB/LED equipment is electrical, any spark can lead to devastating fires not only for the facility but for the community at large. Waterborne materials also have safety issues associated with their use around electrical equipment. This presents a risk to workers

We request an allowance to use alcohol-type cleaners which, generally have a Volatile Organic Compound (VOC) content of 800 grams per liter. Our materials are typically well below 50 grams/liter in VOC content and are already providing the district with emission reductions above and beyond those called for in district coating rules. Therefore, we humbly ask that you take those reductions into consideration as a mitigating factor in any potential increase in emissions that may result from using alcohol-based cleaners.

Comment 8-1 Cont.

We propose that Section (j)(2)(H) be modified as follows:

Cleaning operations in Printing pre-press or Graphic Arts pre-press and energy curing areas, including the cleaning of film processors, color scanners, plate processors, film cleaning, plate cleaning and UV/EB/LED curing equipment.

Recordkeeping

Comment 8-2

We strongly oppose the new additional requirements for reporting, recordkeeping and labeling in the latest R1171 proposal under Section (g)(2). The current Rule 109 requirements cover UV/EB/LED materials and sufficiently provide the district with compliance verification. PAR 1171 creates a whole host of mandates on businesses, which will not result in any emission reductions such as:

(A) Product name of each Solvent Cleaner used;
(B) Name and address of the supplier for each Solvent Cleaner used;
(C) Dates and quantities in which each Solvent Cleaner was used during the time period specified by the Executive Officer; and
(D) VOC content of each Solvent Cleaner as used.

In fact, these additional requirements will deter businesses from investing in clean technologies like UV/EB/LED. Businesses who are willing to invest in clean technologies should be encouraged to do so and saddling with added regulatory costs will be counterproductive to the District's mission.

Definition

Comment 8-3

We appreciate the inclusion of a definition for energy curable materials in PAR 1171 and would urge the inclusion of ASTM 7767-11 as a suitable test method. The Environmental Protection Agency and the SCAQMD have long recognized that EPA Method 24 is not suitable for thin film UV/EB/LED Materials. The Multiple Test Method Section of the rule, (h)(5), is problematic in that it acts as a "gotcha" to businesses who may be subject to fines by the district due to lack of clarity on which method to employ. Thus, RadTech urges the inclusion of ASTM D7767-11 as suitable test method for UV/EB/LED materials. We propose the following language:

The VOC content of thin film Energy Curable Adhesives and Sealants may be determined by manufacturers using ASTM Test Method 7767-- Standard Test Method to Measure Volatiles from Radiation Curable Acrylate Monomers, Oligomers, and Blends and Thin Coatings Made from Them.

Thank you for your consideration of these issues and we hope we can work towards a resolution.

Sincerely,

Rita M. Loof
Director, Environmental Affairs

Cc: SCAQMD Board

Response to Comment 8-1

Staff appreciates the comment letter and acknowledges the stakeholder's concerns. Energy curable printing cleaning operations have been successfully using 100 g/L cleaning products for decades, but staff understands that lamp and reflector cleaning is a separate solvent cleaning activity than the ink application equipment. Several sources indicate the recommended cleaning of energy curable lamps and reflectors is to use a soft cloth and pure alcohol. Cleaning of the lamps and reflectors is not a frequently required cleaning activity and will require minimal solvent; therefore,

the VOC emissions are anticipated to be negligible. Staff included a separate limit for the cleaning of Energy curable lamps and reflectors with a VOC limit of 800 g/L.

Response to Comment 8-2

Staff acknowledges the stakeholder's concerns regarding recordkeeping and labeling. Staff would like to clarify that the amendments do not propose any reporting requirements, and that no new recordkeeping requirements for end-users are being proposed.

Response to Comment 8-3

ASTM International D7767-11 "Standard test Method to Measure Volatiles from Radiation Curable Acrylate Monomers, Oligomers and Blends and Thin Coatings Made from Them" is not a U.S. EPA approved test method and cannot be used to enforce a SIP approved rule, therefore will not be added to PAR 1171. Further, that test method is to estimate the VOC content of "acrylate monomers, oligomers, and blends and thin coatings made from them" and has no relevance to solvent cleaning materials.

Comment Letters Received After Close of Comment Period

The following letter was received after the close of comment period. The concerns regarding PAR 1171 have been addressed but due to the late submission, official responses have not been included.

Comment Letter 9

Raymond Regulatory Resources (3R), LLC
Doug Raymond 13808 Duncan Run Rd. Galena, Ohio 43021
djraymond@reg-resources.com 440-339-4539

April 28, 2025

Mr. Christopher Bradley
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

RE: South Coast Air Quality Management District Proposed Amended Rule 1171 – Cleaning Operations.

Dear Mr. Bradley:

Raymond Regulatory Resources (3R) appreciates the opportunity to comment on the South Coast Air Quality Management District (SCAQMD) proposed amendments to Rule 1171 Cleaning Coating Operations. 3R Consults for numerous marketers and fillers in the Consumer Products arena. As well 3R is the consultant for the National Aerosol Association (NAA).

3R has worked with SCAQMD since the inception of Rule 1171 in the 1990's. Our collaboration in the past has been to provide the best possible regulation that benefits the environment and is clear and concise for Industry to comply.

Comments

Per discussions with Sarady Ka, 3R appreciates that SCAQMD is willing to delete the ban on Volatile Methylated Siloxanes (VMS) at this time. We understand that pending additional information or work performed by office of Environmental Health Hazard Assessment (OEHHA) this status may change. As well, 3R appreciates the additional ounces being provided for the general aerosol usage to 640 ounces per month. Also, the change from fluid ounce to weight ounces clarifies the usage properly, given aerosols are measured only in weight ounces.

Additional Comments

Several other additional changes are being offered for the amendments to add clarity to the existing rule.

- Aerosol products – 3R believes that some marketers may be unclear on the use of the Aerosol Products exemption, specifically as regards complying with the California Air Resources Board (CARB) VOC limits as stated in Article 2 of the Consumer Products Rule under CARB. To clarify this issue the following wording is suggested for (e)(3) C).
  Such products are compliant with the California Consumer Products Regulations, including meeting the VOC content limit requirements of Article 2 or as allowed by Article 4.
- Alternative MIR Limit – 3R applauds that SCAQMD is providing an MIR Reactivity Alternative limit in Rule 1171. Reactivity is the best science to be used to regulate VOC emissions. However, SCAQMD has Rule 1143 as well. Thus, a marketer may be able to produce a product using the MIR Alternative but still be restricted by Rule 1143. Thus, to clarify this issue and not have to open up Rule 1143, the following wording should be added at the end of (e)(4) so that the entire paragraph reads as follows:
  (4) Alternative MIR Limit – In lieu of complying with the requirements in paragraph (d)(1), a Person may elect to supply for use within South Coast AQMD or use Solvent Cleaning Materials that comply with a PW-MIR limit of 0.38 g O3/g VOC for any Solvent Cleaning Activity. Solvent cleaners that comply with this alternative MIR limit will also be deemed compliant with SCAQMD Rule 1143.
  This would provide clear wording for enforcement and Industry to follow.
- Clarity for Definition – Definition (9) for Cured Coatings, Cured Ink or Cured Adhesive has been modified. This change effects certain adhesives that while cured may appear or feel tacky to the touch. This in no way means that the adhesive has not cured and is not releasing additional VOCs under normal conditions. For a manufacturer to prove that a tacky adhesive has indeed released all it's VOC would be incredibly difficult to prove. Thus, this wording could facilitate unwarranted enforcement actions. We request that this "tacky" status only be used to describe Coatings and Inks. If SCAQMD cannot make this distinction, then the following wording is suggested for definition (9).
  Cured Coating, Cured Ink, or Cured Adhesive means a coating, ink, or adhesive, that is dry to the touch, and that has undergone a chemical or physical process to achieve its final state, where an adhesive may or may not still be tacky and does not release volatile components under normal use conditions.
- Lastly, 3R believes that the June 2025 board hearing date is too early to work through all the possible changes and requests. The board date should be delayed to have more time to completely review this regulation. This rule was last amended in 2009. In 2024 there were two work group meetings with an approximate year in between,

then a workgroup and public workshop within a month. There has not been sufficient time to have a complete review. In addition, it has been 16 years since last amendments, what is the hurry? A few more months may provide a better rule.

Summary

Thank you for all of the changes made to date. Hopefully these additional suggestions will provide more clarity to this rule and avoid any misconceptions in the future.

3R again appreciates the opportunity to comment on the amendments to Rule 1171 and looks forward to working with you in the future. Any questions or comments please contact me at djraymond@me.com or at 440-339-4539.

Sincerely,

Douglas Raymond

Douglas Raymond

cc: Heather Farr
cc. Michael Morris
cc: Sarady Ka

Comment Letter 10

May 5, 2025

Heather Farr, Michael Morris, and Michael Krause
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

COMMUNITIES FOR A BETTER ENVIRONMENT established 1978

RE: Comments on Proposed Amended Rule 1171 – Solvent Cleaning Operations

Dear Proposed Rule 1171 Staff:

Communities for a Better Environment ("CBE") submits these comments on Proposed Rule 1171 ("Proposed Rule"). We appreciate staff's work on Rule 1171 but we remain concerned that the current language will not meaningfully regulate an industry that has been polluting our communities for years. We have some concerns that remain unresolved by the Proposed Rule and it is critical that the South Coast Air Quality Management District ("AQMD") do everything in authority to control pollution from solvent cleaning operations, specifically auto body shops. We understand the need for our local air district to do everything it can to ameliorate the air quality concerns for AB 617 communities in its jurisdiction.

CBE is a member of the Southeast Los Angeles AB 617 Community Steering Committee. We have participated in the Proposed Rule working groups and provided public comments during the April 18, 2025, Stationary Source Committee meeting. Our membership includes youth and adult members who live, work, learn, and play in homes and schools, at times, directly adjacent to industries who use solvent cleaners. Unequitable and racist policies like redlining have and continues to force communities to bear the brunt of potential VOC emissions. Stronger requirements under Rule 1171 could help address excessive air emissions and provide critical safety measures for Southeast Los Angeles communities. While we applaud AQMD for phasing out known carcinogens tertbutyl acetate ("TBAC") and para-chlorobenzotrifluoride ("PCBTF") from solvent cleaning operations, we urge AQMD staff to consider:

1) **Rule 1171 should include a signage provision that requires auto body shops to notify adjacent communities of potential VOC exposure**

While we applaud AQMD for recommending the prohibited use of TBAC and PCBTF in the Proposed Rule, volatile organic compounds ("VOCs") exposure from solvent cleaning operations are still a concern for Southeast Los Angeles ("SELA") communities. Some VOCs are known to be highly toxic while other VOCs have been linked to an elevated risk of cancer and other health issues,[1] which is alarming given that many SELA communities live adjacent or near auto body and repair shops that depend on solvent cleaning products. Additionally, AQMD staff are only recommending a 95% emission reduction for solvent cleaning products despite

[1]Hussain MS, Gupta G, Mishra R, Patel N, Gupta S, Alzarea SI, Kazmi I, Kumbhar P, Disouza J, Dureja H, Kukreti N, Singh SK, Dua K. Unlocking the secrets: Volatile Organic Compounds (VOCs) and their devastating effects on lung cancer. Pathol Res Pract. 2024 Mar;255:155157. doi: 10.1016/j.prp.2024.155157. Epub 2024 Jan 26. PMID: 38320440.

some VOCs being labeled as hazardous.[2] The Proposed Rule should include a signage requirement like Rule 1460[3] where residents can report air quality issues such as odors from facilities that use solvent cleaning products. VOCs can be colorless at room temperature but have strong odors that are either sweet or foul, making daily life uncomfortable for residents who live near auto body and repair shops. Including a signage requirement for residents to report any air quality issue not only protects residents from air pollution but holds facilities accountable to the adherence of Proposed Rule's provisions.

2) Additional provisions require regular facility inspection for rule 1171 compliance

Compared to the last amendment of Rule 1171, CBE supports the Proposed Rule's new provisions and stronger amendments that hold facilities accountable and transparent with their solvent cleaning operations. This includes additions to General Prohibitions, Alternative Compliance Options, and Test Methods. The updated language and tables for Alternative Compliance Options provides clarity for facilities who use solvent cleaning materials such as the Usage Limits and the Product-Weighted MIR ("PW-MIR").[4] This new provision, paired with the additional Test Methods amendments, ensures additional protections for communities living near or adjacent to auto body and repair shops.

We also applaud AQMD staff for finally adding a Recordkeeping Requirement. Record keeping is important to track and evaluate the operations of a business, and for solvent cleaning operations it's conducive to understand the types of solvent cleaners used, where the suppliers are, where the solvent supplies are going, and the amount that be is being supplied.[5] Record keeping can also support a variety of initiatives that can support AQMD with strategic decision-making to further reduce emissions or research efforts that investigate the prevention of VOC exposures and/or the feasibility of safer cleaning alternatives. Lastly, we support section (f) (6) of General Prohibitions states that no solvent cleaner can be used without the proper documentation. While these additions are necessary and imperative to protecting human health, the Proposed Rule is only as strong as AQMD allows it. Meaning that these new amendments require regular facility inspection for the adherence of the Proposed Rule. AQMD staff needs to include language that specifies regular and consistent inspections of solvent cleaning operations to ensure communities are not exposed to VOC emissions.

3) Include language that protects impacted workers who use solvent cleaning materials

As previously mentioned, some VOCs are known to be hazardous and can have carcinogenic effects on the human body. While the Proposed Rule no longer includes solvents with TBAC or PCBTF, VOC exposure still poses a risk to communities and frontline workers. It's disappointing to see that the Proposed Rule exempts cleaning operations such as janitorial cleaning (including graffiti removal), cleaning operations from printing processes, and VOC limits to a variety of applications.[6] Regardless of the solvent use, solvent cleaners that emit high VOCs can have short- and long-term effects on the human body. This is especially true for auto body and repair workers who use solvent cleaning materials daily. AQMD should coordinate

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[2] Beyond the Label: Health Impacts of Harmful Ingredients in Cleaning Products.WVE. April 21, 2021. https://womensvoices.org/wp-content/uploads/2021/04/Beyond-the-Label-Report.pdf. Accessed May 1, 2025.

[3] Rule 1460 – Control of Particulate Emissions from Metal Recycling and Shredding Operations. SCAQMD. Pg. 9. https://www.aqmd.gov/home/rules-compliance/compliance/rule-1460. Accesed May 1, 2025.

[4] Proposed Amended Rule 1171 - Solvent Cleaning Operations, SCAQMD, pg. 17. https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1171.

[5] *Ibid, pg. 20.*

[6] *Ibid. Pg. 25.*

with CalOSHA, Los Angeles Public Work and Planning Commissions to provide and require personal protective equipment and require ventilation controls to reduce VOC exposure.

4) **Updating Rule 1171 when stronger emission control systems are feasible and safer alternatives are available given the range of solvent use cleaners**

Even with the prohibition of TBAC and PCBTF from solvent cleaning operations, the Emission Control Systems in the Proposed Rule fail to protect frontline workers and communities who live near auto body and repair shops. Currently, the highest emission control system stands at 95% with the lowest at 70%. During the March 28, 2025 Public Workshop, AQMD shared that emission control systems are not 99% due to feasibility and operation type. No matter the use, frontline workers and communities must be protected from VOC exposures and that means implementing emission control systems close to 100% capture. AQMD should revisit and amend Rule 1171 when new technologies are available as well as when solvent cleaning materials with lower VOC emissions are available. Stronger requirements under Rule 1171 can help reduce VOC exposure and protect the health of frontline workers and communities living near or adjacent auto body and repair shops.

5) **Regular inspections of facilities using solvent cleaning materials can prevent VOC contamination onsite and offsite, avoiding the possibility of vapor intrusion into residential homes.**

The former Central Metal Inc. ("CMI") site, now today's proposed U-HAUL facility, was a 12-acre scrap metal processing facility that dismantled metals as large as buses, house trailers, fire engines, and rail cars. CMI was located right next door to the residents of Walnut Park and two blocks away from homes in Florence-Firestone. CBE organizes residents in both the Walnut Park and Florence-Firestone areas who experience the cumulative impacts of countless polluting industries, of which CMI was one of the most egregious. According to EJ Screen, Walnut Park ranks in the 95-100th percentile nationally for Hazardous Waste Proximity and in the 80-90th percentile for the Superfund Proximity.[7]

CMI had a history of violations noticed and documented by the Department of Toxic Substances Control ("DTSC"), the Los Angeles Regional Water Quality Control Board ("Water Board"), and the Planning Commission, and yet they were still allowed to operate over the years. Even the U.S. Environmental Protection Agency ("EPA") found that various scrap metal and debris were stored across exterior portions of the site in large, uncontained, and uncovered debris piles since the early 2000s.[8] The piles were not covered to prevent rainwater intrusion, nor were they managed to prevent airborne releases, as required by their then-existing CUP. These soil waste piles were found to have hazardous levels of toxic metals such as lead and arsenic and other unidentified materials that compromised the piles.3 In 2011, DTSC and the South Coast Air Quality Management District ("SCAQMD") conducted air monitoring in and around the facility's perimeter and found exceedingly high lead levels in dust in several locations on the sidewalks outside the facility4 , making it evident that CMI was a fugitive emission source into the communities.[9]

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[7] Data + Screening Tools, "EJ Screen: Environmental Justice Screening & Mapping Tool." Public Environmental Data Partners. Accessed May 1, 2025. https://pedp-ejscreen.azurewebsites.net/.

[8] Site Inspection Report: Central Metal, Huntington Park, Los Angeles County, California. EPA ID: No.: CAN000903324, September 2023.

[9] *Id. at 13.*

After community members shared concerns about contaminated soil from the former CMI site blowing onto their properties, CBE partnered with the EPA in 2018 to assess whether the site qualified for inclusion on the National Priorities List ("NPL") for Superfund cleanup. In 2019, the EPA initiated a Site Inspection and discovered elevated levels of lead, arsenic, and cobalt in the soil and groundwater, prompting further testing to determine if toxic metals had spread through the air to nearby homes.[10] Through the perseverance of community members - even with the challenges brought on by the COVID-19 pandemic - EPA began residential soil testing in 2022, sampling 63 properties in Walnut Park and 20 in Florence-Firestone. The results revealed lead levels exceeding the federal benchmark of 401 ppm at eight properties and arsenic levels above the 22 ppm threshold at three properties. However, the site was ultimately deemed ineligible for NPL listing due to "minimal screening level exceedances", inconsistent contamination levels, and the broader industrial pollution history of the Los Angeles area. To this day, residential homes have not been cleaned up, and residents continue to live with high levels of metal contamination.

During the EPA investigation to determine NPL eligibility, the former CMI parcels were sold to U-Haul in 2022 despite community members' active advocacy for reenvisioning the site and holding agencies accountable to the cleanup of both the site and residential homes. The County approved the Project ministerially, despite the severity of grading heavily contaminated soil, increase in air pollution from the additional truck traffic to and from the site and from extracting and transporting hazardous waste, and potential exposure to VOCs from vehicle repair operation.[11] As mentioned previously, residential homes continue to live with metal contamination while the Project owners will have immunity from any wrongdoing because they entered into a California Land Reuse and Revitalization Act ("CLRRA") agreement. CLRRA's purpose to redevelop contaminated properties for industrial/commercial reuse fails to adequately protect residents that live near contaminated sites such as the Project, especially where it's evident that contamination is not only an onsite issue but a regional one as well.

Through the CLRRA investigation, DTSC shared that not only is there high metal contamination across the proposed U-Haul project ("Project") site, but so are VOCs.[12] The Draft Response Plan ("Plan") for the proposed Project recommends an extensive soil vapor extraction system ("SVES") that could take years to mitigate and prevent potential vapor intrusion. There are 47 residences that live adjacent to the Project site [less than 5 ft away][13] that might be susceptible to vapor intrusion due to the former CMI's operations, and the adjacent facility known as Jack

[10] Site Inspection Interim Sampling Report: Central Metal 8201 Santa Fe Avenue Huntington Park, Los Angeles County, California (EPA ID No.: CAN000903324), https://www.epa.gov/sites/default/files/2020-10/documents/can000903324_site_inspection_interim_sampling_report_central_metal_20074.067.024.0003.01_2020-05.pdf.

[11] Site Plan Review, Los Angeles County EPIC LA. Plan Number: RPPL2022007986. https://epicla.lacounty.gov/energov_prod/SelfService/#/plan/a2ed1c5e-6829-4d44-a8ba-af81cd2b30fc?tab=attachments.

[12] EnviroStor, Department of Toxic Substances Control. Accessed May 1, 2025. https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=60002329

[13] Distance Analysis, ArcGIS Pro Desktop. ESRI. Analysis performed on April 29, 2025.

Engle.[14] The Jack Engle ("JE") site has a 100-year history of industrial uses, most recently as a metal and scrap recycler. JE also has a history of operating with expired permits and providing illegal services such as heavy-duty truck storage.[15] DTSC's Plan for the Project makes clear that the VOCs on the proposed Project site possibly originate from the JE site and could be the source of potential vapor intrusion of the residential homes next to the Project. No agency has yet to develop a clear and comprehensive plan on how to address the VOC contamination that crosses multiple parcels and impacts the residential homes living adjacent or close to heavily contaminated sites.

While CMI and JE were not solvent cleaners, it's clear that VOC contamination is a legacy issue. And now with the proposed U-Haul project, which will have auto body and repair services, solvent cleaning operations could potentially exacerbate the VOC contamination and exposures to residents and frontline workers. Community members should not have to wait for problems to be addressed one by one – environmental harm must be addressed from a broader perspective. This is why AQMD has the opportunity to prevent additional VOC exposures, contamination, and vapor intrusion into community member's homes – by strengthening Rule 1171 to prioritize community health over industry. AQMD should include language that requires regular facility inspections to ensure that solvent cleaning materials are not leaking, exposed, and are disposed of properly while ensuring that frontline workers have well-ventilated work areas and adjacent communities are not exposed to VOC emissions. The failure to include consistent facility inspections can result in unnecessary VOC contamination that can leak into the soil and groundwater and potentially migrate into people's homes. Walnut Park and Florence-Firestone communities are already exposed to countless polluting industries and AQMD can prevent one less polluting source.

Sincerely,

Ambar Rivera
Staff Researcher
Communities for a Better Environment

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[14] EnviroStor, Department of Toxic Substances Control. Accessed May 1, 2025. https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=60002329

[15] Ashley Orona, " South Gate residents boo decision to delay illegal truck yard's possible closure." LA Public Press. April 23, 2025.