South Coast AQMD Autobody Workshop

Rule 1151
Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations

Rule 1171
Solvent Cleaning Operations

December 10, 2025

Hybrid Meeting

South Coast AQMD Headquarters
Dr. William A. Burke Auditorium
21865 Copley Drive
Diamond Bar, CA 91765

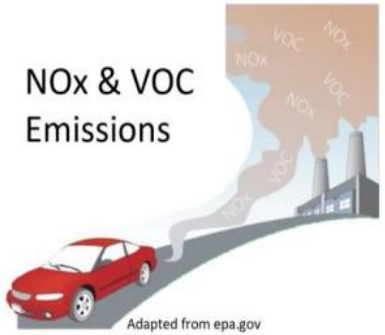
Virtually Through Zoom Webinar
https://aqmd.zoomgov.com/j/1619004650
Teleconference Dial-In: 1-669-254-5252
Webinar Meeting ID: 161 900 4650

Discussion Topics

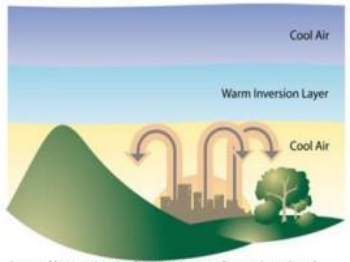
- VOC Background
- Autobody Shop and Associated Emissions Background
- Applicable South Coast AQMD Rules and Other Applicable Autobody Shop Regulations
- Best Management and Housekeeping Practices

Air Quality and Ozone Formation Background

- Nitrogen Oxides (NOx) and volatile organic compounds (VOCs) react to form ozone
- Warm climate and topography of our air basin, and large population size results in high ozone levels
- Historically, South Coast AQMD has the worst levels of smog in the nation
  - Unhealthful exposure to the residents of the second largest U.S. region by population



Mixing and Ventilation



https://sparetheairofs.weebly.com/inversions.html

Season

Temperature

National Weather Service San Diego Office

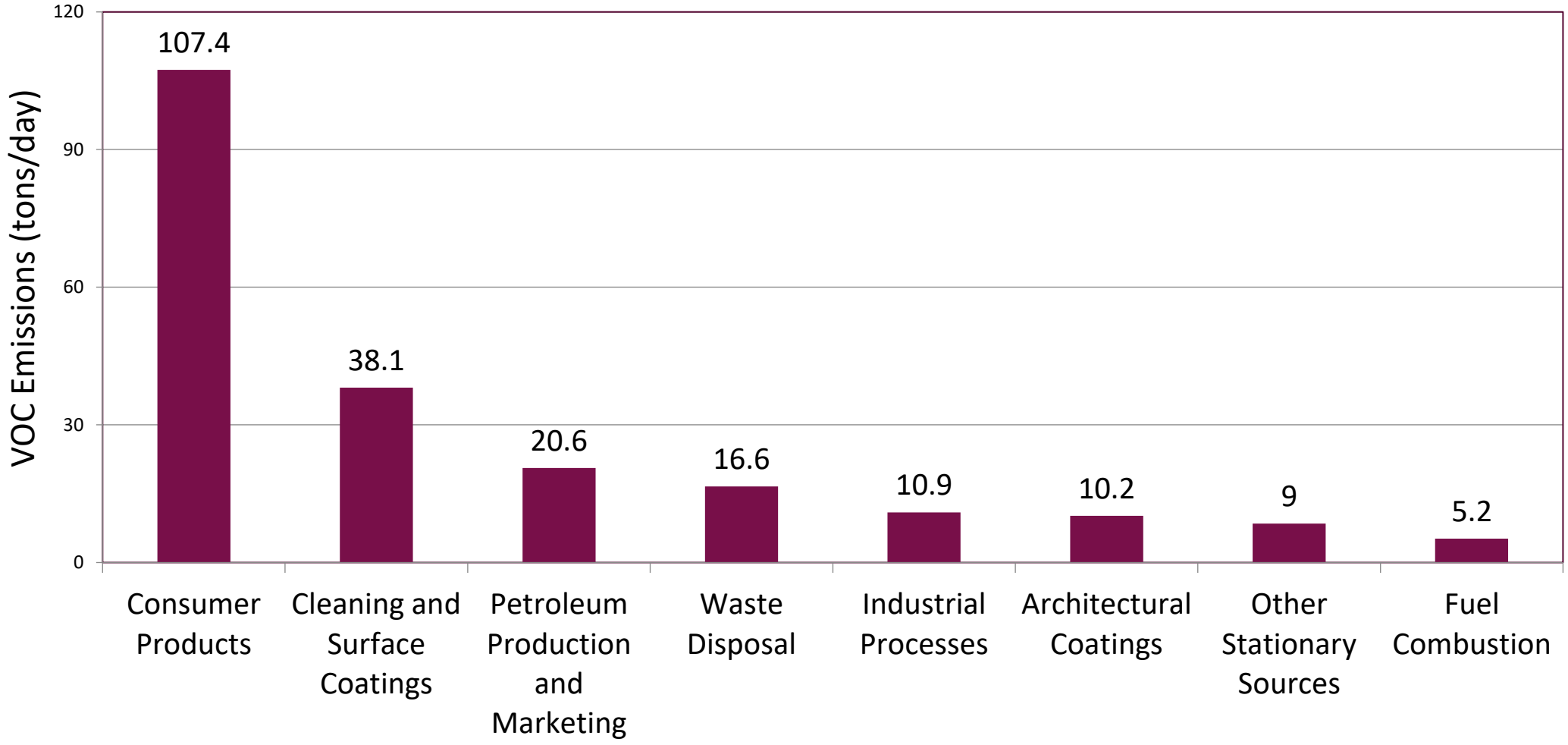
Volatile Organic Compounds (VOC)

- A VOC is any volatile compound made of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds
  - Can be photochemically reactive and contribute to the formation of ground-level ozone (smog)

<u>Common Sources of VOC</u>

- Motor vehicles
- Coatings, paint, inks, and solvents
- Industrial processes
- Consumer products
- Biogenic (e.g., fires)

Stationary VOC Source Categories (2018)



Autobody Shop and Associated Emissions Background

Emissions From Autobody Shops

Sources of Emissions

Autobody Paint and Coatings

- Regulated by Rule 1151

Cleaning of Coating Equipment

- Regulated by Rule 1171

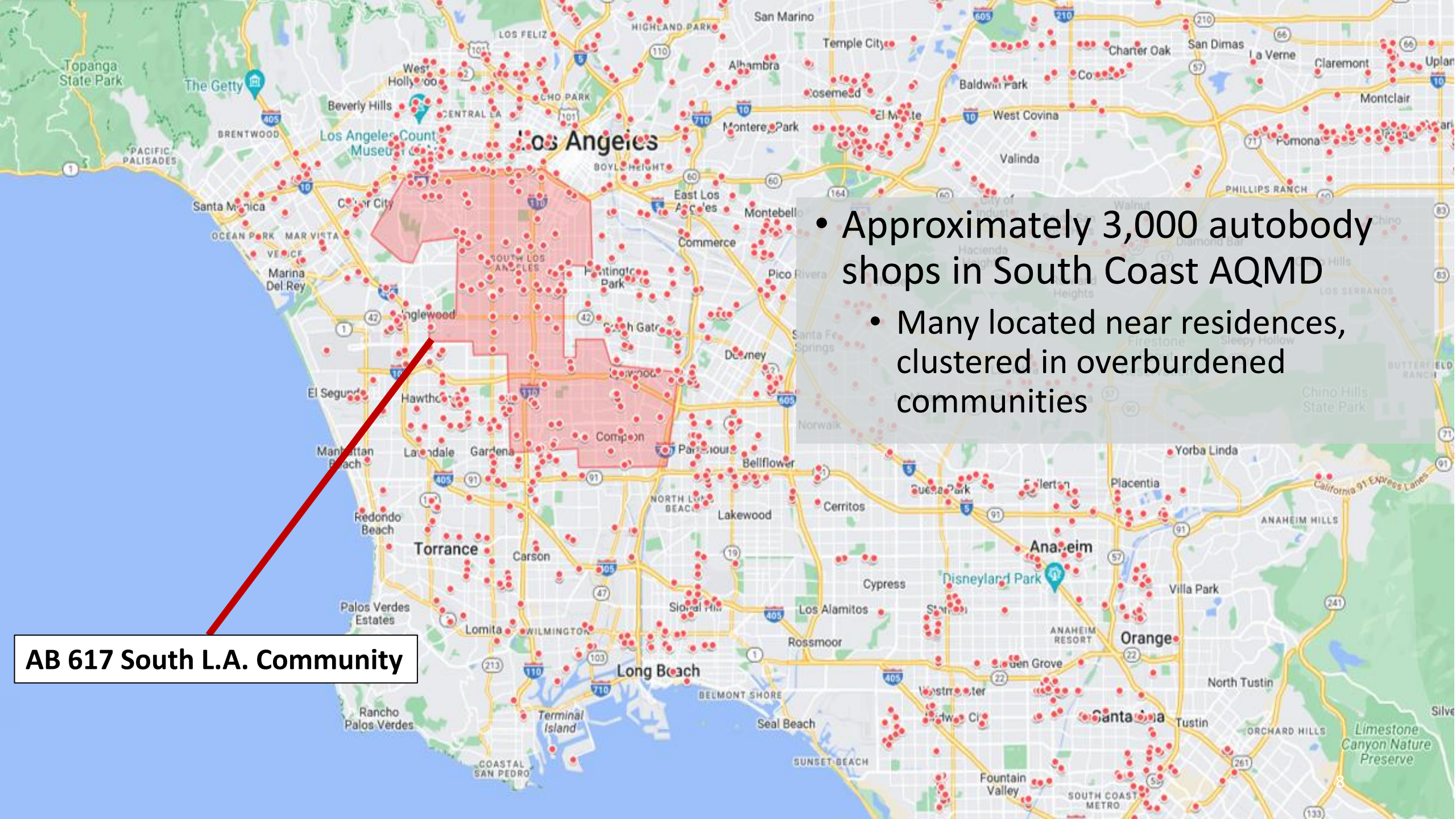
Areas of Concerns

Volatile Organic Compounds (VOC)

- Solvents Used in Coatings and Cleaners
- Contribute to ground level smog

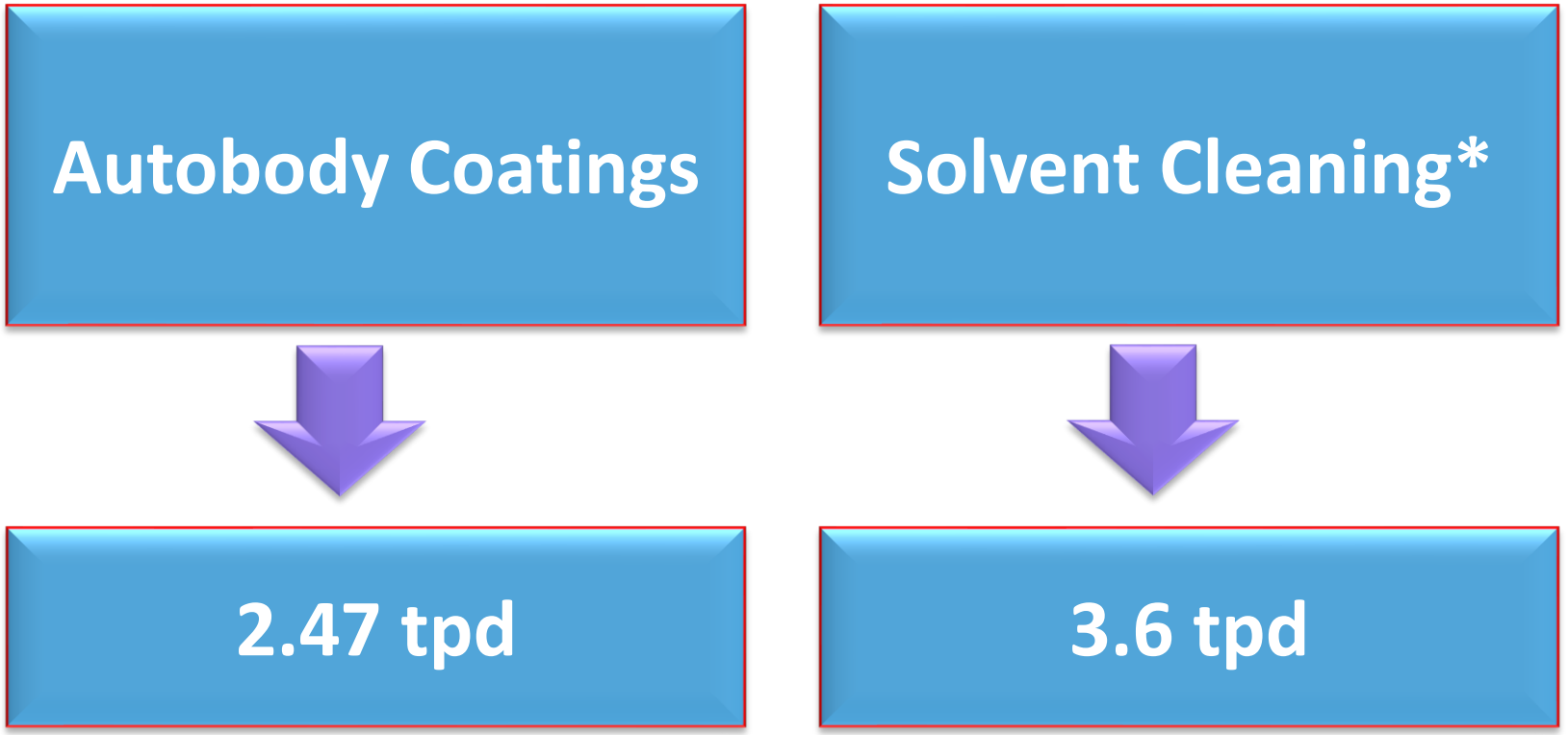
Toxic Air Contaminants

- Certain Solvents Used in Coatings and Cleaning Determined to be Carcinogens



- Approximately 3,000 autobody shops in South Coast AQMD
  - Many located near residences, clustered in overburdened communities

Estimated Autobody VOC Emission in South Coast AQMD (2024)



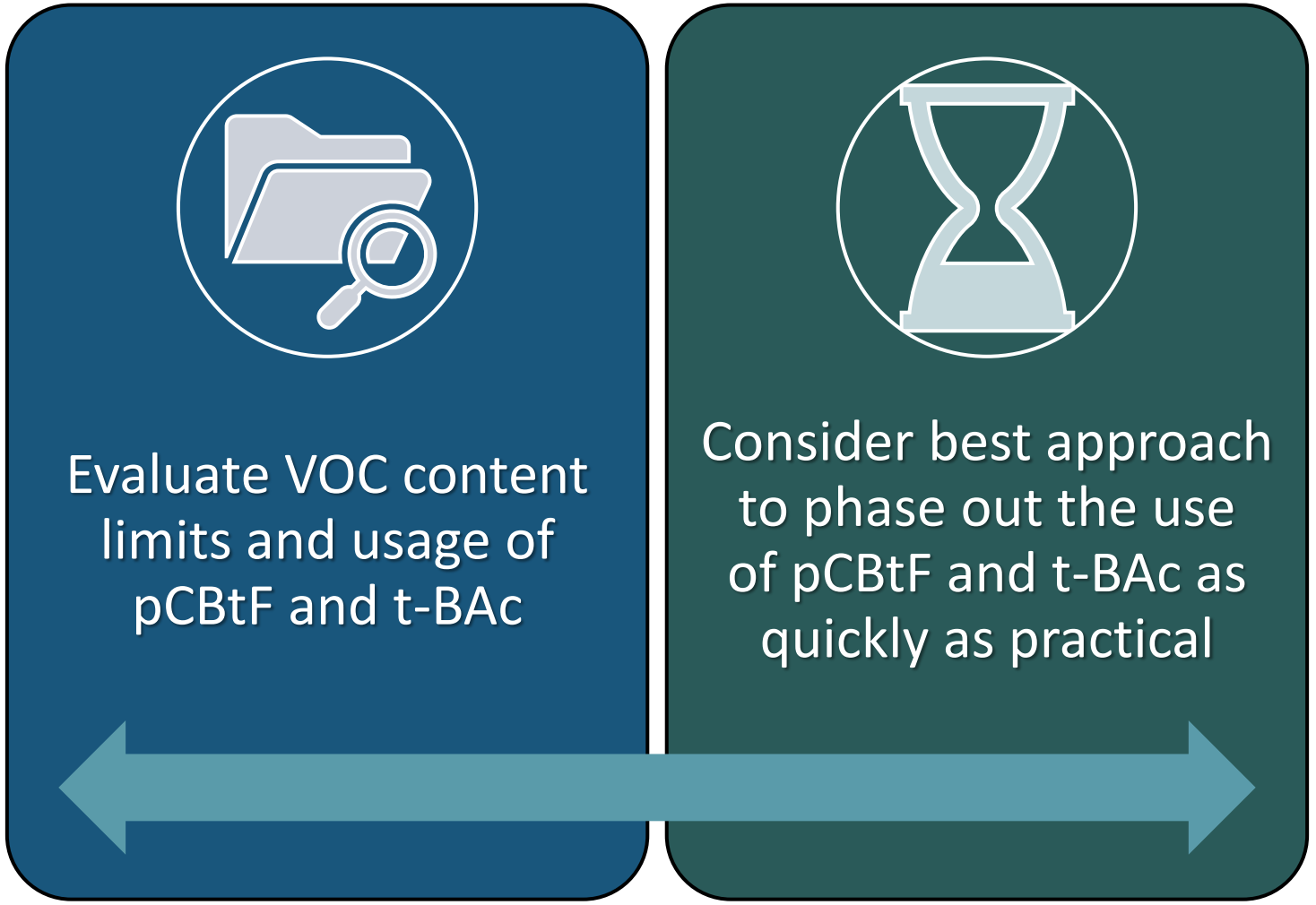
* Represents entire universe of emissions, autobody shops include small segment use and emissions

Rule 1151 – Autobody Shop Coatings

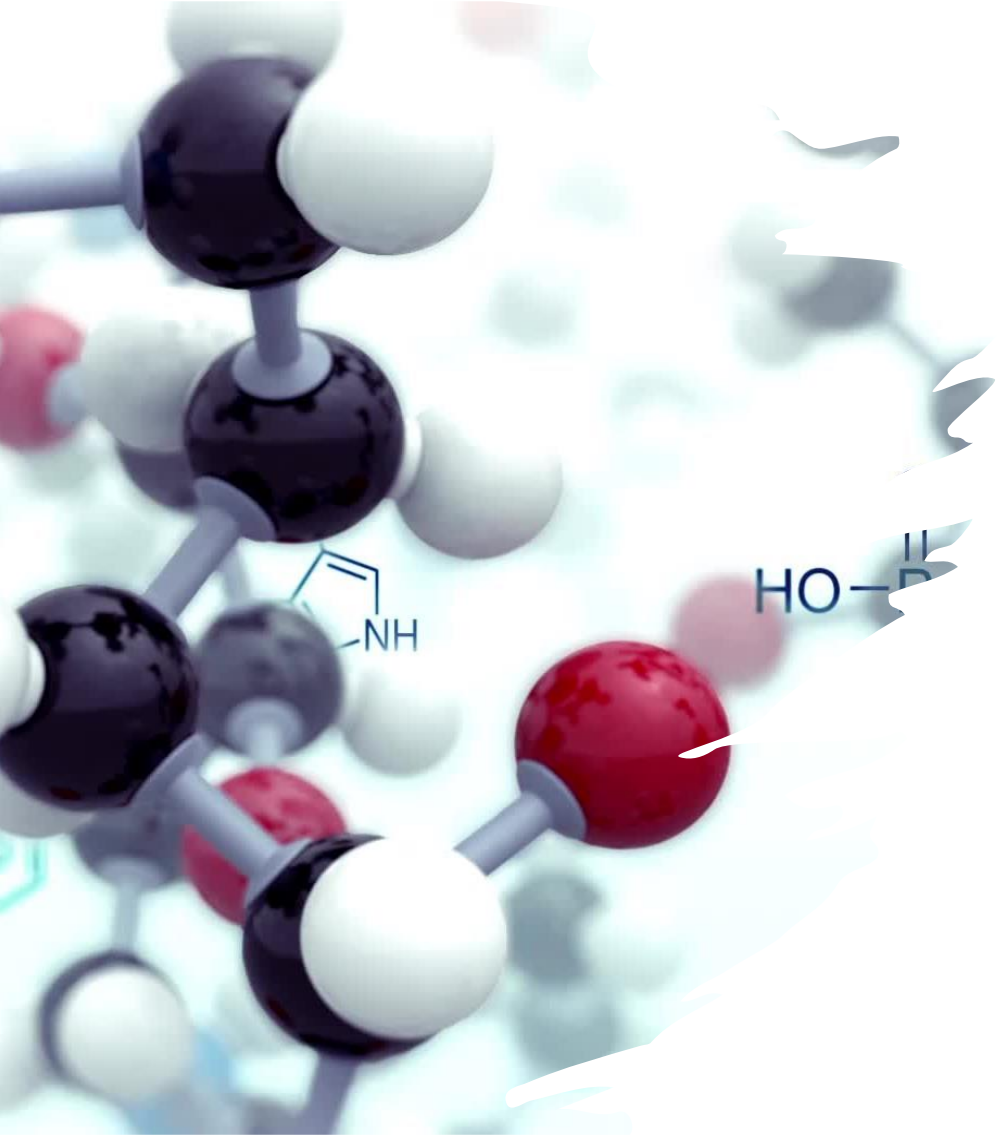
Rule 1151 Background

- Adopted July 8, 1988, last amended November 1, 2024
- Applies to all motor vehicle and mobile equipment non-assembly line coating operations
- Purpose to reduce VOC and toxic emissions from automotive coatings

Purpose of Recent Rule Amendment



Exempt Compounds



- U.S. EPA VOC Exemptions
  - Solvents that do not contribute to smog formation
  - Do not consider toxicity in exemptions
  - Key exempt compounds include: acetone, pCBtF, and t-BAc
- South Coast AQMD Approach
  - Considers U.S. EPA exemptions plus toxicity, ozone depletion, and environmental impact
  - Rule 102 Exempt Compound Groups:
    - Group I: Not expected to be restricted
    - Group II: Often prohibited in VOC rules
- Special Exemptions
  - t-BAc has limited use exemption in:
    - Rule 1113 (Architectural Coatings) and Rule 1151 (Motor Vehicle Coatings)

pCBtF and t-BAc Background

1994 -1995	U.S. EPA and South Coast AQMD exempted pCBtF as a VOC due to low photochemical reactivity
2004 - 2006	U.S. EPA exempted t-BAc as a VOC, South Coast AQMD included limited exemptions
2015	Draft assessment showed t-BAc as potential carcinogen
2017	Stationary Source Committee directed staff to prioritize lowering toxicity over VOC emission reductions
2018	Final t-BAc assessment concluded it poses potential cancer risk to humans
2020	Final pCBtF assessment concluded it poses greater cancer risk to humans than t-BAc

Actions taken to address pCBtF and t-BAc

Three rules have been adopted with future effective phase outs

- **Rule 1168** – Adhesives and Sealants in 2022
- **Rule 1151** – Automotive Coating in 2024
- **Rule 1171** – Solvent Cleaning Operations in 2025

Rule amendment started in 2024 for three coating rules

- **Rule 1107** – Coating of Metal Parts and Products
- **Rule 1124** – Aerospace Operations
- **Rule 1136** – Wood Products Coatings

Other Ongoing Efforts

- Conducting manufacturer survey for a series of VOC rules to assess pCBtF and t-BAc use

Prohibition Concept for Autobody Coatings

- Staff sought to phase out of toxic exempt compounds in autobody shops as quickly as feasible
- Most autobody coatings sold in the U.S. **do not** contain pCBtF or t-BAc but contain **higher levels of VOCs**
- Rule 1151 allows temporary increase in VOC limits to quickly transition to coatings that do not contain t-BAc or pCBtF
- Provide manufacturers time for product reformulation to lower VOCs

Phase-Out Approach for t-BAc and pCBtF in Autobody Coatings

November 2024

Temporary raise VOC limits to allow use of products complying with National Limits

2025 to 2027

Allow sell through and use through of pCBtF and t-BAc coatings

2028 to 2030

Lower VOC limits back down to current levels

2030 to 2033

Allow sell through and use through of higher VOC coatings

Phase I

Phase II

Manufacturers Reformulate to Meet Phase II Limits

Phase I and Phase II VOC Limits and Effective Dates

Coating Categories	Current Limits[1]		Phase I Limits Effective November 1, 2024		Phase II Limits		
	g/L	lb/gal	g/L	lb/gal	g/L	lb/gal	Effective Date
Base Coatings							
Color Coating [2]	420	3.5			250	2.1	1/1/2030
Tinted Mid-Coat	420	3.5	750	6.3	250	2.1	1/1/2030
Clear Coatings							
Gloss Clear Coating	250	2.1	520	4.3	250	2.1	1/1/2030
Matte Clear Coating	250	2.1	550	4.6			
Primers and Sealers							
Pretreatment Wash Primer	660	5.5	780	6.5	660	5.5	1/1/2028
Epoxy Primer	250	2.1	580	4.8	340	2.8	1/1/2028
Primer Sealer	250	2.1	550	4.6	250	2.1	1/1/2029
Primer Surfacer	250	2.1	580	4.8	250	2.1	1/1/2029
Other Coating Categories							
Adhesion Promoter	540	4.5	840	7.0	720	6.0	1/1/2028
Single-Stage Coating	340	2.8	600	5.0	340	2.8	1/1/2028
Temporary Protective Coating	60	0.5					
Truck Bed Liner Coating	310	2.6					
Underbody Coating	430	3.6					
Uniform Finishing Coating	540	4.5					
Any Other Coating Type	250	2.1					

1 The specified limits remain in effect unless revised limits are listed in subsequent columns in the Table of Standards.

2 See Paragraph (d)(4) for Color Coatings supplied in half-pint or smaller containers.

Autobody Shop Emission Impacts

Phase I

Temporary VOC Increase

Permanent eliminations of two carcinogens

Phase II

VOC decrease below initial levels

pCBtF and t-BAc Prohibition in Autobody Shops

- Most autobody coatings containing pCBtF and t-BAc that were manufactured after **May 2025**, can no longer be sold for use
  - Coatings manufactured prior to May 2025 can be
    - Sold through supply chain until May 2026
    - Used at the shop level until July 2027
- Color coatings containing pCBtF and t-BAc that were manufactured after **November 2025**, can no longer be sold for use
  - Color coatings manufactured prior to November 2026 can be
    - Sold through supply chain until November 2028
    - Used at the shop level until January 2028
- 2025 prohibition significantly reduced pCBtF and t-BAc use
  - Smaller amounts present due to sell through and use through
  - pCBtF and t-BAc will be fully eliminated by January 2028

Rule 1171 – Solvent Cleaning Operations

Rule 1171 Background

- Adopted on August 2, 1991, last amended June 6, 2025
- Applies to users and suppliers of solvent cleaning materials used as part of a business or public service
  - Includes a wide array of industries
- Purpose is to limit VOC and toxic emissions from solvent cleaning operations

Prohibition Concept for Cleaning Solvents Used at Autobody Shops

- Vast majority of solvent cleaning materials used to clean spray guns do not contain pCBtF or t-BAc

Proposing quick phase out due to limited use

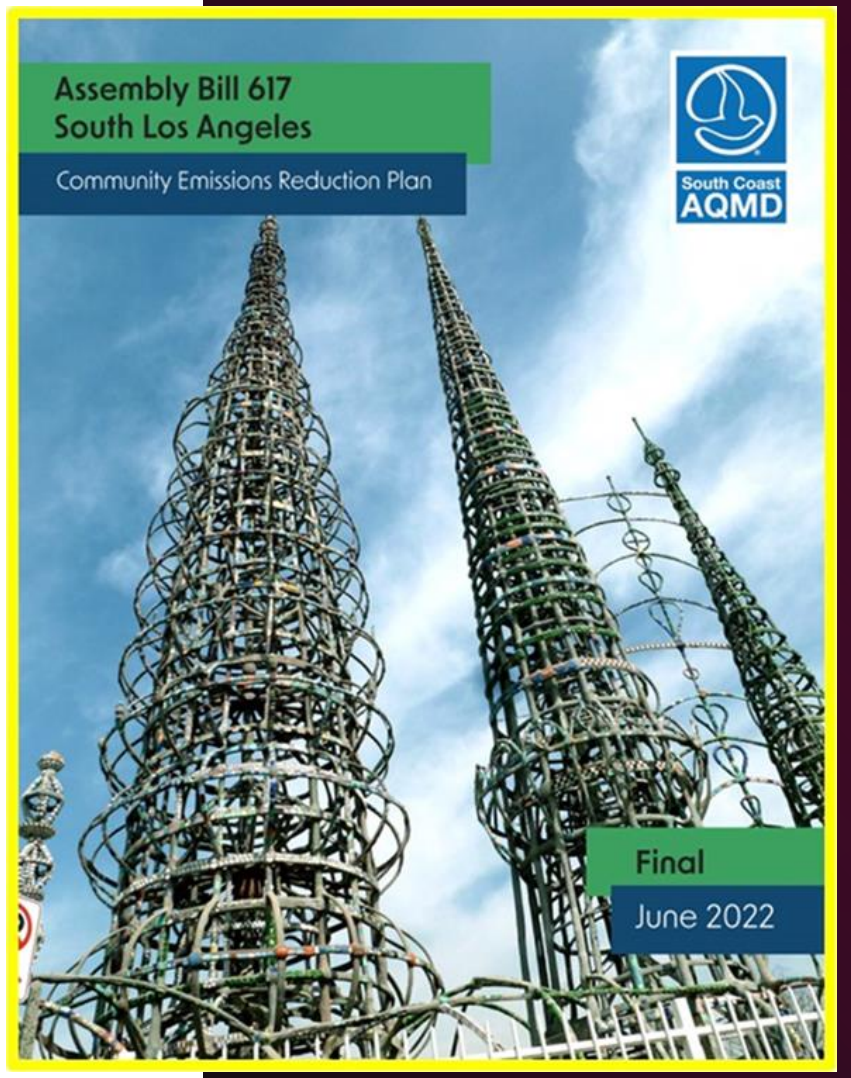
- Prohibition effective date January 1, 2026
- One-and-a-half-year sell through in supply chain
- Two-and-a-half-year use through at shop level

Impacts of Cleaning Solvents at Autobody Shops

- pCBtF and t-BAc phased out without increasing VOC limits
  - Solvent cleaning materials used at autobody shops very low (25 g/L)
- Acetone commonly used for spray gun cleaning
  - Does not contribute significantly to smog formation
  - Not toxic but is flammable

Conclusions from Recent Autobody Shop Rule Amendments

- Toxic emissions have decreased significantly and will continue to decrease as materials in supply chain are sold and used
- VOC emissions from coatings will decrease as reformulated products are introduced into the market
- Impacts from autobody shops highlighted and elevated by AB 617 community members

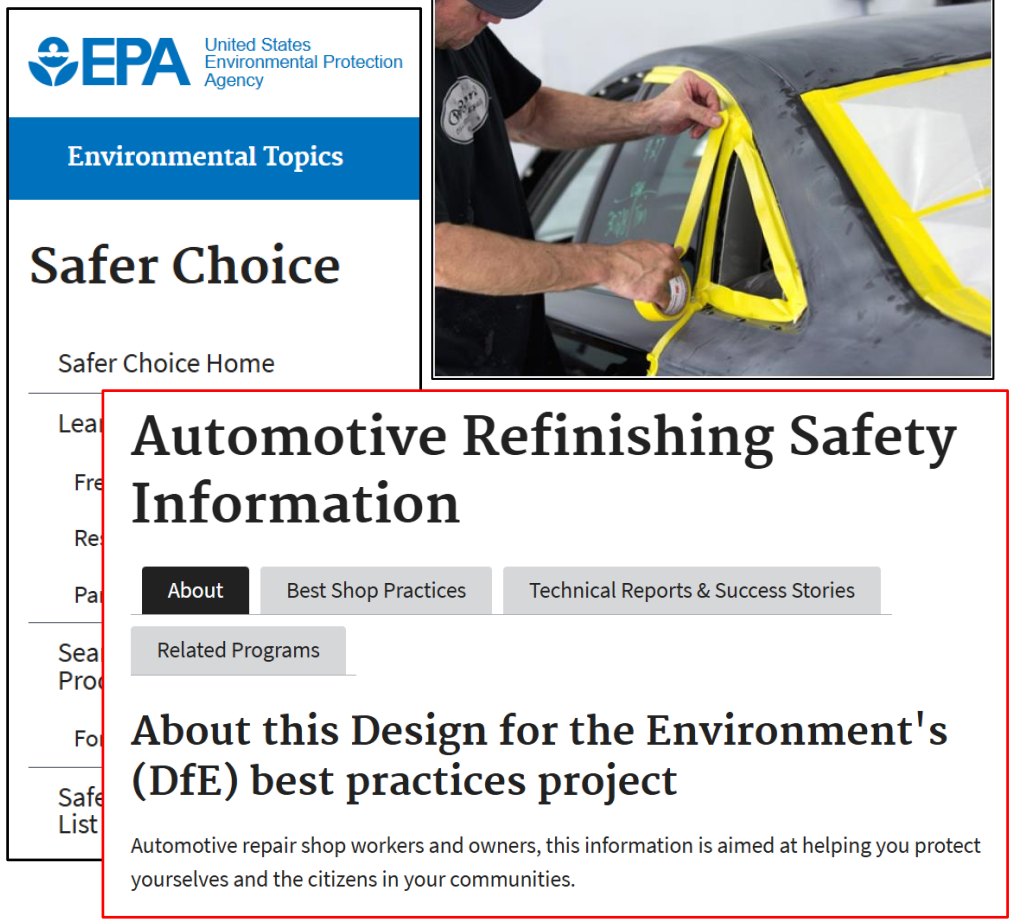


Best Management Practices and Good Housekeeping

Best Management Practices

- U.S. EPA provides information to increase awareness of the health and environmental concerns associated with refinishing activities, and to develop best practices for autobody shops
  - Best practice topics include but are not limited to:
    - Sanding
    - Coating application
    - Spray gun cleaning
    - Spray booth maintenance

U.S. EPA Best Management Practices for Automotive Refinishing Shops



Best Management Practices – Sanding

- Vacuum sander or wet sanding methods
  - Minimizes dust in the shop and on cars
  - Minimizes worker and neighboring receptor exposure to hazardous fugitive dust

U.S. EPA Best Management Practices for Automotive Refinishing Shops

Department of Toxic Substances Control - Sanding Waste Management

Best Management Practices – Spray Painting

- Proper maintenance of automotive paint spray booths in good operating condition minimizes overspray
  - Ensuring spray booth ventilation system is properly operating
  - Regularly changing spray booth exhaust filters
  - Ensuring all spraying is done in spray booth with doors fully closed

U.S. EPA Best Management Practices for Automotive Refinishing Shops

Best Management Practices – Spray Gun Cleaning

- Automated spray gun cleaning machines reduce solvent use and waste, and VOC emissions from solvent cleaners
- Best practices for spray gun cleaning include:
  - Enclose/cover spray gun cleaning unit
  - Ensure hoses and unit are leak-free
  - Ensure lid properly seals

U.S. EPA Best Management Practices for Automotive Refinishing Shops
Department of Toxic Substances Control - Spray Gun Cleaning

Best Management Practices – Spray Booth Filters

- Properly maintained spray booth filters remove overspray particles and mist from booth exhaust air and reduce neighboring receptor exposure
  - Standard maintenance practices include:
    - Establishing an adequate exhaust filter replacement schedule
    - Utilizing and maintaining a spray booth manometer in good operating condition to indicate or confirm when exhaust filter replacement is needed
    - Proper disposal of spent exhaust filters

design for the ENVIRONMENT Auto Refinishing Project

Spray Booth Filters: The Key to Quality Jobs and Clean Emissions

What Is EPA's Design for the Environment (DfE) Automotive Refinishing Partnership?

EPA's DfE Program forms partnerships to reduce risk to people and the environment through pollution prevention. DfE has been working with the automotive refinishing industry since 1997 to identify and promote safer, cleaner, and more efficient practices and technologies. The DfE team conducts best practices workshops and site visits for collision repair businesses and schools. A Best Practices Outreach Kit with checklists, fact sheets, case studies, health and safety information, and links to numerous resources can be downloaded from the DfE web site at http://www.epa.gov/dfe/pubs/projects/auto.

The Key to Quality Jobs and Clean Emissions

Best practices can reduce emissions of hazardous air pollutants during spraying of automotive paints. Painters should be trained in the efficient use of high volume low pressure (HVLP) or equivalent spray guns and use paints that do not contain lead or chromium pigments. All spray painting should be conducted in a well-ventilated and well-maintained spray booth. This fact sheet highlights key factors regarding the need to use and maintain paint booth filters to achieve a quality job and protect the painter, others in the shop, and the environment.

Spray Booth Filters Impact the Job Quality and the Environment

The efficiency of the spray booth operation, as well as the resulting quality of the sprayed finish is affected by both the intake and exhaust filters (also known as paint overspray arrestors). When the intake and paint arrestor filters are well maintained, the air flows evenly through the spray chamber and around the part or vehicle surface, picking up the overspray and volatiles and promptly removing them from the area.

Booth Floor With Dirty Filters
Photo provided courtesy of Air Flow Technology, Inc.

If the spray booth intake or exhaust filters become clogged with dust or oversprayed particles, the air may not flow properly through the chamber. Instead of sweeping over the coated surface and exiting, small pockets of dust and overspray may re-circulate within the booth and affect the quality of the finish. In addition, flammable or explosive conditions may be created if volatile solvents collect within the closed space. Clogged filters also cause the booth fans to work harder, decreasing their efficiency and life.

Note: Most filters do not remove solvent vapors from shop exhausts!

While the spray booth works to remove harmful solvent vapors from inside the shop, most exhaust filters do NOT remove these solvent vapors or volatile organic compounds (VOCs) from the exhaust emitted into the air from the shop.

Consider switching to waterborne paint products to reduce VOCs!

Exhaust Filters or Paint Overspray Arrestors

Booths use exhaust filters or paint overspray arrestors to decrease emissions from the shop by capturing the oversprayed coating mist and particles before that air is exhausted from the shop into the environment. These filters are located at the opposite end of the intake filters in crossdraft booths, and in or near the floor of downdraft booths.

Paint overspray arrestors come in a variety of shapes and styles, including bulk and perforated rolls, blankets, pre-cut pads, cubes and bags, self-supported panels with internal frames, baffled panels, and accordion-folded panels. Paint overspray arrestors can be constructed from various materials including fiberglass, polyester, paper, cardboard, styrene, or a combination of materials.

Spray Booth Exhaust Filters
Photos provided courtesy of Air Flow Technology, Inc.

Pocket Cube Filter

Revised May 2008 www.epa.gov/dfe EPA 744-F-08-001

to establish a change out schedule for intake and exhaust filters according to the booth

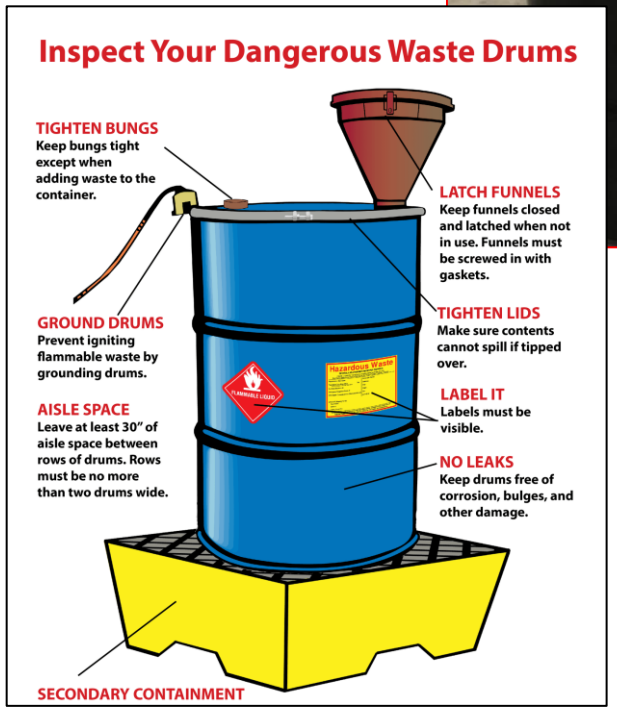
Note: The mention or illustration of any product or company does not constitute an endorsement by the U.S. Environmental Protection Agency.

EPA 744-F-08-001 www.epa.gov/dfe Page 2

[U.S. EPA Best Management Practices for Automotive Refinishing Shops]
[U.S. EPA - Automotive Refinish Spray Booth Exhaust Filter Best Practices]

Best Management Practices – Housekeeping

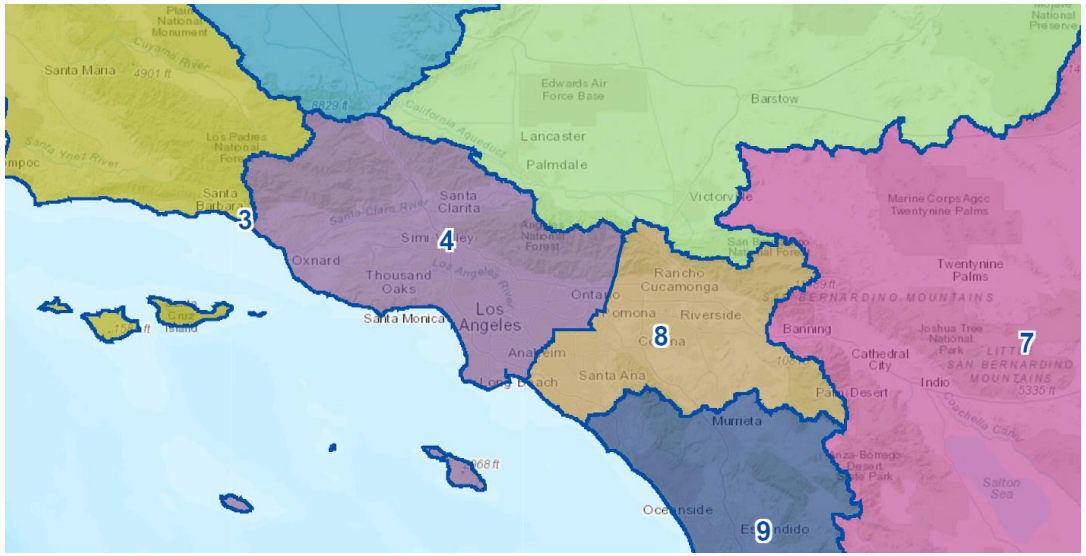
- Proper hazardous waste container used
- Waste drum properly sealed at all times
- Waste properly disposed of
  - Spent exhaust filters, spray gun cup liners, rags, etc.



U.S. EPA Best Management Practices for Automotive Refinishing Shops
Department of Toxic Substances Control - Hazardous Waste Management

Best Management Practices – Stormwater

- Autobody shops are subject to various regional stormwater regulations
- Some Best Management Practices that can be taken to mitigate stormwater impacts include, but are not limited to:
  - Using dry clean-up methods such as vacuuming or sweeping to clean up dust from sanding metal or body filler, rather than hosing ground surfaces
  - Allow dust from wet sanding to dry overnight on the shop floor, sweep and vacuum
  - Liquid from wet sanding should not be discharged to the storm drain
  - Collect all metal filings, dust, and paint chips from grinding, shaving, and sanding, and dispose of the waste properly
  - Maintain and keep current a spill response plan and ensure that employees are trained on the elements of the plan
  - Never discharge wastes to the sanitary sewer or storm drain



* https://www.waterboards.ca.gov/waterboards_map.html

Enforcement Process

Autobody Shop Enforcement

- South Coast AQMD inspectors conduct unannounced on-site inspections of facilities and respond to air quality complaints
- Inspections of autobody shops generally consist of:
  - Meeting with the shop owner, manager or knowledgeable employee
  - Inspecting paint spray booth(s) and any other permitted equipment, coatings, and solvent cleaning materials to confirm compliance with permit conditions and applicable South Coast AQMD rules
  - Reviewing required records to confirm compliance with permit conditions and applicable South Coast AQMD rules
  - If necessary, take appropriate enforcement action to bring facility into compliance by issuing a Notice to Comply (NC) or Notice of Violation (NOV)

https://www.aqmd.gov/home/rules-compliance/compliance/inspection-process

Rule Staff Contacts

Chris Bradley
Air Quality Specialist
cbradley@aqmd.gov
909.396.2185

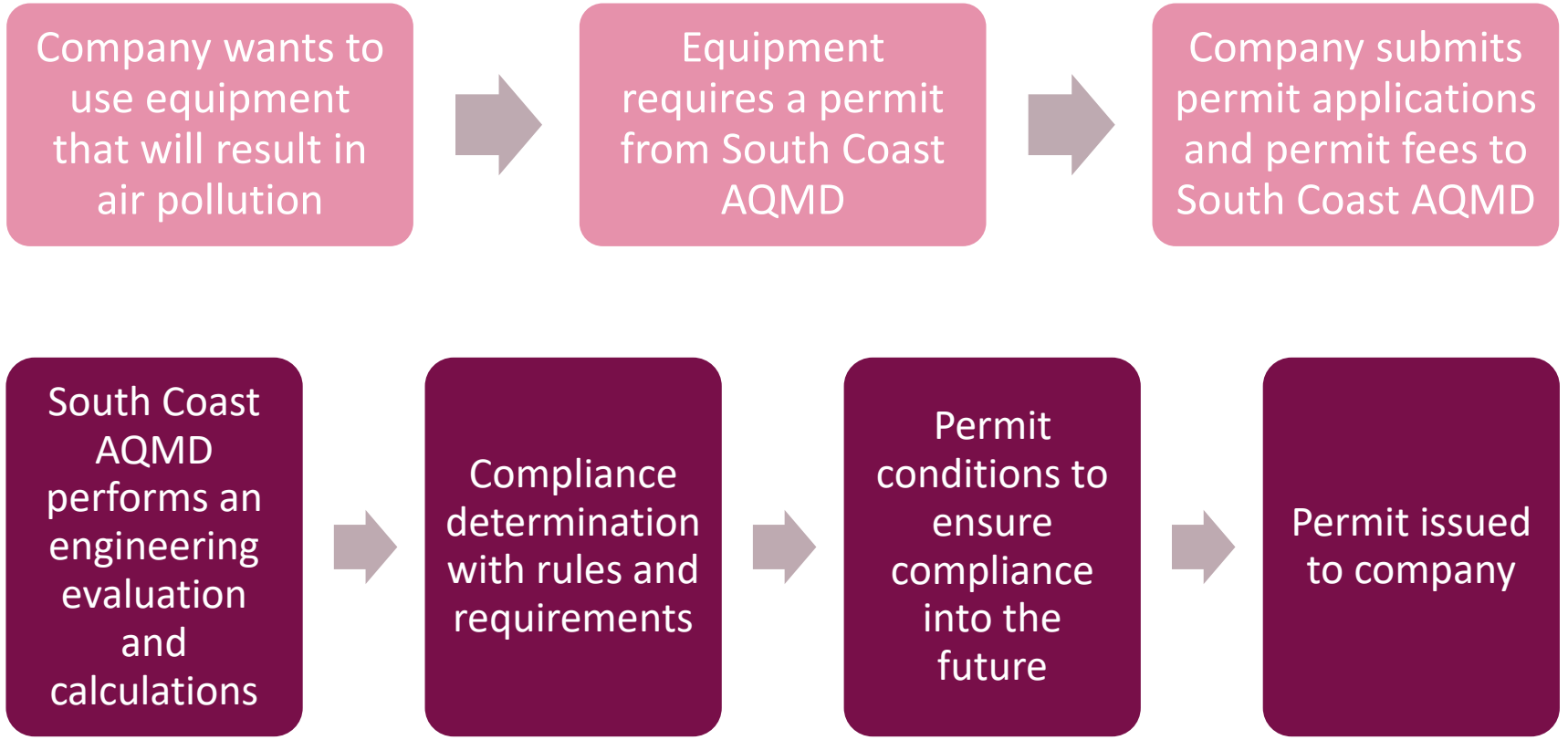
Sarady Ka
Program Supervisor
ska@aqmd.gov
909.396.2331

Heather Farr
Planning and Rules Manager
hfarr@aqmd.gov
909.396.3672

Michael Krause
Assistant Deputy Executive Officer
mkrause@aqmd.gov
909.396.2706

Permitting Process

Simplified Permitting Process



Operations that Need Permits

Overview

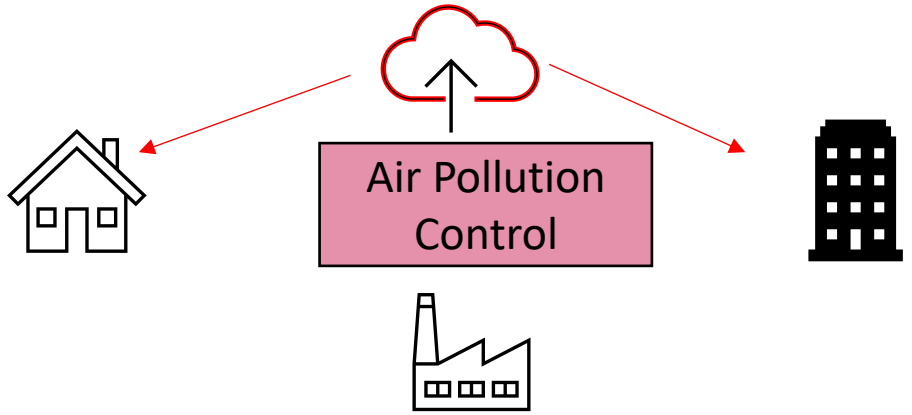
- Any equipment the use of which may **release** or **control** the release of air contaminants
  - i.e., paint spray booth, open-spray equipment
- **Rule 219** - Some exemptions from permit due to low emission potential or regulatory jurisdiction (e.g., consumer products, mobile sources)

Air Contaminants

- Criteria pollutants (and precursors)
  - Ozone, oxides of nitrogen, oxides of sulfur, carbon monoxide, particulate matter, lead
- Air Toxics
  - Toxic metals, organics, inorganics
- Nuisance compounds
- Odors, fugitive dust, smoke (opacity)

Permit Evaluations

- Permit Evaluation
  - Rule Compliance Assessment
  - Health Risk Assessment
  - Safety Data Sheets & Technical Data Sheets



- Staff develops permit limits and operating conditions
  - Ensure compliance with regulatory limits and requirements
  - Facilities know operating parameters
  - South Coast AQMD inspection points

South Coast AQMD Small Business Assistance

South Coast AQMD Small Business Assistance

- South Coast AQMD Small Business Assistance Office assists small business owners to comply with South Coast AQMD rules and regulations, permit conditions, and recordkeeping
  - Some services include:
    - Technical assistance
    - Fee review
    - Permit application guidance
  - Services provided by phone, email or in-person

Q&A with South Coast AQMD